ABHILASHI UNIVERSITY

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# National Conference

**Wednesday, 23rd March 2022**

## "Recent Trends in Pharmaceutical, Healthcare Agriculture Systems"

## Sovenir & Abstract Book

**Organized By**

## SCHOOL OF PHARMACY, ABHILASHI UNIVERSITY

CHAIL CHOWK, DISTT. MANDI, HIMACHAL PRADESH

**School of Pharmacy**

**Abhilashi University, Chailchowk, Mandi, (HP)**

Dr. R.K. Abhilashi

Chairman

## *Message*

I am delighted to know that the School of Pharmacy, Abhilashi University, Chailchowk, Mandi, (HP) is organizing one day National Conference entitled **"Recent Trends in Pharmaceutical, Healthcare and Agriculture Systems"** on March 23rd, 2022. These kinds of conferences are necessary for enhancing the Research & Development attitude amongst researchers and the professionals in the field of Pharmaceutical Sciences and the Pharma Sector. I believe that the interaction between the experts from various universities, institutions, and the students of Pharmacy will prove to be highly fruitful not only for the profession but also for society. I welcome more such endeavors in near future. I wish the conference a grand success. I extend my best wishes for the splendid success of this conference.

**(R.K. Abhilashi)**

**School of Pharmacy**

**Abhilashi University, Chailchowk, Mandi, (HP)**

Dr. L.K. Abhilashi

Managing Director

## *Message*

I am very happy to know that the School of Pharmacy, Abhilashi University, Chailchowk, Mandi, (HP) is organizing one day National Conference entitled **"Recent Trends in Pharmaceutical, Healthcare and Agriculture Systems"** on 23rd, March 2022. The theme chosen for the conference is of topical interest in pharmaceutical Sciences, I applaud the organizers for providing a platform for this interaction through the conference. The initiative of the institute will also help to achieve its goal to provide interdisciplinary research-based technical education across the country. I wish them all the best for great success.

**(L.K. Abhilashi)**

**School of Pharmacy**

**Abhilashi University, Chailchowk, Mandi, (HP)**

Prof. H. S. Banyal

Vice Chancellor

## *Message*

I am pleased that the School of Pharmacy, Abhilashi University, Chailchowk, Mandi, (HP) is organizing one day National Conference entitled **"Recent Trends in Pharmaceutical, Healthcare and Agriculture Systems"** on March 23rd, 2022. The scientific conference provides a platform for scholars to present their research innovations and enables them to enhance their academic pursuits. Faculty and researcher of Abhilashi University as well as from other prestigious academic institutions across the country will discuss and share their ideas and experience about pharmacy and its future. Pharmacy and pharmacists play an important role in educating society about drugs and their fairer and more effective employment. For better healthcare and the progress of a nation, a healthy population innovative and sincere researchers and strong pharmaceutical pillars are imperative.

**(H. S. Banyal)**

**School of Pharmacy**

**Abhilashi University, Chailchowk, Mandi, (HP)**

Er. Kapil Kapoor

Registrar

## *Message*

I am honored to be a part of the National Conference on **"Recent Trends in Pharmaceutical, Healthcare and Agriculture Systems"** organized by School of Pharmacy, Abhilashi University, Chailchowk, Mandi, (HP) on March 23rd, 2022. There is a great need to understand the global development of pharmacy education. The coming era will make a remarkable expansion and progress in this field. I am hopeful that the conference will inspire thought and provide a forum for interaction among the participants, who will return with new ideas, expand knowledge, receive positive energy to advance in their respective fields in particular the national thrust areas of innovative education and research. I send my warmest greetings to all of the conference's organizers and participants.

**(Er. Kapil Kapoor)**

**School of Pharmacy**

**Abhilashi University, Chailchowk, Mandi, (HP)**

Dr. Sachin Goyal

Dean Academic

## *Message*

I am pleased to note that the School of Pharmacy, Abhilashi University, Mandi, (HP) one day National Conference on March 23rd, 2022 entitled **"Recent Trends in Pharmaceutical, Healthcare and Agriculture Systems"**. The objective of the conference is to provide a forum where the researchers will have an opportunity to put up their research work for open scrutiny for future guidance. The faculty, researchers, and experts of our institute and other academic institutions of National repute will deliberate and share experiences in drug discovery and development. Today drugs have become a menu of the dining table. Many drugs are out of reach of poor people. Pharmacists have an important role in providing generic and economic drugs to such folk sand. This conference will certainly focus on such issues beneficial to society. I wish for the success of this conference.

**(Sachin Goyal)**

**School of Pharmacy**

**Abhilashi University, Chailchowk, Mandi, (HP)**

Dr. Amit Chaudhary

Dean, Department of Pharmacy

## *Message*

It is my eternal pleasure to welcome blissfully all invited speakers and delegates to the Institute of Pharmacy for the National Conference entitled **"Recent Trends in Pharmaceutical, Healthcare and Agriculture Systems"** on March 23rd, 2022. In recent years, the Pharmaceutical/Biotech industry has undergone radical changes which have increased our understanding of eco-friendly drug discovery, development, and manufacturing however there are still many hurdles that the industries face. Drug discovery and development are a decade-long process that can cost very high. In the past decade, many large pharmaceutical companies have moved to use green chemistry practices for drug discovery, development, and manufacturing. This shift is being driven by the realization that processes that are economic and environmentally superior deliver a competitive advantage. This focuses on the triple bottom line profit, people, and planet. I hope this conference will help in combating the bottlenecks and expanding the knowledge of researchers, scientists, and healthcare professionals. At the same time, it will ignite our minds that we can contribute our bit for the betterment of our society and planet.

**(Dr. Amit Chaudhary)**

**SCHOOL OF PHARMACY**

**ABHILASHI UNIVERSITY CHAILCHOWK MANDI HP**

***National conference on***

# "RECENT TRENDS IN PHARMACEUTICAL, HEALTHCARE AND AGRICULTURE SYSTEMS"

***23rd March 2022 (Wednesday)***

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# ***Resource Persons***

**Prof. (Dr.) Anil Kumar**

University Institute of Pharmaceutical Sciences

Punjab University, Chandigarh (Punjab)

**Prof. (Dr.) Promil Tiwari**

Heads the Department of Pharmacy Practice

National Institute of Pharmaceutical Education

& Research (NIPER), Mohali (Punjab)

# PROFILE

# &

# ABSTRACTS

# OF

# RESOURCE PERSONS

**Prof. (Dr.) Anil Kumar**

**Professor**

**University Institute of Pharmaceutical Sciences**

**Punjab University, Chandigarh**

Prof. (Dr.) Anil Kumar earned his PhD in Pharmaceutical Sciences from Punjab University. Chandigarh. Prof. Kumar has received many prestigious awards like ICMR Award for Biomedical Scientist, Bharat Shiksha Ratan Award, IBRO Award, Best Paper Award of JCTR, APTI's Young Pharmacy Teacher Award, AICTE Career Award, Rafaelsen Young Investigator Award, Lilly Fellows Investigator Award, INSA Visiting Fellowship, BOYSCAST Fellowship, ICAD Fellowship and Riken Brain Science Fellowship (Japan). Prof. Kumar is an active member of various internationally/nationally recognized organizations like IBRO, IPA, IPGA, IPS, APTI, ASH, ISBD, SFN, MDS, IRA and editorial boards of reputed journals. He has published more than 100 research papers in very high impact journals, 32 books and 06 books chapters on his credit. Prof. Kumar has guided 25 M. Pharm and 10 PhD research scholars. He has received research project grants of more than 1.5 Cr from different agencies like CSIR, UGC, ICMR, DST, DRDE, PURSE and Pharma Industries. He has visited Japan, Italy, USA, Australia, Malaysia, Thailand, China, Czech Republic, South Korea, Spain, Greece, France and Taiwan to attend the scientific meetings.

# EMERGING TRENDS, ISSUES AND CHALLENGES IN PHARMACEUTICAL EDUCATION AND RESEARCH

Anil Kumar

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Pharmaceutical education and research is presently one of the rapidly growing branch in terms of diverse innovative tools, techniques to deal with challenges faced among pharmaceutical scientist on day to day manner. Newer trends such as artificial intelligence/ data science, are being evolved and used by pharmaceutical Scientist to deal with drug discovery and drug development for safe and effective innovative products for patients against disease condition. Similarly, pharmaceutical education is also rapidly changing in terms of innovative idea of teaching and doing research among pharmaceutical scientists. Therefore, it is very essential for pharmaceutical educator/ scientist to keep himself or herself to update with these evolving/emergent changes or developments in the areas of pharmaceutical education and research. These emergent developments not only provide solution but also raised ethical issues and challenges to deal with innovative solutions. Therefore, the present presentation is an attempt to deal or highlight various recent or emergent changes in the areas of pharmaceutical education and research and related challenges.

**Prof. (Dr.) Promil Tiwari, M. Pharm., Ph.D.**
**Heads of the Department (Pharmacy Practice)**
**National Institute of Pharmaceutical Education & Research (NIPER), Mohali.**

Prof. Promil Tiwari, an alumnus of the Banaras Hindu University, heads the department of Pharmacy Practice at the National Institute of Pharmaceutical Education & Research (NIPER), Mohali. With 30 years of experience in academia, he has created effective networks with the practitioners at multiple hospitals for the professional training of students. Prof Tiwari has mentored over 150 M. Pharm. students and doctoral students. His research group had more than 200 accepted abstracts presentations in various national & international scientific meetings, multiple pharmacy-centric publications and many book chapters.
His research interests are spread over drug utilization studies with special emphasis on antimicrobial usage in hospitals, Pharmacoeconomics, pharmacovigilance, pharmacotherapy in vulnerable patients, use of vaccines and promoting rational use of drugs. His research group is also actively investigating chronic illnesses in hepatic and nephrology patients. He is a member of the core committee for the revision of the national formulary since 2009.
A life member of 8 professional bodies, Prof Tiwari is also honorary Joint Secretary of the India chapter of ISPOR. At NIPER Mohali, he is the Faculty Advisor of the student chapter of ISPOR.
Prof Tiwari has the exposure of working in cross-cultural settings, within the country and abroad. In addition to English and Hindi, he speaks and understands Gujarati, Punjabi and Arabic.

# WHY PHARMACY PROFESSIONALS SHOULD UNDERSTAND PHARMACOECONOMICS?

Prof. Promil Tiwari

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Pharmacoeconomics is a sub-discipline of health economics, which is a relatively new sub-discipline of economics, first appearing in the scientific literature in the 1960s. The definition of pharmacoeconomics is "the description and analysis of the costs of pharmacological therapy to health care systems and society." It identifies, quantifies, and compares the costs (resources expended) and outcomes (clinical, economic, and humanistic) of pharmaceutical products and services. Applied pharmacoeconomics can assist in decision making, analysing the affordability of medicines to patients, gaining access to medicines when needed, and comparing different products for illness treatment. Recently, the importance of pharmacoeconomics in the decision-making process regarding the inclusion of new medications in public funding schemes has grown and become increasingly essential. The rise in health-care spending has driven many governments, health-insurance companies, and health-care providers around the world to implement ways to manage the high cost of medication, such as formulary management and the use of pharmacoeconomics. Because patients are the ultimate users of healthcare services, the patient perspective is critical. Patients' costs are essentially what they pay for a product or service-that is, the portion not covered by insurance. Costs from the provider's point of view are the true costs of providing a product or service, independent of what the provider charges. Insurance companies, employers, and the government are all examples of payers. Costs, in this context, reflect the prices for healthcare items and services permitted or reimbursed by the payer.

From this vantage point, costs encompass patient morbidity and death, as well as the overall costs of providing and receiving medical treatment. An appraisal from this point of view would also cover all of the significant implications that an individual could face. In countries where medicine is nationalized, society is the dominating viewpoint.

# TABLE OF CONTENTS

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL ACTIVITIES OF SCHIFF'S BASE METAL COMPLEXES DERIVED FROM HYDROXY TRIZENE AND AROMATIC ALDEHYDE

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**ABSTRACT**

Schiff's bases are one of the important classes of the ligands, which are obtained by the condensation of amine and aromatic aldehyde. The metal complexes of Schiff's bases are widely considered because they show excellent biological activities. Such as antimicrobial, antitumor, antibacterial, and anti-fungal properties. The present studies deal with synthesis and characterization of Schiff's base transition metal complexes synthesized from general formula (ML) M=Co(II) and Cu(II); L = Schiff's base ligand derived from hydroxy triazene and aromatic aldehyde. The Synthesized complexes were characterized by physical and spectral analysis such as FTIR, 1HNMR, and XRD. They were also tested in vitro biological activities. The Schiff base behaves as a bidentate ligand with O and N donors and binds to metal ions via hydroxy group oxygen and azomethane nitrogen. The Schiff's base ligands and Metal complexes' structure was confirmed by modern instrumental techniques viz, FTIR and 1HNMR. The in-vitro antibacterial studies were carried out against S. aureus, E. coli, and P. Aeruginosa and anti-fungal activities *C. albicans, A. clavatus.* The result shows that the complexes have excellent biological activities.

## METHOD DEVELOPMENT AND VALIDATION OF MONOMETHYL FUMARATE IN RAT PLASMA BY USING LIQUID CHROMATOGRAPHY- MASS TENDEM SPECTROMETRY (LC-MS/MS)

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**ABSTRACT**

Monomethyl fumarate (MMF) is the pharmacologically active metabolite of immune modulator dimethyl fumarate (DMF). Monomethyl fumarate is rapidly formed by hydrolysis of dimethyl fumarate. It is commercially available under the brand name Bafiertam for the treatment of relapsing forms of multiple sclerosis, relapsing--remitting disease and active secondary progressive disease in adults. Multiple sclerosis is a disease in which the protective

Online ISSN: 2321-6794 Print ISSN: 2321-7162

covering of nerves is eaten away by the immune system, it is a neurodegenerative disease. Recently the U.S. Food and Drug Administration (FDA) approved Bafiertam bioequivalent to Biogen's dimethyl fumarate in April,2020. Mono methyl fumarete is a basic leucine zipper (bZIP) protein that regulates the expression of antioxidant proteins that protect against oxidative damage triggered by injury and inflammation. Monomethyl fumarate alters the NFE2L2 (Nuclear factor erythroid 2-related factor 2) transcription factor. NFE2L2 (or NRF2) is a basic leucine zipper (bZIP) protein that regulates the expression of antioxidant proteins that protect against oxidative damage triggered by injury and inflammation. Several drugs that stimulate the NFE2L2 pathway are being studied for treatment of diseases that are caused by oxidative stress. To develop bioanalytical methods for pharmaceutical industry by using novel techniques for quantification of drug molecules such as liquid chromatography–tandem mass spectrometry. To help address these challenges, the utilization of analytical technologies and high throughput automated platforms in order to perform more experiments in a shorter time frame with increased data quality.

**Objective:** The development of new analytical method and their validation parameters in rat plasma by using the most hyphenated technique LC-MS/MS. Through this poster presentation, you will know how monomethyl fumarate (MMF) acts and their future aspects and its recent ongoing clinical trials by WHO & USFDA.

## SYNTHESIS AND EVALUATION OF NITRIC OXIDE-RELEASING AMODIAQUINE ANALOGUES AS ANTIMALARIALS

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### ABSTRACT

Malaria is the most lethal infection produced by *Plasmodium falciparum* and is a serious public health problem all over the world, particularly in tropical and subtropical nations. The majority of deaths are caused by a complication of *P. falciparum* infections in which mature-stage parasite-infected erythrocytes stick to the vascular endothelium of post-capillary venules, mainly in the brain. Amodiaquine contains the same phenolic –OH as paracetamol, which causes liver damage. The phenolic -OH will be used to create amodiaquine analogues that release nitric oxide. As a result, the proposed analogues should be free of liver toxicity and have better therapeutic activity than the parent medication. The proposed Amodiaquine nitric

Online ISSN: 2321-6794 Print ISSN: 2321-7162

oxide-releasing analogues are intended to be hepatotoxic-free.

**Keywords:** Malaria, Amodiaquine, Nitric oxide releasing.

## CURRENT CONCEPTS, TESTOSTERONE UNDECANOATE IN THE TREATMENT OF MALE HYPOGONADISM

Ajay Singh, * Dr. Abhishek Soni

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### ABSTRACT

The aging population is becoming more and more, which is significantly associated with a decrease in serum testosterone levels, and causing a series of clinical signs and symptoms of hypogonadism like sexual function, infertility, fatigue, anemia, muscle strength, etc. Male hypogonadism is characterized by defects in spermatogenesis and failure of the testes to produce an adequate amount of testosterone. Testosterone replacement therapy is required for patients with low testosterone levels associated with ages. However, oral testosterone preparations cause a rapidly metabolized due to its first pass through the liver, which is unable to raise serum testosterone level into the normal range. Testosterone undecanoate (TU) is a pro-drug of testosterone and absorbed in the intestinal lymphatics. TU is prepared through the 17-b position esterification of natural testosterone with undecanoic acid. This favorable profile allowed for much longer dosing intervals and a sustained normalized testosterone level, avoiding the flux of supra- and subphysiological testosterone levels typical of traditional esters. Testosterone undecanoate (TU) represents an exciting new testosterone replacement therapy for hypogonadal men due to its convenient dosing schedule and favorable pharmacokinetic and safety profiles. Testosterone undecanoate is used in androgen replacement therapy. It is specifically approved only for the treatment of hypogonadism. On the other hand, similarities between normal aging and the symptoms of mild androgen deficiency make the clinical diagnosis of hypogonadism in aging men more challenging.

**Keywords:** Testosterone undecanoate, hypogonadism.

## HEMATINICS

Akshita*

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

A Hematinic is a nutrient required for the formation of blood cells in the process of hematopoiesis. The main hemantitics are iron, B12 and Folate. Deficiency in hematinics can lead to anemia. Hematinics are drugs which used for the treatment and prevention of anemia Erythropoietin is hormone that stimulates erythropoiesis which can also be given as a medicine to increase the hemoglobin content of the blood, but erythropoietin is not considered as hematinics as it is not considered a nutrient. Folic acid, iron dextran, ferumoxytol etc. these types of drugs are given during deficiency of Hematinic.

**Keywords:** Erythropoietin, iron, folate, hemoglobin, ferumoxytol, anemia, hematopoiesis.

## FORMULATION AND EVALUATION OF MOUTH DISSOLVING TABLETS OF TELMISARTAN

Anchal Sharma*, Amit Chaudhary, Bhupendra Singh
*School of Pharmacy, Abhilashi University, Chailchowk, Mandi HP
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**ABSTRACT**

**Objective:** The purpose of this research was to formulate mouth dissolving tablet of Telmisartan for rapid action. Telmisartan is an antihypertensive drug. The crucial aspect in the formulation of mouth-dissolving tablets is to mask the bitter taste and to minimize the disintegration time while maintaining good mechanical strength of the tablet.

**Method:** Solid dispersion was prepared to increase the solubility and dissolution rate of Telmisartan with Poloxamer188 (PXM188) using fusion method. Drug polymer interactions were investigated using differential scanning calorimetry (DSC), x-ray diffraction (XRD) and Fourier transform infrared spectroscopy (FTIR). For the preparation of Telmisartan mouth dissolving tablets, its 1:3 solid dispersions with PXM188 were used with various synthetic superdisintegrants (Croscarmellose sodium, SSG). In an attempt to construct a statistical model for the prediction of wetting time, disintegration time and percentage friability, a 3 2 full factorial design was used to optimize the influence of the amounts of superdisintegrants.

**Results and Conclusion:** The results indicate that the optimized tablet formulation provides a DT 45 sec, WT 65 sec, percentage drug release 96.23% and acceptable friability (0.82%). Stability studies of optimized formulation revealed that formulation is stable.

**Keywords:** Telmisartan, Fusion method, Mouth dissolving tablets, factorial design.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## IMPACT OF COVID-19 ON NEUROINFLAMMATION AND OTHER NEUROLOGICAL DISORDERS

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### ABSTRACT

SARS-CoV-2 is a new coronavirus that causes severe respiratory illness, and the source of the COVID-19 pandemic, which is expected to kill millions of people throughout the world. According to recent research, SARS-CoV-2 affects the central nervous system and other organs. Also, COVID-19-related problems have been seen in persons with neurological disorders such as stroke, Parkinson's disease and Alzheimer's disease. Here we have discussed about viral replication as well as inflammation caused by SARS-CoV-2. We also include COVID-19-related neurological issues as well as their treatments and vaccinations for successful cures. At last different receptors involved in the development of neuroinflammation and other neurological disorders have been discussed.

