

May 9, 2022

# [NATIONAL CONFERENCE ON PHARMACOVIGILANCE AND CLINICAL RESEARCH-2022]

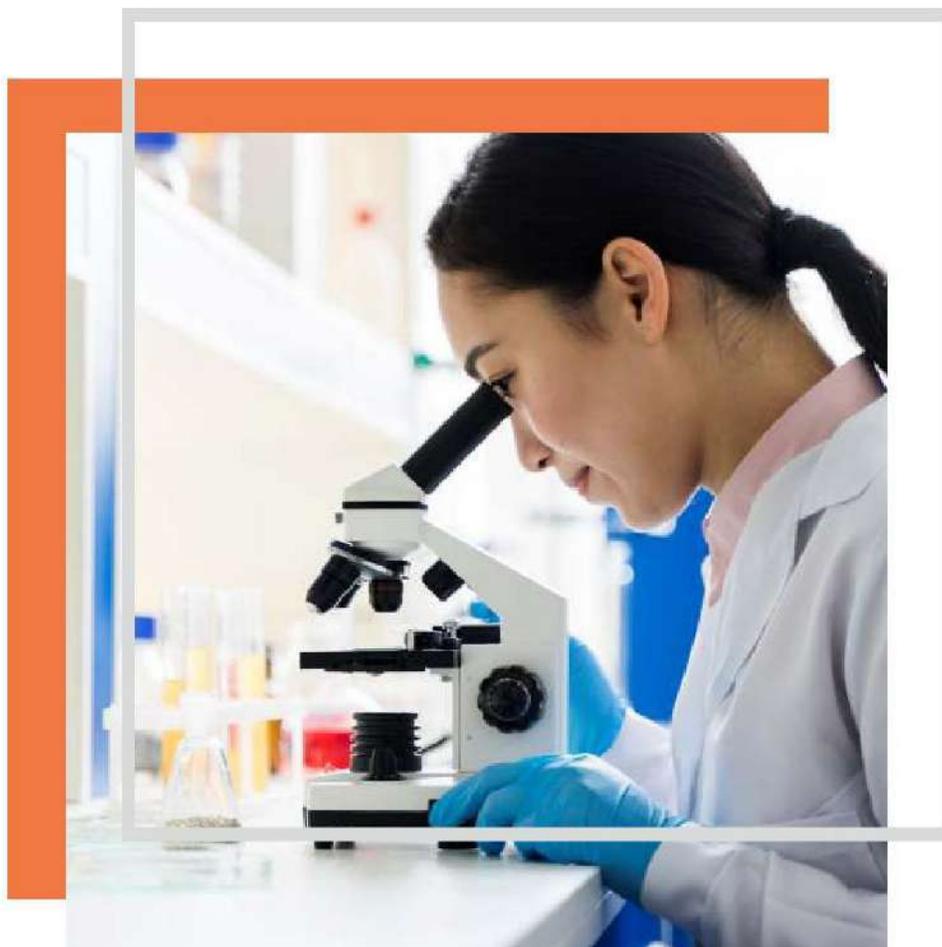


**CHANDIGARH  
GROUP OF COLLEGES**  
Building Careers. Transforming Lives.

*In association with*



APTI-Punjab State Branch



## **NATIONAL CONFERENCE** ON PHARMACOVIGILANCE AND CLINICAL RESEARCH-2022

PHYSICAL MODE

Organised by: Chandigarh College of Pharmacy  
Landran, Mohali, SAS Nagar-140307, Punjab  
Date: 9<sup>th</sup> - 10<sup>th</sup> May 2022

May 9, 2022

## [NATIONAL CONFERENCE ON PHARMACOVIGILANCE AND CLINICAL RESEARCH-2022]



### About Chandigarh College of Pharmacy

Chandigarh College of Pharmacy (CCP) is an affiliate of Chandigarh Group of Colleges (CGC) which was established under Sri Guru Ram Das Educational Society (Regd.) under the dynamic leadership of Satnam Singh Sandhu, Chairman and Rashpal Singh Dhaliwal, President. CCP under the aegis of CGC is a premier institute in the northern region of India, setting benchmarks in the field of pharmaceutical sciences with its research. The institution was established in the year 2005 with an insight to promote excellence in pharmaceutical education and research.

#### The CCP offering courses including

- B.Pharm-(100 seats)
- B.Pharm LEET-(10 Seats)
- Pharm.D-(30 seats)
- Pharm.D (PB)-(10 seats)
- M.Pharm in Pharmaceutics-(15 seats)
- M.Pharm in Pharmacy Practice-(15 seats)
- M.Pharm in Regulatory Affairs-(15 seats)
- M.Pharm in Pharmacology-(12 seats)

The institute is approved by Pharmacy Council of India (PCI) New Delhi, All India Council of Technical Education (AICTE), New Delhi and affiliated to IKG Punjab Technical University, Jalandhar. CCP is recognized as Scientific and Industrial Research Organization (SIRO) by the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology, Government of India for promoting and advancing the research.

**About the conference**

With the enhanced incidences of diseases, and the utilization of non-medical prescription drugs, the occurrence of drug abuse has augmented in the recent years. In this milieu, the drug safety and pharmacovigilance has grown as a pivotal clinical and scientific discipline to endow enough information and ascertain health safety. The concept of drug safety and pharmacovigilance has evolved considerably and is vital to keep the severity of ADR under control. In order to prevent or to reduce harm to patients and improve public health, it is vital to develop and practice mechanisms for evaluating and monitoring the safety of medicines in clinical use.

Major challenges to develop a better health care system include globalization, web-based sales and information, broader safety concerns, public health versus pharmaceutical industry economic growth, monitoring of established products, developing and emerging countries, attitudes and perceptions to benefit and harm, outcomes and impact, etc.

Through this conference we aim to bring the world-class leaders in this field at a common platform to connect, learn and network. The conference will bring-forth the participants and the representatives from various fields of pharmacovigilance, drug safety and clinical studies under a common umbrella, and will provide them an opportunity to network with various industry professionals including pharmaceuticals, biologics, devices, CROs and PV service providers. This conference will provide a podium for the participants to discuss, share and stay updated with present state of affairs in pharmacovigilance and drug safety. It will also allow all its participants to interact with the experts, discuss the various developments, challenges faced and innovations in the field.





राष्ट्रीय औषधीय शिक्षा एवं अनुसंधान संस्थान  
**NATIONAL INSTITUTE OF PHARMACEUTICAL  
EDUCATION AND RESEARCH (NIPER)**  
(औषध विभाग, रसायन एवं उर्वरक मंत्रालय, भारत सरकार)  
(Dept. of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Govt. of India)  
सेक्टर 67, एस.एस. नगर (मोहाली)-160 062, पंजाब, भारत  
Sector 67, S.A.S. Nagar (Mohali) - 160 062 Punjab, India



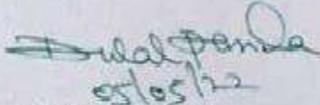
प्रो. दुलाल पाण्डा  
फार्मास्यूटिकल, एन.ए.ए.एस. नगर, मोहाली  
निदेशक  
**Prof. Dulal Panda**  
FTWAS, FNA, FASc, FNASc  
Director

**MESSAGE**

It is a matter of great pleasure that a National conference is being organized under the theme 'Pharmacovigilance and Clinical research' on 9-10th May 2022 at Chandigarh College of Pharmacy Landran, Mohali.

Pharmacovigilance has its role in the healthcare system through assessment, monitoring, and discovery of interactions amongst drugs and their effects on humans. Pharmaceutical and biotechnological medicines are designed to cure, prevent or treat diseases. However, there are also risks particularly adverse drug reactions, which may cause serious harm to patients. Pharmacovigilance provides appropriate information about the safety of health products and promotes the safe and effective use of drugs.

This scientific program will put forward a platform for participants to learn about the activities related to the detection, assessment, understanding, and prevention of adverse effects or any other drug-related problem. I hereby express my best wishes to all the participants and resource persons towards the successful accomplishment of this enclave.



[Prof. Dulal Panda]



## **Message**

I am extremely delighted to greet and welcome you all for the upcoming National conference under the theme 'Pharmacovigilance and Clinical research' to be held at Chandigarh College of Pharmacy, Landran. During past two decades, the landscape of pharmaceutical sector has changed dramatically and Indian Pharmaceutical Industry has established its credentials as provider of quality medicines at affordable prices in domestic and international market. There is an increasing trend of growing incidence rates of adverse drug reactions and drug toxicity along with the increasing drug consumption and drug development rates.

In recent years, drugs are being consumed and developed at significantly high rates. The intake of drugs for longer periods by a large population can lead to adverse effects not seen in the clinical trials. Thus, the growing need for medical information by the regulatory authorities is also anticipated to fuel the growth of this segment.

The rising government efforts to improve management in pharmacovigilance practices are also likely to boost the market growth. The Indian Pharmaceutical market size is expected to expand further and Indian pharmaceutical industry has been able to penetrate regulated market such as US and Europe.

This scientific program will bring together experts from industry and academia to share their rich experience and expertise in pharmacovigilance.

**Prof. (Dr.) Rajesh Kumar Goel**  
**Department of Pharmaceutical Sciences and Drug Research,**  
**Punjabi University, Patiala**  
**APTI President, Punjab State Branch**



### MESSAGE

It is indeed my proud privilege to welcome you all to the National conference on “Pharmacovigilance and Clinical Research-2022” at Chandigarh College of Pharmacy, Landran. Whether it's teaching, research, or clinical practice or a blend of all three, academic pharmacists benefit from stimulating careers in teaching and research institutes as well as other organizations like hospitals throughout the world. The environment in which the pharmacist operates is evolving rapidly. It is influenced by the science that drives the development and delivery of medicines, by population changes and the workforce demands of healthcare. The conference will provide platform to explore current trends in pharmacovigilance to prepare budding pharmacists for the pharmaceutical industry and regulatory governance of medicines, as a patient-focused leader of pharmaceutical research and drug development.

This Scientific conference will provide a platform for the benefit of pharma community about the best practices in pharmaceutical quality systems, the way forward for quality culture and compliance with the involvement of Indian and global quality management thought leaders. Since the growth of this industry is imperative for the success of our pharma professionals, I request each and every one of us to contribute for the success of this Conference.

It's time to start something new, "From small beginning come great things" and I trust in the magic of this new beginning.

**S. Satnam Singh Sandhu**  
**Chairman**  
**Chandigarh Group of Colleges, Landran**

**MESSAGE**

It is matter of great pleasure that Chandigarh College of Pharmacy (CCP), Landran, Mohali, Punjab, India2022 in collaboration with APTI-Punjab State Branch will be organizing two days national conference on “Pharmacovigilance and Clinical Research-2022” during 9th – 10th may under the flagship of CGC, Landran, Mohali, India.

Conferences offer wonderful platforms for interaction and exchange of scientific initiatives and ideas. It will provide a great platform to further explore the ever-expanding realms of academic and industrial collaborative research. Conferences of this nature provide a great opportunity to Pharma fraternity, not only to update knowledge and keep abreast of the latest developments in the respective field, but also an occasion for the resource persons, delegates to exchange ideas and interact with each other.

The theme chosen for this conference is of great relevance in current context and it is our privilege to host the world’s eminent scientists, academicians, industry and corporate resource personnel, research scholars and students at CGC, Landran. Organizing an event does not come without effort. It requires great vision, mission, and fortitude. I take this opportunity to congratulate the organizing committee and to extend warm welcome to the guests, resource persons and delegates. I thank all the delegates who have come from various parts of the country and across the globe. I consider it a privilege and honour to have all of you here. I wish you all for the grand success of this wonderful event and all the best in their endeavors.

**S. Rashpal Singh Dhaliwal**  
**President**  
**Chandigarh Group of Colleges, Landran**

**MESSAGE**

With immense pleasure, I wish to share with you that Chandigarh College of Pharmacy, Landran, Mohali, Punjab, India, is hosting a two day National conference on the theme entitled “Pharmacovigilance and Clinical Research” on 9-10 May 2022, which is designed to share the recent information, awareness and progress of drug discovery and development.

Taking lead from the previous International conferences organized by us before COVID-19, the proposed summit on a similar theme would also endeavor to highlight multifaceted health applications and future challenges. The present conference will bring together experts from relevant field, expert from academic and industry domain, representatives and research scholars of different area from around the every corner of the country and provide them with opportunity to report, present, share and discuss scientific questions, achievements, issues, and challenges, in the field. Already, over a score of eminent speakers have confirmed their presence and availability to deliberate at this particular occasion.

I hope the deliberation from various distinguished speakers will benefit the participants to update their knowledge. I also look forward to the unique opportunity to learn and network with professionals in this gathering to learn about the latest trends and processes in the drug development arena today.

**Dr. P.N. Hrisheeksha**  
**Campus Director**  
**CGC Landran**



### **MESSAGE**

It is a matter of great pleasure that National conference is being organized under the theme “Pharmacovigilance and Clinical Research” on 9-10 May 2022 at Chandigarh College of Pharmacy, Landran, Mohali.

The present conference will bring together experts from relevant field, expert from academic and industry domain, representatives and research scholars of different area from around the every corner of the country and provide them with opportunity to report, present, share and discuss scientific questions, achievements, issues, and challenges, in the field. Already, over a score of eminent speakers have confirmed their presence and availability to deliberate at this particular occasion. Our program committee has put an outstanding scientific program in the different area of pharmaceutical science with a blend of Nanotechnology, Pharmacological Sciences, Clinical Pharmacy, and Biotechnology intended at fetching top scientist together to present cutting-edge research and new discoveries.

We believe that our diverse and dynamic group of speaker and panelists will provide in depth insight as well as actionable and practical tools to brain storm, discover new idea and a platform to show your capabilities and discoveries to the world.

I am confident that all participants, students, experts, and policy makers alike I will immensely benefit from this conference. I am looking to a highly interesting and informative meetings and stimulating deliberation.

A handwritten signature in blue ink, appearing to read 'Arockia Babu', with a blue arrow pointing to the right.

**Dr. M. ArockiaBabu**  
**Director-Principal,**  
**Chandigarh College of Pharmacy,**  
**Chandigarh Group of Colleges, Landran, Mohali [Punjab] India**

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## **INVITED TALKS**

**Introduction to Pharmacovigilance and Clinical research**

Dr. Sridhar Yeshamaina

Senior General Manager – CDMA, Head – Global Pharmacovigilance  
Clinical Development & Medical Affairs, Hetero, Hyderabad

Sridhar.Y@heterodrugs.com

Clinical Research (CR) studies are the most vital component in drug development process, which involves a systematic investigation and collection of evidence-based data from human subjects. CR focuses on new ways to prevent, detect, or treat diseases. Many lives were saved with CR work done on polio, measles, tuberculosis, and recent Covid-19. Many people shielded from a chronic disability. Thus, CR made a huge positive impact on human healthcare.

In a post-covid world, awareness on CR brought a good trust globally, also established a noticeable reshaping, improvising in design, execution of clinical trials for better outcome to patients in worst situation. India is well known globally as a major hub for CR and drug development. Patient well-being and safety is the main precedence throughout the drug development life cycle. Hence, Pharmacovigilance (PV) (or) Drug Safety is recognized as a science and activities associated with the gathering, detection and assessment of adverse events, which gauge the benefit- risk profile and rationale use of drug for better efficacy and safety to be used in patients.

Indian Pharma and Healthcare professionals strictly follow global standards – ICH-GCP for CR and GVP for PV to focus upon all the aspects of drug safety in clinical trials including basics of drug safety, regulatory aspects of drug safety, patient suitability for safety in trials, post marketing safety and causality risk assessment of the drug products. Moreover, the clinical trials market was valued at approximately USD 38,213.3 million in 2020, and it is expected to reach USD 51,356.0 million by 2026, registering a CAGR (Compound Annual Growth Rate) of 5.05% during the forecast period, 2021-2026. The global pharmacovigilance market size was USD 5.56 billion in 2020. The market is projected to grow from USD 6.28 billion in 2021 to USD 14.85 billion in 2028 at a CAGR of 13.1% in the 2021-2028 period.

The increasing pervasiveness of chronic disease and the rising demand for clinical trials in

developing countries is fuelling this market's growth. The market is also driven by a rising number of biologics, the need for custom-made medicines and orphan drugs, and the demand for advanced technologies. Factors such as globalization of clinical trials, technological evolution, and demand for Contract Research Organisations to conduct clinical trials are further estimated to drive the market. Therefore, there will be greater demand for more comprehensive and innovative approaches that apply quantitative methods to collecting data from all sources, ranging from the discovery and preclinical through with clinical and post-approval stages. The World Health Organisation has encouraged all of us to think innovatively and as Walter Disney said, 'if you can dream it, you can do it'.

## **Drug Discovery and Career Opportunities in Clinical research in India**

Dr. MinaxiKhalera

Director-Clinical Research  
AstraZeneca, Bangalore, India

[minaxi.khalera@astrazeneca.com](mailto:minaxi.khalera@astrazeneca.com)

### **ABSTRACT**

Research is the key to innovation and improved health in our search for new drugs. It takes roughly between 12 and 15 years from the original idea through to the market launch- a process that requires more than 1 billion Euros in investment for the benefit of patients all over the world.

It is a very complex yet thrilling journey to see a safe and effective treatment option made available to patients who need it the most. This journey of witnessing the various stages that a drug needs to travel through, all the hurdles that it needs to cross to make sure only the safest products see the light of the day is a story worth listening!

The Indian clinical trial market size was estimated at \$1.89 billion in 2019 and just over \$2 billion in 2020 and is expected to reach \$3.15 billion by 2025.

While the academics of our Pharmacy students cover this drug discovery and development process, they are often not clear about the vast number of career opportunities that are available to them within the gamut of the healthcare industry.

## Methodologies in Pharmacovigilance

Dr. Dipika Bansal

National Institute of Pharmaceutical Education and Research, Mohali, Punjab, India.

[dipikabansal@niper.ac.in](mailto:dipikabansal@niper.ac.in)

### ABSTRACT

Medicines may affect the body in unintended and harmful ways. These effects are called adverse drug reactions and represent risks of use of medicines. At the time when a new medicine obtains a marketing authorization, the active substance has been tested and the data have allowed a conclusion to be drawn that the benefits of the medicine outweigh its risks. Drug approval has inherent limitations due to restrictive populations studied under the somewhat artificial circumstances of preapproval trials. However, post marketing approval, drug is used in regular healthcare settings for many patients who may differ from the study population and it becomes empirical to identify any new or changing risk of a medicine as quickly as possible to take measures to minimize risk and promote safe and effective use.

Pharmacovigilance studies are a part of a comprehensive post-marketing program to satisfy a regulatory requirement and also to collect additional data for use in drug development. These studies are aimed to assess and quantify known or suspected drug safety issues as well as to identify and characterize potential new risks following product marketing, and to monitor product-use patterns. The common methodologies used in post-marketing Pharmacovigilance studies are passive and active surveillance, spontaneous reports for signal generation and organized clinical investigations like , comparative observational studies that can be analytic, such as case-control studies, cross-sectional surveys and cohort studies, targeted clinical investigations, other descriptive studies and posthoc analysis of clinical trials and meta analytic approaches for signal confirmation. The present talk shall appraise a series of methodologies followed from hypothesis generation to confirmation in new ADR signal generation.

## Seriousness & Expectedness & Causality Assessment Criteria

Dr. Shraddha Bhang

Medical Director  
Safety Science Pharmacovigilance, Eversana, Pune

dr.shraddhabhange@gmail.com

### ABSTRACT

Adverse events that pose greater risk to patients because they are of higher severity needs more immediate attention. Quantifying adverse events based on if they are serious or non-serious is very important. Universally there are six seriousness criteria defined and accepted by regulatory authorities for uniformity. Seriousness criteria are AE which causes death, disability, incapacity, is life-threatening, requires/prolongs hospitalization, or leads to birth defect. Defining a Safety profile of products during preclinical to post marketing is very important. This Safety profile is available in various documents that are Investigator brochure (IB), SmPC (Summary of Product Characteristics) and Patient Information leaflet (PIL). If an AE is described in such documents (same severity and outcome), it is considered as listed/expected/labelled and if not then unlisted/unexpected/unlabelled. Establishing a relationship between the medicinal products prescribed to patients and the adverse events occurred is termed as causality assessment. There are various methodologies and scales for establishing this, but no approved universally methods. In this lecture, we will look at various methodologies and discuss most commonly used. Many of the causality assessment methods have their advantages and disadvantages. The case submission to Regulatory Authority depends on causality relationship with suspect medicinal product and the expectedness. Serious unexpected adverse drug reactions (SUSARs) are expeditable to Regulatory Authority

## Pharmacovigilance Compliance and Inspections

Dr. Mugdha Shah

Manager – Pharmacovigilance  
Glenmark Pharmaceuticals Limited, Mumbai

[mugdha.shah@glenmarkpharma.com](mailto:mugdha.shah@glenmarkpharma.com)

### ABSTRACT

Pharmacovigilance (PV) context, compliance particularly refers to legal and regulatory guidance (e.g. GVP in the EU), but also internal (e.g. standard operating procedures) and external (industry codices) policies.

Compliance is not about the purpose of the measure or the process; It is about continuously monitoring adherence, to measure against the expected, and to document accordingly.

Overall, a healthy and compliant PV organization will be the result of a continuous drive for optimal compliance, the use of the right dashboards, a solid CAPA system and a continuous effort to improve the performance of the activities.

Reaching this state will minimize the risk of critical observations during an inspection. Audits/Inspections are important tools to monitor compliance.

Pharmacovigilance system inspections are designed to review the procedures, systems, personnel and facilities in place and determine their compliance with regulatory pharmacovigilance obligations.

The focus of most pharmacovigilance inspections is on the systems and processes in place to monitor drug safety, for products in pre- and post-marketing stages. However, product-specific inspections may take place if there are concerns about safety, or the effectiveness of monitoring safety by the license holder.

All inspections are resource intensive and require significant planning and preparation by the inspectees to ensure a positive outcome.

Most inspectorates apply a risk assessment model to target limited resources at the highest risk areas.

The penalties for non-compliance can be quite severe. Most Health Authorities allow companies to correct deficiencies and then re-inspect to confirm that appropriate corrective action has been taken. However, if the deficiencies are considered to be critically serious those patients could be at risk, the authorities can suspend a license or CTA, which could have a significant impact on the company's revenue and reputation. In the scheme of things, the cost of implementing and maintaining an effective pharmacovigilance quality system is insignificant in comparison.

**Adverse Drug Reactions and Safety Report monitoring**

Dr. Vallabh Deshpande

HOD-Pharmacovigilance Operations  
Glenmark Pharmaceuticals Limited, Mumbai  
Vallabh.Deshpande@glenmarkpharma.com

**ABSTRACT**

What is Pharmacovigilance: The science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other drug-related problem. Adverse drug reaction & safety report monitoring is an activity defined within Pharmacovigilance.

Importance of ADR Monitoring: Patient safety is of utmost importance for a Pharmaceutical company (Marketing Authorization Holder) and a regulatory requirement, where every MAH set up a PV system to monitor Adverse Reactions to identify & analyze potential risks associated with the use of medicines.

During clinical phase ADRs are monitored & studied for a limited population hence it is important to collect further data on safety & efficacy on a larger population post-marketing of a drug.

Safety monitoring of medicines is a continuous process. Information received from patients, healthcare providers, business partners and medical literature, plays a critical role in providing the data necessary for pharmacovigilance.

ADR Monitoring benefits:

An ADR monitoring and reporting program can furnish following benefits:

1. It caters information about quality and safety of pharmaceutical products.
2. It initiates risk-management plans.
3. It prevents the predictable adverse effects and helps in measuring ADR incidence.
4. It instructs health care team, patients, pharmacists and nurses about adverse drug effects and creates awareness regarding ADRs.

Conclusion:

ADRs have a perspective to provoke harmful effects in patients. Health-care workers and pharmacovigilance constrain being more conscious of perceive the ADRs in the patient. ADR Monitoring can be useful for physician to identify the ADRs in patients, also creates awareness amongst patients, HCPs & Pharmaceutical Companies.

## **Pharmacovigilance Regulations in Various Countries**

Dr. Sarfaraz

Head Global Quality Assurance-Pharmacovigilance,

Sun Pharma, New Delhi

[Sarfaraz.ahmed@sunpharma.com](mailto:Sarfaraz.ahmed@sunpharma.com)

### **ABSTRACT**

The primary focus of the Pharmacovigilance has been on the collection, assessment and reporting of the adverse drug reactions to medicinal products. Globalization of the pharmaceutical industry has prompted efforts to toward harmonization of Pharmacovigilance practices globally to enable improved knowledge of medicine's benefit-risk profile and risk communications. Even as Pharmacovigilance has evolved over the past decade, there still exist few areas of discordance across global Pharmacovigilance practices. This session is mainly focussed on the need of Pharmacovigilance regulations and how it evolved over the years. Various countries have Pharmacovigilance regulations established and implemented; despite being focussed on safe use of medicine the disparity exists between requirements of different regulations.

It is important to learn and compare the Pharmacovigilance legislations of highly regulated countries and the emphasis of this talk would be on Pharmacovigilance directives of United State, EMA, Canada and India with a view to understand areas of harmony in the current legislation across regions and further compare health authorities' requirements with recommendations made by international organizations. Identification of potential areas of disharmony would pave the way to design solutions and strategies toward creation of comprehensive Pharmacovigilance system, which can be easily implemented worldwide, thus promoting the safe use of medicines.

## **Pharmacovigilance Programme in India**

Rajni Jha

Pharmaceutical Consultant, Pharmaceutical Regulatory Affairs and Quality, New Delhi

[superar201474@gmail.com](mailto:superar201474@gmail.com)

### **ABSTRACT**

The pharmaceutical sector is one of the key 25 sectors identified by the Government of India [GOI] under the 'Make in India' initiative to provide the necessary impetus to the sector. Today, the Indian pharmaceuticals industry is third largest in volume and the tenth largest in value, globally.

Pharmacovigilance [an integral part of effective clinical practices based on sound scientific principles] plays an indispensable role in the identification, assessment, and publicizing of adverse drug reactions (ADRs) through various methods. ADRs account for serious harm to the patients and even lead to morbidity and mortality. Though India is the largest producer of pharmaceuticals in the world and a major clinical research hub, PV programs are still at the nascent stage compared to other countries. So we require a more effective & stringent PV setup with increasing population and novel drugs in the market each day. The entire process requires participants from academia, industry and government.

The objective of Pharmacovigilance Programme of India (PvPI) is to improve patient safety and welfare of Indian population by monitoring drug safety and thereby reducing the risks associated with the use of medicines. The Central Drugs Standard Control Organisation established this with All India Institute of Medical Sciences, New Delhi as the National Coordination Centre approved by the Ministry of Health and Family Welfare (MOHFW), GOI in July 2010, which later shifted to Indian Pharmacopoeia Commission in Ghaziabad on 15 April 2011. The NCC-Pharmacovigilance Programme of India, Indian Pharmacopoeia Commission, Ministry of Health and Family Welfare, GOI- was launched as a WHO Collaborating Centre for Pharmacovigilance in Public Health Programmes and Regulatory Services on 30 October 2017.

There are 250 functioning Adverse Drug Monitoring centres in the country (in medical colleges and corporate hospitals) as part of the Pharmacovigilance Programme of India.

## Pharmacovigilance of Herbal Drugs & Medical Devices

Dr. Ravi Goyal

GBU Medical Oversight Pharmacovigilance

IQVIA RDS Pvt. Ltd, Bengaluru

dr.Ravi.goyal@iqvia.com

### ABSTRACT

Pharmacovigilance aims to monitor the safety of drug products by detection, assessment, understanding, and prevention of the adverse events. The surveillance of the safety profile of the drugs starts in the development phase and continues till the time drug is marketed anywhere in the world. Although pharmacovigilance is the discipline that continues to evolve as the reporting requirements for adverse events keeps on changing for a more transparent, comprehensive, and relevant outlook. The safety of the allopathic medications has been the focus in for last a few decades and a significant progress has been made in the safety systems and processes to monitor their benefit-risk profile. Pharmacovigilance of herbal drugs is still in the development stages. While the commonest myth regarding use of herbal drugs is that they are safe and cause no adverse events, numerous concerns have been raised worldwide to the regulatory authorities to monitor the safety of herbal drugs and traditional medicines. The major challenge in regulating the herbal drugs is the way they are procured, utilize, and perceived. The unregulated use of herbal drugs can lead to toxicological issues due to their crude nature and this becomes even more concerning when multiple herbal products are used together. Similarly, pharmacovigilance of medical devices aims to monitor the safety of the medical devices used alone or in combination with various drugs. Based on the risk associated with the medical devices, these have been categorized into Class A, B, C, and D. Recently, there has been a paradigm shift to extensively monitor the safety of medical devices and stringent regulations have been enforced by regulatory authorities such as FDA and EMEA.

## Management Systems and Drug Dictionaries in Pharmacovigilance

Dr. Inderjeet Verma

Associate Professor

M.M. College of Pharmacy, Maharishi Markendeshwar University, Mullana

[inderjeet.verma@mmu.org](mailto:inderjeet.verma@mmu.org)

Pharmacovigilance (PV) is an area of drug development that is increasingly found in the regulatory spotlight. We need to have confidence in the quality and the accuracy of the data being used in the benefit-risk assessments of their products. PV relies on information gathered from the collection of individual case safety reports and other pharmacoepidemiological data. The PV data processing cycle starts with data collection in computerized systems followed by complete data entry which includes adverse event coding with the help of MedWatch, MedRA, WHO drug global, drug coding, causality and expectedness assessment, narrative writing, quality control, and report submissions followed by data storage and maintenance. These medical dictionaries are helps to code the clinical trial data and it is a key way to ensure that our clinical records and data base are easy to interpret and analyze. Coding means taking the free text entered into electronic case report files (eCRFs) and mapping it to one or more entries in a medical dictionaries. Two of the most widely used medical dictionaries in clinical systems are MedWatch and WHO drug global. In the Pharmacovigilance world, the individual case study report (ICSR) database maintained by using software (ArisG, VigiFlow, Argus, Clinevo Safety, PvNET, repClinical) where we can enter those cases into the database. Pharmacovigilance software database offers alerts for fast cases, follow-up cases, and reports submission to fulfill regulatory timeline compliance. Safety databases expedite the reporting of individual and aggregate safety data to authorities and third parties and provide critical information for detecting safety signals and the ongoing evaluation of the risk-benefit profile of the company's products.



**POSTER  
PRESENTATIONS**

# PHARMACEUTICS ABSTRACTS (PC)

**PC-01****Density functional theory study on metal oxide (BeO-MgO-ZnO) nanoclusters as drug delivery systems for isoniazid anticancer drug**

Shivangi Garg, Neetu Goel

Computational and Theoretical Chemistry group, Department of Chemistry &  
Centre for Advanced Studies in Chemistry, Panjab University, Chandigarh-160014, India  
shivangis074@gmail.com

**ABSTRACT**

The current study evaluates (MO)<sub>12</sub> (M: Zn, Mg and Be) fullerene-like nanoclusters in terms of electronic sensitivity and reactivity for isoniazid (IS) anticancer drug based on the density functional theory (DFT) in gaseous and aqueous phases. The study reveals that Zn<sub>12</sub>O<sub>12</sub> and Mg<sub>12</sub>O<sub>12</sub> nanoclusters have significant sensitivity towards IS in terms of the electronic properties, suggesting the high potential of the nanoclusters in IS drug adsorption. The complexes under study were found to have high energetic desirability, particularly in an aqueous medium. The optical absorption (UV-Vis) spectra demonstrated a red shift of the complexes to lower energy levels. The analysis of atoms in molecules (AIM) was carried out to further understand the binding characteristics of the drug and nanoclusters. The AIM results were found to be in good agreement with the NBO, FMO, ESP, and E<sub>ads</sub> reactivity trends. According to the study, Zn<sub>12</sub>O<sub>12</sub> and Mg<sub>12</sub>O<sub>12</sub> were found to have high carriage potentials and can be employed in drug delivery.

**PC-02****Green Synthesis of Nanoparticles: A New Paradigm towards Sustainability**

Shivangi Singh, Deepika Sharma, Teenu Sharma

Chandigarh College of Pharmacy, Chandigarh Group of Colleges, Landran, Mohali, Punjab  
[shivisingh2298@gmail.com](mailto:shivisingh2298@gmail.com)

**ABSTRACT**

Green synthesis of metallic nanoparticles has become a new and promising field of research in recent years. Green synthesis of nanoparticles involves the use of plant or plant parts for the bio-reduction of metal ions into their elemental form in the size range 1–100nm. The process of green synthesis is more efficient, simpler, and economical, and can easily be scaled up to perform larger operations. Also, there is no need to maintain large-scale cultures, and the process does not pose a biohazard problem as in the case of microorganism-mediated synthesis of nanoparticles. Besides being simple and cost-effective, green synthesis results in formation of nanoparticles which have good stability with less time consumption and result in non-toxic by-products. Chemical synthesis methods lead to the presence of toxic chemical species adsorbed on the surface of nanoparticles therefore, green synthesis has attracted attention for the synthesis of various metal and metal oxide nanoparticles. Green synthesis of nanomaterials refers to the synthesis of different metal nanoparticles using bioactive agents such as plant materials, microorganisms, and various biowastes including vegetable waste, fruit peel waste, eggshell, agricultural waste, and so on. The involvement of natural bioactive agents in the synthesis of metal nanoparticles greatly reduces the risk of environmental pollution.

