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3.3.1

Number of research papers published per teacher in the Journals notified on UGC care list during the last five years

3.3. Research Publications and Awards

3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the last five years

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		
							Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list
1	Homology modeling and docking studies for Lanosterol 14α-demethylase of Candida albicans and 1,2,4-triazole containing 1,3,4-oxadiazole derivatives	Sachin N. Kapse,Hitesh V. Shahare, Gokul S. Talele, **Rakesh D. Amrutkar**, Prashant P. Chavan, Bhavesh B. Amrute, Yogesh V. Patil	Pharmaceutical Chemistry	NeuroQuantology	Nov-22	1303-5150	https://www.neuroquantology.com	https://www.neuroquantology.com/open-access/Homology+modeling+and+docking+studies+for+Lanosterol+14%25CE%25B1-demethylase+of+Candida+albicans+and+1%252C2%252C4-triazole+containing+1%252C3%252C4-oxadiazole+derivatives_7661/	Scopus, Embase
2	Review on Hyphnated techniques in Analytical Chemistry	**K P Baviskar, D V Jain, S D Pingale, K. S. Jain**	Pharmaceutical Chemistry	Current Analytical chemistry	Sep-22	1573-4110	https://benthamscience.com/journals/current-	A Review on Hyphenated Techniques in	Bentham

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		
							Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list
							analytical-chemistry.	Analytical Chemistry | Bentham Science	
3	Review on Role of Nutraceuticals In Stress Management	**Prajakta Shingote, Anjali Bedse,** Ashwini Asalak, **Shilpa Raut**, Mayur Bidkar	Pharmaceutics	International Journal Of Pharmaceutical Sciences And Research	Aug-2022	2320-5148	https://ijpsr.com/	https://ijpsr.com/bft-article/review-on-role-of-nutraceuticals-in-stress-management/	Scopus
4	Overview of clinical research and its applications in drug discovery and management of covid-19 in India	Ganesh Pawar, Sanket More, Krupesh Patil, **Sunanda Malode**	Pharmacognosy	Indo American Journal of Pharmaceutical Sciences	May-22	2349-7750	https://doi.org/10.5281/zenodo.6607447	https://zenodo.org/record/6607447#.Y1PQoG4zbIU	ICI World of Journals
5	Formulation of oxybutynin chloride microparticle-loaded suppositories: in vitro characterization and in vivo pharmacokinetic study.	**Bedse, A.**, Mahajan, H. & Dhamane, S.	Pharmaceutics	Future Journal of Pharmaceutical Sciences	Mar-22	0975-1130	Future Journal of Pharmaceutical Sciences | Home (springeropen.com)	https://doi.org/10.1186/s43094-022-00411-x	Web of Science/ Springer
6	Modified Solubility of Etodolac through Solid Dispersion and Complexation	**Vaibhav Gulabrao Bhamare**,	Pharmaceutics	Research Journal of Pharmacy and Technology	Feb-22	0974-3618	RJPT - Research Journal of Pharmacy and	https://rjptonline.org/AbstractView.aspx?PID=2022-15-2-33	Scopus

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							Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list
		Ravindra Keshavrao Kamble					Technology (rjptonline.org)		
7	Development and Characterization of Topical Micro-Emulsion as Novel Drug Delivery System for Dapsone	**Bedse A**, Nikam A, Kulkarni A, Potnis V, Dhamane S.	Pharmaceutics	International Journal of Pharmaceutical Sciences and Nanotechnology	Feb-22	0974-3278	https://ijpsnonline.com/	https://doi.org/10.37285/ijpsn.2022.15.1.8	Scopus / Web of Science
8	Design and development of fast dissolving liquisolid formulation	**Bhamare Vaibhav G,** Kamble Ravindra K	Pharmaceutics	Journal of medical, pharmaceutical and allied science	Jan-22	2320–7418	https://jmpas.com	https://jmpas.com/admin/assets/article_issue/1648141172JMPAS_JANUARY_-_FEBRUARY_2022.pdf	Scopus
9	A Novel 2, 4-Dihalothieno [2, 3-d] Pyrimidine as Antihyperlipidemic Agent: Synthesis, Biological Evaluation and Investigation into its Mechanism of Action.	Nikhilesh Arya, Vijay M Khedkar, Chamanlal J Shishoo and **Kishor S Jain**	Pharmaceutical Chemistry	EC Pharmacology and Toxicology	Jan- 2019		https://ecronicon.org/pharmacology	https://cupdf.com/document/cronicon-open-access-ec-pharmacology-and-toxicology-citation-kishor-s-jain-et.html?page=5	PubMed

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10	Pharmacognostic, phytochemical and anti-inflammatory activity of Martyniya annua leaves linn. (family: martyniaceae)	Kshiragar S, Bansode SS, **Malode SS.**	Pharmacognosy	International Journal of Pharmacognosy	Oct-18	2348-3962	https://ijpjournal.com/	https://ijpjournal.com/wp-content/uploads/2019/05/8-Vol.-5-Issue-10-Oct-2018-IJP-RA-424.pdf	ICI World of Journals, Index copernicus
11	Pharmacological activity of Thuja orientalis linn.	**S. D. Malode**	Pharmacognosy	International Journal of Pharmacognosy	Jun-18	2348-3962	https://ijpjournal.com/	https://www.academia.edu/41472356/PHARMCOLOGICAL_ACTIVITY_OF_THUJA_ORIENTALIS_LINN	ICI World of Journals, Index copernicus

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1. **Title of Paper-** Homology modeling and docking studies for Lanosterol 14α-demethylase of Candida albicans and 1,2,4-triazole containing 1,3,4-oxadiazole derivatives.
   Name of Author/s- Sachin N. Kapse,Hitesh V. Shahare, Gokul S. Talele, **Rakesh D. Amrutkar**, Prashant P. Chavan, Bhavesh B. Amrute, Yogesh V. Patil
   Name of Journal- NeuroQuantology

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Sachin N. Kapse et al. / Homology modeling and docking studies for Lanosterol 14α-demethylase of Candida albicans and 1,2,4-triazole containing 1,3,4-oxadiazole derivatives

Homology modeling and docking studies for Lanosterol 14α-demethylase of Candida albicans and 1,2,4-triazole containing 1,3,4-oxadiazole derivatives

Sachin N. Kapse[1*], Hitesh V. Shahare[2], Gokul S. Talele[1], Rakesh D. Amrutkar[3], Prashant P. Chavan[1], Bhavesh B. Amrute[2], Yogesh V. Patil[1]

Abstract

Newly synthesized 1,2,4-triazole containing 1,3,4-oxadiazole derivative acts as an antifungal agent which inhibits CYP51. Lanosterol 14α-demethylase is the target for azole antifungal agents. This work emphasizes to build 3D model structure of cytochrome P450 lanosterol 14α-demethylase of Candida albicans from saccharomyces cerevisiae by using 3LD6 as a template. The reliability of the models was assessed by Ramachandran plots and Profile-3D analysis. Docking identified the binding mode of derivatives in modeled CYP51. In docking studies N-4 nitrogen of the 1,2,4-triazole interacts with the heme portion of the porphyrin ring of the target receptor along with hydrogen bonding, Pi-stacking, and hydrophobic bonding. Among all derivatives APC-1, APC-3, APC-7 were found to have significant interactions with the active site of the receptor by calculating dock scores and binding energies. So, it can be concluded that the structural model of CYP51 can be used for the optimization and designing of the newer antifungal agents.