**Keywords:** COVID-19; neuroinflammation; neurological disorders; SARS-CoV-2; Alzheimer's disease.

## PHYTOCHEMICAL CHARACTERIZATION AND EVALUATION OF ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF LANTANA CAMARA L. CRUDE EXTRACT

Ankit Negi[1], Subhash Chandra[2] and Rishendra kumar[1*]
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### ABSTRACT

**Background and Objective:** Phytochemical with antimicrobial and antioxidant properties have tremendous potential in suppressing both plant and human diseases. Screening and identification of such compounds from diverse plant species is the first step toward realizing

Online ISSN: 2321-6794 Print ISSN: 2321-7162

their medicinal and agricultural application. In the present study, an invasive plant species, i.e., *Lantana camara* L. have been selected to investigate the *in vitro* antimicrobial and antioxidant activities of the leaf and flower extract in different solvents viz., methanol, acetone, Ethyl acetate and water.

**Methodology:** Dried leaf/ flower powders were extracted using Soxhlet extractor method with four different solvents. Crude extracts were tested antibacterial activity against *S.typhi (MTCC-3224), S.aureus (MTCC-737), E.coli (MTCC-40), Proteus vulgaris (MTCC-1771).*

**Result:** It was found that plant extract with Ethyl acetate and methanol had the highest antibacterial activity against all bacterial strain. Extract with acetone and water had the least or no antibacterial activity. The MIC and MBC of leaf/ flower extracts, obtained with methanol and Ethyl acetate were determined. . Extracts of leaves (LE) and flowers (FE) from *L. camara* were tested for their antioxidant potential [total antioxidant activity, DPPH assay, FRAP assay and ABTS assay]. Both extracts exhibited high antioxidant and free radical scavenging activities with relatively stronger antioxidant activity in the case of whole leaf extracts. FTIR and GC-MS also carried out for chemical analysis of crude extracts. FTIR spectral study of methanol and ethyl acetate extract of LE and FE revealed the presence of different functional groups such as alkaloid, phenolic group, aromatic compound, carboxylic group etc., indicates the existence of various metabolites in the extracts. GC-MS study revealed the presence of 51 bioactive compounds, in methanol leaf extract and 49 bioactive compounds in ethyl acetate flower extract of which 29 components were predicted to have various functions like anti-inflammatory, antiandrogenic, anti-tumor, antimicrobial, etc**.**

**Conclusion:** These findings point to the potential of the plant as a probable source of bioactive compounds and provide a scientific basis for its ethnomedicinal uses for infectious diseases.

## REVIEW ON *DARUNAJ-AQRABI (DORONICUM HOOKERI C.B. CLARKE)*: AN UNEXPLORED MEDICINAL PLANT OF UNANI SYSTEM OF MEDICINE

Ankush Dhiman*

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### ABSTRACT

Darunaz-Aqrabi (Doronicum hookeri CB Clarke ex. Hook.f.) is a medicinal plant (Family Asteraceae) which has long been used in the Unani Medicine System (USM) to produce cardiac tonic (rejuvenating and stimulant), nerve tonic, carminative, embryos protective, antidote, etc. functions in various formulation. It is extremely valuable for palpitations so included in

Online ISSN: 2321-6794 Print ISSN: 2321-7162

medicines specific for the heart. Due to its anti-inflammatory properties and protective properties (repair), rhizomes are widely utilized in compound formulations that have a tonic result on the body.

**Aim of the review:** The main objective of this review is to show the significance of Darunaj-aqrabi in USM. This review provides important information focusing on traditional practice, phytochemistry, and the medical profile, thus identifying areas for research and future opportunities for research and development of this plant.

**Materials and Methods:** All available information associated with Darunaj-aqrabi in internationally recognized science repositories including Pub Med, Direct Science, Scopus, Sci Finder, Google Scholar, Microsoft academy and Web Science are searched. Additional information was collected in an old USM document on Herbs, Unani Pharmacopoeia, and so on.

**Result:** These texts support its traditional use in formularies or by local people such as digestion, carminative, child protection, cardiotonic, stomach tonic, liver tonic, lithotriptic, antidote etc. The main phytochemical elements are alkaloids; saponins; flavonoids, photoactive thiophenes, sesquiterpene alcohol, paralianchol and its acetophenone. There is limited information available on this plant.

**Conclusion:** The review studies support its use as a digestive, carminative, child protection, cardiotonic, stomach tonic, liver tonic, lithotriptic, antidote etc. However, many features of this tool are still unknown. In line with this, there's insufficient detail in phytochemistry and a toxic profile. Thanks to the widespread use of Darunaj-aqrabi, further research into pharmaceutical activities, phytochemistry, toxicity and side effects is required to work out its therapeutic value.

## NOVEL *N*-SUBSTITUTED INDOLE DERIVATIVES AS POTENTIAL ANTIOXIDANT AND ANTI-INFLAMMATORY AGENTS: SYNTHESIS, BIOLOGICAL EVALUATIONS, AND MOLECULAR DOCKING STUDY

Archana Kumari[1*], Rajesh Kumar Singh[2]

[1*]Ph. D Research Scholar at I.K. Gujral Punjab Technical University, Jalandhar, Punjab, India

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### ABSTRACT

Inflammation is a protective biological process, but under extreme conditions, it can become

Online ISSN: 2321-6794 Print ISSN: 2321-7162

highly dreadful to the body. The goal of this study was to synthesize *N*-substituted indole derivatives with different heterocyclic moieties with the aim to get highly potent anti-inflammatory and antioxidant agents. Antioxidant activity was evaluated by the DPPH assay and the reducing power assay. Selected derivatives were evaluated for anti-inflammatory activity at an acute (carrageenan-induced paw edoema method) and chronic level (formalin-induced inflammation method) using indomethacin as a standard drug. Herein, twelve indole derivatives **(11a-c, 12a-c, 13a-c, and 14a-c)** were synthesized**.** Among all, compound **12c was found to be the best inhibitor** of the COX-2 enzyme as it displayed good interaction energy. The compounds **11a** and **12c** were found to be the most potent as compared with standard ascorbic acid in antioxidant evaluation. From the collected results, compounds **12c** and **13b** were the most potent against acute and chronic inflammation.

**Keywords:** Indole, COX-2, Anti-inflammation, Antioxidant, Molecular docking, ADME.

## FLOATING MICROSPONGES

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### ABSTRACT

Floating microsponges are an approach to prolong gastric residence time, there by targeting site-specific drug release in the upper GIT for local or systemic effect. Gastro retentive dosage forms (GRDFs) are being used from a very long time to improve therapy with several essential drugs. Floating microsponge greatly improves the therapy of stomach by releasing the drug locally and thus used for drug targeting at particular organ. This can be sustained over a longer duration of time. Floating drug delivery (FDDs) permit prolonged and continuous release of the drug to the upper part of Gastro intestinal tract (GIT) and this expressively extend the duration of drug release and improve bioavailability of drugs that have narrow therapeutic window, by this technique dosing frequency and patient compliance is increased. The purpose of this paper is to briefly describe the floating microsponge drug delivery (FMDD), factors related to Floating Drug Delivery, its advantages disadvantages, and emphasis is given over its significance over conventional form of drug deliveries.

## PROCESS ANALYTICAL TECHNOLOGY-BASED QUALITY SYSTEM IN PHARMACEUTICAL INDUSTRIES

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

From dosage form manufacture to final quality assurance, spectroscopy is an emerging tool for assessing the quality of pharmaceutical samples. Traditional methods for managing pharmaceutical tablet quality are time-consuming and destructive, but spectroscopic approaches allow for quick and non-destructive analysis. Spectroscopy has the benefit of collecting both spatial and spectral information (hybrid imaging), which is beneficial for the chemical imaging of pharmaceutical samples. On tablet samples, these chemical pictures provide both qualitative and quantitative information. Spectroscopic techniques are utilized in pharmaceutics for a range of applications, including determining particle size, product composition, and the concentration, uniformity, and distribution of the active medicinal ingredient in solids, as well as analysing the moisture contents of powder samples.

**Keywords:** PAT, Imaging, Non-Destructive Spectroscopy.

## TRADITIONAL MEDICINES USED AS DIURETICS

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**ABSTRACT**

Diuretics (water pills) are medications designed to increase the amount of water and salt expelled from the body as urine. They're often prescribed to treatment of high blood pressure. There are main three types of synthetic diuretic, are called thiazide, loop, and potassium-sparing diuretics. All of them make body excrete more fluids as urine. The synthetic diuretic have some side effects include increased urination and sodium loss, hypokalemia (which can cause life-threatening problems with heartbeat). Other possible side effects of diuretics include: Dizziness, Headaches, Dehydration, Muscle cramps, Joint disorders (gout). To overcome these problems, the traditional medicines are also used as diuretic. Some examples of traditional diuretics are: Dandelion, Hawthorn, Horsetail, Juniper, Green and black tea, Parsley, Hibiscus.

**Keywords:** Diuretics, Hypokalemia, Traditional medicines, Water pills.

## FORMULATION AND EVALUATION OF POLY HERBAL HAIR OIL

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

Now day herbal products are widely used due to their less side effect with better safety. The present work was aimed to formulate and evaluate the poly herbal hair for using various herbs. Different herbs like amla, neem, bhringraj, ashwagandha, shatavari, jatamansi, nirgudi, aloe vera, pudina, til oil, shankpuspi, licorice, coconut oil etc. are used to prepared the poly herbal hair oil for alopecia or hair growth. The prepared hair oil was evaluated by different parameters such as sensitivity test, saponification value, pH, viscosity, specific gravity. Due to this parameter active constituents in the drug were analysis as the result it enhances hair growth.

## A REVIEW: ROLE OF NANOTECHNOLOGY IN NUTRACEUTICALS

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**ABSTRACT**

The nanotechnology is used in nutraceuticals is rapidly growing due to their ability to improve the solubility of the active ingredients, stability and bioavailability, also they have unique property like small size and high surface-to- volume ratio. Their physiochemical properties are responsible for potential adverse effects of nanomaterials on human health. At present, there are many nutraceutical products covering drugs, dietary supplements that can be used for management of health disorders. For effective use of medicines, the delivery of nutraceuticals for body usage is very important. To development of nutraceutical formulations, on the bases of present advanced nanotechnology, many new techniques can be used for improving delivery of nutraceutical.

## PHYTOCHEMICAL AND PHARMACOLOGICAL INVESTIGATION OF ERIGERON *ANNUUS* LINN.

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**ABSTRACT**

Erigeron *annuus* Linn. is a flowering shrub of Asteraceae family indigenous to North America. This plant is used traditionally as well as medicinally for the treatment of many diseases like

Online ISSN: 2321-6794 Print ISSN: 2321-7162

cancer, inflammation, diabetes, indigestion, enteritis, epidemic hepatitis, haematuria. Plant was collected, authenticated with herbarium no. 13600 and extracted through Soxhlet extraction technique. Compounds from the fractions were isolated by using repeated column chromatography and characterized by using IR, $^{1}$H-NMR, $^{13}$C-NMR and Mass spectroscopy. Two compounds ASLE-1 and ASLE-2 isolated from ethyl acetate fraction of leaf by using repeated column chromatography they were identified as Eugenol-O-*β*-D-glucopyranoside and quinic acid derivative such as: 3-caffeoyl quinic acid, respectivelyASLE-1 found to be most active against PC3- prostate cancer cell line with 41% inhibition at 200µg/mL.

## PREPARATION AND EVALUATION OF SILVER NANOPARTICLES LOADED PHYTOGEL OF HERBAL EXTRACT(S) FOR THEIR WOUND HEALING ACTIVITY

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### ABSTRACT

"Green nanotechnology" has emerged as one of the most promising technologies in use across the board. Herbal remedies have been used for centuries all throughout the world; herbal medications are particularly popular in India. Researchers are drawn to nanoparticles (NPs) because of their distinctive features, which include their small size (1–100 nm), high surface-to-volume ratio, and heightened reactivity. The 'Green method' of preparing silver nanoparticles (AgNPs) is an environmentally friendly, less hazardous, and low-cost technology that should be further investigated for the possibility of diverse plant extract(s) to manufacture nanoparticles. Plant-mediated nanoparticle production allows for simple extracellular nanoparticle preparation in a single step. They have a higher absorption rate and bioavailability than conventional herbal extracts. However, in herbal extracts, poor solubility and limited absorption of lipophilic bioactive components are two major issues. Nanoscale delivery technologies can be used to administer herbal extracts more effectively. Furthermore, the nanostructure of herbal extracts and phytoconstituents may improve bioavailability, influence release to the wound site in the manner of controlled drug delivery systems, and increase permeability to the underlying layers of the skin, all of which are important for the healing process and the treatment of inflammation. Overall, when employed in nano-formulations, various herbal extracts and their phytoconstituents have shown excellent effectiveness in the

Online ISSN: 2321-6794 Print ISSN: 2321-7162

treatment of wounds and inflammation, and so could be considered as possible pharmaceutical medications in the future.

**Keywords:** Silver Nanoparticles, Green nanotechnology, Plant extracts, green synthesis, Anti-inflammatory activity, Wound healing activity.

## PRESCRIPTION AUDITING FOR PRESCRIBING INDICATORS IN THE DEPARTMENT OF PERIODONTICS OF A DENTAL COLLEGE

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### ABSTRACT

**Objective:** Drug utilization research is vital in clinical practice because it helps to improve local and national drug prescribing regulations. The study's ultimate objective is to make drug use more sensible. The objective was to evaluate the prescriptions to determine compliance with WHO prescription indicators. Such a study's ultimate purpose is to make drug use more sensible.

**Methods:** This prospective cross-sectional research aims to collect data on drug usage among periodontics outpatients. Data was obtained prospectively from 849 patient medical records after applying inclusion and exclusion criteria. The patient's information contained their OPD number, age, gender, health condition description, prescription parameters, including medicine name, route, strength, dose form, amount, duration, and investigations. Following data collection, WHO key drug indicators were used to assess medication prescriptions.

**Results:** Drugs per encounter averaged over WHO recommended value. In addition, the percentage of antibiotic prescription encounters was found to be relatively high. According to NLEM 2015, less than 40% of medicines were given, and only 15% of generic names were prescribed.

**Conclusion:** Dentists do not follow the prescription standards for utilizing generic drug names. The maximum number of generic drugs should be prescribed. As a result, drugs must be

Online ISSN: 2321-6794 Print ISSN: 2321-7162

prescribed following WHO's guidelines.

**Keywords:** Drug utilization, prescription, essential drugs, generic name.

## HERBAL-MEDICINES

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### ABSTRCT

Herbal medication has been used for lots of years. It is estimated that 80% of world population count number on typical natural medication for predominant health care. In current years, natural redress has been considered as dietary complement for disorder prevention and as alternative/complementary medicine. A huge range of natural medicines are without problems handy in the market all over the world. With the rising utilization of herbal products, security and efficacy of natural medicinal drug have end up a public health concern. Adverse health effects related with herbal products may want to be attributed to each inherent poisonous outcomes of natural medicine and toxicities precipitated by adulterants/contaminants. Increasing evidence, regarding side outcomes of herbal medicine, has highlighted the demand and necessity of toxicological studies for natural products. Toxicology constitutes a crucial position in the development of herbal medicines. With the advancements of analytical methods and molecular technology, coupling with the conventional take a look at systems, the '-omic-' technology makes a widespread contribution to the predictive and preclinical toxicology of natural medicine. In this chapter, side results related to natural medication and its adulterants/contaminants are summarized. The current software of '-omics-' science for toxicological evaluation of natural merchandise is also illustrated.

## N-MANNICH BASE DERIVATIVES OF PRIMAQUINE AND O-CHLOROISATIN: SYNTHESIS AND CHARACTERIZATION

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### ABSTRACT

**Aim:** The goal of this study is to synthesize and characterize N-Mannich base Primaquine and o-chloroisatin derivatives for the treatment of Cerebral Malaria.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

**Material and methods:** The N- Mannich base is a chemical method to making pharmacological molecules more lipophilic, which aids in their passage through the Blood Brain Barrier. The N-Mannich base derivatives of Primaquine and o-chloroisatin were synthesized and characterized, and an in vitro drug release investigation was carried out using the shake-flask method.

**Results**: IR and 1H-NMR spectroscopic techniques were used to synthesize and characterize N-Mannich base derivatives of Primaquine and o-chloroisatin, and an in vitro drug release analysis revealed a maximal increase in lipophilicity (as compared to Primaquine) with a log P value of 5.27.

**Conclusion**: The current research suggests that synthesizing N-Mannich base derivatives of Primaquine o-chloroisatin will aid in improving the lipophilicity of the molecule, allowing it to pass the Blood Brain Barrier for cerebral malaria treatment.

**Keywords:** N-Mannich Base, Cerebral Malaria, docking, Primaquine, *o*-chloroisatin, Lipophilicity.

## THE CRUCIAL ROLE OF SIX SIGMA IN THE PHARMACEUTICAL INDUSTRY

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### ABSTRACT

**Objective:** The goal of this abstract is to go through Six Sigma in the pharmaceutical business in depth. The history, benefits, characteristics, implementation, methodology, organisation, certifications, and applications of Six Sigma are discussed.

**Purpose:** The purpose of this strategy is to cut down on unneeded costs while increasing customer loyalty by providing exactly what the consumer wants. The major purpose of higher quality is for the company to make more money. In the simplest terms, quality is defined as the degree of excellence of a product or service provided to a consumer.

**Method:** This method uses a methodical approach and assigns particular tasks to participants. It is a business-driven approach to improving processes, reducing process uncertainty, and reducing defects. It's a waste-reduction, profit-boosting, and product-standards-and-user-needs-improving process improvement method being used in the pharmaceutical sector. Six Sigma is a method of data collection and statistical analysis that is systematic. Investigate the source of errors and how to correct them.

**Conclusion:** It complies with the client's specifications. If the customer is satisfied with the

Online ISSN: 2321-6794 Print ISSN: 2321-7162

product or service, it meets the required quality standards. In the pharmaceutical sector, six sigma is used to eliminate waste and make effective adjustments in the production process to improve operating performance and improve quality.

## NANOEMULGEL: A NOVEL APPROACH IN DRUG DELIVERY SYYSTEM

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### ABSTRACT

The incorporation of nanoemulsion system integrated into hydrogel matrix affects a better skin penetration. Nanoemulgels are known as the formulation of nanoemulsion based on hydrogel. Many scientists have been drawn to this nanoemulgel combination in the hopes of developing a variety of medications to treat a variety of skin problems. Nanoemulgel improves the stability of a nanoemulsion formulation by lowering surface and interfacial tension, which increases the aqueous phase viscosity. Because the system has a higher viscosity than the nanoemulsion system, nanoemulgel is also known as hydrogel-thickened nanoemulsion. Nanoemulgels have been shown to be highly effective in the treatment of autoimmune illness, neurological diseases, diabetes, inflammatory disorders, and a variety of other conditions. Nanogels protect biomolecules like enzymes and genetic material from destruction, while their macromolecular features let tiny molecules circulate longer and serve as a handy platform for combining therapeutic compounds. Nanoemulgel use has increased in recent years as a result of the preparation's improved acceptability among patients due to its non-greasy, convenient spreadability, easy application, and good therapeutic and safety profile. The focus of this review is on providing clear explanations.

**Keywords:** Nanoemulgel; Spreadability; Nanoemulsion.

## 3D PRINTING IN PHARMACEUTICALS: CHALLENGES AND FUTURE PROSPECTIVES

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

3D printing is emerging as a revolutionary technology in drug research field paving the way for human and animal studies by bringing significant stakeholders, such as clinicians, patients, and pharma industries in a multidisciplinary approach to a common platform.3D printing offers several substantial benefits, including the capacity to customise medications to individual patient needs, shorten drug delivery timeframes cutting down the labour requirements and large costs associated with conventional large-scale manufacturing processes, like tableting and encapsulation along with supply on-demand medication to individuals in hospitals, pharmacies, and hard-to-reach places. The given peace of work is framed to share the insight about the different 3D techniques and the regulatory and technical challenges faced during its applications. The main 3D printing technologies that are currently being leveraged for producing pharmaceuticals – binder jetting, vat polymerization, powder bed fusion (PBF), material jetting, and material extrusion. The adoption for a selective 3D technique depends on the end use such as at the dispensing point in hospitals and pharmacies- extrusion-based methods such as fused deposition modelling (FDM), semisolid extrusion, or direct powder extrusion are probably better suited. Other methods, like as digital light processing (DLP) and stereolithography (SLA), that are incorporated in vat photopolymerization, suited for printing drug-loaded medical devices. Despite this growing support for printing technologies, regulatory and technical challenges still remain, before the widespread adoption of this technology into the pharmaceutical industry will occur.

