rakcops-icdd 2021

Abstract Book

RAKCOPS International e-Conference on Drug Development 2021

RAKCOPS-ICDD 2021

Theme:

Quality Medicines from Bench to Bed Side

May 23-24, 2021

GoToWebinar

RAK College of Pharmaceutical Sciences

RAK Medical & Health Sciences University

Ras Al Khaimah, United Arab Emirates

https://www.rakmhsu.ac.ae/icdd-2021

RAK MEDICAL AND HEALTH SCIENCES UNIVERSITY

https://rakmhsu.ac.ae/

rakcops-icdd 2021

04 CPD CREDIT HOURS

Accredited by:
UAE Ministry of Health & Prevention
(LIVE/MOHAP/CPD/21/0203

H. H. Sheikh Saud Bin Saqr Al Qasimi

Supreme Council Member & Ruler of Ras Al Khaimah

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PROFESSIONAL e-POSTERS

PHARMACEUTICAL CHEMISTRY

RAK MEDICAL AND HEALTH SCIENCES UNIVERSITY

https://rakmhsu.ac.ae/

Welcome Message

Dear Colleagues,

On behalf of the organizing committee, it gives us immense pleasure to welcome you all to 'RAKCOPS International e-Conference on Drug Development 2021 (RAKCOPS-ICDD 2021) on May 23-24, 2021, virtually at RAK Medical and Health Sciences University, Ras Al Khaimah, UAE.

The conference aims at presenting the current updates on the development in the fields of pharmaceutical sciences. The program will comprise an exciting combination of online plenary lectures, flash talks, and poster presentations in the field of pharmaceutical chemistry, pharmaceutics, pharmacology, and clinical pharmacy.

Quality medicines are an important factor for better community health and the process of preparing medicines, starting from the laboratory scale, and scale-up batches to production batches is very crucial. Not only the manufacturing but also the utilization of medicines among end-users i.e. patients is very important for the overall health of society. The RAKCOPS-ICDD 2021 conference provided a platform for the students, researchers, academic faculty, and professionals to present their research in the form of flash talks and posters. The RAKCOPS-ICDD 2021 conference offered the best opportunity to students, academic faculty, industry, and all healthcare professionals to attend expert updates, and share & exchange knowledge, experiences and develop a network with new colleagues, and creating & strengthening research collaborations. We hope that this conference will deliberate and discuss all the different facets of this fascinating theme and come up with ideas that will lead to a better, healthier, and merrier world.

We look forward to welcoming you all.

On behalf of Organizing Committee,

RAKCOPS-ICDD 2021

Dr. Bhoomendra A. Bhongade

May 23, 2021

Website: https://www.rakmhsu.ac.ae/icdd-2021

Vice Chairman's Message

I am happy to know about the International e-Conference on Drug Development 2021 (RAKCOPS-ICDD 2021) organized by RAK College of Pharmaceutical Sciences. I congratulate them wholeheartedly.

This is an era where there are too many varieties of drugs and combinations available for the same disease creating confusion not only in the patients but also in the Doctors. Further, this also leads to misleading and confusing information to the public. Hence, I am sure this type of conference will throw light on the need to maintain the quality and the effectiveness of every medication without compromising on the safety factors while using in human beings.

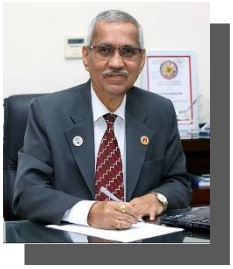
On this occasion, let us recollect the hard work from different Pharmaceutical Industries with the help of the government to come out with the different types of vaccines for COVID-19. It was a big challenge that too when we consider the short time that has been taken to synthesize these vaccines. Let us congratulate all the personnel who are involved in the synthesis of this vaccine which has been of immense benefit. It is also worthwhile to congratulate Gulf Pharmaceutical Industries (Julphar) too, who are in the process to manufacture the vaccine soon.

I am happy to see the different interesting sessions highlighting all these aspects of drug development. I hope and wish that all the personnel belonging to the health science professions will utilize this opportunity and play a very important role in focusing on the quality control and safety of the patients as the utmost priority.

Once again congratulations and wishing the Conference all the best.

Dr. Yasser Al Nuaimi
Vice Chairman,
Board of Governors,
RAK Medical & Health Sciences University

President's Message



I am very happy to understand that RAK College of Pharmaceutical Sciences is organizing an International e-conference on drug development 2021 (RAKCOPS-ICDD 2021). I congratulate the entire team led by Dr. Padma Rao, Dean-RAKCOPS including the Organizing Committee.

As we all know, the life story of a chemical from its synthesis to its usage in humans as a medicine is a very long journey and of course very expensive too! Because of the long process, naturally many of the chemicals don't see the light of the day as medicines because any chemical if it has to be used as a medicine has to be effective, safe and free from all the adverse reactions. This demands quality control and the correct method of testing not only in animals but also in humans in a very meticulous way. I am happy to know that there are different plenary sessions and presentations including student presentations highlighting all those aspects of not only quality control but also the focus on patient care and patient education.

I am sure this will be a very useful conference not only for the Pharmacy students but also for all the health science professionals including the pharmaceutical companies.

Heartiest congratulations to the entire team and I wish the conference all the success.

Dr. S. Gurumadhava Rao
President,
RAK Medical & Health Sciences University

Dean's Message

Dear Colleagues,

Warm greetings and congratulations. Welcome to the International e-Conference on Drug Development.

It is with great honor and pleasure I welcome you all to the first international e-conference on Drug Development hosted by the RAK College of Pharmaceutical Sciences, RAK Medical and Health Sciences University, UAE with the theme "Quality Medicines from Bench to Bed side" which is accredited by the Ministry of Health and Prevention.

It is our sincere hope that your family and you are well and able to manage the evolving challenges in the time of a complex global pandemic.

The main aim of the conference is to update on the research and developments of natural and synthetic medicines, manufacture of quality medicinal products by testing their safety and efficacy thereby providing quality medicines for better patient care and improving the quality of life.

The conference comprises of different plenary sessions with eminent speakers from around the world, flash talks, poster presentations, etc.

This will help in bringing different disciplines of pharmaceutical sciences and practicing pharmacy professionals together to promote both industry and practice-related knowledge with better career opportunities in addition to public awareness.

I am sure that these types of conferences are very critical for professional development. I hope you all will utilize this great opportunity to design and build your future research. Though it is an e-conference, I urge you to build and expand your support network, meet as many people as possible whom you do not know at this conference, and share your stories and exchange ideas.

Finally, I would like to express my deepest thanks to all the speakers and judges in addition to our President and university officials, faculty, students, and all support staff who help to make this conference possible. We very much appreciate your contributions to ensure the best possible learning experiences for you through this ICDD.

I am delighted to welcome each one of you.

Dr. Padma G.M. Rao
Dean,
RAK College of Pharmaceutical Sciences

RAK Medical & Health Sciences University

RAK Medical & Health Sciences University (RAKMHSU) is the First Comprehensive Health Sciences University in UAE under the patronage of His Highness Sheikh Saud Bin Saqr Al Qasimi, Ruler of Ras Al Khaimah and Supreme Council Member, United Arab Emirates.

RAKMHSU is fully owned and managed by the Government of Ras Al Khaimah. The university is one of the foremost Universities in the region and is considered a credible destination for Health Science Education. RAKMHSU is planning further growth by establishing more and more Masters Programs in Nursing, Pharmacy, Medical and Dental programs. The MBBS program started in the Academic Year 2006. Bachelor of Dental Surgery (BDS), Bachelor of Pharmacy (B. Pharm) and Bachelor of Nursing (BSN) started in the year 2007. The Bridge Program for BSN (RN-BSN) has been added to our list from the Academic Year 2008-09, followed by the Master's programs in Nursing and Pharmacy from the year 2012 onwards.

All the Undergraduate programs offered viz., Medical, Dental, Pharmacy and Nursing and the Graduate programs in Nursing and Pharmacy, have been fully accredited by the Commission for Academic Accreditation under the UAE Ministry of Education. Further, RAKMHSU is the First in UAE to start two-year Masters Programs in Nursing (MSN). RAKMHSU offers- Adult Health Nursing, Pediatric Nursing, Community Health Nursing and Psychiatric-Mental Health Nursing in addition to Masters in Midwifery. M.S. in Clinical Pharmacy, MS in Pharmaceutical Chemistry and MS in Pharmaceutics are also offered at the Masters level after due accreditation.

University has agreement with MOHAP to utilize the federal hospitals for clinical teaching. University has ultramodern infrastructure, well equipped classrooms and laboratories, up-to-date library, central research laboratory, online teaching and examination facility in addition to multispecialty sports block.

Website: https://www.rakmhsu.ac.ae/

RAK College of Pharmaceutical Sciences

RAK College of Pharmaceutical Sciences (RAKCOPS) commenced the Bachelor of Pharmacy (B.Pharm) program in the year 2007-2008 after the initial accreditation by the Commission for Academic Accreditation (CAA), Ministry of Education, UAE. Master programs commenced in the year 2012-2013 for Pharmaceutical Chemistry and Clinical Pharmacy specializations and in 2014-2015 for Pharmaceutics specialization.

The college has signed MOUs with different pharmaceutical industries, international universities and hospitals for training and student exchange programs. B. Pharm program comprises of four years with three and a half years of course work and six months of practice school involving pharmaceutical industries, hospitals and community pharmacies. Master of Pharmacy Programs comprises of two years (Four semesters) with two semesters of course work followed by two semesters of dissertation work.

RAKCOPS is equipped with ultra-modern infrastructure, in-house clinical pharmacy training center, laboratories and facilities for the research and developments in the field of pharmaceutical sciences. RAKCOPS also has a separate clinical pharmacy department, which is attached to Ibrahim Bin Hamad Obaidallah Hospital with all the required facilities for the training of pharmacy students.

Website: www.rakmhsu.ac.ae/rak-college-of-pharmaceutical-sciences

About the Conference

Theme: Quality Medicines from Bench to Bed Side

Aim and Scope:

The research and developments in

- Discovery and development of medicines from natural & synthetic sources.
- Formulation & manufacturing of quality drug products.
- Testing for safety and effectiveness in animals and humans
- Providing quality medicines for better patient care
- Improving quality of life by patient education

Major Areas:

Following are the major research areas in the field of pharmaceutical sciences

Pharmaceutical Chemistry

- Drug design
- Medicinal Chemistry
- Pharmaceutical Analysis
- Quality Assurance
- Natural products
- Bioorganic synthesis

Pharmaceutical Technology

- Formulation development
- Biopharmaceutics & Pharmacokinetics
- Nanotechnology
- Drug Manufacture & Regulatory Affairs

Clinical Pharmacy & Pharmacology

- Pharmacoepidemiology
- Pharmacogenomics
- Pharmacovigilance
- Health Economics & Outcome Research
- Pharmaceutical Care
- Rare case reports
- Community and Hospital Pharmacy
- Preclinical & clinical studies
- Clinical Pharmacokinetics
- Toxicology

About the Conference

LEARNING OBJECTIVES

Upon completion of this conference, participants will be able to:

- Discuss the essential concepts involved in the development of quality medicines.
- Explain the critical aspects of patient safety in pharmacy practice.
- Critically evaluate the standard guidelines governing the pharmacy practice and drug development.
- Illustrate the concepts of drug discovery, development, formulation, evaluation, and pharmaceutical care services.
- Appraise the current trends in the field of nanotechnology, protein engineering, synthetic strategies involved in the development of medicines, and its quality assurance.
- Recognize the perspectives, challenges and opportunities for the provision of pharmaceutical care services in the advanced healthcare settings.

ACCREDITATION

04 CPD Credit Hours accredited by United Arab Emirates Ministry of Health & Prevention (LIVE/MOHAP/21/0203).

SCIENTIFIC PRESENTATIONS

- e-Plenary Lectures: 08
- e-Flash Talk Presentations: 14
- Professional e-Poster Presentations: 69
- Undergraduate Students e-Poster Presentations: 04

Conference Program

UAE time		Day 1: Sunday, May 23, 2021
10:00 AM		Opening ceremony **Moderator: Dr. Areeg Anwer Ali**
	10:05 AM	Welcome address: **Dr. Padma G.M. Rao,** Dean RAKCOPS
	10:10 AM	Inaugural address: **Dr. Yasser Al Nuaimi**, Vice Chairman, Board of Governors, RAKMHSU
	10:20 AM	President address: **Dr. S. Gurumadhava Rao**, President, RAKMHSU
10:30 AM		Plenary Session: 1 **Moderator: Dr. Padma G.M. Rao**
	10:35 AM	PL01: Patient safety in health professionals education: medication errors **Dr. Reginald P. Sequeira** / Kingdom of Bahrain
	11:10 AM	PL02: Protein engineering - A cutting edge technology for biotherapeutics **Dr. Guntaku Girijasankar** / India
11:50 AM		e-Flash Talk: Session-1
	11:55 AM	PC104-F: Immunoinformatics approach for a novel multi-epitope vaccine construct against spike protein of human coronaviruses / Dr. Suvarna G. Kini
	12:07 PM	PC106-F: PCSynthesis and pharmacological evaluation of some substituted imidazoles on indole moiety / Mr. Sandip S. Kshirsagar
	12:19 PM	PC107-F: Meta-dynamics based ensemble docking and virtual screening on SARS-CoV-2 RNA-dependent RNA-polymerase (RdRp) / Ms. Prajakta M. Phage
	12:31 PM	PC122-F: Design, synthesis and evaluation of novel RTK-inhibitors as potential anticancer agents/ Dr. Rakesh D. Amrutkar
	12:43 PM	PC127-F: Development and validation of a stability indicating RP-HPLC method for the estimation of antidiabetics in combined pharmaceutical dosage form / Dr. Leena A. Sawaikar
	12:55 PM	PC134-F: Simultaneous estimation of pioglitazone and its metabolites in human plasma by liquid chromatographic tandem mass spectrometric method / Mr. Nitin Vig
	01:07 PM	PT207-F: Comparative analysis of the efficacy of gemifloxacin mesylate and corticosteroids from ophthalmic ocuserts / Dr. Swati M. Keny
01:20 PM		BREAK
01:30 PM		Professional e-Poster: Session-1/ Pharmaceutical Chemistry
03:30 PM		UG Student e-Poster Session
04:00 PM		BREAK

04:15 PM		Plenary Session: 2 **Moderator: Dr. Raghavendra Bhat**
	4:20 PM	PL03: Genochemetic strategies for natural product analogue generation **Dr. Sunil V. Sharma** / United Kingdom
	4:55 PM	PL04: Optimizing heart failure treatment: a focus on the updated ACC/ AHA2021 guidelines **Dr. Sally Arif** / United State of America
05:30 PM		Professional e-Poster: Session-2/ Pharmaceutical Technology
07:30 PM		End of Day 1
UAE time		Day 2: Monday, May 24, 2021
10:00 AM		Plenary Session: 3 **Moderator: Dr. Sathvik B. Sridhar**
	10:05 AM	PL05: Establishing poison center: A pharmacy perspective **Dr. P.V Abdul Rouf** / Qatar
	10:45 AM	PL06: Global trends in pharmaceutical quality assurance **Dr. Richa Dayaramani** / India
11:20 AM		e-Flash Talk: Session-2
	11:25 AM	PT218-F: Design and characterization of oral drug delivery system using pastillation technique / Dr. Suresh G. Sudke
	11:37 AM	PT231-F: Analysis of daclatasvir dissolution kinetics using ratio tests / Ms. Saima Quadri
	11:49 AM	CPP306-F: Assessment of prescribing pattern in the coronary artery diseases in a tertiary care hospital - a retrospective study / Dr. K. V. Ramanath
	12:01 PM	CPP311-F: To Explore the effect of diosmin in acute myocardial infarction in experimental model / Ms. Ritu Kainth
	12:12 PM	CPP323-F: Investigation of mitigating effect of an osteoarthiritic drug in inflammatory bowel disease through drug repurposing strategy / Ms. Supriya Roy
	12:25 PM	CPP327-F: Active surveillance of hemovigilance in a tertiary care teaching hospital: a developing country scenario / Ms. Amruta Ashok Potdar
	12:37 PM	CPP328-F: Adherence to medication: patient reported facilitators and barriers / Mr. Abaka Mohith Kumar
12:50 PM		Professional e-Poster: Session-3/ Clinical Pharmacy & Pharmacology
02:10 PM		BREAK

02:15 PM		Plenary Session: 4 **Moderator: Dr. K.V.R.N.S. Ramesh**
	02:20 PM	PL07: Advanced bioactive dressings and scaffolds for chronic wound healing **Dr. Joshua Boateng** / United Kingdom
	02:55 PM	PL08: pH-sensitive, biodegradable inorganic nanomaterials: A potential revolutionary delivery device for small-molecule drugs and macromolecular therapeutics **Dr. Md. Ezharul Hoque Chowdhury** / Malaysia
03:30 PM		**Valedictory Function**
		Announcement of best presentations
		Vote of Thanks: **Dr. Bhoomendra A. Bhongade**
03:50 PM		End of Conference
Program Coordinator:		**Dr. Bhoomendra A. Bhongade**

Organizing Committee

PATRON

Dr. Yasser Al Nuaimi
Vice Chairman,
Board of Governors, RAKMHSU

Dr. S. Gurumadhva Rao
President, RAKMHSU

ADVISORY

Dr. Padma GM Rao
Dean, RAKCOPS

Dr. K V R N S Ramesh
Associate Dean, RAKCOPS

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Chairperson, Clinical Pharmacy & Pharmacology

CHIEF COORDINATOR

Dr. Bhoomendra A. Bhongade
Chairperson, Pharmaceutical Chemistry

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SCIENTIFIC

Dr. Shahnaz Usman

Dr. Areeg Anwer Ali

Dr. Sirajunisa Talath

Dr. Tarun Wadhwa

VENUE

Dr. Javed Shareef

Ms. Fasiha WalayatShah

Speakers

Dr. Reginald P. Sequeira
Professor,
College of Medicine & Medical Sciences,
Arabian Gulf University,
Kingdom of Bahrain

Dr. G. Girijasankar
Professor,
AU College of Pharmaceutical Sciences,
Andhra University,
Visakhapatnam, India.

Dr. Sunil V. Sharma
Royal Society Fellow,
School of Chemistry, University of St Andrews, North Haugh, St Andrews,
Scotland, United Kindom.

Dr. Sally Arif
Associate Professor of Pharmacy Practice,
Midwestern University College of Pharmacy &
Rush University Medical Center,
IL, United Status of America.

Speakers

Dr. P. V. Abdul Rouf
Assistant Director of Pharmacy,
Head of Pharmacy Research Center
Head of Drug Information & Poison center-HMC, Qatar

Dr. Richa Dayaramani
Professor & Principal,
Khyati College of Pharmacy,
Ahmedabad, Gujarat, India

Dr. Joshua Boateng
Professor,
School of Science, University of Greenwich, Medway Campus, Central Avenue, Chatham Maritime, Chatham, Kent, United Kingdom.

Dr. Md. Ezharul Hoque Chowdhury
Professor,
Jeffrey Cheah School of Medicine and Health Sciences, Monash University, Subang Jaya, Selangor, Malaysia

Judges

Pharmaceutical Chemistry

Dr. Irshad Ahmad
Associate Professor,
School of Arts & Science, American University of Ras Al Khaimah, UAE

Dr. Rajshekhar Karpoormath
Associate Professor,
Department of Pharmaceutical Chemistry,
College of Health Sciences, University of KwaZulu-Natal, Westville Campus, Durban, South Africa

Dr. Srinivasan Ramamurthy
Assistant Professor,
College of Pharmacy & Health Sciences,
University of Science and Technology of Fujairah,
Fujairah, UAE

Pharmaceutical Technology

Dr. K V R N S Ramesh
Professor & Associate Dean,
Department of Pharmaceutics,
RAK College of Pharmaceutical Sciences,
Ras Al Khaimah, UAE

Dr. Syed Muhammad Farid Hasan
Associate Professor,
Department of Pharmaceutics,
Faculty of Pharmacy and Pharmaceutical Sciences,
University of Karachi, Pakistan

Judges

Clinical Pharmacy & Pharmacology

Dr. Niraj Vyawahare
Principal and Professor,
Pad. Dr. D. Y. Patil College of Pharmacy,
Akurdi, Pune, India.

Dr. Sabin Thomas
Assistant Professor,
School of Pharmacy,
College of Pharmacy and Nursing,
University of Nizwa, Oman

Dr. Subish Palaian
Associate Professor of Pharmacy Practice,
College of Pharmacy and Health Sciences,
Ajman University, Ajman, UAE

Dr. Khadija Humaid Sanad Alnaqbi
Emirates Health Services Establishment
Medical Practitioner,
Ras Al Khaimah, UAE

Moderators

Dr. Padma GM Rao
Professor & Dean,
RAK College of Pharmaceutical Sciences,
Ras Al Khaimah, UAE

Dr. Raghavendra V. Bhat
Professor of Internal Medicine &
Chairperson Clinical Skill Development,
RAK College of Medical Sciences,
RAK Medical & Health Sciences,
Ras Al Khaimah, UAE

Dr. K V R N S Ramesh
Professor & Associate Dean,
Department of Pharmaceutics,
RAK College of Pharmaceutical Sciences,
Ras Al Khaimah, UAE

Dr. Sathvik B. Sridhar
Professor & Chairperson,
Department of Clinical Pharmacy & Pharmacology,
RAK College of Pharmaceutical Sciences,
Ras Al Khaimah, UAE

Dr. Areeg Anwer Ali
Professor,
Department of Clinical Pharmacy & Pharmacology,
RAK College of Pharmaceutical Sciences,
Ras Al Khaimah, UAE

Dr. Bhoomendra Bhongade
Professor & Chairperson,
Department of Pharmaceutical Chemistry,
RAK College of Pharmaceutical Sciences,
Ras Al Khaimah, UAE

e-Plenary Lectures

Dr. Reginald P. Sequeira

Professor,
Department of Pharmacology & Therapeutics,
College of Medicine & Medical Sciences,
Arabian Gulf University, Kingdom of Bahrain

Title: Patient Safety in Health Professionals Education: Medication Errors

Highlights:

- Determinants of patient safety.
- Classification of medication errors.
- Risk factors and vulnerable patient populations for medication errors.
- The “Swiss Cheese” model for analyzing medication error.
- Strategies to minimize medication errors.

Dr. Guntaku Girijasankar

Professor,
Pharmaceutical Biotechnology Division,
AU College of Pharm. Sciences,
Andhra University,
Visakhatnam, Andhra Pradesh, India.

Title: Protein Engineering: A Cutting Edge Technology for Biotherapeutics

Highlights:

- Protein engineering is provided a new approaches to the basic study of protein structure and function, provides an opportunity to design and produce proteins with desired structural and functional properties.
- Recombinant DNA technology involves the insertion of DNA fragments from a variety of sources, making a desirable gene sequence changes via appropriate vector.
- The design, development and isolation of proteins with improved characteristics or novel structural proteins is now made possible by employing rDNA technology.
- Computational protein design places emphasis on both engineering new, useful proteins and on testing sequence - structure relationships which leads to the development of novel processes and functions.
- Protein engineering now is used extensively to improve issues of immunogenicity and pharmacokinetics and has yielded many useful proteins for industry and biomedical applications.

Dr. Sunil V. Sharma

Royal Society Fellow,
School of Chemistry,
University of St Andrews,
North Haugh, St Andrews, Scotland, United Kingdom

Title: GenoChemetic Strategies For Natural Product Analogue Generation

Highlights:

- Importance of natural products (NPs) as medicines with a focus on antibiotic developments
- Why in-lab access of NPs and their derivatives is required for drug discovery and development?
- Our state-of-the-art Genochemetics approach to generate NP analogues (CH activation using halogenase enzymes)
- Significance of Pd-catalysed cross-coupling reactions in medicinal chemistry
- Our breakthrough mild methods for Suzuki-Miyaura reactions that can be carried out in air, water on crude extracts of halogenated NPs and even in bacterial cultures engineered to produce complex antibiotic NP and their synchronious derivatisation.

Dr. Sally Arif

Associate Professor of Pharmacy Practice,
Midwestern University College of Pharmacy,
Rush University Medical Center,
515 31st Street, Downers Grove,
IL 60515, United State of America

Title: Optimizing Heart Failure Treatment: A Focus on the Updated ACC/ AHA2021 Guidelines

Highlights:

- When appropriate, Entresto initiation should be considered prior to ACEI/ARB use in the treatment of HFrEF.
- In a subset of patients who have HFpEF, Entresto can further reduce hospitalizations and CV-related death.
- SGLT2 inhibitors should be added in patients with HFrEF, regardless of diabetes diagnosis, to reduce occurrence of CV death or HF hospitalization
- For patients on treatment for HFrEF, medication adherence, therapy response, and adverse events should be monitored closely.