**PC-03****NUTRACEUTICAL: REGULATIVE PARAMETERS**Manisha Bhatia, Manish Kumar

M. M. College of Pharmacy, Maharishi Markandeshwar (Deemed to be University),  
Mullana, Ambala, Haryana, India

manisha181979@mmumullana.org**ABSTRACT**

Nutraceutical is a natural bio active substance whose constituents are of known therapeutic activity or a chemically defined substance contributing to the therapeutic activity of the drug. Common synonyms are designer foods, health foods, fortified foods, medifoods, vita foods, pharma foods, functional foods and dietary supplements. The previous food laws of India do not formally recognize and define nutraceuticals. Food labelling regulations do not allow food labels to carry health claims in many countries. Manufacture, storage, distribution, sale and import of Nutraceuticals in India are regulated under the Food Safety and Standards Act, 2006. This Act consolidated the laws relating to food and established the Food Safety and Standards Authority of India for laying down science based standards for articles of food. These foods have all been regulated by the Customs Union legislation e.g., technical regulation TR CU 021/2011 on Food Safety and technical regulation TR CU 022/2011 on Labeling of Foods. However, no separate regulations for Nutraceuticals exists in India & there is a lot of ambiguity. Regulatory systems and definitions of key terms-food, supplement, drug, etc-vary from country to country but most of them do not formally define or directly regulate nutraceuticals, instead the regulation of health claims represents the indirect system for these food products. The main aim of regulating these products is to ensure safety of the consumer's health apart from bringing about fair trade, harmonization, uniformity in practices, price control etc. This field of health foods undoubtedly has the greatest hidden value associated with it, which is just needed to be explored to provide easy and better healthy life. Nutrigenomics and nutrigenetics can pave the way for a whole new era of the nutraceutical and dietary supplement market world over. The future of the nutraceutical industry is bright but it is necessary to safeguard through proper regulation in order to create a sustainable market. Thus the regulatory body which legalizes nutraceutical products should be more clear, they need to move from a blurred idea and conflicting definitions to a sharply defined and quantifiable concept.

**PC-04****The therapeutic potential of Ferulic acid and recent advances in its formulation:  
A review**

Subham Kumar Dogra, Shivdeep Singh, Kiran Yadav  
Department of Pharmaceutics, Chandigarh College of Pharmacy,  
CGC, Landan

[subhamdogra363@gmail.com](mailto:subhamdogra363@gmail.com)

**ABSTRACT**

Ferulic Acid (FA) (C<sub>10</sub>H<sub>10</sub>O<sub>4</sub>) is caffeic acid derivative which is widely found in various parts of plants. Recent studies have shown that FA have great potential to aid the pharmaceutical field due its radical scavenger activity and preventing the oxidative stress. Mostly the studies are done on the animal's models as there are no serious side effect reported, which are used to determine the mode of administration of the dose and its effect after administration. The present review summarizes the various FA based nano-formulations and the mechanism of various activity. Additionally, the recent approved patents on FA. The studies suggest that FA inhibit the formation of cytotoxic enzymes, platelet aggregation, Amyloid-β generation, lipid peroxidation, etc. due to which FA in past year is used in the treatment of various disorder and diseases. The research suggests that there are still needed to characterize the detailed studies on FA as it can contribute to great extent.

**PC-05****Carbon Nanotubes: A Promising Carrier For Targeted Drug Delivery System**

Sahibpreet Singh

Department of Pharmaceutics, Chandigarh College of Pharmacy,  
CGC, Landan[sahibpreet1999singh@gmail.com](mailto:sahibpreet1999singh@gmail.com)**ABSTRACT**

Carbon Nanotubes are cylindrical in shape which contains rolled single layer of carbon sheet (graphene). They are of diameter 1 to 100 nm and has length that reaches in millimeter. They have high surface area, good chemical stability, high adsorption ability, Carbon Nanotubes are able to adsorb therapeutic molecules (drugs, proteins, DNA, antibodies etc). Many studies have shown that they are excellent vehicle for drug delivery, as it penetrates cell by endocytosis and keeps drug protected from metabolism during delivery process. Carbon Nanotubes were first bind to anticancer drug and antibiotics for targeted drug delivery. Linkages of biomolecules such as genes, DNA, antibodies, biosensors etc to Carbon Nanotubes (CNTs) has been evaluated for gene therapy, tissue regeneration, immunotherapy and diagnosis of different diseases. Due to it's unique characteristics, CNTs has become focus of interest for researchers.

**PC-06**  
**FAST DISINTEGRATING TABLETS**

Jasmine Dhiman

Shivalik College of Pharmacy, Naya Nangal, Mojouwal, Punjab.

[jasminedhiman02@gmail.com](mailto:jasminedhiman02@gmail.com)

**ABSTRACT**

Fast disintegrating tablets (FDTs) have grown in popularity over the last decade, and the sector has become a fast-expanding area in the pharmaceutical business. Few solid dosage forms, such as capsules and tablets, are now confronting issues such as dysphagia, resulting in a high rate of non-compliance and rendering the therapy ineffective. Other route of administration is the mostly recommended for numerous medications; however, they have limitations such as first-pass metabolism, mental patients, immobile patients, and unwilling patients. In the absence of additional water, these tablets dissolve or disintegrate in the mouth in less than 60 seconds. FDTs, or orally disintegrating tablets, are especially useful for juvenile and geriatric populations that have trouble swallowing traditional tablets and capsules. FDTs provide benefits such as simple transportation and manufacture, precise dosage, superior chemical, and physical stability. FDT studies examine methods based on lyophilization, molding, sublimation, and compaction, as well as ways to improve FDT features, such as spray drying and the application of disintegrants. Taste-masking methods, as well as experimental assessments of disintegration periods and dissolution, are also explored.

**PC-07****Nutraceuticals: An alternative therapy for various diseases**

Anjali Anand, Riya Verma, Dr. Jaspreet Kaur

Department of pharmacy practice, M M college of pharmacy, Maharishi Markandeshwar

(Deemed to be University), Mullana, Ambala

Piyaanand021@gmail.com

**ABSTRACT**

Dietary factors play a major role in premature occurrence of chronic diseases, disease progression, morbidity and mortality. Most of the cardiovascular diseases, cancers and bone disorders are attributable to dietary factors. Food as medication for the treatment and prevention of various illness is not a new concept. Currently nutraceuticals, as opposed to pharmaceutical agents, are receiving considerable interest as therapeutic agents. Researchers, all around the world, have perceived the fact that adequate nutrition and dietary supplements can prevent and cure an ongoing illness. Nutraceuticals are bioactive substances possessing both nutritional and medicinal value which are designed to improve overall health by providing necessary nutrients required for various metabolic processes that help to regulate body functions and prevent the body from diseases. Nutraceuticals have shown potential efficacy in the treatment of a variety of ailments, including cancer, rheumatism, diabetes, and other chronic illnesses. Experimentally and therapeutically endorsed nutraceuticals can without a doubt further develop wellbeing and protect from certain diseases, and some have even demonstrated to be all around as efficacious as regular drugs. Different nutraceuticals have been separated from food sources, and huge amounts have been made utilizing biotechnology and genetic manipulation to give pharmaco-economic advantages. In opposition to integrative medicines and allopathic drugs, nutraceuticals have lower rate of adverse effects, side effects and drug interactions. Although, the risk-benefit assessment of nutraceuticals still can't seem to be reported, and the lack of adverse effects, side effects and drug interactions doesn't show that nutraceuticals miss the mark on attributes.

**PC-08****A Comparative Study of Medical Device Regulation in US and India**

Deepika Sagar, Priyanka Gupta

Department of Drug Regulatory Affairs, Chandigarh College of Pharmacy, Landran, Mohali,  
(Punjab), India 140307

Deeps097@gmail.com

**ABSTRACT**

Articles, instruments, apparatuses, or machines used in the prevention, diagnosis, or treatment of illness or disease, or for detecting, measuring, restoring, correcting, or modifying the structure or function of the body for some health purpose, make up the medical technology industry (commonly referred to as medical devices). Medical supplies India's medical market is one of the top twenty in the world. By 2025, it is estimated to be valued \$5.2 billion. India produces very little medical equipment and currently imports more than 70% of its medical supplies. In India, medical devices were governed by The D&C Act is a federal law that regulates the sale of drugs and cosmetic of 1940, which included specific medical device laws. India Medical Device Rules 2017, which are new medical regulations in India, were issued to fill this hole by the CDSCO. There are many doctors and pioneers in the field. On the other hand, the United States continues to be the world's largest medical device market, with \$156 billion in sales. It is estimated to reach \$208 billion by 2023. In 2018, the United States exported \$43 billion worth of medical equipment in key product categories specified by the Department of Commerce.

**PC-09**  
**A COMPARISON BETWEEN DRUG APPROVAL PROCESSES OF SMALL  
MOLECULE DRUGS IN THE US, EUROPE, AND INDIA ON AN ADMINISTRATIVE  
BASIS.**

Divya Thakur, Deepak Yadav  
Department of Drug Regulatory Affairs,  
Chandigarh College of Pharmacy, Landran, Mohali, (Punjab), India 140307

divyathakur1998.dt@gmail.com

**ABSTRACT**

This topic mainly examines the drug filing process and various facets of receiving FDA and EMA approval for a drug to receive Marketing Authorization in the US and Europe and their valuable role in enhancing their standards. One of the key purposes of this article is to get basic knowledge and comparison about the various administrative requirements for drug filing across the United States and Europe for small molecule drugs. In most countries, before the release of a medicinal preparation into the market, registration is necessary to ensure medical quality. For decades, drug manufacturing, registration, and sale have been governed by stringent regulations and administrative procedures all over the world. Drugs are critical in saving lives, sustaining health, preventing diseases, halting epidemics, and boosting a country's economy. People, the government, pharmaceutical companies, and research organizations all spend money on pharmaceuticals as a result. However, the drug must be safe, efficacious, and of high quality to accomplish so. This means that medication development, production, importation, exportation, and distribution are all regulated to ensure that they meet certain requirements. Governments develop robust National Regulatory Authorities (NRAs) for effective pharmaceutical product regulation, ensuring that pharmaceuticals are regulated properly, safeguarding and promoting public health. In the US Food and Drug Administration (USFDA) process for a new drug, approval starts by filling an Investigational New Drug Application (INDA), followed by submission of a New Drug Application (NDA). Abbreviated New Drug Application (ANDA) is submitted for approval of generic drugs. The drug approval process in the EU includes three different categories such as Centralized Procedure, Decentralized Procedure, and Mutual Recognition Procedure.

**PC-10**  
**The Role of SNEDDS in the Drug Delivery System**

Rimmy Nandal  
Shri Baba MastNath Institute of Pharmaceutical Sciences and Research  
Baba MastNath University, Rohtak

nandalrimmy17@gmail.com

**ABSTRACT**

Drug delivery systems are methods which are used to ensure that drugs get into the body and reach the area where they are needed. One of the drug delivery systems is SNEDDS (self-nano emulsifying drug delivery system). SNEDDS is a novel drug system for enhancement of solubility of poorly water-soluble drugs and dissolution rate. It is isotropic mixture of oil, surfactant, cosurfactant molecules and it also containing co-solvent molecule. The drug delivery system under mild agitation is followed by dilution of aqueous media such as GI fluid and it can form stable o/w nanoemulsion with globules size less than 100nm. It is novel drug delivery system applicable for oral (sustained release effects, pellets forms), ophthalmic, intranasal, parenteral, suppository, and cosmetic drug delivery system. SNEDDS formulations could be a potential oral pharmaceutical product with high drug-loading capacity, improved drug dissolution, increased gut permeation, reduced/no human RBC toxicity, and enhanced oral bioavailability. Presence of biodegradable ingredients and drug-targeting opportunities facilitates SNEDDS a clear merit and distinction amongst available solubility enhancement techniques.

**PC-11****Transdermal Drug Delivery: Microneedles a Painless Approach**

Nisha Yadav

Department of Pharmaceutics, Chandigarh College of Pharmacy, Landran  
nis.yadav21031998@gmail.com**ABSTRACT**

Transdermal drug delivery has proven to be a promising carrier for drug delivery across the skin and deep into the systemic circulation. Improved patient compliance, prolonged release, avoidance of gastrointestinal discomfort, and removal of the pre-systemic first-pass effect are all advantages of transdermal drug administration. Microneedles, as the name implies, are micron-sized projections that resemble needles and range in length from 100 to 1000  $\mu\text{m}$ . They are capable of penetrating the SC, but because to their small size, they do not reach the nerve ends and so do not cause pain. MNs are made out of a variety of materials and come in a variety of sorts. The MNs can be classified depending on their medication delivery mechanism, such as poking the skin, delivering drug formulation, or assisting infusion. The administration of drugs via the skin is a major use of MNs. It might be indirect, with the patch only being used to produce microchannels in the skin before the medication formulation is applied to the insertion location. Direct drug delivery is achieved by coating a drug formulation on a solid MN or putting the drug into a biodegradable matrix that releases the drug through the skin. MNs can deliver biotherapeutic agents like insulin and vaccines in addition to active pharmaceutical ingredients.

**PC-12**  
**Nano based drug delivery systems**

Ojasvi Mittal, Priya Jindal, Teenu Sharma  
Department of Pharmaceutics, Chandigarh College of Pharmacy, Landran  
ojasvimittal0161@gmail.com

**ABSTRACT**

Nano medicine and Nano delivery systems are a relatively new but rapidly developing science where materials in the nanoscale range are employed to serve as means of diagnostic tools or to deliver therapeutic agents to specific targeted sites in a controlled manner. Nanotechnology offers multiple benefits in treating chronic human diseases by site-specific, and target-oriented delivery of precise medicines. Recently, there are a number of outstanding applications of the Nano medicine (chemotherapeutic agents, biological agents, immunotherapeutic agents etc.) in the treatment of various diseases. The current review, presents an updated summary of recent advances in the field of Nano medicines and Nano based drug delivery systems through comprehensive scrutiny of the discovery and application of nanomaterials in improving both the efficacy of novel and old drugs (e.g., natural products) and selective diagnosis through disease marker molecules. The opportunities and challenges of Nano medicines in drug delivery from synthetic/natural sources to their clinical applications are also discussed. In addition, we have included information regarding the trends and perspectives in nano medicine area.

**PC-13**  
**ENHANCEMENT OF THE SOLUBILITY OF PARACETAMOL DRUG**

Amritpal Kaur, Sandhya Jaiswal  
Chandigarh College of pharmacy, Landran, Mohali, Punjab - 140307  
amritpal72602@gmail.com

**ABSTRACT**

Paracetamol is an anti-inflammatory and analgesic drug widely used in biological disorders. One of major problems encountered by paracetamol is its low water solubility. Solubility plays an important role in dissolution and absorption of drug. Solid dispersion technique is used to enhance the solubility of Paracetamol. In the present study, a mixture of paracetamol and polyvinyl pyrrolidone (PVP) in 1:1 and 1:2 ratios was heated with water under controlled temperature to melt drug and carrier with continuous stirring for 30 min. The formulation was dried under vacuum for 24 hours. Developed formulations were evaluated for flow properties, drug content, practical yield and in-vitro dissolution studies. Result from in-vitro dissolution study showed a linear increase in paracetamol drug release with increase in polymer concentration. It was concluded that developed granules of paracetamol prepared by solid dispersion technique showed enhanced solubility and dissolution.

**PC-14  
REVIEW ON STUDY OF NANOPARTICLES**

Amardeep Kaur, Dilpreet Kaur, Palakdeep Kaur  
V.M.S College of Pharmacy, Amritsar Road, Batala

amardeepk483@gmail.com

**ABSTRACT**

Nanotechnology refers to the creation and utilization of material whose constituent exists at the nanoscale and, by convention, be upto 100 nm in size. Nanotechnology explores electrical, optical, magnetic activity as well as structural behaviour at the molecular and submolecular level. It has the potential to revolutionize a series of medical and biotechnology tools and procedures so that they are portable, cheaper, safer and easier to administer.

Nanoparticles are being used for diverse purposes, from medical treatments using in various branches of industry production such as solar and oxide fuel batteries for energy storage to wide incorporation into diverse materials of everyday use such as cosmetics or clothes, optical devices, catalytic, bactericidal, electronic, sensor technology and treatment of some cancers due to their exceptional properties including antibacterial activity, high resistance to oxidation and high thermal conductivity.

Nanoparticles can be synthesized chemically or biologically. Metallic nanoparticles have immense applications in industries. This study aims to present an overview of nanoparticles, with special reference to their mechanism of biosynthesis and types.

**PC-15**  
**Nanoparticle – Based Drug Delivery in Cancer**

AashimaSharma, Kulvir Kaur  
Department of Pharmacy ,Chandigarh Group of Colleges, Sector 112,Landran,SAS Nagar,  
Punjab 140307

aashima1198@gmail.com

**ABSTRACT**

Nanoparticles can play a key role as a medication delivery method; nanotechnology has been intensively investigated and used for cancer treatment. Nanoparticle-based drug delivery provides several advantages over traditional drug delivery, including greater stability and biocompatibility, increased permeability and retention effect, and precision targeting. Nanoparticle-based drug delivery systems have also been found to aid in treatment of cancer-related medication resistance. Faulty apoptotic pathways, and a hypoxic environment are all factors in cancer drug resistance.

For cancer treatment, nanoparticle-based drug delivery systems are considered promising. Nanoparticles applied to drug delivery systems include organic nanoparticles, inorganic Nanoparticles and hybrid Nanoparticles. Inorganic Nanoparticle-Based Cancer Therapy (Gold Nanoparticles, Magnetic nanoparticles), Organic Nanoparticles – Based cancer therapy (protein aggregates, lipid bodies), Hybrid nanoparticles based cancer therapy ( mix of two or more inorganic components, mix of two or more organic components)The application of nanotechnology in tumour chemotherapy can increase the specificity of anticancer agents, increase the killing effect of tumours, and reduce side effects.

Currently, a variety of formulations based on nanoparticles for delivering chemotherapeutic drugs have been put into clinical use, and several others are in the stage of development or clinical trials. Nanoparticles with tuned size and surface characteristics are the key components of nanotherapeutics, and are designed to passively or actively deliver anti-cancer drugs to tumour cells.

**PC-16****PROBIOTICS: A Novel Approach as Nutraceuticals**

Ritika , Sonia Devi , Dr. Deepak Kumar  
Global College Of Pharmacy, KahanpurKhui, Anandpur Sahib.

ritika102000@gmail.com

**ABSTRACT**

Neutraceuticals (Bioceuticals) are pharmaceutical alternative substances which claim physiological benefits. There are so many groups of products that are more than food but less than pharmaceuticals, mostly taken as dietary supplements. One of the most frequently used neutraceutical product is “Probiotic”. There are more than 500 kinds of probiotics species among which most common are lactobacillus acidophilus, lactobacillus rhamnosus, bifidobacterium longum, bifidobacterium breve and bifidobacterium animalis. Probiotics have both nutritive and medicinal values. They are live microorganisms that offer health benefits to humans and play important role in controlling many diseases and ameliorate nutritional, immunological and physiological functions like improvement of intestinal health, development of immune system, synthesizing and enhancing the bioavailability of nutrients, reducing symptoms of lactose intolerance, resistance of enteric pathogens, excretion of toxic metabolites, antihypertensive effect, neutralization of dietary carcinogens and rotaviral gastroenteritis. Probiotics can exist naturally or be infused in food which is viable modes for healthy gut. They act by changing the composition of gut bacteria or the metabolic activity of existing bacteria. In some medical conditions probiotics are beneficial but effects are variable one-on-one. In spite of positive outcomes, researchers are still working to find out how probiotics can help with the various conditions.

**PC-17****DEVELOPMENT AND VALIDATION OF A SIMPLE HPLC METHOD FOR ESTIMATION  
OF MYCOPHENOLATE MOFETIL IN MICROEMULSION FORMULATION**PalakdeepKaur,Uttam Kumar Manda<sup>1</sup>

Department of Pharmacy, VMS College of Pharmacy, Batala, 143505, Punjab, India

<sup>1</sup>Maharaja Ranjit Singh Punjab Technical University, Bathinda,  
151001, Punjab, India

pamesharkaur@gmail.com

**ABSTRACT**

The present study deals with the development, validation and application of a simple, precise and accurate HPLC method for the determination of mycophenolate mofetil in pharmaceutical formulations and microemulsions. In this method, a simple isocratic mobile phase composition of methanol and water (75:25 v/v) pumped at 1 ml/minute flow rate through Phenomenex C18 column (dimension: 250 4.6 mm and 5 µm particle size) was used. The coefficient of regression was found to be 0.9996, indicating the linearity of the developed method within a range of 0.1 to 10 µg/ml. The limit of detection (LOD) and the limit of quantization (LOQ) were found to be 3.660ng/ml and 11.091ng/ml, respectively. The results showed that % deviation for change in compositions of the mobile phase, flow rate and temperature was within a range of -5.51 to 10.99%, -3.70 to 8.80% and -5.29 to 10.90%, respectively

## PC-18

**3-D PRINTING: ROAD MAP FOR THE FUTURE OF PHARMACEUTICALS  
DOSAGES FORMS**

Kanika Dhiman, HarveenKour, Gurfateh Singh, Saahil Arora  
University Institute of Pharma Sciences, Chandigarh University, Gharuan-Mohali 140413,  
India, University School of Pharmaceutical Sciences, Rayat-Bahra University, Mohali,140103

**kanikadhiman1997@gmail.com**

**ABSTRACT**

In the present era, the overuse rate of medicine is very high which leads to some major side effects. To overcome this issue, personalized medicine is developed by a process named additive formulation and manufacturing via 3-D printing technology. 3-D printing is the latest technology for the development of drug delivery systems in the Pharmaceutical Industries. It is the computer-based design of medicine that provides the 3-dimensional formed layers same as the lead component. This is the fast and rapid emerging technique of dosage forms, approved by the Food and Drug Administration (FDA). The first 3-D printing medicine, Spritam was approved by FDA in 2015 and manufactured by Aprelia Pharmaceutical, basically, Spritam is a mouth dissolving levetiracetam tablet disperse within 10 seconds. This is a new method for manufacturing drug delivery systems to overcome drug delivery issues. 3-D printing has the capability of dispensing the drug more accurately, and precisely, and the layer-by-layer assembly helps in forming complex compositions and geometries. The potential of 3-D printing formulation is very customized or precise to specific patients, which gives an idea for developing personalized medicine in novel dosage forms. 3-D printing formulation shows fewer side effects as compared to the conventional formulation. 3-D printing technology provides a good friendly relationship between drug-patients by developing personalized medicine, affordable, easy to use, more efficacy, and cost-effective, which maintains the pharmaco-economic. 3-D printing has a strong impact in the pharmaceutical field, the Pharmaceutical Industry focused on different techniques for the fabrication of different dosage forms using 3-D printing technology. FDA also approved the possibilities for 3-D printing innovation in the pharmaceutical field for drug supply. According to the future aspects the 3-D printing technology manufactured low-cost solid dosage forms to reduce the side effects and will have good therapeutic potential

**PC-19****Preparation and characterization of Rivastigmine loaded Herbal Hybrid nanoparticles for Treatment of Alzheimer's disease.**

Twinkle Garg, Rakesh Yadav  
Himalayan Institute of Pharmacy, Kala Ambala  
Department of Pharmacy, Banasthali Vidyapith, Banasthali, Rajasthan

twinklegarg2004@yahoo.co.in

**ABSTRACT**

The present work was done with the aim to formulate hybrid nanoparticles of Rivastigmine tartrate an anti Alzheimer's drug along with Shankhpushpi for sustained and targeted release. Hybrid nanoparticles were prepared by nanoprecipitation method using PLGA as lipid which is biodegradable, biocompatible and have sustained action. Different concentrations of polymer were used to optimize the formulation. Optimized formulation was lyophilized for 24hrs and then tested for surface morphology by SEM, drug entrapment efficiency, FTIR, DSC, XRD analysis. Particle size, polydispersity index and Zeta potential of both drug loaded and drug and shankhpushpi included hybrid nanoparticles were done. Sustained action of prepared hybrid nanoparticles was further confirmed by in vitro drug release studies. Results of the studies concluded that the prepared hybrid nanoparticles showed sustained action when shankhpushpi was incorporated along with Rivastigmine.

## PC-20

**Green Synthesis of medicated silver nanoparticle: Need of the hour**

Ansul Gautam, Dharamvir Singh, Dr. SunilJawla

Geeta Institute of Pharmacy, Geeta University, Panipat

**ABSTRACT**

In recent days, the gold, silver and several other metallic nanoparticles are being used as an efficient carrier for several drug molecules due to their added advantages. In several cases, metallic nanoparticles are used as targeted drug delivery systems. The conventional methods of synthesis of nanoparticles involve the usage of numerous chemicals, reagents and solvent which are not only harmful to the patients even if present in trace amounts, but are very hazardous to our environment also. The green synthesis of nanoparticles is a recent approach of nanoparticle synthesis without the usage of harmful chemical and solvents and is thus friendly to the patient and environment. The green synthesis of nanoparticles involves several methods such as polyoxometallate method, tollen method, polysaccharide method, irradiation method and biological method etc. Silver nanoparticles (Ag NPs) are broadly used as therapeutic agent for their anti-microbial, anti-inflammatory, anti-viral and anti fungal potential. Recently, silver nanoparticles have been synthesized from the naturally occurring sources and their products like green tea (*Camellia sinensis*), Neem (*Azadirachta indica*), leguminous shrub (*Sesbania drummondii*), various leaf broth, natural rubber, starch, *Aloe vera* plant extract, lemongrass leaves extract etc have shown added benefits. For their eco-friendly nature, compatible for pharmaceutical and biomedical application, environmental benign material like leaf extracts are currently used.

**PC-21****Nanoparticles: Development and Characterization**

Rahul Gautam, Amit, Sulekha, Dr. Sunil Jawla

Geeta Institute of Pharmacy, Geeta University, Panipat

**Abstract:**

Nanoparticles can be defined as materials with a diameter of 1-100 nm which may be due to their size varying in many materials. Nanoparticles are less nanosized colloidal structures composed of synthetic polymers or semi-synthetic. Nanoparticles can be synthesized chemically or biologically. Due to their amazing properties, nanoparticles have become important in many fields in recent years such as energy, health care, environment, agriculture etc. The various methods used for the preparation of nanoparticles are ionic gelation method, nanoprecipitation method etc. Nanoparticles can be identified as SEM, TEM, XRD, etc. Nanoparticles technology has tremendous power, capable of transforming an insoluble, highly absorbed, and biological labile into deliveries. There are many types of nanoparticles such as silver, gold, alloy etc. Nanoparticles are used for a variety of purposes, ranging from medical, to various manufacturing industries such as solar batteries and oxide fuel to conserve energy, a wide range of compounds. items for everyday use such as cosmetics or clothing. This study provides a brief overview of the preparation and disintegration of nanoparticles.

**PC-22****Nutraceuticals: Recent Developments**

Neha Thakur\*, Parul Saini, Sarishti Sharma, Dr.Sunena, Dr. Sunil Jawla

Geeta Institute of Pharmacy, Geeta University, Panipat

**Abstract**

Over the past few years, an increasing number of dietary supplements have become available in supermarkets and health food shops and they are also available for purchase in pharmacies. The term “nutraceutical” is used to describe these medicinally or nutritionally functional foods. Nutraceuticals, which have also been called medical foods, designer foods, phytochemicals, functional foods and nutritional supplements, include such everyday products as “bio” yoghurts and fortified breakfast cereals, as well as vitamins, herbal remedies and even genetically modified foods and supplements. In present days, more focus will be on the need for consuming appropriate diets, health issues surrounding failure to adhere to the known healthy eating models, development of new nutraceuticals/functional foods/food supplements with novel health benefits, elucidation mechanisms of action of these products, to define and understand the analytical, formulation and regulatory aspects of nutraceutical. This study may act as a tool to abreast with the recent developments in nutraceutical research.

**PC-23****Artificial Intelligence: Scoping Points in Pharmacy**

Mustufa\*, Mubeen, Sagar, Deepali Tomar, Dr.Sunena, Dr. Sunil Jawla

Geeta Institute of Pharmacy, Geeta University, Panipat

**ABSTRACT**

Artificial intelligence in Pharma refers to the use of automated algorithms to perform tasks which traditionally rely on human intelligence. Over the last five years, the use of artificial intelligence in the pharma and biotech industry has redefined how scientists develop new drugs, tackle disease, and more. Here, we were highlight the use of AI in diverse sectors of the pharmaceutical industry, including drug discovery and development, drug repurposing, improving pharmaceutical productivity, and clinical trials, among others; such use reduces the human workload as well as achieving targets in a short period of time.AI methods in association with human expertise may indeed revolutionize the current theragnostic strategies, meanwhile, validation approaches are necessary to overcome the potential challenges and ensure higher accuracy.

**PC-24****A Recent Advancements in Solubility Enhancement Techniques: A Mini Review**

Ashwani Kumar, Shaveta Sharma  
Department of Pharmaceutics, Chandigarh College of Pharmacy,  
CGC, Landan

ashwanikuma1997@gmail.com

**ABSTRACT**

Solubility is one of the most important parameter to attain a desired concentration of drug in the bloodstream for their pharmacological activity. Among new chemical entities (NCEs) identified by pharmaceutical industries, about 40% faces numerous difficulties during formulation and development stages because of low solubility and dissolution rate. Mostly these drugs lie under BCS class 2 or class 4, which have low solubility, poor dissolution and low bioavailability. Solubility is the major challenge for formulation scientist. For better absorption, the drug must be present in solution form at the site of absorption. This review article explores the various types of methods to improve the solubility of hydrophobic drugs such as size reduction of drug particles, Liquisolid technology complexation, micro emulsions, solid dispersion techniques, pro- drugs, uses of surfactants, micelles, polymeric micelles, uses of co-solvents, soft gel technology, nanomorph technology, and crystal technology, etc. Among these, liquisolid technology is a novel and promising technique for improving solubility of poorly water-soluble drugs. This technique involves a preparation where the drug in solution or suspension form is converted into non-adherent, non-sticky, dry and free flowing powder, which is processed by adding appropriate carrier and coating materials. The main advantages of this technique are that it is cost-effective, can modify drug release pattern, capability of industrial production, etc.

**PC-25****Artificial Intelligence: Scoping Points to Consider**

Bharat\*, Prince, Dr. Sunena, Dr. Sunil Jawla  
Geeta Institute of Pharmacy, Geeta University, Panipat

**ABSTRACT**

Artificial intelligence in Pharma refers to the use of automated algorithms to perform tasks which traditionally rely on human intelligence. Over the last five years, the use of artificial intelligence in the pharma and biotech industry has redefined how scientists develop new drugs, tackle disease, and more. Here, we were highlight the use of AI in diverse sectors of the pharmaceutical industry, including drug discovery and development, drug repurposing, improving pharmaceutical productivity, and clinical trials, among others; such use reduces the human workload as well as achieving targets in a short period of time. AI methods in association with human expertise may indeed revolutionize the current theragnostic strategies, meanwhile, validation approaches are necessary to overcome the potential challenges and ensure higher accuracy.

**PC-26**

Formulation and Evaluation of Nano-crystallized powder of Piperine for the treatment of diabetes mellitus.

Mr. Peeyush Kaushik

Guru Govind Singh College of Pharmacy, Yamunanagar, Haryana

**Abstract**

Piperine is a N-acylpiperidine. It is an alkaloid that is present in several species of piper but it is mainly present in *piper nigrum linn* and *piper nigrum longum*, among other species fruits belonging to the family of Piperaceae. Black pepper is a very widely used spice, known for its pungent constituent Piperine has shown many pharmacological properties, such as anti-diabetic, antioxidant, antibacterial, anti-inflammatory, and anti-parasitic activity but challenges to their clinical use include poor solubility in water and low bioavailability that's why we are forming nano-crystallized powder for solubility enhances. Piperine has potential of scavenging the free radicals by entrapping ROS (reactive oxygen species). Piperine is extracted into ethylene dichloride and measured at maximal absorbance 342-345 nm with a UV light source.