Key Words: Homology modelling, Molecular Docking, Lanosterol 14α-demethylase, Candida albicans, 1,2,4-triazole containing 1,3,4-oxadiazole derivatives

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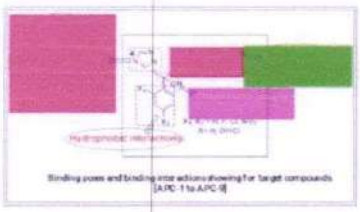
Graphical Abstract



Binding poses and binding interactions showing for target compounds (APC-1 to APC-9)

Introduction

Over the past decade, fungal infections have become a major complication and cause of morbidity and mortality in immune compromised individuals such as those suffering from tuberculosis, cancer, acquired immune deficiency syndrome (AIDS), and in organ transplant cases. [1-3] Azoles are a large and relatively new group of synthetic compounds. Imidazole's and triazoles are two azole derivatives employed in the treatment of systemic fungal infections as well as in the agriculture. 4-6] Azole antifungal agents inhibit the cytochrome P450 sterol 14α-demethylase (14DM, CYP51) by a mechanism in which the heterocyclic

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2. **Title of Paper-** Review on Hyphenated techniques in Analytical Chemistry
Name of Author/s- K P Baviskar, D V Jain, S D Pingale
Name of Journal- Current Analytical Chemistry

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Current Analytical Chemistry, 2022, *18*, 956-976

MINI-REVIEW ARTICLE

A Review on Hyphenated Techniques in Analytical Chemistry

Kajal Pratik Baviskar[1], Dipali Vivek Jain[1], Sushal Dilip Pingale[1], Shekhar Sudam Wagh[1], Swapnil Parashram Gangurde[1], Siddharth Ashok Shardul[1], Aditya Ravindra Dahale[1] and Kishor Sanchalal Jain[2,*]

[1]*Department of Pharmaceutical Chemistry, K.K. Wagh College of Pharmacy, Dr. Babasaheb Ambedkar Technological University (Lonere), Nashik, India;* [2]*RJSPM's College of Pharmacy, Savitribai Phule Pune University, Pune, India*

Abstract: ***Background:*** In chemical and pharmaceutical analysis, hyphenated techniques range from the combinations involving separation-separation, separation-identification and identification-identification techniques and are widely used nowadays, as they hold many advantages like fast accurate analysis, a higher degree of automation, higher sample throughput, better reproducibility, specificity and sensitivity. They also reduce contamination due to closed systems and offer simultaneous separation and quantification, leading to better analysis.

Objective: Though many reviews have appeared on hyphenated analytical techniques till date, in the past decade, their use has increased manifold and therefore, we thought it imperative to review the latest progress in this field. In the present article, an attempt has been made to cover the latest information on various hyphenated techniques like LC-MS (Liquid Chromatography-Mass Spectroscopy), GC-MS (Gas Chromatography-Mass Spectroscopy), LC-IR (Liquid Chromatography-Infra-Red Spectroscopy), as well as, LC-MS-MS (Liquid Chromatography-Mass Spectroscopy-Mass Spectroscopy), LC-NMR-MS (Liquid Chromatography-Nuclear Magnetic Resonance-Mass Spectroscopy), *etc.*

Conclusion: This review describes a total of seventeen different hyphenated techniques, comprising mainly of the combinations of chromatographic techniques with spectroscopic techniques. We have tried to cover the latest information on various double hyphenated techniques like LC-MS , LC-NMR, LC-IR, HPTLC-MS, HPTLC-IR, GC-MS, GC-IR, GC-TLC, GC-AES, MS-MS, CE-MS, GC-NMR, as well as, triple hyphenated techniques like LC-MS-MS, LC-NMR-MS, LC-UV-MS, GC-MS-MS, GC-IR-MS. Mainly the principle, instrumentation, applications, and advantages of each of the techniques are discussed in this review. Also, disadvantages of a few techniques have been mentioned.

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1. INTRODUCTION

A hyphenated technique in analytical chemistry and biochemistry means the combination or coupling of two or more different analytical techniques with the help of a proper interface to separate and detect chemicals from solutions. Mainly chromatographic techniques are often combined with spectroscopic techniques. In chromatography, the pure or nearly pure fractions of chemical components in a mixture are separated and submitted to spectroscopic estimation, thereby producing selective information leading to identification using standards or library spectra. The term "hyphenated technique" ranges from the combination of separation-separation, separation-identification & identification-identification techniques. The term "hyphenation" was first coined in 1980 by Hirschfeld [1] to describe the combination of two or more instrumental analysis methods on a single platform. The aim of the coupling is to obtain both identification and quantification detected in a more informative manner, as compared to that with a single analytical technique. Hyphenated techniques offer various advantages over single techniques like fast, accurate analysis under a high degree of automation with high sample throughput leading to better reproducibility, shorter analysis time, *etc.* A good number of reviews on the topic have appeared in the literature. In 2008, we comprehensively reviewed various hyphenated techniques [2]. This review has been cited regularly, emphasizing the importance of the topic. In 2010, Patel *et al.* reviewed the applications of hyphenated techniques [3], followed by reviews by Joshi *et al.* in 2012 [4], Nagajyothi *et al.* in 2017 [5] and Meena *et al.* in 2019 [6].

Hyphenated techniques offer many advantages over any single standalone analytical method. By coupling two or more techniques, we can combine their advantages leading to improved analytical information, as compared to any of the individual techniques alone.