Dr. P. V. Abdul Rouf

Assistant Director,
Pharmacy Head of Pharmacy Research Center,
Head of Drug Information & Poison center,
HMC, Qatar

Title: Establishing Poison Center: A Pharmacy Perspective

Highlights:

- Accidental and or intentional poisoning are one of the leading cause of death in children and adults. Poison control centers are facilities that are established worldwide to help people with poisoning emergencies.
- The role of the poison control centers includes providing information to individuals with exposures or potential exposures, assisting in triaging injured patients and notifying the receiving health care facility. It also tracks and respond to public health crises.
- Various health care personnel are involved in providing the services in the centers, whereby pharmacists play a major role.
- Moreover, poison control centers provide educational and research opportunities for future medical toxicologists and certified poison information specialists worldwide and in the state of Qatar.
- Establishing and utilizing data from poison center registry serve as an opportunity to improve public health response and minimize morbidity and mortality associated with poison exposure.

Dr. Richa Dayaramani

Professor & Principal,
Khyati College of Pharmacy,
Palodiya, Ahmedabad PIN 382115
Gujarat, India.

Title: Global Trends in Pharmaceutical Quality Assurance

Highlights:

- Implementation of standardized processes that result in reproducible (robust) production outcomes of desired levels of quality.
- The emerging technologies characterize Industry 4.0 from connectivity to advanced analytics, robotics and automation have the potential to revolutionize every element of pharma-manufacturing labs within the next
- Treatments that cure disease could reduce or eliminate the demand for some prescription medicines. Developing, marketing, and pricing curative treatments could require biopharma marketing, and pricing curative treatments could require biopharma companies to adopt new capabilities.
- Distributed quality control represents a true disruption to traditional ways of providing quality control. At these sites, nearly all-routine product testing would take place on the production line, enabling real-time release testing (RTRT). Equipment and robots at distributed QC facilities have artificial-intelligence capabilities.
- Understanding and resolving the non-alignment between academia, practice and regulators and lack of engagements with professional organizations and industry as some of the challenges faced academia industry collaborations.
- The emerging areas of drug research which boost the pharmaceutical quality assurance includes curative therapies, customized treatments; digital therapeutics; prevention and early detection and non-pharmacological interventions.
- Latest trends and interventions that prepare the profession for a paradigm shift with respect to disruptive technology in the global scenario.

Dr. Joshua Boateng

Professor, in Pharmaceutics and Drug Delivery
School of Science, University of Greenwich,
Medway Campus, Central Avenue,
Chatham Maritime, Chatham,
Kent, United Kingdom.

Title: Advanced Bioactive Dressings and Scaffolds for Chronic Wound Healing

Highlights:

- Wound healing is a highly complex process of tissue repair that relies on the synergistic effect of a number of different cells, cytokines, enzymes, and growth factors. A deregulation in this process can lead to the formation of a non-healing chronic ulcer.
- There is a desire for novel strategies to achieve expeditious wound healing due to the enormous financial burden worldwide.
- A major focus is the treatment of chronic wounds including amputations, diabetic and leg ulcers, pressure sores, surgical and traumatic wounds (e.g. accidents and burns) where patient immunity is low and the risk of infections and complications are high.
- Advanced therapeutic dressings that take active part in wound healing to achieve rapid and complete healing of chronic wounds is of current research interest.
- Dressings containing various antimicrobial agents which are effective against major wound infection causing bacteria (Gram positive and Gram negative bacteria) and anti-inflammatory/analgesics were prepared to improve chronic wound healing.
- Dressings were characterized for morphology, mechanical, in vitro functional (swelling, adhesion, drug release in the presence of simulated wound fluid) and biological characteristics.
- The optimized dressings have the potential to reduce bacterial infection and can also help to reduce swelling and pain associated with injury due to the anti-inflammatory action of anti-inflammatory drugs and help to achieve more rapid wound healing at cost effective rate

Dr. Md. Ezharul Hoque Chowdhury

Professor,
Monash University,
Jeffrey Cheah School of Medicine and Health Sciences,
Jalan Lagoon Selatan, Bandar Sunway, 47500
Subang Jaya, Selangor, Malaysia

Title: pH-Sensitive, Biodegradable Inorganic Nanomaterials: A Potential Revolutionary Delivery Device for Small-Molecule Drugs and Macromolecular Therapeutics

Highlights:

- Regardless of the administration routes, delivery of small molecule drugs to their target sites of action historically poses one of the biggest challenges due to their homogeneous tissue distribution, renal clearance and lack of target specificity.
- Nanotherapeutics evolved as novel drug formulations at dimensions of roughly 1–1000 nanometers by virtue of the integration of nanotechnology with medicine for treating and preventing critical human diseases effectively and precisely.
- The favorable pharmacokinetics with prolonged circulation time, selective endothelial permeability at several target tissues and high specificity for biological targets are the attractive attributes of nanopharmaceuticals driving the pharmaceutical industries to conduct a large number of pre-clinical and clinical trials, with enormous successes seen in the past in getting approval and commercialization of nanotechnology-based medical products.
- Diversified approaches based on synthetic, recombinant, hybridoma and phage display technologies were undertaken to fabricate a variety of nanoparticulate and macromolecular carriers and drugs in order to overcome the multi-step extracellular and intracellular barriers and to facilitate development of novel strategies for therapeutic delivery and imaging.
- We have established a new nanotechnology platform based on pH-sensitive inorganic nanoparticles that not only bind to the potential therapeutics, such as small molecule drugs, genes and siRNAs and effectively transport them to the target cancer cells, but also facilitate their rapid intracellular release, making them available for desirable therapeutic actions in killing the cancer cells in vivo with minimal noticeable off-target effects.
- Surface functionalization of the nanoparticles with biotin-PEG, alphaketo-glutarate, citrate and succinate has resulted in significant enhancement of plasma half-lives of the small molecule drugs as well as nucleic acids, with subsequent more selective uptake by the target cancer cells

e-Flash Talk Presentations

Abstract Code: PC104-F

Title	:	**Immunoinformatics approach for a novel multi-epitope vaccine construct against spike protein of human coronaviruses**
Author(s)	:	Avinash Kumar, Ekta Rathi, Suvarna G. Kini
Affiliation	:	*Department of Pharmaceutical Chemistry, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal, Karnataka, India.* *Email: suvarna.gk@manipal.edu*
Introduction	:	Spike (S) proteins are an attractive target as it mediates the binding of the SARS-CoV-2 to the host through ACE-2 receptors.
Objectives	:	Screening of S protein sequences of all the seven known strains of human coronaviruses (HCoVs) to design potential multi-epitope vaccine candidates.
Materials & Method	:	S proteins of all HCoVs were screened and B-cell epitopes and T-cell epitopes (CTL and HTL) were predicted using several *in-silico* tools. Secondary and tertiary structures were predicted, validated and the refined 3D-model was docked with an immune receptor. The vaccine candidate was evaluated for antigenicity, allergenicity, solubility, and its ability to achieve high-level expression in bacterial hosts. Finally, the immune simulation was carried out to evaluate the immune response after three vaccine doses.
Results and discussion	:	The designed vaccine was found antigenic (with or without the adjuvant), non-allergenic, bound well with TLR-3 receptor and elicited a diverse and strong immune response compared to other similar publications which have reported immune simulation for the designed vaccines.
Conclusion	:	Herein, several machine learning-based *in-silico* tools were employed to design a multi-epitope vaccine candidate against S protein of HCoVs which further needs to be validated through various immunological assays.

Abstract Code: PC106-F

Title : **Synthesis and pharmacological evaluation of some substituted imidazoles on indole moiety**

Author(s) : Kshirsagar S. S.[1], Chavan R. S.[1], Amnerkar N. D.[2], Bhusari K. P.[2]

Affiliation : [1]*Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune-411044, Maharashtra, India.*
[2]*Adv. V. R. Manohar Institute of Diploma in Pharmacy (Govt.-Aided), Wanadongri, Nagpur 441110, India.*
Email: sandipskshirsagar@gmail.com

Introduction : A wide range of heterocyclics explored for developing pharmaceutically important molecules namely chalcones, quinoline, oxazole, thiazole imidazole, indole, benzimidazole have played significant role in medicinal chemistry.

Objectives : The research was aimed to synthesize derivatives of *N*-substituted-2-imidazolyl-3-formylindole and access them for their antimicrobial activity, antifungal activity, and anti-inflammatory activity.

Materials & Method : The N-substituted phenylamines on reaction with the chloroacetyl chloride in presence of triethylamine in tetrahydrofuran afforded the series of compounds (2a-2h), which upon cyclization by Friedel craft alkylation resulted compounds (3.a-3.h). The compounds (3a-3h) subjected to Vilsmeier Haack reaction formed compounds (4a-4h) which upon substitution reaction with imidazole afforded compounds (6a-6h).

Results and discussion : Amongst the synthesized compounds, the compounds (6a), (6b) and (6f) showed highest anti-inflammatory activity. The compounds (6d), (6c) and (6h) showed good antibacterial activity against *B. subtilis* while compounds (6a) and (6d) showed better against *E. coli*. The compounds (6h) and (6d) exhibited highest antifungal activity against *C. albicans* and compounds, (6h) and (6b), possessed good activity against *A. niger*.

Conclusion : In present study, an attempt was made to synthesize and characterize the compounds and to design some active anti-inflammatory and antimicrobial drugs. It is concluded that more number of compounds can be synthesized by substituting other isosteric groups at R_1 and R_2 position, which will provide superior anti-inflammatory, antibacterial and antifungal activity.

Abstract Code: PC107-F

Title	:	**Meta-dynamics based ensemble docking and virtual screening on SARS-Cov-2 RNA-dependent RNA-polymerase (RdRp)**
Author(s)	:	Prajakta M. Phage, Komal S. Pol, Rajesh B. Patil
Affiliation	:	*Sinhgad Technical Education Society's, Smt. Kashibai Navale College of Pharmacy, Pune-Saswad Road, Kondhwa (Bk), Pune-411048, Maharashtra, India.* *Email: phageprajkta@gmail.com*
Introduction	:	The SARS-Cov-2 virus, within 1 year jeopardized almost the whole world. The desperate search for newer antiviral agents is inevitable in this situation. Possibly, the molecular modelling techniques help expedite this search.
Objectives	:	Under a biological environment, the binding site of target protein is very dynamic. The binding site flexibility was captured and used in ensemble docking based virtual screening of large databases on RdRp of SARS-Cov-2.
Materials & Method	:	Publically available 10 µs meta-dynamic trajectory of SARS-Cov-2 RdRp was used. The conformations deviating more than 30 Å were extracted. The binding site was defined with DoGSiteScorer server. The standard drug, remdesivir was docked at this binding site using Autodock vina. For ensemble docking the MDock program was used to screen different databases (Asinex, TCM, InterBioScreen and Drugbank).
Results and discussion	:	Remdesivir has the binding score of -83.352. Eight compounds from DrugBank were found to have the binding score in the range -88.252 to -103.657. A triazolopyrimidine derivative (anti-malarial/phase3 trial) was found as the best hit. We are performing MD simulations on top 5 hits to further support docking results.
Conclusion	:	The meta-dynamic trajectories of RdRp through ensemble docking based virtual screening identified 8 top hits from Drug Bank database.

Poster Code: PC122-F

Title	:	**Design, synthesis and evaluation of novel RTK-inhibitors as potential anticancer agents**
Author(s)	:	Amrutkar R. D., Kadam D. K., Jain K. S.
Affiliation	:	*Department of Pharmaceutical Chemistry, K. K. Wagh College of Pharmacy, Nasik, Maharashtra, India.* *Email: rdamrutkar@kkwagh.edu.in*
Introduction	:	N.D.D.R. in the field cancer chemotherapy has RTKs (Receptor Tyrosine Kinases) as one of the most popular targets.
Objectives	:	Design, green one-pot synthesis and evaluation of novel bioisosteres of gefitinib for antiproliferative activity on a various cell lines and lead optimization by various CADD techniques.
Materials & Method	:	Novel condensed 2-*H*-pyrimidin-4-amines, as bioisosteric analogs of well-known antiproliferative anticancer drug gefitinib were designed and synthesized by one-pot MWI based synthesis. These compounds have been evaluated for antiproliferative & antitumour activities by *in-vitro* testing against 5 cancer cell lines [EAC (Ehrlich Ascites Carcinoma), A549 (Lung Carcinoma), HT-29 (Adenocarcinoma), MDA-MB 231 (Breast cancer) and HeLa (Cervix cancer) cell lines]. 3D-QSAR for the optimization of 3D structural features, done by COMFA, COMISIA and PHASE. Docking studies with GLIDE revealed good binding with RTK's.
Results and discussion	:	Many compounds revealed excellent potential as anticancer NCEs as the PIC_{50} values of some are better than that for gefitinib. 3D-QSAR study for the optimization of 3D structural features, done by COMFA, COMISIA and PHASE. Docking studies with GLIDE revealed good binding with RTK's.
Conclusion	:	As the PIC_{50} values of some compounds are better than that obtained for gefitinib so the compounds have revealed excellent potential to be developed as anticancer drugs. Further, docking studies also reveals good binding with RTK's.

Poster Code: PC127-F

Title	:	**Development and validation of a stability indicating RP-HPLC method for the estimation of antidiabetics in combined pharmaceutical dosage form**
Author(s)	:	Leena A. Sawaikar[1], P. Kapupara[2]
Affiliation	:	[1]*PES's Rajaram and Tarabai Bandekar College of Pharmacy, Farmagudi-Ponda Goa.* [2]*School of Pharmacy, R K University, Kasturbadham, Rajkot, 360020, Dist. Rajkot, Gujarat, India.* *E-mail: sawaikarleena@gmail.com*
Introduction	:	Diabetes is a common life style disorder prevalent globally. Lot of analytical work is being carried out on different combinations of marketed antidiabetics. The present work describes simple, sensitive and selective analytical method for the determination of metformin hydrochloride and teneligliptin hydrobromide hydrate in combined dosage form.
Objectives	:	To develop and validate a RP-HPLC technique for the evaluation of metformin hydrochloride and teneligliptin hydrobromide hydrate and apply this technique on marketed formulation.
Materials & Method	:	Chromatographic separation was achieved using HPLC model 1100 gradient system, C18 column with a mobile phase of methanol: OPA (0.1%) in the ratio 55:45 v/v , flow rate of 1.0 mL/min and a detection wavelength of 241 nm for metformin hydrochloride and teneligliptin hydrobromide hydrate. The developed HPLC method was validated as per ICH guidelines.
Results and discussion	:	The retention times were 2.897 ±0.2 minutes and 6.229 ±0.2 minutes and the mean assay results were 99.39 % and 102.94 % respectively for metformin hydrochloride and teneligliptin hydrobromide hydrate.
Conclusion	:	Analysis of a marketed tablet dosage form of metformin hydrochloride and teneligliptin hydrobromide hydrate was carried out using the validated method.

Abstract Code: PC134-F

Title	:	**Simultaneous estimation of pioglitazone and its metabolites in human plasma by liquid chromatographic tandem mass spectrometric method**
Author(s)	:	Vig N.[1,2], Jain G. K.[3], Chopra S.[1]
Affiliation	:	[1]*Amity Institute of Pharmacy, Amity University, Noida, Uttar Pradesh, India.* [2]*Agilent Technologies, New Delhi, India.* [3]*Delhi Pharmaceutical Sciences and Research University, Pushp Vihar, New Delhi, India.* *Email: nitin.vig@student.amity.edu, schopra2@amity.edu*
Introduction	:	Analytical methods play significant roles in clinical studies for estimation of drug concentration in different body fluids.
Objectives	:	The current work deals with development of a liquid chromatographic tandem mass spectrometric (LC-MS) method for the simultaneous estimation of pioglitazone and its metabolites i.e., hydroxy pioglitazone and keto pioglitazone in human plasma.
Materials & Method	:	Sample preparation process was accomplished by solid-phase extraction. The processed samples were chromatographed and analysed on C18 column using mixture of methanol, acetic acid, formic acid and water in ratio of 80:1:1:20 (v/v/v/v) as mobile phase employing MS detector. Electrospray ionization was employed as the ionization source. Pioglitazone D4 and hydroxy pioglitazone D4 were used as internal standard.
Results and discussion	:	The method was found to be linear in the concentration range of 18.9-2994.4, 10.1-1603.8 and 3.23-512.60 ng/mL for pioglitazone, hydroxy pioglitazone and keto pioglitazone, respectively. The low limit of quantification i.e., 18.9, 10.1 and 3.23 ng/mL was obtained for pioglitazone, hydroxy pioglitazone and keto pioglitazone, respectively. The developed method involves simple extraction procedure with complete recovery of the analytes and internal standard.
Conclusion	:	The method was successfully developed, this can be employed for the determination of different plasma pharmacokinetic parameters for pioglitazone and its metabolites.

Abstract Code: PT207-F

Title	:	**Comparative analysis of the efficacy of gemifloxacin mesylate and corticosteroids from ophthalmic ocuserts**
Author(s)	:	Keny S. M.[1], Shah K.[2]
Affiliation	:	[1]*PES's Rajaram & Tarabai Bandekar College of Pharmacy, Farmagudi-Ponda, Goa.* [2]*Parul Institute of Pharmacy and Research, Vadodora, Gujarat, India.* *Email: swatimayur33@gmail.com*
Introduction	:	Gemifloxacin mesylate is a fluoroquinolone antibacterial used in the treatment of bacterial conjunctivitis. Addition of loteprednol etabonate and dexamethasone enhances the anti-inflammatory activity of the developed formulation.
Objectives	:	The objective was to develop separate ocular inserts of gemifloxacin mesylate with loteprednol etabonate and dexamethasone respectively, and evaluate the potential of the ocular films in terms of a sustained release data. Poor bioavailability and poor therapeutic responses associated with the conventional ophthalmic solutions triggers the researchers mind to formulate controlled and sustained drug delivery system. Ocular inserts based on solvent cast technique were formulated and characterized by in vitro drug release studies using a flow through apparatus that simulated the eye conditions.
Materials & Method	:	Compatibility of gemifloxacin mesylate, loteprednol etabonate, dexamethasone, polymer and excipients were checked based on preformulation studies. Combination of gemifloxacin mesylate with loteprednol etabonate and gemifloxacin with dexamethasone, carbopol 974, PEG 400 and glycerin were formulated by solvent cast method and evaluated.
Results and discussion	:	Formula GD74 fulfilled the needs of all organoleptic parameters and also the *in-vitro* release study.
Conclusion	:	Based on the comparative in vitro correlation stability studies, it was concluded that this ocular insert formulation could be a promising controlled release formulation.

Abstract Code: PT218-F

Title	:	**Design and characterization of oral drug delivery system using pastillation technique**
Author(s)	:	Suresh G. Sudke[1], Nagesh H. Aloorkar[1], Pramod V. Burakale[2]
Affiliation	:	*[1]GES's Satara College of Pharmacy, Satara (MS), India PIN 415 004;* *[2]Dr. Rajendra Gode College of Pharmacy, Malkapur (MS), India PIN 443 101* *Email: sureshsudke@gmail.com*
Introduction	:	Use of organic solvents in manufacture of drug delivery systems is restricted by various regulatory authorities and water-based solvents affect stability of medicine. Also, the dose individualization is the need of hour due to intersubject variability.
Objectives	:	Design and characterization of oral drug delivery system using pastillation technique.
Materials & Method	:	Fenoverine was fabricated into small pastilles using molten palmitic acid by pastillation. Pastilles were evaluated for physico-chemical properties and *in-vitro* dissolution study. The optimized formulation was selected by comparing drug release profile with the targeted release and evaluated for short term stability.
Results and discussion	:	The pastilles were uniform in appearance, with good flowability and acceptable drug content. The optimized formulation was able to sustain drug release up to 12 h and remain stable for 3 months as per ICH guidelines. The pastilles were converted to unit dose by filling in capsules or sachets.
Conclusion	:	Pastillation can be successfully employed in pharmaceutical industry by modifying equipment of chemicals, fertilizers and plastic industry. The eco-friendly, safety for worker, dose individualization flexibility and use lipids as food components provide a great importance to pastillation. Hence, pastillation provides excellent alternative to established techniques employed in manufacture of oral solid dosage forms.

Abstract Code: PT231-F

Title	:	**Analysis of daclatasvir dissolution kinetics using ratio tests**
Author(s)	:	Saima Quadri, Syed Muhammad Farid Hasan, Monica Gautam Parkash Ojha
Affiliation	:	*Department of Pharmaceutics, Faculty of Pharmacy and Pharmaceutical Sciences, University of Karachi, Karachi-75270, Pakistan.* *Email: pharmacist20@live.com, smfhassan@uok.edu.pk*
Introduction	:	When a solid dosage form is developed, it is necessary to ensure that the drug dissolution occurs in an appropriate manner because it is used as a surrogate for in-vivo performance of the drug, especially for BCS Class II drugs. Daclatasvir is relatively a new drug of BCS Class II used for the treatment of hepatitis C.
Objectives	:	To compare dissolution profiles of different brands of daclatasvir tablets using ratio tests.
Materials & Method	:	Five brands of daclatasvir were purchased from local market, subjected to dissolution testing. Replicate samples were drawn, analyzed for drug concentration using spectrophotometry.
Results and discussion	:	The ratio tests are relation of parameters obtained from dissolution profile of test drug with reference drug at the same time. The parameters calculated for ratio tests include percent drug dissolution, mean dissolution time and AUC. The kinetic parameters computed were found to be closer to 1 that indicated the similarity between the reference and test brands.
Conclusion	:	The ratio tests yielded numerical results that are useful in comparing dissolution profiles and helpful in deciding brands interchangeability

Abstract Code: CPP306-F

Title : **Assessment of prescribing pattern in the coronary artery diseases in a tertiary care hospital - a retrospective study**

Author(s) : K. V. Ramanath,[1] Niloufar Emami,[2] Alireza Lashani,[2] Navya Shree [1]

Affiliation : [1]*College of Pharmaceutical sciences, Dayananda Sagar University, Bangalore, India*
[2]*Pharma D Interns, College of Pharmaceutical sciences, Dayananda Sagar University, Bangalore, India.*
Email: kvr1075@gmail.com

Introduction : Coronary artery diseases are the high mortality heart diseases responsible for >80% of the economic burden.[1-3] Hence this study was carried out with objectives 1.To Understand the class of drugs used 2. To calculate the cost of drug class used.

Objectives : To understand the class of drugs used and to calculate the cost of drug class used.

Materials & Method : This study was conducted from Sept 2020-March 2021 after institutional ethical clearance; through A structured data collection form (data from 2018-2020). The obtained data subject to descriptive statistics.

Results and discussion : Out of 250 patients, 77.6 % were males and age category showed 30-39(4.4%), 40-49(16%), 50-59(26.8%), 52.8 % were above 60 years. The mean hospital stay was 3.91 ± 2.73. The final diagnosis showed that most of the patients suffering from (IHD 6.4%), (effort angina4.4%), coronary artery diseases (single, double, and triple vessel disease 8.8%), and some of the least cases of patients suffering from recent angina (0.4%). Clinical outcomes show 99.2 % of improvement. Among this, 92.8% of patients were prescribed antiplatelet & the antibiotics used were only 28%. The total price (INR) of anticoagulants is more in (stable angina) 2172.34±14586.19. The anti-platelets total price is more in (STEMI) patients (220.20±142.40), anti-hypertensive total price is (IHD<50 ejection fraction) (106.8±13.62). Diuretics' total price is more in (CCF) patients than another diagnosis (44.48±1.23). Statins' total price is more in (NSTEMI) patients than another diagnosis (1313.79±6943.3). Nitrates' total price is more in (tricuspid valvular coronary disease) than other diagnoses (66.54±118.56). Cardiac glycoside's total price is more in (IHD< 50 ejection fraction) patients than another diagnosis (55.06±86.2). Benzodiazepines' total price is more in (NSTEMI) patients than other diagnoses (8.75±9.2). The total price of analgesics is more in (CAD_DVD) patients than in other diagnoses (274.9±178.8).

Conclusion : This study showed that clinical pharmacy services are essential in cardiac diseases to decrease cost and improve the quality of life.