# PHARMACOLOGY ABSTRACTS (PL)

**PL-01****Mesenchymal Stem Cells: A Biological Approach for Diabetic Wounds In Pharmacological Model**

Shivani Desai, Amirtha Tom

Dr. D. Y. Patil Institute of Pharmaceutical Sciences and Research, Sant Tukaram Nagar, Pimpri,  
Pune, Maharashtra, India- 411 018; [desai.shivani28@gmail.com](mailto:desai.shivani28@gmail.com)

**Abstract**

Diabetes mellitus is a fast-growing disorder worldwide and unhealing foot ulcers occurring in diabetic patients causes them to undergo leg amputation. Our study aimed to test the effect of mesenchymal stem cells in recovering diabetic wounds in a pressure wound animal model. A diabetic animal model was established by using streptozotocin as diabetes inducing agent in male Wistar rats. This was followed by creating standard wounds on the paw of the diabetic rats. These animals were grouped into three categories (each of 6 animals), viz., disease control group, single dose mesenchymal stem cells, and multiple dose mesenchymal stem cells (MSCs). After the total study period of 28 days, the results were analysed for wound size reduction and re-epithelization of the wounded tissues. SPSS was used for analyzing the data. MSCs showed antimicrobial activity when tested against the gram-positive and gram-negative bacteria. All the study groups showed reduction in wound areas. The wound areas in the MSCs group were apparently smaller than those in the control group, indicating that both single as well as multiple doses of MSCs enhance the wound healing in diabetic rats. Histopathological study showed that in both, single as well as multiple dose groups, the tissue damage was greatly reduced and re-epithelialization was also observed more as compared to the disease control group. In the present study, we concluded that MSCs could promote wound healing in diabetic rats and enhance angiogenesis and re-epithelization, a significant process in wound healing.

**PL-02****Aducanumab in Alzheimer's Disease: Challenges and Future Prospects**

Tanika, Vishali, Rupinder Kaur Sodhi, Arockia Babu

Department of Pharmacology, Chandigarh College of Pharmacy, Landran, Mohali, India.

[tanika7999@gmail.com](mailto:tanika7999@gmail.com)

**Abstract**

Alzheimer's disease (AD) is a progressive neurodegenerative disease characterized by the accumulation of amyloid  $\beta$ , neurofibrillary tangles and memory dysfunction. Its worldwide prevalence is around 50 million and is projected to double by 2050. Till date two FDA approved drugs cholinesterase inhibitors and N-methyl-D-aspartate antagonists are available for symptomatic treatment. The FDA's Accelerated Approval Program for approval of a new agent, aducanumab, is being considered. Aducanumab is a human immunoglobulin gamma1 monoclonal antibody acting by reducing  $A\beta$  load in brain. It penetrates the blood brain barrier and aims at the binding of aggregated oligomers and insoluble fibrils conformations of  $A\beta$  plaques. It is also postulated to alter downstream pathologies such as tau phosphorylation and aggregation. Clinical studies depicted that doses  $\leq 30$  mg/kg were generally well tolerated with no severe or serious adverse events (SAEs) however, patients who received 60 mg/kg developed SAEs of symptomatic amyloid-related imaging abnormalities, which resolved later. It has been shown that aducanumab does not reverse prior memory loss and is eliminated after metabolism into oligopeptides and amino acids. The mean clearance and terminal half-life are 0.0159 L/h and 24.8 days respectively. The common adverse effects are amyloid-related imaging abnormalities, headache, urinary tract and upper respiratory tract infection.

**PL-03****Autophagy in neurodegenerative disorders**Vishali, Tanika, Rupinder Kaur Sodhi, Arockia Babu

Department of Pharmacology, Chandigarh College of Pharmacy, Landran, 140307.

Presenting Author: vishalichandel231@gmail.com

**Abstract**

Autophagy is a physiological lysosomal degradative process used to recycle cellular constituents, remove damaged organelles and protein aggregates. Lysosomes attain the substrate through distinct mechanisms including delivery within endosomes and autophagosomes. Rise in abnormal protein aggregates, a common cause of neurodegenerative diseases can be reduced through autophagic degradation. It has been reported that enhancing autophagy can diminish or delay neurodegeneration by removing protein aggregates. In late-onset disorders such as Alzheimer's disease, amyotrophic lateral sclerosis and Parkinson's disease, defects arise at different stages of the autophagy pathway having distinct implications for therapy. The function of autophagy is important in various stress conditions where its perturbation can lead to cellular dysfunction and diseases. The integrity of postmitotic neurons is heavily dependent on high basal autophagy compared to non-neuronal cells. The drugs enhancing the autophagy levels in neurodegenerative disease are Rapamycin, Carbamazepine, Verapamil, Spermidine, Resveratrol and Trehalose. Small molecules such as spermidine, carbamazepine, and tamoxifen have shown to rescue motor dysfunction in mutant TDP-43 transgenic mice, correlating with enhanced autophagy level. Methylene blue also attenuates tauopathy in animal models correlating with increased expression of autophagy markers.

**PL-04****Future Perspective of Pharmacovigilance in Clinical Trials**

Amrit Sarwara, Peeyush Kaushik, Sweta Kamboj, Rohit Kamboj, Hitesh Malhotra

Guru Gobind Singh College of Pharmacy, Yamuna Nagar, Haryana

**amritsarwara99@gmail.com**

**Abstract**

Pharmacovigilance as defined earlier is a “science related to the detection, assessment, understanding, and prevention of adverse effects or any other related problems”. The active surveillance is necessary to receive such information about the safety of drug at an early stage. For that pharmacovigilance of tomorrow must be able to identify new safety issues without delay. For instance, by modulating the role of patient from being a person with little knowledge to highly informed with reference to his disease and treatment. In some countries patient are the important ADRs reporting system. During clinical trials the investigator collects and analyse data on serious adverse events, determining the toxicity profile of drug in question. The investigator shares this data with different organization conducting research and development activities. Furthermore, the data is assessed by the inhouse PV team of the company which determines if the drug is sufficiently safe and effective to progress to next phase of clinical research or to submit an application to regulatory authority for market approval. Therefore, pharmacovigilance shares an important role in research and development process. The prime objective of this study is to review and discuss various aspects of Pharmacovigilance, including new methodologies & developments.

**PL-05****Current Challenges in Data Interpretation of Clinical Trials**

Sumit Arora, Peeyush Kaushik, Sweta Kamboj, Rohit Kamboj, Hitesh Malhotra

Guru Gobind Singh College of Pharmacy, Yamuna Nagar, Haryana

[sumitaroramultani@gmail.com](mailto:sumitaroramultani@gmail.com)

**Abstract**

Clinical data updates guidelines and practice, and considered as foundation stone upon which evidence based medicine exist. However, not all data are equivalent or of equal quality. Consequently, researchers must develop strategies to assess the quality of evidence for health claims, effectiveness and applicability. Clinical trials will be depicted by four types of statistical figures i.e. Flow diagrams, Kaplan – Meier plots, Forest plots and repeated measure plots. Thus, statistics considered as an integral part of clinical trials. Unfortunately, statistical knowledge of most researchers is so limited that they cannot be expected to draw the right conclusions from the analyses presented in medical journals. For instance, researchers often incorrectly interpret the P–value as providing direct information about the effect size; P – value is only one tool for assessing evidence. Confidence intervals are also frequently misinterpreted; The Intent – to treat principle is a fundamental concept in clinical trials but is frequently misunderstood; Missing data is one of the biggest threats to the integrity of a clinical trial. Multiplicity, Subgroup analyses, Association as causation, Reporting, Probability and Bayesian statistics, are some of the other statistical concerns in clinical trials. Therefore, sufficient understanding of these issues will help to ensure to develop high quality clinical data.

## PL-06

**Bacteriological Analysis and Antibiotic Consumption in Various Types of Surgeries**

Tanishq Joshi, Dr.Parminder Nain, Prajwal Bhamra

Department of Pharmacy Practice, MM College of Pharmacy,

Maharishi Markandeshwar (Deemed to be University) Mullana, Ambala

**Abstract**

Infection on surgical site has become a major concern in the field of healthcare. Infection on surgical site may occur up to 30 days from surgery and up to one year in patients receiving implants. Methods like Excellent sterilization techniques, surgical procedures, availability of prophylactic antimicrobials and improved ventilation of OT etc. are foremost needed. To study bacteriological analysis and antibiotics consumption in various types of surgeries. A 3 months study was conducted in a tertiary care hospital. All subjects undergoing either elective clean/clean-contaminated or contaminated surgeries admitted to inpatient surgery and gynaecology department were recruited. Patients microbial culture and antibiogram results of surgical site were recorded and analyzed. Out of 50 patients, surgical site infection was found to be more prevalent in females as compared to males. Furthermore, patients undergone clean-contaminated surgery were more prevalent for surgical site infections rather than patients undergoing other types of surgeries. Most frequently prescribed antibiotics by physicians were Metronidazole, Gentamycin, Amikacin, Piperacillin with Tazobactam, Ceftriaxone etc. *E. coli* and *Staphylococcus aureus* were the most predominant pathogens. Microbes which have shown high resistance against most antibiotics were *E. coli*, *Staphylococcus aureus*, *Klebsiella pneumonia* and *Acinetobacter baumannii*. These microbes have shown high sensitivity against Ertapenem, Imipenem, Amikacin, Gentamicin, Tigecyclin, Colistin, Linezolid, Vancomycin and Teicoplanin. Gram negative bacteria (*E.coli*) was the most common isolates associated from post-operative SSIs, followed by *Staphylococcus aureus* a gram positive bacilli. Observation of high antibiotics resistance in current study suggest the necessity for routine microbiological investigation of samples and their antibiogram in order to break disease spread cycle of resistant microbes.

**PL-07****Multisystem Inflammatory Coronavirus Syndrome in children- (MIS-C)**

Navneet Kaur, Dr. Parminder Nain,

Department of Pharmacy Practice, MM College of Pharmacy,

Maharishi Markandeshwar (Deemed to be University) Mullana, Ambala

Email id: [navneet9306k@gmail.com](mailto:navneet9306k@gmail.com)

**Abstract**

Coronavirus disease-19 (COVID), is the ongoing pandemic disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Recently, it has become evident that a subgroup of children manifested to SARS-CoV-2 can become dangerously ill with a condition now referred to as multisystem inflammatory syndrome in children (MIS-C). Whilst both Kawasaki's disease (KD) and MIS-C can have a cardiac association, the mechanism of this association seems to be different between the two conditions. MIS-C can be considered as a group of diseases, that includes the cytokine storm syndrome (CSS) that develops after SARS-CoV-2 infection, COVID-19 with severe inflammatory responses, and KD occurring concurrently with SARS-CoV-2 infection. Epidemiology of children suffering from MIS-C after SARS-CoV-2 has shown 45-58% positive polymerase chain reaction (PCR) test and 54-75% of children have reported positive antibody test. Moreover, 7-33% of children showed positive for both tests. Pediatric Inflammatory Multisystem Syndrome (PIMS) manifestations are wide and generally non-specific. They frequently include pertinacious fever, mucocutaneous associations of upper and lower limbs edema, conjunctivitis, swollen and cracked red lips, rash with cardiac abnormalities (myocarditis, electric abnormalities, valvular dysfunction, shock, coronary aneurysms or dilatation), gastrointestinal symptoms, and lymphadenopathy.

**PL-08****Molecular Docking: Analysis of Antidiabetic Activity of Herbal Molecules**

Priyanka Kaundal, Rupinder Kaur Sodhi, Arockia Babu

Department of Pharmacology, Chandigarh College of Pharmacy, Landran, 140307.

Presenting Author: priyankakaundal87@gmail.com

**ABSTRACT**

Molecular docking is an invaluable tool in structural molecular biology and computer assisted drug design. Diabetes mellitus is a group of metabolic diseases with persisting hyperglycemia over prolonged duration. The conventional drugs for the management of hyperglycemia includes sulfonylureas, biguanides, peroxisome proliferator-activated receptor- $\gamma$ , and  $\alpha$ -glucosidase inhibitors. The present study is aimed to compare the antidiabetic activity of various compounds, to prepare the structures using MarvinSketch and to evaluate these strategies on the basis of their docking score (kcal/mol) with regard to the software in use, AutoDock Vina. Briefly, herbal molecules were selected from the literature according to their activities against insulin signalling. On basis of which we chose receptors (pdb code: 1IR3, 3DZY, 2ZJ4). The chemical structures for chosen molecules were drawn on ChemDraw ultra 8.0 and converted into 3D by ChemDraw ultra 8.0. The computer simulated docking work was performed using MGL Tools software 1.5.6 and AutoDock 4.2.6 program. The scores were recorded and compared on the basis of their docking score (kcal/mol). The study concluded that the molecules under investigation can favourably regulate of the blood glucose and other biochemical paradigms in comparison to the most common antidiabetic compound metformin.

**PL-09****ARTIFICAL INTELLIGENCE IN MEDICINE**

Shilpa Devi, Nitika Sharma, Pratibha Sharma, Rupinder Kaur Sodhi, Arockia Babu

Department of Pharmacology, Chandigarh College of Pharmacy, Landran, 140307.

Presenting Author: shilpainsan1581@gmail.com

**Abstract**

Artificial Intelligence (AI) in medicine utilization of machine learning models to search medical data and to uncover insights to help improve health outcomes and patient experiences. Currently, the most common roles for AI in medical settings are clinical decision support and imaging analysis. Clinical decision support tools help providers make decisions about treatments and medications. In medical imaging, AI tools are being employed to analyse CT scans, X- Rays, MRIs and other images. AI Supported technologies, such as algorithms have been designed to monitor patients and AI powered tools can also screen COVID-19 patients. AI can positively impact the practice of medicine by assisting in disease detection and diagnosis, personalized disease treatment, medical imaging, determination of clinical trial efficiency and accelerated drug development. AI plays vital role in pharmacoepidemiology with the aid of several technologies such as artificial neural network, discriminant analysis, bayesian network, and kernel partial least square etc.

**PL-10****Predictors of Hyperkalemia and Cardiovascular Risk in Chronic Kidney Disease Patients**

Arti Saini, Parul Kharab, Inderjeet Verma

M. M College of Pharmacy, Maharishi Markandeshwar Deemed to be University, Mullana,  
Ambala, Haryana

**ABSTRACT**

Chronic kidney disease (CKD) is one of the major causes of mortality. Hyperkalemia and increased cardiovascular risk is associated with significant risks for mortality (47.8%). Despite increased efforts towards the treatment and prevention of disease, it is still a major health concern globally. To investigate predictors of hyperkalemia and cardiovascular risk in patients with CKD. In this observational, cross-sectional study 80 CKD patients eligible for the study; hyperkalemia (n=40) and normokalemia (n=40) groups. CV risk assessment was assessed using Framingham risk score (FRS) and quality of life was assessed using SF-36 questionnaire. Demographic, clinical laboratory parameters like SBP, DBP, CBC, liver and kidney function tests, serum electrolytes and serum cholesterol were also assessed in both the groups. We found that there was no statistically significant difference between hyperkalemia and normokalemia patients except SBP, DBP, Hb, creatinine, GFR, HDL, LDL and total cholesterol. Significant more hypertensive patients in hyperkalemia group compared to normokalemia. A significant difference ( $p \leq 0.005$ ) was found in FRS and QOL in patients with hyperkalemia as compared with normokalemia. Hyperkalemia significantly correlated with age, creatinine and negatively correlated with GFR and Hb. FRS significantly correlated with hyperkalemia ( $r=0.36$ ,  $p=0.04$ ). This study results show that incidence of hypertension was more in hyperkalemia patients and hyperkalemia was associated with GFR, Hb, advancing age and creatinine concentration. Increased potassium level also may predict the increased cardiovascular risk measured by FRS. The patients having hyperkalemia also have poor quality of life as compared to patients with normokalemia.

## PL-11

**Repurposing sodium-glucose co-transporter 2 inhibitor (SGLT2), Empagliflozin for heart failure treatment**

Akanksha, Shikha Sharma

Department of Pharmaceutical Chemistry, Global college of Pharmacy, Kahnpur Khui, Anandpur Sahib, Distt. Ropar, Punjab-140117

akankshasharma933@gmail.com

**ABSTRACT**

Empagliflozin (Brand name- Jardiance, Company-Boehringer Ingelheim Pharmaceutical Inc) is a selective inhibitor of sodium glucose co-transporter 2 (SGLT2) that has been approved on February 25, 2022 used to treat adult with heart failure regardless of left ventricular ejection fraction also known as heart failure preserved ejection fraction (**HFpEF**). Not only originally developed to aid glycaemic control in type 2 diabetes (T2D), but also empagliflozin has the potential to substantially improve outcomes for HFpEF patients. In the landmark EMPA-REG OUTCOME trial, empagliflozin became the first glucose-lowering drug to exhibit a reduced risk for cardiovascular events in high-risk patients with T2DM, as a result of which it became the first to earn a label indication for reducing CV mortality. Empagliflozin acts by increases mitochondrial calcium level and reduce the cytoplasmic sodium level by inhibiting  $\text{Na}^+/\text{H}^+$  exchange R inhibitor, through which promotes the natriuresis and reduce heart failure. Secondly, it also inhibits several inflammatory factors, thus leading to diminishes the inflammatory factors that contribute to HFpEF syndrome. It has been concluded that SGLT2 inhibitors (**Empagliflozin**) *in vitro* studies, pre-clinical, and clinical studies found to exhibit cardio-protective, anti-hyperlipidaemic, anti-atherosclerotic activity so it has been repurposed for HFpEF.

**PL-12****Dexmedetomidine: A novel sedative/ analgesic agent**

Monika, Shikha Sharma

Department of Pharmaceutical Chemistry, Global College of Pharmacy Kahnpur Khui,  
Anandpur Sahib, Distt. Ropar, Punjab, 140117.

monikabhasin301@gmail.com

**Abstract**

Dexmedetomidine (brand name- LgalmiBioxccl therapeutics Inc.) is a highly potent  $\alpha$ -2 adrenoreceptor agonist approved on the 5<sup>th</sup> April, 2022 by FDA for the curing of agitation related with Schizophrenia. It produces clinical effects after binding to G- protein  $\alpha$ 2 -AR. IUPAC name [(1s)-1-(2,3-dimethylphenyl) ethyl]-1H-imidazole. It is synthesized by resolution of racemic medetomidine by enantiomerically pure (+) – tartaric acid. The obtained diastereomeric salt was separated by fractional crystallization in ethanol as well as with optically active acids. Dextro-enantiomer of medetomidine is active ingredient for dexromedetomidine (DEX). DEX is acted upon CNS by acting on locus coeruleus to produce sedation and produce analgesic effect in spinal cord. Moreover, it is required for the procedural sedation such as during colonoscopy and adjunct with other sedatives like benzodiazepine enhance sedation and maintain hemodynamic stability by reducing the requirement of other sedatives. It exhibits linear pharmacokinetics with a half- life of 6 min. It is metabolized by the liver, glucuronidation, oxidation via CYP2A6 and cytochrome P450 enzyme. DXE hydrochloride injections are available as Dexmedetomidine 50mcg / 0.5ml, 100 mcg /ml. It has been concluded that novel dexmedetomidine contain novel treatment modality for patients with schizophrenia.

**PL-13****Anti-mycobacterial Efficacy of pretomanid on patients with DR-TB**

Prajwal Bhamra, Dr. Parminder Nain, Tanishq Joshi

Department of Pharmacy Practice, MM College of Pharmacy,

Maharishi Markandeshwar (Deemed to be University) Mullana, Ambala

**Abstract**

Rising cases of drug resistance of mycobacterium species is one of biggest concern if the goal is to eradicate TB (Tuberculosis) from the world up to the year 2030. Limited number of treatment options, as MTB (*Mycobacterium tuberculosis*) is getting resistant to anti-mycobacterial drugs either due to patient's non-compliance towards treatment regimen or a patient is infected by drug resistant species of MTB. The purpose of this review is to assess the efficacy of pretomanid, a recently approved drug for treatment of extensively drug resistant-TB. A thorough search of various databases like PubMed, Cochrane library, CDC, research gate, google scholar, clinicaltrials.com, were used in order to find case reports and clinical trials providing data of efficacy of pretomanid in different drug regimens. Pretomanid drug appears to be efficacious, safe and well tolerable according to research trials conducted. Headache was most common adverse drug event and high dose related increase in serum creatinine level was seen which came to normal after drug was discontinued.

**PL-14****The complications and its management in chronic kidney failure patients during and after hemodialysis**

Riya Verma, Anjali Anand, Dr. Jaspreet Kaur

Department of Pharmacy Practice, MM College of Pharmacy,

Maharishi Markandeshwar deemed to be University. Mullana, Ambala

Chronic kidney disease (CKD) is referred to the condition in which kidneys got damaged, over several months or years which at the ESRD (end stage renal disease) requires dialysis. The global burden of the disease estimates at 753 million. The number of men treated with dialysis is 1.7 million, and women are 1.3 million. Hemodialysis increases the life span for many people, by replacing some of the kidney's deteriorated function, but the patient may suffer various dialysis related complications like hypotension, headache, and infection. A prospective observational study on the complications and their management in Chronic Kidney Failure patients during and after hemodialysis was conducted in (MMIMSR) Hospital, Mullana- Ambala (India) with a sample size of 50 patients for a total time period of 3 months. Out of 50 patient, the maximum population undergoing dialysis were males (N=29) as compared to females (N=21). The major complications during dialysis were weakness (20%), chest pain (8%), vomiting (6%), fever & chills (4%), headache (4%), shortness of breath (4%), and nausea (2%). However after dialysis, the complications were weakness (34%), hypertension (34%), vomiting (14%), fever & chills (14%), anemia (10%), headache (10%), and restlessness (10%). hemodialysis is a lifesaving and safe process, several complications may still arise which can be life-threatening if not treated properly and on time. To manage these complications drugs were prescribed according to the condition. These prescribed drugs were very useful in these complications as it reduce the further complaints in patients going through hemodialysis sessions.

**PL-15****To evaluate the prevalence of co-morbid conditions in chronic obstructive pulmonary disease patients and its management**

Mayank Singla, Sahil Saharan, Dr. Md. ShamshirAlam

Department of Pharmacy Practice, MM College of Pharmacy,

Maharishi Markandeshwar (Deemed to be University) Mullana, Ambala

**Abstract**

Chronic obstructive pulmonary disease is one of the most major causes of morbidity and mortality rate. Different studies have revealed the varying range of prevalence of COPD in other states. India continues to be a growing hub of COPD mortality rate. With approximate numbers in 2020, the economic burden of COPD is estimated to increase up to \$49 billion. This is an observational cross-sectional study initiated after approval from the MMIMSR ethical committee. Total of 148 established COPD patients were included in the study on the basis of inclusion and exclusion criteria. All the collected data were recorded in MS-excel sheets for evaluation and further documentation. The majority of male patients (26.3%) were in the age group of 59-68, majority of female patients (8.1%) were in the age group of 49-58 years. The most common comorbidity is hypertension (14.9%), followed by pulmonary tuberculosis (10.8%), type-2 diabetes mellitus (6.7%) and anemia (3.4%). Out of 148 COPD patients, 41.9% were smokers, 35.8% were chronic smokers, 21.6% were non-smoker and 0.7% was chullah exposure. The study concluded that the smokers were more susceptible to develop COPD than the non-smokers.

**PL-16****Drug Repurposing: Emerging Approach to Traditional Drug****Discovery Process**

Sonia Devi, Dr. Deepak Kumar

Global College of Pharmacy, KahanpurKhui, AnandpurSahib.

[soniapharma269@gmail.com](mailto:soniapharma269@gmail.com)

**Abstract**

Drug discovery is a time-consuming, high-cost, and high-risk process in traditional drug development. Drug repurposing, also known as drug repositioning or drug reprofiling is a powerful strategy to identify new therapeutic use for old/existing/available drugs. It maximizes the therapeutic value of a drug and consequently increases the success rate. Finding new molecular entities (NME) by traditional or de novo approach of drug discovery is a lengthy, time consuming and expensive venture. Drug repositioning utilizes the combined efforts of activity-based or experimental and *in silico* based or computational approaches to develop/identify the new uses of drug molecules on a rational basis. Drug repurposing has several advantages over conventional drug discovery approaches such as it cuts research and development (R&D) costs, reduces the drug development timeline and potential for reuse despite evidence of adverse effects and failed efficacy in some indications. Thus, drug repositioning is an effective alternative approach to traditional drug discovery process where existing medicines, having already been tested safe in humans, are redirected based on a valid target molecule to combat particularly, rare, difficult-to-treat diseases and neglected diseases

**PL-17****Salt Analysis: Emerging Diagnostic Parameter for Breast  
Cancer**

Viresh Kumar, Sundaram Pandey, Deepak Kumar, Parul Saini, Nisha Bharti, Sonali Singh

Chandigarh Collage of Pharmacy, Landran, Mohali

vireshkumar582@gmail.com

sonalisingh743@gmail.com

**Abstract**

Breast cancer remains a leading cause of death in women worldwide. Statistically females are more prone to breast cancer as compare to males. There can be rare chances in males (0.5-1%), about one of every breast cancer diagnosed in the US is found in a man. Primarily physician approaches, chemotherapy as the first line of treatment of breast cancer along with radiation therapy or surgery in severe cases. According to the pre-clinical studies, MRI shows high sodium level in cancerous cells. This can be a new diagnostic parameter for the breast cancer diagnosis. The drug that blocks the sodium channel could potentially slow down the growth and spread of tumor. It has been observed in various studies that increased sodium level in the tissues is released from the cancerous cells. So, possibly a new drug development can be a research area for the breast cancer. This review can help to develop new drugs which show mechanism related to the sodium levels. So, this study will be an emerging research topic for further studies.

**PL-18****Attenuating potential of Bakuchiol on adjuvant induce arthritis**

Kamal, SanchitDhankhar, Monika Saini, Sumeet Gupta, Samrat Chauhan

MM College of Pharmacy, Mullana

Maharishi Markandeshwar (Deemed to be University) Mullana, Ambala-133207

samrat.chauhan11@gmail.com

**Abstract**

Rheumatoid arthritis (RA) is a chronic and systemic autoimmune disease, which affects approximately 1% adult population worldwide. To investigate the anti-oxidant and anti-arthritis activity of bakuchiol in Freund's complete adjuvant (FCA) induced arthritis rats. Rats were randomly divided into different groups and arthritis were induced by administering Complete Freund's Adjuvant (CFA) in right hind paw. Oral treatment Bakuchiol (10, 20, 40mg/kg) and Methotrexate (7.5 mg/kg) was administered from day 0 to 21. Arthritis was observed using body weight, paw volume, joint diameter, pain threshold, spleen and thymus index. Hematological parameters and Histopathological studies were assessed on the last day. Bakuchiol showed dose dependent anti-arthritis activity that was evident with decrease in paw volume, joint diameter and increase in pain threshold, paw withdrawal latency and body weight ( $p < 0.05$ ) also by increasing levels of RBC, Hb and by decreasing levels of WBC, serum IL-6 and Rheumatoid factor (RF), compared to arthritic control group and histopathological analysis also confirmed it. Our results showed that Bakuchiol exerted potent anti-arthritis activity.

**PL-19****Evaluation of Quercetin and Candesartan In High Fat Diet (HFD) Induced Dementia In Rats: Probable Role Of Toll-Like Receptors**

Vinay Kumar, Renu Arya, Neha Dhiman, Rupinder Kaur Sodhi, Arockia Babu

Pharmacology division, Chandigarh College of Pharmacy, Landran, Mohali, India

vinay1997kumar@gmail.com

**Abstract**

Dementia is an age-related disorder of CNS associated with formation of amyloid plaques which gets deposited in cerebral blood vessels. Diet rich in cholesterol and saturated fats are the leading responsive causes of dementia. Excessive cholesterol level in brain causes release of free radicals, IL- $\beta$ , IL-6 thereby causing progressive neuronal deficits. Toll-like receptors (TLRs) especially TLR4, are activated by fatty acids. Inhibition TLR4 activation in dementia suppresses the neuroinflammation process. Quercetin and Candesartan both acts as antagonists of TLR, when given in combination they produce synergistic effect and prevent neuroinflammation. Our results strongly indicated the involvement of TLR receptors for the synergistic actions produced by quercetin and candesartan. Administration of quercetin and candesartan to the HFD treated rats improved memory and learning owing to its anti-oxidative and anti-inflammatory actions, lipid lowering and amyloid lowering actions probably through the involvement of toll-like receptors. From our results, it may be concluded that quercetin and candesartan possesses potential to combat memory impairment and hypolipidemic effect of quercetin suggests its role in preventing the excessive accumulation of amyloid  $\beta$  peptides in brain.

## PL-20

**Risk of Colorectal Cancer in Inflammatory Bowel Disease Patients- A Review Study**

Harsimar Singh Lamba<sup>1</sup>, Komal Rana

Chandigarh College of Pharmacy, Landran (Mohali)

harsimar307@gmail.com

Patients with long-standing inflammatory bowel disease (IBD) have associated magnified risk of developing body part colorectal cancer (CRC). Several of the molecular alterations to blame for isolated body part cancer, particularly body instability, microsatellite instability, and hypermethylation, conjointly play a task in colitis-associated colon carcinogenesis. Carcinoma risk in inflammatory IBD will increase with longer length of rubor, larger anatomic extent of rubor, the presence of primary sclerosing redness, case history of CRC and degree of inflammation of the intestine. To reduce CRC mortality in IBD, colonoscopic surveillance with random biopsies remains the major way to detect early mucosal dysplasia. Once abnormalcy is confirmed, proctocolectomy is taken into account for these patients. Patients with little enteric Crohn's malady are at magnified risk of small intestine carcinoma. Colitis patients with total proctocolectomy and ileal pouch anal-anastomosis have a rather low risk of abnormalcy within the ileal pouch, however the anal transition zone ought to be monitored sporadically. This review focus mainly on problems of CRC & other cancer such as small intestinal adenocarcinoma and hematological melagancies. New examination and molecular screening approaches might additional refine our current police investigation pointers and our understanding of the explanation of abnormalcy.

**PL-21****Formulation and pharmacological investigation of novel fabricated topical gel in streptozotocin induced diabetic wound in rats**

Renu Arya, Vinay Kumar, Manpreet Kaur, Rupinder Kaur Sodhi, Arockia Babu

Pharmacology division, Chandigarh College of Pharmacy, Landran, Mohali, India

**Email:** chandrarena941@gmail.com

**Abstract**

Diabetes mellitus is a complex metabolic disorder that can lead to a variety of macro and microvascular complications. Long-term hyperglycemia contributes to the development of a number of complications, including cardiac disease, retinopathy, neuropathy, and impaired wound healing. Diabetic wounds include abnormal connective tissue properties like prolonged inflammatory response, decreased collagen formation, high levels of proteases, defective macrophage activities, and impaired neovascularization, all of which contribute to an increase in bacterial load and inability to heal diabetic wound. The currently available therapeutic options have limited use because they are expensive, do not reduce bacterial load, and produce skin toxicity such as irritation. In the present investigation we have employed a combination of quercetin and rosemary oil formulated as a gel to promote diabetic wound healing and was applied topically daily on the diabetic wounds for 14 days. Quercetin enhances formation of granulation tissue and increases vascularity therefore contains potential wound healing properties. Furthermore, quercetin and rosemary oil have antioxidant, antibacterial, antinociceptive, and anti-inflammatory effects that help in the healing of cutaneous wounds. The positive outcomes of the study substantially support the beneficial effects of the formulated gel in the accelerating diabetic wound healing.

## PL-22

**Distinct Role of Selective Estrogen Receptor Agonists on Nociception in Type-2 Diabetic Ovariectomized Rats**

Preeti<sup>1</sup>, Shivani Singla, Kanwaljit Chopra<sup>2</sup>, Seema Bansal<sup>1,2</sup>

1. Department of Pharmacology, MM College of Pharmacy, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala-133207

2. Pharmacology Research Laboratory, University Institute of Pharmaceutical Sciences, Panjab University Chandigarh-160014, India

[seema.bansal@mmumullana.org](mailto:seema.bansal@mmumullana.org)

**ABSTRACT**

Diabetes and menopause are frequent comorbidities. Both estrogen loss as well as hyperglycemia adversely affects the nociception. Our study was designed to characterize the specific estrogen receptor which could be selectively targeted to alleviate pain in postmenopausal diabetic situation. 17- $\beta$  estradiol (17 $\beta$ E2) and selective ER ( $\alpha$  and  $\beta$ ) agonist (10 $\mu$ g/kg/s.c) were administered for four weeks in ovariectomized type 2 diabetic Sprague Dawley rats (200-250g). Marked decrease in nociceptive threshold substantiated by reduced paw withdrawal threshold in Randall Sellitto and von-Frey hair test were observed in ovariectomized diabetic (OVX-Dia) rats as compared to sham rats. These behavioral deficits were integrated with increased substance P concentration in serum. Treatment with selective ER- $\beta$  agonist and 17 $\beta$ E2 markedly while ER- $\alpha$  agonist partially ameliorated the pain in OVX-Dia rats. To assess feminizing action, serum estradiol levels and uterine weights were measured. 17 $\beta$ E2 reversed OVX-induced decrease in serum estradiol levels and uterine weights but selective ER agonist's treatment did not show any effect. The results revealed that specific ER- $\beta$  agonist may be useful for modulating pain in postmenopausal diabetes state with an additional advantage of absence of feminizing side effects that occur with use of non-selective ER agonists.

