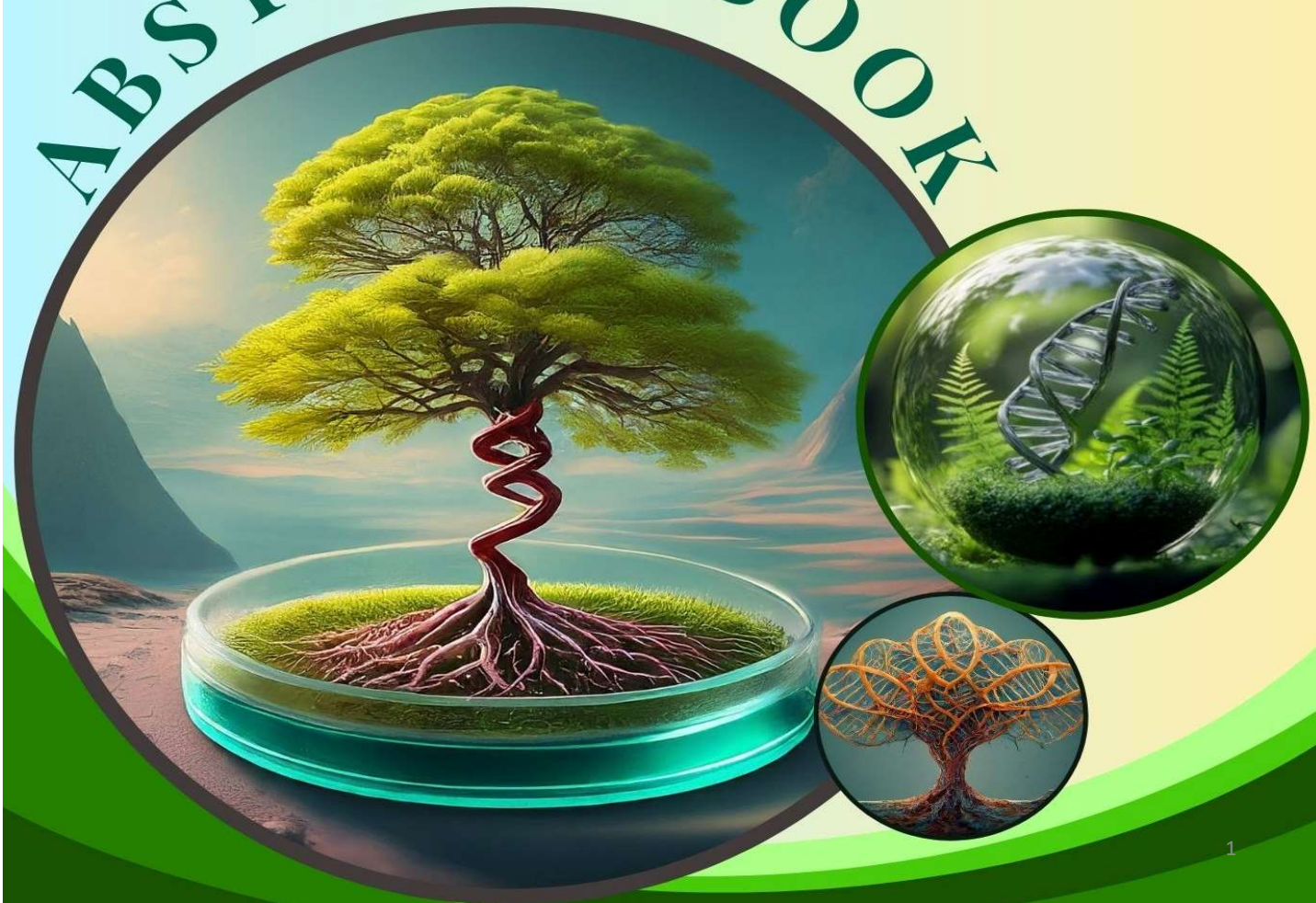
GSBTM and CVMU Sponsored Two Days
International Conference
on

Biomedicines: Prospect and Challenges in Therapeutic Outcomes

27th & 28th December, 2024

ABSTRACT BOOK



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Editorial Message

It is with great pride and enthusiasm that we present the proceedings of the upcoming *International Conference on Biomedicines: Prospects and Challenges in Therapeutic Outcomes,* to be held at Indukaka Ipcowala college of Pharmacy (CVMU), New V.V. Nagar, Anand. This conference serves as a vibrant platform for bringing together researchers, academicians, clinicians, and students from diverse disciplines to share their innovative findings, critical analyses, and visionary ideas in the field of biomedicines. The objective of this conference is to identify the challenges involved in the development of Biomedicines, Designing and quality evaluation of Biomedicines, Efficacy and safety monitoring and Regulatory aspect of Biomedicines. This compilation of research articles highlights the contributors' dedication and scholarly rigor in addressing both the prospects and challenges of unlocking the full therapeutic potential of biomedicines. we extend our heartfelt gratitude to all the contributors, reviewers, and organizers who are making this conference and its proceedings possible. Let this collection of research ignite new ideas and advance therapeutic breakthroughs for better outcomes.

ABOUT THE CVM UNIVERSITY

Charutar Vidya Mandal (CVM) was established in 1945 with the cause of rural regeneration by establishing Gramodyog and by bringing higher education to the doorstep of village community. CVM Manages more than 50 Educational Institutions in Vallabh Vidyanagar which is a comprehensive hub of higher Education that provides schools and colleges of all major disciplines. To cater the need of modern education, Charutar Vidya Mandal established a CVM University (CVMU) in year 2020. CVMU offers courses in Engineering, Pharmacy, Science, Education, arts, Ayurveda, Commerce, Homeopathy, Nursing and Physiotherapy etc. More than 22 Institutions are a part of CVMU. Spread over an expanse of 700 acres, the University has world-class infrastructure and diverse faculties that nurtures students' innovation, creativity, and holistic development of student's personalities, leading to sustainable development.

VISION OF CVMU

We aspire to be a melting pot for educational excellence, fostering creativity, innovation and leadership.

MISSION OF CVMU

CVM University, an equal opportunity institution, pursues excellence in Education and Research in a conducive environment which is culturally rich with a legacy of eminence in building character and strength of mind while standing for sustainability.

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ABOUT INDUKAKA IPCOWALA COLLEGE OF PHARMACY

IICP is a premier education institute in Gujarat imparting quality education in the field of Pharmacy. IICP, Charutar Vidya Mandal University, Vallabh Vidyanagar. It is established in June, 2004, having built up area of 67000 sq. ft. The college offers 4 years UG program and 2 years post graduate program in Pharmaceutical Analysis and Pharmaceutics. The institute is an architectural splendid with modern amenities, specifically designed to suit the requirements of pharmacy education and research. The institute is approved by Pharmacy Council of India(PCI).

VISION OF IICP

To become a Centre of Excellence for learning and research and thereby bridge the academia and industry, by harnessing the creative and innovative capabilities of young minds, thus inculcating the sense of community pharmacy for upliftment and welfare of the society.

MISSION OF IICP

- To produce competent pharmacists.
- To promote and encourage industry-oriented research at post graduate level and above.
- To create awareness about Pharmaceutical care in the community.
- To enhance dynamic leadership skills rooted in Indian ethos.
- To contribute at global level by creating a synergy between the academia and community through significant research.

QUALITY POLICY OF IICP

We reaffirm our commitment towards providing quality education and fulfilling our aim through

- Ensuring excellence in the academia.
- Understanding and fulfilling the academic requirements of the students.
- Recruiting and retaining qualified, self motivated and disciplined faculty and supporting staff.
- Continuous interaction to build up a 'contact bridge' between parent/guardian and college administration.
- Committed and innovative approach for enhancing learning capacity of students irrespective of their past academic record and medium of education.
- Implementation of international quality management system.
- We are determined to constantly strive towards excellence with strong bond of love and affectionate relationship and association with students and seek to be a trailblazer.

ABOUT GSBTM

Gujarat State Biotechnology Mission, working under the aegis of the Department of Science & Technology, Government of Gujarat, is the nodal agency for overall development of biotechnology in the state. The state is committed towards promotion of education, awareness, research & development, entrepreneurship, technology development and research commercialization etc, and is also endeavoring towards building a consensus through its various programmes and outreach activities across the state.

ABOUT THE CONFERENCE

GSBTM and CVMU Sponsored

Two Days International Conference on

"Biomedicines: Prospect and Challenges in Therapeutic Outcomes"

Biomedicines are the promising source of therapy for the treatment of various diseased conditions. It is used for the treatment of variety of illness like cancer, blood disorders, rheumatoid arthritic, cardiovascular dieseases etc. Biological products are manufactured through biotechnology, derived from natural sources or, in some cases, produced synthetically. Successful development and commercialization of biotechnological products require in-depth research and knowledge. Development of biotechnological products faces challanges related to ethical, safety and clinical efficacy, scale up and regulatory aspect. Present conference will focus on the challanges and remedies in the development of biotechnological and pharmaceutical products. Researchers are invited to present poster related to research in the various filelds of Biomeidicines and pharmaceuticals.

TOPICS

- Challenges involved in the development of Biomedicines.
- Designing and quality evaluation of Biomedicines
- Efficacy and safety monitoring
- Regulatory aspect of Biomedicines.

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Chairman's Message

I am happy to know that IICP is organizing international conference for researchers and academician. It is a platform for staff and students to acquire with current knowledge from expertise of National and International. Also provide platform to showcase their research contribution through active participation. I am sure that all have participated wholeheartedly in this venture.

Our young CVM university is becoming a platform for the overall development of the students by providing them ample opportunities for research, education, co-curricular and extra-curricular activities. It provides enough opportunities for all kinds of learners.

We, at The Charutar Vidya Mandal University, are committed to preserving the best interests of the students of all the colleges and expect the same kind of commitment in return.

I wish all the staff and students of IICP all the best for success of event.

Er. Bhikhubhai Patel

President, CVMU and

Chairman, Charutar Vidya Mandal

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Registrar's message

It is with great honor I extend my warm greetings to all the distinguished delegates, speakers, and participants of the International Conference organized by Indukaka Ipcowala college of pharmacy. This event offers unique opportunity for professionals and students to exchange knowledge, explore new trends, and foster collaboration within the pharmacy sector. As the Registrar of Charutar Vidhya Mandal University. I am proud of the collective efforts in organizing this event, which enhances our students' learning and strengthens global collaboration in pharmacy.

I would like to express my gratitude to the organizing committee, sponsors and all the participants who have contributed to the success of this conference. It is through your dedication and commitment that we are able to come together to exchange knowledge and build meaningful connections.

Dr. Sandeep Walia

Registrar, CVM University

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Principal's message

It is my pleasure to welcome you all to the international conference on biomedicines: prospect and challenges in therapeutic outcomes at Indukaka Ipcowala college of pharmacy (The Charutar Vidhya Mandal University), new Vallabh Vidhyanagar. This conference brings in participation from leading researchers in pharmaceutical industry and academia. The sessions at the conference address cutting-edge advancements in biomedicine, covering critical topics such as challenges in development, design and quality evaluation, efficacy and safety monitoring, and regulatory aspects. I encourage all the participants to make the best use of this opportunity. I wish all the best to the participants and convey my gratitude to all our guests. My sincere appreciation to the organizing committee for successful conduction of this two days international conference on biomedicines: prospect and challenges in therapeutic outcomes.

Dr. Harshaben V. Patel
Principal, IICP
CVM University

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From the Desk of Co-ordinators

Biomedicine is a medical science that applied biological and physiological principles to treat diseases and symptoms. Biotechnology based products are used in drug development, diagnostic, gene, cell therapies and regenerative medicines. It offers advantage of production of therapeutic proteins, antibodies, vaccines with high throughput. Biotechnology derived product offers advantage of mass production of safe and effective medicines and also prevents undesirable immune response from the body. These biopharmaceuticals are transforming healthcare sector and treatment of diseases like cancer, autoimmune disorders and infections. Being a highly acclaimed field, it is also affected by numerous challenges involved in biomedicine development and commercialization. These challenges include regulatory concerns, formulation and development, safety and efficacy and many more. The present conference focuses on these key issues and challenges involved in biotechnology-based product development. The conference also provides opportunity for researchers to showcase their research work through poster presentation. Selected posters have been included in this volume. We are sure that this write ups would be informative and beneficial to healthcare sector.

We greatly acknowledge the support from Gujarat state Biotechnology Mission (GSBTM), DST, Charutar Vidya Mandal University (CVMU) and our Sponsors for providing financial support to make this event successful.

Dr. Usmangani Chhalotiya
Dr. Dimal A. Shah
Co-ordinators,
Conference on Biomedicines

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Dr. Harshaben V. Patel

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Resource Person Details

Dr. Datta Madamwar
Scientific Advisor, Charotar University of Science & Technology, Changa, Anand.

Mr. Sinchan Shah
DGM in Portfolio and Corporate strategy, Accord-healthcare (Intas Pharma)Ahmedabad.

Mr. Niravsinh Rao
Assistant Manager, Hester Biosciences Limited, Ahmedabad.

Dr. Nitin Dubey
Professor, Indore Professional Studies (IPS) Academy College of Pharmacy, Indore.

Dr. Farhan Khan
Assistant Professor, Shaqra University Riyadh, Saudi Arabia.

Mr. Vivek P. Chavda
Assistant Professor, L. M. College of Pharmacy, Ahmedabad.

Mr. Jatin Vaghasiya
CMC Senior Program Manager, Novavax Inc., Maryland, USA.

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Resource Person

Dr. Datta Madamwar

Scientific Advisor, Charotar University of Science & Technology, Changa, Anand.

Dr. Datta Madamwar currently serves as Scientific Advisor at Charotar University of Science & Technology, Gujarat, following his tenure as Department Head and Science Dean at Sardar Patel University. A BITS Pilani Ph.D. graduate, he completed postdoctoral research at prestigious institutions including TIFR Mumbai and universities in Frankfurt and Konstanz.

As a renowned Microbial Biotechnologist, his research focuses on Microbial Bioremediation, Environmental Biotechnology, Non-aqueous Enzymology, and Cyanobacterial Biotechnology. He has held visiting positions at institutions like Swiss Federal Institute of Technology and University of Blaise Pascal.

His distinguished career is marked by numerous accolades, including the BRSI Lifetime Achievement Award (2019) and Microbiology Devotion Award (2021). With an h-index of 74 and over 18,000 citations, his research contributions include 290+ papers, several book chapters, and an American provisional patent. He serves on expert committees for DBT, DST, and GSBTM, and has delivered invited lectures worldwide, from Germany to Japan.

Recognized among the World's Top 2% Scientists, Dr. Madamwar continues to influence the field through his extensive research and academic contributions.

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Resource Person

Mr. Sinchan Shah

DGM in Portfolio and Corporate strategy, Accord-healthcare (Intas Pharma)Ahmedabad.

Sinchan Shah, a pharmaceutical industry professional with over 15 years of experience, specializes in techno-commercial roles across regulatory, intellectual property, and business development segments. Having worked with prominent companies like Torrent Pharma, Sun Pharma, and Accord-Healthcare, he currently manages portfolio and corporate strategy.

Academically, Shah holds an M.Pharm in Novel Drug Delivery Systems from M.S. University of Baroda and a PGDBM in International Business Management from Ahmedabad Management Association, in collaboration with California State University.

His professional expertise includes providing strategic guidance to innovators, conducting commercial analysis, and performing IP due diligence. Shah is passionate about sustainable energy, environmental innovation, and ongoing research into lifestyle disease treatments.

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Resource Person

Mr. Niravsinh Rao

Assistant Manager, Hester Biosciences Limited, Ahmedabad.