Abstract Code: CPP311-F

Title	:	**To explore the effect of diosmin in acute myocardial infarction in experimental model**
Author(s)	:	Ritu Kainth, Mohd. Amin Ganie, Navpreet Singh, Ajay Singh Kushwah
Affiliation	:	*Department of Pharmacology, Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial College of Pharmacy, Bela - 140111, Ropar, Punjab, India.* *Email: ritukainth20@gmail.com*
Introduction	:	Coronary heart disease is the one of the major cause of death in the developed countries. Myocardial infarction occurs when hypoxia causes the coronary arteries to restrict blood flow to a portion of the myocardium. Acute myocardial infarction (MI) is a serious form of ischemic heart disease that accounts for the majority of deaths worldwide. Diosmin is a naturally occurring flavonoid found primarily in citrus fruits. It has anti-oxidant properties, such as the ability to scavenge free radicals and chelate metal ions. Diosmin has become one of the most effective natural substances in the treatment of chronic venous insufficiency.
Objectives	:	The aim of the research is to analyze if diosmin can protect the heart from cardiotoxicity caused by myocardial ischemia and reperfusion.
Materials & Method	:	All of the experiments were carried out on albino rats weighing 180-220 g for a cardio-protective effect analysis. Administration of diosmin at doses of 5 and 10 mg/kg and the ligation of the left anterior descending coronary artery in an anaesthetized rat caused myocardial ischemia reperfusion injury.
Results and discussion	:	In the treated population, abnormal serum carditoxicity biomarkers CK-MB and LDH decreased significantly, whereas antioxidant enzymes like GSH increased significantly. Both doses of the research drug substantially reduced cardiotoxicity serum biomarker enzyme levels, resulting in a better outcome in a dose-dependent manner.
Conclusion	:	Because of its cardioprotective function, diosmin appears to play a beneficial and promising role in myocardial ischemia reperfusion injury, according to the findings of this study.

Abstract Code: CPP 323-F

Title	:	**Investigation of mitigating effect of an osteoarthritic drug in inflammatory bowel disease through drug repurposing strategy**
Author(s)	:	Supriya Roy[1], Suneela Dhaneshwar[1], Tarique Mahmood[2]
Affiliation	:	[1]*Institute of Pharmacy, Lucknow, Amity University, Uttar Pradesh, Sector 125, Noida, 201313, India.* [2]*Faculty of Pharmacy, Integral University, Dasauli, Lucknow, Uttar Pradesh, India.* *Email: sdhaneshwar1@lko.amity.edu*
Introduction	:	Inflammatory bowel disease (IBD) exemplifies severe inflammation of gastrointestinal tract accompanied by symptoms such as weight loss, rectal bleeding and diarrhea. Intensified intestinal inflammation is concomitant to augmented level of intermediaries mainly tumor necrosis factor-alpha (TNF-α), histamine, matrix metalloproteinase (MMPs) and interleukins (IL). A substantial increase in research efforts is needed to address this unmet medical disorder. Drug repurposing is an innovative drug development strategy that focuses on re-examining old drug libraries currently approved for treating disorder and rediscovering their new therapeutic uses.
Objectives	:	In the present 11 days study, potential of an osteoarthritic drug, D-glucosamine (D-GLU) was examined in experimental model of ulcerative colitis.
Materials & Method	:	Trinitrobenzene sulfonic acid (TNBS) at 100 mg/kg, intra-rectally was used to induce colitis in Wistar rats. A comparative analysis was undertaken where mitigating effect of D-GLU was examined against 5-aminosalicylic acid (5-ASA) and their combination. Quantifying parameters such as colon to body weight ratio, disease activity score rate, gut pH, colon length and diameter were assessed.
Results and discussion	:	D-Glucosamine significantly reduced colon to body weight ratio as well as disease activity score rate, offering 58% protection against colonic inflammation. Combination of D-GLU and 5-ASA provided 60.50% protection that was slightly better than the effects of individual drugs. Histopathological reports revealed that D-GLU restored disrupted colonic architecture to normal without adversely affecting stomach, liver and pancreas.
Conclusion	:	Results support that D-GLU could be a promising therapy for IBD.

Abstract Code: CPP327-F

Title : **Active surveillance of hemovigilance in a tertiary care teaching hospital: A developing country scenario**

Author(s) : Amruta Ashok Potdar, Pallavi P., M. Ramesh, Sri Harsha Chalasani

Affiliation : *Department of Pharmacy Practice, JSS College of Pharmacy, Mysuru, Karnataka, India.*
Email: amruta15597@gmail.com

Introduction : Hemovigilance includes the monitoring, reporting, investigation, and analysis of adverse events related to the activities of the blood transfusion chain, to enhance patient safety.

Objectives : To determine the incidence of blood transfusion-related reactions (TR), assess the causality and predictors of the blood transfusion reactions.

Materials & Method : An active surveillance was conducted for a period of 6 months at the Department of Transfusion Medicine of a tertiary care teaching hospital. All the patients admitted to various specialties receiving blood or blood components and report to have transfusion reaction (TR) during or after the transfusion were included in the study. In the occurrence of TR, the causative component, category, severity, and causality of the reaction were evaluated using the National Institute of Biological (IPC-NIB) scale. The predictors were assessed using odds ratio at 95% confidence interval and data was assessed categorically.

Results and discussion : The study results showed a total of 5274 units were transfused over the study period, with [1780 (33.75%)] units transfused to female and [3494 (66.25%)] units to male patients. The transfusions were more in the age groups of 21-30 years [1453 (27.20%)], followed by 61-70 years [786 (15%)]. The majority transfusions were packed red blood cells (PRBCs) [2664 (50.5%)]. An anaemia [2510 (47.59%)] was the commonest indication for the transfusion. Out of 5274 transfusions, 28 (0.53%) cases of post transfusion reactions were reported. The most common TR recorded were febrile non-hemolytic transfusion reactions [20 (71.42%)], followed by allergic transfusion reaction [7 (25%)] and were predominantly in the pediatrics department [14 (50%)], followed by in the nephrology department [5 (17.85%)]. Among the different blood components, the majority of TRs were associated with the PRBC transfusion [18 (64.28%)]. The causality of the reactions was identified as definite [19 (67.85%)], possible [6 (21.42%)], and probable [3 (10.71%)]. All the patients reported with TRs were managed symptomatically and recovered. The predictors will be updated towards the presentation. A total of 2194 blood donations were recorded, of which 21 donor reactions were reported, with [2 (9.52%)] occurred pre-donation, [3 (14.28%)] during donation, and [16 (76.19%)] post-donation. The reported reactions were vasovagal reactions [18 (85.71%)] and hematomas [3 (14.28%)]. The incidence rate of donor reaction was found to be 0.95%.

Conclusion : The incidence rate of transfusion and donor reaction was found to be 0.53% and 0.95%, respectively. A clinical pharmacist may support further surveillance of TRs and assessment of the pattern of the adverse reactions associated with transfusions and blood donations.

Abstract Code: CPP328-F

Title	:	**Adherence to medication: patient reported facilitators and barriers**
Author(s)	:	M. Ramesh, Abaka Mohith Kumar, Fasil Majeed P. V., Patric Rejimon, Emelda Chinemerem
Affiliation	:	*Department of Pharmacy Practice, JSS College of Pharmacy, Mysuru, Karnataka, India. Email: mramesh@jssuni.edu.in*
Introduction	:	Assessing the patient reported facilitators and barriers to medication adherence helps us understand patients' perceptions which remain the root cause for medication non-adherence.
Objectives	:	To assess the patient reported facilitators and barriers to medication adherence.
Materials & Method	:	Assessment of patient reported facilitators and barriers were done using principles of concurrent method of triangulation based semi-structured questionnaire amongst chronic disease patients aged > 18 years and who were hospitalized in a south Indian tertiary care teaching hospital. The patients were counselled based on the responses with more focus on their disease condition, medication, lifestyle modification along with the importance of medication adherence. Data thus collected was statistically analyzed categorically. Predictors were evaluated using odds ratio at 95% confidence interval.
Results and discussion	:	A total of 431 patients were enrolled and majority of the patients [223 (51.7%)] were non-adherent to the medication. The facilitators included regular refill, good social support, good rapport with healthcare professionals, good access to health care and routine. The barriers included forgetfulness, attitudes and misbelieves, lack of follow up and refilling, lack of social support, financial constraints, lack of accessibility to healthcare, improper rapport with healthcare professionals, lack of disease knowledge, complex dosage regimen and adverse effects. The older age group of 71-80 years [OR 3.18 (95% CI, 1.27–7.91)], annual income (INR) of 3-5 Lakhs [OR 6.75 (95% CI, 1.26–36.03)], two or more number of past medications [OR 2.85 (95% CI, 1.75–4.66)], number of current medications (during hospitalization) being 6-10 [OR 4.10 (95% CI, 1.07–15.71)], number of disease conditions more than 3 [OR 9.19 (95% CI, 2.02–41.64)] and management of discharge medications by others than self [OR 2.93 (95% CI, 1.10–7.77)] were found to be significant predisposing factors.
Conclusion	:	This study provides a framework for research of medication nonadherence in chronic disease patients by describing a set of predictors along with facilitators and barriers to medication adherence identified from patients.

Professional e-Poster Presentations

Pharmaceutical Chemistry

Abstract Code: PC101

Title	:	**Design, synthesis and biological evaluation of 1,3-thiazolidin-4-one derivatives**
Author(s)	:	Ramesh L. Sawant, Jyoti B. Wadekar, Rushikesh D. Ukirde, Ganesh D. Barkade
Affiliation	:	*Department of Pharmaceutical Chemistry & PG Studies, Dr. Vithalrao Vikhe Patil Foundation's College of Pharmacy, Vilad Ghat, Ahmednagar, 414111, M.S. India.* *E mail: ganeshbarkade7@gmail.com*
Introduction	:	Cancer is a major cause of death all over the globe. Controlling cell division by inhibition of mitosis is the most successful clinical strategy for cancer treatment. The development of novel anticancer agents is the most important area in medicinal chemistry and drug discovery research. Thiazolidine is the multifunctional nucleus, which shows a number of pharmacological activities like anticancer, anti-inflammatory, antioxidant, antibacterial, antifungal, antidiabetic, antihyperlipidemic and antiarthritic.
Materials & Method	:	In a present study series of 2-substituted-3-(*1H*-benzimidazole-2-yl)-thiazolidin-4-ones were designed, synthesized by the microwave-assisted system, and characterized by melting point, IR, ^{1}H NMR, and mass spectroscopy. All the newly synthesized compounds were examined for their in vitro anticancer activity against breast cancer cell line MCF-7 by sulforhodamine B (SRB) assay.
Results and discussion	:	The compounds AB-12 (GI_{50}: 28.5 µg/ml) and AB-6 (GI_{50}: 50.7 µg/ml) exhibited significant cell growth inhibitory activity.
Conclusion	:	These results indicate that compound AB-12 and AB-6 as related polo-like kinase 1inhibitors compounds could be lead compounds for further development of anticancer agents.

Abstract Code: PC102

Title	:	**Phytochemical profiling, antioxidant and antityrosinase activity of selected medicinal plants from Gandaki Province, Nepal**
Author(s)	:	Bipindra Pandey, Atisammodavardhana Kaundinnayayana, Sushil Panta
Affiliation	:	*School of Health and Allied Sciences, Pokhara University, Pokhara, Nepal.* *E mail: bipindra.p101@gmail.com*
Introduction	:	*Crateva unilocularis*, *Juglans regia*, *Millettia extensa* and *Plumbago zeylanica* are common medicinal plants used in Nepal.
Objectives	:	Ethanol extract of the above mentioned plants was performed to evaluate the qualitative and quantitative phytochemical analysis, antioxidant activity, and anti-tyrosinase activity.
Materials & Method	:	Total phenolic and flavonoid content was estimated by Folin-Ciocalteu method and aluminum chloride method respectively. 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay method was used for the determination of radical scavenging activity. Mushroom tyrosinase inhibition assay was used for the evaluation of tyrosinase inhibitory activities.
Results and discussion	:	The phytochemical profiling indicated the presence of alkaloids, terpenoids, flavonoids, carbohydrate. *J. regia* stem bark extract showed high concentration of phenol (i.e. 496.67±1.02 mg GAE/g dry extract weight) and flavonoid (i.e. 2028.02±0.19 mg QE/g dry extract weight). Highest DPPH radical scavenging activity was detected in stem bark of *J. regia* (IC_{50} value 0.0497 µg/mL with reference to ascorbic acid standard. *M. extensa* root bark (99.31±0.16) showed best tyrosinase inhibition activity followed by *J. regia* stem bark (99.19±0.35) which is comparable to the standard drug Kojic acid (99.56±0.08).
Conclusion	:	*M. extensa* root bark showed the significant tyrosinase inhibitory activity. Since further scientific exploration in cosmetic application and safety evaluation of this plant is required.

Abstract Code: PC103

Title	:	**Emerging DNA gyrase target with novel *N*-heterocyclic compounds**
Author(s)	:	Manjiri D. Bhosale, Asha B. Thomas
Affiliation	:	*Department of Pharmaceutical Chemistry, Dr. D. Y. Patil Institute of Pharmaceutical Science and Research, affiliated to SPPU, Pimpri, Pune, Maharashtra, India.* *Email: bhosalemanjiri8@gmail.com*
Introduction	:	Tuberculosis caused by *Mycobacterium tuberculosis* infecting two third of the population additionally caused multi-drug resistance. DNA gyrase is the type II topoisomerase and a target of quinolones in Mycobacterium tuberculosis. The *n*-containing heterocyclic indole, n-methyl piperazine, piperidine and pyrrolidine compounds were selected.
Objectives	:	To find potent DNA gyrase inhibitors which target DNA gyrase.
Materials & Method	:	Docking was performed followed by one pot synthesis with analytical characterization of synthesized compounds followed by biological evaluation.
Results and discussion	:	The Ib5 and IIb5 compounds showed dock score of -8.1 and -5.6 compared to reference with MFX -5.6 binding scores with DNA gyrase. The MABA activity showed good results with inhibitory concentration of 6.25µg/ml and 50µg/ml with IIa5, IIb5 and Ib5 compounds. The MTB gyrase supercoiling assay at conc. of 300µg of IIb5 showed gyrase inhibition in comparison of MFX. The MTT assay performed showed IC50 of 12.54µm compared to doxorubicin at 7-48hr.
Conclusion	:	Therefore, the new *n* -heterocyclic compounds facilitates rational design and inhibitory action against MTB gyrase.

Abstract Code: PC105

Title	:	**Design, *insilico* screening and molecular docking of new benzotriazole derivative against tyrosyl-tRNA synthetase and DNA gyrase subunit B as potential antimicrobial agent**
Author(s)	:	Tejaswini D. Patil,[1] Sunil V. Amrutkar[2]
Affiliation	:	[1]*Department of Pharmaceutical Chemistry, Progressive Education Society's, Modern College of Pharmacy, Nigadi, Pune, Maharashtra, India- 411044.* [2]*Department of Pharmaceutical Chemistry, Gokhale Education Society's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research, Nashik, Maharashtra, India- 422005.* *Email: dhanashrirmali@gmail.com*
Introduction	:	Due to the rapid development of resistance to antimicrobial drugs, there is an emergency of the development of the novel antimicrobial drug. The researcher is searching for new target for antimicrobial activity which will give promising activity even against resistant strain. In present study two such targets are identified-DNA gyrase subunit B (PDB:1KZN) and Aminoacyl-tRNA synthetases enzyme (PDB: 1JIJ).
Objectives	:	The present research aims to design, synthesize, and identify novel Benzotriazole derivatives against DNA gyrase subunit B (1KZN) and Aminoacyl-tRNA synthetases enzyme (1JIJ) using molecular docking.
Materials & Method	:	Based on the literature review, 2-(*1H*-1,2,3-benzotriazol-1-yl)-*N*-substituted acetamide was synthesized using an efficient procedure. All synthesized compounds were evaluated for antimicrobial activity against four different organisms *E. coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *C. albicans*. *Insilico* screening and molecular docking were also performed in the active site of DNA gyrase subunit B (1KZN) and Aminoacyl-tRNA synthetases enzyme (1JIJ) to shed light on their antimicrobial effects using Autodock, MGL tool.
Results and discussion	:	All derivatives are obtained in good yield and illustrate good antimicrobial activity. BT4 and BT6 show significant activity against all four organisms, while BT3 shows significant activity against *Staphylococcus aureus*. Docking study also reveals the compound bound to the active site of target proteins (1KZN and 1JIJ) and can possess potential antimicrobial activity. The compound BT4 and BT6 show lowest docking score as compare to reference ligand. The study shows optimum pharmacokinetics with good oral absorption and moderate toxicity**.**
Conclusion	:	The present study concludes that compounds BT4 and BT6 have antimicrobial potential. BT3 can stand out as a potential antibacterial agent against *Staphylococcus aureus*.

Abstract Code: PC110

Title	:	**Bioanalytical method development and validation for the simultaneous estimation of metformin and levothyroxine-drug interaction studies.**
Author(s)	:	*Nagavi J. B., Ghosh S., Nanda G., Kola V. B.*
Affiliation	:	*Department of Pharmaceutical Chemistry, Sarada Vilas College of Pharmacy, Mysuru, Karnataka, India.* *Email: nagavi.jinesh@gmail.com*
Introduction	:	Metformin influences serum levels of thyroid-stimulating hormone (TSH) by decreasing serum concentration of pituitary hormones. Several studies conducted in Indian population have shown that elevated levels of TSH could lead to development of T2DM and obesity related metabolic disorders.
Objectives	:	Development and validation of a bioanalytical method for simultaneous estimation of metformin and levothyroxine as per USFDA draft guidelines. To apply and access the validated method for the estimation of selected drugs in various dosage forms and study the pharmacokinetic behavior.
Materials & Method	:	A Shimadzu 2010 AHT series with SPD-10A detector was used for method development and validation. Analysis was conducted on a Phenomenex Luna 5µ C18 100A (250 x 4.6mm). Samples were introduced in Rheodyne injector valve with a 20 µL sample loop.
Results and discussion	:	A simple, accurate and sensitive method was developed and validated for metformin and levothyroxine using mobile phase of acetonitrile, methanol and phosphate buffer (pH 2.5-3.5) in varying ratios, using a C18 column and a UV-PDA detector.
Conclusion	:	The validated bioanalytical method for metformin and levothyroxine will shed light on the possible drug-drug interaction. The study results would help the physicians and health care providers to develop new strategies for prescribing antidiabetic drugs in combination with levothyroxine to the patients having elevated TSH level.

Abstract Code: PC 111

Title	:	**In silico design, synthesis and anticancer evaluation of a novel *N*-alkyl substituted piperidinyl chalcones as CDK2/Cyclin A inhibitors**
Author(s)	:	Aravinda Pai, Jayashree B. S.
Affiliation	:	*Department of Pharmaceutical Chemistry, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Madhav Nagar, Manipal-576104, Karnataka, India.* *E mail: aravind.pai@manipal.edu, pai.aravind@gmail.com*
Introduction	:	Chalcones are one of the important natural compounds. They possess a variety of pharmacological activities. Their anticancer activity is based on inhibition of key enzymes involved in cell cycle progression. In the present study, chalcones with piperidinyl substitution were explored for their inhibitory activity against CDK2/Cyclin A target enzyme.
Objectives	:	Design and synthesize novel piperidinyl chalcones. Perform molecular simulation studies. Assess invitro antioxidant and anticancer activity of compounds. Carry out FRET based CDK2/Cyclin A inhibitory activity.
Materials & Method	:	In the present study, *N*-alkyl tetrahydropyridinyl chalcones were synthesized using Claisen-Schmidt condensation. The compounds were evaluated for their antioxidant activity by DPPH and ABTS method. The test compounds were evaluated for their in vitro anti-cancer activity. Molecular docking, molecular dynamics studies were performed to confirm binding mode of designed inhibitors.
Results and discussion	:	The compound NEC4 exhibited marked olive moments in comet assay studies and did not show any alterations in the DNA fragmentation. It also exhibited marked inhibition for the CDK2 gene expression. Compound NEC4 and other chalcones showed appreciable inhibition for the target enzyme CDK2/Cyclin A. Designed molecules were found to be Type II kinase inhibitors based on the homology modelling and molecular dynamics simulation studies.
Conclusion	:	The present study lead to design and synthesis of a novel CDK2/Cyclin A inhibitor with anticancer activity. The CDK2 inhibitory activity confirmed by FRET assay requires revalidation using ELISA or antibody based assays.

Abstract Code: PC112

Title	:	**Development of zinc nanoparticles for biomedical application using green chemistry approach**
Author(s)	:	Sucharita Mohite, Rakesh Dhavale, Prafulla Choudhari, Harinath More
Affiliation	:	*Department of Pharmaeutical Chemistry, Bharati Vidyapeeth College of Pharmacy, Kolhapur, Maharashtra, India.* *Email: sucharitamohite2710@gmail.com*
Introduction	:	Nanotechnology is the modification of matter to the point that every one of its dimensions lies into the nanoscale spectrum (i.e. 1–100 nm). Because of their large specific surface area, high surface energy, and quantum confinement, nanoscale particles have a variety of special properties (optical, magnetic, electrical, and so on). One of the most important areas of nanoscience research is the advancement of simple, cost-effective, biocompatible, environmentally stable, and scalable techniques for nanomaterials synthesis. The green synthesis of nanoparticles can be described as a collection of techniques for producing nanoparticles that use non-chemical reagents or non-hazardous methods. Nanoparticles may be made using a variety of processes, including physical, chemical, and biological ones. Physical and chemical processes are time-consuming, costly, and produce waste, by-products that are dangerous. In comparison, the green approach of nanoparticle synthesis, which uses plant extracts, has recently received a lot of attention due to its safe, convenient, and less toxic nature that is environmentally sustainable.
Objectives	:	This study was developed with an aim to develop zinc nanoparticals using *Vigna aconitifolia* seed extract and evaluate their anti-bacterial activity.
Materials & Method	:	Aqueous extract of *Vigna aconitifolia* seeds was utilized for the green synthesis of ZnNPs. The synthesized NPs were characterized using UV-VIS spectroscopy, XRD, SEM, EDAX. The antibacterial evaluation of ZnNPs was carried out using diffusion plate method on cultures of *B. subtilis, P. aeruginosa* and *S. aureus*.
Results and discussion	:	The spectroscopic analysis of ZnNPs showed sharp peak at 264 nm in UV which corresponds to the production of zinc NPs. SEM analysis showed spherical shaped ZnNPs with size range of 32 nm. EDAX showed presence of elements like C, O, Zn and Zn which indicated development of the ZnNPs. ZnNPs synthesised from vigna aconitifolia seed extract have excellent antibacterial efficacy, from this work.
Conclusion	:	According to the findings, green chemistry may be an appealing strategy for synthesizing ZnNPs as effective antibacterial agents.

Abstract Code: PC 113

Title	:	**Synthesis and biological evaluation of novel benzimidazole derivative**
Author(s)	:	Mrunal R. Bhalerao, Pravin R. Dhige, Manoj R. Kumbhare
Affiliation	:	*Department of Pharmaceutical Chemistry, S.M.B.T. Collage of Pharmacy Dhamangaon, 422403, Maharashtra, India.* *Email: madhu8bh@gmail.com*
Introduction	:	Benzimidazole derivatives have occupied a prominent place in medicinal chemistry because of their significant properties as therapeutics in clinical applications. Benzimidazole is a versatile pharmacophore producing a diverse range of biological activities including anti-inflammatory analgesic anti-ulcer anti-fungal, anti-microbial, anthelmintic, anti-cancer, activities etc.
Objectives	:	Design synthesis of novel benzimidazole analogous and biological evaluation of synthesized analogous by antioxidant activity (H_2O_2 assay).
Materials & Method	:	In first step I synthesized 2-acetylbenzimidazole by reacting orthophenylene diamine and lactic acid with hydrochloric acid and neutralized with ammonia. Then the 2-acetylbenzimidazole will react with different thio group with a few drops of glacial acetic acid by that thio substituted 2-acetylbenzimidazole will synthesized. Antioxidant activity perform by H_2O_2 method. The free radical scavenging activity was determined by % inhibition.
Results and discussion	:	Synthesized compound were characterized and evaluate by antioxidant activity. The result is conclude by regression equation method.
Conclusion	:	The series of heterocyclic compounds containing benzimidazole derivative were synthesized. All synthesized compounds were screened for Anti-oxidant activity. Some of the synthesized compounds showed good activity when compared with standard drug ascorbic acid further study will help to explore novel benzimidazole derivatives for potent activity.