**PL-23****Chronopharmacology – The Medicinal Clock**

Shrestha Tushar

Chandigarh College of Pharmacy, Landran, Mohali, SAS Nagar, 140307, Punjab

Email: ccp202434.pharmd.ccp@cgc.edu.in

**ABSTRACT**

Chronopharmacology is the study of how effects of drugs vary with biological timing. If the drugs are prescribed on the basis of chronopharmacology, the drugs can show their action more efficiently and may prove safer to the body. The phenomenon by which the drugs are prescribed in accordance with the chronopharmacology is known as the chronesthesia. Moreover, the human cardiovascular system has different activity patterns with cycles of 24 h, including heart rate, blood pressure, blood coagulation markers, vascular endothelial function, and autonomic nervous system. However, among cardiovascular diseases, hypertension, angina pectoris and acute myocardial infarction present a circadian rhythm with a greater incidence of unfavourable events between awakening and noon. Chronotherapy aims to use drugs that release their active principles at different times during the day, according to the biological needs. In treatment of cardiovascular disease, a particular attention has been paid to slow-release drugs that assure a 24 hour therapeutic effect with once a day administration.

**PL-24****A CROSS-SECTIONAL SURVEY ON NURSES AWARENESS TOWARDS CLINICAL  
RESEARCH**

Vandana, Shabir Sidhu

I.K. Gujral Technical University Main Campus, Kapurthala

**ABSTRACT**

Lack of awareness about clinical trials among nurses results in poor teamwork and barriers in communicating with patients about trial participation. Thus, the objective of this study was to assess awareness of clinical research among nurses. The current study was a cross-sectional questionnaire-based study. The structured questionnaire was administered to registered nurses. The basic demographic information of the respondents was collected. The questionnaire consisted of 25 questions about awareness regarding clinical research. Among the 811 respondents 71.14% of nurses worked in private, 24.53% in government and 4.31% worked in semi-government hospitals. The respondents included 32.05% males and 67.94% females. The majority of the respondents belonged to the age group 21-30 years (71.27%) and a majority (82.12%) had work experience in the range of 1-10 years. Only 11.59% of the respondents had participated in a clinical study. The general awareness about the conduct of clinical studies was moderate. Only 49.57% of the respondents were aware of the number of phases of clinical trials, only 38.47% correctly identified the documents required for enrolling patients and 48.10% of the respondents were aware of IRB approval before starting the study. 79.90% of the respondents reported that clinical trials can be conducted only in government hospitals and 59.80% said that clinical trials can be conducted only in diseased patients. 21.70% of the respondents knew about the objective of phase 3 studies and 26.38% could correctly tell in which phase of clinical trial pharmacokinetic evaluations are done. 27.86% of the nurses were aware of where to report ADRs (27.86%). There is a need to create awareness among nurses about clinical research.

**PL-25****Effect of exercise included with antihypertensive medications in treatment of hypertension**

Gourab Prasad Borah, Rina Das

MM College of Pharmacy, Maharishi Markandeshwar (Deemed To Be University), Mullana,

Ambala, Haryana

\*gourab.borah16@gmail.com

**Abstract**

One of the best ways to avoid high blood pressure is to engage in regular physical exercise. Intervening studies have provided more experimental data supporting a link between physical activity and lower blood pressure, since exercise's beneficial effects on this have been thoroughly documented in recent years. Hypertensive individuals who want to engage in strenuous activity should be prescribed certain medications. Their impact on exercise capacity, on the other hand, is vastly different. It's vital to know that some blood pressure drugs might interfere with exercising. Exercise and medication's combined effects on blood pressure are neither additive nor synergistic, but when coupled they enhance the antihypertensive effects of drugs alone.

**PL-26****A CROSS-SECTIONAL SURVEY TO ASSESS KNOWLEDGE OF NURSES TOWARDS  
CLINICAL RESEARCH**

Nida Fatima, Shabir Sidhu

Department of Food, Science and Technology I. K. Gujral Punjab Technical University Main  
Campus, Kapurthala

**ABSTRACT**

Nurses are one of the most important research staff in clinical studies. The current study aimed to explore the attitude of nurses towards clinical research. The current study was a cross-sectional questionnaire-based study. The structured questionnaire was administered to registered nurses. The basic demographic information of the respondents was collected. The questionnaire consisted of 25 questions about attitude regarding clinical research. A total of 809 nurses responded to the survey out of these 67.49% were female 32.51% were male. The majority (71.28%) of the participants belonged to 21-30 years and a majority (82.17%) had work experience in the range of 1-10 years. Only 11.49% of the participants had participated in a clinical study. 92.32% of the participants agreed that clinical research is advantageous to the public and 59.65% of the respondents believed that patients enrolled in the study receive better treatment than other patients. 89.60% of nurses believed that clinical research refines healthcare of patients. 67.45% of the respondents believed that participation in clinical research will add to their daily workload and have an impact on routine patient care. 48.88% were concerned about assigning treatments to patients at random and 48.88% of respondents were concerned that patients in a clinical trial may be harmed due to unknown side effects. 77.84% of the respondents agreed that clinical research should be made part of the nursing curriculum. 48.14% of the respondents correctly identified the pharmaceutical regulatory authority of India and 45.17% of the respondents knew about randomization. Nurses have positive attitudes toward clinical research and its usefulness in patient care but have some concerns about their patients getting enrolled in a clinical study.

PL-27

**Antiretroviral Therapy in Management of HIV and AIDS**Harshpreet Singh, Aniket Beniwal, Ritika Kalia

Chandigarh College of Pharmacy, Landran, Mohali.

[singharshpreet027@gmail.com](mailto:singharshpreet027@gmail.com)

## Abstract

STD described as Sexually Transmitted Disease in which infection transmitted from one person to another during sexual intercourse. HIV/AIDS is a Human Immune Deficiency and Acquired Immune Deficiency Syndrome is a spectrum of condition arises due to obliteration of immune system by the virus i.e. retro virus which results in increases the autoimmune disorders and malignancy. HIV Infection occurs within first week of infection and Symptoms includes painful or burning sensation in urine, lower abdominal pain, sore or bumps on genitals. The pathogen which causes sexually transmitted infections includes *Candida albicans*, *Pneumocystis carinii*, *Mycobacterium tuberculosis*, *Toxoplasma gondii*, *Cryptococcus neoformans*, *Mycobacterium avium intracellulare* and *cytomegalovirus* causes. Treatment with HIV medicines is called AR Therapy (Anti Retroviral Therapy). Anti Retroviral Drugs approved by the Food and Drug Administration (FDA) includes two NRTIs drugs (Nucleoside reverse transcriptase inhibitors- abacavir, lamivudine, zidovudine ) and a third may be in the category of INSTI (Integrase Strand Transfer Inhibitor\_- cabotegravir, dolutegravir and raltegravir), NNRTI(Non- Nucleoside Reverse Transcriptase Inhibitors- Doravirine, efavirenz, etravirine, nevirapine and rilpivirine ), or PI(Protease inhibitors- ritonavir, atazanavir) class.

**PL-28****Polyphenolic Compounds: Substantiate in management of Parkinson's disease in an experimental rat model**

Shivam Kohli, Mehak, Ashish, Shweta Deol, Sumeet Gupta, Seema Bansal

Department of Pharmacology, MM College of Pharmacy, Maharishi Markandeshwar  
(Deemed to be University), Mullana, Ambala-133207

seema.bansal@mmumullana.org

**Abstract**

Parkinson's disease is a common progressive neurodegenerative disease characterized by a deficiency of dopaminergic neurons in the striatum. Plants originated compounds are widely used in treating various diseases. Recent evidence indicates the role of naturally occurring polyphenols like curcumin and quercetin plays promising neuroprotective action in brain disorders. The aim of the present study was to explore the dose-dependent effects of curcumin and quercetin alone and in combination in rotenone-induced Parkinson's Disease. Parkinson's was induced by administration of rotenone 2mg/kg for 14 days in rats Curcumin (100,150,200 mg/kg) and quercetin (30, 40, and 50 mg/kg) preparation were administered alone and in combination orally for 28 days in specific assigned group. On 28<sup>th</sup> and 29<sup>th</sup> days, behavioral and histological studies were noted. Administration of curcumin (200 mg/kg) and quercetin (50 mg/kg) orally in a combinatory regimen resulted in alleviating motor deficits and other behavioral and biochemical alterations, especially on the 21<sup>st</sup> and 28<sup>th</sup> days of the study suggesting further optimization of the therapy. The study concluded that curcumin and quercetin combination treatments were more successful than individual treatment, among the two drugs therapeutic potential of curcumin was greater than quercetin in the course of Parkinson's disease.

**PL-29****Kawasaki Disease: Steadily Searing the Pace**

Ashish, Shivam Kohli, Sumeet Gupta, Seema Bansal<sup>1</sup>

<sup>1</sup>Department of Pharmacology, MM College of Pharmacy, Maharishi Markandeshwar  
(Deemed to be University), Mullana, Ambala-133207

seema.bansal@mmumullana.org

**Abstract**

Kawasaki disease is an acute, self-limited vasculitis of unspecified etiology that occurs in infants and young children and mostly affects the coronary arteries. Main symptoms include fever, conjunctivitis, cervical lymphadenopathy, and skin and mucous membrane affection. The delayed treatment causes coronary arteries aneurysm. The major aim of this study is to discuss possible modes of the pathogenesis of Kawasaki Disease, the importance of differential diagnosis and standards as well as an emerging choice of therapies that can be used to manage this disease. The pathogenesis of KD is unknown still now. The occurrence of KD in children whose parents were having a history of KD has increased the chances of KD. One of the recent studies shows that activation of both the innate and adaptive immune system further activates the neutrophils and interleukin-1 pathway which invades the arterial cell wall. The pathological changes in KD affect the extra-parenchymal muscular arteries, most commonly coronary arteries. Delayed, incomplete or missed diagnosis can result in serious cardiac as well as other complications in Kawasaki Disease therefore timely, correct and differential diagnosis is necessary for the proper handling of this disease. The use of cytokine blocking strategies and immunosuppressants requires more research and documentation in Kawasaki Disease.

**PL-30****Ameliorative effect of 17 $\alpha$ -estradiol (neuroSERM) on 6-OHDA-induced Parkinsonism in ovariectomized rats**

Nikita Nain<sup>1</sup>, Sumeet Gupta<sup>1</sup>, Bikash Medhi<sup>2</sup>, Seema Bansal<sup>12\*</sup>

1. Department of Pharmacology, MM College of Pharmacy, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala-133207
2. Department of Pharmacology, Post Graduate Institute of Medical Education and Research, Chandigarh-160014, India  
[seema.bansal@mmumullana.org](mailto:seema.bansal@mmumullana.org)

**Abstract**

Aim of the present study was to determine the role of 17 $\alpha$ -estradiol, a non-feminizing estrogen, in attenuating PD employing an animal model of surgical menopause. 17 $\alpha$ -estradiol and 17 $\beta$ -estradiol was injected 10  $\mu$ g/kg/s.c. for 14 days in ovariectomized 6-OHDA rats. Behavioral parameters of Parkinsonism were performed after 14 days, which were correlated with various biochemical and molecular markers in postmenopausal Parkinsonism. Uterine weight and estradiol levels were also assessed to determine estrogenic effect of both the drugs peripherally. Effect of both drugs on expression of ER- $\alpha$  and ER- $\beta$  in striatum was also evaluated. Further the differential effect of 17 $\alpha$ -estradiol and 17 $\beta$ -estradiol was evaluated in postmenopausal Parkinsonism. 17 $\alpha$ -estradiol and 17 $\beta$ -estradiol equally modulated behavioral changes and attenuated rise in oxidative stress, inflammatory markers, improving neurotrophic factors and modulation of striatal neuron morphology. 17 $\beta$ -estradiol treatment restored the uterine weight and serum estradiol levels towards normal; however 17 $\alpha$ -estradiol did not show any effect. No effect of 17 $\alpha$ -estradiol was observed on expression of ER- $\alpha$  and ER- $\beta$  in the striatum, indicates receptor independent effect of 17 $\alpha$ -estradiol Both 17 $\alpha$ -estradiol and 17 $\beta$ -estradiol are equally effective in Parkinsonism, however, 17 $\alpha$ -estradiol may prove to be safer alternative of 17 $\beta$ -estradiol in Parkinsonism due to lack of feminizing effect.

**PL-31****Potential of polyphenolic compounds in experimentally induced Alzheimer disease**

Sujanki<sup>1</sup>, Shweta Deol<sup>1</sup>, Mehak<sup>1</sup>, Sumeet Gupta<sup>1</sup>, Seema Bansal<sup>1\*</sup>

Department of Pharmacology, MM College of Pharmacy, Maharishi Markandeshwar  
(Deemed to be University), Mullana, Ambala-133207

seema.bansal@mmumullana.org

**Abstract**

Alzheimer disease is neurodegenerative disease related to deficit Neurotransmitter Acetylcholine, accumulation of  $\beta$  amyloid protein, neurofibrillary tangles and oxidative stress by worsening of Glutamatergic transmission. Recent investigation found the protective effect of natural curcumin, quercetin against mitochondrial and synaptic toxicities in AD neurons. To elucidate effectiveness of curcumin and quercetin alone and in combination in scopolamine induced Alzheimer. scopolamine was used to induce Alzheimer in rats at dose 0.7mg/kg i.p for 21 days. Our preparations curcumin (300,350,400mg/kg oral) and quercetin (5,10,15mg/kg oral) were administered alone as well as in combination (400mg/kg+15mg/kg i.p.) for 28 days followed by scarification on 35<sup>th</sup> day for brain and histopathological analysis. administration of curcumin and quercetin showed symptomatic decline in oxidative stress and memory impairment on 21<sup>st</sup> day of treatment. in the end study concluded that combination of both give better result than in alone and was more fruitful. Among these two, quercetin was found having more potential than curcumin.

PL-32

**Impact of Smartphone Applications on Patients' Self-care with Hypertension: A Systematic Review Study**Joginder Rakesh Kumari<sup>1</sup>, Komal Rana<sup>2</sup>, Ekta Dhull<sup>3</sup><sup>1</sup>.Student, Chandigarh College of Pharmacy, Landran (Mohali)<sup>2</sup>.Assistant Professor, Chandigarh College of Pharmacy, Landran (Mohali)<sup>3</sup>.Assistant Professor, Chandigarh College of Pharmacy, Landran (Mohali)

\*(rk.teena29@gmail.com)

**Abstract**

High blood pressure or hypertension is one of the chronic disorders that can lead to a variety of other serious diseases and syndromes. Hypertension can have a significant negative collision on one's health. It causes chronic kidney disease and cardiovascular disease, as well as heart attacks, strokes, kidney failure, blindness, rupture of blood vessels, and cognitive impairment. In order to improve self-care and clinical results, patients must be actively involved in disease management. People with chronic conditions like hypertension are increasingly using mobile technology to improve their self-care. Mobile technology is nowadays used widely to improve the self-care process in people with chronic diseases such as hypertension. To summarize this review, we will discuss the effect of mobile applications on hypertension patients' self-care. The findings revealed that mobile apps have the capability to improve the self-care behavior of hypertensive patients, however, the proof supporting this claim is mixed.

PL-33

**CLINICAL RESEARCH SCENARIO IN INDIA**Gurpreet Kaur, Devinder Kaur, Gurfateh Singh<sup>1</sup>Govt. Medical College, Amritsar, District Amritsar, 143001, India.<sup>2</sup>University Institute of Biotechnology, Chandigarh University, Gharuan-Mohali 140413, India.<sup>3</sup>University Institute of Pharma Sciences, Chandigarh University, Gharuan-Mohali 140413, India.[gurpreet18k@gmail.com](mailto:gurpreet18k@gmail.com)**ABSTRACT**

Clinical research/trials have been increasing in the last ten years and India has emerged as one of the foremost global destinations for clinical research. Changed intellectual property regimen may indicate the rise of the clinical trial industry in India. Clinical trials are performed to evaluate the safety and efficacy of new molecules and medical devices. The global clinical research sector is exploring India by increasingly outsourcing clinical trials. Clinical research has become globalized. India and China are doing clinical trials due to various financial, safety, high compensation and ethical concerns and less population in developed Countries. Therefore, India is the most promising hub for clinical research/trials due to the large availability of patients, lower cost of trials, and large numbers of medical professionals. The Govt. of India has been trying to make and update the regulatory framework in order to promote clinical trials/research in the clinical research sector. During the last decade, all clinical trial activities are conducted using papersystem. But the twenty-first century is the era of Virtual Clinical Trials. The current progress in the field of research helps in breaking the stereotype of implementing paper system in research studies and modified this system into Electronic Data Capture System. Data safety in clinical trials can be guaranteed with e-technology by a series of softwares like Oracle clinical, Argus etc. This overview elaborates the current scenario of clinical research and trials in India.

PL-34

**3D HUMAN LIVER SPHEROIDS FOR DRUG SCREENING**Yukta,Patil R.K

1 Adesh Institute of Pharmacy and Biomedical Sciences, Bathinda.

2Adesh Institute of Pharmacy and Biomedical Sciences, Bathinda

yuktagarg31@gmail.com**ABSTRACT**

Drug development is a risky procedure, during clinical trials more than 85% of medicines get rejected, demonstrating that present preclinical trials for drug selection are inadequate. Toxicity to the liver is still a primary cause for new drug safety failure. Additionally, all attempts have failed to create pharmacological therapy for a number of chronic liver illnesses, such as non-alcoholic steatohepatitis (NASH) and fibrosis due to liver toxicity. Analyzing the length and cost of clinical trials, as well as the significant hardship they place on patients, developing novel techniques to improve clinical success rates is significant. Human liver spheroids are increasingly being used for this purpose because they allow patient-specific phenotypes and functions to be preserved in culture for numerous weeks. We here discuss how such systems have recently been used for i) predictive and mechanistic analyses of drug hepatotoxicity, ii) the evaluation of hepatic disposition and metabolite formation of low clearance drugs, and iii) the development of drugs for metabolic and infectious liver diseases, such as NASH, fibrosis, malaria, and viral hepatitis. We believe that once liver spheroids become more widely available, they will become the new gold standard for such applications in translational pharmacology and toxicology.

PL-35

**REVIEW ON VARIOUS ROUTES OF DRUG ADMINISTRATION**Mumtaz Khan, Palakdeepkaur, Amardeep Kaur

Department Of Pharmacy, VMS College of Pharmacy, Batala, Punjab, India, 143505

[mumtazkhan11in@gmail.com](mailto:mumtazkhan11in@gmail.com)**ABSTRACT**

This article explains the various routes of drug administration and describes the mechanism of action. Basically, it is a path by which the drug/medicine is introduced into the body and results in various pharmacological and therapeutic actions. Generally, the routes of drug administration are categorized into two types i.e. local and systemic routes. Local route refers to the introduction of drug to the surface for producing localized action. It is suitable as well as effective to the patient. This route includes topical route, deeper tissue and arterial supply. While in other route, the drug is administered through systemic route and is distributed all over the body through the blood circulation. Systemic route includes oral, sublingual, nasal, inhalation, rectal, cutaneous and parenteral sites. Parenteral route is very effective due to its direct administration into the blood stream in comparison to other routes of drug administration.

PL-36

**REVIEW ON ANTIBIOTIC RESISTANCE AND ITS MECHANISM OF  
DEVELOPMENT**Shivani, Palakdeep Kaur, Amardeep Kaur, Satvir Kaur

\*Department of Pharmacy, VMS College of Pharmacy, Batala, 143505, Punjab, India

9140451@gmail.com**ABSTRACT:**

Antibiotics are substance produced by microorganisms with selectively suppress the growth and kill other microorganism. So, Antibiotics are the essential part of medicine used to ensure human and animal health. Misuse of antibiotics in human and animals has raised the concentration about the development of resistant bacteria. Antibiotics are used in sub therapeutic doses, non-laboratory and orient therapy. Different mechanisms are available in which antibiotics can prevent the growth of microorganism. The use of antibiotics as growth promoter in food animal procedure is significant cause for antibiotics resistance in animals. Thus awareness creation should be conducted on rational use of antibiotics in veterinary and medical practice to mitigate the occurrence of antibiotics resistance.

PL-37

**NEW DRUG APPROVAL IN PAEDIATRIC PATIENTS**Kashish Setia , R.K Patil

Adesh Institute of Pharmacy and Biomedical Sciences, Bathinda,

[kashish.setia.1@gmail.com](mailto:kashish.setia.1@gmail.com)**ABSTRACT**

Paediatric trials are more challenging to conduct than trials in adults because of the paucity of funding, uniqueness of children and particular ethical concerns. And it is essential as Medicinal products for diseases that affect children exclusively [e.g., surfactant used for the treatment of hyaline membrane disease (HMD) in neonates]. Here, it is logical that the entire drug development program is conducted entirely in children. Medicinal products to treat diseases that mainly affect children, or are of particular gravity in children or have a different natural history in children. Medicinal products intended to treat diseases occurring in adults and children, for which there is currently no treatment, Medicinal products to treat a disease occurring in adults and children for which treatments exist, but where there is insufficient knowledge of efficacy or toxicity in children. Drug development process have three phases- drug discovery, preclinical and clinical trial phase. Pediatric patients research should be restricted to studies which meet important medical needs of all recruited young patients, which generates information that cannot be obtained by other studies designs and do not limit access to superior alternatives regimens.

PL-38

**STUDY OF THERAPEUTIC AND PHARMACOLOGICAL POTENTIALS OF  
SULFORPHANE**Pallavi, Patil R.K

Adesh Institute of Pharmacy and Biomedical Sciences, Bathinda,

Pallavichalana731@gmail.com**ABSTRACT**

Herbal supplements have traditionally demonstrated a high level of desire for disease prevention and therapy. Sulforaphane (SFN) is an organosulfur chemical that is mostly found in cruciferous vegetables and belongs to the isothiocyanate (ITC) group. Several investigations have now indicated that SFN has a wide range of activity and has showed great promise as an antioxidant, anticancer, anti-angiogenic, and anti-inflammatory drug. Furthermore, SFN has been shown to be less toxic, non-oxidizable, and well tolerated by individuals, making it an effective natural dietary supplement for clinical trials. SFN has demonstrated its potential as a promising future therapeutic molecule for the treatment of a variety of ailments, owing to its powerful antioxidant characteristics. Several innovative drug delivery systems have been designed and developed for this prospective chemical in recent years in order to improve its bioavailability, stability, and adverse effects. This review will address a wide range of data supporting SFN's pharmacological activity, drug-related concerns, and methods to improve its physicochemical and biological qualities, such as solubility, stability, and bioavailability. Recent patents on SFN are also discussed, as well as ongoing clinical trials.

**PL-39****Pharmacological antioxidant strategies on chronic obstructive pulmonary disease**

Ankita Dutta, R.K Patil.

Adesh Institute of Pharmacy and Biomedical Sciences, Bathinda.

[ankitadutta99936@gmail.com](mailto:ankitadutta99936@gmail.com)

**ABSTRACT**

Antioxidants are a promising treatment option for people suffering from chronic obstructive pulmonary disease (COPD). Cigarette smoke, which is the leading cause of COPD, contains extremely high levels of gaseous and soluble oxidants, which can cause cell harm and death. Lung macrophages are activated by particulate particles in cigarette smoke, which attract neutrophils. Through the nicotinamide adenine dinucleotide phosphate (NADPH) oxidase complex, both neutrophils and macrophages from cigarette smokers' lungs continuously generate enormous amounts of superoxide and hydrogen peroxide. When people with COPD discontinue smoking, the neutrophilic inflammation in the airways and lung parenchyma, as well as oxidative stress indicators, persist. Numerous antioxidants, including glutathione and mucolytic medicines like N-acetyl-L-cysteine and N-acetylcysteine, erdosteine, fudosteine, ergothioneine, and carbocysteine, have been shown to affect various cellular and biochemical components of COPD. Free radicals and oxidants are scavenged and detoxified by these antioxidants. Given the role of oxidants, free radicals, and carbonyls/aldehydes in the development of COPD, therapeutic administration or supplementation of several antioxidants, as well as increasing endogenous antioxidant levels, may be useful in the treatment of COPD.

**PL-40****Insulin resistance in hypothyroidism and hyperthyroidism**Harmanpreet Kaur Virk, R.K. Patil

Adesh Institute of Pharmacy and Biomedical Sciences, Bathinda,

Department of Pharmacy Practice, Adesh Institute of Pharmacy and Biomedical Sciences,  
Bathinda.[haniivirk12@gmail.com](mailto:haniivirk12@gmail.com)**ABSTRACT**

Insulin resistance is a glucose homeostasis condition in which muscles, adipose tissue, liver, and other bodily tissues are less sensitive to insulin, despite its normal or increased concentration in the blood. Insulin resistance can be asymptomatic or appear as a sign of a range of diseases, including glucose intolerance, type 2 diabetes, hypercholesterolemia, hypertriglyceridemia, obesity, and arterial hypertension. Insulin works by binding to particular receptors on the surface of most body cells. Adipocytes, hepatocytes, and striated muscle cells have the highest number of these receptors. Insulin resistance is caused by three mechanisms: pre-receptor, receptor, and post-receptor. The simultaneous assessment of glucose and insulin levels in blood serum is used in a variety of approaches to determine insulin resistance. Thyroid hormones have a substantial impact on glucose metabolism and insulin resistance development. Impaired glucose tolerance in hyperthyroidism may be due to mostly hepatic insulin resistance, but in hypothyroidism, the existing data suggests that peripheral insulin resistance predominates.

**PL-41****Study of SGLT2 Inhibitors for the Treatment of Diabetes Mellitus**

Jyoti Bala, Patil R.K

Adesh Institute of Pharmacy and Biomedical Sciences, Bathinda

[jyotigar@gmail.com](mailto:jyotigar@gmail.com)

**ABSTRACT**

SGLT2 inhibitors are the most recent class of oral anti-hyperglycemic medicines to be licenced for the treatment of diabetes. There have been considerable advancements in the safety and efficacy of this class of drugs during the last year. Aside from studies on the glucose-lowering action of SGLT2 inhibitors, this family of drugs has been shown to have other metabolic benefits. In addition, three FDA Drug Safety Communications were released in 2015, resulting in new drug labelling. SGLT2 inhibitors: their basic mechanism of action, indications, glucose-lowering benefits, other metabolic advantages, and negative side effects. SGLT2 inhibitors are drugs with a distinct mode of action that reduce blood glucose without the use of insulin. These medicines are fast establishing their place in the treatment of diabetes, based on recent data on efficacy and advantages. SGLT2 inhibitors may be another option for patients with type 2 diabetes who require extra glucose reduction and have acceptable risk factor profiles, especially if they are unwilling or unable to start insulin. Although there appear to be some favourable effects on cardiovascular endpoints, additional research into the long-term effects of SGLT2 inhibitors is needed.

PL-42

**Esomeprazole and aspirin fixed combination for the prevention of cardiovascular events- A review study**Shivani Garg, Shweta Dixit, Komal Rana, Ekta Dhull

Chandigarh College of Pharmacy, Landran (Mohali)

**ABSTRACT**

Low dose aspirin therapy plays a fundamental role in both the primary and secondary prevention of cardiovascular events. Although the evidence using low dose aspirin for secondary prevention is well-established, the decision to use aspirin for primary prevention is based on an evaluation of the patient's risk of cardiovascular events. In this review article we will discuss about the efficacy, safety, tolerability and cost effectiveness and patient quality of life of regimen. The pharmacokinetic and pharmacodynamic interactions between aspirin and Esomeprazole are reviewed. Therefore, for those patients who are at a high risk of developing a gastrointestinal ulcer, the benefit of adding esomeprazole likely outweighs the risks of longer term proton pump inhibitor use, and the combination can be recommended. These two trials suggest that esomeprazole in combination with low dose aspirin was well tolerated and raised no significant safety concerns. Several cost-utility and cost-effectiveness studies have concluded that administering the two agents separately may be more economical.

PL-43

**Chronic obstructive pulmonary disease exacerbations: latest evidence and clinical  
implications- A review study**

Mehak preet kaur, Jasleen Kaur, Komal Rana

Chandigarh college of Pharmacy, Landran (Mohali)

[mehakmamta40@gmail.com](mailto:mehakmamta40@gmail.com)

**ABSTRACT**

Chronic obstructive pulmonary disease (COPD) is a major cause of morbidity and fatality globally and results in an economic and social burden that is both significant and increasing. The natural history of COPD is illuminated by acute-disease which have major short- and long-term implications on the patient and healthcare system. Evidence-based guidelines specify that early detection and immediate treatment of acute diseases are essential to ensure optimal outcomes and to reduce the burden of COPD. Several factors can identify populations at risk of acute diseases. Implementing prevention measures in patients at risk is a major goal in the management of COPD. In this review article we will discuss about the severity factor of COPD and the current approach to patient management.

PL-44

**CLINICAL PHARMACOLOGY AND PHARMACODYNAMICS**Parul, Dr. Meenakshi Ratra

Department of Pharmacy, V.M.S.College of Pharmacy, Batala.

[pariagnihotri919@gmail.com](mailto:pariagnihotri919@gmail.com)**ABSTRACT**

Pharmacology is the branch of science which deals with the study of Pharmacodynamics and Pharmacokinetics. The word Pharmacology is derived from the Greek word pharmakon which can mean both remedy and poison. It is all about study of drug and effect of drug on body and body's response for the drugs. It includes the study of prescribed and over-the-counter medications, legal and illicit drugs etc. Pharmacokinetics is concerned with the movement of drugs within the body. Pharmacodynamics is concerned with the effect of drugs and the mechanism of their actions. It can be categorized into 3 areas- Desired effects, Side effects, adverse effect. It is important that prescribers are aware of the actions of their drugs have in the body after administration. They should know the SITE of action, the MODE of action and the time to ONSET and DURATION of the action. This helps prescribers decide on drug choice, drug dose and the dose schedule as well as the length of time of the drug needs to be prescribed for. This knowledge can also assist the prescriber in prediction.

PL-45

**ISCHEMIC PRE-CONDITIONING: PHARMACOLOGICAL INTERVENTION**Sarishti Sharma, Saswat Swarup Badapanda, Gurfateh Singh

University Institute of Pharma Sciences, Chandigarh University, Gharuan Mohali,  
140413-Punjab-India  
sharmasarishti09@gmail.com

**ABSTRACT**

Myocardial ischemia is a condition, due to reduction blood flow resulting deficiencies. Oxygen and various nutrients contents to the heart. Reperfusion to an ischemic heart often resulting lethal myocardial injury. The various brief episodes of ischemia and reperfusion applied prior to global ischemia and reperfusion known as ischemic pre-conditioning. It is noted that various cardioprotective mechanisms against the ischemic reperfusion injury contributed by ischemic preconditioning are mentioned. Moreover the various molecular pathways of classical and delayed preconditioning have been discussed in this overview. The various protective potentials of ischemia and reperfusion cycles are evident within minutes after the insult and persist for 2-3 hours known as classical preconditioning or first window of protection. Second window of protection/delayed preconditioning showed the cardioprotective potentials after the apparent approximately 24 hours from initial preconditioning up to 72 hours. Ischemic pre-conditioning activates various pharmacological cardioprotective endogenous molecular pathways such as mitochondrial K-ATP channel, adenosine, bradykinin, acetylcholine, nitric oxide (NO) and activation of protein kinase-c (PKC) and inhibition of mitochondrial permeability transition pore (MPTP). In this pharmacological intervention, authors have discussed the various molecular pathways and triggers including their cellular and molecular signalling pathways involved in the cardioprotective effects of cardiac ischemic preconditioning.

PL-46

**A HISTORICAL JOURNEY OF COVID-19: FROM SARS-COV2 TO XE VARIANT**Aritri Chowdhury, Diksha, Ankit Kataria, Gurfateh Singh<sup>1</sup>University Institute of Pharma Sciences, Chandigarh University, Gharuan-Mohali 140413, Indiaaritrchowdhury99@gmail.com**ABSTRACT**

Coronaviruses wrapped with the layers of positive-sense RNA viruses specified by the club-like projections from their surface are responsible for a variety of diseases in the animal kingdom. After the two historical episodes of coronaviruses *i.e.*, severe acute respiratory syndrome coronavirus (SARS-CoV) in 2002 and Middle East respiratory syndrome coronavirus (MERS-CoV) in 2012, this time world struck with its highly pathogenic form which is severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Coronavirus disease (COVID-19) is a viral cascade event that starts in Wuhan in December 2019 and becomes a public health emergency of global interest as declared by the World Health Organization. Primarily, bats became an identifiable source of SARS-CoV-2 and their transmission to humans has occurred through an unknown intermediate source. The present situation depicts that more than 200<sup>+</sup> countries are suffering from the deadly attack of SARS-CoV-2. This virus is dangerous for every age group because of its asymptomatic carrier state that results in acute respiratory diseases. By the time covid-19 persisted & after mutating itself more than 15 times, on 26<sup>th</sup> November WHO declared a new variant called Omicron. Omicron has a 2.5 times greater affinity for ACE2 than the previous variants. BA.1 is the original Omicron variant, which sparked new waves of COVID-19 infections around the world and led to reinforced public health restrictions in many countries. BA.2 is a subtype that is much more contagious than the other variants. It was first detected in November, and it has now emerged as the dominant coronavirus strain in more than 60 countries. On 19<sup>th</sup> January 2022 a new variant came up that is a combination of BA.1 & BA.2. This overview preferentially wraps up the comparison between the SARS-COV2,OMICRON & XE variants of COVID-19.