Mr. Rao is currently working as Assistant Manager, Department of Quality Control, Hester Biosciences Limited, Ahmedabad. He completed his M.Pharm in Pharmacology in 2009 and served in academia for 4 years as an assistant professor. He has published more than 21 research articles in reputed national and International Journals. He is an experienced professional in GMP/GLP practices, ISO and FDA compliance, and international audits. He has a strong background in operations management, team leadership, training, and documentation. He has attended several national and international training programs, workshops, and conferences and delivered guest talks at various places.

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Resource Person

Dr. Nitin Dubey

Professor, Indore Professional Studies (IPS) Academy College of Pharmacy, Indore.

Dr. Nitin Dubey has a rich teaching experience of more than Twenty-one years at undergraduate and post graduate level. He has 65 international research papers, 112 research presentations, more than seven books, and several book chapters to his credit. He has several national and international patents, designs, and copyrights for his innovations. He is serving as a peer reviewer to many journals of international repute. He has guided more than 32 postgraduates in their research work. His research areas include the role of AI in Quality assurance, Quality control, Nano-technology, and method development of Pharmaceuticals and traditional medicines.

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Resource Person

Dr. Farhan Khan

Assistant Professor, Shaqra University Riyadh, Saudi Arabia.

Dr. Farhan Khan is an Assistant Professor and researcher at the College of Applied Medical Sciences, Shaqra University in Riyadh, Saudi Arabia. He holds a Master's degree in Pharmacy (M.Pharm) and a PhD in Pharmaceutical Chemistry. As a prolific researcher, Dr. Khan has authored more than 50 scientific articles, including both research papers and reviews, which have been published in prestigious high-impact journals such as Elsevier, Springer, Nature, and Taylor & Francis. Throughout his career, he has actively participated in various research collaborations and secured multiple research grants through Shaqra University and Prince Sattam University in Saudi Arabia.

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Resource Person

Mr. Vivek P. Chavda

Assistant Professor, Shaqra University Riyadh, Saudi Arabia.

Vivek P Chavda, a distinguished Assistant Professor (Selection Grade) at L. M. College of Pharmacy's Department of Pharmaceutics, Ahmedabad, holds gold medals in both B.Pharm and M.Pharm from Gujarat Technological University. Prior to academia, he spent 8 years in biologics R&D at Lupin Biotech and Dr. Reddy's Laboratory, contributing to two successful regulatory filings.

His impressive academic portfolio includes over 250 publications, 38 book chapters (with 10 in progress), editorship of 5 international books (7 forthcoming), and 7 patents and 2 copyrights under development. Recognized among the world's top 2% scientists by Stanford University and Elsevier (2023-24), he maintains an H-index of 38.

Dr. Chavda serves on editorial boards of prominent journals including Military Medical Research (IF 19) and Oncology Research (IF 4.9). As a guest editor for MDPI, Frontiers, and Springer Nature, he reviews journals with impact factors of 2-73.

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Resource Person

Mr. Jatin Vaghasiya

CMC Senior Program Manager, Novavax Inc., Maryland, USA.

Currently serving as Sr. Program Manager, CMC at Novavax Inc., USA with a proven track record of fostering collaboration, mentoring, and promoting best practices in program management. Holds a Master of Science in Project Management focusing on clinical trials from Northeastern University. A highly accomplished Program Manager with over 7 years of experience in the biopharmaceutical industry, specializing in Chemistry, Manufacturing, and Controls (CMC) project management for vaccine programs. Skilled in leading cross-functional teams, managing complex global projects, and integrating CMC activities from clinical development through regulatory approvals and product launches. Known for identifying and mitigating risks, streamlining processes, and delivering projects on time and within budget. Expertise includes regulatory submissions and Module 3 technical writing for global agencies like EUA, EMA, MHRA, TGA, and PMDA.

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POSTERS OF PHARMACEUTICAL CHEMISTRY AND PHARMACEUTICAL ANALYSIS DOMAIN

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Poster code:PCHEM 01

Title: Development and Validation of Green RP-HPLC Method for the Analysis of Chloramphenicol

Authors:Dhruvi A. Prajapati*1, Falgun A. Mehta2

Affiliation:1. School of Pharmacy, Parul University, Vadodara, Gujarat, India. 2. Krishna School of Pharmacy & Research, Drs. Kiran and Pallavi Patel Global University, Vadodara, Gujarat, India.

Corresponding author: dap2611@gmail.com

ABSTRACT:

Green analytical chemistry has been recommended to avoid the consumption of hazardous chemicals; therefore a rapid, simple and sensitive liquid chromatography method was developed for the estimation of Chloramphenicol (CHL). Separation was performed with a mobile phase composed of Water: Methanol (30:70) pumped at a flow rate of 1.0 mL/min on Shimpack GIST C18 (250 × 4.6 mm, 5 µm) with UV detection at 275 nm. The method detection limit is 2.53 µg/mL and the limit of quantification is 7.68 µg/mL for CHL. The proposed method was validated according to International Conference on Harmonization guidelines and was successfully applied for the determination of the CHL in pharmaceutical preparations with mean recoveries ranging from 99.43 to 101.90%, and intra- and inter-day precisions with relative standard deviations does not exceed 2%. Moreover, the greenness of the suggested method was investigated using suitable Green Analytical Procedure Index techniques and Analytical Greenness calculator (AGREE) which indicated that the proposed method has the least harmful effect on the environment.

Keywords: Green method, Method development, Chloramphenicol, RP-HPLC, Eco friendly, validation

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Poster code:PCHEM 02

Title: An Overview On Harmonizing Probiotics Categories Across The Globe: Current Challenges And Future Aspects

Authors:Prajwal N Bhadrannavar[1], Dr. Purvi Shah*

Affiliation:Department of Regulatory Affairs, Parul Institute of Pharmacy & Research, Vadodara, Gujarat. Dr. Purvi Shah*: Purvi.shah22046@paruluniversity.ac.in

ABSTRACT:

New probiotic strains have been discovered due to their increasing popularity in various countries such as India, Europe, Japan, Brazil, the USA, and Canada, driven by their potential health benefits. Before incorporating probiotics into food products, thorough safety assessments and reliable clinical trials are essential. False claims and improper use of "probiotics" weaken consumer trust and inhibit the industry's growth. There are still challenges in selecting, developing, and utilizing probiotics efficiently. Before employing probiotics as medication, a thorough study of safety aspects, patient risk assessments, and appropriate handling practices is essential. The fragmented worldwide regulatory framework confuses probiotic manufacturers, consumers, regulatory agencies, and scientists. Harmonizing legislation across different nations is necessary by categorizing probiotics according to their claims. Fighting false health claims and ensuring reliable information is crucial. Regulating probiotics according to risk (source, intended use) enables the implementation of suitable measures. Confusion would decrease, and a single regulatory framework would make safe commercialization easier. Future regulations could establish a multi-tiered classification system that meets specific standards. We must resolve these issues to guarantee probiotics' secure and efficient use. Encouraging scientific study, implementing clear labelling, and aiming for global regulatory harmonization will allow us to realize the total health benefits of probiotics.

Keywords: Probiotics, Regulatory bodies, Probiotics categorization, LAB, QPS, GMO.

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Poster code:PCHEM 03

Title: HPTLC-Densitometric Method Development For Quantification Of Solanine And Solasodine In *Solanum nigrum* Linn. Berries Extract

Authors:Payal Panchal[1*], Dimal Shah[2]

Affiliation:[1*]Research Scholar, The CVM University, India. [2] Department of Pharmaceutical Chemistry and Analysis, Indukaka Ipcowala College of Pharmacy, The CVM University, New Vallabh Vidyanagar, Anand, India. *Corresponding author: payaljpanchal18@gmail.com

ABSTRACT:

Solanum nigrum Linn, a member of the Solanaceae family, berries have long been used as both food and medicine base on its ethnobotanical survey. It contains various chemical components such as steroidal glycoalkaloids, coumarins, flavonoids, tannins, saponins, proteins, carbohydrates, glycosides, and phytosterols. The objective of the current work was to create a repeatable and consistent HPTLC-validated technique for concurrently detecting solanine and solasodine in *Solanum nigrum* berries extract in accordance with ICH recommendations. The HPTLC method development was carried out using aluminum pre-coated plates with silica gel 60 F254 Hexane: Toluene: Ethyl acetate: Diethyl amine (9:2:1:0.5 v/v/v/v) as the mobile phase. Densitometric quantification was performed at 366 nm before derivatization for solanine and at 366 nm for solasodine after derivatization with anisaldehyde–sulfuric acid reagent. The optimized mobile phase resulted in chromatographic separation of solanine and solasodine bands at R_f of 0.62 and 0.23 respectively. The method was found to be linear in the concentration range of 400-2400 ng/band for solanine, 100-1000 ng/band for solasodine correlation coefficients (r2) of 0.9979 and 0.9972. The recoveries were found to be 98.78 -99.69 % for solanine and 97.77 - 99.77 % for solasodine. The optimized method was found to be accurate, reproducible, robust and specific and it was applied for the quantification of solanine and solasodine in *Solanum nigrum* Linn *berries* extract.

Keywords: HPTLC, Solanum nigrum Linn, Solasodine, solanine.

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Poster code:PCHEM 04

Title: LC-MS METHOD DEVELOPMENT AND EXTRACTION OF CAFFINE FROM COFFEE BEANS

Authors:Jeni Sudani*, Dr. Zanza Patel[1]

Affiliation:Parul Institute Of Pharmacy, Parul University, Vadodara

ABSTRACT:

Coffee has been enjoyed in the world for the past four thousand or so years and within the west for about the past 400 years. Currently brazil is the highest consumer of coffee in the world. Two major species of coffee grown commercially are robusta and arabica. Caffeine is a bitter substance that occurs naturally in more than 60 plants. Caffeine is natural chemical with stimulant effects. Caffeine works by simulating the central nervous system, heart, muscles, and control blood pressure. In the case of caffeine extaction from tea powder, the solubility of caffeine in water is 22mg/ml at 25°C, 180mg/ml at 80°C and 670mg/ml at 100°C. here the organic solvent dichloromethane is used to extract caffeine from aqueous extract of tea powder. Then developed caffeine sample which can be analyzed by LC-MS. We found that out sample consists of some other compound namely practolol and methylphenidrine in trace amount other than caffeine. In confirmed presence of caffeine in our sample by its molecular weight 195gm/molar and structure from toxtyper result which has inbuilt library of many compounds. The retention time of caffeine was 3.4 minutes.

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Poster code:PCHEM 05

Title: A Critical Review Of Analytical Methods For Determination Of Polyphenols In Emblica Phyllanthus

Authors:Vrunda J. Joshi*[1], Dr. Komal S. Patel*[2]

Affiliation:[1] Department of Quality Assurance, Parul Institute of Pharmacy, Parul University, Vadodara.

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ABSTRACT:

Emblica phyllanthus L. known as Amla. Amla is a rich source of natural vitamin C and is used in many traditional and folk systems of medicine. It is used in pharmaceuticals, nutraceuticals, food industry, and cosmetics sectors. The therapeutic actions of plant mainly attributed due to its Polyphenols- Gallic acid, ellagic acid, apeigenin, quercetin, corilagin, and leutolin. These compounds have a high level of bioactivity. The current review is compilation of qualitative and quantitative analytical methods for identification and estimation of its bioactive compounds. Given the chemical complexity of compounds from the Emblica genus, a variety of analytical techniques are necessary for thorough analysis. Essential methods for quality control include high-performance liquid chromatography (HPLC), gas chromatography–mass spectrometry (GC–MS), ultraviolet–visible spectroscopy (UV), and high-performance thin-layer chromatography (HPTLC). HPLC is particularly valuable for providing detailed polyphenols profiles and tracking multiple compounds at both preparative and analytical stages. Integrative approaches, such as metabolomics that use various methods, can help classify amla varieties, detect adulterations, polyphenols and contaminants, and offer a comprehensive metabolite profile for quality assessment of specific compounds.

Keywords: Emblica phyllanthus, HPLC, HPTLC, GC-MS, UV

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Poster code:PCHEM 06

Title: Integrating Real World Evidence in European Drug Approvals

Authors:Mrunal Dehankar*, Kalpana Patel

Affiliation:Anand Pharmacy College, Anand

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ABSTRACT:

Real-World Evidence (RWE) is reshaping drug regulatory processes in Europe by providing critical insights into the real-life effectiveness, safety, and usage of medicines beyond the confines of traditional clinical trials. Sourced from electronic health records, patient registries, insurance claims, and wearable devices, RWE reflects diverse patient experiences and contributes to a more comprehensive evaluation of medicinal products. The European Medicines Agency (EMA) and other EU regulatory bodies are increasingly using RWE to support decisions in post-marketing surveillance, pharmacovigilance, and adaptive licensing, particularly for conditions with small patient populations or limited treatment options. Key initiatives, such as the European Network of Centres for Pharmacoepidemiology and Pharmacovigilance (ENCePP), promote the quality and accessibility of real-world data for regulatory use. While RWE offers numerous advantages, including faster patient access to treatments and enhanced safety monitoring, it also brings challenges. Data standardization, GDPR compliance, and the development of robust regulatory frameworks are essential for effective RWE integration. As the EMA refines its guidelines, the role of RWE in shaping adaptive, patient-centered regulatory pathways in Europe is set to expand, supporting a more responsive approach to drug approval and monitoring in real-world settings. Hence, the changing role of RWE in the European drug approval landscape, its regulatory implications, and the necessity for creative approaches to maximize its usage in order to create a more effective and patient-centered healthcare system are highlighted.

Keywords: Real World Evidence, European Medicines Agency, European Network of Centres, Pharmacoepidemiology, Pharmacovigilance, GDPR

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Poster code:PCHEM 07

Title: Regulatory Landscape of Software as a Medical Device (SaMD) in Digital Health

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ABSTRACT:

With Software as a Medical Device (SaMD) becoming a key category, the healthcare industry has changed dramatically due to the quick development of digital health technology. SaMD stands for stand-alone software that is intended to carry out medical tasks without being a component of a tangible medical device. The ability to help with diagnosis, disease monitoring, therapy recommendations, and more makes it a crucial part of contemporary, data-driven healthcare.The regulatory frameworks controlling SaMD are examined in this poster, with particular attention paid to recommendations made by the European Medicines Agency (EMA), the International Medical Device Regulators Forum (IMDRF), and the U.S. Food and Drug Administration (FDA). Risk-based classification is a fundamental aspect of SaMD regulation, wherein SaMD is assessed according to its possible influence on patient safety and health outcomes. For instance, SaMD is categorized by the FDA into three risk levels (I, II, and III), each with different standards for cybersecurity, clinical evidence, and quality control.Clinical validation, data privacy, and cybersecurity are three of SaMD's main regulatory issues. The intricacy of SaMD development, which frequently entails machine learning algorithms and real time data collection, adds to these difficulties by posing particular dangers and requiring compliance. Adaptive, real-time monitoring criteria have been introduced by regulatory authorities in response to recent developments in artificial intelligence. Developers, producers, and healthcare providers must be aware of SaMD standards since adherence guarantees patient safety and market access.

Keywords:- Software as a Medical Device (SaMD) ,FDA SaMD Guidance ,Artificial Intelligence (AI) , Patient Safety in Digital Health , Risk Management for SaMD , SaMD Lifecycle Management , Regulatory Challenges for SaMD.