**Keywords:** Customized medications, DLP, multidisciplinary approach.

## FORMULATION AND EVALUATION OF TRANSDERMAL PATCHES OF ONDANSETRON HYDROCHLORIDE

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**ABSTRACT**

The main objective of the study is to formulate and evaluate the transdermal patch of ondansetron hydrochloride. Transdermal drug delivery system has been developed to achieve

Online ISSN: 2321-6794 Print ISSN: 2321-7162

the objective of systemic medication through topical application to the intact skin surfaces. The delivery of the drug tansdermally provide important advantages over oral and intravenous delivery routes such as avoidance of gastrointestinal tract difficulties, avoidance of the first pass metabolism, quickly termination of administration by simple removal and less chance of over or under dosing. The transdermal patches of ondansetron HCL was prepared by solvent casting method employing mercury as a substrate. HPMC K4M and Eudragit RL 100 are used as polymers. Glycerin is used as plasticizer. The prepared transdermal patches of ondansetron HCL were smooth, uniform, and flexible. The melting point of the ondansetron HCL was found to be in the range of 170C-180C. The absorption maxima of ondansetron HCL were observed at 310nm.The drug is sparingly soluble in water and ethanol and slightly soluble in acetone, chloroform and ethyl acetate. FTIR technique has been used to study the chemical interaction between drug and excipients. In this study, it has been observed that there is no physical and chemical interaction between ondansetron HCL and the polymer used.

## FORMULATION AND EVALUATION OF COLON SPECIFIC TABLET OF 5-FLUOROURACIL

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### ABSTRACT

In digestive system of human beings, the colon and rectum are two important parts. Cancer attacking either of these organs may say to be colorectal cancers. The effect of Conventional cancer chemotherapy is not very satisfactory for treatment of colorectal cancer, as the drug molecule does not reach the target site at effective therapeutic concentration harsh systemic toxic effect. This problem overcome by develop an unique colon focused compression coated tablet of pectin matrix employing Inulin and Eudragit RS100 for site specific delivery of 5-FU to the colon while avoiding drug release in the stomach or small intestine. The matrix tablets of 5-FU with different concentrations of pectin (30%, 45%, 60%, 75% w/w) were prepared by direct compression method and further coated with combination of sustained release polymer Eudragit RS 100 and natural polymer inulin in order to retard the release of drug in upper GIT. Hence 75% w/w pectin matrix tablets coated with Eudragit RS 100 and inulin in the ratio of 60% : 40% can be successfully used to protect the premature release of hydrophilic drug moiety 5-FU in the upper part of GIT and decrease the side effect of 5-FU produced by its systemic absorption that typically seen in its conventional dosage form. The colon targeted drug delivery

Online ISSN: 2321-6794 Print ISSN: 2321-7162

system for 5-FU for an effective and safe therapy was successfully established.

## POLYMERIC NANOPARTICLES FOR MELIORATE BIOAVAILABILITY

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### ABSTRCT

**Objective:** Polymeric Nanoparticles are the sub-micron colloidal particles consist of active ingredients encapsulated within or adsorbed to macromolecular substances. The main objective of this study was to formulate and evaluate nanoparticle of nifedipine for meliorate the permeation across GIT.

**Method:** Nanoparticles of polylactic glycolic acid – nifedipine was prepared by using emulsification solvent diffusion method. The prepared nanoparticle was evaluated for encapsulation efficiency and drug loading as well as other parameters.

**Result:** Nanoparticles was prepared successfully and lead to the improvement in the bioavailability of nifedipine.

## 1,3,4-OXADIAZOLES: AN ESTABLISHED SCAFFOLD FOR EXPLORATION OF ANTIMICROBIAL ACTIVITY

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### ABSTRACT

The antibiotic resistance is the one of the major threats to public health system. The emergence of drug resistance to first line antibiotics and the importance of oxadiazole as antimicrobial agent have prompted us to undertake the synthesis of few novel oxadiazole analogues hitherto unreported for their antimicrobial activities. The structures of the compounds were confirmed by Nitrogen analysis, IR and $^{13}$C-NMR spectral data. The antimicrobial properties of the compounds were investigated against bacterial strains i.e. *Proteus mirabilis* (MTCC-425), *Pseudomonas aeruginosa* (MTCC-424), *Bacillus subtilis* (MTCC-639) and *Staphylococcus*

Online ISSN: 2321-6794 Print ISSN: 2321-7162

*aureus* (MTCC-96) and fungal strains i.e. *Aspergillus niger* (MTCC-1334) and *Candida albicans* (MTCC-227) using disk diffusion method. Some of the compounds demonstrated marked antibacterial and antifungal activities. Compound 27 was found to possess significant antimicrobial properties against all the tested pathogenic microorganisms. Other active compounds were 3, 8, 11 and 35. Structure activity relationship among the synthesized oxadiazoles has also been established.

**Keywords:** Oxadiazoles, Antimicrobial activity, Disk diffusion method.

## ANTIBACTERIAL, ANTIOXIDANT AND PHYTOCHEMICAL ANALYSIS OF ENDOPHYTIC FUNGI ISOLATED FROM TRADITIONAL MEDICINAL PLANT *CURCUMA LONGA* L.

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### ABSTRACT

*Curcuma longa* L. is well known, Indian traditional medicinal plant, popularly known as the wonder drug of life. *C. longa* is ecological niche for a wide array of microorganisms. The objective of the current study was to isolate the potential endophytic fungi from healthy parts of *Curcuma longa* i.e., rhizome, roots, stem and leaves. Further, the selected endophytic fungal isolates were evaluated for their antibacterial potential against human pathogens and for antioxidant and phytochemical analysis. A total of 38 fungal endophytes have been recovered from healthy plant parts, out of which 16 isolates were recovered from rhizome, 8 were from stem, 9 were from leaves and 5 isolates from roots. Out of 38 fungal endophytes, 11 isolates showed inhibitory activity against test human pathogens. The prospective endophytic fungi were selected for metabolite production and extracted with ethyl acetate. Fungal endophytes were further screened for antibacterial, antioxidant, and phytochemical potential. Test pathogens used in the study include *Escherichia coli MTCC77*, *Staphylococcus aureus MTCC96*, *Pseudomonas aeruginosa MTCC3163*, *and Bacillus cereus MTCC430*. The antioxidant potential of methanol extracts was performed by DPPH (2,2-diphenyl-1-picrylhydrazyl) method and FRAP (Ferric Reducing Antioxidant Power) assay. Phytochemical screening of the extracts was also done to detect the presence of alkaloids, flavonoids, tannins, phenols, saponins, steroids, terpenoids, and proteins. Therefore, our results demonstrate that

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

*Curcuma longa* L. is a probable niche for potential endophytic fungi with the potential of producing bioactive compounds.

**Keywords**: *Curcuma longa* L., Endophytic fungi, Antibacterial activity, Antioxidant activity, Phytochemical screening.

## NANOEMULSION: A NOVEL APPROACH IN DRUG DELIVERY SYYSTEM

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### ABSTRACT

Nanoemulsion are emulsions with particle sizes of less than one micron that are now being studied as drug carriers to improve the delivery of therapeutic drugs. They are by far the most advanced nanoparticle systems available for regulated medication delivery and targeting when it comes to systemic administration of biologically active medicines. Nanoemulsion are a thermodynamically stable isotropic system in which two immiscible liquids (water and oil) are mixed to form a single phase with a droplet diameter ranging from 0.5 to 100 um using a surfactant or a surfactant mixture with a droplet diameter ranging from 0.5 to 100 um using a surfactant or a surfactant mixture with a droplet diameter ranging from 0.5 to 100 um. Nanoemulsion droplets are typically 20-200 nm in size, with a narrow size variation within this range. Nanoemulsion' usage in cosmetics, diagnostics, pharmacological therapies, and biotechnologies holds a lot of potential for the future of these industries. The emphasis in this review is on offering concise explanations.

**Keywords:** Nanoemulsion, Isotropic system, Transdermal permeability.

## A POLYMORPHIC STUDY OF TROPICAMIDE AS A GLAUCOMA DRUG

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### ABSTRACT

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

The eye is a sensitive organ that has its own anatomy and physiology. The front and back parts of the eye are affected by several vision-threatening diseases. Glaucoma is a condition that affects the anterior region of the eye. Glaucoma is most commonly caused by primary open-angle glaucoma. Tropicarpine 1 percent can produce this behavior in people with open angle glaucoma who are taking pilocarpine. Tropicamide is an antimuscarinic medication used in ophthalmology to induce a 4–8-hour mydriasis. Different polymorphs had different solubilities and dissolving speeds, resulting in non-equivalent bioavailability between forms. Polymorphism in crystalline solids refers to materials that have the same chemical composition but differ in lattice structure and molecular makeup. We will develop crystals with various solvents and compare them to one other in order to obtain ideal tropicamide crystals in this study.

**Keywords:** Glaucoma, Tropicamide, Antimuscarinic, Mydriasis, Polymorphism.

## POTENTIAL OF NATURALLY OCCURRING MUCOADHESIVE POLYMER IN VAGINAL INFECTION

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### ABSTRACT

Mucoadhesive formulations, which bind to the vaginal mucosa and play a significant role in drug release, are now being used for controlled release. The vagina is a significant area of the reproductive tract and helps as a potential route of drug administration. it is also of importance for systemic drug delivery, and uterine targeting. Currently, available dosage forms have several limitations, therefore novel concepts and dosage forms are needed. In this field, mucoadhesive polymers will play a major role. This review highlights the most important studies based on mucoadhesive polymer-systems like poly(acrylates), hyaluronic acid derivatives, pectin, chitosan, cellulose derivatives, tragacanth sulfated polysaccharides, carrageenan, Na-alginate, starch, poly(ethylene glycol), and gelatin.

**Keywords:** Mucoadhesive, Controlled release, Vaginal Infection, Mucoadhesion.

## IN VITRO PROPAGATION OF *RHODODENDRON ARBOREUM* (VERN.BURANS) (STATE TREE OF UTTRAKHAND) AN ENDANGERED RHODODENDRON SPECIES OF UTTRAKHAND HIMALAYA

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

**Objective:** To evaluate in vitro propagation of *rhododendron arboreum* an endangered rhododendron species of Uttarakhand Himalayas. It is medicinally and economically a very important plant species. Plants used in traditional medicine contain a wide range of bioactive compound.

**Method:** Plant regeneration through multiple shoots induction from shoot tips of *rhododendron arboreum* plant species.

**Result and discussion:** The proliferation from shoot-tip explants was occurred in the presence of 2-isopentenyl adenine (2-ip) or in combination with indole 3-acetic acid (IAA) in Anderson's medium (AM). Shoot regeneration was Anderson's medium supplemented with 1.5 µm 2-ip and 2 µm (IAA), which promoted shoot proliferation after ten weeks.

**Conclusion:** In vitro regeneration of *r. Arboreum* of plant have been successfully produced.

## FORMULATION AND EVALUATION OF NANOSUSPENSION GEL OF LULICONAZOLE

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**ABSTRACT**

In immunocompromised people, a superficial fungal infection can cause a variety of problems and consequences. To treat these fungal infections, new topical therapy options are urgently needed. Luliconazole is a topical antifungal medication that is used to treat fungal infections. The goal of this study was to create a novel luliconazole nanosuspension gel for topical use. Luliconazole nanoparticles incorporated in a gel might be useful as a medication delivery mechanism for topical antifungal therapy. Luliconazole nanosuspension will be prepared by pearl milling technique using zirconium oxide beads as a milling media, poloxamer 407 as a stabilizer and glycerol as wetting agent. Effect of various process parameters such as, stirring

Online ISSN: 2321-6794 Print ISSN: 2321-7162

time and poloxamer concentration will be optimized. The optimized nanosuspension will be lyophilized using mannitol as a cryoprotectant and incorporated into a topical gel using Carbopol 940 as a gelling agent for controlling the drug release. Consequently, Luliconazole nanosuspension gel could be a new approach with improved activity and increased dermal delivery for drugs with poor aqueous solubility rather than coarse drug containing gel.

**Keywords:** Nanosuspension, gel, novel, drug delivery.

## FORMULATOIN AND EVALUATION OF MOUTH DISSOLVING TABLETS OF CINNARIZINE

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### ABSTRACT

In the present research work an attempt was made to Formulation and Evaluation of Mouth Dissolving Tablet of Cinnarizine used in the treatment of motion sickness, vomiting and vertigo. Mouth Dissolving Drug Delivery Systems are new generation of formulations which combine the advantages of both liquid and conventional tablet formulations and at the same time, offer added advantages over both the traditional dosage forms. They provide the convenience of a tablet formulation and also allow the ease of swallowing provided by a liquid formulation. They have pleasant mouth feel property. They are having an acceptable taste masking property. These tablets allow the manufacture of tablet using conventional processing and packaging equipment Cinnarizine is an H1 antihistaminic drug used in the treatment of motion sickness, vomiting and vertigo. It acts by interfering with signal transmission between vestibular apparatus of inner ear and the vomiting centre of hypothalamus. The mouth dissolving tablet was evaluated for various parameters like physical appearance (shape, size and texture), organoleptic characteristics (color, odor and taste), friability, drug content, disintegration time, wetting time and dissolution. The result of evaluation found in limits of officials. the optimised formulation was selected for stability studies at 40-42o c. no significant in physical properties, drug content & drug release of tablet were observed.

## A REVIEW ON PENILE DISEASE

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

The male reproductive system consists of a pair of testes, epididymis, vas deferens, ejaculatory duct, and accessory sex glands prostate, which is controlled by hormones generated by the brain, pituitary, and gonads. Toxins in the environment, medications, hormone disruptors, and other factors make all of these organs vulnerable. Sperm and semen are produced, maintained, and transported by these organs. Hormones are in charge of a man's entire reproductive system. Neurotransmitters are chemicals that stimulate or regulate the activity of your cells or organs. The primary hormones involved in the functioning of the male reproductive system are follicle-stimulating hormone, luteinizing hormone, and testosterone. Follicle-stimulating hormone and luteinizing hormone are produced by the pituitary gland. Balanitis is an inflammation of the penis head. Balanitis can strike at any age. Francois Gigot de la Peyronie was the first to report Peyronie disease in 1743. Repetitive penile injury, which commonly occurs during intercourse or exercise, causes Peyronie disease. A curved erection isn't necessarily a cause for joy, as penis comes in a range of shapes and sizes. Peyronie disease has a substantial bend, which can be accompanied by pain or interfere with sexual function. If the problem persists, you may want to consider medication or surgery. The fibrous scar tissue inside the penis causes bent and painful erections. Peyronie disease affects about 4 out of every 100 males aged 40 to 70.

**Keywords:** Reproductive system, Peyronie, Environment, Hormone disruptors, Repetitive penile injury.

## CORONAVIRUS DISEASE 2019: DIAGNOSIS AND MANAGEMENT

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**ABSTRACT**

The coronavirus family has significant human and animal pathogens. At the end of December 2019, a novel coronavirus was recognized as the reason for a group of pneumonia cases of unidentified etiology in Wuhan, a city in the Hubei Province of China. The novel coronavinas has rapidly become widespread, resulting in an epidemic throughout China, followed by a pandemic, an increasing number of cases in various countries throughout the world. Coronavirus disease 2019 (COVID-19) is spread through large droplets produced during

Online ISSN: 2321-6794 Print ISSN: 2321-7162

coughing and sneezing by symptomatic patients, as well as amptomatic individuals before starting of their symptoms. The incubation period of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection is assumed to be 14 days succeeding exposure, mostly around four to five days. Individuals of all ages may acquire SARS-CoV-2 infection, although middle age and elder individuals are the majority. The usual clinical characteristics involve fever, dry cough, fatigue, sore throat, conjunctivitis headache, myalgia, nausea, vomiting and diarrhea. Hence, there are no unique clinical features that yet dependably differentiate COVID 19 disease from other upper/lower airway viral infections. In a subgroup of cases, by the end of the first week, COVID-19 disease may develop to pneumonia, pulmonary failure and death. The aim is here to discuss the COVID-19 disease.

**Keywords:** Coronavirus, COVID-19 disease, SARS-CoV-2 infection.

## HERBAL EXCIPIENTS

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### ABSTRACT

The Herbal or natural excipients have a great advantage over their synthetic analogues as these are non-toxic, less expensive and freely available. The increasing awareness about these herbal excipients, which are manly polymers of natural origin, the pharmaceutical industries are getting more inclined towards their use in formulation development. The plant derived gums, mucilage's from natural sources like carrageen an, thaumatin, lard, storax, agar, gum acacia, tragacanth and many more to name comply with many requirements of pharmaceutical excipients. These can be preferred for formulation development as being stable and involving less regulatory issues as compared to their synthetic counter parts. They can also be easily modified to meet the specific needs, thereby being a potent and economic vehicle for delivering active pharmaceutical ingredient in formulation. Thus, present study aims to throw light on the potential of natural excipients which can be proposed to be used as diluent, binder, disintegrant as well as lubricant in various types of formulations as they are biocompatible and capable of giving additional nutrition to the developed dosage form.

## IN-SILICO MOLECULAR DOCKING IN SCREENING OF ANTI-DIABETIC HERBAL MOLECULES

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

**Objective:** Aim of the present study was to evaluate molecular interactions of selected diabetes mellitus (DM) targets with bioactive compounds through in-silico docking study.

**Methods:** Docking screening was performed using Autodock (4.2.6), Autodock Vina software as docking tool and Pymol, Discovery Studio as visualization tools to screen potential molecules which shows maximum anti-diabetic activity. Hundred Herbal molecules were selected through literature review and in-silico docking was carried to screen best ten potential natural anti-diabetic molecules through their interaction with target receptor as PPAR (5YCP) and DPP-4 (1PFQ). Screening of the best ten molecules among hundred herbal molecules as bioactive compounds is achieved by molecular docking analysis with two best selected DM target proteins.

**Results:** In this study best potential bioactive compounds (Asparasaponin II, Baohuoside1, Daidzein, Desmanthin1, Diosmin, Genkwanin, Glycyrrhizin, Karanjin, Myricetin, Morin were successfully identified on the basis of binding energy and similar interaction compared with standards Rosiglitazone and Sitagliptin using Autodock vina, Pymol and discovery studio.

**Conclusion:** The results provide selection of best ten anti-diabetic herbal molecules as compared to the standard drug, Rosiglitazone and Sitagliptin on the basis of docking score and amino acid interaction compared with these standards.

## CURRENT TRENDS AND VARIOUS METHODS FOR PREPARING GOLD NANOPARTICLES

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**ABSTRACT**

**Objective:** Nowadays, nanotechnology is the most promising leading potentials areas and scientific in modern key skill growth towards of the humankind. Recent years have shown the great progress and significant roles in the study and propose of nanomaterials in the development of nanotechnology, biomedical, nanoscience and biological application. The

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

Nano word is originated from word of Greek "Nano'' which intended for small and used as prefix for one billion parts. Nanoparticles are those which have in size range is 1-100nm and two and more than two dimensions. They have various shapes and sizes can be simply synthesized through adjusting the concentration and components such as cage like, rod like and others various types of shapes. Many of studies gold nanoparticles have studied fictionalization among various bimolecular, like as targeting ligands, genes, peptides, and other drugs. They conjugate among antibiotics of drugs show enhanced antiviral or antibacterial activity as compared to alone antibiotics of drugs. Appropriate unique electronic and optical properties it is widely used in the color indicating probes in the growth of analytical techniques whichever applicable for the sensing of different analytes.

**Discussion / Conclusion:** Thus, the aim of this article is spotlight on the gold nanoparticles, various methods of preparation, characterization techniques, and also focus on the properties. The methods will be used to prepare for gold nanoparticles are Physical Chemical and Biological. Evaluation parameters will be including U.V, DSC, DLS, FTIR, TEM, SEM, Zetasizer, and In vivo & Invitro respectively.

## STRUCTURE OF NEURON

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### ABSTRACT

Neuron are the fundamental and structural unit of the nervous system. Specialized to transmit information to different parts of the body.