Abstract Code: PC114

Title	:	**Identification of potential decaprenylphosphoryl-β-D-ribose 2′-epimerase (DprE1) inhibitors: A molecular modelling study**
Author(s)	:	Swagatika Dash, Avinash Kumar, Ekta Rathi, Suvarna G. Kini
Affiliation	:	*Department of Pharmaceutical Chemistry, Manipal College of Pharmaceutical Sciences, MAHE, Manipal, Karnataka, India.* *Email: swagatikadash329@gmail.com*
Introduction	:	DprE1 enzyme is a potential therapeutic target involved in mycobacterium cell wall biosynthesis and its inhibition might lead to potent anti-tubercular compounds.
Objectives	:	To identify potent DprE1 inhibitors employing computational tools.
Materials & Method	:	All computational studies were carried out by using Maestro version 11.4 (Schrodinger Inc.). For atom-based 3D-QSAR modeling and multiple ligand-based pharmacophore modeling, total three datasets were used.
Results and discussion	:	For 3D-QSAR model, the statistical parameters like R2, Q2 and SD were found to be 0.9482, 0.7974 and 0.2756. This suggested that the developed model was robust with good predictive ability. Three five-feature pharmacophore models were generated (phase hypo score >1.3) and put for virtual screening of a focused library of 20,000 antibacterial compounds retrieved from Asinex database. Based on phase screen score (>2.0), we have reported top three compounds from each pharmacophore model whose binding with DprE1 protein was validated by docking studies. All the reported compounds showed docking score comparable to the co-crystallized ligand of DprE1 protein (PDB ID 4KW5). The predicted activity (pIC50) for all three compounds was >5.4.
Conclusion	:	Based on molecular modelling studies we have identified three potential DprE1 inhibitors which needs to be validated through synthesis and in vitro studies.

Abstract Code: PC 116

Title : **New FTIR method for quantitative analysis of favipiravir in bulk and pharmaceutical dosage forms**

Author(s) : Nithila Pabbathireddy, Y. Padmavathi, N. Raghavendra Babu, K. Arun Teja

Affiliation : *Department of Pharmaceutical Analysis, G. Pulla Reddy College of Pharmacy (Affiliated to Osmania University), Hyderabad, Telangana, India.*
Email: nithilanithu98@gmail.com

Introduction : Favipiravir was discovered by chemical modification of a pyrazine analog initially screened by in vitro anti-influenza virus activity in cells. Favipiravir demonstrated anti-viral activities against other RNA viruses. Fourier-transform infrared (FTIR) spectroscopy is based on the idea of the interference of radiation between two beams to yield an interferogram. FTIR is perhaps the most powerful tool for identifying types of functional groups.

Objectives : To develop a new sensitive FTIR method for estimation of favipiravir in bulk and dosage forms. To validate the developed method according to ICH guidelines.

Materials & Method : Limited Liquid cell and KBr press were used for sampling liquids and solids respectively. FTIR spectroscopic method was developed using Fourier transform infrared spectrophotometer. IR spectra of favipiravir was taken in absorbance mode for quantitative analysis. For quantitative estimation, the concentrations of sample by pressed pellet technique were prepared with the aid of geometric mixing.

Results and discussion : IR spectra of standard Favipiravir was taken by pressed pellet technique using KBr. Favipiravir IR spectrum showed peaks at 3353cm^{-1}, 3220 cm^{-1}, 1658 cm^{-1}, and 1602 cm^{-1}. Among which 3353cm^{-1} group showed clear, intense peak which increased linearly as the concentration increases, was selected for quantitative analysis of favipiravir. The response was found to be linear in concentration range of 20-100µg/mg and The calibration curve linear with an R^2 value 0.999.

Conclusion : The FTIR spectrophotometric method was developed for analysis of favipiravir by using solid pellet technique. This was compared statistically with the HPLC and the results revealed that the developed new method was significantly different. Hence it proves good in applicability. It fulfilled all validation requirements in a range of concentrations and it can be used as an alternative to the official methods.

Abstract Code: PC 117

Title : **Gene ontology enrichment analysis of PPAR-γ modulators from *Cassia glauca* in diabetes mellitus**

Author(s) : Shama G. Ternikar[1], B.M. Patil[2], Ismail Pasha[3], Pukar Khanal[4]

Affiliation : [1]*Sant Gajanan Maharaj College of Pharmacy Mahagaon, Maharashtra, India*
[2]*Department of Pharmacognosy and Photochemistry, KLE College of Pharmacy, Belagavi, KLE Academy of Higher Education and Research, Belgaum, Karnataka, India*
[3]*Department of Pharmacology, Orotta College of Medicine and Health Sciences, Asmara University, Asmara, Eritrea*
[4]*Department of Pharmacology and Toxicology, KLE College of Pharmacy, Belagavi, KLE Academy of Higher Education and Research, Belgaum, Karnataka, India*
Email: ismailpash@gmail.com

Introduction : PPAR-γ has an integrative role in the management of insulin resistance; ligands of this receptor have emerged as potent insulin sensitizers and may modulate proteins involved in the pathogenesis of diabetes mellitus. Hence the present study is aimed to identify PPAR-γ modulators from the plant *Cassia glauca* and predict the ontology enrichment analysis utilizing various *in-silico* tools.

Objectives : Identify PPAR-γ modulators from the plant *Cassia glauca* and predict the ontology enrichment analysis utilizing various *in-silico* tools.

Materials & Method : ChEBI database was used to mine the phytoconstituents present in the plant C. glauca, SwissTargetPrediction database was used to identify the targets and scrutining of bioactives modulating PPAR-γ was performed. Autodock 4.0 was used to dock bioactive ligands with the target PPAR-γ. Multiple open source database and *in-silico* tools were utilized to predict the drug likeness characters and side effects of the bioactive modulating PPAR-γ and STRING database was used to construct network between the modulated genes.

Results and discussion : Twenty-four phytoconstituents were identified from the plant *Cassia glauca* from which four bioactives were found to modulate PPAR-γ, sennoside was predicted to have greatest drug likeness score and a significantly less side effect whereas diphenyl sulfone was predicted to show hepatotoxicity with greatest pharmacological activity of 0.815. [epicatechin-(4beta->8)]5-epicatechin showed lowest binding affinity with target PPAR-γ i.e. -8.6Kcal/mol and possessing a positive drug likeness score with no side effect data.

Conclusion : Bioctives were found free from side effects leaving out diphenyl sulfone having a prediction of hepatotoxicity, the anti-diabetic property of the plant may be due to the presence of [epicatechin-(4beta->8)]5-epicatechin which needs further validation by *in-vitro* and *in-vivo* protocols.

Title : **Impurity profiling of drug products towards safety and efficacy**

Author(s) : Yashvardhan P. Bhosale[1], Rakesh D. Amrutkar[2]

Affiliation : [1]*Department of Quality Assurance, MGV's Pharmacy College, Nashik, Maharashtra, India.*
[2]*Department of Pharmaceutical Chemistry, K. K. Wagh College of Pharmacy, Nashik, Maharashtra, India.*
Email: yashvardhanbhosale93@gmail.com

Introduction : Marketed drug formulations are made up of active pharmaceutical ingredients (APIs) and excipients. APIs present in the formulation contains some undesired impurity which may affect the efficacy of marketed formulations. According to ICH guidelines, an impurity is any component of a drug substance that is not a part of a chemical entity and affects the purity of active ingredients. From the above definition, it becomes easy to realize that impurities are unavoidable and will be present in minor amounts and consequently various regulatory bodies follow workable guidelines to come up with permissible limits of impurities, to launch a drug formulation into the market.

Materials & Method : Impurity profiling is the common name of a group of analytical activities, the objectives of which are the detection, identification/structure elucidation, and quantitative determination of organic and inorganic impurities as well as residual solvents in bulk drugs and pharmaceutical formulations.

Conclusion : The present article is an attempt to provide comprehensive knowledge about various aspects and details about impurity profiling in context with regulatory guidelines.

Abstract Code: PC119

Title	:	**Synthesis and antioxidant evaluation of some novel Biginelli adducts**
Author(s)	:	Pranay A. Agrawal, Avinash S. Dhake, Harsha I. Narkhede
Affiliation	:	*Department of Pharmaceutical Chemistry, S.M.B.T. College of Pharmacy, Dhamangaon, Maharashtra, India.* *Email: agrawalpranay77@gmail.com*
Introduction	:	Pyrimidine rings are used as key building blocks for many pharmaceutical agents. One of the important members in the class of pyrimidines is dihydropyrimidine (DHPM), attributed with a wide range of activities like antioxidant, antidiabetic, antiinflammatory, antimicrobial, anticancer, analgesic etc.
Objectives	:	Synthesis of novel derivatives by Biginelli multicomponent reaction and evaluation of synthesized derivatives for antioxidant activity
Materials & Method	:	Compounds were synthesized by Biginelli multicomponent reaction. The synthesized derivatives (6a-6g) were screened for antioxidant evaluation by using DPPH assay method. The standard used was ascorbic acid. Various dilution of the derivatives were made using methanol as solvent. Absorbance was noted at 517 nm. IC50 Value was calculated by regression analysis
Results and discussion	:	Synthesized derivatives were characterized and evaluated for antioxidant screening using DPPH assay. Derivatives showed very good antioxidant activity in the IC50 range of 37.2-73.56 compared to ascorbic acid (43.09)
Conclusion	:	Derivatives were successfully synthesized by Biginelli multicomponent reaction and were screened for antioxidant activity. Derivatives showed very good antioxidant activity, where 6d and 6e showed most potent activity.

Abstract Code: PC 120

Title	:	**Synthesis and evaluation of benzothiazole analogues**
Author(s)	:	Jyoti V. Popali, Manoj R. Kumbhare, Ajay R. Surana
Affiliation	:	*Post Graduate Department of Pharmaceutical Chemistry, S.M.B.T College of Pharmacy, Dhamangaon, Maharashtra, India.* *Email: jyotipopli97@gmail.com*
Introduction	:	Heterocyclic compounds analogues have attracted strong interest in medicinal chemistry due to their pharmacological properties. Benzothiazole belongs to the class of bicyclic compounds. Different methods are used to synthesize benzothiazole compounds and were found to have numerous biological activities like – antioxidant, anticancer, antimicrobial, anti-inflammatory, anti-leishmanial, antidiabetic activity, etc.
Objectives	:	Synthesis of benzothiazole and their analogues by appropriate methods and evaluation of derivatives for antioxidant activity.
Materials & Method	:	The abstract describe the synthesis of benzothiazole analogues using appropriate synthons, the characterization and antioxidant evaluation. Antioxidant activity was performed by DPPH assay method and ascorbic acid as a std. IC50 value was calculated by regression equation method.
Results and discussion	:	Synthesized derivatives were characterized and evaluated for antioxidant screening using DPPH assay. Derivatives showed very good antioxidant activity in the IC50 range of 32.1-75.2 compared to ascorbic acid (47.06)
Conclusion	:	Analogues were successfully synthesized and were screened for antioxidant activity. Analogues A3 and A5 shows potent activity.

Abstract Code: PC121

Title	:	**Synthesis, *in-vitro* and *in-silico* evaluation of nitrogen mustard linked 2-benzylidenebenzofuran-3(2h)-one derivatives as possible anticancer agents**
Author(s)	:	Agasa Ramu Mahesh, Vedigounder Murugan
Affiliation	:	*Department of Pharmaceutical Chemistry, College of Pharmaceutical Sciences, Dayananda Sagar University, Bengaluru, India.* *E-mail: mahesh-sps@dsu.edu.in*
Introduction	:	Cancer is a dynamic pathological disorder in which cells proliferate uncontrollably. For medical chemists, drug discovery is critical because one of chemotherapy's most significant drawbacks is its side effects.
Objectives	:	The aim of this study was to synthesise some benzofuranones fused with nitrogen mustards and measure their cytotoxic activity since benzofuranones and nitrogen mustards have proven alkylating properties.
Materials & Method	:	A new series of nitrogen mustard linked aurones were synthesized 6(a-k), *in-vitro* evaluation for its anticancer activity was done using MTT, Trypan blue and SRB assay on A-549 and MCF -7 cell lines. *In-silico* molecular docking, 3-D QSAR, ADME/T prediction and drug likeliness studies were carried out for all the synthesized compounds.
Results and discussion	:	The compounds 6h showed minimum IC50 for both A-549 and MCF-7 in MTT Assay, 6c showed minimum IC_{50} for A-549, 6a for MCF-7 for SRB assay and 6e showed minimum IC_{50} for both A-549 and MCF-7 cell lines in Tryphan blue exclusion assay. The molecular docking studies revealed that compound 6g has minimum binding affinity, compared to the standard nordihydroguaiaretic acid. Linear regression plot of 3-D QSAR studies showed $R^2 = 0.997$.
Conclusion	:	All the compounds synthesized have good intestinal absorption. VDss data signifies good distribution of the products throughout the body. All the compounds are metabolized by CYP isozymes. The log value of total clearance ranges from 0.838 to 1.069. No compound violate from Lipinski's rule of 5 for its draggability studies and have no hepatotoxicity.

Abstract Code: PC123

Title	:	**Design synthesis, molecular docking studies and antitubercular evaluation of hexahydroquinolin-2-yl benzamide derivatives**
Author(s)	:	Nayaka Raghavendra Babu[1], K. Uma sankar[2]
Affiliation	:	*[1]G. Pulla Reddy College of Pharmacy, Mehdipatnam, Hyderabad, Telangana, India.* *[2]K. L. College of Pharmacy, K. L. Deemed to be University, Vaddeswaram, Guntur, A.P, India.* *Email: nayakaraghavendrababu@gmail.com*
Introduction	:	Tuberculosis (TB) remains a global public health problem in recent years. Due to the development of resistance to conventional antibiotics there is a need for new therapeutic strategies to combat M. tuberculosis. Subsequently, there is an urgent need for the development of new drug molecules with newer targets and with an alternative mechanism of action. Among heterocyclic compounds quinoline compounds are used as parental compounds to synthesize molecules with medical benefits, especially with anti-malarial, anti-tubercular and anti-microbial activities.
Objectives	:	A new series of hexahydroquinolin-2-yl benzamide derivatives were designed, synthesized, docked and evaluated for anti-tubercular activity The teratogenicity assay of synthesized compounds was performed in zebra fish larvae.
Materials & Method	:	The required quinoline nucleus was constructed by condensation of dimedone, substituted aryl aldehyde, malanonotrile in equimolar quantities and excess of ammonium acetate up on heating yielded hexa hydro quinoline-3-carbonitriles (R1-10).Which when treated with benzoyl chloride to furnish the final compounds (BZ 1-10).The synthesized compounds were docked with the target DNA gyrase (PBD ID: 4B6C) using Schrodinger maestro software. All the compounds were characterized based on spectral and elemental analysis data. Anti-tubercular activity was performed by using H37 RV strain by using micro plate alamar blue assay method. The teratogenicity assay for the final compounds was performed in zebra fish larvae and the results were obtained.
Results and discussion	:	All the synthesized compounds showed the characteristic peaks in FTIR ^{1}H, $C^{13}NMR$, and mass spectral analysis. The docking results of synthesized derivatives indicated the best docking score of -5.105 and -5.02 for BZ9 and BZ4 respectively. In anti-tubercular evaluation two compounds BZ9 and BZ4 exhibited significant activity at 12.5µg/ml and 25µg/ml concentrations respectively. Thus the MIC values may be in between range of 12.5 and 6.25 µg/ml concentrations. In the teratogenicity assay BZ4, BZ6, and BZ8 compounds were found to be safer at 0.5 µM concentration without any abnormalities.
Conclusion	:	The synthesized compounds would represent a fruitful matrix for the development of potent anti-tubercular agents. The synthesized quinoline derivatives would deserve further investigation and derivatisation involving the molecular modifications and further work on this moiety may be quite rewarding.

Abstract Code: PC124

Title	:	**A molecular docking approach to study binding modes/ interactions of remdesivir with SARS-CoV-2 main protease 3CL^{pro}**
Author(s)	:	Nikhil D. Amnerkar[1], Nitin B. Charbe[2], Saurabh C. Khadse[3]
Affiliation	:	[1]*Adv. V. R. Manohar Institute of Diploma in Pharmacy (Govt.-Aided), Wanadongri, Nagpur 441110, Maharashtra, India.* [2]*Rangel College of Pharmacy, Texas A&M University, Kingsville, TX, 78363, USA.* [3]*R.C. Patel Institute of Pharmaceutical Education and Research, Shirpur, Dhule 425 405, India* *Email: nikhilamnerkar@gmail.com*
Introduction	:	No specific antiviral drug has been proven effective to treat the deadly coronavirus disease 2019 (COVID-19) caused by Severe acute respiratory syndrome coronavirus (SARS-CoV-2). Remdesivir has inhibitory effect on SARS-CoV-2 replication, reduces viral load and exerts protective effect *in vitro* in animal models.
Objectives	:	In this context, an *in-silico* molecular docking study of remdesivir on coronavirus 3C-like protease (3CL^{pro}; *PDB id:* 4YOG) was performed to understand the key binding interactions.
Materials & Method	:	The co-crystal structure of 3CL^{pro} (*PDB id:* 4YOG) was downloaded from RSCB protein data bank and docking was performed using Schrodinger software.
Results and discussion	:	The docking results revealed the dock score of -6.963 and binding free energy of -53.744. The 3D binding poses showed that amino acid GLU169 is in two H-bond interactions with secondary amino -NH and phosphoryl oxygen P=O at a distance of 2.30 and 1.95, respectively, and PHE143 with primary amino -NH of pyrrolo-triazin residue at a distance of 2.05. Additionally, Phenyl ring and HIE41 were observed in π-π stacking contributing to hydrophobic interactions.
Conclusion	:	The study displayed better dock score and binding free energy with 3CL^{pro}. The 3D-poses helped to understand the key interactions for designing new entities to treat SARS-CoV-2.

Abstract Code: PC125

Title	:	**Optimized extraction of oleoresin capsicum and analytical method validation for capsaicin using HPLC**
Author(s)	:	Ashish Jain, Shubham Sharma, Subh Naman, Ashish Baldi
Affiliation	:	*Department of Pharmaceutical Sciences and Technology, Maharaja Ranjit Singh Punjab Technical University, Bathinda, Punjab, India.* *Email: Jainashish1239@gmail.com*
Introduction	:	Oleoresin capsicum is the main active constituent present in capsicum, it is responsible for their pungency and color.
Objectives	:	The extraction process of oleoresin from capsicum by using reflux method was to be optimized using in terms of their percentage yield. Further ICH complicent analytical method for quantitative analysis of caipsaicin using HPLC was developed and validated in present study.
Materials & Method	:	A simple, rapid and stable HPLC method of capsaicin was developed using C-18 column, 250x4.5 (mm), particle size 5 µM and validated using various parameters viz., linearity, accuracy, precision and LOD and LOQ using methanol and HPLC grade water (65:35v/v) as mobile phase. The elution was performed at 280 nm with run time of 10 min and flow rate of 1 mL/min.
Results and discussion	:	The optimized conditions for oleoresin extraction were found to be 40°C (temperature), 5 h (time) and acetone as a solvent with highest percentage yield of (3.7% w/w). Furthermore, the developed HPLC method showed linear response range of 1-9 µg/mL with standard regression equation (y=4614.9x+5344.19) and R2 value 0.9974. An inter and intraday precision with relative standard deviations of capsaicin <1%, while the LOD and LOQ 1.04 to 3.03 µg/mL respectively. The oleoresin capsicum extract was analysed for the content of capsaicin using HPLC showing the same retention time with highly pungency value. The percentage of capsaicin in the extract was 7.30%.
Conclusion	:	The developed extraction and analytical method for capsaicin and oleoresin capsicum was accurate, precise, and stable and may be useful for routine analysis of capsaicin content in capsicum.

Abstract Code: PC126

Title	:	**New FTIR method for quantitative analysis of silodosin in bulk and pharmaceutical dosage forms**
Author(s)	:	B. Guru Sai Supriya, N. Raghavendra Babu, G. Keerthi, Y. Padmavathi
Affiliation	:	*Department of Pharmaceutical Analysis, G. Pulla Reddy College of Pharmacy (Affiliated to Osmania University), Hyderabad, Telangana, India.* *Email: gurusaisupriya@gmail.com*
Introduction	:	Sildosin is an alpha blocker, it relives the symptoms of BPH by relaxing the muscles of the bladder and prostrate. Blockade of these receptors causes smooth muscle relaxation, lowers intraurethral pressure, and results in improved urine flow and a reduction in the symptoms of BPH, such as difficulty with urinating, painful urination, urinary frequency and incomplete bladder emptying. FTIR is a rapid technique and is cost effective in terms of solvent consumption and use of hazardous organic chemicals. IR spectroscopy usually used for qualitative analysis but now a days IR is used for quantitative analysis. The method of preparation involves solid sampling method i.e. pellet technique.
Objectives	:	To develop a new, sensitive FTIR method for quantitative estimation of Silodosin in bulk and pharmaceutical dosage form.To validate the developed method according to ICH guidelines. Application of the method for analysis of marketed formulation.
Materials & Method	:	FTIR spectroscopic method was developed using Fourier transform infrared spectrophotometer. IR spectra of Silodosin was taken in absorbance mode for quantitative analysis. For quantitative estimation, the concentrations of sample by pressed pellet technique were prepared with the aid of geometric mixing. The pellets of sample concentration were prepared and were analyzed by using sample cells in FTIR. The developed method was validated according to ICH Q2 (R1) guidelines.
Results and discussion	:	The method was validated according to ICH guidelines. The method fulfilled most validation requirements in the 40-200 µg/mg range, with a 0.998 coefficient of determination obtained by simple calibration model. The mean recovery for the proposed assay method resulted within the 80-120% range of the target concentration.
Conclusion	:	FTIR methods while being simple, economical and less time consuming than other available methods and can be used for estimation of sildosin in different dosage forms.

Abstract Code: PC128

Title	:	**Synthesis, characterization and *in-silico* studies of series of 3-(3-acetyl-2-oxoquinolin-1-(2*H*)-yl)-2-(substitutedphenyl)-thiazolidin-4-one derivatives as anticancer agents.**
Author(s)	:	Soniya V. Phadte, Shivlingrao N. Mamle Desai, Sailee Govekar
Affiliation	:	*Department of Pharmaceutical Chemistry, P.E.S's Rajaram and Tarabai Bandekar College of Pharmacy, Farmagudi, Ponda, Goa, India.* *Email id: snya.nk@gmail.com*
Introduction	:	Cancer is considered a second leading cause of death globally, among which lung cancer is the principal cause of malignancy related incidence and mortality, with the estimate of 2.09 million new cases and 1.76 million death worldwide. The chemotherapeutic drugs available are having high toxicity and reported side effects; hence synthesis of novel drugs in the treatment of lung cancer is necessary.
Objectives	:	Synthesis of 3-(3-acetyl-2-oxoquinolin-1-(*2H*)-yl-2-(substitutedphenyl)-thiazolidin-4-one (Va-j) derivatives, *in-silico* studies and carrying *in-vitro* anticancer activity against A-549 (lung cancer) cell lines.
Materials & Method	:	The compounds were synthesized by undergoing nucleophilic reaction with hydrazine hydrate, further converted to enamines by reacting with substituted benzaldehyde and finally cyclized with 2-mercaptoacetic acid to obtain final compounds. The *in-vitro* anticancer activity was carried out by MTT assay method.
Results and discussion	:	Among the tested derivatives the compound (Vh) showed highest potency against *A549* cell line having MolDock score of (-114.658) with IC_{50} value of 100µg/ml respectively and was found to be more potent than standard drug imatinib (150µg/ml) having Moldock score of -110.917.
Conclusion	:	The synthesized compounds exhibited well- conserved hydrogen bonding with one or more amino acid residues in the active pocket of EGFRK tyrosine kinase domain (PDB ID: 1m17).

Abstract Code: PC129

Title	:	**Antifungal activity of various solvent extracts of *Costus speciosus (J. Koenig) Sm. and Costus pictus D. Don*; preliminary screening studies**
Author(s)	:	Sana Saffiruddin Shaikh, Abubakar Salam Bawazir, Aateka Yahya Barrawaz
Affiliation	:	*Dr. Rafiq Zakaria Campus Y.B Chavan College of Pharmacy, Department of Quality Assurance, Maulana Azad Educational Society, Rauza Baugh, Aurangabad (MS) India.* Email: sana.shaikh310194@gmail.com
Introduction	:	Oral candidiasis is a common opportunistic infection caused by overgrowth of Candida species. Traditional plants demonstrate to have a good potential for clinical applications in the treatment of oral candidiasis and are a valuable source of novel antifungals.
Objectives	:	To assess *in vitro* antifungal activity of various solvent extracts of *Costus speciosus* (J. Koenig) Sm. and *Costus pictus* D. Don. The zone of inhibition was determined for each solvent extract in the setting of human pathogenic fungal isolates.
Materials & Method	:	Various solvent extracts such as hexane, methanol, aqueous and ethyl acetate of both the plants were investigated for antifungal activity. The fungal strains employed were *Candida albicans, Candida glabrata, Candida parapsilosis, Candida tropicalis, Candida krusei*. Clotrimazole was used as positive control. The susceptibility of the fungal strains against the extracts was determined by using Agar well diffusion method. Results were recorded after 48 and 72 h.
Results and discussion	:	Of the various extracts analyzed the hexane extract demonstrated strong antifungal potential overall. Methanolic extract had some degree of activity against *Candida glabrata* and *Candida parapsilosis*. The aqueous extract exhibited no antifungal activity against the fungal strains.
Conclusion	:	*Costus speciosus* (J. Koenig) Sm. and *Costus pictus* D. Don demonstrate promising antifungal potential.