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Poster code:PCHEM 08

Title: Stability Indicating Method Development And Validation For Assay and Impurity Profiling Using QbD For The Various Anti-diabetic Drugs And Their Combinations

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ABSTRACT:

This study uses an enhanced analytical quality by design (AQbD) approach based on QRM and DoE to optimize, develop, and validate the Reverse Phase High-Performance Liquid Chromatography (RP-HPLC) method for the simultaneous quantification of Remogliflozin Etabonate, Vildagliptin, and Metformin Hydrochloride in a single pharmaceutical formulation. This new method of Assay is used for simultaneous estimation of three components in single chromatographic condition which reduce costing with respect to time, chemicals, instrument utilization. For impurity profiling two separate method are developed and validated. First method is developed & validated for impurities of Metformin hydrochloride only in single formulation and second method is developed & validated for impurities for Remogliflozin etabonate and Vildagliptin in single formulation. Impurities profiling & validation for Metformin Hydrochloride is performed with respect to to ICH Q3B(R2) and ICH Q2(R2) using 1-Cyanoguanidine as known impurity and other unknown impurities. Impurities profiling & validation for Remogliflozin etabonate and Vildagliptin are performed with respect to to ICH Q3B(R2) and ICH Q2(R2) using Remogliflozin etabonate impurity as known impurity and other unknown impurities of Vildagliptin in combined method.

Keywords: quality by design, Remogliflozin Etabonate, Vildagliptin, and Metformin Hydrochloride.

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Poster code:PCHEM 09
Title: 3D Printing In Drug Design

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ABSTRACT:

The use of 3D printing in drug design represents a transformative approach within the pharmaceutical industry, enabling the production of complex, customized drug delivery systems. This technology, also known as additive manufacturing, builds structures layer-by-layer from digital models, facilitating the creation of personalized medication forms and enhancing drug stability, bioavailability, and targeted delivery. Key 3D printing techniques such as fused deposition modelling, stereolithography, and selective laser sintering support the production of various drug formulations, including controlled-release tablets and biodegradable implants. Significant applications range from individualized drug dosages to preclinical studies, benefiting specific patient groups and addressing unmet needs in chronic disease management. Regulatory frameworks, quality control, and scalability remain challenges, as agencies worldwide adapt to this innovative technology's demands. The future of 3D printing in drug design shows promise for on-demand manufacturing, polypill production, and integration with digital health systems, although further clinical validation and cost-effective solutions are essential for its widespread adoption.

Keywords:3D printing, drug design, pharmaceutical

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Poster code:PCHEM 10

Title: TLC-Densitometric method for the simultaneous estimation of Glimepiride and Linagliptin for the treatment of Diabetes

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Affiliation:1- M.Pharm student at Indukaka Ipcowala College Of Pharmacy, New V.V. Nagar, Anand. 2- Head of Department, Department of Pharmaceutical chemistry & pharmaceutical Analysis at Indukaka Ipcowala College of Pharmacy New V.V. Nagar, Anand.

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ABSTRACT:

Combination of Glimepiride and Linagliptin is prescribed in treatment of type 2 diabetes. The present work represents an accurate and precise high-performance thin layer chromatographic method for the estimation of Glimepiride (GLM) and Linagliptin (LIN) in combined dosage form, pre-coated silica gel- G60 F_{254} aluminum sheet (100 × 100 mm, 0.2 mm layer thickness) were used as stationary phase and Methanol: Toluene (2:8 v/v) in the mixture was used as mobile phase. The method was linear in the range of 20-120 ng/band for GLM and 100-600 ng/band for LIN with a correlation coefficient (r^2) 0.9952 for GLM and 0.9936 for LIN. The proposed method was validated with respect to linearity, accuracy, precision, robustness and specificity as per ICH Q2 (R2) guideline. Forced degradation study was carried out to find out the intrinsic stability of both the molecules. GLM was significantly degraded in acid, oxidative and thermal degradation while LIN was found to be stable in this condition. GLM and LIN were degraded in alkali and photo degradation. Drug content in synthetic mixture is determined by proposed method where it exhibited good recovery which shows the applicability of method for the analysis of GLM and LIN in combined formulation.

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Poster code:PCHEM 12

Title: Computational Approach for Prediction of Target for Allergic Asthma for *Amorphophallus paeoniifolius*

Authors:Heta D. Patel[1,*], Usmangani K. Chhalotiya[1], Jinal N. Tandel[1]

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ABSTRACT:

Purpose: A significant disease impacting quality of life is asthma, a pulmonary condition. *Amorphophallus paeoniifolius* (Donnst) Nicolson, traditionally used for allergic asthma treatment from the Araceae family, shows therapeutic potential against inflammation, though scientific validation but for specifically asthma and its molecular mechanisms remains incomplete. Methods: This study aimed to elucidate the molecular mechanisms of compounds present in A. paeoniifolius against asthma using a protein-target approach. Molecular docking assessed seven compounds from A. paeoniifolius against targets 4QTB and 2AZ5 using AutoDock 4.2 and Maestro for simulation. Molecular dynamics (MD) simulations analyzed stability and interactions of these compounds with anti-inflammatory targets relevant to asthma. In-silico ADMET predictions indicated favourable absorption and drug-like properties for potential asthma treatment. Results: Docking analysis revealed that betulinic acid and lupeol (compounds 2 and 4) showed strong binding -11.2 and -10.82 towards selected protein 4QTB and -9.80 and -7.26 towards 2AZ5 suggesting they stabilize these proteins to prevent inflammatory pathway activation. MD simulations supported these findings, showing stable interactions conducive to anti-inflammatory effects. This study suggests A. paeoniifolius could be beneficial in allergic asthma management through its active compounds. Conclusion: The findings gave the way for exploring multi-phytoanalytes and novel therapeutic targets in asthma treatment. Insights from ADMET predictions, molecular docking, and MD simulations offer a foundation for developing new anti-inflammatory drugs derived from A. paeoniifolius tuber extract.

Keywords: In-silico ADMET study, Molecular Docking, Dynamic Simulation, Amorphophallus paeoniifolius

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Poster code:PCHEM 13

Title: Phytochemical analysis and in vitro α- amylase activity of Tinospora cordifolia (Miers.) in Panchmahal District, Gujarat

Authors:Rut Megha[1*], Sunil Khristi [2], Mihirbhai Talpada[3] and Susmita Sahoo[4]

Affiliation:[1] PhD Scholar, NV. Patel college of pure & applied Sciences, The CVM university, V. V Nagar 388120, Gujarat, INDIA. [2] Former Assistant Professor, Ashok & Rita Patel Institute of Integrated Study & Research in Biotechnology and Allied Sciences, New Vallabh Vidyanagar, Gujarat – 388121, INDIA. [3]Mihirbhai Talpada ,Student, Shri I.J. Patel B.Ed. College, Anand 388001, Gujarat, INDIA. [4] Department of environmental science, NV. Patel college of pure & applied Sciences, The CVM university, V. V Nagar 388120, Gujarat, INDIA.

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ABSTRACT:

This study investigates the influence of various solvents on extraction yield, phytochemical composition, total phenolic and flavonoid content, and *in vitro* α-amylase inhibitory activity in the leaves and stems of *Tinospora cordifolia*. Methanolic extracts yielded the highest crude phytochemical content, with leaves and stems showing extraction efficiencies of 11.29% and 8.41%, respectively. Phytochemical screening revealed significant variations between the plant parts, likely influenced by genotypic and ecotypic factors. The phenolic content was highest in chloroform stem extracts (23.63 mg GAE/g dry weight) and methanol leaf extracts (20.38 mg GAE/g dry weight). Similarly, methanolic extracts demonstrated the highest flavonoid content, with leaves reaching 112.222 mg QE/g dry weight and stems 66.775 mg QE/g dry weight. In terms of α-amylase inhibition, methanolic leaf extracts exhibited the highest activity at 70.4%, while chloroform stem extracts achieved 60.0% inhibition. These results highlight the therapeutic potential of *T. cordifolia* in diabetes management, emphasizing the critical role of solvent selection and genetic and ecological factors in determining phytochemical profiles.

Keywords: α-amylase, Diabetes, Flavonoid, Phenolic, Phytochemicals, *Tinospora cordifolia*

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Poster code:PCHEM 14

Title: HIGH PERFORMANCE LIQUID CHROMATOGRAPHIC METHOD FOR DETERMINATION OF AZIDOMETHYL AND DIAZIDOMETHYL GENOTOXIC IMPURITIES IN VALSARTAN

Authors:Ms. Payal Chaudhari*, Ms. Maitry Patel, Ms. Hemangini Patel and Dr. Kalpana Patel

Affiliation: Department of Pharmaceutical Quality Assurance, Anand Pharmacy College, Anand, Gujarat, India. *Corresponding author: cpayal526@gmail.com

ABSTRACT:

The objective of this study was to develop and validate a specific and sensitive HPLC method for the separation and quantification of the genotoxic impurities Azidomethyl and Diazidomethyl in the antihypertensive drug substance valsartan. The method development was conducted using HPLC Instrument with a UV detector, employing an ACE Excel 5 Super C_{18} (250 × 4.6 mm, 5 µm) column. The mobile phase, consisting of a dipotassium hydrogen phosphate buffer pH 6.3 adjusted by Orthophosphoric acid and acetonitrile in an isocratic program (400:600 v/v), was used at a flow rate of 1.0 mL/min, with detection at 224 nm, a column temperature of 30°C, and an injection volume of 40 µL. The mobile phase also served as the diluent. Results showed excellent linearity within the range of 0.0408–0.2721 µg/mL for both Azidomethyl and Diazidomethyl impurities. The retention times (Rt) for valsartan, Azidomethyl, and Diazidomethyl impurities were found to be 2.58 min, 14.05 min, and 19.94 min, respectively. The method demonstrated high sensitivity, with limits of detection (LOD) at 0.43 µg/mL and 0.37 µg/mL, and limits of quantification (LOQ) at 1.30 µg/mL and 1.12 µg/mL for Azidomethyl and Diazidomethyl, respectively. Accuracy results ranged from 97.62% to 104.59%, while the correlation coefficients for linearity were 0.9997 and 0.9998 for Azidomethyl and Diazidomethyl, respectively. Overall, the HPLC method developed was proven to be specific, sensitive, linear, precise, and accurate for the determination of Azidomethyl and Diazidomethyl impurities in valsartan.

Keywords: Valsartan, Azidomethyl, Diazidomethyl, Genotoxic Impurities, HPLC, ICH guidelines.

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Poster code:PCHEM 15

Title: BBD ASSISTED SUSTAINABLE HIGH PERFORMANCE LIQUID CHROMATOGRAPHIC METHOD FOR ESTIMATION OF ANTIDIABETIC DRUG COMBINATION IN TABLET DOSAGE FORM

Authors:Ms. Ritika Patel*, Mr. Raj Babariya and Dr. Kalpana Patel

Affiliation: Department of Pharmaceutical Quality Assurance, Anand Pharmacy College, Anand, Gujarat, India. *Corresponding author: ritu.p2341@gmail.com

ABSTRACT:

Using the Box Behnken design, HPLC method was developed and quantified for three antidiabetic drugs, pioglitazone HCL, metformin hydrochloride and teneligliptin hydrobromide hydrate in tablet dosage form. The Box-Behnken design was utilized to determine how the volume of acetonitrile, flow rate, column temperature, and specified important technique parameters affected the retention time of all three medications and the resolution between two drugs. To determine the possible interactions between the critical method parameters, statistical analysis using ANOVA was conducted. By defining the design space through statistical and graphical optimization, the mathematical model was further confirmed. Acetonitrile, methanol, and KH_2PO_4 phosphate buffer (20 mM) were used as the mobile phase for chromatographic separation using an ODS column (250 × 4.6 mm, 5 µm). The mobile phase flow rate was set at 0.86 ml/min, and the detection was carried out at 236 nm. As indicated by $r^2 \geq 0.99$ for all three medications, the linearity was found in the range of 12–28 µg/ml for teneligliptin hydrobromide hydrate, 300–700 µg/ml for metformin hydrochloride, and 9–21 µg/ml for pioglitazone hydrochloride. Teneligliptin hydrobromide hydrate, metformin hydrochloride, and pioglitazone hydrochloride had respective retention times of 4.09, 3.01, and 11.44 minutes. The method was validated in accordance with guidelines since the percentage relative standard deviation for accuracy, precision, and robustness was less than 2, within the specification. The research effectively illustrates how Box-Behnken design and greenness tools used resulted in development of an eco-friendly liquid chromatographic technique that is sensitive, accurate, sustainable and performs efficiently.

Keywords: Teneligliptin hydrobromide hydrate, Metformin hydrochloride, Pioglitazone hydrochloride, validation, HPLC, DoE

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Poster code:PCHEM 17

Title: STABILITY INDICATING HIGH PERFORMANCE THIN LAYER CHROMATOGRAPHIC METHOD FOR SIMULTANEOUS ESTIMATION OF BISOPROLOL FUMARATE AND TELMISARTAN IN PHARMACEUTICAL DOSAGE FORM

Authors:Mr. Pratham Patil,* Mr. Abhishek Bhavsar, Dr. Devang Tandel and Dr. Kalpana Patel

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ABSTRACT:

A stability-indicating High-Performance Thin-Layer Chromatography (HPTLC) method was developed and validated for the simultaneous estimation of Bisoprolol and Telmisartan in pharmaceutical dosage form. The method utilized HPTLC aluminium plates precoated with silica gel 60 F_{254} as the stationary phase. Forced degradation studies were conducted under various stress conditions to assess the stability of the drugs, and validation parameters were evaluated in accordance with the ICH Q2 (R2) guidelines. The optimized mobile phase was Toluene: Methanol: 2-Propanol: Ammonia (8:1:1:0.1 v/v/v) with a saturation time of 30 minutes, and detection was carried out at 224 nm. The R_f values for Bisoprolol and Telmisartan were found to be 0.50 and 0.25, respectively. The method demonstrated good precision and accuracy, with the %RSD values for both drugs remaining below 2%. The stability studies revealed that Bisoprolol was most susceptible to photolytic degradation, followed by thermal, acid, oxidative, and base degradation whereas Telmisartan exhibited the following degradation pattern: oxidative, photolytic, thermal, base, acid. The developed HPTLC method was proven to be specific, reproducible, and robust, making it suitable for routine quality control analysis of Bisoprolol and Telmisartan in pharmaceutical formulations, as well as for monitoring the stability of these drugs under various stress conditions.

Keywords: Telmisartan, Bisoprolol, High Performance Thin Layer Chromatography, Method Development, Validation.

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Poster code:PCHEM 19

Title: HIGH PERFORMANCE LIQUID CHROMATOGRAPHY METHOD FOR SIMULTANEOUS ESTIMATION OF VILDAGLIPTIN, DAPAGLIFLOZIN PROPANEDIOL MONOHYDRATE AND METFORMIN HYDROCHLORIDE IN SYNTHETIC MIXTURE

Authors:Ms. Tanvi Kachhiya*, Ms. Krinal Barot and Dr. Kalpana Patel

Affiliation: Department of Pharmaceutical Quality Assurance, Anand Pharmacy College, Anand, Gujarat, India. *Corresponding author: tanvikachhiya@gmail.com

ABSTRACT:

A simple, accurate and precise high performance liquid chromatography method has been developed for simultaneous estimation of Vildagliptin, Dapagliflozin propanediol monohydrate and Metformin hydrochloride in synthetic mixture. The determination was carried out by using HPLC (Waters e2695) with Inertsil C_{18} (5 µm, 150 × 4.6 mm) column for chromatographic separation. Mobile phase composition of Acetonitrile and 10 mM Potassium dihydrogen phosphate buffer pH 6.5 (25:75, %v/v) produced the best results, with good peak shape and resolution. Flow rate was adjusted to 1ml/min, detection wavelength was 214 nm and injection volume was 10 µl. By using the developed method, retention time of Metformin, Vildagliptin and Dapagliflozin was 2.262, 3.956 and 11.411 min respectively. Linearity was observed in range of 300-700 µg/ml for Metformin, 30-70 µg/ml for Vildagliptin and 3-7 µg/ml for Dapagliflozin. Regression Coefficient(R^2) of Metformin, Vildagliptin and Dapagliflozin was 0.9983, 0.9992, 0.9992 respectively. The % Relative Standard Deviation for validation parameters of HPLC method was found to be less than 2, which proves accuracy, precision and robustness demonstrating that the HPLC method is suitable for its intended purpose and meets the criteria defined in International Conference on Harmonization Q2(R2). The percent recoveries of the amount of Metformin(97.52-102.01%), Vildagliptin(98.93-100.81%) and Dapagliflozin(101.0-102.11%) in the synthetic mixture were found in acceptable range, there by suggesting that there is no interference from any of the excipients that is normally present in proposed synthetic mixture. Hence, the proposed accurate and precise HPLC method can be used for routine quality control testing of formulation.