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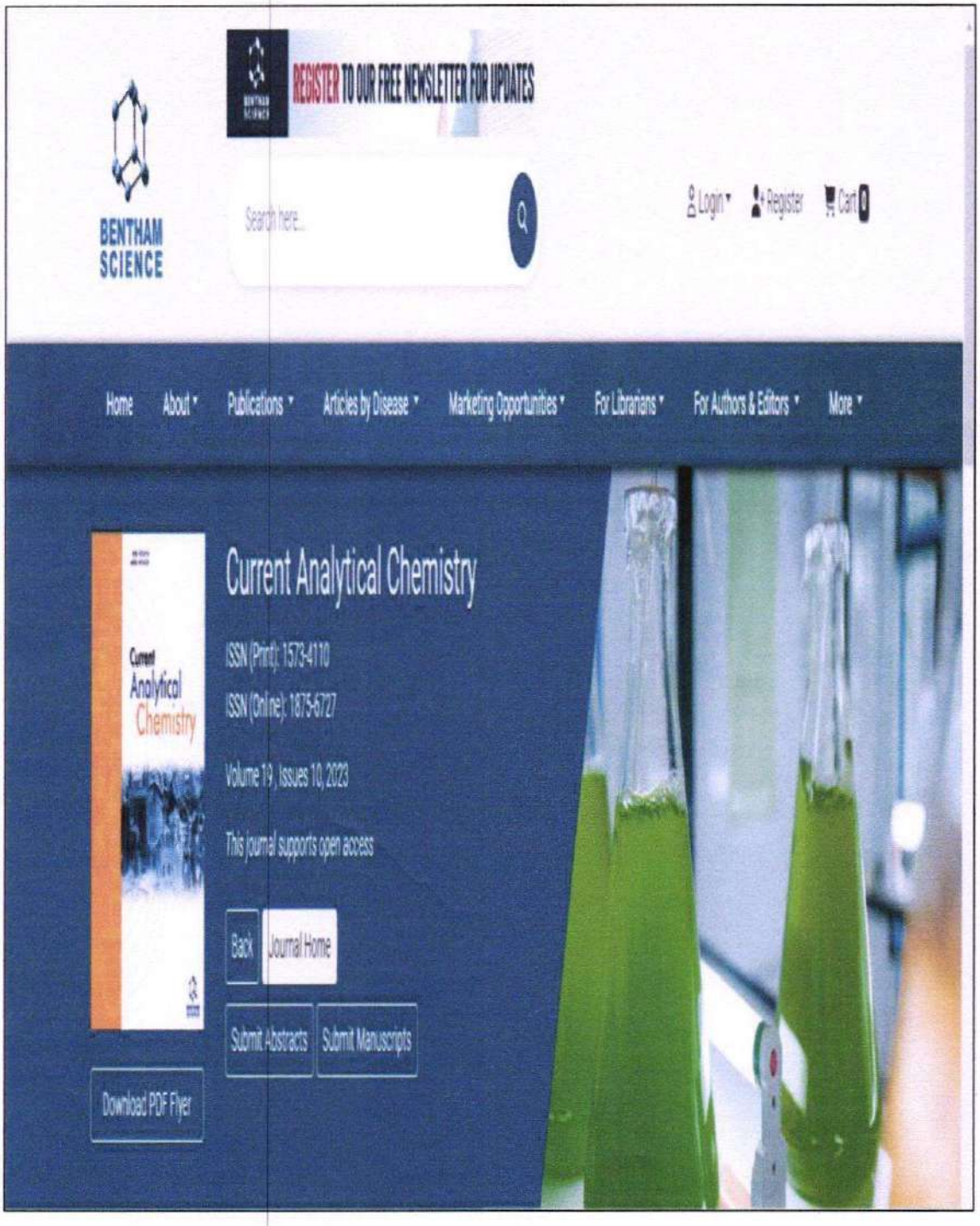

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3. **Title of Paper-** Review on role of nutraceuticals in stress management
Name of Author/s-Prajakta Shingote, Anjali Bedse, Ashwini Asalak, **Shilpa Raut**, Mayur Bidkar
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REVIEW ON ROLE OF NUTRACEUTICALS IN STRESS MANAGEMENT

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Keywords:
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ABSTRACT: Stress is a complicated process that affects everyone differently. When the body is exposed to stressors, it initiates a series of coordinated responses called "stress responses," which include behavioral changes, immunological regulation, hormone release, and various physiological changes. Stress is the physiological response to risk or pressure, and it displays physically as fatigue or energy loss and psychologically as irritation or tension. Chronic stress or despair, which are issues of unmet health care need, may develop if they remain untreated. Treatment and preventative strategies that are based on scientific evidence are required. Current medicines show a therapy gap. The majority of medications solely address psychological or physical stress symptoms. Furthermore, psychotropic medicines, which are occasionally given for stress, frequently have undesirable side effects and cause danger of overuse. Pharmacological therapy should provide advanced care for all stress symptoms while also having a favourable safety profile. One of the most effective techniques for dealing with stress is to eat stress-relieving and nutrient-reducing meals. The term "nutraceutical" is composed up of the words "Nutrient" and "Pharmaceuticals" for dealing with stress is to eat stress-relieving and nutrient-reducing meals. Nutraceuticals are products that can be used for both nutrition and therapy. Nutraceuticals include foods such as dietary fibre, prebiotics, probiotics, polyunsaturated fatty acids, antioxidants, and other herbal/natural foods. These nutraceuticals play a distinct and important role in stress management. This review aims to find out how nutrients and diets influence stress management.

INTRODUCTION: Hans Selye, a Canadian endocrinologist, introduced the term stress in healthcare in 1949. The body's reaction to a novel environment, as well as its stereotyped, non-specific response to external cues that disrupt an individual's balance, is referred to as stress (Selye-1956).

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A stressor is an individual or circumstances that cause a person to respond to stress. A stressor is a biological or chemical substance, environment conditions, external stimulation, or event that causes the person to be more stressed [1].

Stress refers to the body's adaptation to a new circumstance as well as its stereotyped and non-specific response to external stimuli that disrupt the personal balance. It's also a psychological approach to stress management and regulation that comprises understanding and preparing the body for varying conditions. Stress is a healthy and natural reaction to a risky situation. Increased anxiety and stress reports have forced us to seek medical and non-

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4. **Title of Paper-** Overview of clinical research and its applications in drug discovery and management of covid-19 in India
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OVERVIEW OF CLINICAL RESEARCH AND ITS APPLICATIONS IN DRUG DISCOVERY AND MANAGEMENT OF COVID-19 IN INDIA

Ganesh Pawar*, Sanket More, Krupesh Patil, Sunanda Malode
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Abstract:
COVID-19 is a disease caused by SARS-CoV-2 that can trigger what scientists call a respiratory tract infection. It can affect your upper respiratory tract (sinuses, nose, and throat) or lower respiratory tract (lungs and windpipe). The clinical demonstration of SARS-CoV-2-infected patients ranged from mild non-specific symptoms to severe pneumonia with organ function destruction. In December 2019, adults in Wuhan, capital city of Hubei province and a major transportation hub of China started presenting to local hospitals with severe pneumonia of unknown cause. Research on COVID-19 from Alternative and Complementary Medicines are being carried out in many countries. In Ayurveda, the majority of the trials are related to ayurvedic drugs or drug combinations. The recommended formulations, some have undergone scientific investigations, such as AYUSH, Arsenica Album, Chyavanprash, Kabasur Kudineer, Guduchi, Ghanavati, Nilavembu Kudineer, for their possible preventive or therapeutic impact. One of the potential treatment strategies is the discovery of drugs by targeting essential proteins in viral life cycle. Main Protease become an attractive drug target, since it plays a pivotal role in mediating viral transcription and replication. According to the data published by FDA's Coronavirus Treatment Acceleration Program (CTAP), as on 31 December 2020 there were 595+ drug development programs in planning stages, 400+ trials reviewed by FDA, 8 treatments currently authorised for emergency use and 1 treatment approved for COVID 19.