Abstract Code: PC130

Title	:	**Exploiting conformational sampling of SARS-Cov-2 prefusion spike protein to identify potential hits**
Author(s)	:	Komal S. Pol, Prajakta M. Phage, Rajesh B. Patil
Affiliation	:	*Sinhgad Technical Education Society's, Smt. Kashibai Navale College of Pharmacy, Pune-Saswad Road, Kondhwa (Bk), Pune, Maharashtra, India.* *Email: komalpol191996@gmail.com*
Introduction	:	Entire world is facing COVID-19 pandemic situation. Spike protein is the main armour SARS-Cov-2 virus uses to enter host cell. Thus, there is an urgent need of potential agents which can make the spike protein ineffective.
Objectives	:	To exploit the meta-dynamic trajectories of experimentally solved crystal structure of prefusion spike protein and perform the ensemble docking based virtual screening of different databases.
Materials & Method	:	The 10 µs meta-dynamic trajectory of prefusion SARS-Cov-2 spike protein was used and the conformations deviating more than 30 Å were clustered. The binding site was defined with earlier reports. On each aligned conformation the standard drug Remdesivir was docked with Autodock vina. The protein-remdesivir complexes were utilized to perform ensemble docking based virtual screening with MDock program. Different databases (Asinex, TCM, InterBioScreen and Drugbank) were screened.
Results and discussion	:	On the conformation 1 remdesivir has the best binding score of -53.859. After ensemble docking based virtual screening we identified to 10 hits from InterBioScreen having binding score in the range -55.31 to -66.01. Most of the top hits showed crucial non-bonded interactions at the binding site of spike RBD.
Conclusion	:	Ensemble docking on prefusion spike protein of SARS-Cov-2 identified top 10 hits.

Abstract Code: PC131

Title	:	**Simultaneous determination of melatonin impurities by an HPLC method coupled with diode array detection**
Author(s)	:	Shubhangi B. Sutar[1], Veerendra C. Yeligar[2], Sachinkumar V. Patil[1]
Affiliation	:	[1.]*Department of Pharmaceutical Quality Assurance, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, India.* [2]*KCTs Krishna College of Pharmacy, Karad. Maharashtra, India.* *E-mail: shubhangi.sutar28@gmail.com*
Introduction	:	Several regulatory officials like ICH, Canadian Drug, USFDA as well as Health organization are emphasize on the purity desires and the recognition of impurities into active pharmaceutical ingredient's (API's).
Objectives	:	In the present research work RP-HPLC method coupled with diode array detection for separation and quantitation of Impurity-I (2-(5-methoxy-*1H*-indol-3-yl) ethanamine), Impurity-II (3-(2-Aminoethyl)-*1H*-indol-5-ol) along with melatonin was developed.
Materials & Method	:	Mobile phase containing 10 mM/L Sodium dihydrogen phosphate: Acetonitrile (75:25 v/v) was found to give good resolution, effectively separating melatonin and its impurities. The optimal wavelength selected for detection was 222 nm.
Results and discussion	:	Calibration curve for melatonin was found to be linear in the concentration range 2.5 to 7.5 µg/ml. Calibration curve for impurity-I was found to be linear in concentration range 2.5 to 7.5 µg/ml and impurity –II was found to be linear in concentration range of 1.8 µg/ ml to 5.4µg/ ml. The percentage recovery estimated of melatonin, Impurity-I, Impurity-II was found to be within 98.20 to 99.91, 97.42 to 104.04, 98.35 to 100.06, respectively with R.S.D.
Conclusion	:	The method manifests a good performance with respect to accuracy, linearity, specificity, precision as well as robustness and offers a precise and simple approach for the determination of melatonin in the presence impurities.

Abstract Code: PC 132

Title	:	**Ensemble docking based receptor dependent 3D-QSAR models on PIM-1 Kinase inhibitors and virtual screening to identify promising hits**
Author(s)	:	Pavan U. Anarase, Swapnali Bhadke, Rajesh B. Patil
Affiliation	:	*Sinhgad Technical Education Society's, Smt. Kashibai Navale College of Pharmacy, Pune-Saswad Road, Kondhwa (Bk), Pune, Maharashtra, India.* *Email: pawananarase17@gmail.com*
Introduction	:	A serine/threonine kinase, PIM-1, plays an important role in cell proliferation, cell differentiation, and apoptosis. It's exacerbating functioning leads to different cancers. There is unmet need of PIM-1 kinase specific inhibitors.
Objectives	:	The receptor dependent 3D-QSAR models using multiple conformations of crystal structures of PIM-1 kinase were built. The activity of compounds filtered from e-Molecule database was predicted and potential hits were proposed.
Materials & Method	:	Autodock vina, chimera and open-3D-QSAR programs were used for docking, aligning and building 3D-QSAR models. RDKit module was used to filter the e-Molecule database.
Results and discussion	:	The reported indole derivatives (59) as PIM-1 kinase inhibitors were docked on two crystal structures. Best docked poses of each ligand were aligned with most active inhibitor. The receptor dependent 3D-QSAR model was built (r^2=0.93, q^2=0.58). e-Molecule database was filtered on defined criteria and 437 ligands were further selected. These compounds were subjected to docking, alignment and activity against PIM-1 was predicted using built 3D-QSAR model. Amongst the top 10 hits, EMOL032693326 is proposed as most active. Top 5 hits were subjected to 25 ns MD simulations and their results will be presented.
Conclusion	:	The ensemble docking based 3D-QSAR models on PIM-1 inhibitors identified potential inhibitors.

Abstract Code: PC133

Title	:	**Synthesis and characterization of some aldehyde-amino acid ester conjugates**
Author(s)	:	Ankita D. Borse, Nirmala V. Shinde
Affiliation	:	*Post Graduate Department of Pharmaceutical Chemistry, S.M.B.T. College of Pharmacy, Dhamangaon, Igatpuri, Nashik, Maharashtra, India.* *Email:ankitaborse97@gmail.com*
Introduction	:	Amino acid esters are employed as intermediates in organic synthesis and find application in a wide range of areas as medicinal and polymer chemistry and peptide and asymmetric synthesis, with various biological activities like antimicrobial, anticancer, antimalarial, antiviral, anthelmintic, immunomodulatory, etc.
Objectives	:	To synthesize some different aldehyde-amino acid ester conjugates. To characterize and carry out anthelmintic activity of synthesized compounds.
Materials & Method	:	The method of condensing amino acid esters with different aldehydes at RT, ethanol is used as solvent at 75°C for 2h and no other catalyst is added. This synthesis confirms that a free amino-group is essential for condensation under conditions. Anthelmintic activity was performed by using albendazole as standard against *Pheretima posthuma* earthworms.
Results and discussion	:	Synthesized derivatives were characterized and evaluated for anthelmintic activity.
Conclusion	:	The synthesis were productively done and synthesized aldehydes-amino acid ester conjugates were screened for anthelmintic activity and 1a and 1b derivatives showed strong activity.

Abstract Code: PC135

Title	:	**Fast identification of possible potential inhibitors of SARS-CoV-2 main protease (3CLpro) through computational drug repurposing study**
Author(s)	:	Sanket C. Kore
Affiliation	:	*School of Pharmacy, Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra, India.* *Email: cksanket@gmail.com*
Introduction	:	In covid-19 pandemic, an urgent development of antiviral drug to inhibit rapid spread of covid-19. Drug repurposing approach can significantly reduce the cost, time, and safety risks as compared to new drug development .The present drug repurposing study is carried out to find out possible inhibitor drugs, either currently on the market or in clinical trials, to stop the infection immediately.
Materials & Method	:	In this docking study, the main protease (3CLpro) of SARS-CoV-2 (PDB ID: 6lu7)is targeted using different anti-rhumatoid drugs. The study was conducted by molecular docking using the Autodock tool.
Results and discussion	:	The result of docking suggest that effectiveness of leflunoamide, tofacitinib methotrexate and sulfasalazine as potent as remdesivir against SARS-CoV-2 since they tightly bind to main protease (3CLpro) responsible for the replication of corona viruses. The docking results indicate that amongst the reported molecules, methotrexate, sulfasalazine, leflunoamide showed promising features of binding to COVID-19 enzyme.
Conclusion	:	The results of molecular docking revealed that sulfasalazine, leflunoamide, tofacitinib exhibits equal binding affinity with respect to remdesivir (antiviral) invasion potential against COVID-19.The drugs mentioned above can tightly bind to the main protease (3CLpro) of the SARS-CoV-2 strain and thus may be used to treat the disease. No toxicity measurements are required for these drugs since they were previously tested prior to their approval by the FDA.

Abstract Code: PC138

Title	:	***In-silico* studies of anti-arthritis drug against COVID-19 by Re-purposing method**
Author(s)	:	Shailesh J. Wadher, Sanket C. Kore
Affiliation	:	*School of Pharmacy, Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra, India.* *Email: sjwadher@gmail.com*
Introduction	:	The ongoing pandemic necessitated an urgent development of drugs for the treatment of COVID-19 patients. As compared to the development of new drugs, the drug repurposing can significantly reduce the overall cost, time and safety risks. Therefore, in the present work drug repurposing study was carried out to find out possible drug among the drugs that are currently marketed or in clinical trials, to treat the COVID-19 infections.
Introduction		The objectives of the present work were to analyse the effectiveness of available anti-arthritis drugs against the COVID-19.
Materials & Method	:	The study was conducted on anti-arthritis drug by standard molecular docking protocol using the Autodock tool. The selected protein targets were PD-ACE2 (PDB ID: 6VW1) and SARS-CoV-2 protease (PDB ID: 6LU7) and RdRp.
Results and discussion	:	Anti-arthritis drug exhibited lowest energy binding with docking score of -6.87 and -8.09 to the respected receptor of SARS-CoV-2 protease (6LU7) and PD-ACE2 (6VW1) and RdRp. since they tightly bind to its RdRp. This Docking energy suggest that this anti-arthritis performs better interaction to the RNA dependent RNA polymerase (RdRp) compared to remdesivir.
Conclusion	:	The results of molecular docking revealed that anti-arthritis drug under study exhibits better binding and invasion potential against COVID-19 than remdesivir. No toxicity measurements are required for this drug since they were previously tested prior to their approval by the FDA.

Abstract Code: PC139

Title	:	**Effect of *Piper betle L.* leaves extract on mast cell degranulation in mice and passive cutaneous anaphylaxis in rat**
Author(s)	:	Ramdas N. Kale, Ravindra Y. Patil
Affiliation	:	*SVPMS College of Pharmacy, Malegaon (Bk), Tal. Baramati, Dist. Pune. India.* *Email: ramdas.kalesvpm@gmail.com*
Introduction	:	*Piper betle Linn.* is a perennial dioecious climber. It is an important medicinal and recreational plant. Its leaves are nutritive and possess antibacterial, antioxidant, gastroprotective, neuroprotective, antifilarial, antimalarial and analgesic activity.
Objectives	:	To study the effect of *Piper betle L.* leaves extract on mast cell degranulation in mice and passive cutaneous anaphylaxis in rat.
Materials & Method	:	Methanolic extract of *Piper betle L.* leaves was prepared using soxhlet apparatus. Preliminary phytochemical screening of the prepared extract was carried out using standard chemical tests. Effect of prepared extract was evaluated against mast cell degranulation in mice and passive cutaneous anaphylaxis in rat.
Results and discussion	:	Maximum degranulation 77.6±2.804 of mast cell was observed in control group. However, the treatment with standard drug sodium chromoglycate showed significant ($P<0.001$) inhibition 24.8±2.267 of mast cell degranulation when compared with control group. Intraperitoneal treatment with extract at doses of 250 and 500mg/kg, body weight, showed significant ($P<0.001$) inhibition 46.4±3.311 and 31.4±2.943 respectively, of mast cell degranulation when compared with control group. In Passive cutaneous anaphylaxis model, control group showed maximum area 46.80±2.437 mm^2 of blue dye leakage. The significant ($P<0.001$) inhibition of area 29.60 ± 2.24, 13.60 ± 2.70 of Evans blue dye leakage were observed in groups of rats treated with extract at doses of 250 and 500 mg/kg, body weight, respectively, when compared to control group.
Conclusion	:	Results suggest that *Piper betle* leaves extract may have the potential therapeutic value in the treatment of allergic diseases.

Abstract Code: PC140

Title : **Development of antimicrobial copper nanoparticles via green chemistry approach**

Author(s) : Nita Sonawale, Prafulla Choudhari, Harinath More

Affiliation : *Department of Pharmaceutical Chemistry, Bharati Vidyapeeth College of Pharmacy, Kolhapur, Maharashtra, India.*
Email: nita26sonawale@gmail.com

Introduction : Green chemistry has attracted numerous attentions recent decade due to its ability to process chemical reactions via ecofriendly directions. Nanoparticles are the particles which are having partial size in the range of 1-100nm. Nanoparticles are one of most utilized chemicals due to their widespread range of applications. Metallic nanoparticles are upcoming medicinal compounds which are commonly utilized as anticancer, antidiabetic, antimicrobial agents. Despite their wide applications the main handle in use of the metallic nanoparticles is the synthesis of the metallic nanoparticles. Green chemistry is an attractive approach for development of the metallic nanoparticles in which plants extracts are utilized to develop the metallic nanoparticles so that the development undesirable by products which are associated with the chemical methods can be eliminated.

Objectives : This study was developed with an aim to develop copper nanoparticles using *Fagonia Arabica* leaf extract and evaluate their anti-microbial activity.

Materials & Method : Aqueous extract of F. Arabica leaves was utilized for the green synthesis of CuNPs. The synthesized NPs were characterized using UV-VIS spectroscopy, XRD, SEM, EDAX. The antimicrobial evaluation of CuNPs was carried out using diffusion plate method on cultures of *B. subtilis*, *P. aeruginosa* and *S. aureus*.

Results and discussion : The spectroscopic analysis of CuNPs showed sharp peak at 381 nm in UV which corresponds to the production of copper NPs. SEM analysis showed spherical shaped CuNPs with size range of 32 nm. EDAX showed presence of elements like C, S, O and Cu which indicated development of the CuNPs. Antimicrobial study reveals that green synthesized copper nanoparticles had shown antibacterial activity against all three microbial cultures.

Conclusion : Current study concludes that green chemistry can be an attractive technique for development of CuNPs as potent antimicrobial agents. More advantageous over use of micro-organisms by less elaborate process of maintaining cultures and does not induces toxic nanoparticles.

Abstract Code: PC142

Title	:	**Isolation, characterization and hepatoprotective activity of fungal endophytic fractions of *phyllanthus amarus* leaves in paracetamol and ethanol induced hepatotoxicity**
Author(s)	:	Smita K. Puri,[1] Prasanna V. Habbu,[1] Preeti V. Kulkarni,[2] Venkatrao H. Kulkarni[2]
Affiliation	:	*[1]PG Department of Pharmacognosy and Phytochemistry, SET's College of Pharmacy, S R Nagar, Dharwad, Karnataka, India,* *[2]PG Department of Pharmacology, SET's College of Pharmacy, S R Nagar, Dharwad, Karnataka, India* *Email: smitamadagundi@gmail.com*
Introduction	:	Microorganisms residing interior of the plant tissues shows symbiotic relationship, called as endophytes. They also produce same or novel secondary metabolites in plants. Because endophytes are relatively unstudied, much attention is now being paid to their biodiversity, chemistry and bioactivity.
Objectives	:	In our study, an attempt was made to isolate, characterize endophytic fungi, from leaves of *Phyllanthus amarus* followed by hepatoprotective activity in paracetamol and ethanol induced models.
Materials & Method	:	Leaves of *Phyllanthus amarus* were used for isolation by using Potato Dextrose Agar (PDA), incubated at 25°C-27°C for 7–14 days. Further the isolated fungus was characterized by PCR sequential analysis followed by fermentation by potato-dextrose broth (PDB) at 25°C-27°C for 21 days. Fractionation was carried then out using ethyl acetate and n butanol so obtain ethyl acetate (P1EA) and n-butanol (P1nB) fractions. P1EA and P1nB were evaluated for hepatoprotective activity against paracetamol and ethanol induced hepatotoxicity.
Results and discussion	:	PALF-1 was identified as *Aspergillus niger* strain A6. Paracetamol and ethanol significantly elevated the biochemical parameters as compared to normal control. A marked increase in LPO level, decrease in the SOD and CAT were also seen. Administration of P1EA and P1nB at doses of 50mg/kg and 100mg/kg reversed the increased levels biochemical parameters in a dose-dependent manner.
Conclusion	:	It can be concluded that, *Phyllanthus amarus* could lead to the isolation and identification of endophytes that can produce hepatoprotective metabolites. Nevertheless, the study of endophytic fungi as a renewable source should be explored in future research.

Abstract Code: PC144

Title : **_In-vitro_ and _in-silico_ correlation studies of natural AChE inhibitor: an approach towards Alzheimer's disease**

Author(s) : Vasudev Pai, Chandrashekar. K S, M. Manjunath Setty

Affiliation : *Department of Pharmacognosy, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal -576104, Karnataka, India.*
Email: pai.vasudev@manipal.edu

Introduction : Alzheimer's disease (AD) is one among the damaging neurodegenerative disorder portrayed by deterioration of cognizance. AChE is involved in termination of impulse transmission by hydrolysis of acetylcholine. The inactivation of AChE by various inhibitory drugs increases the accumulation of neurotransmitter in the cortex of brain and normalizes the disrupted neurotransmission. Ayurveda is one among the oldest system of medicine uses variety of crude drugs for memory related disorders. Ashwagandha and brahmi is widely used in Ayurveda for various ailments.

Objectives : In the present study an attempt has been made to understand the effect of hydroalcoholic extracts of *Withania somnifera* and *Centella asiatica*, and their markers like Withanolide-A and Asiaticoside on AChE inhibition by *in-vitro* and *in-silico* screening model.

Materials & Method : *Withania somnifera* and *Centella asiatica* were purchased from local market and authenticated by taxonomist. The shade dried raw materials were extracted with hydroalcohol (80:20) by reflux condenser, concentrated using vacuum evaporator and lyophilized to powdery mass. The extracts and markers like Withanolide-A and Asiaticoside are subjected for *in-vitro* screening by using Amplex Acetylcholinesterase Assay Kit and the IC50 value is compared with standard rivastigmin. *In-silico* molecular docking studies of markers were carried out on Schrodinger molecular modelling suite using Maestro interface. The docking scores are compared with standard donepezil.

Results and discussion : The cause of AD is due to atrophy of the brain cortex and is associated with disruption of cholinergic system in the brain cortex. An attempt has been made to screen extracts and markers for *in-vitro* AChE inhibition and IC50 value was determined. *Withania somnifera* extract shows 52.91µg, *Centella asiatica* extract shows 116.03 µg, Withanolide-A shows 59.40 µg and Asiaticoside shows 84.18 µg, where as standard drug Rivastigmin shows 10.32 µM. As per IC50 values Ashwagandha and Brahmi has significant AChE inhibition as compared to standard drug. Attempt was also made to study *in-silico* molecular docking studies on most important markers present in the extracts for AChE inhibition using Schrodinger molecular docking software and docking scores are compared with standard donepezil. Withanolide-A and Asiatic acid shows -10.408 and -4.988 respectively where as standard donepezil shows -12.947.

Conclusion : The Alzheimer's pathology is very complex and believed to contain deficit in cholinergic system that directly contribute to the disease progression. The current study was undertaken to understand the effect of traditional herbal drugs Ashwagandha and Brahmi. *In-vitro* and *in-silico* studies of extracts and its marker compounds suggests that both the drugs have significant AChE inhibition and can be used to control the symptoms of Alzheimer's disease.

Abstract Code: PC145

Title : **Cardioprotective activities of *Syzygium campanulatum* leaf extracts against isoproterenol induced myocardial damage in wistar albino rats**

Author(s) : Nadira N.[1], Thriveni M.[2], Chakraborty M.[3]

Affiliation : [1]*Pharmacology Department, Yenepoya Pharmacy College and Research Centre, Mangalore, 575018, India.*
[2]*Pharmaceutics Department, Yenepoya Pharmacy College and Research Centre, Mangalore, 575018, India.*
[3]*Pharmacology Department, Himalayan Pharmacy Institute, Sikkim, 737136, India.*
Email id: nadiranoushida@gmail.com

Introduction : Myocardial infarction (MI) is a common medical emergency associated with substantial morbidity and mortality. *Syzygium campanulatum Korth* is an evergreen shrub from the family Myrtaceae. Leaves are known for hepatoprotective, antiangiogenesis and anticancer properties.

Objectives : The present study was carried out evaluate the cardioprotectve activity of ethanolic extract of *S. Companulatum* in wistar albino rats against isoproterenol induced myocardial injury.

Materials & Method : *S. Companulatum* (250 mg/kg and 500 mg/kg, p.o) was administered for 28 days in rats. MI was induced with ISO for 2 consecutive days (85 mg/ kg, s.c.) on the 29th and 30th day. At the end of the experimental period (i.e., on the day 31), serum and heart tissues were collected and alanine transaminase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), creatinine kinase(CK-MB), lactate dehydrogenate (LDH) and malondialdehyde, superoxide dismutase (SOD), catalase (CAT), reduced glutathione (GSH) were determined.

Results and discussion : Administration of ISO in control rats showed a significant increase serum enzymes ALT, AST, ALP, LDH and CK-MB as compare to normal control. Rats treated with *S. Companulatum* significantly decreased ALT, AST, ALP, CK-MB and CK-NAC. Moreover acute toxicity effect was exhibited by disturbance in the antioxidant system as decrease in activities of superoxide dismutase (SOD) and glutathione (GSH), catalase with the rise in activities of malondialdehyde (MDA) rat treated ISO compared with the control group.

Conclusion : *S. Companulatum* (250 and 500 mg/kg p.o.) is effective in controlling serum enzyme levels and reduced cardiac complication in experimentally induced MI in rats.

Abstract Code: PC146

Title	:	**Design, synthesis, characterization and anti-tubercular activities of some 1,2,4-Triazole**
Author(s)	:	Sybil Eufrezine Maria Godinho, Suresh S. Honnalli
Affiliation	:	*Department of Pharmaceutical Chemistry, KLE University's College of Pharmacy Hubli, Karnataka, India.* *Email: sybilgodinho12@gmail.com*
Introduction	:	As we all know tuberculosis is one of the world's leading diseases which have not found a total cure but the bacteria which causes it has undergone multi-drug resistant making it even more difficult to treat it nowadays. Schiff base which is known to have different biological activities also shows anti-tubercular activity similarly heterocyclic compounds such as triazole have also shown activity against tuberculosis. Since there are many drug researches done on this diseases of which few have reached clinical trials. There is a need for more development in this area.
Objectives	:	To synthesize new series of Schiff base containing 1,2,4-triazole using different aromatic aldehyde and discovering its activity against tuberculosis
Materials & Method	:	Data for synthesis was collected by literature survey and laboratory experiments. All the chemicals for synthesis were procured from the laboratory. Structural characterization was carried out by IR, NMR and mass spectroscopy.
Results and discussion	:	The yield of all synthesized 1,2,4- triazoles were in the range of 75-80%. Few compound were screened for IR. The biological activity of the synthesized compound is yet to be tested.

