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# OFF-LABEL USE OF ANTIDEPRESSANTS- A DOUBLE EDGED SWORD, REQUIRES A CLOSE MONITORING: A REVIEW

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**ABSTRACT:**

Drugs have an imperative role to play in well-being of the patient. They are approved in the market after undergoing a rigorous process, based on its preclinical and clinical data which elucidate and confirm its safety and efficacy. But medicines, when prescribed off label do not provide us with the risk-benefit analysis. In present scenario the trend to prescribe off label drugs is common among healthcare providers. But unfortunately, this is a gray area, which needs to be explored to embark concern about safety, raised by inappropriate use of the drugs. Studies have reported high prevalence of Anti-depressant usage as off label drugs in the general population for the treatment of various conditions such as insomnia, migraine, fibromyalgia etc. But due to lack of epidemiological evidence, it exposes patients to unnecessary cost and risk of experiencing side effects and serious adverse events that could be mitigated by the support of dynamic and vigorous Pharmacovigilance system that allows regulatory authorities to take appropriate decision regarding the drug, further helping practitioners in prescribing them rationally. This review will suggest the essential role of Pharmacovigilance in ADRs reporting related to Off-label use of Anti-depressant drugs.

**Key words:**

Off label use, Antidepressants, Adverse drug reaction, Safety vigilance.

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# NANOMICELLAR CARRIERS FOR TARGETED DELIVERY OF GLIPTINS

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**ABSTRACT:**

Clinical application of gliptins is limited by problems such as poor permeability, less protein binding and pancreatitis. Formulation development represents an important approach to these problems. Among the many delivery systems studied, polymeric micelles have gained considerable attention. Nanomiscelles are nanosized vesicular carriers formed from amphiphilic monomer units. Polymeric nanomicellar carriers provide an amenable means to improve drug solubilization. The use of polymeric nanomicelles is an attractive approach for improving the drug permeability, for sustaining drug levels and reducing systemic side effects. Sitagliptin is class of oral diabetic drugs that was approved by the U.S. Food and Drug Administration (FDA) on October 17, 2006. The present study was aimed for preparation of sitagliptin loaded polymeric nanomicelles by direct dissolution method using non-ionic surfactant, polymer and further characterized for particle size, shape, % entrapment efficiency, % loading capacity, zeta potential and % drug release. The results of study show that loaded nanomicelles are small, spherical without any aggregate having mean particle diameter of 795 nm and zeta potential value (0.192 mV) indicating greater stability. Hence it can be concluded that it is a highly effective and safer approach for targeting gliptins and reducing side effects of gliptins.

**Keywords:** Gliptin, pullulan, polymeric nanomicelles, mean particle size, zeta potential.

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# NANOPARTICLES: THERAPIES FOR ULCERS HEALING

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**ABSTRACT:**

Nanotechnology is the understanding control of matter and development of engineered devices in nanoparticles (1-100 nm). Nanoparticles have different physicochemical properties in comparison to bulk materials of the same composition. The nanotechnology has proved its usefulness in early diagnosis, multifunctional therapeutics and imaging diagnostics. The combination of nanotechnology with medicine offers the unprecedented opportunity to create materials and devices at a nanoscale level, holding the potential to revolutionize currently available macroscale therapeutics. Several areas of medical care already benefit from that nanotechnology and plethora of advantages to medical care and use its application in ulcer healing and the success of nanoparticulate systems suggests that their potential will take place a progressive increase in the exploration. An overview on the current applications of nanotechnology to ulcer healing and ulcer care is presented. This study was designed to develop nanoparticles and investigate its gastroprotective effect on ethanol-induced gastric ulcer and other model.

**Keywords:**

Nanoparticles, Nanoscale, Macroscale, Nanotechnology, Ulcer Healing, Gastroprotective Effect, Ulcer.

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# NANOEMULSION IN ENHANCEMENT OF BIOAVAILABILITY OF POORLY SOLUBLE DRUGS

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**ABSTRACT:**

Nanoemulsions have the potential in pharmaceutical businesses due to the straightforwardness at high bead volume division, higher rate of bioavailability or dispersion and expanded time span of usability of the pharmaceuticals. Nanoemulsions are clear, thermodynamically steady, isotropic fluid blends of oil, water, surfactant and co-surfactant. These are oil-in-water (o/w) kind of emulsions with the normal bead measure extending from 5nm to 100 nm. Decrease in bead size to nanoscale prompts change in physical properties, for example, optical straightforwardness and abnormal versatile conduct. Nanoemulsions have broad applications in various fields, for example, pharmaceutics, nourishment innovation. Nanoemulsions offer a promising vehicle for expanding the watery solvency of ineffectively water-solvent medications

**Keywords:**

Nanoemulsions, Poorly soluble drug, Method of preparation, Thermodynamic

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# A PSYCHOMETRIC ASSESSMENT FOR SEVERITY OF NEURODEGENERATION CAUSING COGNITIVE IMPAIRMENT, SLEEP DEPRIVATION AND AFFECTING QUALITY OF LIFE

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**ABSTRACT:**

Neurodegenerative Disorders comprises a group of debilitating diseases that are the result of progressive neuronal degenerations with sleep impairments, and eventually affecting Quality of Life. The present cross-sectional study aimed at looking at how poor sleep quality and the presence of sleep disorders may contribute to diminished cognitive abilities and negative effect in individuals with Neurodegenerative Disorders. This study provided insight into the role of poor sleep in mediating cognitive and affective deficits that markedly reduce quality of life. Results suggest that improving the quality of sleep could result in improved daytime functioning and mood with providing novel therapeutic targets for the management of Neurodegenerative Disorders. It was observed that enhanced cognitive functioning was significantly associated with intermediate sleep duration and higher sleep quality, suggesting that sleep measures may influence cognitive performance in older individuals. These results suggest that disturbed sleep may have detrimental effects on cognition and Quality of Life of individuals with Neurodegenerative Disorders.

**Keywords:**

Neurodegenerative, Impairments, Cognitive and affective

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# DEVLOPEMENT OF NANOSIZED SELEGILINE LOADED BIO-NANOSUSPENSION FOR MANAGEMENT OF DEPRESSION

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**ABSTRACT:**

The current research work aimed to design nanosized Selegiline loaded Bio-nanosuspension using *Citrus limetta*as bio-retardant, bio-stabilizer and bio-suspending agent for ocular delivery. Selegilineis a medication which functions as a MOA-B inhibitor and meant for depression treatment and has various side effects like dry mouth, sore throat, nausea and diarrhea through oral route. The biopolymer from *Citrus limetta* was isolated by addition of optimized quantity of acetone non solvent and recovered by filtration and used as bio-retardant and bio-stabilizer. The Selegiline loaded Bio-nanosuspension was prepared using novel biopolymer isolated from *Citrus limetta*as bio-retardant (1%, 2%, 3%, 4%, 5%) and standard polymer eudragit (1%, 2%, 3%, 4%, 5%) by Sonication solvent evaporation method and evaluated for pH stability studies, particle size, polydispersity index, zeta potential, %entrapment efficacy, in vitro drug release and stability studies. The prepared bio-nanosuspension were found to be safe and compatible with the ophthalmic delivery for treatment of depression and this is a novelistic approach significantly delivering the drug for prolonged period and the biopolymer was served as a promising excipient for delivering dosage forms.

**Keywords**:

Selegiline, Bio-nanosuspension, *Citrus limetta,* Biopolymer, Bio-retardant, Bio- stabilizer

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# *STEVIA REBAUDIANA*: A NATURAL SWEET HERB FOR DIABETES

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**ABSTRACT:**

*Stevia rebaudiana,* Bertoni a plant from Asteraceae family commonly termed as "sweet herb "is generally known due to its distinguishing features of steroidal glycosides which are present in the leaves. The steroidal glycosides have the sweet taste and being non caloric. There are total nine sterols glycosides in which sterioside and rebaudioside-A are the major chemical constituent native of Paraguay, North America, that are also used for the high blood pressure, obesity, dental carries. A recent scientific trail shows that this herb has many health benefits. Stevia contains phytochemical compound that helps to cure blood sugar, cholesterol and blood pressure. It is used as natural sweetener and is having low calorie. And these traditional alternatives cannot take place as an alternative of the sugar as well as have taste issues while consumption, there is strong need to discover new kind of herb which can take place as a diet not as a medicine and have control over the diabetes. As discussed above and many researches has been found that Stevia has better antidiabetic properties as well as sweeter than sugar and which can be used as an alternate to sugar and to control diabetes. The research abstract tried to find out the antidiabetic uses of Stevia rebaudiana leaves.

**Keywords:**

Sterioside, Rebaudioside, Antidiabetic, Phytochemical

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# NANO-TECHNOLOGY IN CANCER DRUG DELIVERY AND CANCER TREATMENT

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**ABSTRACT:**

Nanotechnology is quickly developing realm, as it resolves different issues related with standard drug therapeutics. Nanotechnology has assuming the chance to achieve direct entry of the cancerous cells particularly with increased drug localization. The cell of cancer are coming up as a specific therapeutic used to recognize and giving particular and correct drug delivery to avoid interconnection with healthful cells. Nanoparticles made of magnetic material can also be used to concentrate agent at tumor site using an externally applied magnetic field. Nanoparticles are 1-100 nanometers in size. Nanoparticles target tumor cells in passive and active target. Protein-bound paclitaxel (e.g. Abraxane) or nab-paclitaxel is used for the treatment of breast cancer. An albumin-bound paclitaxel nanosphere is used for the treatment of lungs cancer and pancreatic cancer. Liposome encapsulated doxorubicin is used for treatment of breast cancer. Liposome encapsulated daunorubicin is used for the treatment of AIDS related Kaposi's sarcoma. Liposome encapsulated vincristine is used for the treatment of acute lymphoblastic leukemia.

**Keywords:**

Liposome, Therapeutics, Kaposi's sarcoma, Leukemia

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# PHARMACOVIGILANCE: A KEY FOR DRUG SAFETY

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**ABSTRACT:**

Pharmacovigilance refers to the process which is used to identify, detect and respond to the drug safety issue and has witnessed dynamic advancements in pharmaceutical industries throughout the world. The most important objective of Pharmacovigilance is to promote the safety monitoring and to detect any ADRs that previously got unexceptional in development during clinical trial. Adverse Drug Reactions monitoring is required for each and every medicine throughout its lifecycle which includes early stage of drug design, clinical trials, and post marketing surveillance. Now days the emerging trend in Pharmacovigilance is focusing to link the premarketing and post marketing data that include safety information regarding the drug. According to the statics India is a vast country with population of over 1.32 Billion with different social economics status, different patterns of disease universality it becomes most important to have a standardized and robust Pharmacovigilance. Pharmacists, as doctor remark that their involvement may increase the reporting rate and have a greater role to play in the area of Pharmacovigilance.

**Keywords:**

Robust, Pharmacovigilance, ADR, Omitting.

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# NATURAL BIO-ENHANCER; NEED OF ERA

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**ABSTRACT:**

Pharmaceutical preparations are leading in formation of the lifeline in today's era. As per need of today's era the researches are taking interest on resolving the problems of low bioavailability, decrease in amount and rate of absorption of drugs delivery system which leads to decrease in dose effectiveness and targeting required. Bio-enhancers are safe, pharmaceutically inactive and act to achieve effective and efficient drug delivery at the required site. This innovation is now a day used to achieve targeted and cost-effective drug delivery system. The bio-enhancer is basically of two types natural (Ayurvedic) and synthetic. Recent advancement in the natural origin compounds for bioavailability enhancement has produced expected drastic change in the way of therapeutics. Natural bio-enhancers enhance bioavailability and bio-efficacy of different drugs classes i.e. antibiotics, antiviral, antifungal, and anticancerous drugs at low doses. Natural bio-enhancer includes Piperine, quercetin, genistein, naringin. Synthetic or chemical bio-enhancer include monoketocholic acid enhance the activity of drug molecule and the most important they are even effective at very low concentration in a combination.

**Key words:**

Bioavailability, Bio-enhancer, Piperine, Naringin

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# STANDARDISATION OF *MALLOTUSPHILIPPENSIS* LEAVES AS PER WHO GUIDELINES AND PHARMACOPOEIAS

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**ABSTRACT:**

*Mallotusphilippensis* (Lam.) belonging to family Euphorbiaceae is commonly known as Kamala dye tree. In Ayurveda, it is known as *Kampillaka* and traditionally used in the treatment of skin problems, fungal infection, tapeworm, eye-disease, bronchitis, cancer, diabetes, diarrhea, jaundice, malaria, urinogenital infection. It contains various bioactive constituents like phenolics (bergenin and isocoumarin), triterpenoids, steroids (β-sitosterol), chalcone derivatives, and cardenolides, phloroglucinol derivatives (rottlerin and isorallorottlerin). Rottlerin is reported as a potent potassium channel opener. It has already been reported for various pharmacological actions such as anti- inflammatory, immuno-modulatory, antimicrobial, anti-allergic and anti-proliferative and antioxidant activities. The present study aimed to evaluate the quality standards of *M.philippensis*. Various investigations were carried out including microscopical examination, physicochemical evaluations and chemo-profiling study, as per WHO guidelines, Indian Pharmacopoeia and Ayurvedic Pharmacopoeia. The leaf extracts of the plant were also studied for its *in vitro* anti-urolithiatic activity and found to have a remarkable activity.

**Key words:**

Kampillaka, Immuno-modulatory, Anti-proliferative, Fingerprinting

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# BIOPRINTING ORGANS: THE FUTURE OF HEALTHCARE, ADVANCED TRENDS IN PHARMACEUTICAL RESEARCH & INDUSTRY

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**ABSTRACT:**

The man-made formation of human skin tissues and internal organs assumed as something of reserved future but some of it is happening in present all over the world in many research centers and they provide new therapeutic options. This method helps in producing cancerous tissue so that it can be beneficial in the field of cancer and introducing new drugs. By adding cellink's biological Ink with the sample of patient with cancer can help remove cancer tumors. IMO different approach as a fourth dimension for Di bio stamps helps in changing the functioning over time when internal stimulus is imposed. In 2014, Organovo announced the first successful printing of liver tissue and it functioned as a real liver for weeks. A year later, functional human kidney tissues were generated with a 3D bioprinter. The company's first bioprinted products are expected to make it to the FDA in 2019. Nowadays, Clinical trials today are lengthy and expensive but with bio-printed tissues, new products can be assessed and brought to market more quickly.

**Key words:**

Cellink's, IMO, Organovo, Bioprinter, FDA**.**

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# NANO ROBOTS AND ITS APPLICATIONS IN THE TREATMENT OF CANCER

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**ABSTRACT:**

A nanorobot is an extremely small robot that is designed to perform specific tasks at the nanoscale dimension of few nanometers. Nanorobots are made up of a mixture of protein & polymer known as transferrin which is capable of detecting tumor cells. Nanorobots toolkit contains features like medicine cavity containing medicine, probes, knives and chisels to remove blockages and plaque, microwave emitters and ultrasonic signal generators to destroy cancerous cells, two electrodes generating an electric current, heating the cell up until it dies, Application of nanorobots in the treatment of cancer is one of the fascinating fields of research. According to a report by World Health Organization (WHO), there were 8.2 million deaths in the year 2012 by cancer worldwide. In 2015 there were 11, 48,692 cases of cancer in India. The present methods for the treatment of cancer are not that effective as 99% of chemotherapy drugs do not reach the cancer cells. However, nanorobots which are roughly 100 times smaller than human tissues could do this and hence creates a huge area for exploration in the field of biomedical research.

**Keywords:**

Nanorobots, Microwave emitters, Ultrasonic signal.

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# TARGETING RNA WITH SMALL MOLECULES- RECENT ADVANCES AND FUTURE PROSPECTIVE IN PHARMACEUTICAL RESEARCH & INDUSTRY

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**ABSTRACT:**

This is a recent trend in drug discovery space with a continuously growing excitement: academics, biotech startups and pharmaceutical companies are increasingly active about RNA targeting, although uncertainty is also high. In the living organism, DNA stores the information for protein synthesis and RNA carries out the instructions encoded in DNA leading to protein synthesis in ribosome. While a majority of drugs is directed at targeting proteins responsible for a disease, sometimes it is not enough to suppress pathogenic processes. It seems like a smart strategy to start earlier in the process and influence RNA before proteins were even synthesized, therefore substantially influencing the translation process of genotype to unwanted phenotype. The problem is, RNAs are notoriously terrible targets for small molecules they are linear, but able to clumsily twist, fold, or stick to it, poorly lending its shape to suitable binding pockets for drugs. Besides, in contrast to proteins, they compose of just four nucleotide building blocks making them all look very similar and difficult for selective targeting by small molecules. However, a number of recent advances suggest that it is actually possible to develop drug like, biologically active small molecules that target RNA.