KEYWORDS: *COVID-19, SARS-CoV-2, Clinical research, AYUSH, Drug discovery process.*

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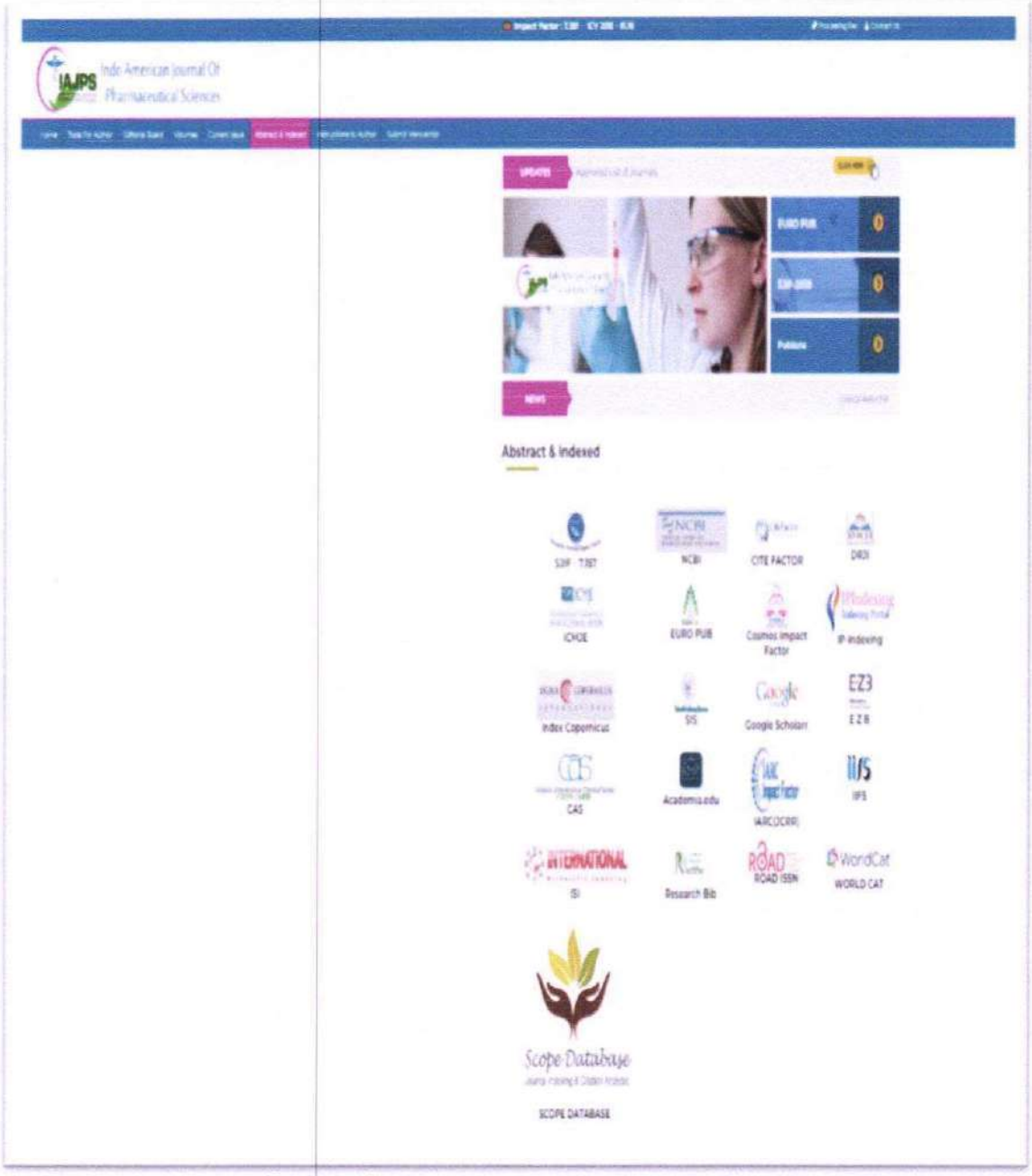

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5. **Title of Paper-** Formulation of oxybutynin chloride microparticle-loaded suppositories: in vitro characterization and in vivo pharmacokinetic study.
Name of Author/s- Bedse, A., Mahajan, H. & Dhamane, S.
Name of Journal- Future Journal of Pharmaceutical Sciences

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Future Journal of Pharmaceutical Sciences

RESEARCH Open Access

Formulation of oxybutynin chloride microparticle-loaded suppositories: in vitro characterization and in vivo pharmacokinetic study

Anjali Bedse[1*], Hitendra Mahajan[2] and Suchita Dhamane[3]

Abstract

Background: Oxybutynin chloride (OXC) is used to treat overactive urinary bladder. OXC is metabolized in the liver to N-desethyloxybutynin, which is mainly responsible for the anticholinergic side effects of OXC. Conventional oxybutynin suppositories formulated earlier have shown most common side effects, such as dry mouth, constipation and serious anticholinergic reaction. Hence the present research work deals with the formulation and characterization of OXC microparticle-loaded mucoadhesive suppositories which may remain adhered in the lower rectum and avoid first pass metabolism. The emulsification–ionic gelation method is employed to prepare OXC microparticles. Two formulation factors at three levels, i.e. polymer concentration and stirring speed, were selected. Sodium alginate (concentration 1–2%) and 1% w/v Carbopol 971P were used to prepare OXC microparticles. OXC microparticles were evaluated for various parameters such as production yield, entrapment efficiency, mucoadhesive strength, shape, size, zeta potential, Fourier Transform Infrared spectroscopy, differential scanning calorimetry, X-ray diffraction, in vitro dissolution studies and stability studies. Suppositories loaded with OXC microparticles were prepared by the fusion method using Poloxamer 188 and propylene glycol and evaluated for various parameters like weight variation, disintegration time, in vitro dissolution study, stability study and pharmacokinetic study.

Results: Results of in vitro characterization revealed that optimized batch of OXC loaded microparticles exhibited production yield 94.024% entrapment efficiency 95.378% and mucoadhesion strength 95.544%, particle size range 764.04–894.13 µm, zeta potential − 14.5 mV, with 0.946 desirability. Consequences of DSC and XRPD evaluation shown that drug was effectively entrapped inside the microparticles. In vitro release studies revealed improvement in drug dissolution as a consequence of its entrapment into microparticles. SEM results showed that micelles were sphere-shaped. On rectal administration of OXC microparticles loaded suppository in male Sprague–Dawley Rats, the relative bioavailability was found 173.72%.

Conclusion: In vivo study elicits rapid increase in absorption of drug from microparticles loaded suppository when compared with the oral formulation and drug loaded suppository in rats. OXC microparticles loaded suppository is novel and promising drug delivery system for rectal administration and may avoid anticholinergic side effects of hepatic metabolite, N-desethyloxybutynin. These rectal drug delivery systems will be advantageous for efficient absorption of drugs and to avoid first pass metabolism.