Pharmaceutical Technology

Abstract Code: PT202

Title	:	**Formulation, optimization and characterization of solid lipid nanoparticles of nitrofurantoin**
Author(s)	:	Nilamgiri D. Goswami, Rakesh P. Patel
Affiliation	:	*Department of Pharmaceutics & Pharmaceutical Technology, S. K. Patel College of Pharmaceutical Education and Research, Ganpat University, Kherva - 384012, Mehsana, Gujarat, India.* *Email: nilamgoswami@gmail.com*
Introduction	:	Nitrofurantoin is effective against many urinary tract pathogens. It acts as bacteriostatic and/or bactericidal by inhibiting DNA-RNA protein and cell wall synthesis. Solid lipid nanoparticles (SLNs) have shown great promise for improving bioavailability of poorly water-soluble drugs.
Objectives	:	The research work shall emphasize on the development of SLNs of nitrofurantoin by hot homogenization process for improvement in bioavailability.
Materials & Method	:	Glyceryl monostearate and glyceryl behenate were heated at 80ºC temperature on hot plate. In the melted lipid, drug was added with continuous stirring at high speed homogenization.
Results and discussion	:	Formulation SLN12C has % entrapment efficiency of 84.3 ±1.7, PDI 0.13 ±0.01 and mean particle size 189 ±07nm represents narrow particle size distribution. Spherical feature of SLN with better uniformity without aggregation of nitrofurantoin loaded SLNs was confirmed by TEM. Moreover, efficient miscibility of drug in lipids was confirmed by the absence of intense and characteristic peak of NFT in XRPD. After 6 months storage at 2-8 °C there was no significant changes in the PDI as well as mean particle size.
Conclusion	:	The improvement in relative bioavailability and stability for NFT loaded SLN indicating suitability of nanoparticulate formulations for improving bioavailability.

Abstract Code: PT203

Title	:	**Evaluation of anti-angiogenesis and irritancy potential of bevacizumab nanoemulsion using hen's egg test-chorioallantoic membrane (HET-CAM) test method**
Author(s)	:	Soumya N., Gulzar M. A.
Affiliation	:	*Yenepoya Pharmacy College and Research Centre, Yenepoya (Deemed to be) University, Deralaklatte, Mangaluru, 575018, India.* *Email: kalikollur123@gmail.com*
Introduction	:	Angiogenesis have critical role in physiological and pathological condition in body. Ocular angiogenesis occurs in corneal choroidal and retinal region. Vascular endothelial growth factor (VEGF) was found main cause in ocular angiogenesis. The drug bevacizumab binds to VEGF and prevents the interaction of VEGF to its receptor and thereby inhibiting the formation of new blood vessels.
Objectives	:	The present investigation aimed to design nanoemulsion of bevacizumab and to evaluate the anti-angiogenesis and irritancy potential by using hen's egg test – chorioallantoic membrane (HET-CAM) test method.
Materials & Method	:	Bevacizumab nanoemulsion was prepared by using double emulsion solvent evaporation method. For HET-CAM assay fertilized fresh hen's eggs weighing between 50 and 60 g were selected. Irritancy study was assessed by vascular damage in membrane and anti-angiogenesis effect was assessed by observing reduced formation of new blood vessels.
Results and discussion	:	Fourier transform-infrared spectroscopy (FT-IR) for prepared formulation showed that there was no chemical interaction between the components. HET-CAM assay showed that prepared formulation was non-irritant and reduced ability of formation of new blood vessels in CAM model.
Conclusion	:	The present findings improved our understanding of the events leading to anti-angiogenic and non-irritancy potential of bevacizumab nanoemulsion. The present study indicated that it is possible to develop safe and physiologically effective nanoemulsion which is patient compliance.

Abstract Code: PT204

Title	:	**Silk fibroin-anastrozole nanoparticles: an effectual treatment for breast cancer**
Author(s)	:	Arfa Nasrine, Mohammed Gulzar Ahmed
Affiliation	:	*Department of Pharmaceutics, Yenepoya Pharmacy College and Research Centre, Yenepoya (Deemed to be University), Mangaluru-575018, Karnataka, India* *Email: arfanasrine@yenepoya.edu.in*
Introduction	:	Although several methods are being used for the prevention, cure and treatment of breast cancer, there are many drawbacks underlying. Nanotechnology has led to the development of nanoparticle-based drug delivery vehicles in the nanometer size range in order to overcome the side effects associated. Silk-based nanoparticles have been developed to deliver proteins, small molecules, and anticancer drugs. Its unique biocompatibility, and a controlled degradation rate that make it an excellent candidate for drug delivery applications.
Objectives	:	Current research attempts focused on the design and evaluation of drug delivery systems to provide sustained drug release by formulating anastrozole loaded silk fibroin nanoparticles (ANS-SF-NPs).
Materials & Method	:	The drug-loaded ethanolic solution dispersed in the aqueous SF solution for particular time followed by probe sonication.
Results and discussion	:	FT-IR studies confirmed the compatibility. Particle size analysis showed nanoparticles were in an acceptable size range. Desired stability, entrapment and sustained release of SF-ANS-NPS were observed.
Conclusion	:	ANS-SF-NPs have been successfully designed and are able to control the release rate of biomolecules in a sustained manner with high stability. Overall, applications of SF in drug delivery promise further opportunities for the future.

Abstract Code: PT206

Title	:	**A herbal approach to treat fungal infection caused in cervical cancer patient by developing a vaginal suppository**
Author(s)	:	Umme Hani,[1] Ali Alqahtani[2]
Affiliation	:	[1]*Department of Pharmaceutics, College of Pharmacy, King Khalid University, Asir-Abha, 61421, Saudi Arabia* [2]*Department of Pharmacology, College of Pharmacy, King Khalid University, Asir-Abha, 61421, Saudi Arabia.* *Email: ummehaniahmed@gmail.com*
Introduction	:	Cervical cancer is the most frequent cancer observed with a second most reason of mortality worldwide among women. In patient suffering from cancer fungal infection such as vaginal candidiasis caused by *Candida albicans* have developed to be a foremost cause of disease and mortality. Curcumin a natural antifungal agent obtained from the powdered turmeric rhizomes belonging to family Zingiberaceae very well-known antibacterial, anti-inflammatory, antifungal and anticancer agent.
Objectives	:	The present study aimed to develop curcumin suppositories as a promising approach for natural antifungal management of vaginal candidiasis to eradicate side effects that produced by current antifungal drugs in cervical cancer patients. The objective of study was to optimize the suppositories using optimal (custom) design employing Design-Expert 12 software to identify the proportions of PEGs and polaxamer 407 that would yield a fully formed suppository that would remain solid and stable at room temperature.
Materials & Method	:	Combinations of PEG 1500 (10–40%), PEG 6000 (40–60%) and polaxamer 407 (5–30%) are entered as factors and the responses evaluated are Suppository formation and deformation time. In addition, the prepared suppositories also evaluated for Visual examination, Weight variation, pH determination, drug content, hardness test, disintegration time, melting zone, deformation time, *in-vitro* drug release, antifungal activity and stability tests.
Results and discussion	:	The prepared suppositories were observed to be devoid of holes and cracks having characteristic odor with dark yellowish orange color. All formulation passed weight variation test. Formulations exhibited pH ranging from 5.5 to 6.5. Drug content was observed to be 98.65±0.041-99.85±0.041%. Hardness of the formulation was between 2.9 to 4.2 kg/cm2. 11±0.052 to 20±0.011min was range of disintegration time. Melting range was between 41± 0.31°C to 58± 0.62°C. Deformation time was ranging from 10±0.45 to 35±0.52min. Most of the formulations resulted in 90% of drug release at 40min. zone of inhibition results was 19.6±0.4mm. Optimized formulation was stable after stability studies.
Conclusion	:	The developed curcumin vaginal suppository formulation can be an efficient herbal treatment devoid of side effects to treat vaginal candidiasis in cervical cancer patient.

Abstract Code: PT208

Title	:	**Development of tinidazole loaded nanosponges for colonic delivery**
Author(s)	:	Pankaj S. Gajare[1,2], Vasantakumar K. Pai[2], Sidhavi S. Naik[1], Ajeet M. Godbole[1], Sandesh N. Somnache[1,2]
Affiliation	:	[1]*Department of Pharmaceutics, PES's Rajaram and Rarabai Bandekar College of Pharmacy, Farmagudi, Ponda 403401, Goa, India.* [2]*Department of PG studies and Research in Industrial Chemistry, KUVEMPU University, Shankargatta, Shivmogga, 57745, Karnataka, India.* *Email: pankajgajare@live.com*
Introduction	:	Tinidazole is a drug of choice in the treatment of colonic diseases.
Objectives	:	To develop tinidazole loaded nanosponges as colon targeted drug delivery system.
Materials & Method	:	The nanosponges of tinidazole were modified prepared by quasi-emulsion solvent diffusion method using polymers like ethyl cellulose and combination of ethyl cellulose and eudragit RS100. The prepared nanosponges were evaluated for entrapment efficiency, *in-vitro* drug release studies and characterised by SEM. The HPMC capsules loaded with prepared tinidazole nanosponges were coated with 1% w/v of eudragit S 100 and eudragit L100 so as to programme the drug release in colonic region.
Results and discussion	:	SEM studies showed that nanosponges were spherical in shape with pores on its surface. The formulation MS4 was found to be the best formulation based on good entrapment efficiency (72.35±0.026) and *in-vitro* drug release (92.12%) at end of 14 h and obeyed zero order drug release kinetics.

Abstract Code: PT210

Title	:	**Microwave assisted synthesis of *βeta*-cyclodextrin nanosponges for topical co-delivery of quercetin & curcumin**
Author(s)	:	G. Sai Keerthana, M. Mohan Varma, K. T. Sunil Kumar
Affiliation	:	*Shri Vishnu College of Pharmacy, Bhimavaram-534202, Andhra Pradesh, INDIA* *Email: keerthana.gelli@gmail.com*
Introduction	:	Inflammation is a protective response to localized injury, due to physical causes or autoimmune disease such as psoriasis. Curcumin and quercetin are a group of naturally occurring polyphenolic compounds exert potent inflammatory, anti-oxidant and anti-carcinogenic activity. Their usage is limited due to their poor solubility characteristics. Accordingly, the current study was designed to investigate the beneficial anti-inflammatory activity of both flavonoids as a combination by formulating as topical gel.
Objectives	:	The purpose of this study was to enhance the solubility, dissolution rate, topical permeability of poorly water-soluble drugs quercetin and curcumin by complexation with cyclodextrin-based nanosponges.
Materials & Method	:	Microwave synthesizer was used to mediate the poly-condensation reaction between β-cyclodextrin and crosslinker diphenyl carbonate with selected parameters such as polymer to cross-linker ratio, watt power, reaction time and solvent volume. Drug loading is done by solvent evaporation method and evaluated for in vitro studies, entrapment efficiency, percentage drug content and antioxidant activity. The prepared nanosponges are characterized by particle size analysis, FTIR, DSC, SEM, PXRD, & Raman spectroscopy. Nano sponges are dispersed in 1 % carbopol 934 hydrogel and the nanosponge loaded gel was evaluated for viscosity, pH, spread ability, diffusion studies and anti-inflammatory activity by carrageen induced paw oedema model in albino wistar rats.
Results and discussion	:	The SEM analysis of nanosponges showed that they were spherical in shape and spongy and particle size in the range of 312 ±10.4 nm. Entrapment efficiency was found to be 82.75%. Release studies showed 68.5 ± 72 % drug release at 6hrs.The results were found to be satisfactory.
Conclusion	:	The study showed that nano sponge-based gel formulation can be a possible alternative to conventional formulations of quercetin and curcumin with enhanced bioavailability and skin retention characteristics for topical application.

Abstract Code: PT211

Title	:	**Colonic delivery of sulfasalazine using co-processed excipient**
Author(s)	:	Sandesh N. Somnache[1,2], K. Vasantkumar Pai[2], Gaurang A. Prabhudesai[1], Ajeet M. Godbole[1], Pankaj S. Gajare[1,2]
Affiliation	:	*[1]Department of Pharmaceutics, PES's Rajaram and Rarabai Bandekar College of Pharmacy, Farmagudi, Ponda, Goa, India.* *[2]Department of PG studies and Research in Industrial Chemistry, KUVEMPU University, Shankargatta, Shivmogga, Karnataka, India.* *Email: sandeshsomnache@gmail.com*
Introduction	:	The sulfasalazine is a prodrug of 5 amino salicylic acid used in the treatment of ulcerative colitis. In alkaline pH, colonic bacteria can cleave the azo bond of sulfasalazine to release its active metabolite.
Objectives	:	In the present research work, an attempt was made to develop a sulfasalazine loaded colonic drug delivery system using a co-processed excipient.
Materials & Method	:	Eudragit S 100 coated mini tablets of sulfasalazine and eudragit E 100 coated buffer tablets were prepared by using newly developed co-processed excipient. The prepared tablets were then encapsulated in enteric coated hard gelatin capsule shell.
Results and discussion	:	The results of evaluation studies showed that the developed drug delivery system can resist the release of drug in the stomach and upper part of intestine but effectively delivers the drug to the colon.
Conclusion	:	The use of buffer tablets prepared by co-processed excipients ensure the immediate release of drug in colonic region even in conditions of decreased colonic pH below 5 due to the conditions such as IBD.

Abstract Code: PT212

Title	:	**Design and development of β-cyclodextrin nanosponges for solubility enhancement of abiraterone acetate**
Author(s)	:	Barrawaz Aateka Yahya[1], Abubakar S. Bawazir[1], Shaikh Sana S.[1], Shahajan S. Baig[2]
Affiliation	:	[1]*Dr. Rafiq Zakaria Campus, Y. B. Chavan College of Pharmacy, Aurangabad, Maharashtra, India.* [2]*Clinical Research and Development, IPCA Laboratories Ltd. Mumbai, Maharashtra, India.* *Email: barrawazqa@gmail.com*
Introduction	:	Abiraterone acetate (ABT) is a steroidal progesterone derivative which is an inhibitor of the enzymes CYP17A1, CYP11B1, and the androgen receptor antagonist. It's clinically used in adrenal, testicular and prostatic cancer. ABT has limited use due to poor water solubility and low oral bioavailability (<10%).
Objectives	:	The current study focused on the enhancement of water solubility of ABT using β–cyclodextrin nanosponges (CD-NS), a hyper cross-linked novel drug delivery system.
Materials & Method	:	Microwave-assisted design and optimization of CD-NS was carried out, using diphenylcarbonate (cross-linker). Polymer to cross-linker ratio, solvent volume, and reaction time were defined as critical parameters. FTIR, DSC, SEM, Zeta sizer, and PXRD were used for characterization. Drug entrapment and *in-vitro* dissolution studies were performed and samples were analyzed using RP-HPLC.
Results and discussion	:	Optimized CD-NS were porous para-crystalline particles with an average particle size of ~190 nm. High drug entrapment leads to enhancement of solubility by 17 folds and a 12 fold increase in drug dissolution profile.
Conclusion	:	The present approach offers the best way to increase the solubility of ABT by formulating a nano-size hyper cross-linked CD-NS which can tend to the improvement of ABT oral bioavailability.

Abstract Code: PT213

Title	:	**Development of miconazole loaded melt in mouth tablet for treatment of oral candidiasis**
Author(s)	:	Ajeet M. Godbole, Komal Gupta, Arti S. Pednekar, K. Vasanthakumar Pai, Sandesh N. Somnache, Pankaj S. Gajare
Affiliation	:	*Department of Pharmaceutics, PES's Rajaram and Tarabai Bandekar College of Pharmacy, Farmagudi Ponda, Goa, India.* *Email: amgodbole2004@gmail.com*
Introduction	:	Miconazole is a topical antifungal drug belongs to BCS Class II, used in the treatment of oral candidiasis.
Objectives	:	In the present research work, an attempt was made to improve solubility of miconazole by incorporating its solid dispersion as melt in mouth tablets.
Materials & Method	:	Solid dispersions of miconazole nitrate were prepared by solvent evaporation technique. The best formulation of solid dispersion was formulated as the Melt in mouth tablet by direct compression technique.
Results and discussion	:	The results of evaluation studies revealed that, the solid dispersion SD9 was found to be an ideal formulation as it showed marked improvement in solubility along with a good percent practical yield. From various batches prepared the solid dispersion formulation (SD 9) which was compressed as a tablet formulation (F9) showed more than 90 % of *in-vitro* drug release within 15 minutes.
Conclusion	:	Melt in mouth tablet formulation F9 containing solid dispersion of miconazole SD9, was adjudged as the best fit formulation.

Abstract Code: PT214

Title	:	**Formulation and development of novel oral phase transition system of metolazone**
Author(s)	:	Arti S. Pednekar, Ajit M.Godbole, Siddhi R. Manerikar
Affiliation	:	*Department of Pharmaceutics, PES's Rajaram and Tarabai Bandekar College of Pharmacy, Farmagudi Ponda, Goa, India.* *Email: pharma.arti@gmail.com*
Introduction	:	Metolazone a long-acting diuretic belonging to BCS class II used in the treatment of hypertension.
Objectives	:	To formulate and develop novel oral phase transition system of metolazone.
Materials & Method	:	In the present research work an attempt was made to enhance the solubility of metolazone, inclusion complexes which were prepared by kneading method. The best formulation was incorporated in the in-situ gel prepared by using various gelling agents like sodium alginate, pectin and gellan gum.
Results and discussion	:	The prepared inclusion complexes were characterized for percentage yield, solubility studies, *in-vitro* drug release studies. The best fit formulation (HD3) with 2-hydroxy propyl beta cyclodextrin having acceptable solubility was then incorporated into the in-situ gel formulation. The prepared formulation was characterized for various parameters like physical appearance, pH measurement, viscosity determination, drug content, *in-vitro* gelation studies, *in-vitro* floating studies, gel strength, swelling index, *in-vitro* drug release studies. The conducted studies revealed that the formulation F5 was found to be the ideal one with a pH 7 and other parameters within the acceptable pharmacopoeial limit.
Conclusion	:	*In-situ* gel is a technique of choice for delivery of metolazone.

Abstract Code: PT215

Title	:	**Herbal extracts nanoformulation for treatment of silica-induced lung fibrosis model**
Author(s)	:	Prasad V. Sherekar[1], Sanvidhan G. Suke[1], Archana J. Dhok[2]
Affiliation	:	[1]*Department of Biotechnology, Priyadarshini Institute of Engineering and Technology, Nagpur- 440019, Maharashtra, India.* [2]*Department of Biochemistry, Jawaharlal Nehru Medical College, DMIMS (DU), Wardha- 442004, Maharashtra, India.* *Email: sherekar.vprasad@gmail.com*
Introduction	:	Silicosis is incurable lung fibrosis caused by occupational exposure of silica dust. Herbal medication has strong remedial properties while use of nanotechnology demonstrates improved bioavailability and specificity of herbal compound to affected lung tissue.
Objectives	:	To prepare and characterize nanoencapsulated active herbal compounds and analyzes its therapeutic properties against silicosis model.
Materials & Method	:	Pure phyto-extract, dioscin (D1) or emodine (D2) encapsulated in PLGA nano-drug delivery vehicle and characterized using SEM and FTIR. Size classified (<10µm) respirable silica dust exposed to rats. Animals treat with pure or nanoencapsulated D1 or D2. All animals scarify on 5th week and evaluate biochemical and histological parameters in the blood and lung.
Results and discussion	:	In SEM analysis, encapsulation of D1 and D2 was found >80% and mean particle size ranges between 70 to 100 nm with spherical shape. FTIR spectroscopy profile confirmed that, all functional groups, characteristic bands and chemical stability of both nano-drugs remains unchanged. Nanoencapuslated phyto-compounds will have great significance for treatment of silicosis with better bioavailability, specified immunomodulation and reframing histo-architecture of silica exposed fibrotic lungs.
Conclusion	:	Herbal-based nano-compounds may promise proficiency in treatment of lung fibrosis, either single or in combination with other.

Abstract Code: PT216

Title	:	**Solubility enhancement of cefpodoxime proxetil using nanocochleates approach**
Author(s)	:	Sheetal L. Mahadik, Dyandevi M. Mathure
Affiliation	:	*Smt. Kashibai Navale College of Pharmacy, Kondhwa (BK), Pune, Maharashtra, India.* *Email: sheetalmahadik2@gmail.com*
Introduction	:	Cefpodoxime Proxetil (CP) is a third generation orally absorbed cephalosporin. It is hydrolyzed in gastrointestinal tract to cefpodoxime, which has potent antibacterial activity against the bacterial pathogen present in lower respiratory tract infection. Nanocochleates are unique lipid based structure, which improve the bactericidal activity and have potential for sustained drug release.
Objectives	:	The objective was to develop CP-loaded nanocochleates to improve their aqueous solubility and drug release.
Materials & Method	:	CP-loaded liposome were prepared by thin film hydration method using phospholipon 90H and Cholesterol as lipid and stabiliser respectively. Using the trapping method, CP-loaded liposome were converted into nanocochleates by the action of Ca^{2+} ions.
Results and discussion	:	The optimised formulation was characterised for particle size, polydispersity index (PDI), zeta potential (ZP), percentage of entrapment efficiency (% EE) and *in-vitro* drug diffusion. The CP-loaded nanocochleates showed a narrow (0.412) PDI with particle size of 102.3nm, % EE of 81.91% and ZP of -1.06mV. *In-vitro* drug diffusion study showed sustained release of CP from nanocochleates compared to liposomes.
Conclusion	:	Potential of the nanocochleates form of poorly water-soluble drugs proved to be a promising oral delivery system.

Abstract Code: PT217

Title	:	***In-vitro* and *in-vivo* evaluation of actively targetable solid lipid nanoparticles of paclitaxel and cisplatin for ovarian cancer**
Author(s)	:	Indrayani D. Raut[1], Sandip A. Bandgar[2], Shrinivas K. Mohite[1], Rajendra C. Doijad[3]
Affiliation	:	[1]*Rajarambapu College of Pharmacy, Kasegaon, Maharashtra, India.* [2]*Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Maharashtra, India;* [3]*KIMSDU's, Krishna Institute of Pharmacy, Karad, Maharashtra, India.* *Email: idraut7363@gmail.com*
Introduction	:	Cancer refers to one of the large number of diseases characterized by the development of abnormal cells that divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. Ovarian cancer is major problem for women.
Objectives	:	Nanoparticles offer an alternative delivery system for cancer therapy that have the potential to control the release rate of drug, improve the drug pharmacokinetics and biodistribution, and reduce drug toxicity. Due to their small size, nanoparticles with entrapped drugs may penetrate tumors due to the discontinuous and leaky nature of the microvasculature of tumors.
Materials & Method	:	Therefore, in the present study we have developed paclitaxel-loaded SLNs and cisplatin-loaded SLNs by microemulsion followed by probe sonication technique using Stearic acid as lipid and stabilized of mixture of surfactants. In this study, 32 Full Factorial design was employed for optimizing the concentration of lipid as stearic acid and surfactant (Soya lecithin) for the nanoparticles.
Results and discussion	:	The SLNs of paclitaxel and cisplatin met all the requirements of a colloidal drug delivery system. They had particle size in nano size; their size distribution was narrow and all the particles were in spherical shape. The SLNs of paclitaxel and cisplatin separately prepared for intravenous simultaneous delivery to obtain optimal therapeutic efficacy against ovarian cancer. Further, improvement of tissue distribution of cisplatin and paclitaxel with the help of verapamil was attempted in the current work and impact of verapamil, a P-gp modulator, on the availability of paclitaxel and cisplatin was checked.
Conclusion	:	The tissue distribution of paclitaxel and cisplatin was significantly increased by co-administration of verapamil.

Abstract Code: PT219

Title	:	***In-vitro* and *in-vivo* evaluation of actively targetable solid lipid nanoparticles of paclitaxel and cisplatin for ovarian cancer**
Author(s)	:	A. Ramadevi, A. U. Mayanka, K. Latha, V. S. Harini
Affiliation	:	*G. Pulla Reddy College of Pharmacy, Mehdipatnam, Hyderabad (Telangana), India.* *Email: ramadeviamaragondagmail.com*
Introduction	:	Floating drug delivery system is a novel drug delivery system in which bulk density is less than gastric fluids and thus it remains buoyant in the stomach without affecting gastric emptying rate for a prolonged period of time. Cefpodoxime proxetil a third generation cephalosporin drug was selected as novel drug for the experiment.
Materials & Method	:	Floating microspheres of cefpodoxime proxetil were prepared by solvent evaporation method by using HPMC K4M, Ethyl cellulose as polymers. Simple lattice design was applied for optimization of the formulation. The floating microspheres were evaluated for percentage yield, micromeritic properties, FTIR, particle size, in vitro buoyancy, drug entrapment, SEM, *in-vitro* drug release and *in-vivo* studies.
Results and discussion	:	CP release from the polymer coated microspheres was slow over 12 h and dependent on core: coat ratio, wall thickness and size of microspheres. The micromeritic property was found to be good and SEM confirmed their structure with smooth surface. The FTIR study confirmed that there is no chemical interaction took place during the process. The *in-vitro* performance of cefpodoxime proxitel floating microspheres showed control release depends on polymer concentration. Formulation CPM2 prepared exhibited good micromeritic properties, percentage yield, in vitro buoyancy, entrapment efficiency 65% and % drug release 73 % for a period of 7h. The release data was best fitted with zero order kinetics. Higuchi equation explains the diffusion controlled release mechanism. The diffusion exponent ‘n’ values of Korsemeyer-Peppas model were found to be Anamolous.
Conclusion	:	Polymer coated microspheres of cefpodoxime proxetil exhibited good prolong release characteristics and were found suitable for once a day oral controlled release products.