**Keywords:**

DNA, RNA, Protein synthesis, Genotype

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# NANO BASED DRUG DELIVERY SYSTEMS FOR TREATMENT AND CURE OF ALZHEIMER'S DISEASE IN RECENT TIMES

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**ABSTRACT:**

Alzheimer's disease (AD) is an acquired disorder of behavioral impairment which is incurable with a long and progressive course. The unprecedented rise of Alzheimer's disease (AD) with alarming projections possesses a serious concern. Deaths from Alzheimer are increased by 68% between 2000 and 2010.The number of people with AD will increase if no effective therapy is developed. Understanding the involvement of multifactorial components (neuroinflammation coupled with oxidative stress, enhanced acetyl cholinesterase activity) in the pathogenesis of the disease is a step forth towards the alternative drug development therapy. This new platform aims to improve the bioavailability, pharmacokinetics, and pharmacodynamics of drugs while reducing their side effects.

Loading a drug in a suitably formulated nanocarrier system helps increasing the concentration in the brain cells. The small particle size will help crossing the blood brain barrier and reach the target neuronal cell. These systems allow the transport across the BBB by masking their physico-chemical properties through their encapsulation in these systems.

**Keywords:**

Alzheimer's disease (AD), Nanotechnology, Nanocarrier, Neuronal cell

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# VARIATION OF PRICES OF DIFFERENT REGIMENS FOR NON-SMALL CELL LUNG CARCINOMA AVAILABLE IN INDIAN MARKET AND JAN AUSHADHI SCHEME

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**ABSTRACT:**

Introduction: Lung cancer is the commonest in men in India accounting for 11.3% of all new cancers and also is the most common cause of cancer death (13.7%). Of the various regimens, Gemcitabine plus Cisplatin (GC) is reported to have highest overall response rate. Both these medicines are available in Indian retail market as well as Jan Aushadhi Stores (JAS). This study has compared the prices of Gemcitabine plus Cisplatin regimen for locally advanced non-small cell lung carcinoma available in different brands in retail market and under Jan Aushadhi Scheme. The percentage variation among minimum, maximum and JAS cost of Gemcitabine plus Cisplatin 21 days cycle and 28 days cycle was calculated for 6 cycles. Other available therapies for NSCLC comprising of drugs unavailable in JAS were also compared. Percentage variation between lowest and highest cost of therapy with GC 21- days cycle in the two sectors ranged between 540-1335%, respectively. Likewise, the variation between lowest and highest cost of therapy with GC 28-days cycle was between 570-1400% respectively. These results reflect that the cost of therapy for non-small cell lung carcinoma using GC regimen has wide variation. Purchase of medications from the JAS can lead to significant savings for NSCLS patients

**Keywords:**

Gemcitabine, Cisplatin, Pharmacokinetic, carcinoma

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# ADVERSE REACTIONS AND CHALLENGES IN HERBAL MEDICINES-A REVIEW

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**ABSTRACT:**

Since prehistoric times, herbal medicines and herbal products have been widely used such as plants, animals, marine organism and microorganism for treatment of diseases. They are also in more demand throughout the world for all healthcare problems due to its great efficacy, safety and little side effects. But data from various studies have been found that there are various unwanted side effects induced by herbals drugs/medicine in patients. Drug-herb interactions are based on the same pharmacokinetic and pharmacodynamics principles as drug-drug interactions. Herbal medicines do not need to be avoided, the only fundamental issue is that they should be considered as medicine and the adverse effects and potential interactions considered.

In conclusion, it is suggested that high degree prescription and self-medication use of unapproved/unethical and without pre-clinical and clinical toxicology evaluation herbal drugs are source of toxic effect and associated serious side effects in patients. Thus, the doctors and pharmacists may play a major role in abrogate side effects of herbals formulations.

**Keywords:**

Prehistoric, Efficacy, Pharmacokinetic, Pre-clinical.

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# ORGANS (BODY)-ON-A-CHIPMICRO FLUIDIC TECHNOLOGY FOR DRUG DISCOVERY, RECENT TRENDS IN PHARMACEUTICAL RESEARCH & INDUSTRY

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**ABSTRACT:**

Microchips lined by living human cells could revolutionize drug development, disease modeling and personalized medicine. These microchips, called 'organs-on-chips', offer a potential alternative to traditional animal testing. Ultimately, connecting the systems altogether is a way to have the whole "body-on-a-chip" system ideal for drug discovery and drug candidate testing and validation. The basic idea started with the arrangement of cells into coordinated 3D cultures, tissue-like organoids, of different cell phenotypes sharing interconnections to mimic the exchange of ions and metabolites found in real organs. An example of such an early incarnation would entail clustering different cells representative of the liver sinus to function as a liver-on-a-chip. This trend is now a big deal in drug discovery and development space. While a lot of skepticism existed some 6-7 years ago, when perspectives on the field were articulated by enthusiastic adopters. Today, however, the critics appear to be in full retreat. Over two dozen organ systems are represented in on-chip systems.

**Keywords:**

Microchips, Organs-on-chips, Organoids, Phenotypes

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# AN INSIGHT MANAGEMENT AND TREATMENT FOR ENCEPHALITIS – A VIRAL DISORDER

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**ABSTRACT:**

Encephalitis is one of the most common vectors borne disease in immune competent patients. It is the process of an inflammation of the brain which leads to neurologic dysfunction. There are multiple causes of encephalitis but the majority of viruses in which the Herpes Simplex Virus (HSV) are the leading agents. Primary viral encephalitis results from centripetal spread of the reactivated virus from cranial ganglia to the brain, whereas post infectious encephalitis is thought to be immune mediated. Various etiological diagnostic approaches are available to evaluate the patients with encephalitis such as, cultures and analysis of body fluid specimens (Polymerase Chain Reaction i.e. PCR test), biopsy of specific tissues outside the CNS, serologic testing and Magnetic Resonance Imaging (MRI) for diagnosis of brain inflammation. Despite use of antiviral drugs for its treatment, the optimal management of encephalitis is still uncertain and thus requires long term multidisciplinary management such as comprehensive vaccination programs, appropriate personal protective gear, potential prophylaxis, counseling of patients and family members, animal surveillance programs, mosquito repellents, public health interventions and education. Hence this review focuses on the various management and treatment available till date for Encephalitis.

**Keywords:**

Encephalitis, Polymerase Chain Reaction (PCR), Magnetic Resonance Imaging (MRI), prophylaxis

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# ANTIMICROBIAL DRUG UTILIZATION AT A PRIVATE TERTIARY CARE HOSPITAL

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**ABSTRACT:**

Inappropriate use of antibiotics continues to fuel an increase in antibiotic resistance, complications in treatment and health care cost. Unpublished results from our research group have showed that average number of AMD was 1.5, while the percentage of AMD administered by parenteral route was 86.4%. The present study aims to study the drug utilization patterns of antimicrobial agents in the wards of private tertiary care hospital. An observational prospective study is being carried out at the wards of the private tertiary care hospital, Mohali. In-patients receiving at least one antimicrobial were included in the study while the patients with incomplete information were excluded. Data was analyzed using RPM indicators and descriptive statistical parameters.

**Keywords:**

AMD, Anti- microbial, anti biotic resistance

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(DBIPR-NC-023)

# STUDY ON NEONATAL AND PAEDIATRIC DRUG UTILIZATION AT A PRIVATE TERTIARY CARE HOSPITAL

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**ABSTRACT:**

Paediatric and neonatal patients are anatomically and physiologically different from a normal healthy adult. They are vulnerable to the effect(s) of drugs due to differences in Pharmacodynamic and pharmacokinetic parameters. It is, therefore, important to study drug use patterns in paediatric and neonatal population in order to optimize the pharmacotherapy. The study was conducted to study the drug utilization in the paediatric and neonatal patients admitted in the wards and ICU of the private tertiary care hospital. This observational prospective study was carried out at the wards and ICU of Private Tertiary care Hospital. Patients admitted in the wards and ICU for more than 24 hours and with the age of newborn to 18 years were included in this study. Patients with incomplete information were excluded. The collected information of 50 patients was analyzed for WHO recommended prescribing indicators. The average number of drugs was 9.8±6.4 and 81.6% of medicines were prescribed from National List of Essential Medicines 2015. The use of injectable was 74.2% while an antibiotic was prescribed in 22.8%. 93.1% medicines were prescribed by generic name. Children are more vulnerable to the various adverse events related to use of drugs. It is, therefore, important to study drug use patterns in paediatric and neonatal population in order to optimize the pharmacotherapy

**Key Words:**

Physiologically, pharmacotherapy, ICU

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# FORMULATION, EVULATION AND ANTIMICROBIAL EFFECTS OF ACTIVATED CHARCOAL TOOTHPASTE USING BERBERIN

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**ABSTRACT:**

Dental diseases are old as civilization and very common as every two out of ten bears some kind of dental diseases. With the advancement of science and knowledge it has been confirmed that dental diseases are due to some microbial infection. Dental health of a person depends on the dietary habits, oral hygiene and lifestyle of a person. For the maintenance of oral hygiene there are various products available in markets and one of which is toothpaste. The market is flooded with many types of toothpaste which claim to have desired effect on dental care but most of the toothpaste contain harmful chemicals which if accidently ingested or used for longer duration i.e.; Sodium fluoride can be harmful if you take excessive amounts of it, but it makes teeth more resistant to decay and bacteria that causes cavities. So, the present work was devised to develop effective activated charcoal toothpaste by using natural ingredients in which we are replacing sodium fluoride with Berberin isolated from *Berberisaristata*. For that *Berberisaristata* was used as they have pronounced antimicrobial activity against oral micro flora. After the formulation of toothpaste, it was evaluated, and it is found that the toothpaste is theoretically as well as experimentally serves the basic properties of general toothpaste with an advantage of having the medicinal properties of multiple herbs which makes it unique in its category. From the microbial tests it is seen that the toothpaste can inhibit growth of bacteria, pH test shows that our product is within the standard range and slightly basic in nature, the basic nature of toothpaste will help in neutralizing of acid produced in mouth and reduce degeneration of enamel. Thus, at last it can be concluded that toothpaste successfully whitens the teeth, kill germs and free from harmful chemicals.

**KEY WORDS:** Berberin, Antimicrobial activity, Formulation

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# ADHERENCE TO AMERICAN HEART ASSOCIATION GUIDELINE (AHA) 2017 FOR ACUTE MYOCARDIAL INFARCTION IN PRIVATE TERTIARY CARE HOSPITAL

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**ABSTRACT:**

The goal of clinical practice guideline is to increase high quality care and reduce inappropriate interventions, is an important element of rehabilitation of patients with myocardial infarction. The study was done to evaluate the extent of adherence to clinical practice guideline and potential barriers for non-compliance in patients suffering from acute myocardial infarction (AMI). This was an observational retrospective study. All patients, above 18 years of age with a confirmed diagnosis of AMI, were included in this study. Patients reporting for angiography, medico-legal cases and patients with multiple cardiovascular illnesses were excluded. The guidelines of the American Heart Association (AHA) were followed. The data on 48 patients were analyzed using the AHA guidelines. Of 48 patients, 27 were STEMI and 21 were NSTEMI. Of total 27 STEMI cases, 26 patients received aspirin, 14 received a beta blocker and 10 patients with symptoms onset less<12 hours, from which 5 received timely reperfusion as indicated. Of 21 NSTEMI patients, 20 received aspirin, 4 received a beta blocker and all the 21 received anti-thrombin therapy as a treatment on arrival. At the time of discharge, however, 48 patients received aspirin treatment where only 24 patients received a beta blocker. Of all the performance measures, adherence to aspirin (discharge) and anti- thrombin therapy in NSTEMI patient was found to be 100%. The study is ongoing, and it shall take six more months to complete.

**Key Words:**

American Heart Association, STEMI, NSTEMI.

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# PRESCRIPTION REVIEW AT A PRIVATE TERTIARY CARE HOSPITAL

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**ABSTRACT:**

A Prescription is a physician's order for the preparation and administration of a drug or device for a patient**.** Prescription review is useful to check, whether the medicines are helping patient or not, whether the medicines are causing any harm or risk to patient, etc. The study was done to review the prescriptions of patients admitted into the wards and ICUs of a private tertiary care hospital. This observational prospective study was carried out at the wards and ICU of private tertiary care hospital. Patients admitted in the wards and ICU for more than 24 hours was included in this study. Patients with incomplete information were excluded. The collected information of 73 patients was analyzed. The average age of the 73 patients was found to be 59.9±20.0 years. A total number of seven pharmaceutical issues were identified from the collected data with a prevalence rate of 9.58, which includes drug interactions (n = 3; 42.8%), under overdose (n = 3; 42.8%), and drug without indication (n = 1; 14.4%). This ongoing study shall close by the end of next six months. These preliminary results are only indicative.

**Key Words:**

Prescription, administration, prevalence

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# HEPATOPROTECTIVE ACTIVITY OF *ANDROGRAPHISPANICULATA* (KALMEGH) AND *SWERTIACHIRAYITA* (CHIRATA) IN ETHANOL INDUCED HEPATOTOXICITY IN ALBINO WISTAR RATS WITH RESPECT TO STANDARD MEDICINE: METADOXINE

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**ABSTRACT:**

Andrographis paniculata is a well-known medicinal plant of Ayurveda with various pharmacological as well as medicinal properties. The hepatoprotective activity of methanolic extracts of *A.paniculata* (10mg/kg) & S.chirayita (10mg/kg) were evaluated against ethanol (2ml/kg) induced hepatotoxicity with respect to standard medicine: Metadoxine (500mg-1gm/kg/day), at specific time interval is to be carried out (n=6) in wistar albino rat in 5 groups. The result of the study is to evaluated by the crude extracts of A.paniculata & S.chirayita at doses of 10mg/kg in both, in comparison with standard medicine: Metadoxine & in combination of both extracts exhibited a significant protective effect in liver morphology of Ethanol induced hepatotoxicity in albino wistar rats. Laboratory tests are to be carried out are SGPT, SGOT, ALP, TP, Total Bilibrubin and lipid profile of liver of albino rat to check the status of fatty liver. Presence of active compound: diterpene lactone, Kalmeghin, andrographolide in A.Paniculata and maniferin, amarogentin. Various studies say that the Metadoxine is having potential effect on ethanol intoxication, ethanol induced hepatotoxicity and ethanol induced fatty liver.

**Keywords:**

Andrographis paniculata, Hepatoprotective, Metadoxine, Hepatotoxicity

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# STUDY ON SPOTTING AND CHARACTERIZATION ADRS AT PRIVATE TERTIARY CARE HOSPITAL

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## ABSTRACT

ADRs are a significant cause of morbidity and mortality. Hospital based monitoring is one of the methods to identify and assess the ADRs in order to ensure the safer use of drug. The objective of this study was to spot the ADRs occurring in the wards of the hospital and to characterize identified ADRs for their causality, severity and preventability. An observational prospective study is being carried out at private tertiary care hospital. Patients of all age groups and sex who were admitted in hospital wards were included in the study while ADRs that occurred outside the hospital, reason for admission of patient and in-patients which were medico legal cases, accidental or intentional poisoning and drug abuse were excluded. Data was analyzed using Naranjo's ADRs probability scale, Modified Hartwig's severity scale and Modified Schumock & Thornton criteria. A total 20 ADRs in 14 patients were observed in 76 patients admitted to hospital. The most commonly ADRs were constipation and diarrhea. According to Naranjo's ADR probability scale, 13 ADRs were 'probable'.

**Keywords:**

Constipation, Morbidity, Accidental.

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# ANTIBIOTIC RESISTANCE: A GLOBAL THREAT TO HEALTH

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**ABSTRACT:**

Antibiotics are the 'wonder drugs' to combat microbes. *Antibiotics* are medicines used to prevent and treat bacterial infections. Antibiotic resistance occurs when bacteria is no longer respond to that antibiotic. The rapid emergence of resistant bacteria is occurring worldwide, endangering the efficacy of antibiotics and causing a great difficulty in treating diseases. A growing list of infections i.e., pneumonia, tuberculosis, leprosy, urinary tract infection, syphilis and gonorrhea are becoming harder and at times impossible to treat as antibiotics are becoming less effective. Antibiotic resistant infections are directly correlated with the amount of antibiotic consumption. Biological production of nanoparticles has found its greatest application towards medicine and mainly in drug delivery systems. These highly targeted nanoparticles that can be able to deliver higher doses of available antibiotics could possibly overcome the problem of drug-resistant bacteria in near future.