Keywords: Oxybutynin chloride, Microparticles, Sodium alginate, Carbopol 971 P, Poloxamer, Suppository

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6. **Title of Paper-** Modified Solubility of Etodolac through Solid Dispersion and Complexation
Name of Author/s- Vaibhav Gulabrao Bhamare, Ravindra Keshavrao Kamble
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RESEARCH ARTICLE

Modified Solubility of Etodolac through Solid Dispersion and Complexation

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ABSTRACT:
Solubility and dissolution is an essential requirement for any drug to perform well in vivo. The present research was undertaken to enhance the dissolution rate of poor water soluble drug Etodolac through solid dispersion and complexation technique. Fusion method and kneading methods were employed for solubility enhancement by Solid Dispersion technique and complexation technique respectively. PEG-6000, HPMC K4M, β-Cyclodextrin and PVPK-30 are used as carriers. Physical mixtures were prepared in different ratio of drug and carriers. The prepared blends were evaluated for solubility, drug content, percent yield and drug release. Solubility enhancement was observed for all the experimental mixtures having maximum attainment for polymers PEG 6000 and PVPK-30. Pre and post enhancement Etodolac solubility values confirm the successful modification in solubility of drug through solid dispersion technique and complexation technique with slight edge toward complexation technique.

KEYWORDS: Etodolac, Solubility, Solid dispersion, Complexation, Carrier.

INTRODUCTION:

Solubility and dissolution of drugs is a crucial prerequisite to the performance of the drug in vivo. The major share (90%) of the active pharmaceutical ingredients in the development pipeline and 40 % of the drugs in the market are poorly water soluble. Hence, solubility is still an important area of the research.[1,2] According to the Noyes-Whitney equation, the dissolution rate of a drug substance is directly proportional to its equilibrium solubility.[3] However, the nature of the dissolving solid and the dissolution medium also exert strong influences on the dissolution rate.[4] Various physical, chemical and miscellaneous approaches have been used to enhance the solubility and dissolution of the poorly water soluble drugs.[5,6]

However, solid dispersion or complexation is still preferred technique to improve solubility due to its obvious advantages. The term solid dispersion refers to a drug-polymer two component system generally consisting of a hydrophilic matrix and a hydrophobic drug prepared by hot melt extrusion, melting (fusion) method or solvent evaporation method.[7,8] Usage of solubilizing complexing agent can solve the poor aqueous solubility problem by forming guest (non polar region of one molecule) - host (cavity of another molecule) complexes.[9,10] Small molecules or larger molecules can be taken up by supramolecular cyclic structures. This inclusion complex is possible because of the central cavity in their structure and these so formed cyclic molecules have been explored as drug delivery systems.[11] Etodolac is a nonsteroidal anti-inflammatory agent and inhibitor of prostaglandin synthetase. Etodolac is absorbed from the gastro-intestinal tract with peak plasma concentrations being attained about 1-2 h after ingestion. Etodolac is poorly water soluble, and slightly soluble in simulated gastric fluid. The delayed onset of action is the result of limited dissolution rate due to poor solubility therefore its bioavailability is expected to be limited by its dissolution rate, which could be increased

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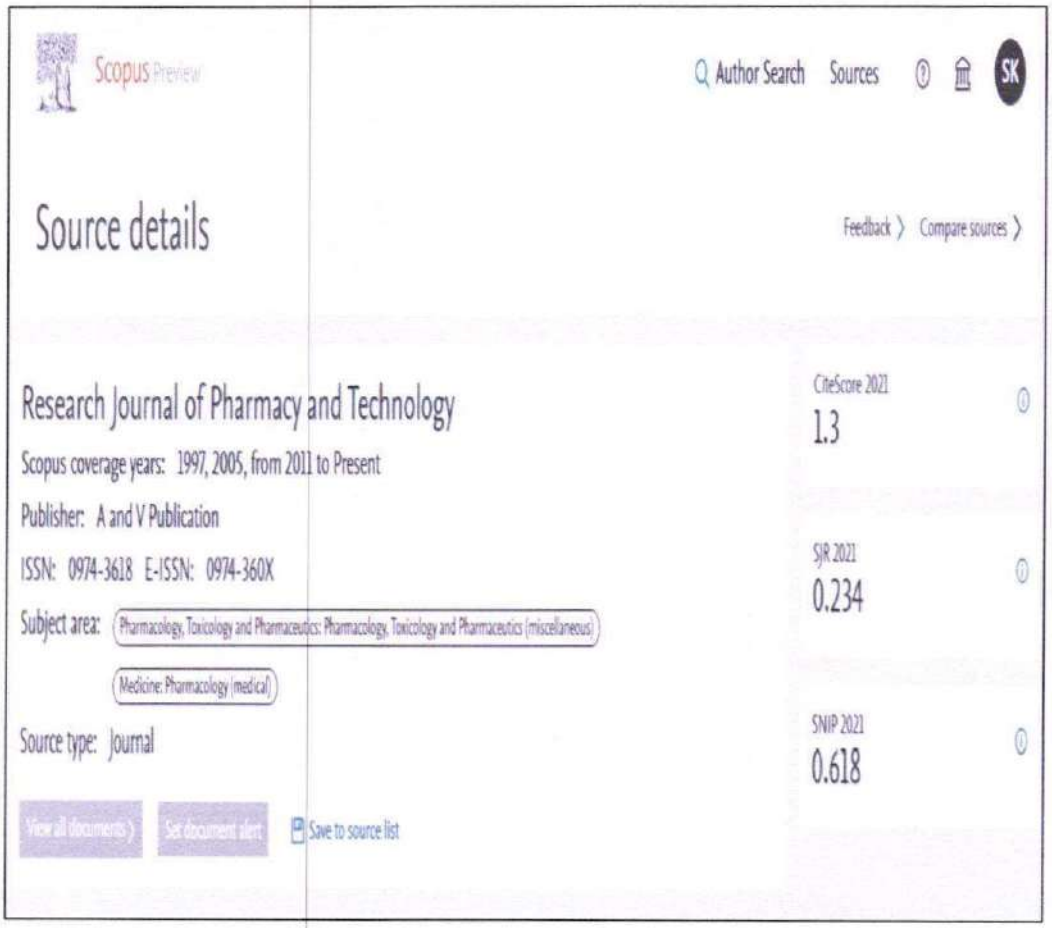

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7. **Title of Paper-** Development and Characterization of Topical Micro-Emulsion as Novel Drug Delivery System for Dapsone
Name of Author/s- Bedse A, Nikam A, Kulkarni A, Potnis V, Dhamane S.
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RESEARCH PAPER

Development and Characterization of Topical Micro-Emulsion as Novel Drug Delivery System for Dapsone

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ABSTRACT

Dapsone is a Biopharmaceutical Classification System class II drug with anti-inflammatory, immunosuppressive, antibacterial, and antibiotic properties and is used as an antileprotic. The purpose of the present study was to investigate the potential of a microemulsion formulation for topical delivery of dapsone to enhance permeation and to avoid systemic side effects. When administered orally, dapsone undergoes hepatic metabolism. Its hepatic metabolite, dapsone hydroxylamine, shows systemic side effects such as hemolytic anaemia peripheral neuropathy, nausea, and headache. A novel drug delivery system in the form of a microemulsion was developed for dapsone. This is the first attempt that dapsone has been combined with chaulmoogra oil in a topical microemulsion. The primary drugs used for the treatment of leprosy are found in chaulmoogra seeds. Considering its good solubilizing capacity and its use in the treatment of leprosy, chaulmoogra oil was chosen as the oil phase. Based on emulsification ability, Cremophor RH40 and PEG 400 were selected as surfactant and co-surfactant, respectively. A pseudo-ternary phase diagram was constructed to identify the microemulsion region. Smix (Cremophor RH40: PEG-400 in the ratio of 1:2) was most effective in imparting stability to the formulation. The selected formulation exhibited appropriate diffusion behavior (*in vitro*). The developed dapsone containing microemulsion formulation exhibited the optimal homogeneity, clarity, pH, type of microemulsion, viscosity, percent drug content, and percent transmittance to qualify as a topical drug delivery system for local treatment of leprosy.