**PL-47****REVIEW ON ANTIBIOTIC RESISTANCE AND ITS MECHANISM OF  
DEVELOPMENT**

Shivani\*, Palakdeep Kaur, Amardeep Kaur, Satvir Kaur

\*Department of Pharmacy, VMS College of Pharmacy, Batala, 143505, Punjab, India

[ss9140451@gmail.com](mailto:ss9140451@gmail.com)

**ABSTRACT:**

Antibiotics are substance produced by microorganisms with selectively suppress the growth and kill other microorganism. So, Antibiotics are the essential part of medicine used to ensure human and animal health. Misuse of antibiotics in human and animals has raised the concentration about the development of resistant bacteria. Antibiotics are used in sub therapeutic doses, non-laboratory and orient therapy. Different mechanisms are available in which antibiotics can prevent the growth of microorganism. The use of antibiotics as growth promoter in food animal procedure is significant cause for antibiotics resistance in animals. Thus awareness creation should be conducted on rational use of antibiotics in veterinary and medical practice to mitigate the occurrence of antibiotics resistance.

**PL-48****Formulation and Evaluation of Nano-crystallized powder of Piperine for the treatment of diabetes mellitus.****Mr. Peeyush kaushik**

Guru Govind Singh College of Pharmacy, Yamunanagar, Haryana

**Abstract**

Piperine is a N-acylpiperidine. It is an alkaloid that is present in several species of piper but it is mainly present in *piper nigrum linn* and *piper nigrum longum*, among other species fruits belonging to the family of Piperaceae. Black pepper is a very widely used spice, known for its pungent constituent Piperine has shown many pharmacological properties, such as anti-diabetic, antioxidant, antibacterial, anti-inflammatory, and anti-parasitic activity but challenges to their clinical use include poor solubility in water and low bioavailability that's why we are forming nano-crystallized powder for solubility enhances. Piperine has potential of scavenging the free radicals by entrapping ROS (reactive oxygen species). Piperine is extracted into ethylene dichloride and measured at maximal absorbance 342-345 nm with a UV light source.

PL-49

**TABLET IS NOVEL DOSAGE FORM****SukhmanpreetKaur\***, PalakdeepKaur, AmardeepKaur, SatvirKaur

\*Department of Pharmacy, VMS College of Pharmacy, Batala, 143505, Punjab, India

**E-mail id:** [preetsukhman889@gmail.com](mailto:preetsukhman889@gmail.com)**ABSTRACT**

This paper discusses the scholarly literature related to the tablet use in medicine. Medicines are not only a science, it is also an art. Tablets are novel kind of dosage form. There are many pharmaceutical dosage forms that have been used mainly due to their convenience of administration and their suitability for delivery of drug for systemic effect. Tablet is a solid dosage form containing API and other excipients. It is prepared by compression and molding method. It can also be prepared directly from powder and from granules pellets. Tablets can be coated by different methods. These are broadly classified as compressed tablets and moulded tablets. The compressed tablets can be further classified as directly compressed tablets, chewable tablets, triturates etc. United States pharmacopoeia lists many tests to be performed on the finished products to ensure the quality, quantity, safety and efficacy of the tablets.

**PHARMACEUTICAL CHEMISTRY  
ABSTRACTS  
(P-CHEM)**

**P-CHEM - 01**

**A computational-cum-experimental study on metal-organic frameworks MIL-53(Al) as sorbent for simultaneous determination of estrogens and glucocorticoids in water and urine samples by dispersive micro-solid-phase extraction.**

Hemjot Kaur

Department of Chemistry, Panjab University, Chandigarh.

Email: hemjot\_k@cy.iitr.ac.in

**ABSTRACT**

In the last two decades, metal–organic frameworks (MOFs) have attracted overwhelming attention of scientific community with their readily tunable structures and functionalities. With progressive success in the synthesis of water- and solvent-resistant MOFs has increased widespread liquid phase applications such as liquid fuel purification, aromatics separation, water treatment, solvent recovery, chemical sensing, chiral separation, drug delivery, biomolecule encapsulation and separation. Molecular simulations were applied to predict the adsorption of eight analytes on four MOFs (MIL-101(Cr), MIL-100(Fe), MIL-53(Al), and UiO-66(Zr)) by examining molecular interactions and free binding energies. Subsequently, the four water-stable MOFs were synthesized and tested as adsorbents for the target hormones in aqueous solution. MIL-53(Al) was chosen as a sorbent to develop a dispersive micro-solid-phase extraction procedure coupled to ultra-performance liquid chromatography tandem mass spectrometry for simultaneous determination of the target analytes in water and human urine samples. Experimental parameters affecting the extraction recoveries, including pH, ionic strength, MIL-53(Al) amount, extraction time, desorption time, and desorption solvent, were optimized. Good agreement between experimental measurements and computational results showed the potential of this approach for elucidating adsorption mechanisms and predicating extraction of pharmaceutical drugs from water.

**P-CHEM - 02****Adsorption of psychotropic drugs, promazine and trifluoperazine on graphene, fullerene and carbon cyclic ring nanoclusters: A DFT study**

Ravi Kumar

Department of Chemistry, Panjab University, Chandigarh  
[ravikumar2167@gmail.com](mailto:ravikumar2167@gmail.com)**ABSTRACT**

In drug development program detection and qualification of the impurities in pharmacological drugs play crucial role. Here, theoretical investigation of structural and spectral characterization of phenothiazine derivatives, promazine (PME) and trifluoperazine (TPE) and their self-assembly with graphene/fullerene/carbon ring (CG/CF/CR) systems is explored. The investigation of adsorption behavior can provide valuable information about its reactivity, electronic and structural properties. 3D electrostatic potential diagrams, frontier orbital energies and energy band gaps of the molecules were computed. NBO analysis is done to evaluate delocalization of charge density between the bonding or lone pair and anti-bonding orbitals. Bioactivity scores from docking studies show that the pharmacokinetic and pharmacological properties of the ligands are appropriate leading to be considered potential drug agents. We have calculated the chemical enhancement for PME/TPE over the CG/CF/CR nanoclusters and found that enhancement is observed for all nanoclusters. TPE-CG nanocluster showed more adsorption energy and high charge transfer in comparison to other systems. At adsorption of PME/TPE, the band gap of each nanocluster is reduced significantly. Findings of the present work show that CG/CF/CR nanoclusters are suitable for PME/TPE detection and PME/TPE is prone to nanoclusters being present as a substrate. The docking studies indicate that the binding affinity and hydrogen bond interactions can be supportive evidence for further studies.

**PCHEM - 03****Review: An Insight on Versatile Nucleus Indole**

Ramni Rani\*<sup>1</sup>, Poornima<sup>1</sup>, Bishu Bhavna<sup>1</sup>, Sonia Devi<sup>2</sup>, Dr. Deepak Kumar<sup>3</sup>

Global College of Pharmacy, Kahanpur Khui, Anandpur Sahib

[ramnir16@gmail.com](mailto:ramnir16@gmail.com)

**ABSTRACT**

Indole is a bicyclic aromatic heterocyclic organic compound comprising of a six-membered benzene ring fused to a five-membered nitrogen-containing pyrrole ring which is widely distributed in nature. In 1886, Adolf Baeyer isolated Indole by the pyrolysis of oxindole with Zn dust. Indole scaffold is one of the most promising heterocyclic nucleus identified in natural and synthetic sources, with a variety of biological activities. It has a very unique property of mimicking different structures of proteins and binding to enzymes in a reversible manner that's why most important privileged nucleus in drug discovery. The Indole moiety can be found in a variety of pharmaceutically active compounds with a variety of biological activities, such as anticancer, antiviral, antipsychotic, antihypertensive, anti-migraine, anti-arthritis, analgesic properties and it also aids in the attachment of medicine to the residues of selected target binding sites in order to improve the therapy of lifestyle disorders. This chemical entity could be more effective and safer medication for a variety of illnesses, so we can claim that indole has a wide range of biological actions and has a lot of potential as a new therapeutic target.

## PCHEM - 04

**A Review on: Phytosomes of *Murraya Koenigii***

Sahil Takkar, Neha Bala, Pallavi Ahirrao

Chandigarh College of Pharmacy, CGC Landran, Mohali-140307, Punjab

[pallavi.ccp@cgc.edu.in](mailto:pallavi.ccp@cgc.edu.in)

**ABSTRACT**

*Murraya koenigii* (Curry leaves) belongs to India and found almost everywhere in the subcontinent excluding the higher levels of Himalayas. This plant is widely used as a source of spice, herb, and also used to treat various diseases in Indian System of Medicine. The whole plant is rich source of carbazole alkaloids and these alkaloids have been reported for their various pharmacological activities. The leaves of *Murraya koenigii* can be used as a carminative, tonic, stomachic and internally in vomiting and dysentery. Curry leaves are also found to be very efficient as a blood purifier, anti-microbial, analgesic, anti-diabetic, anti-oxidative and soothe inflammation, itching and heat of the body. Apart from these medicinal properties, curry leaves are also been used for centuries as a species as a flavoring agent. Phytosomes is a novel drug delivery dosage form. Phytosomes is a patented technology. It is used for development of formulation for improved bioavailability of medicaments of phytoconstituents present in herbal extract or herbal preparation. Phytosomes is prepared by using the phospholipids and forming the complex between phytoconstituent and phospholipids.

## PCHEM - 05

**MOLECULAR DOCKING STUDIES AND INVITRO ANTICANCER EVALUATION  
OF SOME NOVEL SUBSTITUTED 2-THIOXO-4-THIAZOLIDINONE DERIVATIVES**

Cici Mathew, Joyamma Varkey

College of Pharmaceutical Sciences, Govt. Medical College, Thiruvananthapuram

ciciabi@gmail.com

**ABSTRACT**

The present study aims to carryout synthesis of a series of 8 novel rhodanine (2-thioxo-4-thiazolidinone) derivatives from substituted primary amines. Molecular docking studies were done with 3 different anticancer targets using Discovery Studio 2021. Characterization of the synthesized compounds were done using IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR and HRMS. All the synthesized compounds ((**2a–2h**)) were screened for invitro anticancer activity against MDA-MB-231 and HeLa cell lines. The cytotoxicity was evaluated by MTT assay method and IC<sub>50</sub> was calculated. Out of the 8 derivatives, compound 2h and 2e showed potent cytotoxicity. They also showed good binding affinity with different anticancer targets. Compound 2h showed IC<sub>50</sub> < 62.5µg/ml for both cell lines. The anticancer potential was confirmed by its good docking score and binding affinity with different anticancer targets by LibDock using Discovery Studio 2021. Based on the above observations compound 2h can be developed into a potent anticancer agent in future.

## PCHEM - 06

**INDOLES: A PRIVILEGED SCAFFOLD POSSESSING BROAD SPECTRUM OF  
ACTIVITY**Heena, Jyoti Singh

Chandigarh College of Pharmacy, Landran, Mohali, India

[jsjyotisingh202@gmail.com](mailto:jsjyotisingh202@gmail.com)**ABSTRACT**

Indole is an aromatic heterocyclic organic compound that consists of a six membered benzene ring fused to five-membered nitrogen containing pyrrole ring. This attractive nucleus draws attention because of its easy functionalization at the various positions of the ring making it a privileged building block to synthesize potent biologically active compounds that results in compounds with fruitful biological activities.

Indole derivatives have been reported to exhibit diverse biological activities such as antimicrobial, antidiabetic, antitubercular, cyclooxygenase inhibitor, anti-inflammatory, antipyretic, analgesic, antifungal, broncho dilatory and anti-allergic, antihypertensive, anticovulsant, antidepressant, anti-HIV and anticancer. Specially, the introduction of various substituent on the 3-, 4-,5-, 6- positions may lead to potent derivatives having either anti-inflammatory, analgesic and antipyretic activity, antiviral antihypertensive, antidepressant, antiulcer and anticancer.

3,3'-diindolylmethane (DIM), Sunitinib, Tadalafil, Apaziquone, Reserpine, Binedaline, Roxindole, Proamanullin and yohimbine are the various clinically used indolebased drugs. Various literature reports concluded that indole derivatives may have good potential to be developed into potent drugs by modifying its structure. This privileged scaffold has been studied for structure-activity relationship (SAR) studies and result into potential lead molecules. So, taking into consideration the diverse biological action of indole with less toxicity, it can be used for the generation of new drug with less toxicity.

## PCHEM - 07

**LC–MS/MS method for simultaneous determination of Zolmitriptan and Piroxicam in human plasma: Application to a clinical pharmacokinetic study**

Bhupinder Bhyan\*<sup>1</sup>, Prof. Dinesh C. Bhatt<sup>2</sup>, Sarita Jangra<sup>3</sup>

<sup>1</sup>Department of Pharmaceutical Sciences, Guru Jambheshwar University of Science and Technology, Hisar, Haryana.

<sup>1</sup>Department of Pharmaceutics, Swift School of Pharmacy, Swift Group of Colleges, Punjab.

<sup>2</sup> Professor of Pharmaceutics, Department of Pharmaceutical Sciences, Guru Jambheshwar University of Science and Technology, Hisar, Haryana.

<sup>3</sup> Associate Professor, Department of Pharmacy Practice, Chitkara College of Pharmacy, Chitkara University, Punjab.

bhyan2021@gmail.com

**ABSTRACT**

Combination therapy with anti-migraine drugs is now widely used for treatment of migraine with aura and without aura. A rapid, selective, and sensitive liquid chromatography coupled with tandem mass spectrometry (LC–MS/MS) method was developed and validated for simultaneous quantitation of Zolmitriptan (ZMTP) and Piroxicam (PRXM) in human plasma. Separation and detection of analytes were achieved on a Shimadzu HPLC System LC-20AD model with Hypurity AdvanceC18 (50 x 4.6 mm, 5 µm) column coupled with MDS Sciex API 4000 Triple Quadrupole MS/MS System. Isocratic acetonitrile and 5mM ammonium acetate (pH-4.0) was used 50:50 v/v as mobile phase. Solid phase extraction was utilized for elution of analytes from the matrix. Thereafter, analytes were monitored by using MS/MS with electrospray ionization source in positive multiple reaction monitoring mode. The MS/MS response was linear over the concentration range from 0.050-10 ng/mL for ZMTP and 2.0–500 ng/mL for PRXM with a correlation coefficient ( $r^2$ ) of 0.999. The within- and between-batch precisions (relative standard deviation, % RSD) and the accuracy (% bias) were within the acceptable limits as per FDA guideline. The validated method was successfully applied to the clinical pharmacokinetic study. Due to high sensitivity and low requirement of sample volume, the method may be applicable for therapeutic drug monitoring of this regimen

**PCHEM - 08****Salt Analysis: Emerging Diagnostic Parameter for Breast Cancer**

Viresh Kumar\*, Sundaram Pandey, Deepak Kumar, Parul Saini, Nisha Bharti, Sonali Singh  
Chandigarh Collage of Pharmacy, Landran, Mohali

[vireshkumar582@gmail.com](mailto:vireshkumar582@gmail.com)

**ABSTRACT**

Breast cancer remains a leading cause of death in women worldwide. Statistically females are more prone to breast cancer as compare to males. There can be rare chances in males (0.5-1%), about one of every breast cancer diagnosed in the US is found in a man. Primarily physician approaches, chemotherapy as the first line of treatment of breast cancer along with radiation therapy or surgery in severe cases. According to the pre-clinical studies, MRI shows high sodium level in cancerous cells. This can be a new diagnostic parameter for the breast cancer diagnosis. The drug that blocks the sodium channel could potentially slow down the growth and spread of tumor. It has been observed in various studies that increased sodium level in the tissues is released from the cancerous cells. So, possibly a new drug development can be a research area for the breast cancer. This review can help to develop new drugs which show mechanism related to the sodium levels. So, this study will be an emerging research topic for further studies.

## PCHEM – 09

**Purification methods improvement of Montelukast Intermediate**

Richa Ohri \*, Sharma Sandeep

Lala Birkha Ram College of Pharmacy, Golpura, Panchkula, Haryana (134118)

richaohri@gmail.com

**ABSTRACT**

Deplorably asthma is the most common chronic disease worldwide among children's. Asthma is a common chronic disease characterized by episodic or persistent respiratory symptoms and airflow limitation. Asthma is ranked 16<sup>th</sup> among the leading causes of years lived with disability and 28<sup>th</sup> among the leading cause of deaths with approximately 250,000 reported deaths annually. It affects around 23.5 million people (5-10%) including 7% of children. Asthma treatment is based on a stepwise and control-based approach that involves an iterative cycle of assessment, adjustment of the treatment and review of the response aimed to minimize symptom burden and risk of exacerbations. Montelukast is a potent antagonist of cysteinyl leukotrienes and it represents as the first category of drug which is effective in numerous biological and pathophysiological mechanisms involved in asthma. It improves the asthmatic symptoms, rescue pulmonary function and liberates medication use, and abridged the rate of exacerbation and the level of blood eosinophils, in mild-to-moderate asthmatics patients that were not treated with inhaled corticosteroids (ICS). The objective of present work is to improve the purification method of montelukast intermediate at 7<sup>th</sup> stage (MT07) of its manufacturing process. The quality improvement is achieved by using methanol in water as solvent in different ratios for purification to get better yield of more potent, stable and compatible drug in fewer expenses of time and money.

## PCHEM – 10

**A REVIEW ON SYNTHESIS AND *in-vitro* ANTICANCER EVALUATION OF  
BENZOPYRAZOLE CONTAINING THIAZOLIDINE-4-ONE DERIVATIVES**Babita Patial\*<sup>1</sup>, Dr Anshul Chawla<sup>2</sup>, Dr Rajeev Sharma<sup>3</sup>

1. Research Scholar, Pharmaceutical Sciences, CT University Ludhiana.
2. Professor, Pharmaceutical Sciences, CT University Ludhiana.
3. Professor, Pharmaceutical Sciences, Chandigarh University.

**Corresponding Author:** Babita Patial[babe.babita@gmail.com](mailto:babe.babita@gmail.com).**ABSTRACT**

Anticancer agents are the agents used to treat wide range of cancer. There is uncontrolled growth of cells in cancer which interfere with the growth of healthy cells. Now a day's surgery, chemotherapy (involves treatment with anticancer drugs), radiation or some of the combination of these methods are the most common treatments of cancer. Various cancers like Breast cancer, Colorectal Cancer, Ovarian Cancer, Head and Neck Cancer, Melonoma Cancer etc are some of the types of cancer targeted to treat by anticancer drugs. Heterocyclic compounds are the cyclic organic compounds in which carbon atoms and other heteroatoms like oxygen, nitrogen or sulphur are incorporated in the ring system. Benzopyrazole is an aromatic organic compound containing Pyrazole ring fused with benzene ring. It is an important class of aromatic nitrogen containing heterocyclic compound having a bicyclic ring structure with 10  $\pi$ -electrons. The tautomeric form results due to the displacement of protons between two nitrogen atom of pyrazole ring fused with benzene ring

## PCHEM – 11

**A REVIEW ON DESIGN, SYNTHESIS AND EVALUATION OF BENZOTHAZOLE  
CONJUGATES AS POTENTIAL ANTIMICROBIAL AGENTS**

Benu Chaudhary\*<sup>1</sup>, Dr Anshul Chawla<sup>2</sup>, Dr Rajeev Sharma<sup>3</sup>

1. Research Scholar, Pharmaceutical Sciences, CT University Ludhiana.
2. Professor, Pharmaceutical Sciences, CT University Ludhiana.
3. Professor, Pharmaceutical Sciences, Chandigarh University.

**Corresponding Author:** Benu Chaudhary

[benuchaudhary2@gmail.com](mailto:benuchaudhary2@gmail.com).

**ABSTRACT**

Antimicrobial agents are any substance of natural, synthetic or semi synthetic origin that is grouped according to the organisms against which they act such as antibacterial (for bacteria), antiviral (for virus), antifungal (for fungi) and antiparasitic (for parasites). Heterocyclic compounds are the cyclic organic compounds in which carbon atoms and other elements like oxygen, nitrogen or sulphur are incorporated in the ring system. The simple heterocyclic compounds are pyridine, pyrrole, furan, and thiophene. Benzothiazole is an aromatic organic compound containing 1,3-thiazole ring fused to a benzene ring. It is a coplanar five membered ring. The heteroatom sulphur and nitrogen are present in the ring along with carbon atoms. Thiazolidine-4-one is the five membered cyclic or ring compound with carbonyl group at position 4. This carbonyl group is unreactive in nature. It is a heterocyclic ring containing nitrogen and sulphur as heteroatoms. There have been numerous researches that explore the antimicrobial activities of benzothiazole and thiazolidin-4-one complexes.

# PHARMACOGNOSY ABSTRACTS (P-COG)

**P-Cog-01****Aspect of Euphorbia Hirta in the Intendance of Obesity**Sarbjot Singh

Aakash Institute of Medical Sciences, Nalagarh, Distt. Solan, Himachal Pradesh, 174101

sarbjots771@gmail.com**ABSTRACT**

Herbal plants have been used for their medicinal properties from ancient times. India is home over worldwide for its herbs and spices along with that the ayurvedic treatment of any disease with natural herbs. Euphorbia hirta is frequently used conventionally for disorder related to female, lung disorder (asthma, wheezing, and inflammation of bronchial tubes), worm invasions in children, dysentery, jaundice, pimples, gonorrhoea, gastrointestinal difficulty, and tumors. E. hirta accommodate polyphenols, triterpene, alkanes, tannins, and flavanoids. This review outlines the therapeutic properties, chemical constituents, and other important aspects of Euphorbia hirta in the management of obesity.

**P-Cog-02****Systematic Review based on *Ocimum sanctum* Perspective**Munish Goyal

Aakash Institute of Medical Sciences, Nalagarh, HP, 174101, India

[drmunishgoyal81@gmail.com](mailto:drmunishgoyal81@gmail.com)**ABSTRACT**

Corona virus disease (CoViD-19) is essentially a respiration contamination because of a set of viruses infecting respiration pathway, lungs and it is able to unfold from animal to character, character to character even as sneezing or bodily contact. They're not unusual place symptom consists of cough, cold, fever and sore throat. Herbal remedy is a category of medication originating from nature consequently inflicting fewer facet outcomes due to much less use of additives, preservatives or excipients. I selected writing a evaluation over the usage of herbs for the remedy of Corona virus. Although herbal merchandise were utilized by civilization due to the fact historical times, simplest in current a long time has there been developing studies into opportunity remedies and healing use of herbal merchandise. Plants synthesize and hold a whole lot of biochemical merchandise, lots of that are extractable and used for diverse clinical investigations. Therefore, medicinal plant life proved to be a first-rate hotel for the remedy of illnesses and illness through conventional healers in lots of societies.

**P-Cog-03****Variable Approach to Different Systems of Medicines for Health Care Needs:  
A Questionnaire Based Survey**

Archit Sawhney, AnshJohri, Bhavya Singh, Supriya Agnihotri

Chandigarh College of Pharmacy, Landran, SAS Nagar. India.

[architsawhney128@gmail.com](mailto:architsawhney128@gmail.com)

**ABSTRACT**

Allopathy, Ayurveda, Yoga, Naturopathy, Unani, Siddha, Homoeopathy and Sowa-Rigpa are being practiced in India. People tend to choose any of these systems of medicine depending on ease of availability, faith and financial capacity. The choice based selection could lead to indiscriminate self medication practices which could be harmful, keep away inter disciplinary and super specialties healthcare, and over whelm a particular manufacturing facility causing shortage of medicaments. Keeping this in view, a short term randomized questionnaire based study using Google form was conducted to understand trends towards particular system of medicine and other sociodemographic parameters. Total 204 respondents (male & female; up to 75 years age) participated. Responses were analyzed using standard methods. More than half of the suffering respondents consulted Medical specialist and rest opted for pharmacists or self medication. Maximum people relied on allopathic medicines followed by home remedies, homoeopathy and ayurveda for cold, cough etc. Significant number of people reported using combination of home remedies and medicine. The trends could predict customer influx on different pharmaceutical industries. However, a more comprehensive data with larger sample size and wider inclusion criteria could provide better insight and help in carving new health care strategies.

**P-Cog-04****Review: Wonder Herb Artemisia Potential Impact on Health**

Satkar Singh<sup>1</sup>, Amit Sandhu<sup>1</sup>, Sonia Devi<sup>2</sup>, Deepak Kumar<sup>3</sup>

<sup>1</sup>Scholar, Global College of Pharmacy, KahanpurKhui, Anandpur Sahib

<sup>2</sup>Asst. Professor, Global College of Pharmacy, KahanpurKhui, Anandpur Sahib

<sup>3</sup>Principal, Global College of Pharmacy, KahanpurKhui, Anandpur Sahib

satkarsingh16@gmail.com

**ABSTRACT**

Medicinal plants are nature's gift to human beings to make disease free healthy life. Artemisia being the worldwide distributed genus of the plant family Asteraceae. It was originally native to China, but is now localized in many countries, including scattered areas of North America . It consists of about 500 species. Apart from *Artemisia annua*, other very well-known species of the genus include *Artemisia absinthium*, *Artemisia abrotanum* and *Artemisia afra*. Artemisia herb yields a natural component known as 'Artemisinin' which is being used as Antimalarial agent. This plant contains sesquiterpene lactones and is strongly insecticidal. The dry leaves and stems contain essential oil and other components which have anti-inflammatory, antimicrobial, antifungal, antiseptic, strong hepatoprotective, neuroprotective, antidepressant, antiaging and antioxidant activity. Current studies indicate positive effects of artemisinin extracts to combat COVID-19 related symptoms. Artemisia herba-alba reduced hyperglycemia, hypertriglyceridemia and hypercholesterolemia in rat and human, which is determinant in the cure of coronary heart disease and myocardial infarction. The physicochemical parameters and phytochemical screening suggest that *Artemisia annua* was non-toxic and was well tolerated. Various species of Artemisia seems to hold great potential for various central nervous system and cardiovascular disorders.

P-Cog-05

**Contribution of Medicinal Plants as Nuclear Factor-kappa B (NF- $\kappa$ B) Inhibitors in  
Cancer Treatment**Rina Das, Dinesh Kumar MehtaM.M.College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University,  
Mullana, Ambala, HR, India.[rinammu@gmail.com](mailto:rinammu@gmail.com)**ABSTRACT**

Nuclear factor-kappa B (NF- $\kappa$ B) is one of the principal inducible proteins that is a predominant transcription factor known to control the gene expression in mammals and plays a pivotal role in regulating cell signaling in the body under certain physiological and pathological conditions. In cancer cells, such as colon, breast, pancreatic, ovarian, melanoma, and lymphoma, the NF- $\kappa$ B pathway has been reported to be active. In cellular proliferation, promoting angiogenesis, invasion, metastasis of tumour cells and blocking apoptosis, the constitutive activity of NF- $\kappa$ B signalling has been reported. They are a desirable therapeutic target for drugs, and many studies concentrated on recognizing compounds. Recently, numerous substances derived from plants have been evaluated as possible inhibitors of the NF- $\kappa$ B pathway. These include various compounds, such as flavonoids, lignans, diterpenes, sesquiterpenes, polyphenols, etc. Taking this into account, the present study revealed the anticancer potential of naturally occurring compounds which have been verified both by inhibiting the NF- $\kappa$ B signalling and suppressing growth and spread of cancer and highlighting their mechanism of NF- $\kappa$ B inhibition.

**P-Cog-06****DPP-4 (DIPEPTIDYLPEPTIDASE) Inhibitor from Herbal Sources**Jai Bhardwaj

Research scholar, Pharm.D, M.M. College of Pharmacy, Maharishi Markandeshwar

(Deemed to be University), Mullana, Ambala-133203.

**ABSTRACT**

The DPP-4 inhibitors are anti diabetic drugs. The other classes of anti diabetic drugs such as sulfonylureas, biguanides, and alpha glycosidase inhibitor have more adverse effects than DPP4 inhibitors. Some patients are not able to afford such expensive drugs so therefore herbal drugs are a option to such patients .The DPP4 inhibitors from herbal sources are -*Vignaunguiculata*:- The cowpea *Vignaunguiculata* is an annual herbaceous legume madeup of around 22–31% protein, hydrolyzed to produce small, biologically active proteins. Cowpea short-time germination and alcalase protein hydrolysis can be used to produce ingredients with high DPP-IV inhibition. *Urenalobata*:-commonly known as Caesar weed or Congo jute, is found in North and South America, shows DPP-4 activity. *Mangifera indica* L.:-*Mangifera indica* L.(Mango) is a species of flowering plant in the sumac and poison ivy family Anacardiaceae. The ethanolic extract of leaves of mango shows DPP-4 inhibitor activity. *Rhizophora apiculata*:- (Rhizophoraceae family) It is used as anti diabetic. *Castanospermum australe*:- (Family Fabaceae) also known as the Moreton Bay Chestnut or black bean is cultivated in India an ornamenta tree. Australine and 7-Deoxy-6-epi-castanospermine have been molecular docking (MD) and compared with barberin it acts as potent DPP-IV inhibitor.

**P-Cog-07****Herbal Cosmetics: A Boon to Society**

Nainsi, Shreya Sharma, Urvashi, Inderpreet Kaur, Dr. Deepak Kumar

Global College of Pharmacy, KahnpurKhui, Anandpur Sahib, Distt Ropar, Punjab

[dhimannainsi55@gmail.com](mailto:dhimannainsi55@gmail.com)

**ABSTRACT**

The concept of beauty and cosmetics is as ancient as mankind civilization. Cosmetics are the inert substances which cleanse and enhance the appearance of skin but without any therapeutic effect. Cosmetics alone are not competent to take care of skin, it requires association of active ingredients to check causality and aging of skin. But since, the cosmetics are made of chemical constituents may proven to be toxic to skin. These synthetic cosmetics can cause pimples, rashes, skin lesions etc. So, herbal cosmetics are formulated in which one or more herbal ingredients are used and are free from all harmful synthetic chemicals .These cosmeceuticals were first used by Raymond Reed, a founding member of U.S. Society Of Cosmetics Chemist in 1961. A variety of plant parts like leaves, flowers , berries, fruits and plant extracts are used. The cosmeceuticals or herbal cosmetics have medicinal benefits which affect the biological functioning of skin depending upon type of functional ingredients they contain .They are used not just for beautification but for different skin ailments. These products improve the functioning/texture of skin by boosting collagen growth by eradicating harmful effects of free radicals, maintains the keratin structure in good condition and making skin healthier.

**P-Cog-08****Stigmasterol, a Versatile Therapeutic Molecule: An Update**

Jasmine Chaudhary, Akash Jain

MM College of Pharmacy, MM(DU), Mullana, Ambala

[jasmine.jain@mmumullana.org](mailto:jasmine.jain@mmumullana.org)

**ABSTRACT**

Stigmasterol (Stigmasterin), an unsaturated phytosterol having structural resemblance with cholesterol occupies a significant position in the plant as well as animal kingdom due to its various functions including plant growth and development, maintaining structure and physiology of cell membranes, acting as a precursor in synthesis of various steroidal hormones like progesterone, estrogens, androgens and Vitamin D<sub>3</sub> etc. It can be obtained from different vegetables, including legumes, nuts, seeds, edible oils and a variety of medicinal plants viz. *Ficus hirta*, *Eclipta prostrata*, *Croton sublyratus*, etc. Despite performing its regular functions, stigmasterol is also reported to possess a plethora of other pharmacological activities like anticancer, antimicrobial, hypoglycemic, anti-oxidant, hypolipidemic, analgesic, anti-inflammatory, antiviral etc. Thus it can also be employed as an intermediate for the synthesis of pharmaceutical compounds with considerable therapeutic importance. Therefore, the present work is designed to collate all the literature highlighting the recent development in the activities of stigmasterol so that it can be helpful to the researchers to design novel stigmasterol molecules with more pharmacological efficacy and least toxicity can be synthesized.

**P-Cog-09****Tulsi – Queen of Medicinal Plants**

Harpreet Kaur, Harjeet Kaur, Manpreet Kaur, Inderpreet Kaur, Deepak Kumar

Global College of Pharmacy KhanpurKhui, Anandpur sahib, Distt-Ropar 140117 (Punjab)

[singhdilpreet0537@gmail.com](mailto:singhdilpreet0537@gmail.com)

**ABSTRACT**

The predominant causes of global morbidity and mortality are lifestyle related chronic diseases many of which can be addressed through Ayurveda with its focus on healthy lifestyle practices and regular consumption of adaptogenic herbs. Of all the herbs within Ayurveda, Tulsi (*Ocimum sanctum* Linn.) is prominent and scientific research is now confirming its beneficial effects. The root, seeds and leaves are majority used due to its therapeutically properties. Tulsi has through positive effects on memory and cognitive function and through its anxiolytic and anti-depressant properties. Cultivation of tulsi plants has both spiritual and practical significance that connects the grower to the creative powers of nature and organic cultivation offers solutions for food security, environmental degradation and climate change. The use of tulsi in daily rituals is a treatment to Ayurvedic wisdom and provides an example of ancient knowledge offering solution to modern knowledge. This drug is famous for household medication for many diseases such as injury, respiratory disorder, viral infection, stomach diseases, and urinary disorders. Tulsi is a viable treatment for a way of life related constant maladies. Tulsi improves the body's overall defence mechanisms including its ability to fight viral diseases.