**Keywords:**

Wonder drugs, Antibiotic resistance, Biological production, Nanoparticles.

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# NANO MEDICINES: A POTENTIAL PROSPECT OF FUTURE MEDICINES

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**ABSTRACT:**

Nanotechnology is a field of applied science that focused on the design, synthesis characterization and application of materials and devices on the nano-scale. Nano medicine is the use of nanotechnologies for health care. It involves repair, construction, observation and regulation of human biological system at the molecular level. At present nano medicines are used unanimously to improve the therapy and lines patient suffering from variety of diseases like cancer, kidney, fungal infection, multiple sclerosis, chronic pain and asthma. Most of the drugs lead to side effects either due to poor drug delivery at actual site, degradation or less target selectiveness. Nano medicines play a significant role in drug delivery as they show selective targeting, imaging, barrier crossing and multiple drug carrying capability. They also have unique electromagnetic properties that enable them to have varied optical, electrical and thermal properties. There is also difference in processing of nanoparticles by the body. Nano medicines will play a key role in medicine of tomorrow providing revolutionary opportunities for early disease detection, diagnostic and therapeutic.

**Keywords:**

Nanotechnology, Nanomedicines, Drug delivery, Target selectivity

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# AN ALTERNATIVE FOR PHARMACEUTICALS: NUTRACEUTICALS

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**ABSTRACT:**

A nutraceuticals product may be defined as a substance, which has physiological benefit or provides protection against chronic disease. Nutraceuticals are products, which other than nutrition are also used as medicine. They are nontoxic food component that has scientifically proven health benefits, used for the treatment of diseases or prevention. Supplemental nutrition is needed these days because most of the people do not have ideal diet. These products play a vital role in health and longevity. Nowadays, nutraceuticals have received considerable interest due to potential nutritional, safety and therapeutic effects. They are effective in combating major health problems such as obesity, cardiovascular diseases, cancer, cholesterol, osteoporosis, arthritis, diabetes etc. Presently much focus is on the development of herbal nutraceuticals that are effective on serious disorders. Some popular nutraceuticals include ginseng, Echinacea, green tea, glucosamine, omega-3, lutein, folic acid, and cod liver oil. The food products used as nutraceuticals can be categorized as prebiotics, dietary fiber, prebiotics, polyunsaturated fatty acids, antioxidants and other different types of herbal/ natural foods. In whole, nutraceuticals leads to the new era of medicine and health, in which the food industry has become a research oriented sectors.

**Keywords:**

Pharmaceuticals, Probiotics, Supplemental nutrition, Nutraceuticals.

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# DEVELOPMENT AND EVALUATION OF CURCUMIN TRANSFERSOMES FOR MUSCULAR PAIN

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**ABSTRACT:**

Transferosomes is an aqueous vesicular system surrounded by the lipid bilayers with the multiple properties like ultra-deformability, elasticity, stress responsive, and highly adaptable, complex aggregate, to pass via narrow pores for the drug delivery at particular specific site. It is a novel approach for transdermal route where drug passes via the skin in a controlled manner to reach the systemic circulation by avoiding first pass metabolism. The current work was done for development of curcumin loaded transferosomes for muscular pain. The transferosomes were prepared by the modified hand shaking method using different excipients like lecithin and tween 80 etc. The formulations prepared from F1 to F10 with different ratio of the drug and excipients and evaluation parameters like pH, entrapment efficiency, loading capacity and *In vitro* drug release were performed. The best optimized formulation was formulation F6 out of 10 formulations, which consists of curcumin (15 mg), lecithin (10 mg), tween 80 (0.2ml), chloroform (5ml), methanol (5ml). The result of optimized formulation showed pH 7.4, with a good percentage entrapment efficiency (90.4± 0.15%) , and percentage drug loading capacity of 14.99± 0.1%. The *in vitro* drug release obtained was 86.42%. ±0.12% for curcumin loaded transferosomes and found to be a better approach of targeting than conventional delivery.

**Keywords:**

Transferosomes, Curcumin, Hand shaking method, Drug loading, Drug entrapment

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# STATINS AND METFORMIN COULD BE USED TO TREAT SERIOUS MENTAL ILLNESS

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**ABSTRACT:**

Statins and metformin are associated with improved outcome, including less risk of Psychiatric Hospitalization in patient with severe mental illness. The study found that patient who had been prescribed Hydroxymethylglutaryl coenzyme a reductase inhibitors (HMG-COA RIS), a commonly used statins which are used to reduce cholesterol / heart disease, L-type calcium channel antagonist (LTC), used to reduce high blood pressure, or biguanides (such as metformin) used to treat diabetes was associated with reduce rates of psychiatrist hospitalization compared with unexposed period. Self-harm was reduced in patient with bipolar disorder and schizopherenia during exposure to all study drugs and in patients with non-affective psychosis taking L- type calcium channel antagonists. Obesity and other risk factor for metabolic syndrome, patients with serious mental illness (SMI) are reported to experience substantially greater cardiovascular related mortality compared with age matched peers without SMI. Causes of cardio metabolic Syndrome include not only the adverse metabolic side effect associated with antipsychotic drugs but also poor lifestyle choices and reduced access to medical care.

**Keywords:**

Statins and metformin, HMG-COA RIS, LTC, cardio metabolic

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# EVALUATION OF ANTI-MICROBIAL FIXED DOSE COMBINATIONS

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**ABSTRACT:**

FDCs are widely sold products in the Indian pharmaceutical market and have been particularly flourishing in the last few years. On 8th September 2018, the government of India had banned production, distribution and sales of 344 FDCs in India. To evaluate the rationality of anti-microbial FDCs banned in India in 2018. The list of banned FDCs in India published by CDSCO was used for this study. The banned anti-microbial FDCs were analysed by a seven-point criteria tool proposed by Panda et al (2006). Each FDC was assessed for appropriateness of dose, presence in NLEM (2015) of India or model list of essential medicine by WHO. Safety, efficacy, pharmacokinetic, Pharmacodynamic interactions and advantage of each FDC were analysed by evidence-based literature search. Cost of each FDC analysed by using CIMS, MIMS and Drug today. An appropriate weightage was attached to each criterion depending upon its relative importance and contribution towards the rationality. The total score obtained by FDC reflected its position on a scale of 0-13. Out of the 344 FDCs banned, 62 were anti-microbials. 27(47%) FDCs secured a score between 0 and 4. While 30(53%) FDCs obtained a score between 4.5 and 8. None of the FDCs scored more than 8.5. The cost of 55% of FDCs lies between minimum and maximum of additive cost of components. Evaluation reveals that majority of anti-microbial FDCs banned by government of India are irrational, as per the criteria applied.

**Key words:**

Production, FDCS, Analysed

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# THALASSAEMIA:
# A GROWING DISEASE IN INDIA NEEDS NATIONAL POLICY

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**ABSTRACT:**

Thalassaemia is a genetic disorder related to the decreased or defective production of hemoglobin results in impaired erythropoesis. Mainly two types of the thalassaemia are found– α thalassaemia and β thalssaemia because of the missing of any of the polypeptide chain. Diagnosis of thalassemia can be made as early as 9-11 weeks in pregnancy using procedures. There are over 1, 00,000 β- thalassaemia patients under blood transfusion every month in which 50% of patients not survive above the age of 25. Every year 10,000 children with thalassaemia major are born in India. According to WHO, there is about 7,000 to 10,000 thalassaemic children got birth every year in India. Only in Delhi, the number of thalassaemic children is about 1500. Blood transfusion and bone marrow transplant is the only treatment available for thalassaemia. Although blood is now provided free of cost for patients with hemoglobinopathies and iron chelators are also provided, there are still other expenses for testing, processing. Thus, majority of the patients do not receive optimum care. Indian Government has opened a Bone Marrow Donor Registry for Thalassemia patients in Mumbai, Chennai and Bangalore.

**Keywords:**

Thalassaemia, Hemoglobinopathies, Growing disease, Bone marrow registry.

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# NANOSPONGES: AN INNOVATIVE ADVANCEMENT FOR TARGETED DRUG DELIVERY SYSTEM

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**ABSTRACT:**

Nanotechnology is a most emerging advancement in pharmaceutical sciences and NDDS which is used to produce variety of formulations Such as: Nanoparticales' Nanotubes, Nanomiscelles, Nanosuspensions, Nanosphers, Nanocapsules, Nanorobot and Nanosponges etc. A nanosponge is an integral part of this significant advanced formulation process. It contains the drug loaded particles within the size range of 200-400 nm. It is an imminent and efficacious drug delivery system for depriving a controlled and targeted drug delivery. Such kinds of formulation are also beneficial to increase bioavailability and solubilization character of drug substances. It is an innovative technique to deliver variety of drug inside the body. In the present study, the Nanosponges based formulation of controlled release gel was prepared which contain ketoconazole as main drug API. The formulation was prepared by using solvent evaporation technique and evaluated for the determination of *in-vitro* analysis (percentage drug release rate) for different strength formulation batch from F1 to F6. The F6 batch shows the (95%) drug entrapment. The particle size was determined by particle size analysis by Zeta seizer and the surface morphology estimated by Scanning Electron Microscopy (SEM), by which the formulation depicted as spongy in surface with within the range size particles.

**Keywords:**

Nanosponges, Nanomiscelles, Nanosuspensions, Nanosphers, SEM, Drug entrapment

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# THROMBOLYTIC POTENTIAL OF ETHANOL AND AQUEOUS EXTRACTS OF SELECTED MEDICINAL PLANTS

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**ABSTRACT:**

The present study was designed to investigate comparative thrombolytic potential of the crude ethanol and aqueous extracts of three selected medicinal plants *Mikania scandens* and *Eupatorium triplinerve* (both are Asteraceae family) and *Croton bonplandianum* (Euphorbiaceae family) by using swiss albino mice *in vitro* thrombolytic assay (clot lysis) model. Among the three plants both Ethanol and Aqueous extract of *Mikania scandens* showed highest promising thrombolytic activity (51.61±1.142%) and (59.78±2.042%) respectively. The Ethanol and Aqueous extracts of *Croton bonplandianum* possessed moderate thrombolytic activity like (20.96 ±1.140%) and (44.73±1.356%). *Eupatorium triplinerve* possessed mild thrombolytic activity (17.07 ±1.428%) and (46.52±0.873%) when compared with positive controls streptokinase vial (80.23±1.969%) and negative control phosphate buffer saline (14.09±1.391%). The result indicated that aqueous extract has better thrombolytic activity compared to ethanol extract. From our findings it was observed that all the plants revealed remarkable significant thrombolytic activity. Therefore, steps should be taken to observe *in vivo* clot dissolving potential compound and to isolate active components of aqueous extracts of *Mikania* scandens for eventual thrombolytic activity.

**Key Words:**

Thrombolytic, Streptokinase, Clot Lysis, Phosphate buffer saline, Medicinal Plants.

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# VARIATION IN PHYSICOCHEMICAL PROPERTIES OF LEMON GRASS ESSENTIAL OIL FROM DIFFERENT LOCATIONS OF UTTARAKHAND

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**ABSTRACT:**

The essential oils of the grasses of species of Cymbopogon (lemon grass) have an industrial profile; they are used in beverages fragrance, personal care &pharmaceuticals for its carminative and antispasmodic activity. Looking at the importance of essential oil extracted from lemon grass present study was undertaken to study variation in physicochemical properties of lemon grass essential oil extracted from different location of Uttarakhand. Collection of lemon grass from different location was carried out. Different location had a significant effect on the essential oil content. Lemon grass leaves from Dehradun had the significant effect on the essential oil content (2.40%) and on dry weight basis. While lemon grass leaves Mussoorie and Rishikesh afforded oil at percentage of 2.10% and 2.12%. The major components of the essential oils were geranial(31.53%, 39.86% and 37.24%), neral (30.08%, 34.52% and 31.28%) and myrcene (16.61%, 14.49% and 15.42%) in oils extracted from lemongrass collected from Mussoorie , Rishikesh and Vikasnagar, respectively; the quality of lemongrass is generally determined by its citral content. Comparison of the results showed that different locations had no variations in the major components of the essential oil, but had a significant effect on their percentages.

**Keywords**:

Lemon grass, Physiochemical property, GCMS, Hydrodistillation

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# *IN-SITU* HYDROGEL BASED OPTHALMIC DRUG DELIVERY SYSTEM

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**ABSTRACT:**

*In situ* means 'at the site'. In situ forming hydrogels are liquid upon instillation and undergo reversible phase transition in the ocular cul-de-sac to form visco-elastic gel and this provides a response to environmental changes. The poor bioavailability of conventional ophthalmic formulations is due to rapid precorneal drug loss. The problem can be overcome by using in situ forming ophthalmic drug delivery system prepared from polymer hydrogel that exhibit reversible liquid-gel transition. The formation of gel depends on factors like temperature modulation, pH change, presence of ions etc, from which the drug gets released in a sustained & control manner. Various polymers that are used in situ hydrogels include-Gellan gum, CMC, HPMC, Poloxamer, Xyloglucan etc. The choice of solvents like water, triacetin, 2-pyrrolidone etc depends on solubility of polymer used. The advantages are-less blurred vision as compared to ointment, increased bioavailability, reduce frequent instillation.

**Keywords:**

*In situ*, Hydrogel, Polymer, Liquid-gel

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# NATURAL ALLERGENS

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**ABSTRACT:**

Allergens are environmental agents that induce IgE mediated hypersensitivity reactions upon inhalation, ingestion and injection. Allergens are mainly proteins or glycoproteins in nature. The natural allergens are pollens, dust, dander's etc. Pollen of allergic weeds can trigger IgE mediated hypersensitivity reactions in susceptible patients and are found in plant families like Asteraceae, Amaranthaceae, Plantaginaceae, Urticaceae and Euphorbiaceae. Allergens are also present in food stuffs such as milk, egg, peanuts etc. The natural source of Injectant allergens are produced by sting of bees, hornets and wasps. Allergic reactions are dependent on specific activation of the antibody IgE sensitized mast cells which release mediators to produce inflammatory reactions. Type I reactions start very fast upon exposure to an allergen. Histamine shows symptoms like allergy. In skin, histamine produces wheal, elevated patches with itching and redness. Symptoms can be seen on nose, eyes and lungs like sneezing, swollen and itching of eyes. An extremely serious form of an allergic reaction is called Anaphylaxis. Till 2004, 34 different weed pollen allergens along others were listed in IUIS allergen nomenclature database.

**Keywords:**

Allergens, Hypersensitivity, Injectant, IgE, IUIS

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# CARBON NANOTUBES IN CANCER THERAPY AND DRUG DELIVERY

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**ABSTRACT:**

Carbon nanotubes (CNTS) have been introduced recently as a novel carrier system for both small and large therapeutic molecules. The development of CNTs is the most imminent technique for the delivery of drug in the patients who are suffering from the cystoma, tumour cell formity and carcinoma. In that case, CNTS can be functionalized (i.e.; surface engineered) with certain functional groups in order to manipulate their physical or biological properties, hold great promise for drug delivery and cancer therapy. In addition to the ability of CNTS to act as carriers for a wide range of therapeutic molecules, their large surface area and possibility to manipulate their surfaces and physical dimensions have been exploited for use in the photo thermal destruction of cancer cells. This are illustrating the potential of engineered CNTS as laser-activated photo thermal agents for the selective nano-photothermolysis of cancer cells.

**Keywords:**

Carbon nanotubes, Cancer therapy, Nano-photothermolysis, Surface engineered.

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# HEPATOPROTECTIVE DRUGS – NATURAL LIVER HEALERS

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**ABSTRACT:**

Hepatoprotective herbs are those herbs which are used to cure or prevent Liver damage. Liver is a vital organ and plays major role in excretion and metabolism of xenobiotics. Injury of liver cell is caused by various toxic chemicals (certain antibiotics, chemotherapeutic agents, carbon-tetrachloride, thio-acetamide etc.), excessive consumption of alcohol and microbes. Herbal drugs are increasingly gaining popularity and their use is widespread. Many herbal preparations are available in the market. Many monoherbal and polyherbal preparations are used in various liver disorders. According to estimates, around 700 monoherbal and polyherbal preparations as tinctures, tablets and capsules are in clinical use. Herbals have gained importance and popularity recently due to their proven safety, efficacy and affordable pricing. Silymarin is a potent hepatoprotective drugs which have found its use as an effective hepatoprotective agent. It is a flavono-lignan isolated from seeds of *Silybum marianum*. *Cichorium intybus* commonly known as chicory is another indigenous perennial herb well reputed ancient Indian medicine as a liver tonic.