Key words: Vildagliptin, Dapagliflozin Propanediol Monohydrate,Metformin Hydrochloride, validation, HPLC

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Poster code:PCHEM 20

Title: Stability Indicating Densitometric Method for Estimation of Novel Drug Vonoprazan Fumarate Used in The Treatment Of Gastroesophageal Reflux Disease

Authors:Mitalben S. Parmar[1], Dimal A. Shah[*]

Affiliation: [1]Department of Pharmaceutical Chemistry and Analysis, Indukaka Ipcowala College of Pharmacy, The CVM University, New Vallabh Vidyanagar, Anand, India.

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ABSTRACT:

A simple, selective, precise and reproducible stability indicating high - performance thin liquid chromatographic method for analysis of Vonoprazan fumarate used in treatment of gastric esophageal reflux disease has been developed and validated. Aluminum backed TLC plates precoated with silica gel 60F 254 were used as stationary phase and Methanol: Toluene: TEA (6:4;0.06 v/v/v) was used as mobile phase. A compact band (Rf values 0.43 ± 0.01) was obtained for Vonoprazan fumarate. Linear regression analysis revealed a good linear relationship (R^2 = 0.9996) between peak area and concentration in the range 200-1200 ng/spot for Vonoprazan fumarate. The proposed method was validated with respect to linearity, accuracy, precision and robustness as per ICH Q2 (R1) guidelines. Forced degradation study was performed to find out the intrinsic stability of the molecule.

Keywords: Vonoprazan fumarate, Validation, High Performance thin liquid Chromatography, forced degradation study, Kinetic study.

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Poster code:PCHEM 21

Title: Regulatory Aspects of Biological Medicines in Southeastern Europe

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Affiliation: [1] Department of Pharmaceutical Regulatory Affairs Parul Institute of Pharmacy, Parul University, Vadodara-391760, Gujarat, India.

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ABSTRACT:

Biological medicines, or "biologics," have revolutionized the treatment of chronic diseases such as cancer, rheumatoid arthritis, Crohn's disease, multiple sclerosis, and psoriasis. Despite their therapeutic benefits, biologics are expensive, which limits patient access and imposes financial strain on healthcare systems globally. Biosimilars—medications similar in quality, safety, and efficacy to originator biologics—provide a cost-effective alternative, increasing competition and accessibility. This review aims to evaluate the regulatory framework for biologics in Southeastern Europe, with a focus on Bosnia and Herzegovina, including its limitations in safety monitoring, guidance on interchangeability, and an overview of approved biologics. Recommendations are provided to enhance biosimilar acceptance and improve patient access to biologics. An analysis of Bosnia and Herzegovina's current regulatory framework was conducted, focusing on pharmacovigilance practices, interchangeability guidelines, and healthcare provider engagement. The findings highlight regulatory limitations, a need for active pharmacovigilance, and insufficient awareness among healthcare providers. A strengthened regulatory framework, capacity-building initiatives, and continuous provider education on biosimilars are essential steps. Implementing the proposed recommendations—such as refining interchangeability definitions, increasing pharmacovigilance efforts, and integrating biosimilar education into medical curricula—will likely improve biosimilar uptake and accessibility. Enhancing the regulatory landscape in Bosnia and Herzegovina is crucial for better healthcare sustainability and patient outcomes.

Keywords: Biological medicines, regulatory framework, pharmacovigilance, interchangeability, safety

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Poster code:PCHEM 22

Title: FORCED DEGRADATION STUDIES AND ASSESSMENT OF DEGRADED PRODUCTS OF IMEGLIMIN HYDROCHLORIDE UTILIZING LC-ESI-APCI-MS

Authors:Dhwani Patel, Aashi Talati, Hiral Dave*

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ABSTRACT:

Forced degradation exposes drug substances to stress conditions, generating degradation products, essential for assessing stability under accelerated conditions. Imeglimin hydrochloride, with its unique mechanism, shows promise in enhancing insulin sensitivity and secretion, distinguishing it from conventional hypoglycemic drugs. The present research provides the forced degradation conditions and LC-MS evaluation of degraded products of drug substances under various stress conditions, providing insights into stability and fragmentation pathways.Initially, a non-volatile mobile phase of phosphate buffer (pH 3 adjusted with orthophosphoric acid) and methanol (75:25 v/v) was used for HPLC. It was later changed to a volatile phase for LC-MS compatibility, using 10 mM ammonium formate buffer (pH 3 adjusted with formic acid) and methanol (75:25 v/v) on an Xtimate C_{18} column at 0.8 mL/min. UV detection was at 234 nm. The drug underwent stress conditions including hydrolysis, oxidation, photolysis, and thermal stress. The LC-MS method successfully separated and evaluated all degradants. Imeglimin hydrochloride degraded under oxidative conditions at room temperature and basic conditions at elevated temperatures. LC-MS identified two new degradation products, DP1 (*m/z* 160.2) and DP2 (*m/z* 118.0). Proposed formation mechanisms were based on predicted and observed fragmentation patterns. The method was validated according to ICH guideline Q2 (R2). Imeglimin hydrochloride was susceptible to oxidation and basic conditions but stable under acidic, thermal, and photolytic conditions. LC-ESI-APCI-MS characterized the degradation byproducts, proposing a fragmentation pathway for the additional peaks. This study contributes valuable information regarding the stability profile of Imeglimin hydrochloride, which is essential for its development as a therapeutic agent.

Keywords: Antidiabetic drug, Forced degradation, High-Performance Liquid Chromatography, Liquid Chromatography-Mass Spectrometry, Stability Studies

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Poster code:PCHEM 23

Title: High Performance Liquid Chromatography (HPLC) Method Development and Validation for Simultaneous Estimation of Scopoletin, Embelin and Gallic acid in Manibhadra Avaleha by Experimental Design (DOE)

Authors:Shah Salvi", Shah Rutvi

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ABSTRACT:

Objective: This study aimed to develop and validate a robust high-performance liquid chromatography (HPLC) method, adhering to ICH Q2(R2) guidelines, for the simultaneous quantification of gallic acid, scopoletin, and embelin in Manibhadra Avaleha, a polyherbal formulation with medicinal properties. Method: Chromatographic separation was achieved using a BDS Hypersil C18 column (250 mm × 4.6 mm, 5 µm) with a mobile phase of methanol buffer (pH 4.0) in a 98:2 (v/v) ratio at a flow rate of 0.5 mL/min. Detection occurred at 267 nm. Validation parameters included system suitability, linearity, precision, accuracy, and robustness, with robustness assessed using a fractional factorial design (FFD). Results: Linearity ranged from 5–25 µg/mL for gallic acid, scopoletin, and embelin, with correlation coefficients of 0.999, 0.998, and 0.999, respectively. The LODs were 0.27 µg/mL, 1.94 µg/mL, and 0.95 µg/mL, and the LOQs were 0.83 µg/mL, 5.90 µg/mL, and 2.87 µg/mL for gallic acid, scopoletin, and embelin, respectively. Recoveries ranged from 97.00–101.60%, and precision studies showed %RSD values <2%. Retention times were 4.9 min, 5.5 min, and 6.8 min, respectively, for gallic acid, scopoletin, and embelin. Robustness testing demonstrated no significant changes in retention times. Conclusion: The validated HPLC method ensures precise, accurate, and robust quantification of gallic acid, scopoletin, and embelin in Manibhadra Avaleha, enhancing quality control and standardization for safe medicinal use.

Keywords: Gallic acid, Scopoletin, Embelin, HPLC, Validation, ICH guidelines

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Poster code:PCHEM 24

Title: Microbiome Based Medical Device: Bridging Information and Regulatory Framework for transforming healthcare

Authors:Satya Sakshi*, Kalpana Patel

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ABSTRACT:

The human microbiome (collective community of microorganism) has become a crucial component of both health and illness, impacting many biological functions in different organ systems. Microbiome based medical devices take advantage of this knowledge by modifying or analyzing microbial populations through monitoring, therapeutic and diagnostic methods. These gadgets offer creative answers to medical problems, with uses ranging from immunology and dermatology to gastrointestinal health. Promising uses for these gadgets include wound healing, infection prevention, gut health management, and personalized medicine. The intricate relationship between microbiome research, device functioning, and regulatory compliance presents difficulties, especially when it comes to categorizing goods that affect or interact with living things. Classifying microbiome-based devices, confirming their modes of action, and resolving issues with manufacturing and post-market surveillance are important factors to take into account. Unlike traditional medical devices, these products often straddle the boundaries between devices, biologics and pharmaceuticals. Hence, standardized data for microbiome-based devices is vital for clinical comprehension and regulatory compliance. The preclinical and clinical testing, safety and efficacy requirements, and quality control procedures specific to live microbial products are important regulatory factors. Emerging technologies that promise major therapeutic impact yet call for flexible regulatory frameworks, such as AI- driven diagnostics and tailored microbiome-based devices, are also included. To conclude, this review intends to facilitate the efficient development of microbiome-based medical devices, ultimately improving patient outcomes and promoting healthcare innovation, by looking at existing regulatory framework and bridging the gap between microbiome science and regulatory standards.

KEYWORDS: Microbiome modulation, Clinical evaluation, Preclinical assessment, AI-driven diagnostics

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Poster code:PCHEM 25

Title: DEVELOPMENT AND VALIDATION OF STABILITY INDICATING HPTLC METHODS FOR SIMULTANEOUS ESTIMATION OF TELMISARTAN AND BENIDIPINE HYDROCHLORIDE IN TABLET FORMULATION

Authors:Mr. Parin Savsani*, Ms. Riddhi Trivedi, Ms. Hemangini Patel and Dr. Kalpana Patel

Affiliation: Department of Pharmaceutical Quality Assurance, Anand Pharmacy College, Anand, Gujarat, India. *Corresponding author: Parinpatel11111@gmail.com

ABSTRACT:

A stability-indicating High-Performance Thin-Layer Chromatography (HPTLC) method was developed and validated for the simultaneous estimation of Telmisartan (TEL) and Benidipine HCL (BEN) in tablet formulations. In this method, aluminum plates precoated with silica gel 60 F254 were used as the stationary phase, and a mobile phase consisting of Benzene: Methanol (9:1.5, v/v) was optimized. The drugs were subjected to various forced degradation conditions, and the proposed method was validated according to ICH Q2(R2) guidelines. The Rf values for TEL and BEN were found to be 0.43 and 0.60, respectively, at 284.00 nm. The chromatographic method demonstrated high precision, with %RSD values below 2 for all validation parameters. The degradation patterns revealed that TEL was most susceptible to sunlight, followed by UV, oxidation, base, thermal, and acid conditions. In contrast, BEN degraded primarily under UV exposure, followed by sunlight, acid, oxidation, base, and thermal conditions. The developed HPTLC method is simple, rapid, accurate, and precise, making it suitable for routine quality control testing of marketed formulations. Stress testing confirmed that all degradation products were well separated from the drugs, validating the method's stability-indicating capability.

Keywords: Telmisartan, Benidipine HCL, HPTLC, Forced Degradation, Validation, ICH guidelines.

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Poster code:PCHEM 26

Title: DEVELOPMENT AND VALIDATION OF ANALYTICAL METHODS FOR SIMULTANEOUS ESTIMATION OF PIOGLITAZONE HYDROCHLORIDE AND SITAGLIPTINE PHOSPHATE MONOHYDRATE IN SYNTHETIC MIXTURE

Authors:Ms. Hina Radadiya*, Mr. Kavan Manvar, Dr. Rajesh Parmar

Affiliation: Department of Pharmaceutical Quality Assurance, Anand Pharmacy College, Anand, Gujarat, India. *Corresponding author: hinaradadiya.hr@gmail.com

ABSTRACT:

The objective This study focuses on the development and validation of UV spectrophotometric and HPLC methods for the simultaneous estimation of Pioglitazone Hydrochloride (PIO) and Sitagliptin Phosphate Monohydrate (SITA) in Synthetic Mixture. The UV method employed the simultaneous equation technique, with wavelengths of 226.0 nm for PIO and 267.0 nm for SITA in methanol. The linearity range for PIO and SITA was 5–25 µg/mL and 50–150 µg/mL, respectively. In the HPLC method, a C_{18} column was used as the stationary phase, and the mobile phase consisted of potassium dihydrogen phosphate buffer (0.02 M) and methanol in a 40:60 v/v ratio. The flow rate was set at 1 mL/min, with a detection wavelength of 267.0 nm. Linearity for HPLC was observed in the ranges of 5–30 µg/mL for PIO and 30–180 µg/mL for SITA. The retention times were 12.23 minutes for PIO and 3.08 minutes for SITA. Both methods were validated according to ICH guidelines, with % RSD for validation parameters found to be below 2%, confirming the precision and reliability of the methods. These results indicate that the developed UV and HPLC methods are suitable for the simultaneous analysis of PIO and SITA in pharmaceutical formulations.

Keywords: Pioglitazone Hydrochlorides, Sitagliptin Phosphate, UV Spectrophotometric, HPLC, ICH guidelines

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Poster code:PCHEM 27

Title: DEVELOPMENT AND VALIDATION OF HPLC METHOD FOR SIMULTANEOUS ESTIMATION OF FLUTICASONE PROPIONATE AND OLOPATADINE HYDROCHLORIDE IN DEVELOPED FORMULATION BY QbD APPROACH

Authors:Ms. Hitaxi Shah*, Mr. Yash Maniar, Dr. Kalpana Patel, Ms. Hemangini Patel, Dr. Tejal Gandhi, Dr. Devang Tandel

Affiliation: Department of Pharmaceutical Quality Assurance, Anand Pharmacy College, Anand, Gujarat, India. *Corresponding author: hitaxishah5@gmail.com

ABSTRACT:

The objective This study focuses on the development and validation of UV HPLC method was developed and optimized using a Box-Behnken design (BBD) to analyze the combination of Fluticasone Propionate (FLU) and Olopatadine Hydrochloride (OLO) in a nasal spray formulation. Three factors were optimized: the volume of phosphate buffer, the pH of the buffer, and the flow rate of the mobile phase. The method was validated according to ICH guidelines, and the nasal spray solution's pH was found to be 6.4. The drug release percentages were 83.17% for FLU and 89.28% for OLO. The method's precision, accuracy, sensitivity, and reproducibility were confirmed, with both the linearity and relative standard deviation (RSD) meeting validation requirements. The retention times for FLU and OLO were 6.28 and 3.12 minutes, respectively, with a mobile phase consisting of methanol, acetonitrile, and phosphate buffer (pH 4) in a 35:35:30 ratio. Linearity was observed within the concentration ranges of 1-6 µg/ml for FLU and 12-72 µg/ml for OLO. Overall, the HPLC method developed was proven to be specific, sensitive, linear, precise, and accurate for the determination of fluticasone propionate and olopatadine hydrochloride in developed formulation

Keywords: HPLC, fluticasone propionate, olopatadine hydrochloride, BBD, ICH Guideline, QbD

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Poster code:PCHEM 28

Title: Screening, Extraction and Characterization of Anti-Quorum Sensing Compound from Marine Bacteria

Authors:Saklain Mustak Saiyad[1], Bhakti Bajpai[1], Siddhi Shah[2] and Nisha Daxini[1*]

Affiliation: [1]Department of Biotechnology, Institute of Science & Technology for Advanced Studies & Research (ISTAR), A constituent college of The Charutar Vidya Mandal (CVM) University, Vallabh Vidyanagar, Anand 388120 Gujarat, India. [2]Vidhyadeep Institute of Science, Vidhyadeep University, Anita, Surat 394110, Gujarat, India. *Corresponding author: nisha.daxini@cvmu.edu.in

ABSTRACT:
Antimicrobial resistance (AMR) is a growing global challenge, necessitating innovative approaches to combat pathogenic bacteria. Quorum sensing (QS), a bacterial communication system, plays a pivotal role in regulating virulence and biofilm formation, making it an attractive target for novel therapies. Unlike traditional antibiotics, targeting QS through anti-quorum sensing (AQS) compounds mitigates virulence without exerting selective pressure, reducing the risk of resistance development. This study provides an overview of recent methodologies used to screen, extract, and characterize AQS compounds from marine bacteria. Initial screening often involves bioassays to detect quorum-sensing inhibition, followed by liquid-liquid extraction and purification through chromatography to isolate active compounds. Advanced analytical techniques, such as gas chromatography-mass spectrometry (GC-MS) and nuclear magnetic resonance (NMR), enable precise structural analysis and toxicity assessment. In our research, bacterial isolates were obtained from various marine sources, and AQS compounds were extracted using liquid-liquid extraction to enhance yield and purity. The compounds were further purified through column chromatography, separating the active constituents. GC-MS identified molecular fragments, while NMR provided detailed structural insights, aiding in determining the compound's chemical nature and potential bioactivity. The resulting compound, benzeneacetic acid, a monocarboxylic acid of the phenylacetic acid family, exhibited strong anti-quorum activity. This study highlights the therapeutic potential of marine-derived AQS compounds as viable alternatives to traditional antibiotics in mitigating bacterial infections. Future research will focus on evaluating their ability to inhibit the virulence factors of selected pathogens, advancing the development of QS-targeted treatments.