Abstract Code: PT220

Title	:	**Formulation and evaluation of nicotine soft chew**
Author(s)	:	Rajat H. Suham, Mangesh D. Godbole, Jagdish R. Baheti
Affiliation	:	*Kamla Nehru college of Pharmacy, Butibori, Nagpur, Maharashtra, India.* *Email: rajatsuham@gmail.com*
Introduction	:	The chewing of tobacco and cigarettes are the major cause of oral cancer. An alternative method to tobacco products may help the addicted peoples to avoid such life-threatening products. Soft chew formulations may be the best alternative to deliver nicotine.
Objectives	:	The objective of the presented study was to formulate and evaluate chocolate as a drug delivery system to improve nicotine absorption.
Materials & Method	:	Chocolate is a range of products derived from cocoa, mixed with fat and finely powdered sugar to produce a solid confectionery. Nicotine chocolates were formulated with cocoa powder (30%), emulsifier (3%), compound chocolate (20%), binder(1%) and flavor. Nicotine chocolate was prepared by three subsequent steps: preparation of syrup; preparation of emulsion and mixing and cooling.
Results and discussion	:	The optimized chocolate formulation showed moisture content 7.9±1.01%, fat content 7.5±0.34%, sulphated ash 0.56±0.30% and reducing sugar 19.1±01.19%. The 98±1.31 % nicotine was released in 30 min during in vitro study in phosphate buffer pH 6.8. The content of drug was found to be 102.53±01.31%. Further, the chewers panel reported most pleasant taste and acceptability.
Conclusion	:	The result concluded that the nicotine chocolate has pleasant taste and therefore may be used as alternative to tobacco products.

Abstract Code: PT222

Title	:	**Design and development of extended-release formulation of highly water-soluble drug using quality by design approach for better patient compliance**
Author(s)	:	Prajapati S. V, Patel R. P.
Affiliation	:	*Shree S.K. Patel College of pharmaceutical education and research, Kherva, Gujarat, India. Email: shivangpharma47@gmail.com*
Introduction	:	The aim of current study is to design and characterization of sustained release matrix tablets of pregabalin in order to achieve a prolonged therapeutic effect by continuously releasing medication over an extended period of time after administration of single dose.
Objectives	:	The need for pregabalin extended-release formulation is firstly, to reduce frequency of dosing thereby improving compliance. Secondly, reduction in fluctuation in steady state levels and therefore better control of disease condition and thirdly, reduction in intensity of local or systemic side effects.
Materials & Method	:	Extended-release tablets of highly water-soluble drug were formulated using various release rate controlling polymers and adopting direct compression method as manufacturing process. Hypromellose, eudragit polymers, polyethylene oxide and kollidon SR were the polymers utilized to achieve desired drug release. Formulation developed was optimized using design of experiment.
Results and discussion	:	Extended-release formulation prepared here was subjected to physic-chemical evaluation. Lubricated blend was evaluated for flow properties. The achieved drug release data were compared with dissolution data from marketed product using dissolution efficiency.
Conclusion	:	Extended-release formulation of pregabalin was designed using Quality by design approach. Stability studies were performed and the results confirmed the formulation as a stable one. The finalized formulation was compared with the marketed formulation, the formulation was found to have comparable dissolution efficiency which concludes the formulation equivalent to the marketed formulation. Hence it can be established that using Quality by Design approach in the formulation of pregabalin extended-release tablets has leaded to a low cost, better quality and stable formulation.

Abstract Code: PT224

Title	:	**Preparation, optimization and characterization of paracetamol oral disintegration mini tablets (ODMT) for pediatric**
Author(s)	:	Dheeraj Kumar, Subh Naman, Ashish Baldi
Affiliation	:	*Department of Pharmaceutical Sciences and Technology, Maharaja Ranjit Singh Punjab Technical University (MRSPTU), Bathinda, Punjab, India.* *Email: dheeraj.jaryal103@gmail.com*
Introduction	:	Pediatric patients contrast from grown-up in different parts of pharmacotherapy, including the capacities of drug administration, medication related harmfulness and taste favoritisms. It is a lot of significant that Pediatrics medications should best fit the kid's size, age, and different physiologic states of the children's.
Objectives	:	To develop and characterize novel and new dosage forms for paediatric patient. The target of present investigation was to create oral disintegrating mini tablet of paracetamol utilizing quality by design approach. Quality Target Product Profile and Critical quality attributes for paracetamol ODMT were recognized.
Materials & Method	:	Ofloxacin pharma burst, (paracetamol, sodium starch glycolate, magnesium stearate, mannitol). The ODMT were prepared by the utilizing the direct compression technique.
Results and discussion	:	During the development of oral disintegrating tablets, concepts of QbD and FbD were also employed. IPQC parameters such as angle of repose, Carr's compressibility index, Hausner ratio. FPQC parameters such as disintegrating time, wetting time, hardness, friability, content uniformity and average weight. *In-vitro* dissolution study was done for determining the cumulative drug release from the ODMT.
Conclusion	:	In conclusion, a complete overview of "Quality by Design" concept is presented for preparation ODMT. The developed novel formulations may open a new vista in pharmaceutical dosage forms available for the treatment of pediatric populations due to various advantages and most importantly more compatible towards children.

Abstract Code: PT225

Title	:	**Controlling release of pioglitazone hydrochloride from floating osmotic pump tablet**
Author(s)	:	Mangesh D. Godbole, Pravin B. Suruse, Navnath R. Gundre, Jagdish R. Baheti
Affiliation	:	*Department of Pharmaceutics, Kamla Nehru College of Pharmacy, Butibori, Nagpur, Maharashtra, India.* *Email: mdgodbole@gmail.com*
Introduction	:	The floating osmotic pump tablet of pioglitazone hydrochloride was invented to prolong the gastric residence time and thereby retard its release.
Objectives	:	To ensure the maximum absorption of pioglitazone hydrochloride by controlling and targeting its release in small intestine.
Materials & Method	:	Floating osmotic pump tablet consists of osmotic core (drug, dextrose, HPMC K-100 etc.) prepared by direct compression method, an inner semipermeable membrane (cellulose acetate, PEG-400), an outer compression coating (HPMC K4M, sodium bicarbonate) and an orifice drilled through semipermeable membrane.
Results and discussion	:	As the concentration of sodium bicarbonate was increased, floating lag time was decreased. Formulation F7 containing dextrose 60 mg, HPMC-K100 22.5 mg, sodium bicarbonate 40 mg, HPMC-K4M 166 mg, float within 17 sec and released 97.75±2.45 % drug in 12 h. The total floating time was more than 24 h. Radiological evidence by X-ray study (feeding state and fasting state) suggested that, tablets did not adhere to the stomach mucus and thereby gastric residence time was prolonged (8 h). Gastric residence time in feeding state was more compared to fasting state.
Conclusion	:	It was concluded that due to continuous releases of drug into the small intestinal window there will be improved drug action.

Abstract Code: PT226

Title	:	**Solubility enhancement strategies for improved bioavailability of arteether**
Author(s)	:	Sumit Mehta, Mela Singh, Ashish Baldi
Affiliation	:	*Department of Pharmaceutical Sciences and Technology, Maharaja Ranjit Singh Punjab Technical University, Bathinda, Punjab, India.* *Email: sumitmehta12498@gmail.com*
Introduction	:	Arteether is the ethyl ether derivative of artemisinin, the active principle isolated from the Chinese therapeutic plant, *Artemisia annua L*. The major issue related with arteether includes its poor aqueous solubility that is 17µg/mL.
Objectives	:	The present study aimed to develop novel solid dispersion to investigate the various hydrophilic polymers to improve the aqueous solubility of arteether poorly water-soluble drug.
Materials & Method	:	The methods generally incorporate for solubilization of drug are solid dispersion, hydrotropy and inclusion complexation. Solid dispersion of arteether is prepared by melting method by using various hydrophilic polymers (HPMC K100M, PEG-6000, PVP (K30). Hydrotrophy technique is done by incorporates hydrotropic agents (sodium benzoate, urea) in various concentrations. In inclusion complexation method arteether and β-CD were mixed in 1:1 molar ratio and complex were formed by spray drying method.
Results and discussion	:	The results of characterization study of optimized formulation show significantly maximum enhancement in aqueous solubility of arteether with 37.34 times in 1:4.3:3.7 weight ratio of AE:PEG-6000: poloxamer-407 solid dispersion prepared by melting method, 49 times in 40% blend of nicotinamide in case of hydrotropy and 47.77 times in 1:1 molar ratio AE-β-CD binary complex. Reduction in crystallinity of drug is confirmed by DSC, XRD studies. The solid-state interaction between the carrier and drug is confirmed by FTIR spectroscopy.
Conclusion	:	It can be concluded that all the results show potential of these methodologies for significant enhancement in aqueous solubility of arteether and lead to development of various dosage forms with improved bioavailability.

Abstract Code: PT226

Title	:	**Development and optimization of donepezil hydrochloride loaded nanoparticles: brain delivery through nasal route**
Author(s)	:	Yogesh Garg, Amit Bhatia
Affiliation	:	*Department of Pharmaceutical Sciences and Technology, Maharaja Ranjit Singh Punjab Technical University, Bathinda, Punjab, India.* *Email:drbhatiaamit@gmail.com, gargyogesh8371@gmail.com*
Introduction	:	Donepezil hydrochloride (cholinesterase inhibitor) is used for the treatment of Alzheimer's disease in the form of tablet (oral administration). Although of its good plasma concentration, it has poor penetration to brain through blood brain barrier. Thus, it is required to develop a novel drug delivery system that would provide the release of neuroprotective agents/drugs directly into brain avoiding blood brain barrier.
Objectives	:	• To develop analytical methods for the quantitative estimation of donepezil hydrochloride (DNP). • To prepare drug loaded chitosan nanoparticles (NPs) by ionic crosslinking method. • To evaluate the prepared NPs for its particle size, zeta potential, drug payload, process yield and drug release etc. • To evaluate *in-vivo* permeation and biodistribution studies of drug loaded NPs.
Materials & Method	:	Donepezil hydrochloride loaded polymeric chitosan nanoparticles were developed by ionic gelation method using Design of Experiment approach. The optimized formulation was further evaluated for *in-vitro*, *ex-vivo* and *in-vivo* parameters.
Results and discussion	:	The optimized nanoparticles formulation has shown mean particle size (177.8 nm), drug payload (22.2 mg/100 mg of chitosan), process yield (91.96 %), zeta potential (+ 16.6 mV) and mucoadhesive strength (9.26 g). The *in-vitro* drug release (> 90 % in 24 hours) and ex-vivo diffusion (> 70 % in 24 hours) were promising. The delivery of drug to brain was estimated employing wistar rats. Approximately, three times more drug was estimated in brain with nanoparticles vis-à-vis drug in solution. Finally, confocal laser scanning microscopy confirm the localization of nanoparticles in the brain.
Conclusion	:	From the above results, it was concluded that the nose to brain delivery of neuroprotective agents has good results as compared to other routes for brain delivery of drugs. Further, the biodegradable, biocompatible and self-mucoadhesive nature of chitosan nanoparticles made this route more effective and safe.

Abstract Code: PT230

Title : **Formulation and evaluation of herbal tablets consisting *Bauhinia variegata* stem bark aqueous extract in streptozotocin induced diabetic Wistar rats**

Author(s) : Syeda Shahana, Anna Pratima, G. Nikalje, Syeda Shabana

Affiliation : *Y. B Chavan College of Pharmacy, Aurangabad, Maharashtra, India.*
Email: shahanakalim@gmail.com

Introduction : Plant materials of many species of medicinal plants are used in the treatment of diabetes. Indigenous people are known to widely use the crude extracts of many plants. The present study was aimed to formulate and evaluate the herbal tablets consisting of aqueous extracts of *Bauhinia variegata* stem bark in streptozotocin induced diabetic wistar rats.

Objectives : This work was undertaken to formulate aqueous extract of *Bauhinia variegata* into tablets and evaluate its antidiabetic activity.

Materials & Method : The extract was formulated and antidiabetic effect was observed on streptozotocin induced diabetic rats. Design included Group 1(Normal control), Group 2 (Diabetic control), Group 3 (Standard group (insulin), Group 4 (*Bauhinia variegata* aqueous extract) and Group 5 (*Bauhinia variegata* formulated extract).

Results and discussion : HPLC and GC-MS analysis revealed that *Bauhinia variegata* aqueous extract has kaempferol, lupeol and beta sitosterol. Docking study revealed kaempferol acts on aldose reductase, lupeol on glycogen synthase kinase-3-β-protein and beta sitosterol on dipeptidyl peptidase IV. The aqueous extract was formulated using avicel PH101, lactose 200M, povidone k 30, magnesium stearate and sodium starch glycolate. Quality testing was done of tablets using standard parameters. Antidiabetic activity of aqueous extract and formulated extract evaluated on diabetic Wistar rats was almost same.

Conclusion : *Bauhinia variegata* formulated aqueous extract in tablets form can be explored for its potential as commercial drug for introduction in market after clinical trials on humans. It is a promising antidiabetic drug which can be used as supplementary or alternative drug in holistic diabetes management.

Clinical Pharmacy
&
Pharmacology

Abstract Code: CPP302

Title	:	**Piperine potentiate the cardio-protective activity of resveratrol against isoproterenol induced myocardial infarction**
Author(s)	:	Thriveni M.[1], Nadira N.[2], Gulzar M. A.[1]
Affiliation	:	*[1]Pharmaceutics Department, [2]Pharmacology Department, Yenepoya Pharmacy College and Research Centre, Mangalore, 575018, India.* *Email: thrivenimanglore@gmail.com*
Introduction	:	Despite its cardioprotective properties, resveratrol (RES) has limited therapeutic impact due to its low *in vivo* bioavailability and rapid metabolism, which is a major barrier to converting its effects in humans. Piperine (PIP), a nitrogenous substance has well established bioenhancer activity. Till now no attempt has been made to study the combined effect of resveratrol and piperine on cardio-protective functions mainly myocardial infarction.
Objectives	:	The present study was designed to study the combined effect of resveratrol and piperine against isoproterenol induced myocardial injury in rats.
Materials & Method	:	Rats (n = 6) were treated with RES (20 mg/kg, p.o.) alone and combination of PIP (20 mg/kg, p.o.) and RES (20 mg/kg, p.o.) for 28 days. Twenty-four hour after last treatment myocardial injury was induced by subcutaneous administration of isoproterenol (85 mg/kg), the effect of different treatments was evaluated by percentage recovery in terms of heart rate and developed tension, biomarkers, heart tissue antioxidant levels and a histopathological examination.
Results and discussion	:	Combination of RES and PIP demonstrated significant ($P < 0.05$) restoration of biomarker, antioxidant, tension and heart rate compared to RES alone treated group. Histopathological evaluation confirmed the restoration of cellular architecture in treatment groups compared to the disease group.
Conclusion	:	The combination of RES and PIP exhibited profound protection compared to RES alone treated group against isoproterenol-induced myocardial infarction.

Abstract Code: CPP303

Title	:	**A case report on Klippel-Trenaunay syndrome with arteriovenous malformation**
Author(s)	:	Juveriya[1], Rokeya Sultana[2]
Affiliation	:	[1]*Department of Pharmacology, Yenepoya Pharmacy College and Research Centre, Karnataka, India* [2]*Department of Pharmacognosy, Yenepoya Pharmacy College and Research Centre, Karnataka, India.* *E.Mail: juveriyafarooq@gmail.com*
Introduction	:	Klippel-Trenaunay syndrome (KTS), a rare congenital disorder characterized by a triad of localized cutaneous capillary malfor mations, venous abnormalities, and limb hypertrophy. The presence of at least two of the three classic findings is required to diagnose as KTS.
Objectives	:	The objective of this clinical case report is to highlight the importance of use of appropriate imaging techniques to diagnose the disease.
Materials & Method	:	A 14 year old girl, born out of nonconsanguineous marriage presented with complaints of abdominal pain and recurrent episodes of moderate to excessive bleeding while passing stool. Colonoscopy showed post endoscopic variceal band ligation ulcer, rectal varices with no active bleeding. It was initially diagnosed as rectal varices secondary to portal hypertension.
Results and discussion	:	Upon further examination, CT venogram showed multiple dilated and tortuous veins in the subcutaneous and intramuscular plane of both lower limbs with filling up contrast in venous phases which was suggestive of slow flow venous malformation. Conservative management was done.
Conclusion	:	KTS is often a progressive disorder with no cure. Although many individuals can live well by managing their symptoms, healthcare specialists should perform thorough examination and diagnose the disease at the earliest in order to prevent potentially life threatening complications associated with it.

Abstract Code: CPP304

Title	:	**Anti-obesity potential of *Artocarpus heterophyllus* leaves extract against cafeteria diet induced obesity**
Author(s)	:	Haleema Shahin D. H.[1], Rokeya S.[2], Udaya K.[3]
Affiliation	:	[1]*Department of Pharmacology,* [2]*Department of Pharmacognosy, Yenepoya Pharmacy College and Research Centre, Yenepoya (Deemed to be University), Karnataka, India.* [3]*Department of Pharmacology, Srinivas College of Pharmacy, Mangalore, Karnataka, India. Email: shahin@yenepoya.edu.in*
Introduction	:	The prevalence of obesity has increased steadily over the past five decades, and may have a significant impact on the quality adjusted life years.
Objectives	:	To evaluate the anti-obesity activity of *Artocarpus heterophyllus* leaves against cafeteria diet induced obesity in rats.
Materials & Method	:	Rats were divided into five groups of six animals each. Group I was treated with saline and Group II (obese control) was treated with Cafeteria diet. Group III was treated Orlistat 10mg/kg(standard drug), Group IV and V were treated with 200 mg/kg and 400 mg/kg doses of *Artocarpus heterophyllus* ethanolic extract (AHEE) respectively for 30 days through oral route. Evaluation of body weight, serum lipid profile and glucose level, liver weight and its triglyceride level and locomotor activity was carried out.
Results and discussion	:	Orlistat (10mg/kg) and AHEE (200mg/kg), (400mg/kg) treated animals significantly decreased body weight, liver weight, serum lipid profile and glucose level, liver TG level compared to obese control animals. Locomotor activity also witnessed the above result, administration of AHEE have shown a significant increase in locomotor activity compared to obese control rats.
Conclusion	:	The findings of the study suggest that *Artocarpus heterophyllus* ethanolic leaf extract is an appetite suppressant and anti-obesity drug.

Abstract Code: CPP305

Title	:	**Preclinical evaluation of hepatoprotective activity of bergapten**
Author(s)	:	Tahreen Taj[1], Rokeya Sultana[2]
Affiliation	:	*[1]Department of Pharmacology, [2]Department of Pharmacognosy, Yenepoya Pharmacy College and Research Centre, Mangalore, Karnataka, India.* *E-mail: tahreentaj6414@gmail.com*
Introduction	:	Bergapten is a phytoconstituent found in bergamot essential oil, citrus essential oils and in grapefruit juice having known antioxidant property.
Objectives	:	To find out hepatoprotective activity of bergapten by carbon tetrachloride (CCl4) induced liver toxicity and estimation of antioxidants.
Materials & Method	:	Wistar rats were divided into 5 groups (six animals/ group). Group I and II - Normal control (normal saline) and toxic control (CCL4) respectively. Group III -pre-treated with bergapten 75mg/kg (low dose) followed by CCL4 (2mg/kg). Group IV - treated with bergapten 150mg/kg (high dose) prior to administration of CCL4 (2mg/kg). Group V -treated with silymarin 100 mg/kg (standard treatment). Animals were sacrificed to collect the sample to analyze levels of serum glutamic pyruvic transaminase (SGPT), alkaline phosphatase (ALP), serum glutamic oxaloacetic transaminase (SGOT), cholesterol, triglyceride(TG), bilirubin, total protein, super oxide dismutase (SOD), catalase (CAT) and glutathione (GSH).
Results and discussion	:	Bergapten statistically reduced increased levels of SGPT, SGOT, ALP, TG, cholesterol and bilirubin in diseased animals, increased reduced levels of TP, SOD, CAT, and GSH in diseased animals. The possible mechanism behind the hepatoprotection of bergapten was might be due to its antioxidant activity, free radical scavenging activity, synergistic effect of its constituents.
Conclusion	:	Bergapten has significant hepatoprotective activity.

Abstract Code: CPP307

Title	:	**Gold nanoparticle (AUNPS) based colorimetric technology: an important component in development of diagnostics and therapeutics in healthcare system.**
Author(s)	:	Ajay Singh Kushwah, Sakshi Chauhan
Affiliation	:	*Department of Pharmacology, Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial College of Pharmacy, Bela - 140111, Ropar, Punjab, India.* *E-mail: kushwah_ph05@yahoo.co.in*
Introduction	:	Point of care (POC) diagnostics is very much needed in healthcare and other sectors. They uplift quality of life by promoting health in both developed and developing countries. A nanoparticle in nanotechnology plays a crucial role in providing opportunities and has potential in development of new age group of sensing tools. Due to their exceptional properties such as biocompatibility, effective catalysis, good conductivity, inertness, high density and high surface to volume ratio gold nanoparticles (AuNPs) are most commonly used in POC Testing.
Objectives	:	Development of gold nanoparticles based colorimetric methods used in diagnostics and therapeutics in healthcare system in respect of rapid, sensitive and selective detection of analytes or target molecules.
Materials & Method	:	Characterization of these synthesized AuNPs is essential for their potential use in prophylaxis, diagnostics and treatment of a disease. AuNPs on interaction with organic or inorganic targeting molecules produces a colorimetric shift that enables the accurate, precise and sensitive detection of metal ions, proteins, viruses, bacterias and cells. On early diagnosis, timely prophylaxis and proper treatment of patient can be done.
Results and discussion	:	Whereas AuNPs based colorimetric detection offers inexpensive usage of apparatus for result interpretation and produces quick and reliable results.
Conclusion	:	Therefore, AuNPs based colorimetric biosensors have the capability to serve simple yet steadfast technique to enable visual quantitative analysis.

Abstract Code: CCP308

Title	:	**Development of HSD type -1 inhibitors: in management of environmental toxicant induced metabolic disorders- an overview**
Author(s)	:	Navneet Kaur, Navpreet Singh, Ajay S. Kushwah
Affiliation	:	*Department of Pharmacology, Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial College of Pharmacy, Bela - 140111, Ropar, Punjab, India.* *Email: nav99377@gmail.com*
Introduction	:	Chemicals which are produced with the intention of benefiting humans includes BPA, DDT, DES and NP. 11β-Hydroxysteroid dehydrogenase type 1 **(**HSD type-1) is an enzyme responsible for conversion of cortisone to cortisol which leads to metabolic alterations. Exposure to environmental chemicals in developmental periods results in increased activity of HSD activity in adult rat model. HSD type-1 activates GC locally in liver and fat tissues to precipitate metabolic disorders.
Objectives	:	The goal of the study is to provide an overview of compounds which have been reported to inhibit HSD type-1enzyme.
Materials & Method	:	Chemical constituents of liquorice such as glycyrrhetinic acid carbenoxolone have a potency to inhibit HSD type-1 enzyme. Synthetic compounds that have been proved include Merck 544, Novartis, PF915275, and BVT-2733. For the measurement of activity of enzyme, microsomes were used.
Results and discussion	:	Inhibitors of these enzymes not only affect a single parameter. They showed versatile effects in controlling disorder. Newer compounds that entered clinical trials are BVT-3498, PF-915275 and INCB13739.
Conclusion	:	This enzyme have an intended purpose and remains a sure target for drug development as it have high effectiveness in controlling factors that contribute to metabolic syndrome.