KEYWORDS
Microemulsion, Dapsone, Topical drug delivery system, Chaulmoogra oil, Anti mycobacterial activity, HET-CAM test.

INTRODUCTION

Leprosy, or Hansen's disease (HD), is a bacterial disease known from historic times, although curable, it continues to be a significant health problem worldwide. This disease affects mainly the peripheral nerves and skin, but may also affect sites such as the eyes, mucous membranes, bones, and testes and produces a spectrum of clinical phenotypes (Saonere, 2011).

Dapsone is the principal drug in a multidrug regimen recommended by the World Health Organization for treating leprosy. Dapsone is a sulfone with anti-inflammatory, immunosuppressive, antibacterial and antibiotic properties. The water solubility of dapsone is

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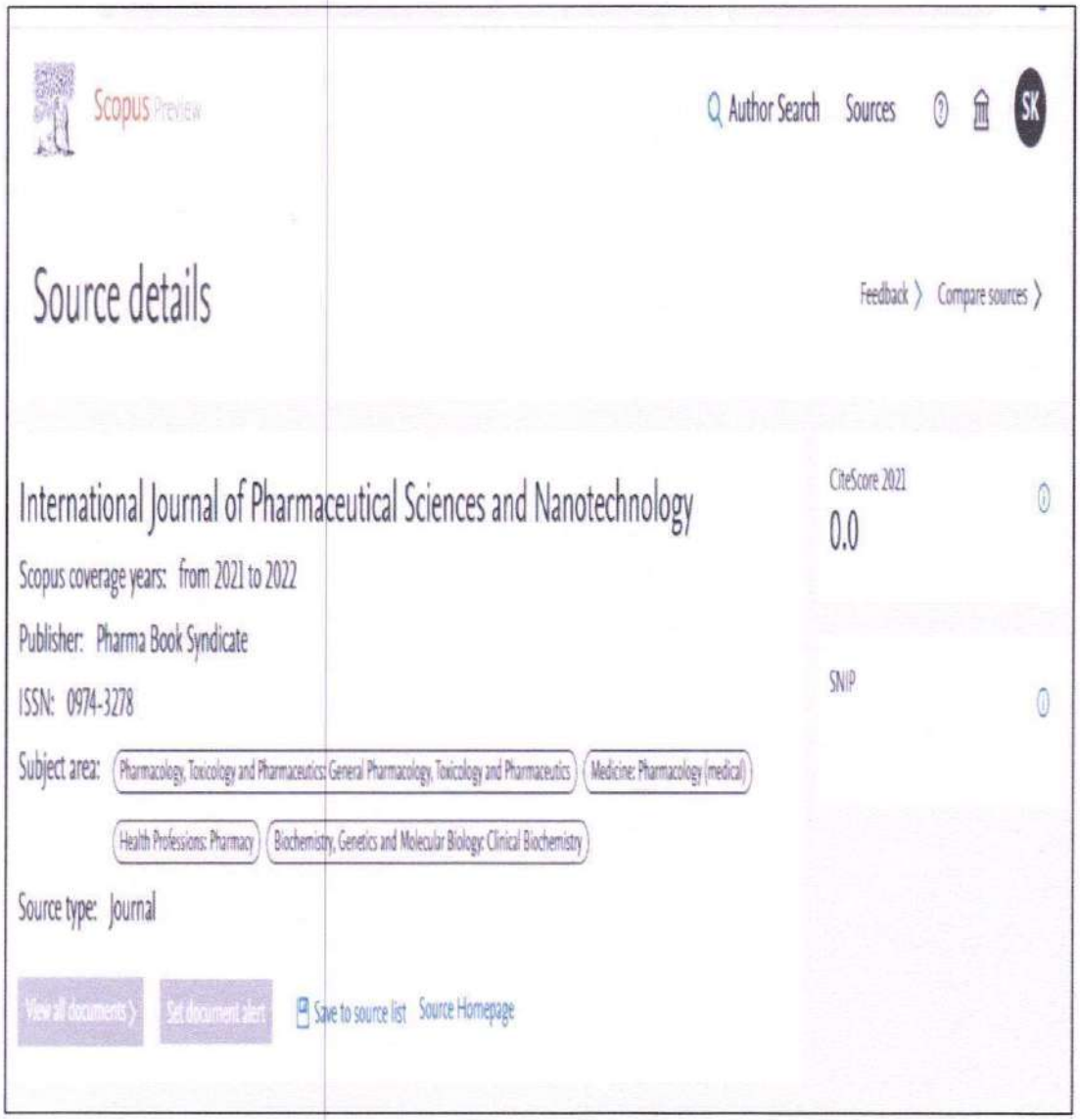

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8. **Title of Paper-** Design and development of fast dissolving liquisolid formulation
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Research article

Design and development of fast dissolving liquisolid formulation

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ABSTRACT

Various techniques have been employed for the solubility modification of BCS class II drugs. Out of the recent solubility enhancement techniques, Liquisolid technique based on the work of Spireas et al has explored as method that can supplement drug release. Formulations containing Etodolac were developed by dissolving the drug in a non-volatile solvent and then employing the adsorption absorption principle with a carrier and coated material admixture. The post formulation saturation solubility study has highlighted significant modification in solubility of the drug in comparison to pre solubility modification. The Liquisolid formulation then subjected to direct compression for the development of Fast dissolving tablet formulation using two varying concentrations of Sodium Starch Glycolate. The in vitro - in vivo evaluation of research study concludes adaptability and applicability of fast dissolving liquisolid tablet formulation allowing it to overcome barriers associated with the solubility. The optimized formulation found to unveil dissolution along with diffusion from the dosage form by Fickian mechanism.

Keywords: Etodolac, Liquisolid, Carrier material, Coating material Fast dissolving tablet, Superdisintegrant.

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INTRODUCTION

Solubility phenomena have great influence on pharmaceutical industry. [1]. Post administration of drug by oral route, the absorption and bioavailability of drug in systemic circulation is limited by its solubility and permeability. [2]. The BCS plays vital role for formulation scientist, for advising strategy to increase the effectiveness of drug development by proper choice of dosage form and bioequivalence tests. [3], numerous researches on solubility enrichment of BCS class II or class IV drugs have rooted various techniques. [4-6]. Liquisolid approach has been lately explored as a method for improved drug release. [7], It is therefore proposed that a mathematical model implemented and validated by Spireas and coworkers measures necessary quantities of carrier polymer and coating material. [8, 9] to achieve a drug embedded system a system with appropriate flowability and compressibility. In continuation with the solubility enhancement, formulation development has been one tool that has impact on patient compliance. Fast dissolving tablet formulation gaining wide popularity in terms of its bioavailability in shorter duration of time and usefulness toward population in comparison to conventional tablet formulation.