Structure: Dendrites are branch – like structure that receive messages from other neurons and allow the transmissions of messages to the cell body. Each neuron has a cell body that contains cytoplasm with typical cell organelles and certain granular bodies called Nissl's granules. Short fibers which branch repeatedly and project out of the cell body also contain Nissl's granules and are called dendrites. These fibers transmit impulses toward the cell body. The axon is a long –fiber, the distal and of which is branched and that carries impulse from the cell body to the axon terminals that passes the impulse to another neuron.

**Keywords:** Dendrites, Cell body, Nissl's granules, Axon.

## HERBAL COSMETICS

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

The herbal cosmetics have been the first preference of the customers, for being potent, easily accessible and notion to be less aspect effective. Herbal-Cosmetics is quickest growing area of non-public care products. Cosmeceuticals is the quickest developing segment of the private care merchandise these are cosmetic preparations with contain biologically lively principles or substances of vegetation origin. In latest years there is an extended demand for the use of herbs in cosmetics due to their slight action endless poisonous in nature and they are discovered to greater effective. The wish of exact searching and to be lovely give a massive market for the herbal cosmetics. Now a days desire to look younger, to be seem beautiful, fresh, charming and honest have at once expand the demand of natural cosmetics as properly as of the cosmeceuticals in the market. Hence, the assessment overlooks on the use of natural cosmetics and cosmeceuticals. It additionally describes about herbs as cosmetics, which may also wish to be intended for beautifying as properly as skin care purpose.

## PHARMACOVIGILANCE

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**ABSTRACT**

With the advent of numerous illnesses in the modern world, the branch of pharmacovigilance deals with the collection, documentation, surveillance, and avoidance of adverse effects of drugs. The lack of supplies and information in the majority of the population possess a major forerunner for the global development of pharmacovigilance. The unwillingness of the healthcare authorities lacks major explanations for the catastrophe of goal accomplishment of the pharmacovigilance platform. Pharmacovigilance should be considered as an indispensable, vital, obligatory province of the pharmaceutical industry. The report of the adverse effects/side-effects of any pharmaceutical drug brings the chief accountability on the shoulders of the pharmaceutical resources including the drug policy-making regulations. Pharmacovigilance also acts as a significant platform to create health alertness at the national and international forums. The initiation of any event creates a frightening situation among the pharmaceutical Seder and further prevents the huge destruction in the community. Thus, in

Online ISSN: 2321-6794 Print ISSN: 2321-7162

a nutshell, the sophisticated role of pharmacovigilance in the pharmaceutical industry cannot be unheeded rather it should groom up necessary for the welfare of the health care sector.

## DESIGN AND FORMULATION OF GLIMEPIRIDE LOADED BUCCAL PATCHES

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### ABSTRACT

Glimepiride is a second-generation sulfonyl urea agent. Glimepiride is used with diet to lower blood glucose by increasing the secretion of insulin from pancreas. Glimepiride is a potent drug used against diabetes mellitus II with the half-life of 3-5 hrs. Glimepiride has 100% oral absorption, due to high first pass metabolism its bioavailability is less. The buccal patches were prepared by solvent casting method. Buccal patches were formulated using polymer HPMC (K4M, K15M) and Na CMC in various proportions and combination. PEG 400 was used as a plasticizer. The design patches were evaluated for Thickness, folding endurance, weight variation, swelling index, Surface pH, Tensile strength, In-vitro diffusion studies were conducted for 6 hrs. in phosphate buffer using dialysis membrane. No significant changes were observed on physical characteristics, drug content and on drug release of patches. So, it was concluded that the prepared patches were stable under these stress condition.

## MEDICINAL SIGNIFICANCE AND BIOLOGICAL ACTIVITY OF CHALCONES

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### ABSTRACT

Chalcone is an aromatic ketone that forms a central core for a variety of important biological compounds, which are collectively known as chalcones. They possess different activities like antibacterial, antifungal, anti-inflammatory and anti-tumour etc. depending on the substitution made on them. These are abundant in edible plants and are considered to be precursors of flavonoids and isoflavonoids. Chalcones possess conjugated double bonds and a completely

Online ISSN: 2321-6794 Print ISSN: 2321-7162

delocalized Π-electron system on both benzene rings. Molecules possessing such system have relatively low redox potentials and have a greater probability of undergoing electron transfer reactions. The compounds with the backbone of chalcones have been reported to possess various biological activities such as antimicrobial, anti-inflammatory, analgesic, anti-platelet, antiulcerative, anti-malarial, anticancer, antiviral inhibition of chemical mediator's release, inhibition of leukotriene B4, inhibition of tyrosinase and inhibition of aldose reductase activities. The presence of a reactive alpha, beta -unsatutated keto function in chalcones is found to be responsible for their antimicrobial activity. In this paper through reviewing different biological significance of chalcones.

**Keywords:** chalcones, antimicrobial, anti-inflammatory, analgesic, anti-malarial, antiviral.

## QUINOLINE DERIVATIVES AND THEIR BIOLOGICAL ACTIVITIES

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### ABSTRACT

Quinoline and its fused heterocyclic derivatives tested with diverse pharmacological activity functional groups constitute an important class of compounds for new drug development. Therefore, many researchers have synthesized these compounds as target structures and evaluated their biological activities. The quinoline ring system occurs in various natural products, especially in alkaloids and is often used for the design of many synthetic compounds with diverse pharmacological properties. There are number of natural products of quinoline skeleton used as a medicine or employed as a lead molecule for the development of newer and potent molecules. Numerous synthetic routes have been developed for the synthesis of quinoline and its derivative due to its wide range of biological and pharmacological activities. The present review provides an in-depth view of work done so far on quinolines and its biological activities covering anticancer, antimycobacterial, antimicrobial, anticonvulsant, anti-inflammatory and cardiovascular activities.

**Keywords:** Quinoline, anticancer, anticonvulsant, cardiovascular activities.

## HERBAL PLANTS USED AS CONTRACEPTIVES

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

Antifertility agents are medications that can cause a pregnancy to be terminated. The world's population explosion has highlighted the need for new, effective and safe contraceptive agents, as well as methods of maximum protection. On long term use, the side effects of existing synthetics on the normal human body are much more aggressive and unpredictable. Therefore, the present time is altering us to think of alternatives in the field of contraceptives. Hence efforts are made to think back on the available natural products. Evaluation of herbs has been in progress worldwide for several decades to identify effective and safe substances for fertility regulation. This approach proved to be a good alternative to synthetic drugs as the chemicals of plant origin have limited side effects. Various medicinal plants extracts were investigated for their antifertility activity both in male and female animal models. These plants cause antifertility in females by acting as (a) Estrous Cycle Disruptors (b) Anti-estrogenic agents (c) Ant Implantation agents or (d) Abortifacient agents. For women who can't use modern forms of contraception due to adverse effect or other reason, therefore herbs can offer alternatives and reducing fertility would be better than other contraceptives.

## BIODIVERSITY OF INDOLE DERIVATIVES IN PHARMACOLOGY

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**ABSTRACT**

Heterocyclic compounds are acquiring more importance in recent years because of their broad pharmacological activities. Indole is a versatile compound with wide ranges of pharmacological activities due to different mechanisms of action. Indole is a bicyclic heterocycle consisting of a six membered benzene ring fused to a five membered nitrogen containing pyrrole ring. Indole is widely distributed in the natural environment and can be produced by a variety of bacteria. Indole derivatives constitute an important class of therapeutic agents in medicinal chemistry including antiviral, analgesic, anti-inflammatory, antihypertensive, antitumor, antimicrobial, anti-fungal activities, etc. Although indole moiety is very small but is fascinated by scientists because of the diverse biological activities by not

Online ISSN: 2321-6794 Print ISSN: 2321-7162

only indole but its various substituted derivatives as well. This review represents some synthesized indole derivatives and their pharmacological profiles which may contribute in future to synthesize various analogues and develop new fewer toxic medicines.

**Keywords:** Indole, Antihypertensive, Antiviral, Antitumor.

## INVESTIGATIONAL MEDICINAL PRODUCT DOSSIER (IMPD)

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### ABSTRACT

Before human clinical trials can be started in the European Union (EU), the sponsor must request authorization to conduct clinical trials through a submission called a Clinical Trial Authorisation (CTA). This application includes a group of scientific documents called an Investigational Medicinal Products Dossier (IMPD). The IMPD (full or simplified) gives information to justify the quality of any IMP to be used in the clinical trial, including reference products/comparators and placebos and includes summaries of information related to the quality, manufacture and control of the investigational medicinal product. IMPD is one of the several pieces of investigational medicinal product related data required whenever the performance of clinical trial is intended in one or more European Union member state. The IMPD includes summaries of information related to the quality and manufacture and control of any IMP and data from non clinical and clinical studies. Information to be provided for investigational medicinal products should focus on the risk aspects and should consider the nature of the product, the nature of development/ clinical phase, patient population, nature and severity of the illness as well as type and duration of the clinical trial itself.

**Keywords:** Clinical and Non clinical study, Development, Investigational medicinal product, Manufacture.

## NATURAL BIODEGRADABLE POLYMERS AND THEIR USE IN NOVEL DRUG DELIVERY SYSTEM

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### ABSTRACT

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

In modern era, there are so many synthetic or non-synthetic components /chemicals used in pharmaceutical or agricultural industries, that limit their use in clinical applications and sometimes hazardous to environment and humans as well. To avoid such kind of consequences, there is growing interest in biodegradable products which has least toxic effects, biocompatibility with the products and human as well. In this review we focus on biodegradable polymers where we discussed in detail about their sources, production and scope of their use in nanotechnology. Nanotechnology is growing field in pharmaceutical industries as it overcome many problems of conventional dosage forms. So, by combining nanotechnology with biodegradable polymers, enhances the benefits of products with least side effects.

**Keywords:** Biodegradable, nanotechnology, target drug delivery, nanomedicines.

## SGLT – 2 INHIBITORS FOR CARDIOVASCULAR DISEASE

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### ABSTRACT

Cardiovascular disease is the main reason of morbidity and mortality in a population. Irrespective of the therapeutic advances in the CV commence endures to rise worldwide. Majorly affected are the diabetic patients as they are highly linked to increased risk of cardiovascular disease in respect to the population. Though, substantial progress has been crafted for the reducing cardiovascular disease risks in diabetic patients. Sodium Glucose co-transport – 2 inhibitors (SGLT-2 inhibitor) is a newfangled methodology for the diabetic patients to contribute in the hinderance of the cardiovascular disease. Sodium glucose co-transport reabsorb 80-90% of 180gm sugar daily filtered by kidney. SGLT-2 inhibitors recuperate the glycemic control in diabetes and has inspiring outcome on both cardiac and renal results. 1st innovation of SGLT-2 inhibitor was Phlorizin derived from the 'barks of apple tree'. Some of the specific SGLT-2 inhibitors used are Dapagliflozin, Canagliflozin and Empagliflozin. SGLT-2 inhibitors work by decreasing the insulin resistance so they are more favorable for glycemic control. Patients observe recovery as there is decrease in blood pressure and decrease in body weight. Patients using SGLT-2 inhibitors experience increase in urinary glucose excretion with loss of calories, lowered glucotoxicity and enhanced β-cells functions. Then insulin sensitivity stimulates natriuresis and osmotic diuresis which reduces blood pressure and hemoconcentration but it does not activate the rennin angiotensin aldosterone

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

system. Numerous clinical trials and meta-analyses have been carried out universally to check the safety and the efficacy of the SGLT-2 inhibitors and to spot the after-effects of the treatment. The consequences of the clinical trials carried out highlight that the relative risks of cardiovascular disease were reduced, which displays SGLT-2 inhibitors are protective against cardiovascular disease.

**Keywords:** Cardiovascular Disease, SGLT- 2 inhibitors.

## ETHOSOMES: A NOVEL DRUG CARRIER FOR TRANSDERMAL DRUG DELIVERY

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### ABSTRACT

Ethosomes are noninvasive delivery carriers that enable drugs to reach the deep skin layers and/or the systemic circulation. Although ethosomal systems are conceptually sophisticated, they are characterized by simplicity in their preparation, safety, and efficacy a combination that can highly expand their application. Ethosomes are soft, malleable vesicles tailored for enhanced delivery of active agents. This article reviews various aspect of ethosomes including their preparation, characterization, potential advantages and their applications in drug delivery. Because of their unique structure, ethosomes are able to encapsulate and deliver through the skin highly lipophilic molecules such as cannabinoids, testosterone, and minoxidil, as well as cationic drugs such as propranolol, trihexyphenidil, Cyclosporine A, insulin, salbutamol etc. Ethosomes provides a number of important benefits including improving the drug's efficacy, enhancing patient compliance and comfort and reducing the total cost of treatment. Enhanced delivery of bioactive molecules through the skin and cellular membranes by means of an ethosomal carrier opens numerous challenges and opportunities for the research and future development of novel improved therapies.

## PHYTOSOME: AN INNOVATIVE TECHNIQUE IN NOVEL DRUG DELIVERY SYSTEM

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

Phytosome is an innovative novel drug delivery dosage form. It is used for development of pharmaceutical formulation for improved stability and bioavailability of phytoconstituents present in herbal preparations and nowadays also in synthetic and semi- synthetic compounds. Phytosomes are more bioavailable as compared to herbal extracts owing to their enhanced capacity to cross the bio-membranes and thus reaching the systemic circulation. The plant extract or plant derived products receiving more attention as dietary supplements for equanimitic management of cancer, inflammation, weight loss, and also in acute and chronic disorders in body. The phytosome technique increases the hydrophilicity of highly lipophilic drug there by making it suitable for drug delivery and increases the lipophilicity of hydrophilic phytoconstituents which play important role to cross biological membrane. The main aim of this review is to give brief knowledge about various useful advantages of phytosomes, method of preparation and evaluations parameters of phytosomes.

**Keywords:** Phytosome, phospholipids, herbal, bioavailability, phosphatidylcholine.

## NONIONIC SURFACTANT COATED SOLID LIPID NANOPARTICLE AND NANOSTRUCTURED LIPID CARRIERS FOR BRAIN DRUG DELIVERY

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**ABSTRACT**

Nanostructured lipid carriers (NLCs) have provoked the incessant impulsion for the development of safe and valuable drug delivery systems owing to their exceptional physicochemical and then biocompatible characteristics. Nanostructured lipid carriers (NLC) consisted of solid lipid and liquid lipid are a new type of colloidal drug delivery system, which offer the advantage of improved drug loading capacity and release properties. Surfactants play important roles in the formation and characterization of NLC. Their constituents particularly influence the physicochemical properties and effectiveness of the final product. More utilization NLCs and SLN are essential due to overcome barriers surrounded by the technological procedure of lipid-based Nano carrier's formulation and increased information of the core mechanisms of their transport via various routes of administration. They can be used in different applications and by different routes such as oral, cutaneous, ocular and

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

pulmonary. The main features of NLCs and SLN with regard to parenteral application are the excellent physical stability, protection of incorporated labile drugs from degradation, controlled drug release (fast or sustained) depending on the incorporation model, good tolerability, and site-specific targeting. These nanoparticles can be loaded with hydrophilic and hydrophobic drugs, can be surface-modified, site-specific targeting and exhibit low in vivo toxicity.

**Keywords:** Hydrophobic, nanoparticle, blood brain barrier, surfactant, lipid carriers.

## THE FORMULATION AND EVALUATION OF MOUTH DISSOLVING TABLET LEVOCETIRIZINE BY USING SYNTHETIC SUPERDISINTEGRANTS

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### ABSTRACT

Mouth dissolving tablet that disintegrates rapidly in mouth by using tasteless complex of Levocetirizine and β-CD. Mouth dissolving Tablets also called as Orodispersible tablets. Formulated Levocetirizine β-CD complex was characterized by infrared spectroscopy, thermal analysis and X-ray diffraction pattern. Tablets were developed by direct compression method. Superdisintegrants like Sodium starch glycolate (SSG), Crosscarmellose sodium (CCS) and Crosspovidone (CP) were used for the formulation. Every formulation was subjected to in-vitro tests like wetting time, disintegration test and dissolution test. The in-vitro study showed that increasing the concentration of superdisintegrants lowers the wetting time (WT) and disintegration time (DT) and enhances the drug release percentage of the formulations. The formulation CPX5 was the most effective formulation as it showed wetting time of 12 seconds, disintegration time of 20 seconds and cumulative % drug release of 41 and 99% at 1 and 10 minutes respectively. The study showed that the formulations containing SSG and CP as the superdisintegrants showed better drug release pattern than the formulations with other superdisintegrants. The study also showed that SSG as the superdisintegrant was more effective for the formulation of orodispersible tablets of levocetirizine dihydrochloride.

**KEYWORDS:** β-CD: Cyclodextrin; Disintegration time; Drug release; Levocetirizine, Superdisintegrants; Orodispersible tablets.

## SCREENING OF ANTIDIABETIC ACTIVITY OF *CELASTRUS PANICULATUS*

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

**(SEED) EXTRACT IN ANIMAL MODEL**

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**ABSTRACT**

**Background:** Diabetes mellitus is a serious ailment across the globe. Hyperglycaemia occurs due to fault in either insulin secretion or insulin resistance. *Celastrus paniculatus* belongs to Celastraceae family. It is well known medicinal plant in Ayurveda and used in treating various ailments like depression, asthma, cough, leprosy, cognitive dysfunction, dyspepsia and epilepsy. No sufficient mechanistic study has been carried out the role of *Celastrus paniculatus* in diabetes to best of our knowledge. High fat diet and low Streptozocin induced type 2 diabetes model was used for study. Adult male wistar rats of 200-250 g were used. Test dose of 150 mg/kg and 300 mg/kg body wt. of the extract were administered orally started on 18$^{th}$ day after 3 days of STZ induction. The objective of present study is to Screening of anti-diabetic activity of *Celastrus paniculatus*. The methanolic extract of *Celastrus paniculatus* seed was examined for its antidiabetic activity in animal model

**Result:** In comparison to STZ-induced diabetic mice, methanolic seed extract of *Celastrus paniculatus* was found to be effective in lowering blood glucose level, HbA1c, improve oral glucose tolerance test.

**Conclusion:** This evidence strongly suggests that the methanolic extract of *Celastrus paniculatus* seeds has hypoglycemic and anti-diabetic properties.

**Keywords:** *Celastrus paniculatus*, Ayurveda, Hypoglycemic control, Streptozocin, OGTT, HbA1c.

**ACRIDINE: EFFECT ON ANTITUMOR ACTIVITY**

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**ABSTRACT**

Acridine derivatives show a broad range of biological activities. Acridine derivatives are one of the oldest classes of bioactives, widely used as antibacterial and antiprotozoal agents. Acridine derivatives are used mostly as antitumor agents. A large number of natural alkaloids

Online ISSN: 2321-6794 Print ISSN: 2321-7162

and synthetic acridine derivatives have been tested as anticancer agents. DNA considered as one of the main targets for anticancer drug design. The planer structure of acridines confers to the molecules the ability to bind DNA by intercalation and therefore to interfere with metabolic processes. So far, a few molecules have entered clinical trials and have been approved for chemotherapy. Cytotoxity may be related to potent enzyme inhibition. Acridine works by acridine chromophore to intercalate DNA and inhibit topoisomerase enzymes. The affinity of the acridines for DNA has been also used to design new active compounds in which a DNA modifying group is tethered to the acridine nucleus. Acridine derivatives display other pharmacological properties such as antibacterial and antimalarial activities. They are also tested for Alzheimer's disease**.**

**Keywords:** Acridine, anticancer activity, topoisomerase, DNA.

## ANTIMALARIAL AGENTS DERIVED FROM IMIDAZOLE-1,3,4 OXADIAZOLE

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### ABSTRACT

Malaria is a mosquito-borne disease that can be life threatening. Malaria is spread by the Anopheles mosquito in human. Plasmodium falciparum is a parasite that can infect humans and cause significant illness. Malaria will impact around 241 million individuals worldwide in 2020, resulting in 627,000 deaths. The development of novel antimalarial medicines has become difficult due to an increase in the number of cases of malaria and the resistance that comes with it. The major goal of the research is to synthesise imidazole-1,3,4 oxadiazole derivatives and evaluate their antibacterial efficacy using in silico methodologies. The antimalarial activity of 5-(1H-imidazole-1yl) methyl3-N-acetyl-2-(aryl)-1,3,4-(2H)-Oxadiazole derivatives was examined using MVD (Molegro virtual docker) against plasmodium falciparum tranketolase (3OOY). Further synthesis of these can now be done in the lab.