Abstract Code: CCP309

Title	:	**Metabolomics – a precision tool for cancer therapy**
Author(s)	:	Medha Bhalla, Ajay S. Kushwah
Affiliation	:	*Department of Pharmacology, Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial College of Pharmacy, Bela - 140111, Ropar, Punjab, India.* *Email: medhabhalla1997@gmail.com*
Introduction	:	Cancers are related to wide range of diseases, which are caused by rapid proliferation of abnormal cell and formation of many metabolites. Metabolomics may therefore incorporate the biochemical events of large number of minute molecules in the biological fluids i.e. urine, blood, sputum, saliva and also related to cells, tissues or organs and opt to be a precision tool for cancer therapy.
Objectives	:	The aim of the study is to assess precision medicine promises to customize therapies for each person and predicts the efficacy and toxicities of the drug used in cancer therapy.
Materials & Method	:	Metabolomics uses many techniques such as NMR, MS, TOF-MS, UPLC/Q-TOF MS, and UPLC-MS. Some of the major pathways like glycolysis, glutaminolysis, TCA are targeted.
Results and discussion	:	This tool has yielded potential prognostic and predictive biomarkers, which in some cases have been linked to specific biochemical activities, processes, or carriers.
Conclusion	:	This method explores newer and better cancer biomarkers, as well as individualized replies to cancer therapies. In addition, it has a great potential to make a powerful impact on pharmaceutical and clinical research.

Abstract Code: CPP310

Title	:	**Antiurolithiatic potential of peel and seed of *Punica granatum*: an *in-vitro* study**
Author(s)	:	R. Padmavathi, Kammari Shirisha, Mohammed Abdul Samad
Affiliation	:	*Department of Pharmacology, G. Pulla Reddy College of Pharmacy, Osmania University, Hyderabad, Telangana-500028, India.* *Email: rpvathi79@gmail.com*
Introduction	:	Urolithiasis is a polygenic disorder with complex etiology and even complicated treatment outcomes. *Punica granatum* (PG) seed juice reported to be useful in urolithiasis. However, no studies has been done comparing antiurolithiatic potential peel and seed extracts of PG.
Objectives	:	To evaluate the effect of aqueous extracts of peel, seed and whole fruit of PG in urolithiasis by *in-vitro* model using turbidity method.
Materials & Method	:	Antiurolithiatic potential was evaluated *in-vitro* using turbidity method. *In-vitro* anti-urolithiatic activity of the extract was tested in terms of inhibition of calcium oxalate formation by the extracts in the presence and absence of inhibitors (standard drug cystone and extracts of PG).The precipitate of calcium oxalate at 37 ºC and pH 6.8 has been studied by the measurement of turbidity at 620 nm in UV.
Results and discussion	:	Cystone at 50 mg/ml and aqueous extracts of peel, seed and whole fruit of PG 50 mg/ml respectively, significantly inhibited crystal formation with the percentage inhibition of 80.83 ±0.081, 68.43 ±0.135, 44.27 ±0.468 and 55.72 ±0.283 respectively. Compared to the test substance the cystone was found to be more effective. However, the aqueous extract of peel more significantly inhibited the crystal growth formation compared to seed.
Conclusion	:	The aqueous extract of peel exhibited more significant inhibition of calcium oxalate formation compared to aqueous extract of seed. The present study suggests that consumption of juice of *Punica granatum* could be effective in treating urolithiasis and also could minimise the progression of stone formation and damage to the kidneys. It also suggests that the consumption of whole fruit juice could be more effective than seed juice alone in urolithiasis.

Abstract Code: CPP312

Title	:	**Investigate the role of caffeic acid in prevention of atherosclerosis in rats**
Author(s)	:	Gurpreet Kaur,[1] Ajay S. Kushwah[2]
Affiliation	:	[1]*IKG Punjab Technical University, Kapurthala, Punjab, India,* [2]*Department of Pharmacology, Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial College of Pharmacy, Bela-140111, Ropar, Punjab, India.* *Email: gurpreetkaur4223@gmail.com*
Introduction	:	Diet and life style play a crucial role in the development of some cardiovascular diseases. Recently, there has been a rise of interest to explore the cardioprotective potential of natural products. Caffeic acid (CA) found in the flowers, leaves and buds of the medicinal plant also present in a variety of fruits, vegetables and seasonings, predominantly in the form of ester conjugates. The reported pharmacological activities of caffeic acid are neuroprotective, cardioprotective, hypoglycemic, antiviral, anti-inflammatory, antioxidant, antibacterial, antifungal, and immunomodulatory properties.
Objectives	:	To study the role of caffeic acid in prevention of atherosclerosis, effect on practical indications and comparison of CA with the standard drug.
Materials & Method	:	In each group 6 animals, Group I- Saline group, Group II- AD control (atherogenic diet), Group III and IV, AD + CA (25, 50mg/kg), Group V- Normal chow diet + CA (50mg/kg), Group VI- AD + atorvastatin (ATORVA) (5mg/kg). Lipid profile and liver function test were performed. Additionally, hemodynamic parameters performed at the end of the study.
Results and discussion	:	The caffeic acid (25, 50 mg/kg; *p.o.*) significantly decreases in lipid profile and lifer function test parameters, on the other hand GSH significantly increased when compared with AD control group. Moreover, hemodynamic parameters were significantly increased while it was maintained to normal in drug treated in CA groups.
Conclusion	:	The antiatherogenic activity of caffeic acid is attributed to protection from oxidative stress, and various enzymatic activities. Therefore, it can be suggested that more emphasis may be laid in clinical trials to be conducted to identify molecules, information pathways, and related genes.

Abstract Code: CPP314

Title	:	**Evaluation of efficacy of topical heparin as an adjunct in the treatment of dental space infection**
Author(s)	:	Ruheena Tabassum[1], Syed Najeebullah Hussaini[2]
Affiliation	:	[1]*Department of Pharmacology, Shadan Women's College of Pharmacy, Hyderabad, India.* [2]*Dr. Najeeb Dental Hospital, Hyderabad, India.* *Email: ruheenat@gmail.com*
Introduction	:	Topical heparin gel has also proven to have anti-inflammatory action, rather than just its well-known use as an anticoagulant drug.
Objectives	:	To compare the efficacy of topical heparin with NSAIDS, versus use of only NSAIDS drugs as anti-inflammatory agent, in localized extra oral swellings due to dental infections.
Materials & Method	:	Forty patients were selected, divided into 2 groups, 20 patients for the conventional NSAID medication group as control group, and 20 patient for group (HTC) topical heparin plus NSAID group as study group.
Results and discussion	:	It was noticed that on day 3, the percentage reduction in the linear extent of the swelling was significantly higher in the study group, with a p value of 0.0005, which is highly significant. This topical application of heparin gel owing to its anti-inflammatory properties provides localized action at site of swelling and inflammation, thereby providing faster resolution of swelling and inflammation, when compared to control group.
Conclusion	:	Topical use heparin sodium in extra oral swelling can be used in conjunction with NSAIDS drugs, for faster recovery, it is also noted that topical heparin sodium gel does not present with any noticeable adverse effects.

Abstract Code: CPP322

Title : **Effect of levetiracetam in combination with phytochemical on lead-induced neurotoxicity by drug repurposing strategy**

Author(s) : Anuradha Singh[1], Suneela Dhaneshwar[1], Avijit Mazumder[2]

Affiliation : [1]*Amity Institute of Pharmacy, Amity University Uttar Pradesh Lucknow Campus, Gomtinagar Extension Lucknow-226028, Uttar Pradesh, India*
[2]*Institute of Pharmacy, Noida Institute of Engineering and Technology (Pharmacy Institute), Greater Noida- -201306, Uttar Pradesh, India*
Email: sdhaneshwar1@lko.amity.edu

Introduction : Alzheimer's disease (AD), characterized by accumulation of amyloid plaques and neurofibrillary tangles. In depth knowledge of disease pathology is necessary to facilitate the drug discovery through repositioning. Since there is an escalation in AD cases in the 21st century, there's an urgent need for introduction of effective pharmacotherapies. Neuroinflammation have been considered as a hallmark of AD. Levetiracetam (LEV) an antiepileptic drug that is clearly differentiated from conventional antiepileptic drugs by its pharmacologic properties and mechanisms of action. Berberine (BER), an isoquinoline alkaloid, has neuroprotective effects due to its anti-inflammatory property.

Objectives : To evaluate the independent and combined effect of LEV and BER in lead acetate-induced neurotoxicity in mice.

Materials & Method : Levetiracetam and BER were given 50mg/kg in mice by oral gavage for seven days. Morris water maze (MWM), elevated plus maze test (EPM) and Y-maze for the assessment of memory and learning. Morris water maze test (MWM), elevate plus maze and Y-maze test were used to evaluate the learning and memory parameters. Various biochemical parameters such as acetylcholinesterase (AChE), MDA and GSH were also assessed.

Results and discussion : Our results suggest that combination of LEV and BER provides neuroprotective effects by decreasing transfer latency time in MWM and EPM with increase in percentage alternation in Y-maze. The combination has potential therapeutic effects on improving the memory in mice through inhibiting lipid peroxidation and decreasing AChE activity in brain when compared to disease control.

Conclusion : The study concluded that the combination of LEV and BER can be studied further in clinical set up for their neuroprotective potential in AD management.

Abstract Code: CPP326

Title : **Drug related problems associated with IV drug administration in ICUs of a tertiary care hospital**

Author(s) : Shilpa Palaksha, Muhammed Azhar, Balaji S.

Affiliation : *Department of Pharmacy Practice, JSS College of Pharmacy, Mysuru, Karnataka, India.*
Email: shilpapalaksha@jssuni.edu.in

Introduction : Infusion therapy is a therapeutic option used in the treatment of many critically ill patients especially in the Intensive care units. Intra venous (IV) drug administration has an increased risk of occurrence of medication error and also the development of ADR followed by other drug related problems.

Objectives : The study was aimed to assess the drug related problems associated with IV drug administration in ICUs of a tertiary care hospital.

Materials & Method : A prospective interventional study was conducted over a period of 9 months in the critical care units of JSS hospital, Mysuru. Patients who meet the study criteria were enrolled into the study. The demographic details were collected. Hepler and Strand DRP classification was used in the study to classify the observed DRPs, also other problems associated with IV drug administration.

Results and discussion : Around 256 patients were enrolled into the study, 223 drug related problems (DRPs) were identified during the management of these patients. Majority (52.46%) of the DRPs were observed in male patients. Five type of DRPs were identified as per Hepler and Strand classification. Of the 223 observed DRPs 74 (33.18%) were over dose, 28 (12.55%) ADRs, Sub-therapeutic dose 23 (10.31%), drug use without indication 13 (5.83%), drug interaction 10 (4.48%) and drug duplication 6 (2.69%). Of the 69 errors in administration majority 21(31.81%) were air bubble trapped in the IV infusion pump, followed by drip overflow 16 (24.4%), improper frequency 11 (16.66%), Low flow rate 9 (13.63%). A total of 82.85% of the interventions were accepted.

Conclusion : Although the majority of the DRPs do not cause significant harmful clinical outcomes to patients, early detection and prevention of DRPs is important. Continuous supervision and involvement of well-trained clinical pharmacist could prove as an asset in providing better patient care.

Abstract Code: CPP329

Title	:	**Assessment of patient satisfaction, outcomes, and experience measurements among patients receiving general anesthesia**
Author(s)	:	Jalapa Pradhan, Spoorthy Murthy, Arushi Garlapati, Rozampuii, C. Mohan Krishna, Sri Harsha Chalasani
Affiliation	:	*Department of Pharmacy Practice, JSS College of Pharmacy, Mysuru, Karnataka, India. Email: jalupradhan17@gmail.com*
Introduction	:	Patients' satisfaction is being identified as a major target for many studies and non-separable gear needed for the integrity of health service quality. In clinical settings such as anesthesia using patient satisfaction as an indicator to monitor the quality of clinical care has potential merit. Its measurement is required to validate and measure health-care improvement in general.
Objectives	:	To determine the overall patient satisfaction, outcomes, and experience with general anesthesia.
Materials & Method	:	A prospective questionnaire based observational study was conducted over a period of 6 months in the Department of Anesthesia in a tertiary care teaching hospital in Southern India. All patients 18 years and above undergoing any type of non-obstetric surgery receiving general anesthesia were recruited. Demographic details were collected perioperative and the patients completed two questionnaires- the Bauer patient satisfaction questionnaire and the modified Brice questionnaire on 0^{th},24^{th} ,48^{th} hour post-surgery for outcomes measures and identification of any accidental awareness during anesthesia, respectively. Patient, procedural, and pharmacological data were collected to assess the risk factors for the poor outcomes during anesthesia. The data was assessed categorically.
Results and discussion	:	The results showed a total of 222 patients [69 (31.0%) females and 153 (68.91%) males] completed both the questionnaires. Thirst was most frequently cited as the worst aspect of perioperative experience. Thirst (23.52%, moderate; 1.50% severe), pain at the site of anesthetic injection (18.55%, moderate; 2.39%, severe) and drowsiness (9.65%, moderate) were most common. Patient satisfaction levels were high, with only 0.45% reported dissatisfaction with any aspect of anesthesia-related care. Patients commonly reported pain to be the worst thing about their operation [23 (10.36%)], followed by anxiety [9 (4.05%)]. The incidence of accidental awareness during general anesthesia (AAGA) was found to be [5 (2.25%)].
Conclusion	:	Discomfort after surgery is common, despite the anaesthesia care. Patient reported outcomes, patient experience, patient satisfaction, all these domains provide a comprehensive assessment of the quality of anaesthesia care.

Abstract Code: CPP330

Title : **Evaluation of utilization of high-risk medications in critical care units of tertiary care hospitals.**

Author(s) : S. M. Manjunath, M. Ramesh, Sri Harsha Chalasani, B. J. Subhash Chandra

Affiliation : *Department of Pharmacy Practice, JSS College of Pharmacy, Mysuru, Karnataka, India.*
Email: saimanjunathan712@gmail.com

Introduction : High-risk medications are drugs that bear a heightened risk of causing significant patient harm when they are used in error. These are the medicines with a low therapeutic index (a low ratio of the maximally tolerated dose of medication to the minimal curative or effective dose) and must be used with caution to avoid adverse effects or DRPs associated with these. Inappropriate use of high-risk medications also leads to increased cost of medical care, antimicrobial resistance, adverse effects, and patient mortality. Hence the drug utilization evaluation (DUE) studies become one of the potential tools in the evaluation of health system.

Objectives : To evaluate the utilization pattern of high-risk medicines in Critical Care Units, to study and assess the prescribing pattern of use of HRM, to assess the drug-related problems, and determine the predictors associated with HRMs.

Materials & Method : A prospective interventional study was conducted for 9 months in the critical care units of JSS hospital, Mysuru. Patients who meet the study criteria were enrolled in the study. The demographic details, social history, diagnosis of the patients were collected from patient care notes. ISMP list of high-risk medications in hospital formulary was used and Hepler and strand DRP classification was used in the study to classify the observed DRPs. The predictors were assessed using the odds ratio at 95% confidence interval and data was assessed categorically.

Results and discussion : A total of 315 patients were enrolled in the study, of which, 206(65.39%) were male and 109(34.60%) were female. Out of 315 people included, 54(17.14%)were alcoholics, 20(6.34%) were alcoholics and tobacco chewers, 30(9.52%) were smokers and 24(7.61%) were smokers as well as tobacco chewers. Around 86.66% of the study population encountered one or more drug-related problems. More drug-related problems were seen between the ages of 60-80. As per Hepler and strand classification of DRPs, 63(23.07%) ADRs, 51(18.68%) Drug interactions, 28(10.25%) Sub-therapeutic dose, 38(13.91%) Overdose, 25(9.15%) Drug use without indications, 10(3.66%) Drug duplication, 30(10.98%) Untreated indication, 28(10.25%) others were seen. The causality of reactions for 63 ADRs was identified as 35(55.55%) Probable/likely and 28(44.45%)as possible. The predictors will be updated towards presentation.

Conclusion : Current HAM safety strategies are not consistently used. An organizational culture that supports collaboration, education on safe HRM practices, pragmatic HRM policies, and enhanced technology is recommended to prevent HRM errors which can be effectively achieved with a clinical pharmacist's intervention.

Abstract Code: CPP331

Title	:	**Discrepancies occurred during multiple care transition process in a tertiary care teaching hospital: A prospective observational study**
Author(s)	:	Ramesh Bhandari, Rashi Tiwari, Sonal Parghi, Soumitra Roy Chowdhury
Affiliation	:	*Department of pharmacy practice, KLE College of Pharmacy, A Constituent unit of KLE Academy of Higher Education and Research (KAHER), Belagavi, Karnataka, India – 590010. Email: ramesh_2417@yahoo.com*
Introduction	:	Despite the emphasis by international healthcare organizations, transition of care remains unexplored in India**.** Shorter duration of stay, incomplete data sources, and miscommunication amongst health care professionals and with patient makes emergency department as hotspots for medication discrepancies.
Objectives	:	To identify the discrepancies occurred during multiple transition care points from emergency department.
Materials & Method	:	Patients admitted during October 2019 – April 2020 in emergency department and subsequently shifted to other wards at tertiary care teaching hospital were followed up till discharge. Medication reconciliation at each step of transition was done and discrepancies were documented by using descriptive statistics.
Results and discussion	:	Mean age of the patients was found to be 51.5 years and majority (37.97%) belonged to middle age group i.e. 38-58 years. Unintentional discrepancies (66.04%) dominated over intentional (33.96%) which were caused due to reconciliation error. Omission (68%) followed by substitution (33%) were the maximum type of discrepancies observed. 47.17% of discrepancies occurred during transition from intensive care unit to general wards and 32.08% occurred at discharge. Binomial logistic regression showed that age, number of medications and comorbidities are predictors for discrepancies.
Conclusion	:	Emergency pharmacist led reconciliation especially during transition from special ward to general ward and at discharge will lead to early identification of discrepancies and prevent medication errors.

Undergraduate Students

Abstract Code: PC108-UG

Title	:	**Analytical method to determine the efficacy of generic verses branded formulation of metformin hydrochloride**
Author(s)	:	Taj S., Abhishek B. J. Faculty Supervisor: Jinesh B. Nagavi
Affiliation	:	*Department of Pharmaceutical Chemistry, Sarada Vilas College of Pharmacy, Mysuru, Karnataka, India.* *Email: shifashariff97@gmail.com, nagavi.jinesh@gmail.com*
Introduction	:	Diabetes is emerging as a costly health care challenge in India. Generic medications are an identical substitute for its brand-name counterparts. WHO defines generic drugs as a pharmaceutical product usually intended to be interchangeable with the originator brand product
Objectives	:	Development of bio-analytical method and validation to compare efficacy of generic verses brand name counterpart analogues. To promote and enhance patients and provider's confidence in the ability of generic medicines.
Materials & Method	:	A Shimadzu LC-10AT with SPD-10A detector was used for HPLC method development and validation. Analysis was conducted on an OD-5-100, C18 µ-bondapack column (0.4 x 25cm) with 0.5 µm particle size at ambient temperature. Sample was introduced in Rheodyne injector valve with a 20 µL sample loop.
Results and discussion	:	A simple, accurate and sensitive method was developed and validated for metformin hydrochloride in both generic and branded formulations.
Conclusion	:	A novel, simple, rapid, precise bioanalytical method was developed and validated for estimating the efficacy of generic and branded formulation of metformin HCl. Generic medications in comparison to their branded counterparts are effective in terms of safety and efficacy profiles. They have the potential to significantly reduce the out of pocket medication expenses for patients and thereby promote medication adherence.

Abstract Code: PC109-UG

Title	:	**Analytical method to determine the efficacy of generic verses branded formulation of metformin hydrochloride**
Author(s)	:	Rahul R. Soundalgekar, Dinesh S. Mali Faculty Supervisor: Rajesh B. Patil
Affiliation	:	*Sinhgad Technical Education Society's, Smt. Kashibai Navale College of Pharmacy, Pune-Saswad Road, Kondhwa (Bk), Pune-411048, Maharashtra, India* *Email: rahulsoundalgekar@gmail.com*
Introduction	:	Aberrant cell cycle is known to lead different cancers. Cyclin dependent kinase-2 (CDK2)-controls the cell cycle. The deregulated function of CDK-2 leads to different cancers. The agents selective on CDK-2 are advantageous.
Objectives	:	The receptor dependent 3D-QSAR models using multiple conformations of crystal structures of CDK-2 are to be built. The large database is to be screened to find the most potent inhibitor.
Materials & Method	:	We used Autodock vina for docking, Chimera to align the structures and Open3DQSAR program to build 3D-QSAR models. RDKit program was used to filter e-Molecule database.
Results and discussion	:	The reported pyrazolo[1,5,-a]pyrimidine CDK-2 inhibitors (106) were docked and 100 docked poses for each ligand were generated. The best docked pose was aligned with most active ligand. The receptor dependent 3D-QSAR model with r^2=0.85, q^2=0.62 was further chosen. e-Molecule database was screened on the basis of Morgan figure print and selected 412 ligands. These ligands were docked, aligned and their activity was predicted to find the best hits. EMOL2146 was identified as top hit.
Conclusion	:	Through the combination of structure based and ligand based drug design approaches the top hit molecules were identified as CDK-2 inhibitors from e-Molecule database.

Abstract Code: CPP320-UG

Title	:	**Pharmacist intervention in COVID- 19 pandemic**
Author(s)	:	Elizabeth Rachal James, Jisa Elizabath Sabu Faculty Supervisors: Badmanabhan R.
Affiliation	:	*Nirmala college of Pharmacy, Muvattupuzha, Eranakulam, Kerala, India.* *Email: elizabethrjames001@gmail.com*
Introduction	:	Pharmacy services is playing a vital role in public health in preventing and ensuring efficient, impartial, and standard pharmaceutical care during the pandemic caused by covid19. Globally, pharmacists are also working in frontlines of healthcare everyday providing essential health care services during the pandemic.
Objectives	:	Being medication experts, pharmacists provides patient care in a variety of field including clinics, community pharmacies, hospitals, abiding care, and public health. As covid-19 is affecting elderly population with greater seriousness and as many of them are taking polypharmacy, great effort is putting on viewing interactions, both pharmacokinetic and pharmacodynamic among them.
Conclusion	:	Throughout the world, pharmacists have responded brilliantly and efficiently for public health, such as providing guidance for pharmacy staff and services, establishing professional protective, producing and updating drug formularies, addressing the issues of drug shortages, providing public education for prevention and management of disease, contributing in drug evaluation and clinical trials

Abstract Code: CPP324-UG

Title : **Assessment of polypharmacy in geriatric patient prescriptions at tertiary care setting of Sultanate of Oman**

Author(s) : Sulaiman Masoud Said AL-Humaimi
Faculty Supervisor: Sabin Thomas

Affiliation : *School of Pharmacy, College of Pharmacy & Nursing, University of Nizwa, Birkat Al Mouz, PO Box 33, Nizwa, Sultanate of Oman.*
Email: sabin@unizwa.edu.om; 12821944@uofn.edu.om

Introduction : The multimorbid elderly population is prone to complex polypharmacy issues and is a significant health care concern addressing patient safety. It is the major risk factor for inappropriate prescribing, adverse reactions, and events. The 2017 joint initiative at Oman with WHO and MoH took considerate steps to impart patient safety initiatives through control of polypharmacy aspects. The study hypothesized an increase in hospitalization and hike in expenditure for the health care system due to polypharmacy.

Objectives : The study aims to assess polypharmacy in hospitalized elderly patients receiving medical treatment at the tertiary healthcare setting of Oman. The objectives are to assess and compare the frequency of polypharmacy in geriatric prescriptions filled at the out-patient pharmacy and to evaluate the type of disease conditions, medications commonly occurring and cost burden in polypharmacy prescriptions.

Materials & Method : A prospective observational study was conducted at the tertiary care hospital, Muscat. The study included 200 prescriptions of geriatric patients aged above 65 yours with more than 5 medications. Approval was obtained from the concerned authorities for conducting a prescription review being filled at the out-patient pharmacy in a three-month period and the data was collected in a structured form which was subjected to analysis.

Results and discussion : Out of 200 prescriptions reviewed, around 61% (n=121) of female and 39% (n=79) of male geriatric patients, majorly (38%) falling in an age range of 65 to 69 received high polypharmacy (≥12 drugs) during the study period. About 31% of the population were having cardiology problems, and 21% endocrinology issues. The most common geriatric ailment 72.5% (n=145) was hypertension and 62.5% received hyperlipidemic treatment. Reconsidering oncology medication cost, it was observed that the average cardiology prescription cost was 103 Omani Rial (267.5 USD).

Conclusion : Complex polypharmacy was observed among Omani geriatric patients with higher occurrences among the female gender. Cardiovascular complications stand as the most prevalent condition that contributes to polypharmacy in the geriatric population which in turn increases the expenditure to the healthcare system in Oman.

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Admissions Office
PO Box 11172, Ras Al Khaimah, UAE
Tel: +971 7 2043200
Email: admissions@rakmhsu.ac.ae

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ABSTRACT BOOK

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Designed & Edited by: **Dr. Bhoomendra A. Bhongade**