**Key words:**

Liver, Hepatoprotective, Herbal drugs, Silymarin, Chicory.

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# DOPAMINERGIC-GABAERGIC INTERPLAY & ALCOHOL BINGE DRINKING

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**ABSTRACT:**

GABA (γ-amino butyric acid) is an inhibitory neurotransmitter acts by stabilizing membrane potentials at their resulting value & by lowering the concentration of the cerebral cortex. Main targets of nigro-striatal neurons are GABAergic efferent neurons of the striatum. There is a specific anatomical relationship lie between GABA & Dopamine. GABAergic neurons are ubiquitous in the brain, dopaminergic systems are restricted to a few well-defined pathways: Nigrostriatal system, innervating the caudate putamen & other regions of the basal ganglia,-the mesolimbic system, innervating the nucleus accumbens and other parts of the limbic system, the mesocortical pathway, innervating the prefrontal cortex. Role for GABA in Schizophrenia was 1st suggested by Eugene Roberts. Alcohol & GABA have similar effects on the brain, because alcohol is an agonist of GABA receptors. It binds & replicates the activity of the GABA. Alcohol has a depressive effect on the CNS. The studies proposed in this grant will close the gaps in our knowledge about GABA synthesis in dopaminergic neurons & providing better tools and earlier targets for the treatment & prevention of alcohol use disorders.

**Key Words:**

GABA, Neurotransmitter, Dopamine, Alcohol, Receptors

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# PRELIMINARY PHYTOCHEMICAL INVESTIGATION AND ANTHELMINTIC ACTIVITY OF TECTONA GRANDIS L.F ROOT

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**ABSTRACT:**

The present work was conducted to investigate the preliminary phytochemical studies and anthelmintic activities on the root of *Tectonagrandis L.f.* Family-Verbenaceae against adult Indian earthworms, *Pheretimaposthuma*. Various concentrations (5-25 mg/ml) of each extract along with the reference samples (Piperazine citrate, Albendazole) were subjected for anthelmintic activity study. The qualitative test revealed that the petroleum ether extract contained tannin and terpenoids, but chloroform and ethanol extracts exhibited the presence of alkaloids, flavonoids, tannins, saponins and carbohydrates. All the extracts showed the anthelmintic activity in dose dependent manner. The chloroform and ethanolic extracts of *Tectonagrandis* revealed significant anthelmintic activity.

**Key words:**

*TectonagrandisL.f. Pheretimaposthuma,* anthelmintic activity, Piperazine citrate, Albendazole.

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# FORMULATION AND EVALUATION OF HERBAL HAIR REMOVING WAXES AS DEPILATORIES

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**ABSTRACT:**

Cosmetology is an upcoming and most demanding technology/science for the new era. Various problems of skin arise in the growing ages and most common to that is unwanted hair growth. For removal of unwanted hairs several methods like waxing, threading, shaving, hair removal creams have been used. Hair can be removed by two methods: Depilatories and Epilatories. Waxing is the popular technique of removing the unwanted hairs. The present work showed formulation of hair removing wax and formulated with the different ratio of ingredient like rose water, coconut oil, corn flour, turmeric, milk, glycerin, honey, bees wax, lemon juice, baking soda, cucumber juice, tomato juice, gram flour, wheat bran, sugar, Aloe Vera gel, orange peel powder, milk cream, almond oil, vitamin E . The best optimized formulation was formulation 6 [F6] which consist lemon, honey, sugar, and glycerin and it showed a good spreadability of 7cm with pH 7.1, hair removal time 1 minutes 12 seconds, Cleansing property 3 swab, with less grittiness. Hence, the herbal hair removing wax have an approach of colloidal dispersion which results as a better waxing agent as hair removing agent.

**Keywords:**

Hair removal agents, Aloevera, Lemon, Rose Water, Depilatoties

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# PREPARATION AND EVALUATION OF ANTIEPILEPTIC NANOSUSPENSION FOR SUSTAINED DELIVERY

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**ABSTRACT:**

Nanosuspension have revealed the problems associated with the delivery of poorly water- soluble and poorly water and lipid soluble drugs and are unequalled because of their simplicity and rewards they confer over other strategies. Epilepsy is characterized by abnormal electrical activity within the brain, which can result in either generalized or partial seizures. Acetazolamide (AZM) was selected for the study because it has very poor solubility (1 in 1400 parts of water). It is an inhibitor of carbonic anhydrase and is used for the management of Epilepsy.AZM loaded nanoparticles were successfully prepared by ionic gelation method in four different ratios 3.5:1, 4:1, 5:1 & 6:1 of chitosan: TPP. The best result was found was for formulation (NSA4) showing better yield compared to other 3 ratios. The entrapment efficiency was found of 68.20% and average size obtained to be 153.3 nm with a polydispersity index 0.350. *In-vitro* release studies showed 78.40 ± 0.85% and followed first order kinetics and diffusion mechanism. Thus the studies demonstrated that nanosuspension system comprising chitosan, sodium tripolyphosphate, tween 80 (1% v/v), and distilled water of AZM can be effective approach for sustaining management of epilepsy over conventional delivery.

**KEYWORDS:**

Acetazolamide, Epilepsy, Chitosan, Solubility, Nanosuspension

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# NOVEL APPROACH TO TREAT LUNG CANCER THE DRUGS ACTING ON ACETYLCHOLINE SIGNALING SYSTEM: A PATHOPHYSIOLOGICAL EMERGE

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**ABSTRACT:**

The primitive target of this review article is to elaborate the function of the acetylcholine-signaling proteins in the progression of lung cancer and exploration of the role of cholnomimetic network pathologically induced lung cancer will pave the way to novel molecular targets and drugs in this lethal malignancy. On the literature evidence and practical approaches are the affirmation of lung cancer, proliferating cells express all of the proteins required for the uptake recycle of choline with the help of choline transporter, like proteins, hence synthesis of ACh (choline acetyl transferase, carnitine acetyl transferase), transport of ACh (vesicular acetylcholine transport, OCTs, OCTNs) and degradation of ACh (acetyl cholinesterase, butyrylcholine sterase). The released ACh binds back to nicotinic (nAChRs) and muscarinic receptors on untoward and unintended proliferating cell which has not metabolic control as well. Those cancer cells to accelerate or velociuos their proliferation, transhumance and invasion out of all components of the cholinergic pathway, the nAChR-signaling has been studied the most intensely. The reason for this trend is due to genome-wide data studies showing that nicotinic receptor subtypes are involved in lung cancer risk, the relationship between cigarette smoke, alcoholism and lung cancer risk as well as the rising popularity of electronic cigarettes considered by many as a "safe" alternative to smoking. Unfortunately, we have not good literature and some other source which has exert the mechanism and other pathways of Ach involved in lung cancer, hence these reviews we attempt to investigate pathophysiological emerge that we prevent, treat and discover new entities for lung cancer.

**Keywords:**

Anticrime growth factor, Acetylcholine, carcinogenesis, butyryl cholinesterase, Anti- cancer drugs.

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# FUTURE ASPECTS OF DRUG DELIVERY SYSTEM: NANOROBOTS

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**ABSTRACT:**

Coming future would be era of machine & computing; henceforth medical science could not be exception. Cancer &immunodeficiency virus disease is more prevalent & perilous due to resistance towards the cancer & bacteria cell. Nanorobots are 25 times smaller than the width of a human hair (2.5nm). These are also termed as nanite, nanogene or nanoant. White blood cell is responsible for the elimination of bacterial infection from our body; microbivore nanorobot could act similar WBC. In anemic condition of patient, deficiency of oxygen could be fulfilling by respirocyte nanorobots like red blood cells. Clottocyte nanorobots could play role as clotting agent like platelet in case of bleeding during severe condition. Nanorobots could transport & distribute the drugs via the damaged cells, tissue, &blood vessel for diagnose, repairing & cure. High cost, complicated design due to selectivity to individual physiology & distorted by terrorist are the main drawback in the development of nanorobots.

**Keywords:**

Nanorobot, Nanoant, Nanogene, Clottocytenanorobots

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# PROCESS VALIDATION OF SOLID DOSAGE FORM IN PHARMACEUTICAL INDUSTRY: A REVIEW

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**ABSTRACT:**

Quality is the primordial intention to any industry and its products manufactured. Multiple views on obtaining such quality are the current interest in the pharmaceutical industry. Validation is the art of designing and practicing the designed steps alongside with the documentation and activity will consistently lead to the expected results. Validation and quality assurance will go hand in hand, ensuring the through quality for the products. Validation assures the products with predetermined quality characteristics and attributes can be reproduced consistently/reproducibly within the established limits of the manufacturing process operation at the manufacturing site. Validation is required in order to move a product from development to commercial production. Different dosage forms have different validation protocols. Validation of the individual steps of the process is called the process validation. Process Validation is one of the important steps in achieving and maintaining the quality of final product. Process validation also emphasizes the role of objective measures and statistical tools & analyses and emphasizes knowledge, detection, and control of variability and gives assurance on consistent of quality/productivity throughout life cycle of product. Here this article concentrates on the process validation of solid dosage forms, protocol preparation and regulatory basis for process validation with special emphasis on tablets in industry. It gives in detail the validation of each step of the manufacturing process through wet granulation.

**Keywords:**

Process Validation, Solid Dosages Form, Quality Assurance, Pharmaceutical industry.

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# EVALUATION OF GARHWAL HIMALAYA MEDICINAL PLANT AGERATUM CONYZOIDES

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**ABSTRACT:**

The aim of this research was to evaluate moisture content, ash value, different solubility test (acid, base and water) successive value, thin layer chromatography and phytochemical screening of *Ageratum conyzoides*. *A. conyzoides* leaves commonly known as Aru batu belongs to the asteraceae family and used as pneumonia, burns, fever, rheumatism, headache, colic, colds, diarrhea, rheumatism, spasms. The plant was studied for various phytochemical studies like presence of carbohydrates, saponins, glycosides, flavonoids, phenols, resin and tannins. However, alkaloids were absent. It can be concluded that the different extract of the leaves of *A. conyzoides* possess potent analgesic, antibacterial, anti-inflammatory, emetic, purgative, decoagulant, depurative, febrifuge, stimulant, vulnerary. The present study was attempted for the first time to investigate the moisture content, ash value, different solubility test (acid, base and water) successive value, thin layer chromatography and phytochemical screening of *A. conyzoides*to search for newer, safer and more potent analgesic, antibacterial, anti-inflammatory, antioxidant agent and we herein delineate the results of our study.

**Keywords:**

*Ageratum conyzoides*, Antimicrobial activity and phytochemical screening.

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# ARTIFICIAL CELL MEMBRANE IN PHARMACEUTICAL INDUSTRY

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**ABSTRACT:**

Testing of drug in living being is most crucial step in drug development. Empowered or E patients are the volunteers who want to go into clinical trials for human being welfare. Cell membrane consists of a doubled layer of lipid molecule coated with a protein layer on each surface. The cell membrane also has small pores i.e. ion channel; help in active transport system of drug. Ion channels play a fundamental role to generate the electrical signals which cause consequently certain physiological response like muscle contraction, relaxation, neuronal signal transmission, neurotransmitter release, cognition, hormone secretion, sensory transduction etc. It means membrane proteins is the main aspects of drug testing and efficacy which are estimated by computing activity in the ion channel after drug administration. Electrode testing is expensive & complicated because target cell selectivity is not considerable. Artificial cell membrane is recent advance testing way of new drug arise in the pharmaceutical era. In these techniques, artificial bilayers lipid membranes used to evaluate the effectiveness of drugs via ion channels. Each membrane possessing selectivity, i.e. peculiar testing is accompanying through peculiar ion channel. This method is efficient, cheap, and rapid.

**Keywords:**

Artificial, ion Channel, Neuronal signal, Electrode testing

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# ALMOND EFFECT ON DIABETES AND CARDIAC HEALTH

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**ABSTRACT:**

Remember granny saying "Eat Almonds for good memory" that's not all almonds not only are useful as memory enhancers or brain tonics but they do have impact on our blood-sugar levels. Insulin is a hormone that regulates blood sugar levels. Diabetes is a condition developed when either pancreas stops producing insulin or body cannot utilize insulin properly. When body stops producing insulin it is called Type1 diabetes and when body stops utilizing insulin it is called type 2 diabetes. It is most common in recent time effecting 90% of the total diabetic individuals. It results due to factors like excess weight, lack of physical exercise. Vitamin E (Tocopherol) helps to delay the start of diabetes and also it delays the disease progression. According to studies 2 ounces of almonds consumption on daily basis increased the level of plasma α tocopherol Consuming almonds as regular diet helps to decrease the levels of total cholesterol, low-density lipoprotein cholesterol, and the ratio of low- density lipoprotein cholesterol to high-density lipoprotein cholesterol. Thus, the study proves the good effects of Almonds on diabetes and cardiac health by reducing cholesterol levels.

**Key words:**

Almond, Diabetes, cholesterol

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# SCREENING OF SOME HERBAL PLANTS TO BE USED WITH SOME BIOSENSORS AS ANTIOXIDANTS

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**ABSTRACT:**

The purpose of the study to examine the level of Antioxidants in the crude extracts of different collected medicinal plants from the local regions. In the present work of study, the plants were collected on the basis of information collected from the Local herbal healers and evaluated for the medicinal characterization. The examination of the plant was carried out with the help of spectrophotometric method. In the study the cassia species were found to have higher Antioxidant property. Biologic oxygen biosensors were prepared by thin film immobilization method in the presence of gelatin and glutaraldehyde with herbal tissue used as Biomaterials. Such Biomaterial is used as medical deprive for protecting the oxidation property and procuring patient safety during use of such manufactured formulation. These Biosensors were used for the detection of Phenolic compounds by determining the concentration of consumed oxygen throughout the reaction medium.

**Key words:**

Antioxidants, Glutaraldehyde, Biomaterials, oxidation

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# ROLE OF ANALYTICAL TECHNIQUES IN THE DEVELOPMENT OF HERBALS

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**ABSTRACT:**

Quality control of herbal medicines is a tedious and difficult job. Herbal medicines differ from that of the conventional drugs and so some innovative methods are coming into being for the sake of quality assessment of herbal drugs. Fingerprint analysis approach using chromatography has become the most potent tools for quality control of herbal medicines because of its simplicity and reliability. It conserves as a tool for identification, authentication and quality control of herbal drugs. The analysis and quality control of herbal medicines are moving a step ahead towards an integrative and comprehensive direction, in order to tackle the complex nature of herbal medicines. Analytical techniques like HPTLC, HPLC, MS, and IR etc. are the sophisticated instrumental techniques for qualitative and quantitative analysis of the herbs and herbal drugs. This review article emphasizes on different analytical method-based development and evaluation of validation characteristics.

**Keywords:**

Quality, fingerprint, HPTLC, Validation

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# EVALUATION OF GARHWAL HIMALAYA MEDICINAL PLANT *TRICHOSANTHES TRICUSPIDATA*

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**ABSTRACT:**

The present study was attempted for the first time to investigate the antimicrobial activity and phytochemical screening of *Trichosanthes tricuspidata* to search for newer, safer and more potent drug. It is commonly known as Inola in Uttarakhand and belongs to Cucurbitaceae family. T. tricuspidata has been traditionally used for curing asthma, migraine, fever, diabetic carbuncles and other diseases. The extraction process involved fractionation with various solvents with using AOAC method and standard techniques. The materials included fresh roots of T. Tricuspidata were collected from Pauri District Uttarakhand during October 2018. These plants were authenticated from Taxonomy Laboratory, Department of Botany, HNB Garhwal (Central University) Srinagar. The roots were first shade dried for a week. Then the crushed roots were ground into coarse powder with the help of a mechanical grinder and extracted with n-hexane, chloroform, ethanol and water in Soxhlet apparatus. Each extract was evaporated to dryness under reduce pressure using a rotary evaporator. The extracts thus obtained were stored in an airtight container at 4oC until further analysis. The ethanol extracts in particular from the roots showed the highest activity compared with other plant parts. The antimicrobial activities were tested by the Agar-well diffusion method. Phytochemical screening of ethanolic extracts lead to presence of carbohydrates, saponins, triterpinoids and alkaloids.