**Keyword:** Malaria, Antimalarial drug, Imidazole-1,3,4 oxadiazole, Docking, Plasmodium falciparum.

## DESIGN AND CHARACTERIZATION OF FLUOCINOLONE ACETONIDE

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## LOADED ETHOSMES

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### ABSTRACT

This study was to improve solubility, efficiency and reduce toxicity of Fluocinolone Acetonide. Currently used methods to prepare ethosomes have advantages such as better patient's compliance, better stability, reduces dose frequency. The present work also focus on making the formulation more pharmaceutically acceptable. This project describes the various aspects of the Fluocinolone Acetonide loaded ethosomes in gel formulations. Fluocinolone Acetonide is a corticosteroid primarily used in dermatology to reduce skin inflammation and relieve itching produced by various skin conditions like psoriasis etc. Fluocinolone Acetonide is Insoluble in water, soluble in ethanol and methanol. Ethosomes of Fluocinolone Acetonide was prepared with the cold method. Ethosomes were successfully formulated by using varying concentrations of soya lecithin and ethanol and later it was incorporated into carbapol 934 base gels to form ethosomal gel. The result of present study clearly indicates that ethosomal gel formulation of Fluocinolone Acetonide is possible. From the results obtained, the formulation EF was concluded as the best formulation with spherical vesicular shape and 86% drug entrapment efficiency. The stability study of best formulation EF, was carried out for 2 Months. The best formulation was incorporated in the Carbopol gel formulation. The prepared gel has good spreadability and Rheological properties.

## PACLOBUTRAZOL AS PGR

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### ABSTRACT

**Objective:** Plant growth regulators based on triazoles are widely used in plants to control growth, stress, and disease. They influence plant genomic, physiological, and pharmacologic processes to promote growth and induce tolerance to a variety both biotic and abiotic stressors. They regulate the endogenous levels of plant hormones and other chemicals such as gibberellic

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

acid, cytokinins, indole-3-acetic, abscisic, as well as ethylene in plants for the preceding functions.

**Methods:** There has been a surge of attention in nano formulations of triazolic chemicals in the last few years to improve their efficacy while decreasing their ecotoxicological consequences which increase the practical basis for sustainable agriculture. In recent decades, there has been a movement toward developing novel triazoles that targeting strigolactones to control plant growth as well as induction of stress tolerance.

**Discussion and results:** Paclobutrazol (PBZ) [(2RS, 3RS)-1-(4-chlorophenyl)-4-(1H-1, 2, 4-trizol-1-yl)-pentan-3-ol] is a member of the triazole family with growth-regulating properties. Changes in the levels of essential plant hormones such as gibberellins, abscisic acid, and cytokinin's mediate PBZ's growth-regulating effects. By decreasing gibberellin production and boosting cytokinin levels, PBZ influences the isoprenoid pathway and changes the stages of plant hormones, resulting in a reduction in cell expansion. When gibberellin synthesis is blocked, more terpenoid pathway precursors aggregate, resulting in abscisic acid formation. When PBZ is sprayed to the growing medium, it is more effective than foliar spray because it has a longer exist and greater active component absorption.

**Conclusion:** The addition of PBZ to crops is beneficial in reducing growth parameters to prevent lodging, increasing the number as well as volume of fruits per tree, and enhancing fruit level and quality of carbohydrate, TSS, TSS/TA, and acidity reduction, improves plant tolerance to physical and biological challenges by reducing evapo-transpiration and decreasing plant moisture stress by increasing the relative moisture contents of number of leaves. It's also a highly effective systemic fungicide that's utilised to combat a number of economically significant fungal infections.

## FORMULATION OF EMULGEL FROM ETHANOLIC EXTRACT OF AZERATUM CONIZOIDES LEAVES TO TREAT WOUNDS

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### ABSTRACT

The approach to treat and mitigate Topical wounds and inflammations using cream has been widely sought for, from traditional medicines to modern therapies. Majority of synthetic drugs showing the pharmacological double effect. The proposed preparation emulgel of *Azeratum*

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
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Online ISSN: 2321-6794 Print ISSN: 2321-7162

*conyzoides* extract tends to show anticipation in side effects during wound healing induced by the emulgel of Ethanolic extract of *A. conyzoides* on the dermis of 3 groups Wister rats. compared to that of povidone iodine ointment in positive control. Being plant derived emulgel preparation, secondary organ accumulations and other side effects can be reduced to least level along with rapid diameter reduction of wound. The phytoconstituents of *A. conizoides* can be potent anti-septic candidate with further refinement and optimization in the formulation to address the approach to heal wounds and topical inflammations in tropical countries. This can be further scaled up for wider application for various disease indications.

**Keywords:** Topical wounds, traditional medicine, Emulgel, *Azeratum conizoides*, Anti-septic, Double effect.

## ANTIBACTERIAL POTENTIAL OF BENZOTHIAZOLE DERIVATIVES

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### ABSTRACT

To overcome antibiotic resistance problem, continuous efforts are required for the development of novel antimicrobial agents. In view of above fact, many research groups had synthesized new benzothiazole derivatives and investigated their antimicrobial activities. Benzothiazole is a bicyclic heterocyclic compound, having fused benzene and thiazole moieties at 7a and 3a positions. It plays an important role in medicinal and pharmaceutical chemistry due to its pharmacological properties. Benzothiazole derivatives possess antibacterial, antifungal, anticancer, antiviral, anticonvulsant, anti-inflammatory, antitubercular activities etc. Studies showed that among these activities, antibacterial activity of benzothiazole derivatives are noteworthy. The presence of 2-$NH_2$ and 2-SH groups in benzothiazole, make benzothiazole moiety easily functionalized and they can be used as highly reactive building blocks for organic and organ element synthesis, as well as for the synthesis of pharmacologically active heterocycles. Inspired by above facts, in present work, antibacterial activities and SAR of different benzothiazole derivatives, reported by different research groups have been summarized. Present work will be helpful for the research groups working in the area of antibacterial activity of benzothiazole derivatives.

**Keywords:** Antimicrobial, anticancer, anticonvulsant, antioxidant, benzothiazole derivatives.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## PHYTOSOMAL NANOTECHNOLOGY: A PROMISING TOOL FOR THE DEVELOPMENT OF FORMULATIONS

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### ABSTRACT

The term novel drug delivery system refers to a new technique to drug distribution that overcomes the constraints of established drug administration methods. The therapeutically active component must be delivered at an effective level for any herbal drug to be effective. When taken orally or topically, their bioavailability is severely limited. Phytosomes are herbal formulations that are more easily absorbed than traditional phyto-molecules or botanical extracts, resulting in improved bioavailability and effects. In recent years, natural medicines have been used to treat the majority of common ailments and nutritional issues. Several plant extracts and phytoconstituents, despite having great bioactivity in vitro, have poor lipid solubility, inappropriate molecular size, or both, resulting in inadequate absorption and bioavailability in humans. Due to the presence of phosphatidylcholine, which likely pushes the phytoconstituent through the intestinal epithelial cell outer membrane, subsequently accessing the bloodstream, much work has been directed towards the development of a new concept in herbal delivery system, namely phytosomes which are better absorbed, utilised, and as a result produce better results than conventional herbal extracts. The potential of phyto-phospholipid complexes, with the effort of clinicians and other researchers, has a bright future for applications in the pharmaceutical field.

**Keywords:** Drug, delivery, phytoconstituents, phytosomes.

## FORMULATION AND EVALUATION OF GASTRORETENTIVE FLOATING DRUG DELIVERY SYSTEM OF ATENOLOL

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### ABSTRACT

Drugs that have narrow absorption window in the gastrointestinal (GIT) will have poor

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

absorption. For these drugs, gastro retentive drug delivery systems offer the advantage in prolonging the gastric emptying time. Atenolol is an antihypertensive drug, which has low elimination half-life: 3–4 hrs. The floating tablets of Atenolol were prepared to increase the gastric retention and to improve the bioavailability of the drug. Atenolol was chosen as a model drug because it is better absorbed in the stomach than the lower gastro intestinal tract. The floating tablets were formulated using HPMC K4M and HPMC K100M as the release retardant polymers, and sodium bicarbonate as the gas generating agent to reduce the floating lag time. The tablets were prepared by direct compression. The formulated tablets were evaluated for weight variation, hardness, friability, swelling index floating lag time, total floating time and dissolution rate in pH 1.2. The floating tablets extended the drug release up to 8 hrs. The drug-polymer interaction was evaluated by (FTIR). The FTIR study indicated the lack of drug-polymer interaction Nine Formulations of Floating tablets of Atenolol were developed by direct compression technique. The floating tablets can control fluctuations in the plasma drug concentration, increase the gastric residence time.

## NOVEL THIAZOLE DERIVATIVES

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### ABSTRACT

**Introduction:** Thiazole is a well-known heterocyclic molecule with five members. For its synthesis, various methods have been devised. The thiazole ring has been studied extensively in recent decades in order to discover novel compounds that serve as antioxidants, analgesics, anti-inflammatory, antibacterial, antifungal, antiviral, diuretic, anticonvulsant, neuroprotective, and antitumor or cytotoxic medications with fewer adverse effects. This study covers the most recent developments in thiazole derivatives.

**Areas covered:** This review describes the applications of thiazole and its derivatives on chosen activities in the current therapeutic patent literature (2008–2012). Many of the medicinal applications of thiazole compounds that have been disclosed in foreign patents have been reviewed in this review. Some pharmaceutical applications are summarised in addition to chosen biological data. Because of the significant number of patents filed during this time period relating to thiazole derivatives, the first section of the review concentrated on inhibitors

Online ISSN: 2321-6794 Print ISSN: 2321-7162

of phosphatidylinositol-3-kinase, protein kinase inhibitors, and derivatives regulating enzymes involved in metabolism.

**Expert advice:** The thiazole ring is the nucleus of the derivatives reviewed from a medicinal chemistry standpoint in this analysis of patented products. The applications are centred on a specific enzyme target that has seen very little advancement in the treatment of disease. The majority of the drugs presented have been demonstrated to have favourable therapeutic effects, but because they are selective for multi-signalling pathway' targets, they may also raise the risk of side effects.

## *IN-SILICO* SCREENING OF THE HERBAL MOLECULES AS A POTENTIAL ANTI-ALZHEIMER'S DRUGS

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### ABSTRACT

**Objectives:** The objective of the current study is to identify the potential herbal molecules/phytochemicals by *in-silico* molecular docking analysis which could possibly show anti-Alzheimer's activity.

**Methods:** In the present study 100 herbal molecules were identified through the literature survey which show the antioxidant, anti-inflammatory and other activities which could be helpful for the management of AD. The 100 molecules were analysed were analysed for their inhibitory role on AChE (Acetylcholinesterase) and BChE (Butyrylcholinesterase) and Tau protein. The AD targets of acetylcholinesterase (protein data bank ID: 1EVE), Butyrylcholinesterase (protein data bank ID: 4B0P) and Tau protein (protein data bank ID: 1J1B) ligands were evaluated through AutoDocktools-1.5.6 software, and their anti-AD potential were compared with the Donepezil and Rivastigmine.

**Results:** Among the 100 molecules the docking analysis results against three targets 1EVE, 4B0P and 1J1B, the eleven herbal molecules namely Beta Carotene (-11.7 kcal/mol, -10 kcal/mol, -9.1 kcal/mol), Dihydrotanshinone-I (-11 kcal/mol, -10.1 kcal/mol, -10.1 kcal/mol), Glabridin (-12.2 kcal/mol, -10.2 kcal/mol, -9.6 kcal/mol), Liriodenine (-10.9 kcal/mol, -11.1 kcal/mol, -9.6 kcal/mol), Morin (-10.4 kcal/mol, -9.8 kcal/mol, -8.4 kcal/mol), N-Formylanonaine (-11.4 kcal/mol, -10.4 kcal/mol, -9.8 kcal/mol, -9.2 kcal/mol), Quercetin(-11.4 kcal/mol, -10.5, -9.8 kcal/mol, -8.6 kcal/mol), Quercitrin (-11.8 kcal/mol, -12.1kcal/mol, -9.9

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

kcal/mol), Rutin, Sumaflavone, Vitisinol C shows the highest docking energy and amino acid interactions with the AD target when compared with the Donepezil and Rivastigmine.

**Conclusions***:* The docking results of eleven herbal molecules could be investigated further in developing the formulation for the effective treatment of AD. Additionally *in vivo* and *in vitro* experiments might be required to strengthen the findings of this experiment.

## ROLE OF RESVERATROL TO CURE INFLAMMATORY BOWEL DISEASES

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### ABSTRACT

Inflammatory bowel diseases (IBD) are chronic idiopathic relapsing inflammatory disease of the gastrointestinal tract (GIT), Generally IBD is divided into two categories, Ulcerative colitis (UC) and Crohn's disease. In case of Crohn's disease inflammation can occur in any part of digestive system (Mouth to anus), but in case of UC inflammation occurs only in ascending or descending parts of colon. Symptom of ulcerative colitis includes abdominal pain, blood in stool, weight loss, fatigue and severe pain in the rectum Severe form of ulcerative colitis leads to colon cancer. Chronic inflammation generated by the production of reactive oxygen species leads to generate dysplasia, which further turns into colitis associated colorectal cancer. Therefore, there is the high risk of colon cancer in patients with ulcerative colitis.

**Keywords:** Inflammatory bowel diseases (IBD), Ulcerative colitis (UC), Crohn's disease, gastrointestinal tract (GIT).

## DEVELOPMENT AND VALIDATION OF ANALYTICAL METHOD FOR THE SIMULTANEOUS ESTIMATION OF BILASTINE MONTELUKAST BY USING SPECTROSCOPY

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### ABSTRACT

**Objective:** Bilastine is a selective antagonist of the histamine H1 receptor. It binds to the H1 receptor and inhibits it from being activated, reducing allergy symptoms caused by the release

Online ISSN: 2321-6794 Print ISSN: 2321-7162

of histamine from mast cells. As a result, it serves as an antiallergen, reducing allergy symptoms such nasal congestion and urticaria. Montelukast Sodium is a leukotriene receptor antagonist that binds to the CysLT type 1 receptor, assisting in the inhibition of any physiological activities of CysLTs such as LTC4, LTD4, and LTE4 at the receptor that may help asthma or allergic rhinitis. As a result, it's mostly used to treat and prevent asthma symptoms (such as wheezing and shortness of breath) as well as allergic rhinitis. Allergy rhinitis and mild to severe asthma are treated with a combination of both medicines.

**Material and Methods:** Analytical methods on Bilastine and Montelukast Sodium are discussed in this research. However, no ways for combining Bilastine with Montelukast Sodium are now available. Bilastine and Montelukast Sodium can be tested using UV, HPLC, HPTLC, and UPLC methods. either alone or in combination with other medications. This research can be used to help design new analytical methods.

**Results:** The drug either alone or in combination with other medications. This research can be used to help design new analytical methods.

**Conclusion:** These results propose that the Bilastine and Montelukast Sodium serves as appropriate candidate for ocular drug delivery system.

## ISOLATION AND IDENTIFICATION OF RHIZOBACTERIA FROM SOLANUM TUBEROSUM

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### ABSTRACT

Sanitary treatment of polluted soil and groundwater with hazardous metals has for several decades been a serious environmental problem. Several therapies are indicated to remove heavy metals from the environment, notably physical, chemical, and biological. Stabilized nanoparticles are produced utilizing new stabilizers that enable nanoparticles to be produced and transported in the subsurface. Synthesis and characterization of particular nanoparticles stabilized and their application for metallic soil. The level of the defines the essential on the heavy metal or metal variety. In fact, some relatively low concentrations of heavy metals (e.g., Mn, Fe, Co, Ni) are crucial for organisms, although others (e.g., Cd, Pb, Hg) are non-essential and even in minute amount are fatal. Nanotechnology takes account over one of the most

Online ISSN: 2321-6794 Print ISSN: 2321-7162

important agricultural management processes, thanks to its small size. Furthermore, numerous potential benefits, such as enhanced food quality and safety, reduced agricultural inputs, enhanced extraction of nanoscale nutrients from the soil, and so on, make nanotechnology a resonant burden. Endurance, susceptibility, human health, and a healthy existence are all difficulties that agribusiness, food, and natural resources address. This paper investigated the present obstacles of sustainability, food security, and climate change that researchers in the area of nanotechnology are targeting in terms of enhancing agriculture. The content in the environment of heavy metals and metalloids should be assessed and techniques devised for their removal. The major aim of the study is to offer an overview of the key procedures for the removal of heavy metals, as well as to provide fact on how their concentrations might be harmful.

**Keywords:** heavy metals and metalloids, nanoparticles techniques, fertilizers contaminated soil.

## ORGANIC FARMING IN INDIA: A IMAGINATIVE AND PRESCIENT IN THE DIRECTION OF A HEALTHFUL NATION.

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### ABSTRACT

Food high-quality and protection are the two vital factors that have gained ever-increasing interest in familiar consumers. Conventionally grown ingredients have sizeable unfavorable health consequences due to the presence of greater pesticide residue, extra nitrate, heavy metals, hormones, antibiotic residue, and also genetically modified organisms. Moreover, conventionally grown foods are less nutritious and contain lesser quantities of shielding antioxidants. In the quest for safer food, the demand for organically grown ingredients has increased at some stage in the final a long time due to their likely fitness benefits and meals safety concerns. Organic food production is described as cultivation besides the utility of chemical fertilizers and synthetic pesticides or genetically modified organisms, boom hormones, and antibiotics. Although India was once far in the back of in the adoption of organic farming due to quite a few reasons, in modern times it has done fast boom in natural agriculture and now becomes one of the largest organic producers in the world. Therefore, natural farming has a tremendous influence on the fitness of a nation like India via ensuring sustainable

Online ISSN: 2321-6794 Print ISSN: 2321-7162

development. To promote food protection and sustainability, ecologically intensive farming systems should reliably produce enough yields of terrific food, decorate the environment, be profitable, and promote social wellbeing. Yet, whilst many studies address the suggest results of ecologically intensive farming systems on sustainability metrics, few have viewed variability.

## DESIGN, SYNTHESIS AND ANTICANCER ACTIVITY OF BENZOFURAN CLUBBED 1,2,3-TRIAZOLE DERIVATIVES.

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### ABSTRACT

Benzofuran is fused with benzene ring and five-member heterocyclic ring i.e. furan. It forms bicyclic ring benzofuran. It is widely known that benzofuran derivatives substituted at C-2 position shows cytostatic and/or cytotoxic activity. Benzofuran clubbed 1,2,3-triazoles derivatives 8a-8s (19 derivatives) were prepared using different synthetic procedure. These compounds were characterized by IR, NMR and Mass spectroscopy and evaluated for its anticancer activity against Human lung carcinoma cell line (A549), Human prostate carcinoma cell line (DUI145), Human breast carcinoma cell line (MD-MB-231) with IC50 i.e., 2.9 ± 0.84, IC50 3.3 ± 0.80 and IC50 1.1 ± 0.84 respectively, and Normal human lung cell line (MRC5) the result of IC50 is 45.3 ± 1.65, which response is non-toxic towards normal epithelial cell. Compound 8g was found to be most potent against all cancer cell lines tested and by evaluated. These compounds could serve as basic template for anticancer drug development.

## COMPARATIVE STUDY ON THE FERROUS ION CHELATING CAPACITY OF ISOPROPANOL AND CARBON TETRA CHLORIDE EXTRACTS OF *HYDNOCARPUS WIGHTIANUS* SEEDS

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### ABSTRACT

Hydnocarpus wightianus (Chaulmoogra) has been widely used in Indian and Chinese traditional medicine for the treatment of leprosy. The oil from the seeds of Hydnocarpus

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

wightianus is semi-solid at room temperature and is not being made up of straight chain fatty acids but acids with a cyclic group at the end of the chain. In the present study, ferrous ion chelating capacity of isopropanol and carbon tetra chloride extracts of Hydnocarpus wightianus seeds. The seeds collected from different places of Kerala were powdered and extracted by continuous hot extraction process for 44 hrs. using Soxhlet apparatus. The residue was successively extracted with isopropanol and carbon tetra chloride. Preliminary phytochemical tests were carried out by using standard conventional protocols. Physicochemical parameters like Moisture contents, Ash values and extractive values were calculated as per WHO guidelines. The fluorescence test of extract was studied both in daylight and UV light. The chelating potential of Hydnocarpus wightianus extract was estimated according to the method of Yamaguchi et.al. with slight modifications.