**P-Cog-10****Turmeric: Spice with Multifunctional Medicinal Properties**

Amardeep Singh<sup>1</sup>, Paras Prabhakar<sup>1</sup>, Sonia Devi<sup>2</sup>, Deepak Kumar<sup>3</sup>

<sup>1</sup>Scholar, Global College of Pharmacy, KahanpurKhui, Anandpur sahib.

<sup>2</sup>Asst Professor, Global college of Pharmacy, KahanpurKhui, Anandpur sahib.

<sup>3</sup>Principal, Global college of Pharmacy, KahanpurKhui, Anandpur sahib.

[amarsingh65566@gmail.com](mailto:amarsingh65566@gmail.com)

**ABSTRACT**

Turmeric is known as the “Indian saffron “as well as the “golden spice” belonging to zingiberaceae family is powerful herbal medicine plant. Turmeric (*Curcuma longa*), chemically known as diferuloylmethane, was first isolated in 1815. The active ingredient in turmeric is curcumin. India accounts about 90% of the total output of the world which is very superior in quality and is exported on large scale. Curcuma is a genus of about 70 species of rhizomatous herbs distributed in South East Asia and especially India, China, Thailand, Italy, Malaysia, Archipelago and North Australia. Commercially, *C. amada*, *C. angustifolia*, *C. aromatica*, *C. caesia*, *C. zedoary* and *C. longa* are known. *Curcuma longa* (Haldi) is traditionally more important due to its uses like spice, condiment and natural dye-stuff for dyeing. In recent times, Turmeric is medicinally used as immunomodulator, anticancer, antioxidant, antifungal, antimicrobial, antibiotic, antihyperlipidemic, antiulcer, antiseptic, anti-inflammatory, anti-HIV agent and blood purifier. A spoonful of turmeric is a powerful natural immunity booster and is safe during pregnancy or lactation period. Furthermore, even if a person does not have a diagnosed health condition, a relatively substantial amount can provide health benefits and aids in the management of multiplication of pharmacological activity in health.

**P-Cog-11****Remdesivir: Clinical Efficacy in Treatment of SARS-CoV-2 Infection**

Manisha Saini<sup>1</sup>, Minakshi Rana<sup>1</sup>, Rina Das<sup>1</sup>, Dinesh Kumar Mehta<sup>1</sup>

<sup>1</sup>M.M. College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana, Ambala, HR, India

[manisha15101998saini@gmail.com](mailto:manisha15101998saini@gmail.com)

**ABSTRACT**

The sudden outbreak of SARS-CoV-2 infection was one of the leading cause of deaths globally which has caused significant damage to humans in every aspect of life in 2020s. This global pandemic has compelled the medical field and healthcare community to uncover and develop treatment interventions for controlling and preventing the further spread of this infectious disease. Many vaccines and drugs were evaluated in numerous clinical trials, of which Remdesivir was one such drug that showed good clinical efficacy in treatment of Covid-19 and was approved as Emergency Use Authorization (EUA) drug by FDA. Remdesivir, a nucleotide analogue prodrug, perturbs viral replication by inhibiting RNA-dependent RNA-polymerase of RNA viruses. Remdesivir, in terms of clinical improvement, has shown promising results by showing better survival rates, decreasing viral load, shortening the recovering time, duration of oxygen need and mortality rates. The purpose of this study is to provide an overview of the effectiveness of this drug based on the clinical trials reported in current published data.

**P-Cog-12****miRNAs as the Novel Noninvasive Diagnostic Tool For Non-Alcoholic  
Fatty Liver Disease**

Minakshi Rana, Manisha Saini, Rina Das, Dinesh Kumar Mehta

M.M. College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University,  
Mullana, Ambala, HR, India

\*minirana004@gmail.com

**ABSTRACT**

Non-Alcoholic Fatty Liver Disease (NAFLD) is a metabolic disorder which is known to be the leading cause of chronic liver disease. Histologically, NAFLD progresses from simple steatosis to non-alcoholic steatohepatitis, characterized by hepatic steatosis and necroinflammation. This, if left untreated, will result in irreversible liver damage like fibrosis, cirrhosis and hepatocellular carcinoma in few patients and is foreseen as the leading cause of liver transplantation and end-stage liver disease. Rapidly growing burden of NAFLD globally, requires accurate prognostic and diagnostic biomarkers for effective treatment and prevention of the disease. Present diagnostic procedures for NAFLD are mostly invasive and of limited precision. Liver biopsy, an invasive procedure, is the only gold standard diagnostic tool for the hepatic disease. Thus, for the diagnosis of NAFLD, monitoring disease progression and determining treatment response, noninvasive biomarkers are essentially needed. Several studies have shown the role of miRNAs in disease pathogenesis and their potential to serve as reliable biomarkers for NAFLD diagnosis. The purpose of our study is to understand the role of miRNAs as the novel noninvasive diagnostic modality for NAFLD.

**P-Cog-13****Childhood Obesity: Prevalence and Approaches Towards Management**

Saroj Prasad Shah, Rina Das, Dinesh Kumar Mehta

M.M. College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University,

Mullana, Ambala, HR, India

sarojsah530@gmail.com

**ABSTRACT**

Childhood obesity and its sequelae are a major public health problem globally. It is a complex condition, influenced by genetics, nutritional intake, level of physical activity, social and physical environment factors. Various types of food & nutritional components related to childhood obesity includes sugar-sweetened beverages (SSBs), fruit juices, fast food, snacks, also milk and dairy products, vitamins, fat, proteins, calcium & dietary fiber. Overweight and obesity in children are assessed clinically by calculation of BMI, obtained by dividing weight (in kilograms) by height squared (square meters). A staged approach to treatment is recommended, with initial management being implemented in primary care and with focus on healthy eating habits and active lifestyle. The primary treatment options are behavioral lifestyle modification, pharmacotherapy, surgery and also require special support at school in addition to health care treatment to lose weight. Orlistat and sibutramine are two drugs for pharmacological therapy approved by FDA in United States. Here we have studied the various approaches reported to manage childhood obesity.

**P-Cog-14****Probing the Antioxidant Potential of *Syzygiumcumini***

Shyam, Rina Das, Dinesh Kumar Mehta

M.M. College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University,

Mullana, Ambala, HR, India

[kaushikshyam9803@gmail.com](mailto:kaushikshyam9803@gmail.com)

**ABSTRACT**

Antioxidants are substances that prevent or slow cellular damage caused by free radicals, unstable molecules that the body produces in response to environmental and other stressors. Herbal medicines defined as herbs originated in ancient cultures. *Syzygiumcumini* (Jamun) is available plenty in India. It has an abundant amount of antioxidant and nutritional properties which can be a high potent in pharmaceutical. The most common phytochemical antioxidants include ascorbic acid (Vitamin C), tocopherols, and tocotrienols (Vitamin E), carotenoids (provitamin A). The present study is primed to describe existing data on information on the antioxidant activity of different extracts of *Syzygium cumin*.

**P-Cog-15****Probing the Antimicrobial Potential of *SyzygiumCumini* leaves**

Sujata Singh, Rina Das, Dinesh Kumar Mehta  
M.M. College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University,  
Mullana, Ambala, HR, India

[singhsujaa1905@gmail.com](mailto:singhsujaa1905@gmail.com)

**ABSTRACT**

Microbial infections are responsible for millions of deaths worldwide each year. Herbal medicine (also herbalism) got its origin from ancient culture and is the basis for the cure and prevention of various diseases through traditional methods such as ayurveda, unani and siddha. Many pharmaceutical drugs are based on laboratory versions of naturally occurring compounds found in plants. Herbal medicines incorporate active ingredients. One such herbal plant jamun is extensively used as an antimicrobial agent. *Syzygiumcumini* (Syn. *Eugenia jambolana*) belonging to the family Myrtaceae. Several scientific reports have shown that various extracts of different jamun possess antimicrobial activity against many microorganisms. The present review is primed to describe existing data on information on the antimicrobial activity of different extracts of *Syzygium cumin* leaves.

**P-Cog-16****Herbs to Boost Immunity in COVID-19**

Simar Kaur, Rina Das, Dinesh Kumar Mehta

M.M. College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University,  
Mullana, Ambala, HR, India

[simarkoursandhu@gmail.com](mailto:simarkoursandhu@gmail.com)

**ABSTRACT**

The residents of Wuhan, China's Hubei province, were infected with the deadly "SARSCoV2"-like pneumonia in December 2019, which was later named as Corona virus disease (COVID19) by the World Health Organization (WHO) (Wang, Wang, Ye, & Liu, 2020). Fever, sneezing, diarrhea, dry cough, malaise, respiratory distress, and shortness of breath are among the COVID19 symptoms, which were first labeled a public health emergency of international concern and later a pandemic by the WHO. During COVID19, an online survey on home remedies was done, most people preferred ancient medicinal method i.e Ayurvedic medicines. As ayurveda can do a lot to boost the immunity system. Certain plants which boost our immunity are moringa, neem, tulsi, ashwagandha, turmeric, guduchi, ginger, triphala. The purpose of this study is to provide an overview of the effectiveness of herbal drugs as immunity booster and was helpful in covid-19, based on research and the clinical trials reported in current published data.

**P-Cog-17****Antioxidants: Therapeutic Importance and Potential Role**

Chirag Mittal, Atul Jain

Chandigarh College of Pharmacy, Landran, SAS Nagar, Mohali, Punjab, India.

[chiragmittal200@gmail.com](mailto:chiragmittal200@gmail.com)

**ABSTRACT**

An antioxidant is a molecule capable of slowing or preventing the oxidation of other molecule. Antioxidants are essential and important for plants and animals. They are substances that protect cells from the damage caused by unstable molecules known as free radicals. Oxidation is a chemical reaction that transfers electrons from a substance to an oxidizing agent. Oxidation reactions can produce free radicals, which start chain reactions that damage cells. Antioxidants terminate these chain reactions by removing free radical intermediates and inhibit other oxidation reactions by being oxidized themselves. As a result, antioxidants are often reducing agents such as thiols, ascorbic acid or polyphenols. Antioxidant functions imply lowering oxidative stress, DNA mutations, malignant transformations, as well as other parameters of cell damage. The sources and origin of antioxidants include fruits and vegetables, meats, poultry and fish etc. The types of antioxidants such as ascorbic acid, glutathione, melatonin, tocopherols and tocotrienols were reported. The classification and characteristics of antioxidant; its measurements and level in food and free radicals, mechanism of action of antioxidants, therapeutic implication of antioxidants was also documented. The delivery of antioxidants is carried out with various vesicular lipidic, and or polymeric particulate carriers, including liposomes, solid lipid nanoparticle polymeric nanoparticles, and nano emulsions.

**P-Cog-18****Role of Herbs in Diabetic Wound Healing**

Amit Kumar, Priyanka Kriplani, Bhawna Chopra, Hitesh Malhotra

Guru Gobind Singh college of Pharmacy, City Centre Road, Yamunanagar – 135001 (Haryana)

ak8843756@gmail.com

**ABSTRACT**

Non-healing wounds are among the serious problem of type-2-diabetes, included with high incidence of bacterial infection, chronic nerve and blood vessel damage, and lastly repeated surgery of limbs and organs. In diabetic patients, however, even minor injuries to any parenchymal cells and stromal structure may result in chronicity of the wound. Currently available Diabetic wound healing drugs for treatment is insulin, metformin, specific sulfonylureas, thiazolidinediones and dipeptidyl peptidase-4 inhibitors. But these drugs are associated with many side effects like gastrointestinal upset, vitamin B<sub>12</sub> deficiency, and hemolytic anemia etc. *Catharanthusroseus*, *Radix Rehmanniae*, *Carica papaya*, *Annonasquamosa*, *Alliumsativum*etcis some of the medicinal plants used for wound healing in antidiabetic therapy. But herbal plant active principles are associated with many problems like poor solubility in aqueous buffer, instability in body fluids and rapid first pass metabolism etc. Nanoparticles containing herbal plant active constituents offer strong wound healing potential due to their well-known biological activities. Moreover nanoparticles are also able to overcome the stability, solubility and rapid metabolism of herbal plant active principals. Therefore, we are heading towards the development of novel herbal drug delivery system for the treatment of diabetic wounds.

**P-Cog-19****Role of Herbal Drugs in the Treatment of Ulcers**

Varun, Priyanka Kriplani, RameshwarDass

Guru Gobind Singh college of Pharmacy, City Centre Road, Yamunanagar – 135001 (Haryana)

[varun.aggarwal4432@gmail.com](mailto:varun.aggarwal4432@gmail.com)

**ABSTRACT**

Ulcers are a frequent gastrointestinal problem affecting large number of people. Basically, an ulcer is a skin or mucous membrane lesion that results in an open sore that takes a long time to heal. There are numerous different forms of ulcers, but the most common are mouth, peptic, and esophageal ulcers. There are some causes of ulcers, including regular drug use, irregular eating routine, stress, and more. Constant usage of nonsteroidal anti-inflammatory treatments (NSAIDs) and contamination with the *Helicobacter pylori* (*H. pylori*) bacteria are the two main causes. There are lots of drugs that are used currently for the medication of ulcers, but some of them are famotidine, omeprazole, amoxicillin, clarithromycin, etc. However, these medications are associated with some side effects like headaches, diarrhea, sleepiness, constipation, painful menstruation, vomiting, nausea, cramps, etc. Herbal medications may be an alternative treatment option that is both effective and safe. *Citrus sinensis*, *Phyllanthusemblica*, *Ficusreligiusa*, and *Annona squamosa* are the commonly used herbs.

**P-Cog-20****Current Allopathic and Herbal Trends in Depression**

Gaurav Dhiman, RameshwarDass, AshwaniDhingra

Guru Gobind Singh college of Pharmacy, City Centre Road, Yamunanagar – 135001 (Haryana)

[dhimang122@gmail.com](mailto:dhimang122@gmail.com)

**ABSTRACT**

Depressive disorders in later life are associated with a greater risk of morbidity and mortality through suicide and medical illness. Vast numbers of people suffer from depression around the world, with up to 40% of patients failing to respond to antidepressants. Ignoring the fact that the exact cause of psychological trauma is unknown, it is characterized a multidimensional disease caused by the focus on social, psychological, and biological determinants. MAOI therapeutics currently on the market encompasses phenelzine, hydracarbazine, bifemelane, toloxatone, selegiline, rasagiline, and safinamide. Conducted a study, sertraline, citalopram, and escitalopram have all been SSRIs. Anxiety, sleep irregularities, sweating, gastrointestinal disturbances, heart palpitations, skin rash, loss of motivation, nausea, vomiting, and exhaustion are only a couple of small pharmaceuticals negative consequences. Some antidepressant herbal medicines, such as *H. perforatum*, *Rhodiolarosea* (roseroot), and *Crocus sativus* (saffron), reveal promise in the treatment of this disorder by retarding monoamine re-uptake (such as serotonin, dopamine, and noradrenaline), enhancing serotonin receptor binding and sensitization, and hindering monoamineoxidase. Hesperidin looks to become a psychiatric and a neuroprotective pharmaceutical. Its lipophilic features allow it to penetrate via the blood-brain barrier.

**P-Cog-21****Emerging Trends in Novel Herbal Topical Delivery System in the Effective Management of Osteoarthritis**

Shiwani, Priyanka Kriplani, Anjali Sharma, Hitesh Malhotra

Guru Gobind Singh college of Pharmacy, City Centre Road, Yamunanagar – 135001 (Haryana)

[shiwansen8@gmail.com](mailto:shiwansen8@gmail.com)

**ABSTRACT**

Osteoarthritis (OA) is the most prevalent type of arthritis, and it is a leading cause of pain and dysfunction in the elderly. Degenerative joint disease is a term used to describe OA. OA is more than just wear and tear; it's an aberrant remodelling of joint tissues prompted by a deluge of inflammatory mediators released within the compromised joint. This disease affects 15 million people in India annually. Females are impacted more than males. Age, inheritance, incidents, and knee alignment all seem to be risk factors, as is an imbalance of physiologic processes which inevitably results in inflammatory cascades at the molecular level. Articular cartilage damage, weak meniscus, and bone spurs are the most common consequences of OA. NSAIDS, glucocorticoids, and analgesics are associated with a multitude of detrimental consequences, particularly digestive problems, gastrointestinal bleeding, and cardiovascular problems. To resolve this concern, herbs are staging a comeback. Herbs produce an efficient and useful complementary health treatment solution to cure osteoarthritis. *Piper nigrum*, *Curcuma longa* etc are some of the herbs recommended for the treatment of OA. The revolutionary herbal drug delivery system combines innovative techniques with new dosage forms that outperform conventional medication forms.

**P-Cog-22****Herbal Medicines for the management of Haemorrhoids**

Vishakha, Rameshwar Dass, GeetaDeswal

Guru Gobind Singh college of Pharmacy, City Centre Road, Yamunanagar – 135001 (Haryana)

[vishakhabanwait@gmail.com](mailto:vishakhabanwait@gmail.com)

**ABSTRACT**

Swollen, enlarged veins occur within and outside the anus and rectum is the condition that is known as haemorrhoids, which is also as piles. Pain, itching, swelling, anal discomfort, and rectal bleeding are all frequent symptoms of haemorrhoid. It is split into two categories based on its location: internal and exterior. Internal haemorrhoids are classified into four categories on the basis of prolapsing. Haemorrhoids affect around 10 million people in the United States, according to the National Centre for Health Statistics. Increased potency in the treatment of haemorrhoids has also been attributed to an extensive understanding of the path physiology and architectural styles of the anal canal. Injection sclerotherapy, cryotherapy, laser therapy, bipolar diathermy, infrared coagulation, or rubber band ligation are already used to treat high-graded internal haemorrhoid but having some serious downsides, such as rectal discomfort, pain, recovery time, hospitalization, expense, and much more. Over 80% of the world's population takes herbal remedies to treat this common ailment. Haemorrhoids are treated using *Adiantum capillus-veneris* L., *Allium cepa* L., *Mangifera indica* L., *Colchicum autumnale* L., *Citrus Aurantium Dulcis*, *Vitis vinifera*, and other plants. Systemically and topically administered glucocorticoids have adverse effects on the dermis and epidermis layers of the skin. When administered topically, hesperidins, a flavonoid present in citrus fruits, enhances epidermal barrier function by promoting epidermal proliferation and differentiation.

**P-Cog-23****ADULTERATION OF CRUDE DRUG AND HOW CAN WE EVALUATE IT?**

Toqir ahmed, Dr. Meenakshi Ratra, Ms. Riya Mahajan, MS. Palakdeep Kaur, Mrs.  
AmardeepKaur

Department of Pharmacy, VMS College of Pharmacy, Batala, Punjab, India, 143505

[toqir66ahmed@gmail.com](mailto:toqir66ahmed@gmail.com)

**ABSTRACT:**

Adulteration is a practice of substituting original crude drug partially or whole with other similar looking substances but the latter is either free from or inferior in chemical and therapeutic properties adulteration is an admixture or substitution of original drug with inferior, defective or otherwise useless or harmful substance. Adulteration is basically of two types: deliberate adulteration: are normally commercial mainly with the intention of enhancement of profit. Accidental adulteration: are normally occurring, accidental, careless or by ignorance and non-harmful. The drugs are evaluated to ensure the identity of a crude drug and to determine its quality and purity. The basic need behind the evaluation of crude drugs is biochemical variation in the drug, effect of treatment and storage of drugs, and the adulterations and substitutions. There are various methods for the adulteration of crude drug including morphological evaluation, microscopic evaluation, physical evaluation, chemical evaluation, biological evaluation, chromatography and spectroscopy.

**P-Cog-24****Polyherbal Drugs for Cancer****Amit\*, Sachin, Deepali Tomar, Dr. Sunena, Dr. Sunil Jawla**

Geeta Institute of Pharmacy, Geeta University, Panipat

**Abstract**

Cancer is a malignant abnormal growth of cell, is a leading cause of death and disability and globally approximately one in six deaths is due to cancer. According to the latest World Health Organization's International Agency for Research in Cancer and the Global Cancer Observatory (GCO) report,1 cancer burden has risen to 19.3 million new cases and 10.0 million deaths this year. Chemotherapy, radiation, and/or surgery are mainly used to treat cancer but the side effects of these treatments are the major limitation which is intolerable to the patients. Medicinal herbs and their derivative phytochemicals are being increasingly recognized as useful complementary treatments for cancer. Mainly the alkaloids, flavanoids, tannins and phenolic compounds are important biologically active metabolites responsible for the therapeutic significance. Semisynthetic or isolated active components from botanical origin such as Catharanthus roseus, Taxus brevifolia, Podophyllum emodi, and Camptotheca acuminata have been used in the treatment cancer many years and further polyherbal combinations are the coming with more efficacious line. Here we, will report recent studies on the potential application of specific phytochemicals in various cancers.

**P-Cog-25****Quality Control of Herbal Drug**

Anshul Gautam<sup>\*</sup>, Vikar Pawar, Deepali Tomar, Ajay, Dr. Sunil Jawla

Geeta Institute of Pharmacy, Geeta University, Panipat

**Abstract**

Medicinal plants have been used for a very long time to improve people's health; they are gaining popularity around the world as drugs, complementary and alternative medicine, dietary supplements, cosmetics and, even more amazingly, as medical devices. The complexity of the solutions and the components, which are offered in such a variety of markets and areas of integration, raise significant quality issues, which increase the need for appropriate analysis methods for their identification and suspension, but also for the discovery of contaminants and contaminants. Customs laboratories often deal with drug samples that cause many challenges, from quality issues to safety and even legal issues. Choosing the right analysis method, of the many available (microscopy, spectrometry, spectroscopy, chromatography...), is an important point that relies heavily on established diagnostic criteria. This review aims to clarify these analytical objectives and their complexity to suggest a selection of analysis methods that may be appropriate for each objective. Major limitations are also discussed, such as pharmaceutical product designing, sampling and sample preparation.

# PHARMACY PRACTICE ABSTRACTS (PP)

**PP-01****Possible Approaches for Schizophrenic Patients: An Overview**Shivangi Sharma

Aakash Institute of Medical Sciences, Nalagarh, HP, 174101, India.

Shivangis074@gmail.com**ABSTRACT**

Schizophrenia is a long-term complex and leading mental disorder worldwide. It is usually appears in early adulthood or late adolescence. Schizophrenia disorder is characterized by delusions, hallucinations, disorganized thinking and impairments in cognitive functioning. The patients with schizophrenia exhibit increased morbidity and mortality rates. The exact pathophysiology of schizophrenia disorder is as yet unknown but here is need to investigate the newer signalling pathways or ongoing clinical research. It is noted that, loss of NMDA receptors, increased level of dopamine, decreased level of M1 receptor, glutamate, serotonin neuronal activities. Antipsychotic drugs (Atypical and typical antipsychotic) are used for the treatment of schizophrenia disorder. But mostly atypical antipsychotic drugs are used because they have less side effects as compared to typical antipsychotics. It has been shown that particularly antipsychotic drugs are differentially responsible for high rates of obesity, hypertriglyceridemia, diabetes, Parkinson and other many diseases. This study provides a concise review of schizophrenia and discusses the possible treatment options for this disorder.

**PP-02****Pharmacovigilance & Drug Safety-A Study based approach**

Dipika Bansal,

Assistant Professor, National Institute of Pharmaceutical Education and Research, Mohali,  
Punjab, India.

**ABSTRACT**

The history of drug regulation is largely a history of political responses to epidemics of adverse drug reactions, each adverse reaction of sufficient public health importance to lead to political pressure for regulatory change. These serious drug effects have led to the development of new methods to study drug effects in large populations. Academic investigators, the pharmaceutical industry, regulatory agencies, and the legal profession have turned for these methods to the field of Pharmacoepidemiology which evolved as a result of joining of the fields of clinical pharmacology and epidemiology defined as the study of the use of and the effects of drugs in large numbers of people. the study of the distribution and determinants of disease in populations. Thiazolidinedione agonists of PPAR-agonists have been used to treat up to 26% of persons with diabetes mellitus. Their history includes controversy in regard to safety. Marketing of troglitazone was discontinued because of hepatotoxicity; use of rosiglitazone was temporarily restricted because of concerns in regard to cardiovascular disease. Pioglitazone is the only thiazolidinedione commonly used worldwide today. Safety concerns with pioglitazone include a possible association with bladder cancer. US FDA issued an alert about a potential relation between the incidence of bladder cancer and the prescription of pioglitazone the diverse clinical research designs supported the signal generation that enforced EMEA and USFDA to carry out safety review of the pioglitazone using all the available data from preclinical and population based studies. Here, we will learn the process from signal generation to drug withdrawal from market using a case scenario of pioglitazone and its association with bladder cancer using evidence based approach.

**PP-03****Future Perspective of Pharmacovigilance in Clinical Trials**

Amrit Sarwara, Peeyush Kaushik, Sweta Kamboj, Rohit Kamboj, Hitesh Malhotra  
Guru Gobind Singh College of Pharmacy, Yamuna Nagar, Haryana.

amritsarwara99@gmail.com

**ABSTRACT**

Pharmacovigilance as defined earlier is a “science related to the detection, assessment, understanding, and prevention of adverse effects or any other related problems”. The active surveillance is necessary to receive such information about the safety of drug at an early stage. For that pharmacovigilance of tomorrow must be able to identify new safety issues without delay. For instance, by modulating the role of patient from being a person with little knowledge to highly informed with reference to his disease and treatment. In some countries patient are the important ADRs reporting system. During clinical trials the investigator collects and analyse data on serious adverse events, determining the toxicity profile of drug in question. The investigator shares this data with different organization conducting research and development activities. Furthermore, the data is assessed by the inhouse PV team of the company which determines if the drug is sufficiently safe and effective to progress to next phase of clinical research or to submit an application to regulatory authority for market approval. Therefore, pharmacovigilance shares an important role in research and development process. The prime objective of this study is to review and discuss various aspects of Pharmacovigilance, including new methodologies & developments.

**PP-04****Clinical Trials For Development Of Vaccines V/S Clinical Trials For Developing Covid-19 vaccines**

Ashna, Peeyush Kaushik, Sweta Kamboj, Rohit Kamboj, Hitesh Malhotra  
Guru Gobind Singh College of Pharmacy, Yamuna Nagar, Haryana.

[ashnagupta1759@gmail.com](mailto:ashnagupta1759@gmail.com)

**ABSTRACT**

Vaccines go through various phases of development and testing there are usually three phases to clinical trials to assess the ability of the product to protect against disease. Three phases are conducted but phase 3 usually conducted in large number of people .The vaccine needs to go through a review by the NRA who decide the vaccine is Safe and effective enough to put in market . In past vaccines have been developed through a series of consecutive steps. Now for the urgent need for covid-19 vaccine the research and development process have been happening in parallel, while still maintaining strict clinical and safety standards. For vaccine study healthy volunteers are given an experimental vaccine and then exposed to organism causing the disease to see how vaccine works. For covid-19 which we don't yet fully understand and still learning how to treat, difficult for estimating potential risk for volunteers and medical community in covid-19 human challenge study.

**PP-05****Multisystem Inflammatory Coronavirus Syndrome in children- (MIS-C)**

Navneet Kaur, Parminder Nain

Maharishi Markandeshwar College of Pharmacy, Department of Pharmacy Practice Maharishi Markandeshwar Deemed to be University.

[navneet9306k@gmail.com](mailto:navneet9306k@gmail.com)

**ABSTRACT**

Coronavirus disease-19 (COVID), is the ongoing pandemic disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Recently, it has become evident that a subgroup of children manifested to SARS-CoV-2 can become dangerously ill with a condition now referred to as multisystem inflammatory syndrome in children (MIS-C). Whilst both Kawasaki's disease (KD) and MIS-C can have a cardiac association, the mechanism of this association seems to be different between the two conditions. MIS-C can be considered as a group of diseases, that includes the cytokine storm syndrome (CSS) that develops after SARS-CoV-2 infection, COVID-19 with severe inflammatory responses, and KD occurring concurrently with SARS-CoV-2 infection. Epidemiology of children suffering from MIS-C after SARS-CoV-2 has shown 45-58% positive polymerase chain reaction (PCR) test and 54-75% of children have reported positive antibody test. Moreover, 7-33% of children showed positive for both tests. Pediatric Inflammatory Multisystem Syndrome (PIMS) manifestations are wide and generally non-specific. They frequently include pertinacious fever, mucocutaneous associations of upper and lower limbs edema, conjunctivitis, swollen and cracked red lips, rash with cardiac abnormalities (myocarditis, electric abnormalities, valvular dysfunction, shock, coronary aneurysms or dilatation), gastrointestinal symptoms, and lymphadenopathy.

**PP-06****Pharmacovigilance: Adverse Effects Associated With Self Medication Practices To Prevent  
Or Combat Covid-19**

Raj Bansal, Rohit, Isha Kapila

Chandigarh College of Pharmacy, Landran, Mohali.

rajbansal433@gmail.com

**ABSTRACT**

The World Health Organization (WHO) defines self-medication as the selection and utilization of medicines to treat self-recognized symptoms or ailments without consulting Doctor. Various studies have indicated that Self medication is a common practice, with a prevalence of 32.5–81.5% worldwide. The most commonly self-prescribed medications are analgesics, antipyretics, antitussives, calcium and vitamin supplements, anabolic steroids, sedatives, certain antibiotics, and many herbal and homeopathic remedies. The main reasons for choosing self-medication are difficulty in getting an appointment with a doctor, unfavourable financial situation, easy access to drugs, the belief that the pathology is of secondary importance, the fear of being told that it is a serious illness. In developing countries, such as India, the use of Self medication with hydroxychloroquine and chloroquine without a prescription to prevent COVID-19 has been documented. Later, the US Food and Drug Administration (FDA) declared the use of hydroxychloroquine and chloroquine as being unsafe in mild-to-moderate COVID-19 based on their therapeutic safety profile in COVID-19 patients. Moreover adverse effect of some of the over the counter medications (acetaminophen, NSAIDS) for the management of covid-19 are of great concern such as antibiotic resistance, bleeding caused by aspirin use, Inhibition of immune system by corticosteroids.

**PP-07****Off Label Drug Prescription, A Double Edged Sword : Analysis with Respect to The  
Adverse Drug Reactions and Future Way Forward**

Sneha Pruthi, Dr. Sunil Jawla

Geeta Institute of Pharmacy, Geeta University, Panipat, Haryana.

**ABSTRACT**

The increase in focus on pharma-covigilance and adverse drug reactions, the off –label prescription of drugs in clinical practice undoubtedly becomes; one of the centres of attraction. Off-label use of drugs means the use of drugs for indications, dose, dosage forms, route, and patient population for which approval from the regulatory bodies like US Food and Drug Administration (US FDA) and Drugs Controller General of India (DCGI) has not been attained. However certainly, it does not mean that it is illegitimate or illegal to use the drug as off-label but indisputably it comes with certain caveats for the practicing physicians. According to recent statistics; Off-label drug prescribing is a common phenomenon all over the World with its usage being as high as 91% in pediatric population and 41% in adults. Now, since the off-label prescription is basically unapproved usage, thus there is an inseparable element of the ADR (Adverse Drug Reactions) attached to this very concept which needs to be focused and analysed. The present paper concludes the concept of the off-label prescription of drugs, its usage in various fields of medicine, aims and objective, current status, ADR studies in medical intensive care units and children, regulatory regime across the globe and India etc. The off-label drug prescription is a double-edged sword to be used rationally and ethically.

**PP-08****Current Challenges in Data Interpretation of Clinical Trials**

Sumit Arora, Peeyush Kaushik, Sweta Kamboj, Rohit Kamboj, Hitesh Malhotra  
Guru Gobind Singh College of Pharmacy, Yamuna Nagar, Haryana.

[sumitaroramultani@gmail.com](mailto:sumitaroramultani@gmail.com)

**ABSTRACT**

Clinical data updates guidelines and practice, and considered as foundation stone upon which evidence based medicine exist. However, not all data are equivalent or of equal quality. Consequently, researchers must develop strategies to assess the quality of evidence for health claims, effectiveness and applicability. Clinical trials will be depicted by four types of statistical figures i.e. Flow diagrams, Kaplan – Meier plots, Forest plots and repeated measure plots. Thus, statistics considered as an integral part of clinical trials. Unfortunately, statistical knowledge of most researchers is so limited that they cannot be expected to draw the right conclusions from the analyses presented in medical journals. For instance, researchers often incorrectly interpret the P–value as providing direct information about the effect size; P – value is only one tool for assessing evidence. Confidence intervals are also frequently misinterpreted; The Intent – to treat principle is a fundamental concept in clinical trials but is frequently misunderstood; Missing data is one of the biggest threats to the integrity of a clinical trial. Multiplicity, Subgroup analyses, Association as causation, Reporting, Probability and Bayesian statistics, are some of the other statistical concerns in clinical trials. Therefore, sufficient understanding of these issues will help to ensure to develop high quality clinical data.