**Keywords:**

Antimicrobial activity, thin layer chromatography and phytochemical screening

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# EVALUATION OF GARHWAL HIMALAYA MEDICINAL PLANT *VALERIANA JATAMANSI*

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**ABSTRACT:**

This study was aimed to evaluate the possible phytochemical activity and to develop new herbal formulation with potential pharmacological activity from V*aleriana jatamansi,* family valerianacae, commonly known as Sumaya in Garhwal Uttarakhand. *V. jatamansi* is used in treatment of stomach pain, nervous disorder, skin disease, snake poison, muscle pain, epilepsy and insanity. It is medicinally used for different diseases as like antispasmodic, antineoplastic, anti anxiety, antiobesity. The materials included fresh and dry roots and leaves *of V. jatamansi which* were collected from Khirshu; district Pauri, Uttarakhand in November 2018.The plant was authenticated from Taxonomy Laboratory, Department of Botany, HNB Garhwal University (A Central University) Srinagar. The roots and leaves were first shade dried for a week. Then the crushed roots and leaves were ground into coarse powder and then extracted with petroleum ether, chloroform, ethanol and water using the soxhlet apparatus. Each extract was evaporated to dryness under reduced pressure using a rotary evaporator. The extracts thus obtained were stored in an airtight container at 4$^{o}$C until further analysis. The phytochemical tests of various extracts of the plant revealed the presence of carbohydrates, glycosides, flavonoids, terpenoids, phenols, and tannins. However, alkaloids were absent.

**Key words:**

Phytochemical screening, Sumaya and Herbal Formulation.

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# *IN VITRO* ANTIMICROBIAL ACTIVITY AND PHYTOCHEMICAL SCREENING OF *RUBUS LACIOCARPUS* LEAVES

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**ABSTRACT:**

The aim of this work is to investigate *In vitro* antimicrobial activity and phytochemical screening of *Rubus laciocarpus* leaves. It is commonly known as black Hinsar in Uttarakhand and belongs to Rosaceae family. It is used as astringent, diuretic, anti-diarrheal and anti-dysenteric properties. The fruit of *R. laciocarpus* is contains protein, crude fat, vitamin C, minerals and dietary fibers etc. This is used in the treatment of digestive disorder, astringent, supplementary food, and cardiac disorder and blood disorders. The materials included fresh and dry leaves *of R. laciocarpus* were collected from Rambada district Rudraprayag, Uttarakhand during June-August 2017. These plants were authenticated from Taxonomy Laboratory, Department of Botany, HNB Garhwal (A Central University) Srinagar. The leaves were first shade dried for a week. Then the crushed leaves were ground into coarse powder with the help of a mechanical grinder and soxhlet extracted with petroleum ether, chloroform, methanolic and water using the soxhlet apparatus. Each extract was evaporated to dryness under reduce pressure using a rotary evaporator. The extracts thus obtained were stored in airtight container at 4oC until further analysis. The antimicrobial activities were tested by the disc-diffusion method. The extraction process involved fractionation with various solvents with using AOAC method. Phytochemical screening of methanolic extracts (leaves) lead to identification of tannins, flavonoids, polyphenols, sterols, polyterpenes and alkaloids.

**Key words:**

Antimicrobials activity, Hinsar and Phytochemical screening.

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# DRUG DISCOVERY THROUGH HERBAL NANOTECHNOLOGY

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**ABSTRACT:**

Herbal medicines have been widely needed all over the world since ancient times and have been recognized by physicians and patients for their better therapeutic value as they have few adverse effects as compared with modern medicines. Phytotherapeutics need a scientific approach to deliver the components in a sustained manner to increase patient compliance and avoid repeated administration. It can be achieved by designing novel drug delivery systems (NDDS) for herbal constituents. NDDSs not only reduce the repeated administration to overcome noncompliance, but also help to increase the therapeutic value by reducing toxicity and increasing the bioavailability. One such novel approach is nanotechnology. Nanotechnology is an opening up for new perspectives in all scientific and technological fields. Among these applications, herbal drugs are the fast-growing fields in nano research. A variety of new herbal formulations like polymeric nanoparticles, nanocapsules and nanoemulsions has been reported using bioactive, plant extracts and food materials. New herbal drugs are reported to have various advantages over conventional formulations of plant actives and extracts which include enhancement of solubility, bioavailability, expansion of stability, sustained delivery, and improved tissue macrophages distribution, protection from toxicity, enhance pharmacological activity and protection from physical and chemical degradation.

**Keywords:**

Herbal medicines, Nanotechnology, Phytotherapeutics, NDDS,

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# PHARMACEUTICAL NANOTECHNOLOGY: A NOVEL APPROACH

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**ABSTRACT:**

The Pharmaceutical Industries are growing at extremely faster rate in recent trends which is established and recognized by development of newer technologies. One of the most trending technologies is Pharmaceutical Nanotechnology. The development of nanoparticles started in 1958.Pharmaceutical nanotechnology is the study of particles which are nano ranged, extremely smaller in size 0.1 to 100 nm. It is developed to treat the disease quickly and available in much economicrate. Pharmaceutical nanotechnology offers new tools, opportunities and facilities which are expected to have a great impact on many areas in disease diagnostics and therapeutics. With the help of nanotechnology, damaged tissue can be reproduced or repaired. These are called as artificially stimulated cells which are used in tissue engineering, which might revolutionize the treatment of organs or artificial implants, nanoparticles are also used for site specific drug delivery. The two form of Nano medicines that have been already tested in mice and awaiting human trails are–Use of gold nano shells to help diagnose and cure cancer, and the use of liposomes as vaccine adjuvant and as vehicle for drug transplant. Similarly, drug detoxification is also another application for nano medicine which has been used successfully in rate.

**Keywords:**

Nanotechnology, Nanoparticles, Therapeutic, Nano medicines

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# FORMULATION AND EVALUATION OF HERBAL ANTIOXIDANT FACE CREAM OF *HEDYCHIUM SPICATUM* COLLECTED FROM PAURI DISTRICT, UTTARAKHAND

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**ABSTRACT:**

*Hedychium spicatum* (Zingiberaceae) is commonly known as spiked ginger lily and kapurkachri. Present study aimed to prepare and analyse herbal antioxidant face cream using ethanol extract. The dried root powder (500g) was extracted using hexane, chloroform and ethanol.Antioxidant activity of ethanol extract was evaluated by formerly reported DPPH method. Different types of preparations such as oil in water, we created several face creams correspondingly classified from F1 to F6. The assessment of all formulations (F1to F6) has been done by the scrutiny of different parameters (pH, spread ability, stability and viscosity). The ethanol fraction analysed from *H. spicatum*ex habited considerable antioxidant activity with an IC50 value of 88.24 µg/mL while for gallic acid the IC500.51µg/ml. Amongst the six formulation (F1 – F6), F5 & F6 displayed good spread ability, good consistency, homogeneity, appearance, pH; there is no proof of a separation phase and ease of removal. The formulations F5 and F6 showed no redness or edema or erythema and irritation during irritancy studies. These formulations can be safely used on the skin. Hence, the study suggests that the composition of the extract and the base of the cream F5 & F6 are more stable and safer.

**Key words:**

Phytochemical screening, van haldi, Herbal Formulation, Kapurkachri.

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# CURRENT STATUS AND FUTURE STRATEGIES OF PHARMACOVIGILANCE FOR AYURVEDA, SIDDHA AND UNANI (ASU) DRUGS

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**ABSTRACT:**

Medicinal plants based Traditional Systems of Medicine (TSM) are playing important role in providing healthcare to large section of population, especially in developing countries. Nowadays in developed countries interest is increasing in utilization of herbal products based on TSM. In the era of modern technology, scientific advancements, consumer awareness and the advent of evidence-based medicine, there is inadequate genuine clinical trial evidence supporting the efficacy and safety of many ASU drugs. Further, a common misconception prevails among the people and practitioners that these drugs are without any side effects and safe to use. Self-medication and misuse of over-the counter (OTC) medicines and traditional and complementary medicines are widespread, adding to the potential risk of Adverse Drug Reactions (ADRs) and drug-drug interactions. These and other factors are likely to increase the burden of drug-related morbidity and mortality in our country. The lack of awareness and appreciation of the size and severity of the problem as well as the misclassification of ADRs as other diseases or the underlying condition are partially to blame for this silent epidemic. The present review discusses in brief the concept of Pharmacovigilance for ASU drugs.

**Keywords:**

Ayurveda, Siddha, Unani, Pharmacovigilance

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# PHYTOSOMES: A NOVEL DRUG DELIVERY SYSTEM

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**ABSTRACT:**

Novel drug delivery system is a novel approach to drug delivery that resembles the limitations of the traditional drug delivery system. In herbal medicine technology, its focus is to increase the efficacy of the herbal compounds. Phytosomes are cell like structure used in NDDS. Phytosomes are new and advanced forms of herbal medicines and they contain several bioactive phytoconstituents of herb extract and they have the ability to surround and bind with the lipids. Most of the bioactive constituents of phytomedicines are not soluble in the lipids, they are more water-soluble, example of the same are flavonoids, terpenoids, glycosides, etc. These bioactive compounds possess various therapeutic effects thus Phytosomes are used to surround these bioactive compounds. Thus, it is increasing the bioavailability of the compounds. Hence, producing a better action than the conventional herbal extracts containing dosage form. It has been used and is found to be more effective in various NDDS research like Herbal medicines, Improvement of bioavailability of Nutraceuticals, etc.

**Keywords:**

Phytosomes, bioavailability, bioactive phytoconstituents, NDDS.

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# DELUSION REGARDING GENERIC AND PROPRIETARY DRUGS IN INDIA

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**ABSTRACT:**

Drug is thing of need; not choice that what you required. India is densely populated country in which major portion is belongs to poor people. Drug is important thing for life, either rich or poor. Drug pricing is a major issue in India. People which are educated & aware about the health insurance policy either government or private, can afford costly drugs. People, who are out of range health insurance, definitely not subject of ignorance. They have right to live healthy & happy. Costly drugs do not affect the rich people because they can afford it from its own pocket. Popularity of generic drug restores the worst life of poor people. We have to fill the gap between generic and brand name drugs in India. Generic drug is the best & cheap method to develop their condition. At home, however, India faces the challenge of equivalent access to reasonable and quality essential medicines for its own population. In India, poor availability and demand of people impose use of generic drugs to reduce cost of treatment. These review article emphases on the past, present and future aspect of generics drugs

**Key words:**

Generics, Pharmacy, Branded, India

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# SELF-ORIENTING MILLIMETRE SCALE APPLICATOR: A SYSTEM FOR ORAL INSULIN DELIVERY

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**ABSTRACT:**

Despite nearly a century of research, researchers have so far failed to design an oral form of insulin that would allow patients with diabetes to avoid daily injections. Scientists from the MIT, Brigham and Women's Hospital and Novo Nordisk say they have developed an insulin pill called self- orienting millimeter scale applicator (SOMA), and it is inspired by the tortoise. It's a swallowable device containing a tiny injection system which is designed like the shell of a tortoise. In much the same way that the animal's highly curved shell enables it to quickly right itself when flipped on its back, the shape of the new device is intended to help it land in the right position to inject insulin or other drugs into the stomach wall. The curvature of the pill's shell ensures it always stays upright. And that's important: the pill needs to keep contact with the stomach lining. The pill has ability to self-right from any orientation. The pill contains same freeze-dried insulin as found in insulin injection kits but compressed. It takes around an hour for the insulin to be fully released. The pill will then make its way safely through the digestive tract. The researches have already successfully shown the pill's ability to release insulin in animal trials using pigs.

**Keywords:**

SOMA, Freeze-dried, Swallowable

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# CURRENT TRENDS FOR OPHTHALMIC DRUG DELIVERY: AN OVERVIEW

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**ABSTRACT:**

The aim of this review is to provide an update on the current knowledge within this field of ocular drug delivery. Ocular drug delivery has been a major challenge for scientists due to its unique anatomy and physiology of eye which contains various types of barriers such as different layers of cornea, sclera and retina including blood aqueous and blood–retinal barriers, choroidal and conjunctival blood flow etc. Ocular drug delivery to eye has always been a difficult task in the field of pharmaceutical research due to sophisticated anatomy and physiology of the eye. Major problems seen by conventional ocular drug delivery dosage forms include rapid precorneal drug loss due to nasolacrimal drainage; tear turnover and drug dilution resulting in very poor bioavailability. So to improve the ocular drug bioavailability, extensive amount of research has been focused in developing controlled drug delivery systems to eye. These attempts led to development of novel drug delivery dosage forms to eye such as nanoparticles, liposomes, hydrogels, ocuserts, and mucoadhesive formulations. Controlled drug delivery systems offer many preferences over conventional dosage forms in terms of improving drug bioavailability, reducing toxicity and decreasing dosage frequency.

**Keyword:**

Ocular drug delivery, Ocular drug delivery systems, Polymers, bioavailability.

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# PHYTOSOMES: A BETTER FRIEND OF HYDROPHILLIC DRUGSOR LIPOPHILIC DRUGS

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**ABSTRACT:**

As we know future of medicine is rooted in past. Past here belongs to the natural herbal drugs as our ancestors used them as primary source of treatment. Herbal drugs are poorly absorbed in the body due to their large molecular sizes and complex structures. Phytosomes is a phyto-phospholipid complex system which is known to produce more bioavailable and improved pharmacological and pharmacokinetic parameters than conventional herbal extract. They can form complex with both hydrophilic and lipophilic drugs, but which one is bound with greater affinity and thus more bioavailable. Comparison of binding affinity of Phytosomes with hydrophilic and lipophilic drugs is can be done by in-vivo, ex-vivo and in-vitro techniques. The above-mentioned study is explained in the poster body.

**Keywords:**

Phytosomes, novel, herbal, drug delivery system, hydrophilic, lipophilic

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# BITTER TRUTH ABOUT SUNSCREENS

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**ABSTRACT:**

Ultraviolet (UV) radiation in the Earth's surface is in the 290–400 nm wavelength and is conventionally divided into UVA (320–400 nm) and UVB (290–320 nm). UVA causes direct tanning, photo-oxidation of melanin and premature skin aging. Whereas UVB causes sunburn and are the major cause of skin photo carcinogenesis and immunosuppression. Chronic exposure to solar irradiation is the primary cause of extrinsic skin aging and is responsible for the main age-related alterations, such as roughness, fine wrinkles, spotty hyper pigmentation, vasodilatation, and loss of skin elasticity. During the past decades, skin cancer has become the most frequent neoplastic disease. Sunscreen is defined as substance that protects the skin from excessive exposure to the ultraviolet radiation of the sun. Sunscreen use is often proposed for sun protection because of their ability to block UV-induced sunburns. It helps to prevent sunburn and reduce the harmful effects of the sun such as premature skin aging and skin cancer. Sunscreen chemicals (UV filters) are used not only to protect the skin of the user but also to prevent the product from photo-degradation. Adverse effects due to sunscreen chemicals to produce local toxicity, such as irritation, sub-chronic toxicity, genetic toxicity, carcinogenicity and photo-carcinogenicity etc. are of concern around world. Variation in the regulation affects the safety assessment of UV filters and its products. Amendments are required in the existing regulation in this country.

**Key words:**

Sunscreen chemicals (UV filters), regulation, drug, cosmetic, adverse effects

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# TRANSPORTERS AT CNS BARRIER SITES: OBSTACLES OR OPPORTUNITIES FOR DRUG DELIVERY? RELEVANCE TO TREATMENT OF STROKE

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**ABSTRACT:**

Present study was done to investigate about transporters at CNS barrier sites with relevance of stroke; Ischemic stroke is a leading cause of morbidity and mortality in the India. The only approved pharmacologic treatment for ischemic stroke is thrombolysis via recombinant tissue plasminogen activator (r-tPA). A short therapeutic window and serious adverse events (i.e., hemorrhage, excitotoxicity) greatly limit r-tPA therapy, which indicates an essential need to develop novel stroke treatment paradigms. The blood-brain barrier (BBB) and blood-cerebrospinal fluid (BCSF) barriers are critical determinants of CNS homeostasis. The study of transporters has enabled a shift away from "brute force" approaches to delivering drugs by physically circumventing brain barriers towards chemical approaches that can target specific compounds of the BBB and/or BCSF barrier. However, our understanding of transporters at the BBB and BCSF barriers has primarily focused on understanding efflux transporters that efficiently prevent drugs from attaining therapeutic concentrations in the CNS. Additionally, signaling pathways and trafficking mechanisms have been identified for several endogenous BBB/BCSF transporters.