**Keywords:** Hydnocarpus wightianus, Isopropanol, carbon tetrachloride, fluorescence test, phytochemical test, chelating capacity.

## ANTIMICROBIAL RESISTANCE: CHALLENGES AND DISCOVERY OF NEW TARGETS

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### ABSTRACT

The antimicrobial drug resistance problem in a global sense emerges by uncontrolled use of antibiotics having resistance potential. According to Antimicrobial Resistance Report 2015 are antimicrobial agents to their respective targets of microorganisms are becoming resist. Clinically approved antimicrobial drug fluoroquinolones contain quinoline ring which acts through inhibiting the DNA gyrase bacterial protein. But continuously use of these antibiotics is causing resistance to DNA gyrase protein of *Campylobacter jejune*, which has become a major concern for public health. But recent survey of WHO stated that the rate of resistance of ciprofloxacin has raised from 8.4% to 92.9% for *E. coli* and 4.1% to 79.4% for *K. pneumoniae*. WHO in 2019 find out that 32 antibiotics in clinical trials those are the list of priority pathogens of WHO. From this list only 6 antibiotics are innovative, remaining were derived from

Online ISSN: 2321-6794 Print ISSN: 2321-7162

previously present or known chemical moiety. Therefore, development of new antibiotics against less exploited or new target is essential to overcome these resistance problems. In this manner Bedaquiline is newly antitubercular drug containing quinoline ring and act through ATP synthase inhibition rather than DNA gyrase inhibition. ATP synthase is bacterial protein which is essential for the ATP production in bacteria. Bedaquiline interact with this enzyme and inhibit its activity.

**Key words:** Antimicrobial, Resistance, WHO, Quinoline, DNA gyrase, Bedaquiline, ATP synthase.

## *IN VITRO* EFFECT OF *S. OBLONGA* AND *E. LITTORALE* AQUEOUS EXTRACT ON INTESTINAL GLUCOSE ABSORPTION

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### ABSTRACT

Indian Medicinal Plants have been used from long centuries back for the treatment of diabetes mellitus. The literature review reported the antidiabetic activity of *S. oblonga Linn*. stem and *E. littorale Blume.* aerial part against various models of diabetes. The present study evaluated the *in-vitro* antidiabetic potential of aqueous extract on intestinal glucose absorption using rat jejunum. The aqueous extracts of both the plants had showed a dose dependent significant ($p<0.05$) inhibition on glucose absorption. Furthermore, the inhibition of glucose absorption capacity of *E. littorale* aqueous extract was found to be higher than that of *S. oblonga* aqueous extract. The present investigation found that the combined impact on glucose absorption inhibition of extracts in a 1:1 ratio produces a greater inhibitory affect than individual extracts. The combined impact of extract on glucose absorption was comparable to standard biguanide. The results of the present study support the traditional claim of *S. oblonga* and *E. littorale* as an antidiabetic, the means by which they may reduce postprandial hyperglycemia.

**Keywords:** *S.oblonga*, *E. littorale*, glucose absorption inhibition.

## PHARMACOKINETICS

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

Pharmacokinetics describes how the awareness of a dosed drug and its metabolites in body fluids and tissues changes with time. PK fashions the concentration-time profile the usage of key parameters, such as quantity of distribution (Vd), area beneath the curve (AUC), clearance (CL), half-life (t1/2), maximum concentration (Cmax), and bioavailability (F). These parameters furnish insights on how tactics of the residing device affect the drug concentration, inclusive of absorption, distribution, metabolism, and excretion. Owing to the dependence of PK parameters on the drug's properties, one utility of PK in drug discovery is to derive insights about how the shape may be modified to enhance the PK parameters. Since efficacy (i.e., pharmacodynamics) and toxicity are associated to PK, pharmacokinetic/pharmacodynamic (PK/PD) models can be derived. These models are useful for planning and interpreting in vivo studies of efficacy and toxicity and planning human scientific trials.

## AMINO ACIDS AS A PRECURSOR FOR PURINE & PYRIMIDINE BIOSYNTHESIS: A REVIEW

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**ABSTRACT**

Amino acids, also known as building block or repeating units of proteins, are organic compounds which contains amino (-NH2) and carboxyl (-COOH) as functional groups. These amino acids have an important role as precursor for biosynthesis of purine and pyrimidine nucleotides. The basic moiety of purines and pyrimidines is derived from contribution of various amino acids like aspartate (Asp), glycine (Gly) and glutamine (Gln). Purines and pyrimidines help in synthesizing nucleic acids i.e., RNA (which helps in protein synthesis) and DNA (which is repository of hereditary information). The current study is focussed on role of amino acids in forming purine ring and pyrimidine ring of nucleotides. The individual atoms of these rings are obtained from different sources, out of which, amino acids act as a precursor biomolecule for ring formation which will further help in synthesis of AMP, GMP, IIMP etc.

**Keywords:** amino acids, purines, pyrimidines, biosynthesis.

## NEUROPROTECTIVE POTENTIAL OF LYCOPENE IN MURINE WATER

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## IMMERSION STRESS MODEL OF CHRONIC FATIGUE SYNDROME

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### ABSTRACT

Chronic fatigue syndrome (CFS) is characterized by profound fatigue, which substantially interferes with daily activities. CFS was produced in mice by subjecting them to forced swim 6 min daily for 15 days. Immobility period and post-swim fatigue was recorded. Lycopene and duloxetine were administered daily for 15 days, 30 min before forced swim session. On day 16$^{th}$, various behavioral, biochemical and neurotransmitter estimations in the brain were carried out. There was a significant increase in immobility period and post-swim fatigue in vehicle treated mice on successive days. Chronic fatigue group exhibited significant behavioral alterations like anxiety response, hyperlocomotion, hyperalgesia, memory deficit, along with enhanced oxido-nitrosative stress, acetylcholinesterase activity as well as increased production of cytokines and corticosterone level as compared to naive group. The neurotransmitter estimations in the brain samples revealed a decrease in neurotransmitter levels on chronic exposure to forced swim for 15 days. Daily treatment with lycopene for 15 days produced a significant reduction in immobility period, post-swim fatigue and reversed various behavioral, biochemical, neurotransmitters and cytokine alterations induced by chronic fatigue. Lycopene could be of therapeutic potential in the treatment of chronic fatigue and thus may provide a new, effective and powerful strategy to treat CFS.

**Keywords:** Chronic Fatigue Syndrome, Lycopene, Stress, Depression, Cytokines, Forced Swimming Test.

## PREFORMULATION STUDIES OF LEVOFLOXACIN AS NANOEMULSION FOR OCULAR DRUG DELIVERY

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

**ABSTRACT**

**Objective:** Levofloxacin is the L-isomer of the racemate ofloxacin, a quinolone antimicrobial agent. The Objective of this paper is to exhibit the quantitative methods used to determine consistency in developmental research. The methods of preformulation for Levofloxacin as ocular nanoemulsion capable of delivering the drug in a sustained manner, thus avoiding frequent instillation of the drops which may induce toxic side effects and cellular damage at the ocular surface. Preformulation studies are development of effective dosage form.

**Material Method:** The Preformulation studies, performed in this research include identification of drug, solubility analysis, and partition coefficient and drug compatibility. This carried out, which contain identification of drug, quantitative estimation of drug, solubility determination, melting point determination, partition coefficient determination, Screening etc.

**Result:** The melting point of Levofloxacin was found to be 223-228°C. The log P value was found to be-0.34 ± 0.05, from which it can be interpreted that drug is highly Lipophilic in nature. The scanned λ max was found to be 298 nm. No significant changes were found when FTIR spectra of physical mixture compared with FTIR spectra of pure drug and excipients.

**Conclusion:** These results propose that the Levofloxacin serves as appropriate candidate for ocular drug delivery system.

## NUTRACEUTICAL

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**ABSTRACT**

Nutraceuticals have acquired massive interest because of their presumed safety. The Present article focuses on the need for consuming fantastic diets, health issues surrounding failure to adhere to the recognized healthy ingesting models, improvement of new nutraceuticals/functional foods/food dietary supplements with novel health benefits, elucidation mechanisms of action of these products, to define and apprehend the analytical, method and regulatory factors of nutraceutical. “Nutraceutical” is a substance that may additionally be viewed a food or part of a food which provides scientific or fitness benefits, encompassing prevention and cure of disease. Products as numerous as remoted nutrients, dietary supplements and diets to genetically engineered “designer” foods, herbal products, and processed ingredients (cereals, soups, beverages) may additionally be protected below the

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

umbrella of nutraceuticals. This chapter describes the function of nutraceuticals in fitness and how they are one of a kind from practical ingredients and dietary supplements.

## QUINOLONES

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## ABSTRACT

Quinolones are an antibacterial agent that can be used to treat a variety of ailments (e.g. urinary and respiratory tract infections). They're employed all around the world because of their wide range of activities, excellent bioavailability, and low toxicity. From quinolone to quinolone, the safety profile differs. Our study's goal is to examine the neuropsychiatric adverse drug response profile of quinolones utilising a literature search technique that focuses on case published case series. To find case reports and case series linked to quinolone-associated neurological and psychiatric ADRs, a literature search was conducted through PubMed/MEDLINE (from inception to 31 October 2010). The search was divided into two phases: the first was a literature search, and the second was an examination of the reference of the selected papers to find relevant articles. Animal research, clinical trials, & observational studies were not included in the abstracts. Following Medical Dictionary for Regulatory Activities coding, identified investigations were analyzed by age group, sex, active drugs, dosage, concomitant medicine, ambulatory or hospital-based event, and seriousness. Individual case reports relating to psychiatric diseases accounted for 40.7 percent of the total, while neurological problems accounted for 46.9%. Individual case reports with both neurological and mental ADRs were found in eight (5.5%) cases. The quinolones ciprofloxacin, ofloxacin, and pefloxacin have the most neurological and psychiatric ADRs in the literature. Ciprofloxacin is widely used over the world, which may explain the increased number of reports, whereas the number of reports for ofloxacin and pefloxacin may be over-representative. The selected publications yielded a total of 232 ADRs, with 206 of them relating to psychiatric and/or neurological ADRs. The other 26 were about unrelated body systems, although they were described alongside the reactions of interest. The most common psychiatric adverse events were mania, sleeplessness, acute psychosis, and delirium; the most common neurological adverse events were grand mal convulsion, confusional condition, convulsions, and myoclonus.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## FORMULATION AND EVALUATION OF LULICONAZOLE-BASED ANTIFUNGAL VAGINAL SUPPOSITORY FOR THE TREATMENT OF VAGINAL YEAST INFECTIONS

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**ABSTRACT**

One of the most common gynecologic concerns is vaginal infection. These infections result in around 500 visits to each obstetrician gynecologist each year, accounting for more than 7% of total patient visits to these specialists. One of the most common causes of inflammation in the vaginal area and on the female genitals' outer skin is yeast infections. A vaginal yeast infection is characterized by itching, a burning feeling, and pain. Candida albicans, a type of yeast, is regularly found on human genitalia. Candida, a fungus, is the cause of candidiasis, an opportunistic infection. Fungi are eukaryotic animals that take the form of yeasts, moulds, or dimorphic fungi. A yeast infection is Candida albicans. In immunocompromised persons, candidiasis is most commonly contracted as a secondary infection. The main purpose of this research is to create a pharmaceutical formulation of vaginal suppository with the antibacterial medication luliconazole using hot fusion methods. and the creation of a stable luliconazole suppository, as well as the evaluation of the suppository.

**Keywords:** Vaginosis, luliconazole, vaginal suppository, vaginal infection.

## BIOSYNTHESIZED SILVER NANOCUBOIDS FROM ENDOPHYTIC FUNGI *COLLETOTRICHUM PLURIVORUM* AND THEIR ANTIMICROBIAL ACTIVITY AGAINST OPPORTUNISTIC HUMAN PATHOGENS

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**ABSTRACT**

The main aim of this study to work on an efficient methodology for the development of green, eco-friendly, economically viable green nanoparticles by using the endophytic fungus isolated

Online ISSN: 2321-6794 Print ISSN: 2321-7162

from the *Citrus pseudolimon* plant. Filamentous fungi have a great potential to produce secondary metabolites, which display a variety of natural compounds with great potential medicinal applications. An endophytic fungus CL3, out of eight isolates was identified as *Colletotrichum plurivorum* from a *Citrus pseudolimon* that was used for the biosynthesis of silver and gold nanoparticles. Field emission scanning electron microscope (FESEM) analysis was performed to study the structural morphology of the biosynthesized silver and gold nanoparticles. The FESEM images of green AgNPs revealed the formation of a nanocuboid structure with a size range of approximately 200-250 nm in length and 80-150 nm in width. The UV-Visible spectroscopy followed by Fourier transform infrared spectroscopy (FTIR) was used to determine the presence of a stabilizing agent present in the nanoparticles. The silver nanoparticles synthesized using the extracts prepared from *Colletotrichum plurivorum* showed good antimicrobial activity. The present study elucidates the efficacy of the AgNPs synthesized by endophytic fungi *Colletotrichum plurivorum* against the two tested bacterial strain indicating their potency of bioprospection for pharmaceutical usage.

## PHYTOCHEMISTRY, METABOLITE CHANGES, AND MEDICINAL USES OF THE COMMON SUNFLOWER SEED AND SPROUTS (HELIANTHUS ANNUUS L.)

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### ABSTRACT

The sunflower (Helianthus annuus L.) seed and sprout is a ubiquitous crop with abundant nutrients and biological activities. This Article summarizes the nutritional and medical importance currently recognized but under-researched concerning both seed and sprout highlighting the potential benefits of their phytochemical constituents including phenolic acids, flavonoids and tocopherols. Furthermore, the dynamic metabolite changes which occur during germination and biological activities are evaluated. The aim is to provide scientific evidence for improving the dietary and pharmaceutical applications of this common but popular crop as a functional food.

## POSSIBLE INVOLVEMENT: HEDGEHOG-GLI SIGNALING IN NEURODEGENERATION BY 3-NP INDUCED

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

The hedgehog (Hh) pathway is one of a few that regulate the number and kind of cells generated during development in organisms ranging from Drosophila to humans. The hedgehog (SHH) signaling pathway is primarily convoluted in smooth muscle differentiation, adult tissue homeostasis, cell proliferation, tissue repair following injury, embryonic gut development, and tissue polarity during vertebrate and invertebrate development. A number of cellular and molecular pathways are involved in the process of reviving from neurodegeneration damage or injury. One of these is the Hedgehog pathway. The Hedgehog (Hh) signaling pathway is the most common signal transduction pathway in mammalian cells.

**Objective:** The objective of this review is to know about the appliance and method of Involvement of hedgehog signaling in Neurodegeneration. In this commentary, we present data that there is the possibility of hedgehog–Gli signaling in Neurodegeneration induced by 3-NP.

**Conclusion:** The finding from the present paper demonstrates that there may be the involvement of Hedgehog –Gli in Neurodegeneration induced by 3-Nitropropionic Acid.

**Keywords:** Neurodegeneration, Hedgehog, Gli, 3-Nitropropionic acid.

## EMULGEL A NOVEL TOOL IN DRUG DELIVERY SYSTEM

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**ABSTRACT**

In the developing countries herbal medicines, which are derived from plant sources are used to treat a number of diseases and health problems. They are widely used because of their traditional usage and acceptability. Worldwide, these plant-based medicines are used to treat a number of ailments and health problems. Pharma companies have patents for their own drug delivery systems that calculate the precise dosing, delivery time, and metabolic pathway of the drug while designing them. Topical drug delivery systems are systems that deliver drugs directly to the skin to treat cutaneous disorders in a painless manner. Patients prefer painless and simple methods. One of the novel topical drug delivery systems is Emulgel, which is a

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

mixture of emulsion and gel. Overall, these systems confirm the pharmacological effects of the particular formulation on the skin. Emulgel is an O/W or W/O emulsion made from oil and a gel formulation. Compared to conventional systems, dermatological emulgels are thixotropic, greaseless, easily spreadable, easily removable, emollient, non-staining, water-soluble, longer-lasting and biodegradable, and can serve as better topical drug delivery systems. Emulgels can be used to formulate analgesics, anti-inflammatory, anti-fungal, anti-acne drugs, and various other cosmetic products. This study intends to synthesize and characterize polyhedral emulgel using plant sources for topical drug delivery, which will be evaluated for its antimicrobial and anti-inflammatory properties.

**Keywords:** Emulgel, Anti-inflammatory, Herbal medicine, Drug delivery Emulsion, Antifungal.

## ANTI-TUMOR ACTIVITY OF HYDROALCOHOLIC EXTRACT OF *BERBERIS ARISTATA* IN MCF-7 HUMAN BREAST CANCER CELL LINES

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### ABSTRACT

Breast cancer is one of the foremost frequent malignancies in women worldwide. About 2.3 million women were diagnosed with breast cancer and about 68500 deaths globally. There have been 7.8 million women were diagnosed with breast cancer within five years, creating it the world's most current cancer. At present, more than 60% of the chemotherapeutic drugs are developed from plants and their derivatives, which can be used for the development of anticancer drugs. Indian barberry, *Berberis aristata* has been traditionally used for the treatment of inflammation, skin diseases, ulcers and cancers. In present study, the Hydroalcoholic extract of stems of *B. aristata*, was used to investigate its anticancer activity in human breast cancer cell line (MCF-7). Different concentrations of the hydroalcoholic extracts (500, 300, 50 10, and 1µg/ml) were subjected to determine the cytotoxic effect by measuring the cell proliferation activity in MCF-7 breast cancer cell lines up to 48 h of incubation. The *Berberis aristata* extract shows the significant inhibition of the cell as compared with the Anastrozole drug. At the dose of 1µM Anastrozole % inhibition of cells is 97.288 % *and B. aristata* extract showed 97.62% inhibition at dose 300ug/ml.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## GELATIN AND NON-GELATIN CAPSULE DOSAGE FORM

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### ABSTRACT

Capsules are solid-dosage form meant for internal and external use. Substances are enclosed are enclosed in either hard or soft shells. Capsule have the advantage of being tasteless, easily administered. Capsule deliver not only solid as well as non aqueous liquids as unit dosage form. Capsules shells available in hard or soft shell. They are formulated by gelatin and non-gelatin material such as starch, Hypromellose, water with or without plasticizer. Gelatin capsule manufactured from the collagen of animal skin or bone for example cinobac. Non-gelatin capsule are made up of starch, HPMC, PVA for example Pradaxa. Various packaging and storage method used for capsules.

**Keywords:** Gelatin, non-gelatin, Hypromellose, collagen, HPMC.

## ASSESSMENT OF DIFFERENT ANTIMICROBIAL STEWARDSHIP STRATEGIES - FOR THE ENHANCEMENTS OF PATIENT'S SAFETY BY MINIMISING ANTIMICROBIAL RESISTANCE

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### ABSTRACT

**Background:** Prospective audits with feedback and pre-authorization are effective strategies for antimicrobial management (ASP) programs, the proportionate effectiveness of various approaches, however, is unknown.

**Methodology:** These two ASP techniques are compared in institutional medical centre. Antimicrobial stewardship programmes (ASPs) have been shown to reduce antimicrobial usage, antibiotic resistance, and health-care expenditures. Adult hospital units that have implemented ASPs have provided the majority of the evidence demonstrating their value.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

**Result:** The purpose of this research is to see how effective a comparative study of prospective audit & feedback versus pre-authorisation for minimizing antimicrobial resistance in tertiary care hospital. 31% of the total studies reporting data used pre-authorization/formal restriction as prescribed. Of that 20% of studies have used this intervention independently; many trials have been conducted as a combined intervention or potential with education and training. Prospective audits and Pre-authorization when used together, evidently have shown better results on antimicrobial usage than they show individually.

**Discussion & Conclusion:** Improving patient care and reducing medical costs essential ultimate goals, but the ultimate goal is to protect existing and upcoming antibiotics from the threat of antibiotic resistance. A prospective audit and feedback treatment is likely one of most widely utilized, among all antimicrobial stewardship strategies. Although time-consuming, they are more commonly accepted by doctors than formularies limitations & Pre-authorization procedures, where they provide more teaching opportunities. Antimicrobial stewardship initiatives must be evaluated objectively in order to be successful. In-spite of this limitations intrinsic in the design of most rational antimicrobial use programs, discussion regarding about what effects should be evaluated, and Innovative study designs capable of impartially evaluating antimicrobial therapy are needed.