MATERIALS AND METHODS

IPCA Laboratories Ltd. Mumbai provided the Etodolac as a free sample. The rest of the ingredients were of analytical quality. Throughout the investigation, distilled water was used.

Experimental

Analytical characterization. [10, 11]. The identity of the drug was confirmed by comparing IR spectrum using FTIR (Shimadzu Affinity press FTIR 1800), thermogram using DSC (Shimadzu DSC 60) and X-Ray powder diffraction spectra (Shimadzu XRD-7000). Same procedure has been employed to identify incompatibility issues (if any) generated when the drug is formulated into fast dissolving tablet formulation post Liquisolid treatment.

Saturation solubility study of drug. [12, 13]. Solubility studies were carried by shake flask method where excess of sample is added into the fixed volume of solvent. The saturated solutions were continuously shaken round-the-clock and the resultant solutions were filtered, appropriate dilutions were prepared and UV absorbance was recorded. The same procedure is employed for formulation post Liquisolid treatment.

Design of Liquisolid system with mathematical modeling. [14-17] It is suggested that a mathematical model executed and

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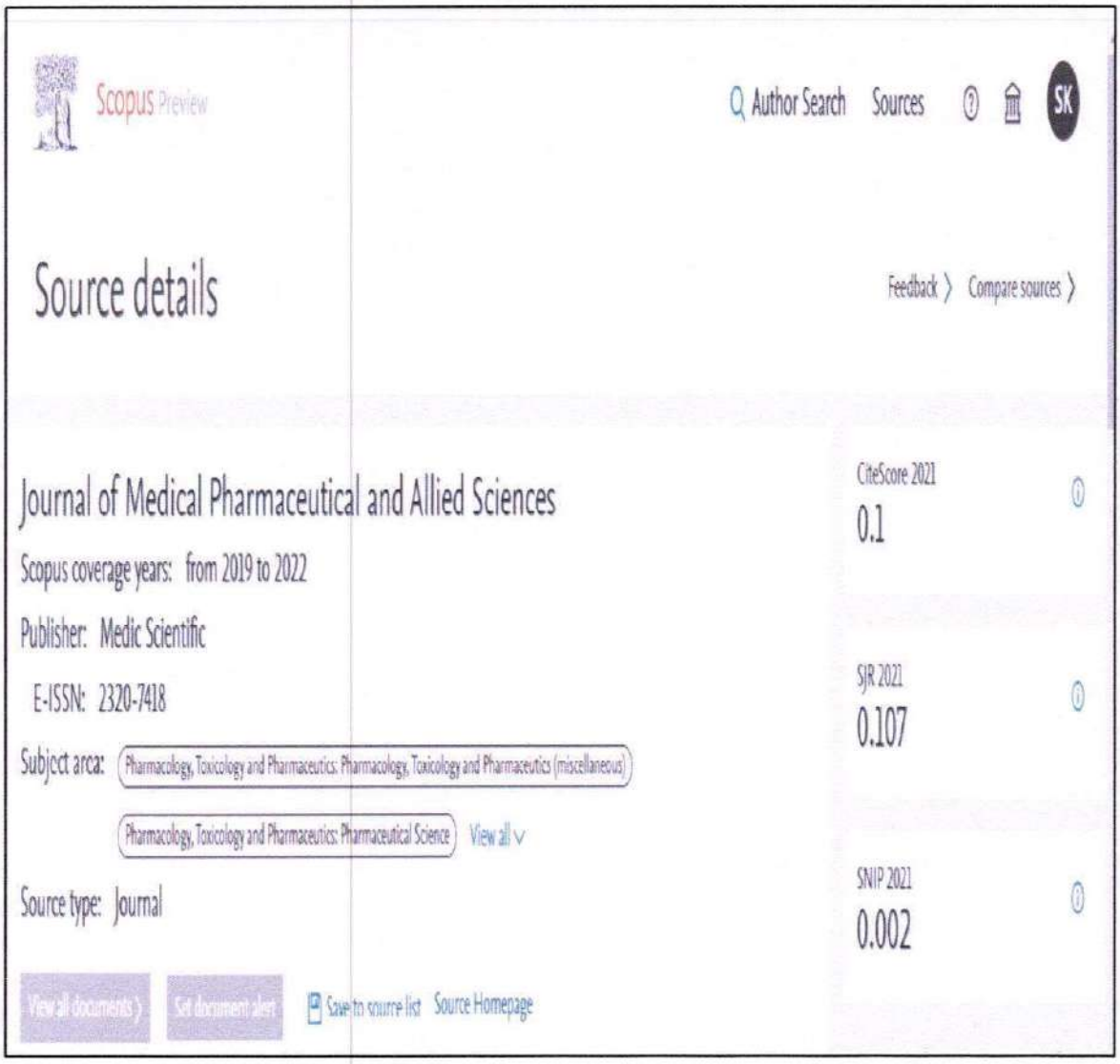

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9. **Title of Paper-** A Novel 2, 4-Dihalothieno [2, 3-d] Pyrimidine as Antihyperlipidemic Agent: Synthesis, Biological Evaluation and Investigation into its Mechanism of Action.
Name of Author/s- Nikhilesh Arya, Vijay M Khedkar, Chamanlal J Shishoo and **Kishor S Jain**

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Review Article

A Novel 2,4-Dihalothieno[2,3-d]Pyrimidine as Antihyperlipidemic Agent: Synthesis, Biological Evaluation and Investigation into its Mechanism of Action

Nikhilesh Arya[1], Vijay M Khedkar[2], Chamanlal J Shishoo[3] and Kishor S Jain[4]*

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Abstract

A novel one-pot green chemical synthetic protocol involving the dual use of POCl3 and the catalysis of MWI has been developed for the preparation of the compound, 4-chloro-2-chloromethyl-5-(4-chlorophenyl)thieno[2,3-d]pyrimidine. Further, it has been evaluated for antihyperlipidemic activity and found to possess it comparable to ezetimibe. Its docking study with six different molecular targets known to be implicated in hyperlipidemia, has revealed a good correlation between its high activity and very favourable docking interaction at one of these targets; NPC1L1.