Keywords: Anti-quorum sensing (AQS), Marine bacteria, Benzeneacetic acid

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Poster code:PCHEM 29

Title: SIMULTANEOUS QUANTIFICATION OF RIFAMPICIN AND QUERCETIN BY Q-ABSORBANCE RATIO SPECTROPHOTOMETRIC METHOD IN LIQUISOLID DOSAGE FORM

Authors:Ms. Margi Patel[*], Tandel Devang[1], Patel Kalpana[1], Thakkar Vaishali[2]

Affiliation: Department of Pharmaceutical Quality Assurance, Anand Pharmacy College, Anand, Gujarat, India. [*]Corresponding author: patelmargi020@gmail.com

ABSTRACT:

The method for determining rifampicin and quercetin simultaneously in combination liquisolid dosage forms in two dissolution media pH-6.8 phosphate buffer and 0.1 M Hydrochloric acid is described in current study as being straightforward, sensitive, quick, precise, accurate and affordable. Utilizing the proportion of absorbances at two chosen wavelengths one being λ_{max} of one of the two components and the other being isoabsorptive point is the Q-absorbance ratio method. At 420 and 411 nm, respectively, in pH-6.8 phosphate buffer and 0.1 M Hydrochloric acid, rifampicin and quercetin exhibit an isoabsorptive point. The second wavelength, which corresponds to quercetin's λ_{max} in pH-6.8 phosphate buffer and 0.1 M Hydrochloric acid, is 368 and 367 nm. According to the most recent ICH criteria (Q2R1), the methods were verified for accuracy, linearity, precision, detection limits and quantification limits. Both Rifampicin and Quercetin showed linearity between 2–12 µg/ml. Utilizing the absorbances proportion at the Quercetin's λ_{max} and isoabsorptive point, the drug concentrations were calculated. The recovery trials using the conventional addition methodology further confirmed the accuracy and validity of the suggested method. Because the liquisolid excipient did not interfere with the process, it was effectively used to pharmaceutical dosage forms. Statistics and recovery studies have been used to validate the research's findings.

Keywords: Quercetin (QUE), Rifampicin (RIF), Validation, Isoabsorptive point, Q-absorbance ratio method

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Poster code:PCHEM 30

Title: DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR ESTIMATION OF TICAGRELOR AND ITS RELATED SUBSTANCES

Authors:Mr. Rudra Patel, * Mr. Smit Sherathiya, Dr. Rajnikant Mardia and Dr. B.N. Suhagia

Affiliation: Department of Pharmaceutical Quality Assurance, Faculty of Pharmacy, Dharmsinh Desai. University, Nadiad, Gujarat, India. * Corresponding author: rudra2704.rp@gmail.com

ABSTRACT:

Ticagrelor is a Antiplatelet drugs that's prevent platelets from sticking together and decrease your body's ability to form blood clots. Objective of the study was to develop and validate a new rapid, sensitive, reverse phase High Performance Liquid Chromatography technique for the estimation of Ticagrelor and its related substances (Impurities), Ticagrelor is generic product, so there are many methods available for estimation of ticagrelor and its related substances but in case of different excipients used in formulation (Tablet) or ticagrelor(API) purchase from different vendor, So that's must be necessary develop or validate impurity analysis method. So the aim of this study is to develop RP-HPLC method for estimation of Ticagrelor and its related substances. Chromatographic separation was achieved on a Agilent Zorbax SB C-18 (150×4.6mm, 1.8µ) with a buffer of Sodium dihydrogen phosphate 1.3 M [pH 3 was adjusted by ortho-phosphoric acid] and ratio was set mobile phase A [Buffer: Water: Acetonitrile (10:890:100)] and for mobile phase B [Buffer: Water: Acetonitrile(10:290:700)] with gradient Flow. Temperature of the column was maintained at 15°C and detection was made at 242 nm. The run time was as short as 40.0 min. The developed method was validated according to the International Conference on Harmonization (ICH) guidelines with respect to linearity, accuracy, precision and specificity. The developed method was linear for Ticagrelor and its impurity from 0.05- 1.3 µg/ml and the linear regression obtained was 0.9999 for ticagrelor and its all impurity. Limit of detection and Limit of quantification is carried out by its signal to noise ratio (S/N) and reporting threshold value. % Recovery of Olanzapine was found to be in the range of 97.00 -101.0%. Precision, evaluated by inter-day assay had relative standard deviation (% RSD) values within its specification.

Keywords: Ticagrelor Impurity analysis; RP-HPLC; Validation; Related substances.

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Poster code:PCHEM 32

Title: From Lab To Market: The Journey Of Advanced Therapy Medicinal Products In Europe, The USA, And Australia

Authors:Sourav Kumar[1], and Dr. Komal Patel[*]

Affiliation: Department of Regulatory Affairs, Parul Institute of Pharmacy, Vadodara, Gujarat

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ABSTRACT:

The commercialization of Advanced Therapy Medicinal Products (ATMPs) has transformed modern medicine, particularly treating severe illnesses with unmet medical needs. In three crucial regulatory contexts, the European Union (EU), the United States (USA), and Australia, this discussion explores the path of ATMPs from laboratory development to market authorization. Directive 2001/83/EC and Regulation (EC) No. 1394/2007 govern ATMPs in the EU, and the European Medicines Agency (EMA) must assess these medications thoroughly. The Priority Medicines (PRIME) program, which facilitates quicker access to cutting-edge treatments, is one of the channels via which the Committee for Advanced Therapies (CAT) evaluates these goods. Other pathways include conventional and conditional approvals. The Food and Drug Administration (FDA) uses a flexible regulatory strategy that encourages innovation while maintaining safety in the United States. The research and evaluation processes for ATMPs are accelerated by essential mechanisms, including the designation of Regenerative Medicine Advanced Therapy (RMAT) and Breakthrough Therapy. The Therapeutic Goods Administration (TGA) in Australia provides ATMPs with a well-rounded approach that combines thorough safety evaluations with accelerated access choices catered to their particular needs. This analysis highlights the critical regulatory harmonization efforts needed to streamline global ATMP approval while identifying country-specific opportunities that can accelerate patient access to these breakthrough therapies.

Keywords: ATMPs, Gene therapy, Cell therapy, EMA, FDA, TGA

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Poster code:PCHEM 33

Title: A Green synthesis of Copper Oxide Nanoparticles from Plant Extracts: Exploring Their Potential in Biomedical Therapeutics

Authors:Abhinav Mishra[1], Dr. Pooja Bhavsar[2*], Dr. Hiral Dave[3*]

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Department of Regulatory Affairs, Parul Institute of Pharmacy, Parul university, Vadodara, Gujarat, India, 391760

ABSTRACT:

Phytoconstituent biomolecules, which are abundant in plants, are useful as bio-medicines. Because of their reducing and capping capabilities, they have been used more recently in the synthesis of metal/metal oxide nanoparticles (NPs NPs) in a variety of sizes and forms. This plant-based biosynthesis of copper and copper oxide nanoparticles (Cu/CuO NPs), highlighting recent advancements in their applications within biomedicine, underlying mechanisms of synthesis, and potential toxicity concerns. In this the green synthesis approach, utilizing various plant extracts. As the advancements in the green synthesis and the unique physicochemical properties of Cu/CuO NPs have led to their incorporation in diverse biomedical applications, including drug delivery, antimicrobial agents, and anticancer therapies. this work aims to provide a holistic understanding of the potential of plant-derived Cu/CuO Nanoparticles in advancing biomedical technologies while addressing the challenges related to their use. Copper (Cu), silver (Ag), and gold (Au) are the metals and oxides that are most frequently utilized. Cu is more economical than Au and Ag and is a comparatively inexpensive metal among them. This will provides an insight into the potential of developing plant-based Cu/CuO NPs as a therapeutic agent for various diseases in the future.

Keywords- Antimicrobial Agent, Biomedicine, Green Synthesis, Nanoparticles, Technology

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Poster code:PCHEM 35

Title: A stability- Indicating HPTLC Method For Simultaneous Estimation of Dapagliflozin Propendiol Monohydrate and Telmisartan

Authors:Krushi P.Patel 1 *, Dr.Usmangani K. Chhalotiya 2

Affiliation1- M.Pharm student at Indukaka Ipcowala College Of Pharmacy, New V.V. Nagar, Anand.
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ABSTRACT:

This present study reports for the first time development and validation of stability indicating high performance thin layer chromatographic simultaneous Estimation of Dapagliflozin Propendiol Monohydrate and Telmisartan combined dosage form by employing High Performance Thin Layer Chromatographic method. Chromatographic separation of the drugs were performed on aluminium plates precoated with silica gel 60 G F254 as the stationary phase and the mobile phase used was a mixture of Ethyl acetate:Toluene(8:2v/v). Densitometric evaluation of the separated bands was performed at 236nm. The RF values for Dapagliflozin Propendiol Monohydrate and Telmisartan were found to be 0.19±0.01 and 0.41± 0.01 respectively. The calibration curve was found to be linear between 200-500ng/band for Dapagliflozin Propendiol Monohydrate and 800-2000ng/band for Telmisartan. The method was validated as per ICH guidelines for accuracy, precision, robustness, specificity, limit of detection and limit of quantitation. A forced degradation study was performed to assess the stability indicating the nature of the method. As the method could effectively separate the drugs from its degradation products, it can be employed as a stability indicating method. The developed method can be successfully employed for the simultaneous Estimation of these drugs in tablet formulation.

POSTERS OF PHARMACEUTICS DOMAIN

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Poster code:PCEU 01

TitlePatent Search on Liquisolid Compact

Authors:Ruchir Shah*, Dr. Akanksha Patel

ABSTRACT:

Solubility plays a key role to achieve desired concentration of drug in systemic circulation and show its pharmacological action. An approach of liquisolid technique was employed for the dissolution enhancement of poorly aqueous soluble drugs. Initially, liquid medication (liquid drug or drug solution or suspension in hydrophilic liquid vehicle) is transformed to free-flowing, non-sticky, compressible powder by the addition of suitable carrier material and coating materials for the development of liquisolid compacts. This is accomplished by introducing by the drug into a non-volatile liquid or a mixture of non-volatile and volatile liquids to from a mixture, selecting at least one solid carrier material and admixing these components to produce a non-adherent, free-flowing and compressible liquid/power mass admixture, the amounts of drug and carrier being selected to optimize flow and compressibility. Various grades of microcrystalline or amorphous cellulose may be used as carriers, whereas very fine particle size silica powders may be used as coating materials. It is one of the most extensively used routes of drug administration because of its obvious advantages of ease of administration, improved patient compliance, and convenience. The technique is based upon the dissolving the insoluble drug in the non volatile solvent and admixture of drug loaded solutions with appropriate carrier and coating materials to convert into acceptably flowing and compressible powders .Based on the theory that the carrier and coating materials can retain only certain amounts of liquid and at the same time maintain acceptable flow and compression properties, a new formulation-mathematical model is provided to calculate the optimum quantities of carrier and coating materials required to yield acceptably flowing and compressible liquid/powder admixtures. There are several methods used to increase the solubility of drugs, of those liquid-solid compact technique is a new and promising addition towards such a novel aim, that the solubility of the insoluble drug moiety is increased by the aid of non-volatile solvents and hence increasing the dissolution and bioavailability. Oral drug administration has been one of the most convenient and widely accepted routes of delivery for most of the therapeutic agents.

Keywords:- Carrier material, coating material, liquisolid compacts, liquid material, non-volatile solvents, liquid load factor, solubility enhancement

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Poster code:PCEU 02

Title: Development, Optimization and Characterization of Vardenafil HCl Trihydrate Loaded Solid Self Nanoemulsifying Drug Delivery System

Authors: Hardik K. Patel[1,2], Naitik D. Trivedi[2*], Vaishali T. Thakkar[3] and Alpesh D. Patel[4]

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[2]A. R. College of Pharmacy & G. H. Patel Institute of Pharmacy, Vallabh Vidyanagar, Gujarat, India.

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ABSTRACT:

Vardenafil HCl trihydrate (VDL), a phosphodiesterase type 5 (PDE-5) inhibitor, is used orally in treatment of erectile dysfunction. However, due to its high lipophilicity, poor water solubility (0.11 mg/mL) and hepatic first pass metabolism, the orally bioavailable fraction of VDL is only 15%. To address these challenges, current studies are focused on developing a Solid Self Nanoemulsifying Drug Delivery System (S-SNEDDS) for the oral administration of VDL to improve its dissolution rate and bioavailability by creating a nanoemulsion in the gastrointestinal tract. The selection of oil (Capmul GMO 50), surfactant (Labrasol), and co-surfactant (Kollisolv PEG 400) was based on their ability to dissolve VDL and their effectiveness in creating emulsions. Ternary phase diagrams were drawn to pinpoint and delineate the nano-emulsification region. Following a Simplex Lattice Design, different design batches were concocted. Contour and response surface plots were utilised to comprehend how the variations in excipients affected vital product characteristics. The optimized liquid SNEDDS was then converted into a solid state by employing Neusilin® US2 as a porous carrier, improving the product's stability and preserving the ability to self emulsify. *In vitro* dissolution tests conducted revealed that the rate of VDL release from the S-SNEDDS was superior to that of unprocessed drug and marketed formulation.

Keywords: Vardenafil HCl Trihydrate, Self Nanoemulsifying Drug Delivery System (SNEDDS), Lipophilicity, Solubility, Bioavailability, Drug release.