**Keywords:** Antimicrobial Stewardship Programme (ASP), Prospective audit and feedback, Pre-authorization, Antimicrobial Resistance (AMR), Society of Healthcare Epidemiology of America (SHEA), Infectious Disease Society of America (IDSA), Define Daily Dose (DDD), World Health Organization (WHO), Days of Therapy (DOT),

## SHANKHPUSHPI: A MEDICINE FOR ENHANCING MEMORY AND COGNITION

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### ABSTRACT

Shankhpushpi is perennial herb widely used in Indian traditional system of medicine. It is frequently found in North-Western region of India and is mainly described as memory and intellect booster. As per an ancient Indian medicinal scripture, Charaka Samhita this plant is superior to other nootropic drugs (Medhya rasayana) of Ayurveda. Various species for Shankhpushpi, including *Convolvulus pluricaulis*, *Convolvulus microphyllus*, *Evolvulus alsinoides*, and *Clitoria ternatea* have been described in literature as 'Shankhpushpi'. This plant is used from its roots to its tips and have variety of utilities in man. The major therapeutic

Online ISSN: 2321-6794 Print ISSN: 2321-7162

utilities being Nootropic activity, Neuroprotective activity, anxiolytic, anticonvulsant, antidepressant, anti-inflammatory, ant-oxidant, analgesic and spasmolytic, sedative activities. Shankhpushpi is available in a variety of forms including powder, tablet, capsule, juice, syrup and oil as well. Different phytochemicals are detected in this plant, which are responsible for variety of pharmacological actions like carbohydrates, proteins, fatty acids, fixed oils, volatile oils and glycosides, phenolics, triterpenoids being the major ones. Phytohormones are also available. CNS activity is observed in methanolic/alcoholic extract/roots and aerial parts. With rise in use of traditional system of medicine in both developed and developing countries, potential of this plant can be further evaluated by using latest sophisticated techniques.

## SPRAY DRIED FORMULATION OF MESALAMINE EMBEDDED WITH PROBIOTIC BIOMASS FOR THE TREATMENT OF ULCERATIVE COLITIS: IN-VITRO AND IN-VIVO STUDIES

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### ABSTRACT

**Objective:** This study is using the targeted approach and anti-inflammatory action of the probiotic biomass to lessen the side effects of therapeutic agents of ulcerative colitis. The aim of the present study is to prepare mesalamine loaded eudragit S-100 with probiotic microparticles by spray drying method.

**Methods:** Polymeric microparticles of mesalamine embedded in probiotic biomass prepared using a spray dried technique.

**Results:** The in-vitro release of the optimized formulation was 90.55 ± 2.42 in 24 hr, which display controlled drug release of mesalamine at a particular region. Mesalamine loaded eudragit S-100 with probiotic microparticles (F12) presented average particle size of 4.91 mm. The statistical analysis was done by one way ANOVA and then comparison test of Bonferroni was done and p values <.05 were considered as significant. The effects of spray dried microparticles over inflamed Caco-2 cell were also evaluated by determining the concentration of IL-8.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

**Discussion & Conclusion:** From in-vivo study it was seen that pretreatment of mesalamine with probiotic prevents DNBS (Dinitrobenzenesulfonic acid) induced colitis in rats and represents protective action against ulcerative colitis because of its antioxidant and anti-inflammatory actions. The results give the foundation for a combination of targeted approach along with the anti-inflammatory potential of the probiotic which might help to decrease the problems which are seen with the traditional cure and management of ulcerative colitis.

## ANTIMICROBIAL AND ANTIOXIDANT PROPERTIES OF FUNGAL ENDOPHYTES, ISOLATED FROM *ALOE VERA*.

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### ABSTRACT

Endophytic fungi are a group of fungi that reside in the living plant without causing any disease symptoms. It shows symbiotic/mutualistic characteristics with host plants. Endophytic fungi may boost the host's defence system against a variety of pathogenic microorganisms and may contain secondary metabolites from the host plant. A total of 27 endophytic fungi were isolated from healthy *Aloe vera* plant leaves and roots in the Haridwar region of Uttarakhand state. This study found that fungal endophytes from Aloe vera produce active metabolites that contain chemical groups such as alkaloids, flavonoids, phenols, tannins, saponins, steroids, and glycosides that are both antibacterial and antioxidant in nature. Potential isolates AVL1, AVL4, AVL18, and AVR 7 demonstrated broad spectrum antibacterial activity against *Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus,* and *Bacillus cereus*. Active metabolites are found in all four isolates (AVL1, AVL4, AVL18, and AVR7). The hydroxyl group present in the extracts may be responsible for endophytic fungi's DPPH scavenging ability. The isolates AVL1 and AVL 18 demonstrated the greatest DPPH radical scavenging activity. These extracts were then used for additional activities.

**Keywords:** Endophytic fungi, antibacterial, phytochemical screening, antioxidant.

## TURMERIC: A WONDER DRUG

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

Ethanobotany is a recent branch of natural science dealing with various aspects such as anthropology, archeology, botany, ecology, economics and medicine, religious, cultural and several other disciplines. The interest in herbal drugs and natural traditional remedies are increasing worldwide Recently, great interest is given to studies of herbal drugs and traditional remedies are indicated worldwide. *Curcuma longa* L. (Turmeric) belongs to the Zingeberaceae family, one of the oldest cultivated spice crops and indigenous to the Indian sub-continent. This old spice is acknowledged from the past as both food and medication and has reemerged inside the wellbeing and nourishment networks. Curcuma longa has been well reported in the Ayurveda. The active constituent of turmeric is Curcumin, also known as diferuloylmethane. Curcumin imparts the yellow color to the spice. Diversification of turmeric from folkfore to modern values recount various useful properties such as relieving from gastrointestinal disorders, menstruation, improving digestion to antimicrobial, antioxidant, antidiabetic, hepatoprotective, anti-cancerous, anti-allergic, helpful in Alzheimer's disease, immunostimulant, and other ailments. From the ages, no other medicine can replace the medicinal value of Turmeric. Today's scenario is increasingly changing towards the use of non irresistible items having conventional therapeutic value. As Curcumin has a wide therapeutic potential with low toxicity as well, it should be considered in order to control various harmful ailments.

**Keywords:** Turmeric, Curcumin, Ethnomedicinal properties.

## DERIVATIVES OF QUINOLINE 4- CARBOXYLIC ACID AS ANTIMICROBIAL AGENT

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**ABSTRACT**

The greatest contribution to therapeutics comes from antimicrobial agents. Microorganisms can be suppressed or killed by these agents. Many pathogens are resistant to the majority of antimicrobial agents. Isatin was used to make 4-carboxylic acid derivatives of quinoline. In the

Online ISSN: 2321-6794 Print ISSN: 2321-7162

area of pharmaceutical chemistry, quinoline is one of the most often used heterocycles. In 1879, it was first synthesized. Quinoline has antimicrobial properties. So, in this study, novel quinoline 4- carboxylic acid derivatives were synthesized and docked against the DHFR protein (1U72) using the Molegro virtual docker. In the laboratory, these may now be synthesized further.

**Keyword:** Antimicrobial agent, Quinoline 4-carboxylic acid, Docking.

## RECENT TRENDS IN THE DEVELOPMENT OF COVID-19 VACCINES

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### ABSTRACT

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-caused Coronavirus Disease 2019 (COVID-19) is currently a global pandemic that has wreaked havoc on public health, lives, and the global economy. Considering the pandemic's high fatality rate and rapid spread, an efficient vaccination is critical for its management. As a result, academia, industry, and government are collaborating in unprecedented ways to create and test a wide range of vaccinations. Vaccination is regarded as one of medicine's greatest achievements. In this poster, we summarize the Covid-19 vaccine development initiatives, recent trends, difficulties, comparisons between traditional vaccines development and Covid-19 vaccines development also listed the approved/authorized, phase-3 and pre-clinical trials Covid-19 vaccines in different countries.

## THIAZOLIDINEDIONES: EFFECT ON METABOLIC SYNDROME

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### ABSTRACT

Thiazolidinediones (TZDs) have been used for the treatment of hyperglycaemia in type 2 diabetes for the many years. TZDs are used in the treatment of metabolic syndrome. Thiazolidinediones are the selective agonist for the peroxisome proliferator-activated receptor-γ (PPAR GAMMA). TZDs involves the activation of gamma isoform of peroxisom

Online ISSN: 2321-6794 Print ISSN: 2321-7162

proliferator-activated receptor gamma in nuclear reactor. TZDs improves the insulin sensitivity by enhancing fatty acid uptake into adipose tissue, increasing production of adiponectin and reducing levels of inflammatory mediators such as tumour necrosis factor-alpha (TNF-α), plasminogen activator inhibitor-1(PAI-1) and interleukin-6 (IL-6). Clinically, TZDs have been also shows mild effects on to reduce measures of atherosclerosis. However, in despite of beneficial effects on cardiovascular risk, TZDs have not been definitively shown to reduce cardiovascular events in patients, and the safety of rosiglitazone in this respect has recently been called into question. Dual PPAR-α/γ agonists may offer superior treatment of insulin resistance and cardio protection, but their safety has not yet been assured.

**Keywords:** Thiazolidinediones, Metabolic syndrome, Peroxisome proliferator-activated receptor-γ, Atherosclerosis, Adiponectin.

## NANOPARTICLE: NOVEL DRUG DELIVERY SYSTEM

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### ABSTRACT

A nanoparticle is a unique subset of the broad field of nanotechnology includes any type of particles with at least one dimension of less than 500 nanometers. A drug is transported to the place of action; hence its influence on vital tissues and undesirable side effects can be minimized. The modern form of therapy is especially important when there is discrepancy between the dose and concentration of a drug and are therapeutic results or toxic effects. Various polymers have been used in the formulation of nanoparticles for drug delivery research to increase the therapeutic benefits, while minimizing side effects. Particulate system like nanoparticles has been used as a physical approach to alter and improve pharmacokinetic and pharmacodynamics properties of various types of drug molecules. Here, we review various aspects of nanoparticles formulation, characterization, effect of their characteristics and their application in delivery of drug molecule and therapeutic genes.

**Keywords:** nanoparticle; therapeutic; pharmacodynamics; pharmacokinetic.

## PHARMACOLOGICAL POTENTIAL OF MODERNIZED DRUG-CARRIER SYSTEMS IN CARDIOVASCULAR DISORDERS

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

Targeting drug potentially to the desired site with least side effects and highest efficacy are some vital needs for Drug delivery system (DDS). Several modernized drug-carrier systems including nanomedicines and nanocarriers have potential of modifying vascular permeability, mononuclear phagocytosis, product stability and other pharmacological properties of drugs. Further nano-carriers can also be targeted specifically to desired site by attaching specific molecules. In this review various modernized drug carrier system included polymer, metallic, exosomes, lipid, dendrimers, are descripted with their pharmacological potential in cardiovascular disorder. Further pathophysiological changes of cardiac disorder are correlated with properties of nanoparticles showing their significant role in cardiac vascular disorder.

**Keywords:** Cardiovascular disease, Nanoparticles, Drug delivery system.

## A REVIEW ON RECENT ADVANCES IN MEDICINAL PROPERTIES OF NATURALLY OCCURRING HIMACHALENES

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**ABSTRACT**

Plant and plant derived material plays a very crucial role in synthesizing many organic compounds. From ancient times, cedarwood oil, extracted from *Cedrus deodara*, has been used for various medicinal purposes externally. Naturally occurring himachalenes are alpha-cis-himachalene, beta-himachalene and gamma-cis-himachalene which have been extracted from cedarwood oil. These isomers have been used in synthesis of benzocycloheptene derivatives which further showed anti- depressant and anti-microbial properties. Numerous other therapeutic aspects also have been found in cedarwood oil. This review describes the general introduction, properties, synthesis of himachalenes, pharmacological activities and medicinal importance of *Cedrus deodara* along with recent advancements in research related to this species. Currently, there are ongoing researches being carried out for vast exploration of medicinal benefits of naturally occurring himachalenes.

**Keywords:** Himachalenes, *Cedrus deodara*, plant, cedarwood oil.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## GREEN TEA BOON IN COVID-19

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### ABSTRACT

Green tea, made from the leaves of the plant Camelia sinensis, is a popular drink worldwide. Historically, tea was used as a medicinal herb to treat a variety of diseases. In scientific studies during the past decades, green tea and its characteristic polyphenols, catechins, have been shown to have activities in the prevention of obesity, diabetes, cardiovascular diseases, cancer, and other disease. Tea catechins have also been shown to have anti-viral activities as well as protective activities against diseases caused by oxidative stress and inflammation. Many of these activities may help alleviate the devastating pandemic of COVID-19, caused by the virus SARS-CoV-2. The major active constituent is epigallocatechin-3-gallate (EGCG) the most abundant catechin in green tea. Green tea also contains other catechins, such as (−)-epigallocatechin, (−)-epicatechin-3-gallate and (−)-epicatechin. EGCG, via activating Nrf2, can suppress ACE2 (a cellular receptor for SARS-CoV-2) and TMPRSS2, which mediate cell entry of the virus. Through inhibition of SARS-CoV-2 main protease, EGCG may inhibit viral reproduction. EGCG via its broad antioxidant activity may protect against SARS-CoV-2 evoked mitochondrial ROS. EGCG has shown activities with the potential to prevent against SARS-CoV-2 infection, suppress SARS-CoV-2 life cycle, and curb SARS-CoV-2 triggered cytokine storm, oxidative stress, ER stress, thrombosis, sepsis, and lung fibrosis. These possible concerted activities of EGCG suggest the importance of further studies in relevant animal models and humans.

## RECENT ADVANCES IN THE TREATMENT OF MULTI DRUG RESISTANT TUBERCULOSIS

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### ABSTRACT

Tuberculosis (TB) is a serious disease with a maternity rate of around two millions people in developing countries. Such uncontrolled spreads and re-occurrence of diseases leads to

Online ISSN: 2321-6794 Print ISSN: 2321-7162

resistance of *Mycobacterium tuberculosis* strains to the most-effective (first-line) anti-TB drugs which make it an epidemic disease. This has led to rise of development of adjunct immunotherapy. The host immune system is a critical factor both for repression and cure of *Mycobacterium tuberculosis* infection. Intensification or dampening of immunological responses can be of value in the treatment of individuals who have nonproductive *Mycobacterium tuberculosis* infection with inflammation-induced tissue damage. The use of immunotherapy with interleukin 2, interferon γ, and interleukin 7 as an adjunct to drug treatment may improve success rates for treatment of MDR tuberculosis, shorten treatment time for drug-sensitive tuberculosis, and improve the immunity of individuals by enhancing *Mycobacterium tuberculosis* elimination to prevent recurrence of disease. A broad range of immunological treatments, including cytokine treatment or cell-based therapy are being evaluated for the effective treatment of tuberculosis.

**Keyword:** *Mycobacterium tuberculosis;* MDR tuberculosis; interferon γ; cytokine treatment.

## HEALTH BENEFITS OF LEMON GRASS TEA- A REVIEW

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### ABSTRACT

Lemon grass is an aromatic medicinal grass belonging to the genus Cymbopogon. It is prevalent in the semi-temperate and tropical regions of Asian, American and African continents. A strong lemon fragrance, a predominant feature of this grass, is due to the high citral content in its oil. The redolence of the oil enables its use in soaps, detergents and perfumes. It also finds an application in the pharmaceutical industry. A vast array of ethnopharmacological applications of lemon grass exist today. Apart from nutrients such as fats, proteins, fiber and minerals, it also contains various bioactive compounds which may be grouped into alkaloids, terpenoids, flavonoids, phenols, saponins and tannins. The health restorative capacity of lemon grass may be ascribed to the diverse secondary metabolites it produces. This review attempts to give an overall description of lemon grass, highlighting its medicinal properties which make it a potent herb for Pharmacognostical applications.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## HEALTH BENEFITS OF "STATE PLANT" RHODODENDRO- A REVIEW

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### ABSTRACT

The Rhododendron distributed throughout the world is a small evergreen tree with deep red or pale pink flowers, belongs to the family Ericaceae and is known for its spectacular flowers. The species is widely distributed between the latitudes 80°N and 20°S with high socioeconomic reverence and has been designated as the national flower of Nepal and state flower of Himachal Pradesh (India). Rhododendron plants have number of health benefits along with antimicrobial activities and have full potency to be utilized in the food and beverage industry. This plant can be explored further by the researchers since it is still underutilized and is not properly preserved to make it available throughout the year. In addition to its immense horticultural importance, it is commonly used as an ornamental plant for gardens, plantations in the streets or vessels for its aesthetic value. Because of its numerous phytochemical potentials, it is being utilized as a traditional remedy for different diseases. The red petals of Rhododendron arboreum, may have phytochemicals with potential antiviral properties against COVID-19 targets.

## CURCUMIN: FROM ANCIENT MEDICINE TO CURRENT HEALTH CARE SYSTEM

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### ABSTRACT

Turmeric, a spice that has long been recognized for its medicinal properties, has received interest from both the medical/scientific world and from culinary enthusiasts, as it is the major source of the polyphenol curcumin. It aids in the management of oxidative and inflammatory conditions, metabolic syndrome, arthritis, anxiety, and hyperlipidemia. It may also help in the management of exercise-induced inflammation and muscle soreness, thus enhancing recovery

Online ISSN: 2321-6794 Print ISSN: 2321-7162

and performance in active people. In addition, a relatively low dose of the complex can provide health benefits for people that do not have diagnosed health conditions. Most of these benefits can be attributed to its antioxidant and anti-inflammatory effects. Ingesting curcumin by itself does not lead to the associated health benefits due to its poor bioavailability, which appears to be primarily due to poor absorption, rapid metabolism, and rapid elimination. There are several components that can increase bioavailability. For example, piperine is the major active component of black pepper and, when combined in a complex with curcumin, has been shown to increase bioavailability by 2000%. Curcumin combined with enhancing agents provides multiple health benefits. The purpose of this review is to provide a brief overview of the plethora of research regarding the health benefits of curcumin.

## NATURAL EXCIPIENTS

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### ABSTRACT

Today, medicinal science is becoming very advanced. Various types of formulations are discovered for treatment of different types of disease. As we know that dosage form is a combination of active pharmaceutical ingredient (API) and excipients therefore it is clear that any pharmaceutical dosage forms cannot be formulated without the use of excipients. Excipients are the major part of formulation. They do not show any adverse effect but promotes the therapeutic activity of pharmaceutical products. The bioavailability and stability of dosage form directly depends on the nature of excipients. Synthetic excipients have some toxic properties so the uses of natural excipients are coming in the picture. This review shows the importance of natural excipients in modern time and their application for better results in medicinal sciences.

**Keywords:** Natural Excipients, Active pharmaceutical ingredients, Finished Pharmaceutical Products, Fillers.

## EFFICACY AND SAFETY OF REMOGLIFLOZIN ETABONATE IN TYPE 2 DIABETES MELLITUS PATIENTS

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

Incidence and prevalence of diabetes have been steadily increasing with a raise of global prevalence about 8.5%. The major types of diabetes are differentiated by insulin deficiency versus insulin resistance. SGLT2 inhibitors are a new class of drugs that act by inhibiting glucose reabsorption in the proximal renal tubules. Remogliflozin a prodrug of remogliflozin, which is a potent and selective sodium-glucose co-transporter-2 inhibitor was used for the study. The objective of the study was to evaluate the efficacy and safety of Remogliflozin etabonate in reducing HbA1C and serum glucose in type II diabetes.

**Keywords:** Remoglifozin etabonate, SGLT2 inhibitors, type II diabetes, HbA1C.

## ETHNOBOTANY, PHYTOCHEMISTRY AND PHARMACOLOGY ON TERMINALIA BELERICA (BIBHITAKI)

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**ABSTRACT**

Terminalia belerica Roxb. is belonging to family combretaceae, which is growing widely throughout the Indian subcontinent, Bangladesh, Nepal, Sri-Lanka, and South East Asia. It is is used in several traditional medicines to cure various diseases. There are different phytoconstituents Glucoside, Tannins, ellagic acid, ethylgallate, gallylglucose, chebulanic acid which are responsible for its wide therapeutic actions. It is mainly used as antioxidant, antimicrobial, antidiarrhoeal, anticancer, antidiabetic, antihypertensive and hepatoprotective agent. This review article sites the information of different pharmacological activities of Terminalia belerica which may be source for further research studies.