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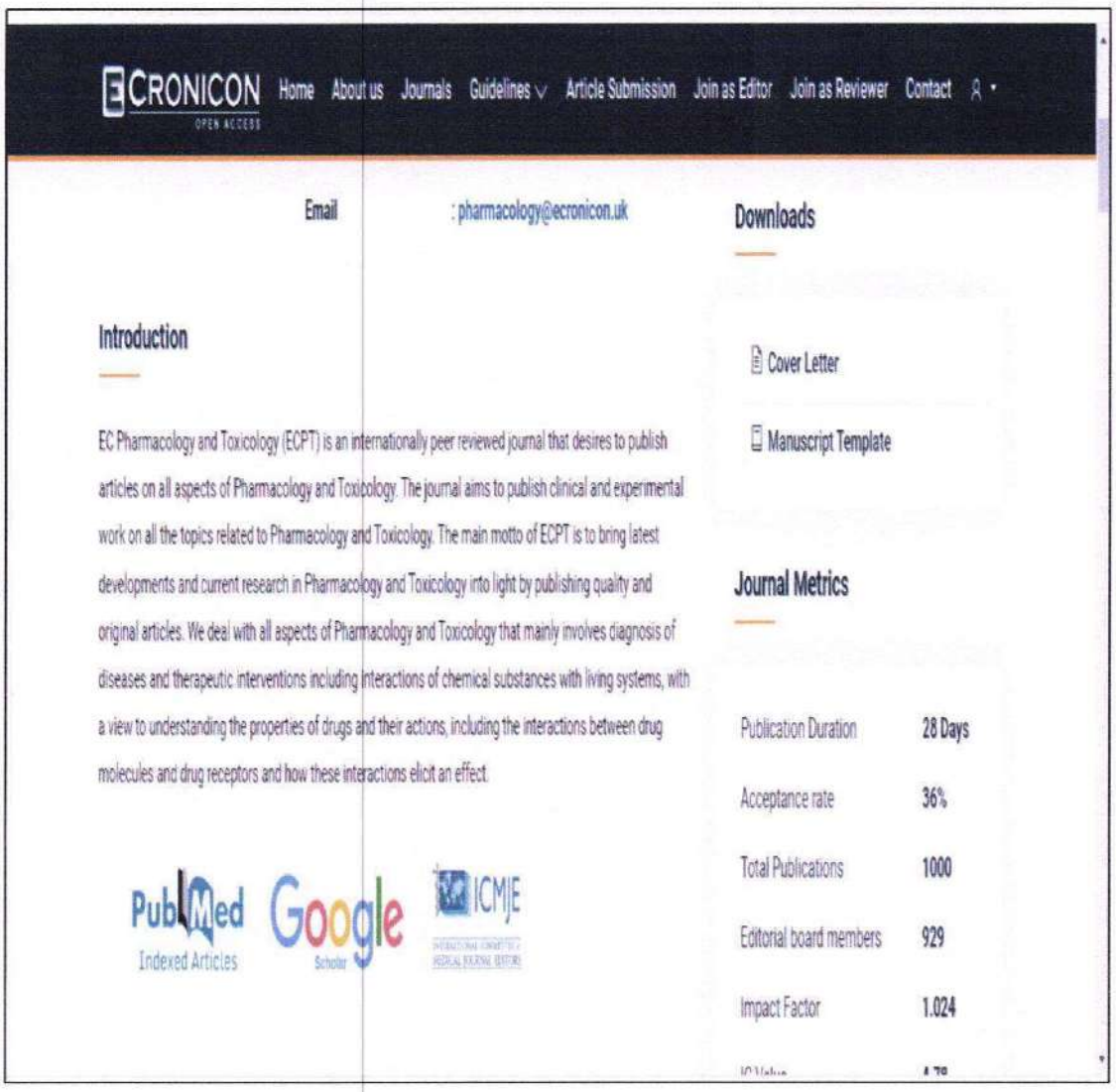

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10. Title of paper - Pharmacognostic, phytochemical and anti-inflammatory activity of Martyniya annua leaves linn. (family: martyniaceae)
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PHARMACOGNOSTIC, PHYTOCHEMICAL AND ANTI-INFLAMMATORY ACTIVITY OF MARTYNIYA *ANNUA* LEAVES LINN. (FAMILY: MARTYNIACEAE)

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Keywords:

Martynia annua, Anti-inflammatory, Carrageenan-induced paw edema method, Preliminary phytochemical screening

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ABSTRACT: The present research was conducted to investigate the anti-inflammatory activity of methanolic extracts of plants of *Martynia annua*. (Family: Martyniaceae) The anti-inflammatory activity of the methanolic extracts of the *Martynia annua* at the dose of 50, 100, 200 mg/kg body weight was evaluated against the standard drug - pentazocine at a dose of 25 mg/kg body weight. Adult Swiss albino mice of either sex of six numbers in each group was undertaken for study and evaluated by carrageenan-induced paw edema method. The methanolic extracts of plants of *Martynia annua* showed greater anti-inflammatory activity when compared with the standard drug. Results of present studies suggest that methanolic extract of *Martynia annua* significant (P-value < 0.01) anti-inflammatory activity.

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PHARMCOLOGICAL ACTIVITY OF *THUJA ORIENTALIS* LINN.

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Keywords:
Thuja orienalis, Morpankhi, Thujone, Pharmacological activity

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ABSTRACT: *Thuja orienalis* (Commonly- Morpankhi, Family- Cupressaceae) is an evergreen, monoecious trees or shrubs used in various forms of traditional medicines and homeopathy in various ways. In traditional practices, Thuja is used for treatment of bronchial catarrh, enuresis, cystitis, psoriasis, uterine carcinomas, amenorrhea and rheumatism. Recent re-searches in different parts of the world have shown that *Thuja orienalis* and its active component thujone have the great potential against a various health problems. *Thuja orienalis* preparations can be efficiently used against microbial/worm infection. It can be used as antioxidant, anticancer and anti - inflammatory agent. Instead of these effects, it can be also used as insecti-cidal, molluscicidal and nematicidal activity against different pests. The present review highlights the some important bio-logical properties of *Thuja orienalis*.

INTRODUCTION: *Thuja orienalis* is a common ornamental evergreen tree that is originally native to Northwest China belonging to family *Cupressaceae*. It is highly aromatic and resinous shrub that widely cultivated in gardens located in temperate and semi-temperate areas. *Thuja orienalis* is hardy, large evergreen shrub or small to medium sized-tree rarely exceeding 20 m in nature. It has a dense, pyramidal shape, but often exhibits a more open and spreading form. It prefers moist, well-drained soil and full sun. The bark is gray with brown highlights and has thin but deep furrows. The bark has a rugged charm about it, especially on large mature specimens. Younger bark is a reddish-brown colour and exfoliates in long, thin strips. It is endemic to north-western China. It is also now naturalized as an introduced species elsewhere in Asia: eastward to Korea and Japan; southward to northern India; and westward to northern Iran. The common name 'arbor-vitae' is from Latin, 'Tree of life', and is based on its association with long life and vitality in Buddhist thought in China. This is probably based on the tree's unchanging evergreen nature in the cold dry climate of northwest China and its longevity; some of the larger specimens planted around Buddhist temples in China are said to be in excess of 1,000 years old.

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Although generally accepted as the only member of its genus, it has been included by botanists in the different classification. In older texts, Platycladus was often included in Thuja, but it is only distantly related to that genus. Differences from Thuja include distinct cones, wingless seeds, and almost scentless foliage.

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