**Keywords:**

Ischemic stroke, Plasminogen activator, Thrombolysis, Putative influx, BBB Transport

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# ROLE OF ANDROID APPROACHES IN MEDICAL SCIENCES: THE TECHNO WORLD

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**ABSTRACT:**

The healthcare problems are growing rapidly day by day and people have to spend lot of money for their daily checkup, because they do not have an easy and free access to their checkup. Android- based application aims for an easy access and use for providing almost free of cost facility to users. The primary goal of this study is the development of android-based healthcare application which can assist people to check their health-related issues on daily basis. A Google product, namely App Inventor tool, which is a Visual block programming language, is used to develop the system and this can result in the generation of medical apps for medical professional such as EPOCRATES, PEPID, UP TO DATE etc. within some user friendly apps in non-medical environment conditions such as WHTSAPP, FACEBOOK, and INSTAGRAM. Globally android based applications, designing a system that aims to provide emergency service at the accidental spot, faced or witnessed by the user, using a single click of a button. Emergency service is provided to patient who has met with an accident in an unknown location through the GPS inbuilt. We are living in an era of technology where smart phones and hence social media have entered into many aspects of our life.

**Keywords:**

Android-based application, EPOCRATES, GPS

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# HERBAL ANTIDIABETIC APPROACHES: AN OVERVIEW

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**ABSTRACT:**

Diabetes mellitus is one of the most prevalent metabolic disease affecting approximately 415 million people worldwide. It is characterized by hyperglycemia resulting from defects in insulin production due to β-cell dysfunction and insulin resistance. It is linked with long term damage, dysfunction and failure of organs such as the heart, eyes, nerves, blood vessels and kidneys. Inspite of the commercial availability of many drugs for treating diabetes, many of them are unattainable for a significant proportion of the population due to issue of cost and are beset with some adverse effects. So there is a need for better management of the disease. Medicinal herbal plants with potential antidiabetic activities which have been recent areas of interest are Allium sativum, Gymnema sylvestre, Panax ginseng, Azadirachta indica, Trigonella foenum greacum, Momordica charantia, Prunus amygdalus, Abrus precatorius, Aloe barbadensis, Tinospora cordifolia, Punica granatum, Momordica charantia, Nigella sativa, Acacia Arabica, Annona squamosa, Beta vulgaris, Cinnamomum zeylanicum, Areca catechu, Ricinus communis, Salacia oblonga and many more. Treatment of diabetes with herbal medicinal plants can be the best approach with fewer or no side effects and evaluation of their safety and efficacy could be the novel targets for future prospective. Moreover, this overview focuses on the traditional herbal approaches for antidiabetic activities with different signalling molecular mechanisms.

**Keywords:**

Diabetes mellitus, Insulin resistance, Hyperglycemia, Efficacy, Potential

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# ROLE OF SOLANESOL & EPIGALLOCATECHIN GALLATE ON ICV-STZ INDUCED COGNITIVE DYSFUNCTION IN RATS

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**ABSTRACT:**

Alzheimer disease is neuronal death characterized memory impairment, loss cognitive function and change in behavior. In AD brain area that including temporal & frontal lobes as well as the hippocampus are responsible for learning & memory process that reduced in size in AD. In AD two neuropathological hallmarks which namely the hyper phosphorylation of tau protein and aggregation of amyloid –β peptide which arise from APP. Solanesol mainly exists in plants of Solanaceae family, especially in tomato, potato, and pepper plants. Solanesol, the long- chain terpenoids alcohol is the starting material for many high-values biochemical, including Coenzyme Q9 (CoQ9), Coenzyme Q10 (CoQ10) and vitamin K analogues. Solanesol itself can be used as a cardiac stimulant, anticancer, anti-inflammatory antioxidant, antitumor activities, and liver injury. Therefore, the present study was designed to investigate the neuroprotection potential of Solanesol with EGCG via MPTP in ICV-STZ induced Cognitive dysfunction in Rats. Rats were administered with ICV Streptozotocin (3mg/kg) dissolved in a CSF to induced AD. After the induction of disease rats were treated with Solanesol and Epigallocatechin gallate at different concentration of doses. Solanesol and EGCG shown the inhibition & prevention of Calcium homeostasis alteration, improve the ATP production, down regulation of ROS production, Cytochrome c which improve mitochondrial dysfunction & oxidative stress. Behavioral parameter like Morris Water Maze and Elevated plus Maze were performed for the assessment of behavioral activity. Moreover, the oxidative stress in the brain was assessed by measuring some parameter like TABRS, Superoxide dismutase generation and reduced form of Glutathione.

**Keywords:**

Solanesol, MPTP, STZ, Alzheimer disease.

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# ROLE OF AMINOETHYL CHITIN, A NOVEL CHITIN DERIVATIVE IN ALUMINIUM CHLORIDE INDUCED NEURODEGENERATION AND MEMORY LOSS

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**ABSTRACT:**

Alzheimer's disease (AD) pathology is associated with oxidative stress, inflammation, and neuro degeneration. The marine environment is abundant in biologically active chemical structures with promising biological activities such as neuroprotection. This study was designed to assess the effect of chitin, extracted from crustacean's shells on learning and memory, brain cholinesterase levels and on the neuron structure in the brain of mice. The extract was administered orally in two doses (400 and 800 mg/kg p.o.) for 30 days. Piracetam (Standard), 500mg/kg p.o., was used as standard treatment. 4.2 mg/kg ip Aluminium chloride was administered daily. The Morris water maze and elevated plus maze were used to assess cognitive functions. At the end of treatment period, effect of the drug was assessed on Acetyl cholinesterase levels in the brain of mice. Histopathology studies were also used as a biomarker to substantiate the claims. Aluminum chloride treated group showed significant neurodegeneration (as seen in the histopathology slides) and impaired acquisition and retention of memory. Pre-treatment with AEC (400 and 800 mg/kg p.o) significantly reversed Aluminium chloride induced neurodegeneration, amnesia and high Acetyl cholinesterase activity. Results suggest that amino ethyl chitin can induce improvement in learning and memory of amnesic mice and this effect can be attributed to a certain extent to decrease in brain AchE (Acetyl cholinesterase) levels and neuroprotective attribute of the drug.

**Key words**:

Marine drugs, chitin, aluminum chloride, neurodegeneration, acetyl cholinesterase. Alzheimer's disease.

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# POLYPHENOL CONTENTS AND ANTIOXIDANT POTENTIAL OF *VITEXNEGUNDO* AND *VITEXTRIFOLIA* L. METHANOL LEAF EXTRACTS

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**ABSTRACT:**

The current study was investigated for in vitro antioxidant potential between methanol extracts of two species from the genus *Vitex* (*Vitexnegundo* L. and *Vitextrifolia* L.) belonging to the Lamiaceae family. The antioxidant properties of different extracts prepared from both plant species were evaluated by different methods. DPPH scavenging, nitric oxide scavenging, and β-carotene-linoleic acid and ferrous ion chelation methods were applied. The antioxidant activities of these two species were compared to standard antioxidants such as butylatedhydroxytoluene (BHT), ascorbic acid, and Ethylene diamine tetra acetic acid (EDTA). Both species of *Vitex* showed significant antioxidant activity in all of the tested methods. As compared to *V. trifolia* L. (57.34–86.72%; 38.4– 218.9µg/mL), *V. negundo* has been found to hold higher antioxidant activity (60.1–90.13%; IC50 = 21.8–203.7µg/mL) in all assays. In accordance with antioxidant activity, total polyphenol contents in *V. negundo* possessed greater phenolic (82.84 mg GAE/g dry weight of extract) and flavonoid content (60.76 mg QE/g dry weight of extract) as compared to that of *V. trifolia* (74.41 mg GAE/g and 51.53 mg QE/g dry weight of extract respectively). Our study revealed the significant correlation between the antioxidant activity and total phenolic and flavonoid contents of both plant species.

**Keywords:**

Nirgundi, chaste tree; antibacterial; free radical; oxidative stress.

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# ARTIFICIAL RIPENERS CAUSING HEALTH PROBLEM

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**ABSTRACT:**

Ripening is a physiological process in fruits that make the fruits more palatable by making them sweeter, less green, and soft, physiologically and commercially nutritious. But some chemicals or agents are also used for artificially ripening process by traders, farmers, transporters. Generally, 80% fruits are artificially ripened through ripening agents. Ripped fruits are not suitable to carry and distribute. So, traders pick unripe fruits and use certain methods to increase the ripening process. Several artificial ripeners are available and used such as calcium carbide, acetylene gas, carbon monoxide, potassium sulfate, ethephon, potassium dihydrogen arthoposphate, putrisein, oxytocin, photoporphyrinogen etc. They are used during pre-harvest, postharvest, transportation, capping, storage, etc. They accelerate fruits for ripening and induce color changes. Artificial ripener reported several effects including memory loss, cerebral edema, colonic, prostates and lung cancer, quick- buck syndrome, DNA, RNA and hematological changes. Artificially ripened fruits lead to germinate bacteria, fungus and viruses which can cause diarrhoea, peptic ulcer and other diseases. No steps have been taken so far to keep a check on it. However, no inspection or control has been done so far on artificial ripening.

**Keywords:**

Artificial Ripener, Chemicals, Health Hazard, Adverse Effect, Toxicity

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# NANOEMULSION: A REVIEW BASED ON DEVELOPMENT AND APPLICATION IN PARENTERAL DRUG DELIVERY

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**ABSTRACT:**

Nanoemulsions are nano-sized emulsions which act as drug carriers for improving the delivery of therapeutic agents. Nanoemulsions are thermodynamically stable and isotropic system of two immiscible liquids which is mixed to form a single phase by means of an emulsifying agent, i.e., surfactant and co-surfactant in different ratios. Typically, the droplet size of nanoemulsions falls in the range of 20–200 nm. Nanoemulsions exist either water in oil (W/O) or oil in water (O/W) droplets mainly stabilized by using an amphiphilic surfactant. Innanoemulsion diameter and surface properties of droplets plays an important role in the biological behavior of the formulation. An attempt to explore varying intricacies, excipients, manufacturing techniques and their underlying principles, production conditions, structural dynamics, prevalent destabilization mechanisms, and drug delivery applications of nanoemulsions done to spike interest of those contemplating a foray in this field. Thus, the aim of this review is focused on nanoemulsions advantage and disadvantage, various methods of preparation, characterization techniques and the various applications of nano size emulsion in parenteral drug delivery.

**Keywords:**

Nanoemulsions, W/O, O/W, Amphiphilic

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# DETECTION OF COMBINATORIAL EFFECT OF *OLIVE OIL* AND *NIGELLA SATIVA* OIL IN STZ INDUCED DIABETES MELLITUS (DM) IN WISTAR RATS

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**ABSTRACT:**

This study evaluates the combinatorial effect of Olive oil and Nigella sativa oil in STZ induced Diabetes mellitus (DM) in Wistar rats. Diabetes mellitus is one of the most important diseases related to endocrines. The absolute or relative insulin deficiency is responsible for abnormal metabolism of carbohydrates and lipids and inappropriate hyperglycemia. In this study, STZ-induced diabetic rats showed significant increases in the levels of blood glucose. Increasing insulin level, decreasing insulin resistance, stimulating β cells activity, direct insulin-like effect, and decreasing intestinal glucose absorption these are some effects produced by Nigella sativa which shows that its hypoglycemic effect is multi factorial. This Study determine the effect of olive oil and the effect of acetylsalicylic acid in platelets aggregation, prostanoid and NO production and retinal vascular in Wistar rats with experimental diabetes mellitus.

**Keywords:**

Streptozotocin, Diabetes mellitus, hypoglycemic effect, Nigella sativa, Olive oil

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# EFFECT OF ETHANOL INDUCED RENAL TOXICITY

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**ABSTRACT:**

Renal toxicity is disease or damage to the kidney, which can eventually result in kidney failure. Ethanol intake is one of the major causes of renal toxicity. After administration ethanol decreases the renal tubular reabsorption and reduces renal function. Ethanol-induced changes in membrane composition and lipid peroxidation are associated with functional abnormalities of renal tubules. Because of the high content of long-chain-polyunsaturated fatty acids, the kidney is highly sensitive to Reactive oxygen species (ROS) damage. The susceptibility of the kidney to oxidative challenges is expected to decrease by Antioxidants. In chronic renal failure, there is increased oxidative stress and endothelial dysfunction with their complex interrelationships, which are relevant aspects of atherogenesis.

**Key Words:**

Ethanol, Kidney, Oxidative

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# SHIRODHARA: AN AYURVEDIC APPROACH FOR PSHYCHIATRIC ILLNESS

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**ABSTRACT:**

Shirodhara is an ayurvedic therapy for the management of psychological and psychosomatic disorders. Shirodhara involves a drip therapy onto the forehead of the patient which is designed to influence the hormonal system of the body. Starting with the pineal gland, pituitary gland, and hypothalamus, the spiritual centers of Sahasrara (crown) chakra and Ajna (third eye) chakra correspond with these glands, which are the main control centers. This influence of the Shirodhara therapy causes induction of meditative states and altered states of consciousness. Thus, it is resulting in a regulatory effect on the nervous system and the body. Effect of Shirodhara is primarily observed on the mental state and mental health of the individual. It seems to activate the parasympathetic (rest & digest) nervous system. This has a balancing effect on our sympathetic (fight or flight) nervous system. It has been shown to lower nor-adrenaline and serotonin in the brain, as well as reduce cortisol (stress hormone) in the body. These result in a system relaxation response which is restorative and rejuvenating for the individual. Allopathic drugs for neurological disorders are symptomatic long treatments which are expensive and sometimes showing serious and unavoidable side effects with poor patient compliance. Ayurvedic medicinal system has traditionally been used in several neurological conditions. These findings suggest that Ayurvedic treatments could be preferred over synthetic drugs for a neurological disorder such as Alzheimer's disease, Parkinson's disease, depression, epilepsy, schizophrenia, anxiety and further research needs to be done for determining the best correlation between Shirodhara and psychiatric illness.

**Key words:**

Shirodhara, Pshychriatic Illness, Neurological Disorder, Ayurveda

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# FORMULATION OF GEFITINIB LOADED CHIP 'N' CAP USING BIO-RETARDANT FROM MACROTYLOMA UNIFLORUM

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**ABSTRACT:**

The current research work aims to developed Gefitinib loaded chip 'n' cap using Macrotyloma uniflorum biopolymer. Gefitinib is an epidermal growth factor receptor inhibitor. It inhibits the formulation of Phosphotyrosine residue. Signal casecade not initiate, cell proliferation not started. The biopolymer was isolate from grain of Macrotyloma uniflorum by using optimum quantity of methanol. The Gefitinib loaded chip 'n' cap was preparing by using different ratio of Polymer (10%, 20%, 30%, 50%, 70%, and 10%) along with excipients. Chips prepare in a tablet punching machine. Evaluation studies hardness, thickness, Dissolution test, UV spectroscopy and In- vitro drug release. Spectral analysis like DSC, SEM, NMR and IR were carried out. The MU1 (1:1) formulation was found to be best formulation showing an R2 value of 0.9891, T50% of 9.6 hrs and T80% of 19.2 hrs respectively. According to the release kinetics the best fit model was found to be super case II transport with Anomalous Transport as the mechanism of drug release. The prepare chip 'n' cap were found to be safe and compatible and this is a novelistic approach significantly delivering the drug for prolonged period and the biopolymer was served as a promising excipient for delivering dosage forms.

**Keywords:**

Macrotyloma uniflorum, Phosphotyrosine, Anomalous Transport, Novelistic

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# A SMART APPROACH FOR DELIVERY OF OLANZAPINE FOR THE MANAGEMENT OF PSYCHOSIS

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**ABSTRACT:**

Distribution of drugs to the targeted site like brain is a most frightening challenge in the current scenario. Olanzapine is an antipsychotic agent which works by changing the effect of chemical in the brain. Olanzapine is a medication that works in the brain to test psychosis. It belongs to IInd generation antipsychotic it is also known as SGA or atypical antipsychotic. Currently Olanzapine is administered orally or by injection. The aim of the study was to explore the potentiality of lip skin as a novelistic platform due to its unique histology by formulating nanosized Olanzapine loaded bio- flexi film using novel bio excipients which was isolated from *Cucurbitapepo* by simplified economic process. Olanzapine loaded bio-flexi films were formulated by using *Cucurbitapepo* bio excipients as a strip former and dextrose as a flexicizer. The formulated strip was subjected for various evaluation parameters like moisture content, folding endurance, swelling index and *in vivo* release. Our results revealed that the Olanzapine release was extended over a period of 24 hours. The formulated bio-flexi films are feasible for delivering Olanzapine through translabial route.

**Keywords:**

Olanzapine, Bio-flexi film, Cucurbitapepo, Biopolymer, Bio-retardant, Bio- stabilizer.