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Poster code:PCEU 03

Title: Challenges and Advances in Sustained-Release Drug Formulations

Authors: Vikash Chandra Yadav1, Rajesh Dodiya2

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ABSTRACT:

A significant development in pharmaceutics, sustained-release drug formulations are intended to extend therapeutic effects, decrease dosage frequency, and enhance patient compliance. Developing sustained-release systems has many obstacles, including preserving drug stability, guaranteeing consistent drug release, and getting beyond physiological hurdles, notwithstanding their potential. This poster examines the significant challenges encountered in the formulation of sustained-release medications, such as polymer selection, solubility concerns, and the effect of gastrointestinal (GI) variability on drug absorption. Innovative materials and technologies that have shown promise in addressing these issues include liposomal carriers, biodegradable polymers, and nanotechnology-based strategies. More control over drug release kinetics, bioavailability, and targeted distribution has been made possible by recent developments in these fields. Further contributing to the speedier development of more efficient sustained-release systems is the growing importance of computational modeling in formulation design optimization and in vivo performance prediction. The purpose of this presentation is to give a summary of the current issues in the formulation of sustained-release drugs, to highlight new developments in technology, and to talk about potential directions for enhancing the safety and effectiveness of these delivery systems in the future. Sustained-release formulations can significantly improve patient quality of life and therapeutic results by tackling these problems.

Keywords: Sustained-release, Controlled-release, Drug delivery systems, Bioavailability, Biodegradable polymers, Solubility enhancement, Drug stability, Pharmacokinetics, Patient compliance, Therapeutic efficacy

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Poster code:PCEU 04

Title: Supersaturated SNEDDS for Ticagrelor: A Strategy for Precipitation Inhibition and Enhanced Bioavailability

Authors: Ms. Mariyambibi Mandarawala[1], * and Dr. Ashok Mahajan[2], Dr. Shailesh Koradia[3]

Affiliation: [1], [3] Krishna School of Pharmacy & Research, Drs. Kiran & Pallavi Patel Global University (KPGU), Krishna Edu Campus, Vadodara. [2] Indukaka Ipcowala College of Pharmacy, The Charutar Vidya Mandal University (CVMU), New VV Nagar, Anand
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ABSTRACT:
Ticagrelor (TGL), an antiplatelet agent used in acute coronary syndrome, faces challenges due to its low solubility and bioavailability. This study aimed to develop an optimized TGL-loaded supersaturated self-nanoemulsifying drug delivery system to improve oral bioavailability. Solubility and emulsification studies identified suitable oils, surfactants, and cosurfactants, with ternary phase diagrams used to optimize excipient ratios for SNEDDS stability. A simplex centroid design was applied to optimize component ratios to enhance properties, including globule size, saturated solubility, and precipitation percentage. Supersaturated SNEDDS formulations were prepared with polymeric precipitation inhibitors (PPIs) at concentrations of 3.0%, 6.0%, and 9.0% by weight to minimize drug precipitation. The optimized super-SNEDDS formulation, composed of 10.0% Capmul MCM (oil), 55.0% Acrysol K150 (surfactant), and 35.0% Transcutol HP (cosurfactant), significantly improved TGL dissolution compared to the raw API and Brilinta (a marketed TGL product). PVP K30, selected for its superior crystallization-inhibiting capacity, was incorporated as a PPI. The resulting nanoemulsion exhibited a globule size of 13.44 nm, a PDI of 0.226, high drug content (99.3±0.47%), thermal stability, rapid self-emulsification, and achieved 96.11% drug release within 120 minutes. Pharmacokinetic studies in rats demonstrated a 5.41-fold increase in oral bioavailability compared to the raw TGL suspension. This study suggests that the optimized super-SNEDDS formulation with PVP K30 offers a promising strategy for enhancing TGL dissolution and bioavailability, providing a potential approach for improved oral drug delivery.

Keywords: Ticagrelor, Supersaturated SNEDDS, Simplex Centroid Design, Pharmacokinetic Study, Hydrophilic Polymer, Polymeric Precipitation Inhibitors

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Poster code:PCEU 05

Title: Innovative Electrospun Nanofibrous Patches For Enhanced Ocular Drug Delivery: A Quality By Design Approach

Authors: Dinky Patel*, Dr. Pankhita Rede[2]

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ABSTRACT:

Glaucoma, a leading cause of irreversible blindness, is responsible for 5.8% of blindness cases in India, according to an NPCB survey. This study explores the development of an innovative ocular patch for managing glaucoma, leveraging electrospinning (E-spin) technology to improve drug delivery effectiveness and prolong ocular retention. By addressing the limitations of traditional ocular delivery systems, such as inadequate bioavailability, this approach aims to enhance therapeutic outcomes and overcome existing limitations. By forming nanofibers with a significant surface area-to-volume ratio, this technique improves drug encapsulation while additionally rendering it potential to employ both hydrophobic and hydrophilic agents. To optimize the nanofibrous patches, a Quality by Design (QbD) approach was employed. This methodology involved systematically identifying critical process parameters (CPPs) and critical material attributes (CMAs) that impact the quality and performance of the final product. Additionally, the Fishbone/Ishikawa diagram was prepared and a comprehensive risk assessment was conducted, which helped predict and mitigate potential variability in the manufacturing process. However, the flexibility in material selection and the potential for customized drug delivery present opportunities for further innovation. This research highlights the potential of electrospun nanofibers in advancing glaucoma treatment. By integrating Quality by Design (QbD) principles with electrospinning technology, we can achieve enhanced drug delivery, improved therapeutic outcomes, and greater consistency in product quality.

Keywords: E-spin Technology, Ocular patch, Nanofibers, Quality by Design, Drug delivery, Ishikawa diagram.

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Poster code:PCEU 06

Title: ANTISTRESS AND CALMNESS EFFECT BODY SHOWER GEL

Authors: Dhruvi Baldha[1*], Dr. Madhavi Patel[1], Palak Vadodariya[2]

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ABSTRACT:

The effects of ongoing stress on health are harmful. The level of the cortisol hormone rises as a result of stress stimulation of the hypothalamic-pituitary-adrenal axis. Over-production of cortisol impairs metabolism, disrupts sleep, and suppresses the immune system. Shower gel is made up from the Lavender oil and Arabica coffee. By lowering cortisol hormone levels, lavender has a favourable effect as an anti-stress therapy. From ancient times, lavender oil has been utilised in herbal medicine and as a fragrance ingredient. In these investigations, topically administered formulations containing up to 30% lavender oil are used. Caffeine is one of coffee's primary components, Caffeine lowers blood flow to the skin, giving it a brighter, tighter appearance when utilised in skin care products. Various test is perform like stability, viscosity, foaming determination, pH determination, skin irritation test. This research study shows that shower gel is usefull for antistress and calmness and gel helps to improve skin texture and brightness. The scientific investigation of the potential benefits of using lavender oil in shower body wash can provide evidence-based support for its use as an anti- stress agent. This study could lead to the development of new, natural and inexpensive ways to manage stress and promote well-being.

Keywords: Antistress, Calmness, Lavender oil and Arabica coffee.

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Poster code:PCEU 08

Title: Formulation And Characterization Of Taste Masked Orally Disintegrating Tablets Containing Cenobamate In Pediatric Epilepsy Treatment

Authors: Krisha Patel*, Dr. Shruti Barot

Affiliation: *PG Student, Parul Institute of Pharmacy, Parul University P.O. Limda ,Tal . Waghodiya- 391760. Dist. Vadodara, Gujarat, India. Email : krishapatel939@gmail.com

ABSTRACT:

This study focuses on the formulation and characterization of taste-masked orally disintegrating tablets (ODTs) containing cenobamate for pediatric epilepsy treatment. Given the critical role of palatability in enhancing adherence among children, this research aims to develop an effective dosage form that masks the unpleasant taste of cenobamate while ensuring rapid disintegration and drug release. The ODTs were formulated using a combination of polymeric coatings and taste-masking techniques, including microencapsulation and the use of sweeteners and flavoring agents. Various polymers were evaluated for their ability to create a protective barrier around the drug, thus minimizing taste perception. The tablets were characterized for disintegration time, dissolution profile, hardness, and organoleptic properties. In vitro studies demonstrated that the optimized ODTs achieved a disintegration time of less than 30 seconds, with a favorable dissolution profile that meets pediatric therapeutic needs. Sensory evaluation confirmed a significant reduction in bitterness, enhancing overall palatability. This formulation not only addresses the taste-related challenges associated with cenobamate but also aligns with the requirements for pediatric medications, facilitating improved adherence and therapeutic outcomes in managing epilepsy. The findings suggest that these taste-masked ODTs could serve as a valuable option in pediatric pharmacotherapy, potentially leading to better patient compliance and overall treatment success.

Keywords: Cenobamate , Orally Disintegrating Tablets (ODTs) , Taste Masking , Pediatric Epilepsy , Drug Release

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Poster code:PCEU 09

Title: Evaluating The Functional Properties And Taste Masking Of Eco-Friendly Tadalafil Pastilles

Authors: Patel Dhrusha N.1,* and Dr. Hardik Rana1

Affiliation: 1Anand Pharmacy College, Anand. *Corresponding author: pdhrusha@gmail.com

ABSTRACT:

Tadalafil (TDL) presents challenges in terms of bioavailability due to its poor water solubility and inherently bitter taste, which complicates its formulation as an oral solid dosage form. This study aims to develop an eco-friendly, fast-acting pastille as an alternative to conventional tablets, leveraging advanced data analysis techniques to optimize the formulation process. We identified critical ingredients, including PEG-4000, Polyox N-10, and Kyron T-314, through a thorough failure mode effects analysis to ensure the efficacy and stability of the pastilles. Utilizing a Box-Behnken design, we systematically optimized the formulation to improve key parameters such as disintegration time and drug release profile. The resulting pastilles achieved a rapid drug release within just 15 minutes, demonstrating efficient disintegration, while also maintaining consistent size and mechanical strength. Additionally, the formulation successfully masked the bitter taste of TDL, as confirmed by the Brief Access Taste Aversion (BATA) model. This innovative formulation not only represents a promising and cost-effective option for the pharmaceutical industry but also opens new avenues for the development of oral dosage forms, enhancing patient compliance and overall therapeutic outcomes.

Keywords: Tadalafil, Green chemistry, In-vivo taste assessment, Pastilles, QbD

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Poster code:PCEU 10

Title: Exploring Formulation Variables For Enhanced Solubility of Amisulpride in PolymeriC Micelle-Based Oral Delivery

Authors: Dharti Patel[1,*] and Pranjalben Vaghasiya [2,] Dr. Vaishali Thakkar [1]

Affiliation: [1] Anand Pharmacy College, Anand. [2]APC Scholar, Department of Pharmaceutical Technology. [*]Corresponding author: dharti1811patel@gmail.com

ABSTRACT:

Schizophrenia, affecting 1% of the population, is influenced by genetic and environmental factors like birth details, infections, pregnancy complications, and substance abuse. Neurotransmitter imbalances involving dopamine, serotonin, and glutamate, particularly dopamine D2 receptor dysfunction, contribute to symptoms like delusions and hallucinations. Amisulpride, a second-gen antipsychotic, targets D2/D3 receptors in limbic brain regions, modulating dopamine transmission. Amisulpride's selectivity for D2/D3 receptors minimizes extrapyramidal side effects, making it suitable for dysphagic or bedridden patients. However, its poor solubility and side effects necessitate innovative delivery methods. Nanomicelles, self-assembling structures composed of hydrophobic cores and hydrophilic shells, enhance drug solubility and release. TPGS and poloxamer188, used to create nanomicelles via thin film hydration, are promising due to TPGS's capacity to solubilize drugs and improve cellular uptake. In conclusion, nanomicelles offer a practical approach to enhance drug delivery, providing sustained action and lower toxicity. By leveraging nanotechnology, particularly TPGS-based formulations, drug solubility and bioavailability can be significantly improved, offering a potential solution for the challenges associated with oral delivery of drugs like Amisulpride.

Keywords: Nano-micelle, Schizophrenia, Amisulpride's, TPGS

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Poster code:PCEU 11

Title: Intelligent Long-Acting Dosage Form: Systematic Development and Functional Characterization for Patient-Centric Diabetes Management

Authors: Patel Dhruvixa R.[1], Gohel Shreya P.[1*] and Dr. Hardik Rana[1]

Affiliation: [1]Anand Pharmacy College, Anand.

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ABSTRACT:

This research aimed to develop a tailored in-situ modified release system for Glipizide, targeting Type II diabetes patients to reduce the frequency of medication administration. Initial attempts with in-situ implants using Polycaprolactone (PCL) and PLGA (50:50) encountered difficulties: PCL could not form a stable depot, and PLGA exhibited an 83.9% burst release within 5 days. To address these issues, in-situ microparticles were formulated with PLGA (50:50), DMSO for solubility, sesame oil for viscosity, and Span 80 and Tween 80 as surfactants. A Box-Behnken Design was employed to optimize the formulation for gelling time, particle size, and a 30-day drug release profile. Comprehensive evaluations included injectability, syringeability, transmittance, particle size, drug entrapment, viscosity, pH, gelling time, and stability. While PLGA formed stable implants rapidly, PCL remained gel-like, which was less effective. Batch M8 was identified as the optimal formulation, achieving a maximum drug release of 89.2% over 30 days. Sterility tests confirmed batch sterility after 7 days, and short-term stability assessments indicated no significant changes at 25 ± 2°C and 40 ± 2°C. These findings suggest that the developed in-situ microparticles can enhance treatment efficacy, improve patient compliance, and reduce side effects, representing a promising advancement in diabetes management and pharmaceutical formulations.

Keywords: Glipizide, Patient-centric, In-situ implant, microparticles, Diabetes, Modified release

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Poster code:PCEU 12
Title: Nanotechnology in Cancer Detection, Diagnosis, and Treatment: Prospects and Challenges

Authors: Nidhi Kansara[1], Dr. Hiral Dave[2]

Affiliation: [1]Department of Pharmaceutical Regulatory Affairs, Parul Institute of Pharmacy, Parul University, Vadodara, Gujarat – 391760.

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ABSTRACT:
Cancer arises due to genetic damage that disrupts normal cellular growth and division, necessitating advanced methods for early detection, accurate diagnosis, and effective treatment. Conventional detection techniques, such as X-rays, CT scans, and biopsies, are limited in sensitivity and often detect cancer only after substantial cell proliferation. Traditional treatment options surgery, radiation, and chemotherapy have considerable limitations, including damage to healthy cells and potential recurrence of the disease. This study aims to investigate nanotechnology's role in cancer care, enhancing detection, diagnosis, treatment, and addressing toxicity challenges. This study examines how nanotechnology offers innovative solutions to overcome the limitations of conventional cancer detection and treatment by utilizing nanoparticles (NP) for improved targeting, reduced side effects, and enhanced therapeutic efficacy. Nanoparticles, with their minute size, can infiltrate cells, accessing genetic material to detect early mutations associated with cancer. Specific NPs can be designed to absorb radiation selectively and, once inside cancerous cells, initiate localized cell destruction. Moreover, NPs can serve as multifunctional agents, circulating within the body to detect molecular changes, aid imaging, deliver therapeutic agents, and monitor treatment efficacy. The application of nanotechnology shows promise for early gene-level detection, targeted drug delivery, and minimizing collateral damage to healthy tissue. Experimental data indicate that certain NPs effectively target and destroy cancer cells by releasing therapeutic agents upon identifying cancer-specific markers. Toxicity of NPs, potential side effects, and regulatory approval hurdles must be addressed before widespread clinical application. Further research is needed to establish safe, reliable, and effective nanotechnology-based therapies.