**PP-09****Identification of Adverse Drug Reactions Using Disproportionality for Signal Analysis**

Devanshi Jain, Gazal Sharma, Anoop Kumar<sup>1</sup>

I K Gujral Punjab Technical University, Kapurthala, Punjab144603, India.

<sup>1</sup>Delhi Institute of Pharmaceutical Sciences and Research University, New Delhi.

devanshijain.cliniresearch@gmail.com

**ABSTRACT**

Various drugs are formulating and many are already in market. But with the increasing occurrence of new diseases their off label use as well as misuse have increased. The drugs which were earlier considered safe are showing adverse events. Even common drug class of proton pump inhibitors have recent reports suggesting their association with some severe adverse events like kidney problems, dementia, decreasing bone density, etc. Methods: Signal is any new reported information (previously unknown) regarding the relationship of adverse drug event with the pharmaceutical product. Traditional system of signal detection involves assessment of the Individual case safety reports (ICSRs). Signal is detected by individual or aggregate analysis of spontaneous reports. Such reports are sourced from various databases like e-databases of regulatory authorities/drug monitoring centers. The statistical analysis of these reports calculating the proportion rates if gives significant values then signal is confirmed. All procedures are done in accordance with Good Pharmacovigilance Practices (GVP) with Module 9 providing general guidance and requirements on scientific and quality aspects of signal management. Conclusion: The detected signals may be related with the drug.

## PP-10

**Combination Of Anti-Viral And Anti-Rheumatoid Drugs: Treatment For Covid-19**

Shivani Singla, Preeti, Seema Bansal

Department of Pharmacology, MM College of Pharmacy, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, 133207, India.

[seema.bansal@mmumullana.org](mailto:seema.bansal@mmumullana.org)

**ABSTRACT**

COVID-19 has now been declared a pandemic and new treatment are urgently needed as we enter a phase beyond containment. Despite having a decent hold in drug discovery, viral infections are still a significant challenge for scientists across the globe. Due to the high jump in mortality rate because of COVID-19 caused by SARS-CoV-2, there is urgent need to develop treatment for COVID-19. Drug repurposing is the process of identifying new indications of existing drugs. Repurposing is effectively used because due to this drug directly enter to phase III or phase IV clinical trial, hence makes the drug development process low-priced and rapid. Repurposed drugs approved by WHO is *baricitinib* for treating mild or moderate COVID-19 in order to avoid maximum hospitalisation. Baricitinib shows its action by blocking JAK-STAT signalling which produces impairment of interferon mediated antiviral response. So, in nutshell, despite having various opportunity to directly block the penetration of SARS-CoV-2 into the cell, the use of baricitinib in patient severely affected with ongoing pneumonia associated with COVID-19 is suitably preferred. This review will cover the detailed mechanism of antirheumatoid drug along with antiviral drugs proved effective in COVID-19.

**PP-11****Diabetes and Its Complications in the Elderly**

Kaushal Kumar Sah, Dinesh Kumar Mehta, Rina Das

M.M College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana,  
Ambala, Haryana, 133207, India.

[kaushalsundar540@gmail.com](mailto:kaushalsundar540@gmail.com)

**ABSTRACT**

Diabetes has sparked a global epidemic that is putting a strain on public health, healthcare spending, and the economy. According to the Centers for Disease Control and Prevention (CDC), 33% of people 65 and older worldwide have diabetes. Over time, the elderly diabetic population has a higher risk of developing diabetes-related complications like heart failure, hypoglycemia and kidney failure. For example, retinopathy is one of the most common microvascular complications that can arise from cardiovascular disease and other conditions that affect the blood vessels. Having diabetes increases the risk of developing geriatric syndrome, a group of common health conditions in the elderly that include frailty, depression, multiple medications, functional limitations, falls, malnutrition, and cognitive decline. Diabetic complications are more common in older people, women, and people of colour. For the elderly, diabetes and its complications have a significant negative impact on their quality of life. Because of this, special attention should be paid to reducing complications for patients and improving their quality of life. For this reason, diabetics over the age of 60 should have their visual/motor abilities as well as their cognitive function and any existing comorbid conditions assessed at the time of their initial diabetes diagnosis.

**PP-12****Type 2 Diabetes Mellitus Prevention and Treatment in Elderly Patients**

Kaushal Kumar Gupta, Dinesh Kumar Mehta, Rina Das

M.M College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana,  
Ambala, 133207, India.

[Kaushalkumar7073@gmail.com](mailto:Kaushalkumar7073@gmail.com)

**ABSTRACT**

Diabetes, in addition to the traditional vascular complications, is associated with a high comorbidity burden and an increased prevalence of geriatric syndromes in old age. As a result, when diabetes is first diagnosed, a comprehensive geriatric assessment should be performed. A variety of lifestyle changes and pharmacological agents can prevent or postpone the onset of Diabetes Mellitus. Individuals with pre-diabetes or a high risk of diabetes should be referred to a structured program to lose weight and increase physical activity, as well as be screened for cardiovascular disease. To avoid complications such as hypoglycemia and polypharmacy-induced drug-drug interactions in older adults with diabetes, the choice of anti-hyperglycemic agents should be based on drug safety and standard treatment guidelines, as well as evidence-based medicine.

**PP-13****Validation is Extremely Important in The Pharmaceutical Industry**

Vivek Sharma, Dinesh Kumar Mehta, Rina Das

M.M College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana,  
Ambala, 133207, India.

[viveksharma2315@gmail.com](mailto:viveksharma2315@gmail.com)

**ABSTRACT**

Validation is the most well-known and important GMP parameter. It is the art of designing and practicing the steps as well as documenting them. As we all know, drugs are the most important components of healthcare and must be manufactured to the highest standards. The pharmaceutical industry is currently interested in a variety of perspectives on achieving such quality. The process validation performs this task to build quality into the product because ISO 9000:2000 has proven to be an important tool for pharmaceutical quality management. In recent years, there has been a growing emphasis on validation. As a result, an emphasis is placed on this review, which provides a detailed overview of the significance of the validation concept. This work provides an overview of the validation process in pharmaceutical manufacturing processes and its significance.

**PP-14****QA/QC in The Pharmaceutical Industry is Critical**

Rajat, Dinesh Kumar Mehta, Rina Das

M.M College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana,  
Ambala, 133207, India.

rajat13091998@gmail.com

**ABSTRACT**

Pharmaceutical quality assurance is responsible for ensuring that the medication manufactured will have the desired effect on the patient. Additionally, quality assurance ensures that no contaminants are present and that the medications comply with all applicable regulations. To achieve the quality objective reliably, a well-designed and properly implemented quality assurance system incorporating GMP and quality control is required. The quality assurance department is responsible for product release and for maintaining a reserve sample of finished products and control records. The purpose of this work is to explain the role of quality assurance in validation, regulatory affairs, and entrepreneurship.

**PP-15****Understanding Pharmaceutical Quality By Design: Regulatory Requirements**

Rakhi, Dinesh Kumar Mehta, Rina Das

M.M College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana,  
Ambala, 133207, India.

[kinjarakhi@gmail.com](mailto:kinjarakhi@gmail.com)

**ABSTRACT**

Quality by design is an essential part of the modern approach to pharmaceutical quality. It is systematic approach to drug development, which begins with predefined objectives, and uses science and risk management approaches to gain product and process understanding and ultimately process control. The aim of the pharmaceutical development is to design a quality product and its manufacturing process to consistently deliver the intended performance of the product. Quality cannot be tested into products but quality should be built in by design. Hence quality by design is a very important factor in pharmaceutical drug development. In this study basic consideration of the QbD approach, its historical background, and regulatory needs are discussed. Further, explanation of elements of QbD i.e. are addressed

**PP-16****Quinoline As A Preferred Scaffold In Medicinal Chemistry**

Shivani, Dinesh Kumar Mehta, Rina Das

M.M College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana,  
Ambala,133207, India.

[sainishivani1930@gmail.com](mailto:sainishivani1930@gmail.com)

**ABSTRACT**

Quinoline and its fused heterocyclic derivatives have been shown to have a wide range of pharmacological activity, making them an important class of compounds for the development of new drugs. As a result, numerous researchers have synthesised and evaluated these compounds as target structures. We used data published in the last decade from a variety of search engines, including Google scholar, PubMed, Web of Science, and Science direct. Quinoline and its derivatives have long piqued the interest of synthetic and biological chemistry, owing to their recent research advances. Quinoline's biological activities are discussed in this study, including its antibacterial, antifungal, antimalarial, CNS effect, anticonvulsant, antiinflammatory, and antihelminthic properties, antioxidant and inhibitor of DNA gyrase. This review article discusses the various biological activities of Quinoline. Additionally, recent advances in this field will be discussed.

**PP-17****HPLC's Importance In The Pharmaceutical Industry**

Hitesh Kamboj, Dr. Dinesh Kumar Mehta, Dr Rina Das  
M.M College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana,  
Ambala,133207, India.

[hk2482092@gmail.com](mailto:hk2482092@gmail.com)

**ABSTRACT**

Chromatography is the separation of a mixture based on the differential migration of a component through a stationary phase while being carried by a mobile phase. High performance liquid chromatography (HPLC) is an important qualitative and quantitative technique that is commonly used to estimate pharmaceutical and biological samples. It is the safest and quickest chromatographic technique for drug component quality control. In pharmaceutical analysis, reversed phase partition HPLC is the most commonly used type of HPLC. The outcome can be used to qualitatively and quantitatively analyse finished drug products and their ingredients during the manufacturing process. The benefits and drawbacks of HPLC are compared to current separation science trends and expectations.

**PP-18****Corticosteroids: General Public Awareness and Misuse**Dinesh Kumar Mehta, Rina Das

M.M College of Pharmacy, Maharishi Markandeshwar (Deemed to be) University, Mullana,  
Ambala, 133207, India.

dkmehtammu@gmail.com

**ABSTRACT**

Steroids were discovered nearly 80 years ago and have since played an important role in the treatment of a variety of diseases. Man-made natural steroids are steroid medications (also known as corticosteroids). Inappropriate corticosteroid use may result in over- or under-treatment, worsening of conditions, or therapy failure. Patients may refuse to take corticosteroids because they are concerned about the unfavourable and well-documented side effects (e.g. hyperglycemia, osteoporosis, weight gain, etc). Long-term use of systemic corticosteroid therapy is associated with a number of side effects, including hyperglycemia, dyslipidemia, cardiovascular disease, osteoporosis, psychiatric disturbances, and immunosuppression. The goal of this study is to educate the general public through media programmes and the implementation of continuing medical education programmes for physicians, paramedics, and pharmacists, which are likely the most important steps to be taken to raise awareness about the rational use/misuse of corticosteroids.

**PP-19****Ketoanalogue-Nutritional Intervention and Restricted Protein Diet in CKD Patient**Mehak

Department of Pharmacy Practice, Chandigarh Groups of Colleges, Landran Mohali.

[sainimehak097@gmail.com](mailto:sainimehak097@gmail.com)**ABSTRACT**

Ketoanalogues are amino acids that are supplemented in confluence with minor protein diets and are super effective in upgrading one's symptoms and supporting the advantages of a low protein kidney diet. When protein is broken down in the body into amino acids, you get waste by-products and these are always cleared by the kidneys. Diet is a crucial element of care during CKD. Nutritive interventions and, specifically, a restricted protein diet has been under debate for decades. In sequence to lower the threat of nutritive diseases in very-low protein diets (VLDP), supplementation by nitrogen-free ketoacid analogues (KAs) has been put forward. This review briefs the potential effects of this nourishing therapy on renal function, uremic toxic situations, and nutritive and metabolic parameters and proposes future directions. VLDP +KAs feel to reduce uremic toxic product but the impact on intestinal microbiota remains unexplored. All studies observed a reduction of acidosis, phosphorus, and possibly sodium intake, while still furnishing adequate calcium intake.

**PP-20****Pharmacovigilance: A Worldwide Master Key for Drug Safety Monitoring**

Krishna Shah, Ekta Dhull, Komal Rana

Chandigarh College of Pharmacy, Landran, Mohali

krishnashah1595@gmail.com

**ABSTRACT**

Pharmacovigilance is a broad term that throws light on the processes for monitoring and evaluating ADRs and it is an essential component of effective drug regulation systems, inclination in the size of data handled. To acknowledge pharmacovigilance, a high level of skill is required to rapidly discover drug risks as well as to protect the product against inappropriate removal. The current global network of pharmacovigilance centers, coordinated by the UMC, would be nourished by an independent system of review. Pharmacovigilance is an important and essential part of clinical research and these days it is growing in many countries. Today many PV are working for drug safety monitoring globally, however, as a result, pharmacovigilance faces major challenges in point of better safety and monitoring of drugs. In this review, we will discuss drug safety, worldwide PV centers and their role, the pros, and cons of pharmacovigilance, and its future application in healthcare sectors.

## PP-21

**Semaglutide In The Treatment Of Adults With Diabetes Mellitus Type 2: A Review And Current Update To Evaluate Clinical Efficiency & Safety Of Semaglutide In Type 2 Diabetes Mellitus.**

EktaDhull, Komal Rana, Ashu Singh, KeshavJuneja

Chandigarh College of Pharmacy, Landran, Mohali.

dr.ektadhull123@gmail.com

**ABSTRACT**

Type 2 diabetes mellitus (T2DM) has emerged as one of the main reasons for morbidity and mortality in advanced international locations. Low efficacy, weight gain, and hypoglycemia are the main pitfalls of preceding treatments for T2DM. New therapies were designed with the goal of enhancing the results in efficacy and fine of lifestyles. GLP-1 receptor agonists (GLP-1 RA) grow glucose-structured insulin secretion, lower gastric emptying, and reduce postprandial glucagon secretion. Semaglutide, a new as soon as-weekly glucagon-like peptide-1 (GLP-1) receptor agonist, has confirmed a favorable impact on glycaemic control and weight loss in type 2 diabetes mellitus. This overview describes its pharmacology, centers on scientific facts coming from the randomized controlled trials covered within the development software, established cardiovascular blessings, protection problems, and precautions for the usage of semaglutide in special populations.

**PP-22****Rational Use of Medicine**Bawanpreet Kaur

Department of Pharmacy Practice, Chandigarh Group of Colleges, Landran, Mohali

[bawanpreetk1@gmail.com](mailto:bawanpreetk1@gmail.com)**ABSTRACT**

In an effective pharmacotherapy, Rational Use of Medicines (RUM) play an vital role. RUM can be simplified as the medicinal drugs which special have to be for the proper patient, relevant to their clinical requirements, in proper dosages, for proper duration, proper route and at a price which the patient and community can afford. Underuse, overuse, improper prescribing, extravagant prescribing and polypharmacy are frequent types of irrational remedy utility in modern-day scenario. Irrational use of drug can lead to wrong health and economic ramifications. WHO recommends establishment of Drugs and therapies Committee and exercise logical prescribing to enrich public health. STGs have to be formulated by each and every country which can serve as a desirable information for prescribing for their very own zone. Country sensible facts accumulated with the assist of drug utility studies, pharmacovigilance, and pharmacoeconomic research can assist in formulating recommendations and designs which would resource in right evaluation of RUM to enrich the quality of public health.

**PP-23****Genital Gangrene In A Patient With Type 2 Diabetes Mellitus Treated With Dapagliflozin:  
A Case Report**

SaritaJangra, BhupinderBhyan 1, Harleen, Shaima. K.A

Department of Pharmacy Practice, Chitkara College of Pharamcy, Chitkara University, Punjab.

1Department of Pharmaceutics, Swift School of Pharmacy, Swift Group of Colleges, Punjab.

[sarita28787@gmail.com](mailto:sarita28787@gmail.com)

**ABSTRACT**

Sodium-glucose cotransporter-2 (SGLT2) inhibitors have been linked to gangrene in the past. This case study discusses a 42-year-old man who developed genital gangrene after using dapagliflozin to treat type 2 diabetes mellitus (T2DM). After 157 days on dapagliflozin, the patient had discomfort and edoema in the perineum and groin. The clinical signs and test results all pointed to genital gangrene. Surgical drainage and necrotic tissue debridement were conducted as soon as the patient arrived at our facility. Before the start of gangrene, the patient had no diabetic complications. At the time of gangrene development, glycemic control was excellent. This case implies that dapagliflozin and genital gangrene may have deep association. We report a case of genital gangrene in a patient during a period of good glycemic management following treatment with dapagliflozin. We urge that people become more aware of this connection and that further research study be done.

**PP-24****Vaccination: An Obstacle in Organ Transplantation**Shakti Sharma, Sonali Singh, Ekta Dhull, Ankita Dogra

Chandigarh College of Pharmacy Landran, Mohali.

dr.shaktisharma101@gmail.com, sonali.ccp@cgc.edu.in**ABSTRACT**

Outcome and survival after solid organ transplantation improved significantly in the last 15 years, leading to a need for new and effective preventive measures to maintain general health. Immunosuppressive regimens put these patients at higher risk of life threatening infection. Vaccination can prevent disease and decrease the replication and dissemination of infectious micro-organism. Even earlier vaccination given to patient with organ transplant must follow a gap of 6 months. Therefore, specific vaccines have been recommended including pneumococcal, influenza and hepatitis A and B, in selected cases are tetanus, diphtheria and haemophilus influenza type B. However, the efficacy, safety and protocols of several vaccines in the patients are poorly understood. The objective of the study is focused on the post complication of the covid-19 vaccination. The information collected from recent published articles. The authentication of data is confirmed with the help of medical software such as Medscape. The recent collected articles resulted in the correlation between organ transplantation and covid-19 vaccination. The correlation between organ transplantation and vaccination can be future perspective for post complication research.

**PP-25****Role of Clinical Pharmacist In De-Escalating Antibiotics And Prevent Antibiotic Resistance**Divya Dadwal

Chandigarh college of Pharmacy, Landran, SAS Nagar, Punjab.

[ccp202410.pharmd.ccp@cgc.edu.in](mailto:ccp202410.pharmd.ccp@cgc.edu.in)**ABSTRACT**

Antibiotic resistance occurs when an antibiotic has lost its ability to kill bacterial growth. Antibiotic resistance can spread by a lot of means, like via improper handling of farm animals, meat products, indecently prescribed antibiotic therapy by healthcare facilities and consumption of contaminated food/water. The mechanism whereby the provision of effective initial antibiotic therapy is given while avoiding excess antibiotic use, which could lead to the antibiotic resistance, is known as antibiotic de-escalation. The clinical pharmacist plays a very crucial role in antibiotic de-escalation and can reduce the chances of adverse effects due to antibiotic resistance. However, nowadays antibiotic de-escalation is highly recommended but moderately practiced in the healthcare system, which should be followed completely in healthcare practice. Moreover, it is the responsibility of the clinical pharmacist to inflict the antibiotic de-escalation in hospital and improve prescribing quality of antibiotics and reduce the risk of antibiotic resistance. Prevention of antibiotic resistance can improve quality of life and decrease the mortality or morbidity rate.

**PP-26****Pharmacovigilance: Helping Hand in COVID-19 Vaccine Safety**

Priyanka, Samrat Chauhan, Seema Bansal

Department of Pharmacology, MM College of Pharmacy, MM Deemed to be University,  
Mullana, 133207, Ambala.

[seema.bansal@mmumullana.org](mailto:seema.bansal@mmumullana.org)

**ABSTRACT**

The impact of covid- 19 pandemic has affected the entire globe & created socioeconomic & humanitarian crisis. Vaccines likes- covaxin, sputnik V has shown therapeutic effects as well as common side effects for e.g.: - injection site pain, headache, fever including some serious adverse events such as heart palpitation, urticaria, pyrexia and hemolytic anemia. Monitoring these vaccines safety can be done by both active & passive surveillance. The basic objective of Vaccine pharmacovigilance during covid- 19 vaccination is timely detection & appropriate response to any suspected adverse events associated with vaccination. Vaccine pharmacovigilance has significantly evolved in India. At present national AEFI secretariat & national AEFI technical collaborating center coordinate this along with the state as well as district AEFI committee. India runs one of the largest immunization programs for the vaccine-preventable disease targeting approx. 27 million newborns & 30 million pregnant women every year. Monitoring the safety of vaccines is top priority to safeguard the health of vaccine recipients & robust vaccine pharmacovigilance can ably do that in this crisis.

## PP-27

**Photocatalytic Activity of Zinc Oxide Nanoparticles Against Methylene Blue Dye.**

Anikate Sood, Pankaj Arora, Deepika Sharma<sup>1</sup>

Lords International College of Pharmacy, Lords University, Alwar, Rajasthan, India.

<sup>1</sup>Department of Pharmaceutical Sciences, School of Health Sciences and Technology, UPES  
Dehradun, Uttarakhand, India.

**ABSTRACT**

The goal of this study was to use the bio reduction method to synthesize zinc oxide nanoparticles (ZnO NPs). There are several bio reduction approaches for synthesizing metallic nanoparticles, but green synthesis approach has attained a lot of attention. Here in this study, onion peel extract was used as a natural reducing agent for the synthesis of ZnO. Zinc nitrate salt was used as a precursor for the production of ZnO nanoparticles; off white cream precipitates were produced after bio reduction of zinc nitrate, giving an early indication of the formation of ZnO. FTIR spectroscopy, XRD analysis, and zeta potential measurement studies were used to characterize the synthesized ZnO. FTIR peaks obtained below  $1000\text{ cm}^{-1}$  confirmed the formation of ZnO and crystalline nature of nanoparticles was confirmed via XRD study. While, the average zeta potential value of  $-7.38\text{ mV}$  revealed that these NPs were stable in nature. Further using methylene blue dye, the photocatalytic activity of produced zinc oxide nanoparticles was also assessed. According to our findings, zinc oxide nanoparticles have the ability to degrade the methylene blue dye. Overall, the findings indicated that ZnO NPs synthesized via onion peel extract might be employed in bioremediation of wastewater containing various dyes.

## PP-28

**Role of Pharmacist in Antimicrobial Stewardship and Antibiotic Resistance in Various Types of Surgeries after COVID-19**

Jaspreet Kaur, Tanishq Joshi, Parminder Nain

MM College of Pharmacy, Maharishi Markandeshwar (Deemed to be University) Mullana-Ambala (Haryana) India.

**ABSTRACT**

*Antibiotic stewardship* improves the antibiotic prescribing and use which is critical to effectively treat infections, protect patients from harms and combat antibiotic resistance. To study the bacteriological analysis and antibiotics consumption/resistance in various types of surgeries after COVID-19 under stewardship by clinical pharmacist. The study was conducted for a total time period of six months in a tertiary care hospital of India after COVID-19 phase. All subjects recruited were undergoing either elective clean/clean-contaminated or contaminated surgeries and were admitted to inpatient department of surgery. Clinical data was recorded on the basis of evidence. Patient's microbial culture and antibiogram results of surgical site were recorded and furthermore analyzed by clinical pharmacist. From total 70 patients, female population (80%) found prevalent to acquire surgical site infection (SSIs) after COVID-19. Patient's undergone clean-contaminated surgery were more prevalent for surgical site infections (SSI) than patients undergoing other types of surgeries. Antibiotics like metronidazole, gentamycin, amikacin, piperacillin with tazobactam, ceftriaxone etc. were more oftently prescribed by physicians. The most common pathogens found predominantly were gram negative bacteria i.e. *E. coli* (44%), *Klebsiella pneumonia* (12%), *Acinetobacter baumannii* (5%) and Gram-positive i.e. *Staphylococcus aureus* in post-operative SSIs. Microbes which have shown high resistance against number of antibiotics were *E. coli* (76%) and *Staphylococcus aureus* (61%). However, high sensitivity towards these microbes was imipenem, amikacin, gentamicin, tigecycline, colistin, linezolid, vancomycin and teicoplanin. Observation of high antibiotics resistance in current study suggests the necessity for routine microbiological investigation of samples and their antibiogram in order to break disease spread cycle of resistant microbes after COVID-19. Clinical Pharmacists can improve antibiotic prescribing by optimizing antibiotic selection, re-assessing antibiotic treatment and can use the shortest effective duration of therapy.

## PP-29

**Impact of Clinical Pharmacist in Optimization of Drug Dosage Regimen in Medical Intensive Care Unit with Multiple Organ Failure**

Parminder Nain, Deepika Saxena, Jaspreet Kaur

MM College of Pharmacy, Maharishi Markandeshwar (Deemed to be University) Mullana-Ambala (Haryana) INDIA.

**ABSTRACT**

Acknowledge or suggestions to physicians by clinical pharmacist in optimization of drug dosage regimen in patient care process are of paramount preponderant. This study was conducted to assess the drug dose adjustment and patient safety in an Intensive Care Unit (ICU) patients decompensated with kidney function. The prospective and *comparative* study was carried out in the ICU. Patient was hospitalized for chronic medical illness having at least a decompensated liver or kidney function. Two groups of patients were made with well-matched demographic characteristics, clinical features and drug related aspects. Patient received routine medical care in the non-intervention group was compared with intervention group in which patients received specialized pharmacy dosing service by clinical pharmacist. After comparative analysis, the overall incidence of drug-drug interaction were 376 (47%) in 800 admissions, where the incidences were higher in non-intervention group. Further 51% relative reduction in drug dosing error rate in intervention group. There were toxic events specific to drug doses were accounted on laboratory variables and it was observed that, 64% of the participants showed signs for the same toxic events. In the Intervention group, during the Pre-Intervention Phase 38 dose limiting toxic effect per 100 patients occurred, as compared with 12% event per 100 patients was after intervention. Drug related adverse event such as edema, diarrhea, headache, vomiting, dyspepsia, fever, hematuria, electrolyte imbalance, anemia, etc. occurred significantly more frequently in non-intervention group (53%) then in interventional group (14%). A significant difference in the average number of days was obtained between both the groups in the ICU. Appropriate drug dosing is important for patients with chronic kidney disease to avoid unwanted drug effects and ensure optimal patient outcomes. In conclusion, there is increasing evidence that participation and interventions of clinical pharmacists in health care positively influence clinical practice.

**PP-30****Overview on Pharmacovigilance System in India**

Aparna Gupta, Priyanka Gupta

Chandigarh College of Pharmacy, Landran

aparnagupta8601@gmail.com

**ABSTRACT**

Pharmacovigilance (PV) is an important and unavoidable element of drug discovery and development, requiring extensive documentation and close monitoring at every phase of the drug development, including risk management and pre- and post-authorization safety investigations. Pharmacovigilance is the process of gathering, assessing, monitoring, and preventing adverse side effects in novel medications and therapies. Pharmacovigilance is necessary throughout the life cycle of a medicine, beginning with preclinical development and continuing through post-market monitoring. The cornerstone of pharmacovigilance is proactive reporting of adverse drug reactions, which is critical for patient safety. The success of this activity, however, is reliant on the regularity of reporting by health care providers. Though India has its own Pharmacovigilance Program since 2010, there are certain flaws in the ADR framework from the standpoint of the pharmaceutical industry, healthcare professionals, and the general public, resulting in underreporting of adverse events for marketed medications. There are certain provisions that can help to strengthen PV in India, such as assessing people's knowledge and perceptions regarding ADR reporting, raising awareness about PV, establishing a tool for easier reporting, and improving the regulatory framework. PV therefore assists patients in getting well and managing optimally or, ideally, avoiding sickness is a shared obligation of industry, drug regulators, clinicians, and healthcare professionals to improve their contribution to public health.

**PP-31****Role of Pharmacovigilance in India: An overview****Abhinav, Lakhan, Bharti Verma, Dr. Sunil Jawla****Geeta Institute of Pharmacy, Geeta University, Panipat****ABSTRACT**

Pharmacovigilance (PV) plays a key role in the healthcare system through assessment, monitoring and discovery of interactions amongst drugs and their effects in human beings. Pharmaceutical and biotechnological medicines are designed to cure, prevent or treat diseases; however, there are also risks particularly adverse drug reactions (ADRs) can cause serious harm to patients. Thus, for safety medication ADRs monitoring required for each medicine throughout its life cycle, during development of drug such as pre-marketing including early stages of drug design, clinical trials, and post-marketing surveillance. PV is concerned with the detection, assessment, understanding and prevention of ADRs. Pharmacogenetics and pharmacogenomics are an indispensable part of the clinical research. The research focus is shifting towards the use of data generated from platforms outside the conventional framework such as electronic medical records, biomedical literature, and patient-reported data in health forums. The emerging trend in PV is to link premarketing data with human safety information observed in the post-marketing phase. Hence, PV helps to the patients get well and to manage optimally or ideally, avoid illness is a collective responsibility of industry, drug regulators, clinicians and other healthcare professionals to enhance their contribution to public health. This review summarized objectives and methodologies used in PV with critical overview of existing PV in India, challenges to overcome and future prospects with respect to Indian context.

**PP-32****Recently Banned Drugs Due to Adverse Drug Reaction (ADR)****Lakhan\* , Abhinav, Faizal, Dr.Sunena, Dr. Sunil Jawla****Geeta Institute of Pharmacy, Geeta University****Abstract**

Drugs undergo rigorous efficacy and safety testing before they are introduced into the market. They are first tested in animals and then in human beings during clinical trials. In spite of this, some adverse effects of drugs appear only after the drug is used in the general population. These adverse effects are identified through a process of regular monitoring after the drug is released called pharmacovigilance. If the adverse effects are severe or the risks of using the drug outweigh the benefits, or if the drug is ineffective, the country may ban the drug or the Drug Company may itself voluntarily withdraw the drug. Some drugs may cause adverse effects only when combined with particular drugs. In such cases, only the fixed dose combination is banned and not the individual drugs. The U.S. Food and Drug Administration (FDA) is committed to ensuring that the medicines taken by people are safe and effective. The FDA recalls the ranitidine drugs from the market immediately in April 2020 due to contaminant known as N-Nitrosodimethylamine (NDMA) in ranitidine medications which is cancerous in nature. A number of single drugs as well as fixed dose combinations have been banned for manufacture, marketing and distribution in India. Some recently banned drug in India is Amidopyrine, Phenacetin, fixed dose combination of Ondansetron and Omeprazole etc.

**PP-33****Scope of Pharmacovigilance in India****Rahul Gautam\*, Shivam, Deepali Tomar, Dr. Sunil Jawla****Geeta Institute of Pharmacy, Geeta University****Abstract**

People use potent and more efficient drugs with a variety of health conditions. Pharmacovigilance facilitates the safe and easy use of prescription drugs. Voluntary recording of adverse drug reactions (ADRs) is a major component of pharmacovigilance. Drug reactions have become a major health problem in developing countries like India. The main purpose of pharmacovigilance is to evaluate the risk profile of the drug benefit for better strength and safety in patients. India's pharmaceutical industry is the third largest in the world so India has the context of medical research and drug development and development. Here we will describe the need for pharmacovigilance in pharmacovigilance companies, pharmacovigilance growth in different centuries and the current state of pharmacovigilance in India.

**PP-34****A Short Review: Polycystic Ovarian Syndrome****Arshpreet Kaur\*****Chandigarh College of Pharmacy, Landran Punjab****arshpreet.chandigarh@gmail.com**

Polycystic ovarian syndrome is a hormonal disorder causing enlarged ovaries with small cysts on outer edges in combination with signs and symptoms of androgen excess and ovarian dysfunction in the absence of other specific diagnosis. Depending upon diagnostic criteria, 6-20% of reproductive aged women are affected. Symptoms of PCOS arise during early puberal years including Abnormal Menstruation, Obesity, Infertility, Acne, Male features, Hirsutism, Hairfall etc. The causes aren't well understood but many involve Obesity, Unhealthy lifestyle/diet, lack of physical activity, Mutation of insulin receptor and genetic factors. According to the proposed pathogenesis it is a result of Abnormal Pituitary functions i.e Altered negative feedback loop, Hyperandrogenism and Insulin Resistance. Different approaches to treat this condition consists of maintaining healthy weight/lifestyle, decrease glucose intake and regular exercise. Medicinal approaches in different systems of medicine are-Allopathic system of medicine- Oral contraceptive pills, Anti-Diabetics etc. and local medicines to prevent hirsutism and acne.Homeopathic system of medicine- Alcohol based formulations of Apismellifica, Pulsatillanigericans etc.Ayurvedic system of medicine- Anti-inflammatory agents like Turmeric, Ashwagandha, cinnamon etc along with Yoga asanas and healthy diet.Homeopathic and Ayurvedic medicines may help treating this condition whereas Allopathic medicines can only control and relieve the symptoms.

# **BIOTECHNOLOGY ABSTRACTS (BIOTECH)**

**BIOTECH-01****Biosensors: Introduction and their various applications**

Mandeep Kaur, Shikha Sharma  
Global College of Pharmacy, Anandpur Sahib (Punjab)

[mk64462@gmail.com](mailto:mk64462@gmail.com)

**ABSTRACT**

A biosensor is a self-reliant integrated device that is proficient of providing specific quantitative or semi-quantitative analytical information. It has been using a biological recognition component which is in direct spatial contact with a transduction component. It is an appliance that consists of two main parts: A bioreceptor and a transducer. Bioreceptor is a biological component that recognizes the objective of an analyte and transducer is a physicochemical detector component that converts the recognition incident into a measurable signal. All the biological materials including-enzyme, antibody, nucleic acid, hormone, receptors, organelle or whole cell can be used as sensor or detector in a device. Biosensors can basically provide as low-priced and highly capable devices for being used in other day-to-day applications. It has multifarious potential applications of various types such as, monitoring of treatment, disease progression, drug discovery, food control and environmental monitoring as well as they continues to play a crucial role across numerous fields including biomedical diagnosis. In this review, we give a general introduction to biosensors and their applications, including a brief historical overview.