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# UNDERSTANDING MEDICATION ERROR: A VITAL TOOL FOR PATIENT SAFETY

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**ABSTRACT:**

Medication Errors (ME) are an important variable in determining patient safety. It is failure in the process of treatment that cause to or has the potential to cause to, harm to the patient. They can cause the prolonged hospitals stay, unnecessary treatments and even death also. Many findings have shown that lack of knowledge of medicines was a causing factor in both prescribing and administering error. There are five causing phases in which medication errors occur: prescription, transcription, dispensing, administering and monitoring patient condition. All healthcare professionals have a responsibility in identify the causing factors that cause to medication errors and to use that information to further reduce its occurrence. Nowadays developing countries need to start the professional programmers to improve the skills of prescribing and knowledge of prescribers, and to encourage healthcare professional to improve their quality related to drug. This review captured various scientific literature published on MEs, their incidences, types, contributory factors and how to avoid them.

**Keywords:**

Medication errors; Systematic review; Prescribing errors, Nursing errors, Pharmacist errors.

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# THE ROLE OF PHARMACOVIGILANCE IN REPORTING OF ADVERSE DRUG REACTIONS: AN OVERVIEW

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**ABSTRACT:**

Pharmacovigilance (PV) plays an indispensable role in the patient safety. Its function is to collect, detect, assess, monitor and prevent the adverse effects occur with the use of pharmaceutical product. Adverse drug reaction is defined by world health organization as "noxious, unintended and unwanted effect that occurs at a dose which is used in man for prophylaxis, diagnosis and therapy". The various adverse reactions lead to the serious harm to patient by the use of pharmaceutical medicines or herbal medicines use to cure or prevent the disease. Worldwide, studies have shown that these reactions are major cause of morbidity and mortality. Pharmacovigilance studies are crucial due to underreporting phenomena of adverse drug reactions. Therefore, there is a need to create awareness among healthcare professionals about the importance of ADR reporting in India. Voluntary reporting by health professionals is currently considered the cornerstone to the detection and management of ADRs and makes a valuable contribution to the safe use of medicines. The main motive is to maintain and implement a robust PV system and to improve the process of ADR reporting in the country.

**Keywords:**

Pharmacovigilance, Adverse drug reactions, Underreporting, Patient safety.

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# FORMULATION AND EVALUATION OF IRBESARTAN SUSTAINED RELEASE TABLETS

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**ABSTRACT:**

The present study was to formulate Irbesartan potassium sustained release matrix tablet. The tablet was prepared using prunusarmenica gum, Xanthan gum, and guar gum as natural polymers. The natural polymers show sustained release property and to determine the effect of type of polymers and its concentration on release pattern of drug from sustained release matrix tablets was used in different concentration. Irbesartan Potassium matrix tablets were prepared in five batches by direct compression method using prunusarmenica gum, xanthan gum and guar gum as natural polymers and microcrystalline cellulose as a binder and pyrolidone as a water-soluble polymer. The in vitro drug release studies of all the batches indicated that optimized formulation pertaining to Batch no. F4 was a promising system to provide sustained release effect of drug. The release pattern of the above formulation was best fitted to Korsmeyer-Peppas model and zero-order model.

**Keywords:**

Irbesartan Potassium, Guar gum, Xanthan gum, microcrystalline cellulose,

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# ROLE OF NATURAL POLYMERS IN NOVEL DRUG DELIVERY SYSTEM

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**ABSTRACT:**

Currently, various natural and synthetic polymers are typically used as a drug delivery carrier in the form of nanoparticles and their size should lie within the range of 1-1000 nm. Presently the main emphasis is on the development of natural polymers in novel drug delivery system due to their properties of biodegradable and biocompatible. The main advantage of Nanoparticles are to increase absorption ratio and thus improve bioavailability of water insoluble drugs, may carry large payloads, protect the drug from physiological barriers, as well as enable development of novel classes of bioactive macromolecules. Nanoparticles could be designed in many different shape and size using a wide range of polymers of natural or synthetic origin. The use of nanoparticles in the drug delivery systems and nanomedicine is given through parenteral route and used polymeric carriers should be biocompatible and biodegradable. The objective of the review focuses the application of nanotechnology to deliver therapeutic or diagnostic agents using biodegradable polymers which impart more beneficial results in drug development.

**Key points:**

Nanoparticles, Biodegradeable, Parenteral, Nanomedicine

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# BIOARTIFICIAL KIDNEY: A SILVER BULLET IN KIDNEY DISEASES AND KIDNEY TRANSPLANTATION

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**ABSTRACT:**

Bioartificial kidney is a device that mimics natural kidney function. It is surgically planted at the abdomen part. The bioartificial kidney provides the alternative solution that gives the benefits of kidney transplant and overcome the limitation of dialysis. The device consists of two parts: 1st part is the filter (constructed from silicon, mimic the kidney's natural filtration mechanism) & 2nd part is the bioreactor that contains living kidney cells (provide the biological function of kidney and some of them secrete hormones and also regulate blood pressure). The system is designed in such way that it can run just off the body's own blood pressure. The bioreactor kidney cells are arranged in the device (encased in the silicon membrane) such that they are isolated from the patient immune system because white blood cells and other relevant proteins are too big to pass through the nanopores. Cell therapy devices are currently being developed to replace the filterative, metabolic, and endocrinologic functions of the kidney lost in both acute and chronic renal failure. This review summarizes the current state of development and future of a wearable or implantable bio artificial kidney for full renal replacement therapy that may significantly diminish the diseased condition and mortality in patients with acute or chronic kidney disease.

**Keywords:**

Dialysis, Bioreactor, Necrosis, Mortality, Regenerated

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# FORMULATION AND EVALUATION OF CLIMBAZOLE GEL CONTAINING *CINNAMOMUM CAMPHORA* EXTRACT FOR ANTIFUNGAL ACTIVITY

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**ABSTRACT:**

An herbal drug plays a vital role in treatment and prevention of diseases. The current study is focus on such a formulation having herbal drug and antifungal drug to attain the synergistic activity. The present work has been undertaken with the aim to formulation and evaluation of Climbazole herbal gel containing *Cinnamomum Camphora* extract. Different polymer gel formulation was designed by using aqueous, ethanolic and petroleum ether extracts in different concentration. First of all, the given drug MIC was determined. Various chemical tests were performed to identify the nature of *Cinnamomum Camphora* extract. Gel was prepared using Climbazole with different conc. of *Cinnamomum Camphora* extract. The evaluation of formulations (pH, Viscosity, Spreadability etc.) were determined. The results showed that formulation containing 2.5 gm of ethanolic extract of *Cinnamomum Camphora* have better antifungal effect than other formulations. As so F5 is optimized formulation.

**Keywords**:

Extract, Gel, Viscosity, spreadability

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# STEM CELL THERAPY FOR MYOCARDIAL INFARCTION: A REVIEW

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**ABSTRACT:**

Myocardial infarction or heart attack is the leading cause of mortality for both men and women in developed and developing countries. Prolonged ischemia of myocardium leads to necrosis of cardiac muscles which is referred as myocardial infarction. Existing therapies lower early mortality rates prevent additional damage to the cardiac muscle and reduce the risk of heart attack. Stem cell therapy is a recent advancement in treatment of myocardial infarction and various other diseases is stem cell therapy. Stem cells have the important properties of self-regeneration and differentiational plasticity. Thus, they are ideal candidates for regeneration of damaged myocardial tissue, for example, in myocardial infarction or in congestive heart failure. When acute myocardial infarction occurs, heart muscle tissue is regionally destroyed. To treat such damaged tissue, new cells regenerated from stem cells are used. Furthermore, the existence of stem cells in myocardium has been identified in animal heart, and intense research is under way in an attempt to clarify their potential clinical application in patients with myocardial infarction.

**Key Words:**

Myocardial infarction, Myocardium, Regeneration, Differentiational Plasticity

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# ELDERBERRY *(SAMBUCUS NIGRA)* SYRUP: A NEW TREATMENT FOR THE COMMON COLD

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**ABSTRACT:**

For cold and flu-like symptoms, many consumers consume over-the-counter (OTC) medications, while clinicians can prescribe anti-viral drugs such as Tamiflu, but none of these medications is a silver bullet against the common cold or flu. Recently, researchers have shown that elderberry syrup—a remedy as old as folklore—substantially reduce both severity and symptom duration for colds and flu. Elderberry shrub, a very rich source of antioxidants known as anthocyanin, has long been cultivated for food and to make natural medicines. The ripe berry is tart and typically sweetened (like cranberries). Most of elderberry health benefits can be attributed to anthocyanin. As an antioxidant, anthocyanin works by clearing the body of free radicals that damage cells at the DNA level. It also has antiviral properties that may prevent or reduce the severity of certain common infections. Elderberry also exerts anti-inflammatory effects, reducing swelling and pain by tempering the body immune response. Researchers performing in vitro studies have found that elderberry extract is active against human pathogenic bacteria as well as influenza viruses (H1N1). In separate clinical trials in humans, investigators demonstrated that liquid elderberry extract and elderberry extract lozenges each reduced the severity and duration of cold and flu-like symptoms.

**Key words**:

Elderberry, anthocyanin, antioxidant, influenza virus

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# ALZHEIMER'S AND IT'S THERAPIES

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**ABSTRACT:**

Alzheimer disease (AD) is a disabling senila dementia the loss of reasoning and ability to care for oneself. AD is the 4th leading cause of death among the elder after heart disease and cancer. The cause of most AD cases is still unknown but evidence suggest that it is due to combination of genetic or lifestyle factor. As autopsy of brain in AD victim show 3-distinct structural abnormalities and loss of neurons liberate acetylcholine, beta-amyloid plaques and neurofibrillary tangles. TACRINE, the first ant cholinesterase inhibitor approved for treatment of AD in the US but has significant ADRs. DONEPZIL, approved in 1998 is less toxic to the liver and advantage of once a day dosing (Vitamin- E, Estrogen, and Ibuprofen). Researchers are currently exploring ways to develop drugs that will prevent beta-amyloid plaques formation by inhibiting the enzyme involving in beta- amyloid synthesis and degradation and trying to develop drugs that will reduce the formation of NEUROFIBRILLAR TANGLES by inhibiting the enzymes that hyperphosphorylate TAU. Currently, available treatments (Donepzil, Rivastigmine and Memantine) are symptomatic and do not declare or prevent the progression of the disease. It was concluded the new strategies seem to focus on examining the potential neuroprotective activity of modifying drugs in the pre-symptomatic stages of AD before the development of overt dementia.

**Keywords:**

Dementia, TAU, Plaques, Symptomatic

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# NEW NEUROIMAGING TECHNIQUE: IMAGING ACTIVITY DEEP WITHIN THE BRAIN

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**ABSTRACT:**

Calcium is a critical signaling molecule for most cells, and it is especially important in neurons. Imaging calcium in brain cells can reveal how neurons communicate with each other; however, current imaging techniques can only penetrate a few millimeters into the brain. Massachusetts Institute of Technology (MIT) researchers have now devised a new way to image calcium activity that is based on magnetic resonance imaging (MRI) and allows them to peer much deeper into the brain. Using this technique, they can track signaling processes inside the neurons of living animals, enabling them to link neural activity with specific behaviors. This study describes the first MRI-based detection of intracellular calcium signaling, which is directly analogous to powerful optical approaches used widely in neuroscience but now enables such measurements to be performed in- vivo in deep tissue. Many scientists have been working on MRI-based calcium sensors, but the major obstacle has been developing a contrast agent that can get inside brain cells. There are certain MRI sensors that can measure extracellular calcium concentrations, but these are based on nanoparticles that are too large to penetrate cell membrane.

**Keywords:**

Signaling, Neurons, Magnetic resonance imaging, MRI

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# RECENT ADVANCEMENT ON IMMUNE-ONCOLOGY

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**ABSTRACT:**

A vaccine cured 97% of cancerous tumors in mice. The cancer vaccine has been approved for human trials. Scientist developed a vaccine like injection to fight cancer. This new cancer vaccine contains to immune stimulators, which activate the immune system T-cells to eliminate the tumors throughout the body. When the tumors had separated to other parts of the body, this occurs because active T- cells can migrate from the site of the tumors to find and destroy other tumors in the body. The vaccine consists of two key agents. The first is a short piece of DNA called CPG oligonucleotide that increases the production of receptor on T-cells necessary for its activation. The second agent is an antibody that binds to the receptor on T-cells and aidful in activation of T-cells to fight cancer cell. These two agents are injected together in micrograms directly into the tumors, as a result only the T- cells that are inside the tumors are activated and have recognized cancer cells as a threat, this type of cancer treatment is known as Immunotherapy. It involves fighting cancer by using the body immune system to attack tumors. Human trials for the cancer vaccine will begin by the end of this year.

**Key words:**

Immune stimulators, T-cells, Immunotherapy, Tumors.

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# PHARMACOVIGILANCE: A PATIENT SAFETY TOOL

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**ABSTRACT:**

Pharmacovigilance is an important tool for patient safety purposes. India is the 4th largest producer of pharmaceuticals in the world. So, there is a need for a spontaneous reporting of adverse drug reaction (ADR) through Pharmacovigilance to protect the patient from risks and harm caused by the drug. Pharmacovigilance is still in its infancy in India and there exists very limited knowledge about the discipline. While major advancements of Pharmacovigilance are taken place in Western Countries, not much has been achieved in India. Moreover, rate of hospitalization and mortality are increasing owing to ADR of drugs and it becomes a challenge to find out the ADR caused by the drug. It is like a sunshade to improve patient care and contribute to the assessment of benefit, harm, effectiveness and risk of medicines.

**Key words:**

Pharmacovigilance, adverse drug reaction, mortality

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# PHARMACOVIGILANCE: MEASURING SAFETY OF PHARMACEUTICALS

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**ABSTRACT:**

Pharmacovigilance is an important tool for patient health & safety purposes. According to WHO, 2002," Pharmacovigilance is the science & activities relating to the detection, assessment, understanding & prevention of adverse effects or any other drug related problem." India is the 4th largest producer of pharmaceuticals in the world. But Pharmacovigilance is still in its infancy and major advancements have not been taken in India. This is due to the lack of awareness, training about reporting of adverse drug reactions (ADRs), ignorance of subject & underreporting system. ADRs are the 4th to 6th largest cause of morbidity and mortality. It may lead to discontinuation of therapy & in severe cases may be fatal. Moreover, rate of hospitalization and prolong hospital stay are increasing owing to ADR of drugs and the total cost of management of ADR is also high. Hence, Pharmacovigilance is like a sunshade to describe the processes for monitoring, evaluating ADRs and safety profile of drugs. This review is aimed to offer a study about necessity of implementation of Pharmacovigilance for solving current problems and strategies for upliftment in standards up to the level of developed countries.

**Key words:**

WHO, adverse Drug reactions, Morbidity, Mortality, ADR, Monitoring

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# HYDROGEL: A NOVEL CARRIER, THEIR METHOD OF DESIGN AND BIOMEDICAL APPLICATIONS

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**ABSTRACT:**

Polymer hydrogel are rapidly developing group of substances which provide wide application in pharmacy, medicine and agriculture. Hydrogel is a type of gel in which liquid component is water. Hydrogels are hydrophilic three-dimensional networks which are able to assimilate large amount of water or any biological fluid. They are indissoluble due to the presence of physical and chemical crosslinks. Due to their high-water content, these gels resemble natural living tissue more than any other synthetic material. Hydrogels have becoming very popular due to their unique properties such as high-water content, smoothness, flexibility and biocompatibility. Free radical polymerization, irradiation crosslinking, chemical crosslinking and copolymerization are some of the used method for the preparation of hydrogel. Hydrogels have recently seeked great attention for a variety of biomedical applications such as cell therapeutics, healing, bone regeneration and the sustained drug delivery. This article aims to provide the reader with a detail introduction of hydrogels and their application in the pharmaceutical field, also the method of preparation of hydrogels.

**Keywords:**

Hydrogel, Hydrophilic, Drug Delivery, Crosslinks, Three Dimensional.

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# A RECENT ADVANCEMENT: ORGANS ON A CHIP

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**ABSTRACT:**

Although animal experiments are imperative for preclinical screening for the drug discovery process, various question like ethical considerations and species differences remain. To solve these fathoms, cell-based assays using human-derived cells have been actively followed. But it remains unsuitable to correctly imagine drug efficacy, toxicity, and organs interactions; because cultivated cells often do not retain their same organ functions. Therefore, a dramatically change effect has been felt, in biological sample handling, analyst sensing cell-based assay, tissue engineering, molecular diagnostics, and drug screening etc. In this circumstance introduced first organs on chip: cell cultures, often in 3D, that use micro fluidics to reproduce the way a tissue or part of an organ work. Organ on chip research already allowed producing many micro fluidic chips which can relatively simulate organ function: liver, lungs, gut, etc. and in fact tumors on chip. The latter could demonstrate very useful when testing new cancer treatments. Multi-organs on chip could also facilitate us to observe the side effects of certain drugs on different organs as targeted treatment. The goals are able to connect the maximum of parts in order to reproduce a human on chip. On the long run, beyond pre-clinical tests, organs on chip could makes everyone to have access to individualized treatments by using their own cells to test them, which is called personalized medicine.