Keywords: Cancer, Nanotechnology, Nanoparticles, Cancer Detection, Gene Therapy, Targeted Treatment, Toxicity, Regulatory Aspects

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Poster code:PCEU 13
Title: The Science of Scent: Aerosolized Fragrance in Pharmaceuticals and Cosmetics

Authors: Pandya Drashti Sanjaykumar[1*], Mrs. Krishna Kalsara[2*], Dr. Chainesh Shah[3]

Affiliation: 1. PG Scholar, Sigma Institute of Pharmacy. 2. Assistant Professor, Department of Quality Assurance. 3. Director, Sigma Institute of Pharmacy

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ABSTRACT:
Aerosolized fragrances are increasingly used in the pharmaceutical and cosmetic industries. This review explores their scientific basis, formulation techniques, effects on consumers, safety, and regulatory issues. Aerosolized fragrances, made from aromatic compounds in a carrier, help improve sensory experiences and consumer satisfaction. Understanding the chemistry of these compounds, including how they interact with air and surfaces, is key to understanding how scents are dispersed. This review also looks at evidence supporting fragrance benefits, the psychological effects of scent on consumers, and ethical considerations, including sustainable sourcing. A comparison of pharmaceutical and cosmetic uses shows both shared practices and differences. Additionally, this review covers recent advances in fragrance technology, safety guidelines, and regulatory developments. By combining current knowledge, identifying research gaps, and providing insights, this review aims to guide researchers, industry professionals, and policymakers in the responsible and innovative use of aerosolized fragrances.

Keywords: Aerosolized fragrances, Pharmaceuticals, Cosmetics, Fragrance chemistry, Consumer impact, Sustainability, Safety, Regulations, Technology.

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Poster code:PCEU 14

Title: Repurposing of the thiozolidinedions drug class in the treatment of pulmonary hypertention

Authors: Rajveersinh Chavda[1*] and Swati Kurtkoti[2]

Affiliation: 1- M.Pharm student at Indukaka Ipcowala College Of Pharmacy, New V.V. Nagar, Anand. 2- Assistant professor, Department of Pharmaceutics at Indukaka Ipcowala College of Pharmacy New V.V. Nagar, Anand. *Corresponding author: rajveerdinhchavda@gmail.com

ABSTRACT:

Pulmonary hypertension (PH) is a debilitating condition characterized by elevated blood pressure in the pulmonary arteries, leading to right heart failure and significant morbidity. Current treatment options for PH are limited, and novel therapeutic strategies are urgently needed. Thiazolidinediones (TZDs), a class of drugs primarily used for managing type 2 diabetes, have recently garnered attention for their potential repurposing in the treatment of PH. TZDs, including pioglitazone, act as agonists of the peroxisome proliferator-activated receptor gamma (PPAR-γ), a nuclear receptor involved in regulating vascular tone, inflammation, and endothelial function. Recent studies have highlighted the beneficial effects of PPAR-γ activation on pulmonary vascular remodeling, a hallmark of PH. By targeting pathways involved in endothelial dysfunction, inflammation, and fibrosis, TZDs like pioglitazone may offer a novel therapeutic avenue for PH patients. This review explores the pathophysiology of PH, the role of PPAR-γ in vascular health, and the emerging evidence supporting the repurposing of TZDs as potential treatments for pulmonary hypertension. Future clinical trials are needed to fully assess the safety, efficacy, and mechanistic pathways underlying the use of TZDs in PH management.

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Poster code:PCEU 15

Title: Formulation of Multifunctional Nanostructured Lipid Carriers for Targeted Treatment of Non-Small Cell Lung Cancer

Authors: Swati K. Kurtkoti[1,*] and Harshaben V. Patel

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ABSTRACT:

Non-small cell lung cancer (NSCLC) remains one of the most prevalent and deadly cancers worldwide, with current treatment strategies often limited by poor drug delivery, systemic toxicity, and the development of drug resistance. Resveratrol is a promising phytomedicine with proven anticancer activity. Poor bioavailability, short half-life, rapid elimination are the main hurdles associated with resveratrol oral administration. Tristearin and borage oil based Nanostructured lipid carriers (NLCs) were developed using high shear homogenization/probe sonication technique. The drug loaded formulation was optimized for particle size, PDI, entrapment efficiency and drug loading. Formulations were successfully produced and evaluated. Results showed particles in nanometric range (61.50 ± 0.53 to 250.00 ± 0.63 nm) with negative surface charge and satisfying encapsulation efficiencies (from 93.1 ± 7.6 to 95.7 ± 5.6%). The optimized drug loaded NLCs were then subjected to surface modifications for active targeting of NSCLC cells. Hyaluronic acid was used as ligand for targeting the CD44 cells which are prominent in lung carcinoma. The drug loaded NLCs were further studied for cytotoxic effect and cellular uptake studies using A549 cell line. The drug loaded NLCs showed better cytotoxic effect (lesser IC50) compared to the free drug. This study highlights the potential of multifunctional NLCs as an effective and versatile platform for the targeted treatment of NSCLC, offering new avenues for overcoming the limitations of conventional therapies. Further studies including conversion of NLCs into DPI and in-vivo studies needs to be performed for enhancing the efficacy of the system.

Keywords: Non Small Cell Lung Cancer, Nanostructured Lipid Carriers, Resveratrol, Hyaluronic acid, CD44 Cells

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Poster code:PCEU 16

Title: Development and Characterization of A Novel Cremophore EL Free Liposome-based paclitaxel formulation

Authors: Avik Parekh[1] and Nisha Daxini [*2]

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ABSTRACT:

Taxol is a commercially available medication used to treat non-small cell lung cancer, breast cancer, ovarian cancer, and AIDS related Kaposi's sarcoma. It is currently among the best anticancer medications on the market. Since paclitaxel is only sparingly soluble in water, intravenous administration relies on the non-ionic surfactant Cremophore EL (polyethoxylated castor oil) to produce a clinically relevant dosage. Unfortunately, some patients experience hypersensitive reactions and increased toxicity when using Cremophore EL based treatment. A novel lyophilized liposomal paclitaxel formulation that is sterile, stable, and simple to use has been developed. The mean particle size of the liposomes is about 150 nm before and after lyophilization, and the drug entrapment efficiency is greater than 90%. Stability data indicated that the lyophilized liposomal paclitaxel was physically and chemically stable for at least 6 months at 2–8 and 25°C.

Keywords: Liposomal formulation; Paclitaxel; Stability; Lyophilization

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Poster code:PCEU 17

Title: Fabrication And Characterization Of Novel Parenteral Formulation For Cancer Therapy

Authors: Bhavin Dave[1] and Dr. Rajesh Dodiya*[2]

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ABSTRACT:

The aim of the study is to design a controlled delivery system of Doxorubicin using PEGylated liposomes using phytosterol to overcome the limitations of conventional i.v. formulation therapy and to investigate it's in vivo performance for sustained delivery and possibility of improved safety. This was achieved by critical evaluation of the developed formulation, selective analytical methods like particle size, in vitro release, encapsulation efficiency etc, pharmacokinetic and toxicity evaluation. PEGylated liposomes of Doxorubicin were prepared by the ethanol injection method. The loading efficiency of the liposome was found to be greater than 95%. The in vitro release of Irinotecan from PEGylated liposome formulations was in a sustained manner and about 80% of the drug was released in 24 hours. The developed liposome was found to be stable at 5°C for six months. To investigate In-vitro cytotoxicity study on human normal cells and MCF7 cells. To investigate In-vitro cytotoxicity study on human normal cells and MCF7 cells.

Keywords: Doxorubicin, Liposome, PEGylation, Phytosterol, Cardiotoxicity

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Poster code:PCEU 18

Title: Micro-needle Transdermal Patch for Sustained Antipsychotic Delivery: A Breakthrough in Schizophrenia Treatment

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ABSTRACT:

Micro-needle transdermal patches (MNPs) offer a promising route for antipsychotic delivery, especially valuable for schizophrenia patients who often face challenges with traditional oral and injectable treatments. Adherence to antipsychotic medications is frequently low, impacted by inconsistent drug bioavailability, side effects from fluctuating plasma levels, and demanding dosing schedules, compounded by the cognitive impairments common in schizophrenia. Schizophrenia patients often lack insight into their condition, which, combined with poor medication compliance, leads to relapse and re-hospitalization. MNPs provide a minimally invasive alternative, enabling antipsychotics to be absorbed directly through the skin, allowing for sustained, controlled release. This method bypasses first-pass metabolism, offering stable plasma drug levels and improved bioavailability, which can reduce the need for frequent dosing and minimize side effects, ultimately enhancing adherence. Clinical studies indicate that schizophrenia patients using MNPs experience steadier drug levels with fewer fluctuations compared to oral treatments, report fewer side effects, and find the patch easier to use. These advantages suggest that MNPs could transform schizophrenia treatment by offering a stable, patient-friendly route of administration. This approach provides a new way to administer antipsychotic agents in a painless manner over a sustained period, improving schizophrenia management. Further research is required to refine MNP design, enhance drug-loading capacity, and confirm safety and long-term efficacy in large clinical trials. MNPs have the potential to become a critical tool for sustained antipsychotic delivery, improving adherence and quality of life for patients with schizophrenia.

Keywords: Cognitive impairments, drug bioavailability, first-pass metabolism, micro-needle transdermal patches (MNPs), schizophrenia treatment, sustained release

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Poster code:PCEU 19

Title: DEVOLEPMENT AND EVALUATION OF HERBAL NANOFORMULATION FOR DIABETIC WOUND HEALING

Authors: [1]Rutvi shah , [2]Salvi shah

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ABSTRACT:

Chronic wounds associated with diabetes are difficult to treat due to high glucose levels, as well oxidative stress also plays a significant role which in turn leading to non-healing conditions. The need for biocompatible matrix and drug-carrying capabilities to enhance wound healing is widely recognized. Electro-spun nanofibers offer a promising solution by mimicking the extracellular matrix and providing enhanced bioavailability and sustained release of medicines. This study focuses on the development and evaluation of nanoformulation for diabetic wound healing. Selection of phytochemicals present in herbs was carried out through molecular docking studies by targeting IGF, EGF, VEGF, PDGF, TEGF. Preliminary study of herbal extract was carried out to optimise the solubility and sustainability towards the excipient. Quantitative estimation of active phytoconstituents of Calendula offincinalis and Curcuma longa was carried out through HPTLC method and % active papain was carried out using Lowery's method. Calendula offincinalis, Curcuma longa and Carica papaya extracts in a specific ratio were incorporated in polymer matrix via Espin nanofibers. Comprehensive pharmacognostic and pharmaceutical evaluations of nanofiber film were carried out size of nanofiber. These exhibits a bed-free structure with an average thickness of 0.5mm and its foldable endurance were up to 7-8 folds which were unbreakable. SEM of nanoformulation was found to be 100nm width and 8mm in diameter. Through histopathology study, formation of hair follicles was at high test dose In vitro, studies were conducted and demonstrates 98% drug efficacy release in 5 hours. Proliferation of blood vessels and microbial resistance was confirmed by hatch assay to extend drug therapy further invivo study confirms the effect of high dose nanoformulation shows better wound recovery then standard and disease control. In summary, this study suggests that electro-spun nanofibers can be potential to function as appropriate membrane for diabetic wound healing application.

Keywords: Diabetic wound, molecular docking, nanofibers, hatch assay, in vivo study

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Poster code:PCEU 21

Title: Designing of NLC based DPI for pulmonary delivery of ivacaftor using QbD Approach

Authors: Patel Aachal R*[1], Dr. Harshaben V. Patel[2], Ms. Swati K. Kurtkoti[3]

Affiliation: [1,3] Assistant Professor, Department of Pharmaceutics, Indukaka Ipcowala College of Pharmacy, New Vallabh Vidyanagar, Anand. [2]Principal, Indukaka Ipcowala College of Pharmacy, New Vallabh Vidyanagar, Anand. *Corresponding author: aachal.patel@cvmu.edu.in

ABSTRACT:

This study developed an inhalable Ivacaftor Nanostructured Lipid Carrier (NLC) using spray drying for effective cystic fibrosis treatment. NLCs were prepared with glyceryl monostearate and rosemary oil (1:1), stabilized by Tween 80 and Span 80 (3%), using hot melt homogenization and ultra-probe sonication. A Quality by Design (QbD) approach with Box-Behnken design optimized the formulation, evaluating key variables influencing particle size, polydispersity index (PDI), zeta potential, drug content, entrapment efficiency, in vitro release, morphology (TEM), and stability. The optimized batch (F11) had a particle size of 99.3 nm, PDI of 0.132, and 92.3% entrapment efficiency at a 1:1 drug-to-lipid ratio. Spray drying with lactose and mannitol (lipid-to-diluent ratios of 1:3, 1:5, and 1:7) yielded dry powder inhalers (DPIs), which were evaluated for particle size, yield, flow properties, morphology (SEM), aerosol performance, and stability. The spray-dried formulation (L2) exhibited sustained release, with 71.51% drug release over 24 hours, excellent aerosolization (98% emitted dose, 2.6 µm mass median aerodynamic diameter, and 44.55% fine particle fraction), and superior flow properties. Stability was maintained at 4 ± 2 °C and 65 ± 5% RH for 4 weeks. This study highlights the QbD approach's role in optimizing NLCs, producing a stable Ivacaftor DPI with controlled release and promising aerodynamic properties, showcasing its potential as an effective inhalable therapy for cystic fibrosis.

Keywords: Nanostructured Lipid Carrier, Spray Drying, Dry Powder Inhalation, Ivacaftor, Cystic Fibrosis, Aerodynamic Diameter.

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Poster code:PCEU 22

Title: Formulation design, development & characterization of drug delivery systems using stealth liposomes for the treatment of lung cancer

Authors: Rajeshkumar Shantarang Palva[1*], Rajnikant Suthar[2], Dr. Jolly R. Parikh[3]

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ABSTRACT:

Purpose: In the present study, a Liposomal formulation of ceritinib was developed to effectively deliver the drug to the lungs in a targeted manner and prevent its undesirable side effects. Methods: Liposomes were prepared by the thin film hydration method using DPPC, DSPEmPEG2000 and cholesterol. In the preliminary study, Liposomes were prepared with various concentrations of DPPC and cholesterol. Central composite design (CCD) was applied to optimize the Liposomal formulation. The effects of the independent variables (Concentration of DPPC: DSPEmPEG2000 (X1), cholesterol (X2) and hydration time (X3)) on the dependent variables (Particle size (R1) and entrapment efficiency (%EE, R2)) were evaluated using the design of experiments (DoE) tool. The design space was constructed and further validated. The surface morphology of the optimized formulation of niosomes was evaluated by transmission electron microscopy (TEM), and a study of the in vitro drug release from the optimized batch and the pure drug was performed. In vivo study performed by inducing lung cancer in ICR mice. Results: The optimized batch of Liposomes showed satisfactory results in terms of particle size (395.5 nm), %EE (75.28%), and zeta potential (-28.0 mV). The in vitro drug release from the optimized niosomes was 68.03% at 48 hr. The TEM images showed that the Liposomes were spherical. The formulations reduce tumor volume, lung weight and enhance apoptosis and improve histological outcomes, suggesting a promising therapeutic strategy. Conclusion: In the present study, ceritinib-loaded Stealth Liposomes were developed as a promising alternative to overcome the problems of conventional oral ceritinib delivery.