**Keywords:** Phytoconstituents, pharmacologicalactivities, Terminalia belerica, therapeutic actions.

## QUERCETIN IN THE PREVENTION MANAGEMENT OF COVID-19

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

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**ABSTRACT**

The coronavirus disease 2019 (COVID-19) pandemic caused by serve acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has caused a devastating health crisis worldwide. In this review, we have discussed that prophylactic phytochemical quercetin supplementation in the form of foods or nutraceuticals may help manage the COVID-19 pandemic. The following evidence supports our argument. First, nuclear factor erythroid-derived 2-like 2 (NRF2) agonists abrogate replication of SARS-CoV-2 in lung cells, and quercetin is a potent NRF2 agonist. Second, quercetin exerts antiviral activity against several zoonotic coronaviruses, including SARS-CoV-2, mainly by inhibiting the entry of virions into host cells. Third, inflammatory pathways activated by nuclear factor kappa B, inflammasome, and interleukin-6 signals elicit cytokine release syndrome that promotes acute respiratory distress syndrome in patients with COVID-19, and quercetin inhibits these pro-inflammatory signals. Fourth, patients with COVID-19 develop thrombosis, and quercetin mitigates coagulation abnormalities by inhibiting plasma protein disulphide isomerase. This review provides a strong rationale for testing quercetin for the management of COVID-19.

## ALOE VERA: MEDICINAL PLANT

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**ABSTRACT**

Aloe Vera is a very important and effective plant with so many health applications and stupefying that scarcely any part of human body remain uninfluenced by its healing medicinal use. It acts as a natural fighter against all classes of infection, an important effective anti-oxidant, helps in treating all digestion related problems, heartburns, arthritis, stress, kidney-stone, skins-burns, diabetes, rheumatism, pain, asthma, cancer, AIDS, It also acts as a laxative beauty enhancer and produced that effect on lowering blood sugar level in diabetics and maintain the blood sugar. It is commonly known as Barbados or Curaçao Aloe, is an herbal medicine with a long traditional use in different cultures. The main limitation of the current clinical knowledge about aloe vera gel is small clinical studies that often lack rigorous methodology. Several clinical trials are being conducted to further evaluate the use of aloe vera gel for a variety of disorders, as well as to further confirm traditional uses of the plant extract.

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

**Key words**: Aloe Vera, cancer, diabetes, skin burn.

## ALBIZIA PROCERA

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### ABSTRACT

Rediscovery of the connection between plants and health is responsible for launching a new generation of botanical therapeutics that include plant-derived pharmaceuticals, multicomponent botanical drugs, dietary supplements, functional foods and plant-produced recombinant proteins. Albizia procera is a genus of albizia, the member of legume family (fabaceae) and subfamily mimosoideae. Albizia is a genus of more than 160 species of mostly fast-growing subtropical and tropical trees and shrubs in the subfamily Mimosoideae of the family Fabaceae. Albizia procera is native to moist deciduous and semievergreen hill forests, swamp forests, and lowland savanna woodlands in Asia from northern India through South-East Asia to the Philippines, Indonesia, Melanesia, and northern Australia. It is occasionally planted in southern Florida (Little and Wadsworth 1964). Albizia procera services in different ways such as shelter, fodder, fibre, ornamental, timber, gum or resin, fuel, reclamation, nitrogen fixing, and also has a therapeutic values like anticancer and anti-ulcer activity. It is also useful in treatment of rheumatism, haemorrhage, haemorrhoids, skin diseases and worm infestation. On the other hand, Albizia procera has well documented pharmacological activities.

## PLANT TISSUE CULTURE

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### ABSTRACT

Plant tissue culture has been widely employed in area of agriculture, horticulture, forestry and plant breeding. It is an applied biotechnology used for mass propagation, virus elimination, secondary metabolite production and in-vitro cloning of plants. Recently, plant tissue culture has been used for the conservation of endangered plant species through short and medium term conservation also known as slow growth and cryopreservation also known as long term conservation. These methods had been successfully used to conserve plant species with

Online ISSN: 2321-6794 Print ISSN: 2321-7162

recalcitrant seeds or dormant seeds and showed greater advantage over the conventional methods of conservation.

## ANTIMICROBIAL EFFECTS OF GARLIC AND ANTIMICROBIAL ACTIVITY OF GARLIC

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### ABSTRACT

Given that the garlic contains different biologically active materials and acts as an antibiotic and a fungicide, the purpose of this research was to estimate the degree of sensitivity of three different Gram-positive bacteria: Staphylococcus aureus, methicillin- resistant Staphylococcus aureus (MRSA) and Bacillus subtilis; two types of Gram-negative bacteria: Escherichia coli and Salmonella enteritidis; as well as the fungus Candida albicans. The degree of sensitivity of tested microbes with regards to the agency of fresh and thermally processed local and imported garlic was determined using the disc-diffusion method. Examined antimicrobial-test substances exhibited antibacterial effect on all tested gram-positive bacteria and gram-negative bacteria, as well as the fungistatic agency upon fungus C. albicans. The strongest antimicrobial effect on all tested species was exhibited by fresh local garlic. Preparate based on A. sativum could be introduced in clinical practice for the treatment of infections caused by C. albicans.

## NIOSOMAL DRUG DELIVERY OF TRANSDERMAL TARGETING DELIVERY SYSTEM

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### ABSTRACT

Niosomes are vesicular nanocarriers and are receiving much attention as potential transdermal drug delivery systems due to properties such as enhanced drug penetration, local depot for sustained drug release, and a rate-limiting membrane for modulation of systemic absorption of drugs via the skin. Several mechanisms have been proposed to explain the ability of niosomes to increase drug transfer through the skin. Niosomes are vesicular nanocarriers and have received much attention as potential drug delivery systems in the last 30 years due to their unique advantages. Nonionic surfactants are preferred because they have less potential to cause

Online ISSN: 2321-6794 Print ISSN: 2321-7162

irritation, which decreases in order of cationic > anionic > nonionic. Hydrophilic drugs are usually encapsulated in the inner aqueous core or adsorbed on the bilayer surfaces, while lipophilic substances are entrapped by their partitioning into the lipophilic domain of the bilayers.

**Keywords:** niosomes, transdermal, permeation enhancer, drug delivery.

## THE STUDY OF EFFECT OF CIRCIA PAPAYA LEAF EXTRACT ON THROMBOCYTOPENIA IN DENGUE FEVER

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### ABSTRACT

Dengue is a rapidly expanding global health problem. Approximately 2.5 billion people live in dengue-risk regions with about 100 million new cases each year worldwide. The cumulative dengue diseases burden has attained an unprecedented proportion in recent times with sharp increase in the size of human population at risk. The management of dengue virus infection is essentially supportive and symptomatic and no specific treatment is available for increasing the fallen platelets, which have a significant role in causing the mortality of dengue patient. This study was conducted to evaluate the platelet increasing efficacy of Caria papaya leaf extract (CPLE) in patients with dengue fever (DF). Severe thrombocytopenia in dengue often prompts platelet transfusion primarily to reduce bleeding risk. In India, about 11–43% of dengue patients report receiving platelet transfusions which is considered scarce and expensive especially in resource limited settings.

## A REVIEW ARTICLE ON: KANCHNARA (BAUHINIA VARIEGATA LINN.)

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### ABSTRACT

The ancient Indian medical system, also known as Ayurveda, is based on ancient writings that rely on a “natural” and holistic approach to physical and mental health. Ayurvedic medicine is one of the world's oldest medical systems and remains one of India's traditional health care systems. Here the present review study is an attempt to provide reported detail information of

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

this drug from various Samhitas. Kanchnara also called Mountain Ebony in English has been used in Ayurvedic system of Medicine since a long period. Different species of Bauhinia are known and used as Kanchnara in Ayurvedic medicine. It is a moderate sized deciduous tree with greyish colored stem found in Sub Himalayan tract from the Indus eastwards and throughout the forests of India and Burma. Maharishi Charaka and Sushruta have mentioned the properties of Kovidara and Karbudara in their Samhitas (Treatise). Both flower and bark of Kanchnara are used as medicine because of the important chemical constituents present in them which are hentriacontane, octacosanol, b-sitasterol, stigmasterol, lupeol and amino acids. The drug has been described as Grahi, Krimighna, Kushtaghna, Gandamalanashaka, Vranaropaka, Mehaghna and Raktapittashamak. Considerable efforts have been made by researchers to study the chemical and biological potential of the plant. So, this review paper is an endeavour of the author to provide details of this medicinal plant Kanchnara about its classical references, synonyms, botanical description, phytochemicals, pharmacological activity and classical medicinal uses.

**Keywords:** Kanchnara, Bauhinia variegata Linn, Gandamalanashaka.

## ANTI-INFLAMMATORY EFFECTS OF TRILLIUM GOVANIANUM RHIZOMES

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### ABSTRACT

Trillium govanianum rhizome is used as an analgesic and anti-inflammatory remedy in traditional medicine in northern Pakistan and India. In an attempt to establish its medicinal value, the present research evaluated the analgesic and anti-inflammatory potential of T. govanianum. The in vivo anti-inflammatory activity of extract and fractions was investigated in the carrageenan induced paw edema assay. The in vitro suppression of oxidative burst of extract, fractions and isolated compounds was assessed through luminol-enhanced chemiluminescence assay. The in vivo analgesic activity was assayed in chemical and thermal induced nociceptive pain models. The crude methanol extract and its solvent fractions showed anti-inflammatory response and analgesic responses, exhibited by significant enhacement of paw edema and relieve of the tonic visceral chemical and acute phasic thermal nociception. Therefore, the rhizomes of T. govanianum could serve as potential novel source of compounds effective in alleviating pain and inflammation.

**Keywords:** Trilliaceae, anti-inflammatory, analgesic, oxidative burst,

International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

## HERBAL PLANT USED IN TREATMENT OF RHEUMATOID ARTHRITIS

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### ABSTRACT

Rheumatoid arthritis (RA) is an autoimmune disease of unknown ethology and is mainly characterized by the progressive erosion of cartilage leading to chronic polyarthritis and joint distortion. Although the exact pathogenesis of the disease has yet not been elucidated, however, studies suggest that cellular proliferation of synoviocytes result in pannus formation which damages the cartilage and bone. Recent reports also support the role of free radicals in its pathogenesis. Apart from the conventional treatment strategies using nonsteroidal anti-inflammatory drugs, disease modifying antirheumatic drugs and glucocorticoids, newer and safer drugs are continuously being searched, as long-term usage of these drugs have resulted in adverse effects. Alternative medicine provides another approach for treatment of RA and currently a number of medicinal plants are under scientific evaluation to develop a novel drug. There is a dire need to investigate the complete therapeutic potential and adverse effects, if any, of these herbals for providing newer and safer treatment options with minimum side effects. In this paper we have tried to explore various Indian ancient Ayurveda, Unani and Tibet, as also some Chinese and Korean, herbals for their potential to treat RA.

## COGNITIVE DISORDER

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### ABSTRACT

Cognitive symptoms are common, and yet many who seek help for cognitive symptoms neither have, nor go on to develop, dementia. A proportion of these people are likely to have functional cognitive disorders, a subtype of functional neurological disorders, in which cognitive symptoms are present, associated with distress or disability, but caused by functional alterations rather than degenerative brain disease or another structural lesion. In this Review, we have systematically examined the prevalence and clinical associations of functional cognitive disorders, and related phenotypes, within the wider cognitive disorder literature. Around a quarter of patients presenting to memory clinics received diagnoses that might

Online ISSN: 2321-6794 Print ISSN: 2321-7162

indicate the presence of functional cognitive disorders, which were associated with affective symptoms, negative self-evaluation, negative illness perceptions, non-progressive symptom trajectories, and linguistic and behavioural differences during clinical interactions. Those with functional cognitive disorder phenotypes are at risk of iatrogenic harm because of misdiagnosis or inaccurate prediction of future decline. Further research is imperative to improve diagnosis and identify effective treatments for functional cognitive disorders, and better understanding these phenotypes will also improve the specificity of diagnoses of prodromal degenerative brain disease.

## FLOATING TABLETS

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### ABSTRACT

Oral drug delivery system is the most preferred route of administration for drug delivery. In the development of the drug delivery system many components play important role. Polymers are amongst those components which have evolved with the drug delivery system. Polymers used in the drug delivery system are of two types Natural and Synthetic based on their origin. Both types of the polymers have some advantages and disadvantages. This particular article gives information about the different types of natural and synthetic polymer used in the drug delivery system. Natural polymers like guar gum, chitosan, xanthan gum, Gellan gum and sodium alginate are mentioned in the article. Synthetic polymers mentioned are HPMC, Eudragit, and Ethylcellulose.

**Keywords:** Floating Drug Delivery System, Polymers, Natural gums, HPMC.

## GINGER (ZINGIBER OFFICINALIES) ANTIMICROBIAL POTENTIAL

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### ABSTRACT

Ginger (Zingiber officinale ) is a common and widely used spice. It is rich in various chemical constituents, including phenolic compounds, terpenes, polysaccharides, lipids, organic acids, and raw fibers. The health benefits of ginger are mainly attributed to its phenolic compounds, such as gingerols and shogaols. Accumulated investigations have demonstrated that ginger

Online ISSN: 2321-6794 Print ISSN: 2321-7162

possesses multiple biological activities, including antioxidant, anti-inflammatory, antimicrobial, anticancer, neuroprotective, cardiovascular protective, respiratory protective, antiobesity, antidiabetic, antinausea, and antiemetic activities. In this review, we summarize current knowledge about the bioactive compounds and bioactivities of ginger, and the mechanisms of action are also discussed. We hope that this updated review paper will attract more attention to ginger and its further applications, including its potential to be developed into functional foods or nutraceuticals for the prevention and management of chronic diseases.

**Keywords:** anti-inflammatory, anticancer, antinausea.

## INDOLE SCAFFOLD DRIVES FOR PHARMACOLOGICAL IMPORTANCE

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### ABSTRACT

Generally, heterocycles occupy a prominent place in chemistry due to their wide range of applications in the fields of drug design, photochemistry, agrochemicals, dyes and so on. Among them, indole scaffolds have been found in most of the important synthetic drug molecules and paved a faithful way to develop effective targets. Privileged structures bind to multiple receptors with high affinity, thus aiding the development of novel biologically active compounds. Among the indole class of compounds, 2-arylindoles appear to be a most promising lead for drug development. The derivatives of 2-arylindoles exhibits antibacterial, anticancer, anti-oxidants, anti-inflammatory, anti-diabetic, antiviral, antiproliferative, antituberculosis activity, *etc*.

## HERBAL DRUGS AND PLANTS USED IN THE TREATMENT OF DIABETES

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### ABSTRACT

Traditional Medicines derived from medicinal plants are used by about 60% of the world's population. This review focuses on Indian Herbal drugs and plants used in the treatment of diabetes, especially in India. Diabetes is an important human ailment afflicting many from various walks of life in different countries. In India it is proving to be a major health problem,

Online ISSN: 2321-6794 Print ISSN: 2321-7162

especially in the urban areas. Though there are various approaches to reduce the ill effects of diabetes and its secondary complications, herbal formulations are preferred due to lesser side effects and low cost. A list of medicinal plants with proven antidiabetic and related beneficial effects and of herbal drugs used in treatment of diabetes is compiled. One of the etiologic factors implicated in the development of diabetes and its complications is the damage induced by free radicals and hence an antidiabetic compound with antioxidant properties would be more beneficial. Therefore, information on antioxidant effects of these medicinal plants is also included.

## PHARMACOLOGICAL ACTIVITIES OF OCIMUM SANCTUM (TULSI): A REVIEW

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### ABSTRACT

In the present review, an attempt has been made to congregate the botanical, phytochemical, ethnomedicinal, pharmacological and toxicological information on Ocimum sanctum Linn. (OS, Tulsi), a medicinal herb used in the indigenous system of medicine. OS has been adored in almost all ancient ayurvedic texts for its extraordinary medicinal properties. It is pungent and bitter in taste and hot, light and dry in effect. Its seeds are considered to be cold in effect. The roots, leaves and seeds of Tulsi possess several medicinal properties. Ayurvedic texts categories OS as stimulant, aromatic and antipyretic. While alleviating kapha and vata, it aggravates pitta. It has a wide range of action on the human body mainly as a cough alleviator, a sweat-inducer and a mitigator of indigestion and anorexia.

**Keywords:** Medicinal properties, Ocimum sanctum, Pharmacological activities.

## VITEX NEGUNDO LINN: A MEDICINALLY IMPORTANT HERBAL PLANT

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### ABSTRACT

*Vitex negundo* (Verbenaceae)Linn. As Per Ayurveda *Vitex negundo* claimed to possess various medicinal uses. Many researchers reported effects of *Vitex negundo* by using various experimental models. All parts of the plant, from root to root, possess a multitude of phytochemical secondary metabolites which impart an unprecedented variety of medicinal uses

Online ISSN: 2321-6794 Print ISSN: 2321-7162

to the plant, possess useful pharmacological activities such as anti-inflammatory antitumor antioxidant, antimicrobial, galactagogue, antigastric, antiflaulant, antiparasitic, analgesic, hepatoprotective and antihypertensive some of which have been validated scientifically. VN has great potential to be developed as drug by pharmaceutical industry. There is need of further investigation of *Vitex negundo* as drug of choice for human being's lion part of which have been experimentally proved to be absolutely true. In fact, the plant is a constituent of a number of commercially available herbal formulations and has also shown a bio-control instrument.

## IMPACT OF PROLONG USE OF VITAMIN C ON PATIENTS WITH IMMUNO-SUPRESSED CONDITION

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### ABSTRACT

Circulating levels of vitamin C (ascorbate) are low in patients with sepsis. Parenteral administration of ascorbate raises plasma and tissue concentrations of the vitamin and may decrease morbidity. In animal models of sepsis, intravenous ascorbate injection increases survival and protects several microvascular functions, namely, capillary blood flow, microvascular permeability barrier, and arteriolar responsiveness to vasoconstrictors and vasodilators. The effects of parenteral ascorbate on microvascular function are both rapid and persistent. Ascorbate quickly accumulates in microvascular endothelial cells, scavenges reactive oxygen species, and acts through tetrahydrobiopterin to stimulate nitric oxide production by endothelial nitric oxide synthase. A major reason for the long duration of the improvement in microvascular function is that cells retain high levels of ascorbate, which alter redox-sensitive signaling pathways to diminish septic induction of NADPH oxidase and inducible nitric oxide synthase. These observations are consistent with the hypothesis that microvascular function in sepsis may be improved by parenteral administration of ascorbate as an adjuvant therapy.

**Keywords:** Arteriole, ascorbic acid, blood flow, capillary, inflammation.

## GYMNEMA SYLVESTRE AS AN DIABETIC AGENT

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International Journal of Drug Regulatory Affairs
Associated with Delhi Pharmaceutical Sciences & Research University
(Established under Act 07 of 2008, Govt. of NCT of Delhi)
Online ISSN: 2321-6794 Print ISSN: 2321-7162

**ABSTRACT**

Gymnema sylvestre (Family- Asclepiadaceae), popularly known as gurmar or Madhunashini. It is one of the most important medicinal plant in India. The major chemical component of Gymnema sylvestre is gymnemic acids which has antidiabetic, anti-sweetener and antiinflammatory activities. Traditionally Gymnema is used for treatment of glycosuria and urinary disorders. The leaves are also used as diuretic. It also acts as feeding deterrents to caterpillar, Prodenia eridania, prevent dental caries caused by Streptococcus mutans and used in skin cosmetics. Recent reports suggest that Gymnemic acid formulations have been found useful against obesity. It also has anti-cancer activity which was tested using biofunctionalized silver and gold nanoparticles derived from aqueous leaf extracts of G. sylv.

## MEDICINAL PLANTS IN HIMACHAL PRADESH

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**ABSTRACT**

Himachal Pradesh, in the Indian Himalaya, has a rich diversity of medicinal plants, which are widely used. This paper brings together existing information with the results from recent field surveys. Approximately 700 species of medicinal plants are identified; many different plant parts are used for the treatment of various diseases. The number of medicinal plant species decreased with increasing altitude. The plants are classified according to nativeness, rarity, and prioritized for cultivation. Existing strategies for in-situ and ex-situ conservation, cultivation and propagation are reviewed and a range of actions for cooperative implementation by all stakeholders are suggested.

**Keywords:** Himachal Pradesh, Medicinal, Plant, Cultivation.