## **BIOTECH-02**

### **Importance of vaccination**

Priya Jindal, Ojasvi Mittal, YashBathla, Teenu Sharma

Chandigarh College of Pharmacy, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[teenu.4617@cgc.edu.in](mailto:teenu.4617@cgc.edu.in)

### **ABSTRACT**

A Vaccine is a biological preparation that provides active acquired immunity to a particular infectious disease. India have started vaccination program using Covishield and Covaxin. Covishield is developed by the Oxford University scientists in collaboration with the Astrazeneca and manufactured at serum institute and Covaxin is developed by Bharat Biotech in collaboration with the Indian Council of Medical Research (ICMR) and National institute of Virology (NIV). It is the largest vaccination program to reduce spread of infection in susceptible population. Vaccination will reduce large number of death in India and in world.

**BIOTECH-03**

Good gut for Good news: Not getting pregnant? Blame gut  
microbiome

Umang Gambhir, Prachi Sudan, Nitin Sharma

Chandigarh College of Technology, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[nitin.3994@cgc.edu.in](mailto:nitin.3994@cgc.edu.in)

**ABSTRACT**

Infertility is a major, multifaceted issue whose prevalence is increasing in both high- and low-income sectors. The reasons are numerous such as lifestyle and nutritional factors, epidemic infections, and sexually transmitted diseases. In a recent study it has been shown that gut microbiome is also affecting fertility. Gut microbial diversity changes throughout the human life span and is known to be associated with host sex. Female reproductive tract dysbiosis impacts implantation. However, whether gut dysbiosis influences implantation failure and whether it accompanies reproductive tract dysbiosis remains scantily explored. The gut-vaginal microbiota axis in infertile women was examined. Compared with the controls,  $\alpha$ -diversity and  $\beta$ -diversity of the gut bacteria among the infertile groups differed significantly. The infertile groups had gut dysbiosis as evident by low  $\alpha$ -diversity indices and beta diversity metrics. Vaginal microbiota was dominated by the genus *Lactobacillus*, being the most abundant species across the groups. Compared with the infertile cohort, overgrowth of anaerobic bacteria, associated with vaginal dysbiosis, such as *Leptotrichia* and *Snethia*, occurred in the controls. The gut microbiota had little influence on the vaginal microbiota. The infertile cohort had gut dysbiosis but not vaginal dysbiosis; thus showing infertility is more influenced by gut microbiome. The study has laid the foundation of research on the link between the gut microbiota, the gut-reproductive microbiota axis, and implantation failure, which can lead to microbiota-based diagnostic tools and therapeutic strategies.

**BIOTECH-04****Plant mediated synthesis of silver nanoparticles from *Terminalia chebula***

Ranjana Chaudhary, NikunjMoudgil, Mandheer Kaur, HarleenKhatra

Chandigarh College of Technology, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[mandheer.cct@cgc.edu.in](mailto:mandheer.cct@cgc.edu.in)

**ABSTRACT**

This study reports a novel green method for the synthesis and stabilization of silver nanoparticles (AgNP) using aqueous extract of *Terminalia chebula* leaves. The formation of green synthesized AgNPs was verified by the appearance of brownish-yellow color and was further characterized by UV-Visible spectroscopy and ATR analysis (Attenuated Total Reflectance). Phytochemical and functional group analysis of the synthesized green particles when compared with raw extract revealed the presence of Flavonoids, Alkaloids, Terpenoids, Amides and Aldehydes that serve as efficient capping agents in the conversion of Silver Nitrate ( $\text{AgNO}_3$ ) to nanoparticles. Furthermore, kinetic studies conducted depicted that high temperature favors the synthesis of small sized nanoparticles of *T.chebula*. In addition, higher the concentration of plant extract, maximum is the production of nanoparticles. This indicates that *T.chebula*AgNPs are positive responders for antimicrobial, antifungal and immune-modulatory activity. Hence, these might be developed as novel therapeutics for the treatment of bacterial infection including multi-drug resistant bacterial infections.

**BIOTECH-05****Potential of medicinal plants extracts and essential oils in pest management**

Nidhi Gupta, Lakshmi Giri, Khusboo Gupta, Nitin Sharma

Chandigarh College of Technology, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[abhinitu30@gmail.com](mailto:abhinitu30@gmail.com)**ABSTRACT**

Plants play an essential role in human life since the beginning of life on earth. The uses of plants are not only limited to feed and fodder for humans and animals, these are also used as drugs, pesticides, food additives, in flavor and fragrances and dye and pigments. The ever increasing demand for food in the world has led to development and use of synthetic pesticides as a rapid and effective strategy of pest management of crops. However, overuse of synthetic pesticides is causing detrimental effects on human health, environment, and also leads to development of resistant pest and pathogenic strains. An alternative to synthetic pesticides can be use of plant extracts and essential oils as botanical pesticides. The pesticidal properties in plants are attributed to the secondary metabolites produced by them. These secondary metabolites provide protection to plant by causing mortality, repellency, toxicity, antifeedancy or they alters insects behavior during oviposition and mating and can also inhibit progeny emergence in pests. Plants as a whole or in extracts/fractions form have been used as pesticides for protection of plants since thousands of years. Pyrethrum, neem, rotenone are such plants which has been used since ages for crop protection. Lemongrass essential oil, Citronella essential oils, Tea tree essential oils and Oregano essential oils are the commonly used essential oils against the pests. Botanical pesticides are also advantageous over synthetic pesticides in terms of biodegradability, posing no or low risk to humans, environment and non-target organisms. These can be an alternative to synthetic pesticides if more research is done on their stability, efficacy, safety, modes of action, and cost reduction.

**BIOTECH-06****Vaccination: An obstacle in organ transplantation**

Shakti Sharma, Sonali Singh, Ankita Dogra

Chandigarh College of Pharmacy, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[dr.shaktisharma101@gmail.com](mailto:dr.shaktisharma101@gmail.com), [sonali.ccp@cgc.edu.in](mailto:sonali.ccp@cgc.edu.in)**ABSTRACT**

Outcome and survival after solid organ transplantation improved significantly in the last 15 years, leading to a need for new and effective preventive measures to maintain general health. Immunosuppressive regimens put these patients at higher risk of life threatening infection. Vaccination can prevent disease and decrease the replication and dissemination of infectious micro-organism. Even earlier vaccination given to patient with organ transplant must follow a gap of 6 months. Therefore, specific vaccines have been recommended including pneumococcal, influenza and hepatitis A and B, in selected cases are tetanus, diphtheria and haemophilus influenza type B. However, the efficacy, safety and protocols of several vaccines in the patients are poorly understood. The objective of the study is focused on the post complication of the covid-19 vaccination. The information collected from recent published articles. The authentication of data is confirmed with the help of medical software such as Medscape. The recent collected articles resulted in the correlation between organ transplantation and covid-19 vaccination. The correlation between organ transplantation and vaccination can be future perspective for post complication research.

**BIOTECH-07****Probiotics as functional food: Nutritional benefits in modulation of human health**

Bhairav Prasad, SahilMonga, Anshika

Chandigarh College of Technology, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[bhairav.5030@cgc.edu.in](mailto:bhairav.5030@cgc.edu.in)**ABSTRACT**

Probiotics are live microbial food supplements or components of bacteria, which have been shown to have beneficial effects on human health. Probiotics are also called “friendly bacteria or good bacteria” or GRAS (generally regarded as safe). Probiotic bacteria have been the focus of much scientific and commercial interest currently. This interest is due to a range of possible health benefits of these bacteria. In recent years, the probiotic activity of lactic acid bacteria (LAB) has been emphasized. The most widely used probiotic LAB are *Lactobacillus* and *Bifidobacterium* strains and extensive studies on beneficial effects of these species for human health have been reported. LAB displays a wide range of antimicrobial activities. Amongst these activities, the production of lactic acid and acetic acid is obviously the most important. However, certain strains of LAB are further known to produce bioactive molecules such as ethanol, formic acid, fatty acids, hydrogen peroxide, diacetyl, reuterin, and reutericyclin. Many strains also produce bacteriocins and bacteriocin-like molecules that display antibacterial activities. Several bacteriocins with industrial potential have been purified and characterized. Probiotics are available to consumers mainly in the form of dietary supplements and foods. They can be used as complementary and alternative medicine (CAM). Research indicates that probiotic bacteria may confer a variety of health benefits. The host benefits that have been attributed to consumption of probiotic microorganisms are diverse and include: enrichment of gut microflora, Immune modulation, decrease in colon cancer risk, lowering cholesterol, reduce inflammatory disorders, such as inflammatory bowel diseases, ulcerative colitis, Chron’s disease, pouchitis.

**BIOTECH-08****Decolorization of textile and leather dyes by laccase****Roopali Sharma, Priya Gupta, Sonica Sondhi**

Chandigarh College of Technology, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[sonicasondhi@gmail.com](mailto:sonicasondhi@gmail.com)**ABSTRACT**

Synthetic dyes are released into the environment during textile and leather dyeing, creating a severe environmental threat. The rich aromatic structure of synthetic dyes makes them more stable and biodegradable. Synthetic dyes may release colored substances into the environment that not only interfere with photosynthesis in aquatic plants, but also appear to be toxic and mutagenic in living beings. As waste water, many textile industries dump millions of liters (10 to 15%) of unwanted effluents into rivers. This is harmful and dangerous to the environment. Some of the physiochemical processes used to degrade dyes include adsorption, coagulation, flocculation, oxidation, filtration, nano-filtration, multiple effect evaporators, activated carbon, and electrochemical approaches. These physiochemical processes are efficient, but they come at a high price. Biological methods are preferred over physiochemical operations because they are less expensive, produce less sludge, and are less harmful to the environment. The release of laccase, lignin peroxidase, and manganese peroxidase causes biological breakdown of synthetic colours. Among other industrial and biotechnological applications, they've been used in biobleaching, xenobiotic bioremediation, decolorization of textile and leather colours, biosensors, and the food sector. These enzymes are produced either extracellularly or intracellularly by bacteria, and their activity is temperature and pH tolerant. Laccase degrades dye, which is why laccase-based synthetic dye methods have been created and are now used in the industry. At a specific pH and temperature, it takes the least amount of time and removes the colour most efficiently.

**BIOTECH-09****Application of genetically modified microorganisms for effective removal of heavy metals**

Rishika Gupta, Nakul, Sonica Sondhi

Chandigarh College of Technology, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[sonicasondhi@gmail.com](mailto:sonicasondhi@gmail.com)**ABSTRACT**

Natural processes can lead to the discovery of heavy metals in the earth's crust. However, anthropogenic activities have severely altered several heavy metals' geochemical cycles and ecological equilibrium. Bioavailable forms of numerous heavy metals, including mercury, lead, cadmium, nickel, copper, zinc, and others, are released into soil and aquatic ecosystems as a result of these anthropogenic activities. In a number of terrestrial and aquatic life domains, long-term exposure to these heavy metals has detrimental health repercussions. Bioremediation is increasingly being researched as an alternative option for treating heavy metal contamination in soil and water due to the various limitations associated with physical and chemical approaches for contaminated area remediation. Through processes such as bioremediation and phytoremediation, various microorganisms, such as bacteria and fungi, as well as plants, play an important part in the biotransformation of these heavy metals into benign forms. The use of creating enhanced microorganisms and enzymes for bioremediation has been pushed forward by recent advances in genetics. This chapter deals with a comprehensive study on the enormous and rich biological resources for bioremediation of heavy metal by genetically modified organisms.

**BIOTECH-10****Isolation and characterization of *Lactobacillus acidophilus* and *Lactobacillus rhamnosus* from traditional curd samples**

JagdeepKaur, Geetanjali, Mohinder Pal

Chandigarh College of Technology, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[jagdeepkaur2904@gmail.com](mailto:jagdeepkaur2904@gmail.com); [geetanjaliikaushik.1999@gmail.com](mailto:geetanjaliikaushik.1999@gmail.com)

**ABSTRACT**

Probiotic foods including the dairy products have shown a great health benefits by improving the health of gut microbiota. These beneficial probiotic bacteria prevent the rise of pathogenic bacteria by producing antimicrobial metabolites. Bacteria of genus *Lacobacillus* are Gram-positive and catalase negative and form an important part of the gut micro flora of human. *Lactobacillus acidophilus* and *Lactobacillus rhamnosus* are normally found in curd and responsible for its probiotic health benefits including lactose metabolism, digestion improvement, antimicrobial activity and immunomodulatory activities. Keeping in view of the above health benefits, our study was aimed to identify beneficial *Lactobacillus acidophilus* and *Lactobacillus rhamnosus* from the traditional curd. We have isolated *Lactobacillus acidophilus* and *Lactobacillus rhamnosus* from two different curd samples by serial dilution technique and further culturing in MRS agar plates. Both isolates appeared as Gram-positive during gram staining and catalase negative. Also, these isolates were able to tolerate 1-6% NaCl concentration with optimum growth at 1% salt concentration. One isolate from a curd sample collected from Nalagarh, Himachal Pradesh have shown the growth at pH 3, which indicates it as a *Lactobacillus acidophilus*. Further confirmation by more biochemical tests and molecular characterization will provide its better characterization. Identification of new and novel strains from these samples may provide a potential probiotic candidate for health and wellness industry.

**BIOTECH-11**

**Antiviral drugs and their role during Covid-19**

Manish Kumar, Amanjot Singh, Nikita Kaushal, Jyoti Phogat, Rishabh Chalotra

M.M College of Pharmacy, M.M (DU) Mullana, Ambala, Haryana, India

[manishsingh17@rediffmail.com](mailto:manishsingh17@rediffmail.com)

**ABSTRACT**

As viruses spread so fast, and cause situations like pandemics, affecting the whole world, killing lot many people. All the knowledge, treatments sometimes feel incapable to save lives. That is why research goes on looking for better alternatives, with highly efficient results, and lesser side effects. Viruses mutate very easily, but treatments are limited. These antiviral drugs help us to overcome some of these kinds of issues. This review focuses on how viruses affect the human body, the challenges of antiviral treatment, limitations of conventional antiviral treatment; this also includes a list of 41 antiviral drugs with their mechanism and route of administration, and a list of 9 drugs that were repurposed in the treatment of COVID-19 with their primary use, and side effects.

**BIOTECH-12****Maintenance and forestallment of agricultural land soil nutrient depletion due to inappropriate cropping and accidental fires**

Sadsimrat Kaur, Sonia, Sarbjeet Kaur

Chandigarh College of Technology, Chandigarh Group of Colleges, Landran, Mohali, Punjab.

[sadsimratkaur@gmail.com](mailto:sadsimratkaur@gmail.com), [soniarai8332@gmail.com](mailto:soniarai8332@gmail.com), [kaursarbi8@gmail.com](mailto:kaursarbi8@gmail.com)**ABSTRACT**

Inappropriate cropping practices the soil quality in Punjab has been deteriorating as the farmers continue to use the crop rotation method as these offer the highest returns. Using this method reduces the soil fertility and deprives it of nutrients. The use of high-yield seeds and genetically modified crops has resulted in rise in productivity, but at the same time, has also resulted in a reduction of the nutrients naturally available in the soil. Non-seasonal rain, sleet, drought, mist or wind is major environmental concerns that have occasionally led to crop failures. Crop failure is the biggest threat to the financial stability of the farmers in Punjab, and it often drives farming communities into an endless cycle of debt. As a result accidental field fires can occur. Crops can be so dry that fires flash quickly and burn standing corn and soybean, and even soybean stubble. These fires lead to questions about potential nutrient and crop dry matter losses. Major nutrients commonly fertilized in Iowa, nitrogen (N), phosphorus (P), potassium (K), and sulfur (S) mineral nutrients, only N and S are volatilized and lost when plant material burns. Among the major soil degradation processes are accelerated erosion, depletion of the soil organic carbon (SOC) pool and loss in biodiversity, loss of soil fertility and elemental imbalance, acidification and salinization. Soil degradation trends can be reversed by conversion to a restorative land use and adoption of recommended management practices. The strategy is to minimize soil erosion, create positive SOC and N budgets, enhance activity, species diversity of soil biota (micro, meso, and macro), and improve structural stability and pore geometry. Improving soil quality (i.e., increasing SOC pool, improving soil structure, enhancing soil fertility) can reduce risks of soil degradation (physical, chemical, biological and ecological) while improving the environment. The strategy is to produce “more from less” by reducing losses and increasing soil, water, and nutrient use efficiency.

**BIOTECH-13****Synergistic interactions of *Phyllanthusemblica* fruits with chloramphenicol as a novel approach to combat drug-resistance in bacteria**

Rakshandha Saini, Anuradha Sourirajan, Vikas Kumar\*, Kamal Dev

Faculty of Applied Sciences and Biotechnology, Shoolini University, Solan, H.P

\*University Institute of Biotechnology, Chandigarh University, Gharuan, Mohali, Punjab.

[kamaldevbhardwaj1969@gmail.com](mailto:kamaldevbhardwaj1969@gmail.com)

**ABSTRACT**

Inappropriate use of antibiotics has led to the development of antibiotic resistant in bacterial pathogens, thereby resulting in failure of treatment of infectious pathogens. The present study was designed to evaluate the in vitro synergistic interaction between hydroalcoholic extract of FPE and chloramphenicol. Phytochemical analysis of hydroalcoholic extract of FPE showed the presence of phenols, tannins, flavonoids, terpenoids, carbohydrates, glycosides, and saponins. The antibacterial activity was determined using broth dilution method and minimum inhibitory concentration (MIC). The MIC of hydroalcoholic extract was 0.5 mg/mL against tested bacterial strains (*B. subtilis*, MTCC 441, *S. aureus*, MTCC25922, *E. coli* MTCC29213, *K. pneumoniae*, MTCC39, and *P. aeruginosa*, MTCC424). Furthermore, synergistic evaluation of hydroalcoholic extract of FPE was determined with chloramphenicol against tested bacterial strains using checker board method. MIC of FPE with MIC of chloramphenicol showed synergistic activity against *B. subtilis* with 142.85 folds increase in activity of chloramphenicol.  $\frac{1}{2}$ MIC of FPE with 2MIC of chloramphenicol showed synergistic activity against *E. coli* with 32.05 folds increase in activity of chloramphenicol. 2MIC of FPE with  $\frac{1}{2}$ MIC of chloramphenicol showed synergistic activity against *K. pneumonia* with 17.85 folds increase in activity of chloramphenicol.  $\frac{1}{2}$ MIC of FPE with 2MIC of chloramphenicol showed strong synergistic activity against *S. aureus* and *P. aeruginosa* with 16.02 folds increase in efficacy of chloramphenicol. These results indicate that hydroalcoholic extract of FPE potentiates the antimicrobial action of chloramphenicol, suggesting a possible utilization of this herb in combination therapy against emerging multidrug-resistant bacterial strains.

**BIOTECH-14****Synergistic antibacterial activities of roots of *Potentillanepalensis* an endemic medicinal plant with ampicillin against *S. aureus* (ATCC29213) and *E. coli* (ATCC25922)**

Subhash Sharma, Anuradha Sourirajan, Vikas Kumar\*, Kamal Dev

Faculty of Applied Sciences and Biotechnology, Shoolini University, Post Box No. 9, Head

Post Office, Solan, H.P.-173212, India

\*University Institute of Biotechnology, Chandigarh University, Gharuan, Mohali, Punjab-140413, India.

[kamaldevbhardwaj1969@gmail.com](mailto:kamaldevbhardwaj1969@gmail.com)

**ABSTRACT**

The study aims on analysis of antibacterial and synergistic antibacterial activities of root extracts of an endemic medicinal plant, *Potentillanepalensis* in combination with ampicillin against *S. aureus* (ATCC29213) and *E. coli* (ATCC25922). MIC of methanol and n-hexane root extracts was 2.5mg/ml and 5mg/ml respectively and MBC was 5mg/ml and >5mg/ml. The MIC of Ampicillin was 0.5mg/ml. The most synergistic combinations of methanol extract and ampicillin against *S. aureus* (ATCC29213) and *E. coli* (ATCC25922) was 2:2, 1:2 and ½:2 with FICI 0.06 and fold reduction 32.26. The most synergistic combination of n-Hexane root extract and ampicillin against *S. aureus* (ATCC29213) was 2:2, 2:1, 1:2 and ½:2 with FICI 0.06 and fold reduction 32.26 and against *E. coli* (ATCC25922) was 2:2 with FICI 0.03 and fold reduction 62.5.

**BIOTECH-15****Recent updates on COVID-19 vaccines****Ashutosh\*, Shikha Raheja, Amit Girdhar****JCDM College of Pharmacy Sirsa, Haryana, India****Email:ashutoshkumar1147@gmail.com****ABSTRACT**

COVID-19 pandemic has affected millions of people all over the world and continues to spread. More than 5 million people have died from COVID-19 worldwide. Development of vaccines has provided significant protection against this infection. This review has focused on development of vaccines, their clinical status and stage of development. Most of the COVID-19 vaccines use a part of the spike protein found on the surface of the virus to prompt the immune system to produce antibodies. Till date, 11.56 billion doses of vaccines have been administered world-wide and 1.9 billion doses have been administered in India. More than 30 vaccine candidates including Oxford-AstraZeneca, Bharat Biotech-Covaxin and Sputnik V are authorized/ approved in different countries and hundreds of vaccines are under different stages of development. Pfizer-BioNTech COVID-19 vaccine is authorized or approved for children of age five to seventeen globally. Recently India has granted emergency use approval to Covaxin and Corbevax for children below twelve.

**BIOTECH-16****SARS-COV-2**

Chaitanayajit Singh  
Department of Biotechnology,  
Chandigarh College of Technology, Landran Punjab

**ABSTRACT**

Despite gains in scientific understanding of the pathogenesis, treatment development has lagged behind threats from developing and re-emerging diseases like hepatitis, Ebola, HIV, and the current pandemic, SARS-COV-2. Drug repurposing is a method of identifying new uses for previously approved drugs. It has a number of advantages over drug development. Firstly, they are risk-free and surpass pre-clinical studies. Secondly, the timeframe for their market entry has been significantly shortened. When repurposing a medicine for COVID-19, there are three things to keep in mind. The first step is to find a drug candidate who is right for you. The second stage is to evaluate the side effects of different drugs. The drug's effectiveness in clinical trials is the third step. In every virus replication cycle, the first targetable step is typically preventing virus entry into host cells. The interaction of the CoV spike (S) protein with the ACE2 receptor and transmembrane protease serine 2 (TMPRSS2) in host cells allows CoV-2 to enter host cells and cause SARS. After entering the host cell, the SARS-CoV-2 life cycle continues with the release of the viral RNA genome into the cytoplasm and translation of the replicase genes that make up the replicase-transcriptase complex (RTC). Antiviral that impedes the translation of replicase genes are among the COVID-19 repurposing options. Choosing an appropriate drug for COVID-19 is crucial in the drug repurposing process. It has to follow a systematic approach comprising computational analysis and experimental analysis. Five molecules i.e., Clevudine, atazanavir, galidesivir, tenofovir and umifenovir showed significant restorative to treat COVID-19 patients. The present study depicts the interactions between the above mentioned molecules with the SARS-COV-2 and hence aids in enhancing the use of repurposed drug.



## ORAL PRESENTATIONS

**P-01****Is vaccine providing life-long immunity or temporary?**

Rajiv Kumar\*<sup>1</sup>, Sangita Saini<sup>1</sup>, Vikram Kumar<sup>1</sup>

1. Baba Mastnath University Faculty of Pharmaceutical Sciences, AsthalBohar, Rohtak

rajivkumar@bmu.ac.in; rajivaroraindia@gmail.com

**ABSTRACT**

Vaccines are the biopharmaceuticals which provide active immunity in healthy individuals. Vaccines contain antigen or antigenic determinants which initiate immunogenic response when introduced in the body. That immunogenic response ultimately results in the production of antibodies. These produced antibodies fight against specific infectious agent (Bacterial or viral) in future when infectious agent enters the bodily fluids. This provides the active immunity to the individual. The duration of immunity varies with different diseases and different vaccines. Lifelong immunity is not always provided by either natural infection (getting the disease) or vaccination. The recommended timing of vaccine doses aims to achieve the best immune protection to cover the period in life when vulnerability to the disease is highest. The duration of immunity provided by vaccines varies depending on a range of factors, particularly the vaccine itself along with replication rate of infectious agents. Live vaccines generally induce longer lived immunity than subunit vaccines and polysaccharide vaccines. If replication rates of infectious agents are high, then, there are chances of mutations which lead to develop variants. When new variants of infectious agent are developed, then efficacy of vaccine becomes questionable and duration of immunity of vaccine gets reduced. At that time, individual needs booster doses of vaccine.

## PO-02

## PHYTOCHEMICAL INVESTIGATION OF SOME FICUS SPECIES - AN OVERVIEW

Puneet Kaur<sup>1,2</sup>, Rajiv Sharma<sup>1</sup>, Supriya Agnihotri<sup>2</sup>

1. UIPS- Chandigarh University Gharuan- Mohali, Punjab, India

2. Chandigarh College of Pharmacy- Landran- Mohali.

puneet.ccp@cgc.edu.in

## ABSTRACT

*Ficus* plants are found all over the world as modest woody plants or trees. It has a extensive traditional role in native system of medicine which includes ayurveda, siddha, unani and homoeopathy. *Ficus* is a genus of about 800 species and 2000 varieties of *Ficus* of woody trees, shrubs and vines in the family Moraceae occurring in most tropical and subtropical forests worldwide. Some of the ficus species include *F. benghalensis*, *F. sycomorus*, *F. benjamina*, *F. religiosa* L, *F. racemosa*, *F. auriculata*, *F. glomerata*, *F. elastic*, *F. nitida*, *F. asperifolia*, *F. carica*, *F. lyrata*, *F. deltoidea*. Most of the studies of the *Ficus* species revealed the presence of phenolic compounds as major components from different parts (leaves, stem wood, branches, stem bark, roots, root bark, fruits, and seeds). The active constituents include secondary metabolites; like alkaloids, volatile oils, glycosides, tannins, flavonols, flavonoids, terpenoids, coumarins, etc whereas inactive constituents are structural constituents of the plants like starch, sugars, or proteins. The active components may be single substance or usually mixtures of several substances. These species have great medicinal values as it has been reported to have enormous phytochemical constituents, which includes anti-inflammatory, antimicrobial, antidiabetic, anticancer, antiobesity etc. The present review is an attempt to provide a comprehensive survey of the literature on phytochemical investigations of three species of *Ficus* (*F. benghalensis*, *F. benjamina* and *F. religiosa*).

**OP-3****Peptide Mediated Drug Delivery System: An Overview**

Sangita Saini, Rajiv Kumar

Faculty of Pharmaceutical Sciences, Baba Mast Nath University, Rohtak

[drsangitasaini@gmail.com](mailto:drsangitasaini@gmail.com)

**ABSTRACT**

Nanomedicine is an emerging field from last decade in which many technologies and engineering to achieve medical benefits. These technologies have been used for imaging, biosynthesis, repair, defense and improvement of human biological system. Site specific delivery of nanomedicine can be achieved either by changing its shape, size and surface property or by conjugating it with targeting ligands so that it cannot affect healthy cell and minimal side effect occur and capable of targeting the pharmaceutical agents specifically to cellular and intracellular destinations through cell internalization. Peptide is a molecule originated from natural or synthetic source, contain more than one amino acids linked by covalent bond and comprise of carboxy at one terminus and amine at another except cyclic peptide. Peptides can be used as targeting ligands in many nanocarriers due to its unique properties like small size, charge, biocompatibility, easy modification and internalization of cell both actively and passively, it can interact easily with the cell membrane. Conjugation of Peptide and nanoparticles solve the problem related to tissue/organ specificity and target the disease. Nanoparticle and peptide conjugation showed best combination in target drug as it have all properties related to an ideal target drug delivery system. Peptide conjugates on the surface of nanoparticle and carries the nanomedicine to its site of action either cell or tissue.

**OP - 4****Pharmacovigilance Teaching and Skill Training to Healthcare Students: Effective Causality Assessment to Signal generation and Patient Safety.**

Dr. Satnam Singh

Associate Professor, Pharmacology, Adesh Institute of Medical Sciences and Research  
Adesh University, Bathinda

**ABSTRACT**

Medicines, vaccines and medicinal products have brought transformation in the prevention and treatment of diseases. In addition to their benefits, medicinal products may also associated with side/ adverse effects. Some of which may be undesirable and / or unexpected. All medicinal products are subjected to rigorous testing for safety and efficacy through well controlled clinical trials and reviewed by regulatory authorities before they are authorized for human use. However, the clinical trial phase to study these products is conducted in a relatively small number of selected individuals for a short timeline. Some times certain side effects emerges once these products have been used by a heterogeneous population, including patients suffering from other concurrent diseases, and over a long period of time. This has lead to the start of the WHO Programme for International Drug Monitoring (PIDM) provides a global platform for Member States to exchange safety and regulatory information on all medicines and vaccines. But this does not suffice to handle the problem uniformly and effectively through the globe. Here comes the role of various international and national regulators, healthcare bodies and agencies, as they took the responsibility to make the people aware of the domain of Pharmacovigilance. Besides other PvPi is one which is providing the knowledge of the subject and related problems upto grass root level by organizing various training and awareness programs throughout the calendar year. Taking one step ahead, the various regulators have recently been introduced pharmacovigilance education in their curriculum to make the students of Medical, Pharmacy, Dental, Pysiotherapy and Nursing streams. Among these the one which is very important and effective approach for imparting the skillbased training program to the students of healthcare streams is Classroom based skill training module. This module is beneficial for training of Effective detection, assessment, understanding, prevention of the adverse effects, and enhancement in patient care and patient safety.

## OP-5

**Identification of Selective Human Matrix Metalloproteinase-9  
(hMMP-9) inhibitors as potent Anti-cancer Agents in Lung  
Carcinoma using Computational Techniques****Danish Malhotra\*, Anushka Vashishth\*, Anurag Kuhad**

\* M. Pharm (Pharmacology), University Institute of Pharmaceutical Sciences, Panjab  
University, Chandigarh

E-mail: [malhotradanish25@yahoo.com](mailto:malhotradanish25@yahoo.com); [anushkav.1998@gmail.com](mailto:anushkav.1998@gmail.com)

The implacable advent of lung cancer characterized by presence of lesions continues to be a leading cause of malignancy mortality. Chronic progression can lead to severe dyspnea due to pleural effusion associated with wheezing and rust colored sputum. Recent researches have revealed that malignant properties such as metastasis, tissue invasion, tissue remodeling and inflammation are attributed to altered proteolysis. Matrix Metalloproteinases (MMPs) are reported to be major proteolytic enzymes to induce airway remodeling. The prominent role of MMP-9 implicated in Extracellular Matrix (ECM) degradation, tumor growth, and angiogenesis depicts its significance as potential therapeutic target in designing a novel treatment strategy for lung cancer. Considering the need of novel selective MMP-9 inhibitor and importance of natural bioactive compounds in drug development, we have screened library of bioactive constituents effective in lung carcinoma. Screened compounds are ranked according to their dock score,  $\Delta G$  value and Ligand efficiency evaluated from FlexX docking and Hyde assessment using LeadIT platform. Rhamnocitrin illustrates the best dock score,  $\Delta G$  and Ligand efficiency correlation and further subjected to binding interactions. Conclusively, rhamnocitrin is sufficiently decorated with both hydrophilic and hydrophobic substitutions to block hMMP-9 and act as potential lead in design and development of selective hMMP-9 inhibitors.

**OP-6****Research to Study Challenges for Cancer Novel Therapies**

**Pinky Sharma\***  
**GD Goenka University,**  
**Gurgaon, Haryana**  
**([pnk.sharma4@gmail.com](mailto:pnk.sharma4@gmail.com))**

**Abstract**

Cancer is a well-known medical condition which is the major reason for deaths across the globe. It is amongst the list of scariest conditions wherein patients sometimes lose the hope to live. Every next second the scientists are working on the therapies, and we are well aware of how the novel cancer therapies are struggling to achieve the stage of approval. In the ongoing research, we are trying to receive responses from various pharma researchers who are majorly working into cancer domain. For this research, we are using the “Questionnaires” and “Web-based survey” to gather relevant information. From the collected responses, it has been found that the major challenges are at the level of manufacturing, clinical trials and regulatory approval. There are no pre-defined regulatory guidelines for novel therapies such as nanomedicines, hormonal therapies, and immunotherapy, so the researchers are not in definite condition to bring any such therapy to the market easily. Even if the therapy passes the step of manufacturing and development, the regulatory gaps create hurdles in the approval. The collected information will help us in providing the suggestions to regulatory authorities to take some serious steps to design the regulatory framework for approval of the novel cancer therapies.

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