**Key words:**

Preclinical screening, Human-derived, Cell-based assay, Personalized medicine

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# ADR MONITORING IN WOMEN: A NOVEL APPROACH

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**ABSTRACT:**

As a part of healthcare team every pharmacist must have knowledge about ADR monitoring system and Pharmacovigilance which help for the generalization of patient safety and care. Female patients have 1.5-1.7% greater risk of developing ADR as compare to male. The main reason for their increase risk of ADR in female is difference in pharmacokinetic, Pharmacodynamic and hormonal factors. The most common ADRs in comparison to men are electrolyte imbalance & over anti- coagulation. Dermatological ADRs were found to be the most frequent (69.75%) followed by respiratory, Central nervous system, Gastrointestinal ADRs. In a study Women represented 54-57% overall & 56-23% considered only the ADRs in adult population (<17 yrs) excluding intentional overdose. According to WHO-UMC scale in the 30ADR reports collected 21(70%) are of female patient & 9 reports (30%) are of male patient.

**Keywords:**

UMC, WHO, ADRs, Pharmacokinetics. Intentional overdose

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# NEW DRUG DISCOVERY ON DIABETES

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**ABSTRACT:**

Diabetes is a disease in which your blood glucose, or blood sugar, levels are too high. Glucose comes from the foods you eat. Insulin is a hormone that helps the glucose gets into your cells to give them energy. There are mainly two types of diabetes: TYPE 1 & TYPE2. Glucose is fuel that feeds our body cell, but to enter of our cell it needs key insulin is that key. Both types of diabetes lead to chemically high blood sugar level. Drug for type 1 Teplizumab/MGAO31/n OKT3 (ALO-ALO) and Otelixizumba/TRX4.Drug for type 2-Exenatide/GSK71615.Pancreas loses its functionality to produce properly the insulin hormone in patient. Glycated hemoglobin (A1C) test indicates ours avg. blood sugar level for past 2-3 months. An A1C level of 6.5%or higher on two separate tests indicates that you have diabetes. An A1C between 5.7%&6.4% indicate prediabetes and below 5.7 is considered normal. All new injections for diabetes are now in a pen format to improve patient adherence. The goal is to be able to administer the substance to newly diagnosed type2 diabetics to allow the insulin-producing beta cells to retain their function.

**Keywords:**

Diabetes, A1C level, Prediabetes, Patient adherence

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# FORMULATION AND EVALUATION OF OFLOXACIN HERBAL GEL CONTAINING *MUSA ACUMINATA* LEAVES EXTRACT

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**ABSTRACT:**

*Musa acuminata* commonly known as banana plant is vastly being consumed across the world. It is known for many antimicrobial activities and reports show that Phenolic compounds mainly contribute to this trait. Having these advantages an herbal gel containing 4% extract obtained from plant leaves was prepared. Ofloxacin was obtained as a gift sample. *Aloe vera* gel was used as a gelling agent. Extraction of Phenolic compound from *Musa acuminata* leaves was carried out using acetone. The Phenolic recovery from acetone extract was showing good antimicrobial activity. The physiochemical parameters of formulations (pH, viscosity, Spreadability and homogeneity) were determined. The herbal gel showed that formulation containing *Musa acuminata* leaves extract have better antimicrobial activity. The antimicrobial activity was carried out against *E. coli* and *Candida albicans*.

**Keywords:**

Musa acuminate, Aloe vera, Spreadability

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# SPIRULINA: A RICH SOURCE OF VEGAN PROTEINS

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**ABSTRACT:**

Spirulina (blue-green algae) is a microscopic filamentous alga which is rich in protein, vitamins, essential amino acids, minerals, essential fatty acids like gamma linolenic acid (GLA). It is produced commercially and sold as a food supplement in health food stores across the globe. Up to very recently, the interest in Spirulina was mainly in its nutritive value. Many pre-clinical studies and few clinical studies suggest several therapeutic effects ranging from reduction of cholesterol and cancer to enhancing the immune system. It serves as vegan source of rich proteins. Spirulina contains all of the essentials amino acids required for human protein production. it also contains numerous minerals such as potassium, calcium and iron etc. it also contains antioxidants. Some of the major benefits of Spirulina are, it is a natural detoxicifier, oxygenating the blood and removes other impurities that may be causing illness or other health complications. Spirulina is also a natural appetite suppressant and helps to improve the body's digestive system. People with allergies to seafood, seaweed and other sea vegetables should avoid Spirulina. Spirulina can be cultivated and obtained within 14 to 18 days periods in alkaline water.

**Key words:**

Nephrotoxicity, Detoxicifier, Appetite suppressant, Seaweed, Pre-clinical

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# CHANGING THE FUTURE WITH STEM CELLS

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**ABSTRACT:**

Stem cells are the cells having remarkable potential to develop into much different cell type in the body during early life and growth. These are distinguished by other cells by two important characteristics that they are specialized cells capable of renewing themselves by cell division, sometimes after long period of inactivity and under some certain physiologic or experimental conditions, they can be induced to become tissues or organ-specific cells with specific functions. These cells originate at the embryonic stage to further grow into adult stem cells. These adult stem cells are mostly used as regenerative medicines. When we inject stem cells in the brain they convert into lost cells and twice signaling speed is observed in lab animals. Tissue and organ replacement- 3- D images of bodily structures are made from special biogels with the help of Autocads and bioprinters. But with great differential potential comes great risk. The therapy needs vey specific conditions otherwise it may result in *Cancer*. The promises of cures for human ailments by stem cells have been much touted but many obstacles must still be overcome. Like more human cell researches, avoid cancer formation, ability to acquire large numbers of right cells at right stage of differentiation must be mastered, protocols to enhance production survival and integration of transplanted cells and assured clinical trials for efficacy and safety of stem cell therapy.

**Keywords:**

Hematopoietic, iPSCs, Multipotent, Dermal fillers, Preclinical track record

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# TOLVAPTAN AND ITS PROMISING EFFECT ON HYPONATREMIA AND HEART FAILURE

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**ABSTRACT:**

When circulating Vasopressin (AVP) binds to V2receptorsin the kidneys, reabsorption of free water is increased. It is mediated by increased intracellular cyclic AMP (cAMP) and it causes release of aquaporin-2 from intracellular vesicles. Tolvaptan isoral neurohormone vasopressin-2 receptor antagonist which inhibits the action of antidiabetic hormone; it does not block activity of V1b receptors and inhibit the production of cAMP by Vasopressin. It helps in preventing loss of sodium while urination and improves urine flow (aquaresis), hence treathyponatremia and facilitate decongestion. It has shown to reduce cardiac preload in Clinical Trials. The diseases like liver cirrhosis, impaired renal function, heart failure are linked to water retention which cause electrolyte imbalance. It causes increased fluid loss, decreases body weight, and improved edema and sodium concentration and does not affect blood pressure, heart rate, or renal functions in patients with heart failure. Its combination with diuretics has increased urine output without causing renal dysfunction also when intracerebral hemorrhage (ICH) was studied using rat model it was found that tolvaptan decreased the brain swelling (%), brain water content growth was decreased, and enervated the neurological deficits after ICH. It has favorable safety profile and limited side effects

**Keywords:**

Vasopressin, Hyponatremia, Aquaresis, Tolvaptan

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# POLYCYSTIC OVARY SYNDROME AND ITS RELATION WITH DIABETES

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**ABSTRACT:**

Polycystic Ovary Syndrome (PCOS) the most widely recognized endocrine issue in ladies of regenerative age that is related with insulin obstruction and long-haul dangers of type 2 diabetes and vascular illness. PCOS influences around 6.7% of grown-up ladies of conceptive age. Ladies with PCOS are at high hazard for creating type 2diabetes and gestational diabetes mellitus. The most well- known introductions are side effects of androgen abundance (skin break out, hirsutism, and male pattern baldness), menstrual issues, issues with fertility and obesity. Hyperinsulinemia improves androgen union and discharge by the ovaries by going about as a cogonadotropin. Hyperinsulinemia in this manner animates emission of androgens from ovaries and adrenals, diminishes the measure of sex hormone binding globulin (SHBG) and this outcome in an expansion in the dimension of coursing free androgens. 40% of ladies with PCOS have disabled glucose resistance and 10% have forthright diabetes. Ladies with PCOS with BMI>30 kg/m2 are likewise at an expanded danger of gestational diabetes and should be screened for this in pregnancy. Weight in PCOS represents an expanded hazard for obstructive sleep apnoea (OSA), which in itself is a hazard factor for insulin resistance, type 2 diabetes and cardiovascular ailment.

**Keywords**:

Polycystic Ovary Syndrome, hirsutism, obstructive sleeps apnoea, sex hormone binding globulin

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# BIO-PRINTING: A STEP TOWARDS FUTURE

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**ABSTRACT:**

Bio-Printing is a manufacturing process where biomaterials like cells and growth factors are combined to form tissue like structures which function in the same way as normal tissues. This technology involves the use of bio-ink which helps in creating the tissue like structures layer by layer. This technique is useful both in medicine and bioengineering. Recent studies show this technique has made advancements in production of cartilage tissues, which helps in regeneration. Another application of bio-printing is 3D bio-printing.3D bio-printing involves in three main steps: Pre-Bio-Printing, Bio-Printing and Post Bio-Printing. This method will be greatly helpful for drug testing and clinical trials and will lead to reduction of animal trials. This process will help to reduce various headaches related with organ donation and transplantation. Organ replacement is its main objective and it also has the possibility to be a great boon for tissue repair.

**Keywords:** Bio-Printing, Organ donation, Biomaterials.

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# NOVEL APPROACH: FORMULATION OF NANOMEDICINE

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**ABSTRACT:**

Nanomedicinean offshoot nanotechnology is considered as one of the most promising technology of 21st century. Due to their minute size nanomedicine can easily target difficult-to-reach sites with improved solubility and bioavailability and reduce adverse effect. They also act as versatile delivery system carrying both chemotherapeutic and imaging agent to achieve the same therapeutic effect at smaller doses offer impressive resolutions for various life-threatening diseases. Although certain issues have been raised about the potential toxicities of nanomaterials, it is anticipated that the advances in nanomedicine will furnish clarifications to many of modern medicines unsolved problems.

**Keywords:**

Nanomedicine, Threatening, Nonmaterial

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# *IN-VITRO*ANTIMICROBIAL ACTIVITY OF CIPROFLOXACIN SCHIFF'S BASE AND ITS CHELATE WITH LEAD

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**ABSTRACT:**

Quinolones were found to contain antibacterial activities and they are structurally related to Nalidixic acid. Ciprofloxacin is a derivative of quinolone which when chelated acts as unidentate, bidentate and bridging ligand. Metal ions play an important role in biological activity with quinolones. Various transition metals are frequently used as chelating agent such as Ni2+, Co2+, Ca2+, Zn2+, Ag2+, Au2+, Mn2+, Mg2+, and Fe2+ etc. Synthesis of ciprofloxacin imine or Schiff's base: A methanolic solution of ciprofloxacin (0.03mol) with o-toluidine (0.03mol) was boiled under reflux in the presence of glacial acetic acid (4 hrs). The resultant was concentrated on a water bath and allowed to cool at 0 °C. Colored solid was filtered, washed with methanol and dried. The synthesis of Ligand and its metal complex was successfully achieved. In the IR spectrum of the metal complex shifting of C=O absorption from the range 1708- 1709 cm-1 to 1624- 1692 cm-1 suggested that the group coordinated with the metal ions. The 1H-NMR spectra of the Schiff base and its complex with Pb in DMSO-d6 exhibit a multiplet at 7.1- 7.4 δ assigned to C6H5- and at 2.7 δ, which can be attributed to the CH3 group. Both the synthesized compounds were screened for their Antibacterial properties against *Streptococcus aureus* (gram positive bacteria) &*E. coli* (gram negative bacteria) and Antifungal properties against *Aspergillusniger*.

**Keywords:**

Quinolones, Nalidixic acid, Ciprofloxacin, Aspergillusniger

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# DIABETIC MELLITUS AND ITS COMPLICATIONS: PREVENTIONS AND MANAGEMENTS

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**ABSTRACT:**

It is a chronic metabolic disorder is characterized by hyperglycemia, glucosuria, ketonemia, hyperlipedemia, negative nitrogen balance which may lead to diabtetics retinopathy, diabetic foetopathy, diabetic neuropathy and diabetic nephropathy. In type1 diabetes (IDDM) there is no or very less production in insulin formation because β-cell of pancreas. Without insulin glucose can't get into the cell so the glucose level builds up in blood stream. Various symptoms are seen like fatigue, weight loss, frequent urination etc. It is treated by insulin therapy, healthy diet, regular exercise etc. In type 2 diabetes (NIDDM) the blood sugar level is too high. In this type the locks on insulin receptors are not working. Due to this the sugar is locked out of cells. When sugar can't get into cells it build up into blood stream, this condition is called Hyperglycemia. The overworked cells in pancreas slowly lose their ability to make enough insulin. This problem leads to symptoms of type 2 diabetes. Type IV DM is gestational diabetes mellitus. Various drugs like Metformin, Meglitiides, and Thiazolidinediones are used. Well insulin is an important therapy in this type also. In Gestational diabetes high blood sugar levels are developed during pregnancy. It leads to insulin resistance. It must be controlled to protect proper baby's growth so careful meal should be taken. Future treatment for diabetes includes Vaccination, Artificial pancreas treatment, Cell therapy, Gene therapy.

**Key Words:**

DM- Diabetics Mellitus, Diabetics Complications, Diabetic Treatment and Preventions.

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# ADVERSE DRUG REACTIONS: OVERVIEW

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**ABSTRACT:**

Medicinal substances are used because of their ability to affect biological processes in the body. Using such substances always carries a certain risk of unwanted or unintended effects. Drug is single active chemical entity present in a medicine that is used for diagnosis, prevention and treatment of diseases. Adverse drug reaction is unexpected effect of drug on animal and human being and considered as one of causes of morbidity and mortality of hospitalized patients. Adverse drug reactions (ADRs) remain a challenge in modern healthcare, particularly given the increasing complexity of therapeutics, an ageing population and rising multi-morbidity. This article summarizes some of the key facts about ADRs and explores aspects relating to their prevention, diagnosis, reporting and management in current clinical practice. Adverse drugs reactions (ADRs) are toxic, unintended, and undesirable impacts which occur as result of drug treatment. These reactions occur due to self-medication or due to intake of overdose of medicines without prescription. The prescribed drugs may produce undesirable effects along with main effect which leads to adverse drug reactions. Most of the adverse drug reactions are preventable. Hence, in order to avoid adverse drug reactions, one should take only properly prescribed drugs, that unwanted or harmful reaction which is experienced after the administration of a drug or combination of medicine under normal conditions of use.

**Keywords:** Adverse drug reactions, self-medication, Prescribed drugs, Causalities, toxicity, Bizarre effects, Chronic effects, Delayed effects.

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# ASSESSMENT OF CARDIOVASCULAR DISEASE IN WOMEN: A REVIEW

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**ABSTRACT:**

Although women share similar risk factors like age, hypertension, diabetes, hyperlipedemia, obesity, family history of CVD with men; women specific variables like depression, pre-eclampsia, gestational diabetes, thyroid disease, psoriasis, gout and auto immune disorders contribute significantly. Besides, inflammatory markers suggesting risk of disease like high sensitivity C reactive protein are higher in women at baseline then men. Estrogen and progesterone are more influential in women; menstruation can affect hematologic and electrocardiographic indices; women have reduced sympathetic and enhanced parasympathetic activity. In response to stress, women experience an increased pulse rate, resulting in an increased cardiac output; men result in increased vascular resistance resulting in increased blood pressure. Difference in pain perception exists between sexes, resulting in variability in presenting symptoms. Recent acute coronary syndrome registries have shown that on admission women are less likely to receive heparin, ACE inhibitors, glycoprotein IIa/IIIb inhibitors; at discharge less likely to be prescribed aspirin and statin therapy. Women experience more drug related adverse events than men. Promote adherence to lifestyle interventions; ensure proper dosage adjustments to reduce risk of bleeding and other adverse events; promote primary and secondary prevention guidelines; improve application of evidence-based therapy to improve women care in CVD.

**Keywords:**

CVD, ACE, Hematologic, Glycoprotein IIa/IIIb inhibitors