Key words: Ceritinib, Lung cancer, Lung Cancer, Central composite design

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Poster code:PCEU 24

Title: Transformative Biomedicines: Advancing Precision Therapy in Diabetes Management

Authors: Aabha Sah* , Tularam Barot

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ABSTRACT:

Biomedicines, including biologics and regenerative therapies, offer innovative solutions in diabetes management, aiming to surpass conventional approaches. Diabetes, characterized by impaired glucose regulation, remains a global health crisis, demanding novel treatments for better glycemic control and prevention of complications. Insulin analogs and incretin-based therapies exemplify advanced biomedicines, improving efficacy and safety profiles. Recently, GLP-1 receptor agonists have shown promise in weight management and cardiovascular protection, highlighting their multifaceted benefits beyond glycemic control. Stem cell therapies, including beta-cell transplantation and regeneration, represent a cutting-edge approach, offering the potential to restore endogenous insulin production and achieve long-term remission. Gene therapies also emerge as a transformative strategy, aiming to correct genetic defects or modulate pathways responsible for insulin resistance and beta-cell dysfunction. Advances in nanomedicine further enhance the delivery and targeting of biomedicines, optimizing therapeutic efficacy while minimizing side effects. Encapsulation techniques and nanoparticles ensure precise drug release, improving patient compliance and outcomes. Monoclonal antibodies and immune-modulating biomedicines are instrumental in addressing autoimmune mechanisms, particularly in type 1 diabetes, where immune attacks on beta cells are central. These therapies aim to halt or reverse disease progression, offering hope for long-term management or even a cure. Despite their potential, biomedicines face challenges such as high production costs and complex regulatory pathways. However, ongoing research and development promise to overcome these barriers, paving the way for the widespread application of biomedicines in diabetes care, ultimately transforming patient outcomes and quality of life.

Keywords: Biomedicine, Diabetes management, GLP-1 receptor agonists, Stem cell therapies.

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Poster code:PCEU 25

Title: Regulatory Framework For E-Pharmacies In India: Current Scenario And Key Challenges

Authors: Tanisha Jain , Dr. Zanza Patel*

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ABSTRACT:

India's e-pharmacies regulatory environment is currently beset with issues that hinder both their expansion and the safety of their customers. A thorough regulatory framework is still elusive despite the rise in e-pharmacy use, especially during the COVID-19 pandemic. Inadequate prescription verification procedures, which could result in medication abuse, and the possibility of counterfeit drugs spreading in an unregulated market are major problems. The regulatory environment is made more complex by opposition from traditional pharmacy associations, which raises issues regarding unfair competition and the effect on small businesses. Unauthorized operators have flourished due to unclear regulations, eroding consumer confidence. In order to create a more secure and effective e-pharmacy ecosystem in India, this framework should put consumer safety first, encourage fair competition, and improve access to necessary medications.

Keywords: e-pharmacy, regulations, regulatory requirements, India

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Poster code:PCEU 26

Title: Formulation and evaluation of PLGA Nanoparticles for Enhanced CFTR Modulator Efficacy

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ABSTRACT:

Cystic Fibrosis (CF) is a progressive genetic disorder characterized by thick mucus obstructing pulmonary and digestive systems. This study aimed to develop and optimize CFTR modulator drug-loaded PLGA nanoparticles for targeted pulmonary delivery to improve drug efficacy and patient outcomes. Using the single emulsion solvent evaporation method, formulations were optimized for particle size, drug entrapment efficiency (EE), and controlled drug release. The optimized formulation achieved a nanoparticle size of 282.8 nm, a polydispersity index (PDI) of 0.112, and an EE of 83.3% with the yield of 91.25, indicating high uniformity and encapsulation efficiency. Scanning Electron Microscopy confirmed the nanoparticles' smooth, spherical morphology, while X-ray diffraction showed partial amorphization of drug, enhancing solubility and bioavailability. Stability studies under ICH guidelines demonstrated minimal changes in particle size (from 282.8 nm to 286.4 nm) and EE (from 83.3% to 79.6%) after 30 days, confirming formulation stability. In-vitro drug release studies showed an initial burst release (2.8%-7.1% in the first hour), followed by sustained release over 24 hours, with cumulative drug release (CDR) reaching 93.3% in the best-performing batch. Drug release kinetics followed zero-order, supporting a concentration-independent release profile ideal for controlled therapy. These results suggest that CFTR modulator drug-loaded PLGA nanoparticles exhibit the potential for effective pulmonary delivery in CF, overcoming mucus barriers, enabling sustained release, and enhancing therapeutic efficacy. This formulation could significantly improve the quality of life for CF patients through targeted and controlled drug delivery.

Keywords: PLGA loaded nanoparticles, CFTR modulator drug, Cystic fibrosis, Pulmonary drug delivery

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Poster code:PCOG 02

Title: A Review on Herbal Antioxidants

Authors:Dhvani Gandhi[1*], Dhruti Nagda[2], Payal Panchal[3], Manisha Kanjiyani[4]

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ABSTRACT:

According to research two-thirds of the medicinal plant species of the world possess significant antioxidant potential. Antioxidants are the molecules that prevent cellular damage caused by oxidation of other molecule. Oxidation is a chemical reaction that transfers electrons from one molecule to an oxidizing agent. Oxidation reactions are known to produce free radicals. These free radicals are highly reactive species which contains one or more unpaired electrons in their outermost shell. In general, the reactive oxygen species circulating in the body tend to react with the electron of other molecules in the body and these also effect various enzyme systems and cause damage which may further contribute to conditions such as cancer, ischemia, aging, adult respiratory distress syndromes, rheumatoid arthritis etc. A plant based diet protects against chronic oxidative stress-related diseases. Dietary plants contain variable chemical families and amounts of antioxidants. A total of two hundred and fifty plants from the following families; Asteraceae, Combretaceae, Euphorbiaceae, Fabaceae, Lamiaceae, Moraceae and Malvaceae were reviewed. These antioxidants include *Geranium sanguineum L., Rheum ribes L., Diospyros abyssinica, Pistacia lentiscus, Ficus macrocarpa L. fill., Teucrium polium L., Momordica charantia L., Acacia auriculiformis A., Bidens Pilosa Linn.* This review presents some information about the antioxidant and their role in our body and also their presence in herbs.

Keywords: Antioxidants, Free radicals, Herbs

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Poster code:PCOG 03

Title: Pluchea Lanceolata (Rasna) – A Promising Source of Traditional Medicine

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ABSTRACT:
Medicinal plants have played a significant role in ancient traditional system of medicine. An impressive number of modern drugs have been isolated from natural sources In recent years, there has been a great demand for plant derived products in developed countries. They are the richest biosource of drugs of traditional system of medicine, modern medicines, food supplements, folk medicines, pharmaceutical intermediates and chemical interties for synthetic drugs. Pluchea lanceolata (DC.) Oliv. & Hiern, (Family: Asteraceae), is a rapidly spreading perennial herb, considered valuable for the management of anti-inflammatory disease. It is small shrub grows mainly in sandy and saline soil, found is hotter parts of India including Punjab, Rajasthan, Gujarat, Upper West Bengal, Uttar Pradesh and neighboring Asian countries together with North Africa. It is known locally as "Rasna", Gandhamula Rasya and Yuktarasa. This review highlights the phytochemical composition of P. lanceolata, focusing on its bioactive compounds, including different secondary metabolites viz. flavonoids, terpenoids, sterols, taraxasterols, alkaloids, phenols etc. which possess anti-inflammatory, anti-arthritis, anticancer, muscle relaxant, CNS stimulant, anti-implantation, as well as immunosuppressant, contraceptive, and toxicological properties. The plant is used for the inflammation and bronchitis, psoriasis, cough and piles. It is also used as antipyretic, analgesic, dyspepsia, rheumatoid arthritis, bitter, laxative and nerve tonic. The decoction of the plant is used to prevent the swelling of joints in arthritis, rheumatism and neurological disorders.

Keywords: Pluchea Lanceolata, Medicinal plants, Anti-inflammatory, Immunomodulatory

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Poster code:PCOG 04

Title: Pharmacognostical and preliminary phytochemical screening of *Ceiba pentandra (L.) Gaertn* Leaves

Authors:Dhruti C. Nagda[1*], Anandkumari D. Captain[2]

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ABSTRACT:

Ceiba pentandra (L.) Gaertn, belongs to Malvaceae family popularly known as 'Silk Cotton tree' and 'Kapok', is a medicinal plant with ethnobotanical importance. Pharmacognostical studies of leaves of *Ceiba pentandra* carried out by its morphological characterization will be useful for species identification. In microscopic studies, transvers section of leaves and its powder microscopy were studied and characteristic features were established. Quantitative microscopic evaluation was performed by determination of leaf constant parameters. Physico-chemical analysis such as extractive values, ash values determination and moisture content were determined for establishment of standards for crude drug as well as in the detection of adulteration. Preliminary phytochemical screening was performed in different extracts obtained by using different solvents such as toluene, etheyl acetate, chloroform, methanol, water; were tested separately for the presence of various phytoconstituents. The present study of pharmacognostical and phytochemical profile of *Ceiba pentandra* (L.) Gaertn Leaves will be useful in lying down standardization and pharmacopeia parameters can serve as a standard for quality control of crude drugs.

Keywords: Ceiba pentandra (L.) Gaertn, Pharmacognostical, Phytochemical, Physico-chemical

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Poster code:PCOG 05

Title: A Review on Liquorice and Manjistha used in treatment of Skin Pigmentation And Post-inflammatory Hyperpigmentation

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ABSTRACT:

Skin Pigmentation is the first variable & observable feature of human skin. It is a type of disorder in which patches of skin becomes darker in colour than the normal surrounding skin. It occurs due to over production of melanin, which is produced by highly specialized cutaneous cells called Melanocytes. Synthetic chemicals used for treatment of skin pigmentation such as benzoyl peroxide, salicylic acid etc. But the major drawback of benzoyl peroxide is that it has a very short shelf life & also it has no effect on Sebum Production. Based on review herbal extracts of Liquorice and Manjistha had shown best the activity against the complexion enhancement of skin. Some medicinal plants like Haridra, Liquorice, Manjistha, Saariva, Chandana, Amalaki, Ghritkumari etc. has been described for beautification of skin, hair, teeth, nails etc. These herbs balance the Agni, the Dosha and the Dhatu to maintain good health. Perfect balance of these three are necessary for good proportion of Dhatu and Updathu which is basic requirement for fit and beautiful skin & body. Moreover, these herbs work in healing of damage tissues of the body. In these herbs Manjistha (Rubia cordifolia) holds the reputation of a very good skin care herb as it is used to make the complexion lighter even and lighten dark spots. This review shows the information regarding future formulation for the treatment of skin pigmentation using herbal drugs.

Keywords: Skin pigmentation, Manjistha, Liquorice

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Poster code:PCOG 06

Title: Holistic approaches to oral health: The role of ayurvedic products

Authors:Dhwani R Patel* [1], Dr. Madhavi Patel [1]

Affiliation:Parul Institute of Pharmacy, Parul University, Vadodara-391760

ABSTRACT:

Over a long period of time, herbal products have been used for centuries for the treatment of various ailments in traditional medicinal systems around the world, and their role in healthcare. Oral health is one of the most common health issues in developing countries. They have been used to treat various dental problems, for example, toothache, caries, and to maintain general oro-dental hygiene. Ayurveda, an ancient Indian traditional system of medicine that outlines treatment approaches and medicines based on herbs and their parts which offers a holistic approach to health and wellness, including oral care. Dental caries, periodontal diseases, gingivitis, are commonly occurring oral health problems. Ayurveda, as the ancient Indian system of medicine, describes certain principles of personal hygiene related to oral health. Various herbal plants in Ayurveda can be used as an adjunct for oral health care. There are numerous Indian medicinal plants that are used in articulating beneficial measures and Ayurvedic material has been proved to be safe and effective through ages. The one of the most challenging thing that comes along with the herbal preparation is their authentication, identification and quantification of the bioactives. With further progress in medical science, especially in pharmacology and phytochemistry, researchers have started refining the entire concept of isolating and characterizing the active principles along with their secondary metabolites. By using different techniques such as LC-MS, HPTLC, GC, GC-MS, HPLC, etc., increases an aid in the research area as well as in the production of new ayurvedic product. Also, it is used to create databases for identification and authentication of materials with well-defined botanical and phytochemical characteristics and to create standard protocols for establishing purity of materials, identification of adulterants, substitutes and heavy metal residues in traditionally used medicinal plants. The current review is compilation of the different techniques and methods that has been employed in maintaining the quality standards of the herbal products.

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Poster code:PCOG 07

Title: Herbal Phytosomes:Briding Traditional Remedies And Modern Diabetic Care

Authors:Sharma Disha Vinodkumar[1*],Dr. Siddhi Upadhyay[2*],Dr. Chainesh Shah[3]

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ABSTRACT:

Our nation possesses a profound repository of Ayurvedic wisdom, whose true depth is only recently beginning to be comprehended. Herbal medicines have long constitute steadfast pillar of medical practice, proffering remedies for a diverse spectrum of maladies. During the COVID-19 pandemic, there was a noticeable shift in public interest towards Ayurvedic treatments, prompted by mounting apprehensions regarding the substantial side effects associated with allopathic remedies. Nevertheless, a significant impediment emerged in the domain of herbal remedies - their substantial molecular size impeded their ability to elicit rapid therapeutic responses. To ameliorate patient adherence and enhance efficacy, the exploration of physiologically-responsive drug delivery systems within the realm of herbal medicines is currently underway. This endeavor seeks to mitigate dosing frequency and augment bioavailability, thereby addressing the delayed onset of action associated with herbal drugs. The focal point of this article is to delineate the necessity of phytosomes and their effectiveness as herbal anti-diabetic agents.

Keywords: Phytosomes, Diabetes Mellitus, Idiopathic, Fluminant

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Poster code:PCOG 08

Title: Phytochemicals and Pharmacological Properties of Hydnocarpus Species

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ABSTRACT:

Hydnocarpus species, a genus well-regarded in traditional medicine, have attracted considerable attention for their diverse pharmacological properties and rich phytochemical profiles. This review aims to provide a comprehensive overview of the phytoconstituents and therapeutic activities associated with *Hydnocarpus* species. Key phytochemicals, including flavonoids, fatty acids, alkaloids, and lignans, have been identified and linked to bioactivities such as anti-inflammatory, antimicrobial, antidiabetic, anticancer, and wound-healing effects. Additionally, historical uses, such as their application in treating leprosy and skin disorders, highlight their ethnopharmacological relevance.

This poster synthesizes existing literature to present insights into the mechanisms underlying these pharmacological actions, the structural diversity of the bioactive compounds, and their potential for future drug development. By bridging the gap between traditional knowledge and contemporary research, this review underscores the importance of *Hydnocarpus* species as a promising resource for therapeutic agents. Further studies on bioavailability, toxicity, and clinical efficacy are recommended to harness their full pharmacological potential.

Keywords: Hydnocarpus species, phytochemicals, pharmacological properties, traditional medicine, bioactive compounds.

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Poster code:PCOL 01

Title: Comprehensive Review of Pharmacological Actions and Advanced Analytical Techniques for Phenolic Acids: Ferulic Acid and Vanillic Acid

Authors:Kripa Patel [1*] and Khyati Patel [1]

Affiliation:[1]Department of Pharmaceutical Quality Assurance, Parul Institute of Pharmacy, Parul University, Vadodara 391760, Gujarat, India. *Corresponding author: patelkp232@gmail.com

ABSTRACT:

This review presents an in-depth examination of the pharmacological potential and analytical methods used for two prominent phenolic acids: ferulic acid (FA) and vanillic acid (VA). Ferulic acid, a hydroxycinnamic acid and a type of phenolic compound derives its name from the *Ferula* genus, closely linked to giant fennel (*Ferula communis*). Ferulic acid naturally emerges as a by-product of phenylalanine and tyrosine metabolism in plants and is abundantly found in cereals, grains, fruits, vegetables, and monocotyledonous plants. Ferulic acid exhibits potent antioxidant and anti-inflammatory properties, anti-cancer activity, cardiovascular health, and neuroprotection. Vanillic acid, 4-hydroxy-3-methoxybenzoic acid, is a naturally occurring phenolic compound derived from vanillin, obtained from vanilla beans. It is characterized by a mild and pleasing aroma, making it a valuable flavoring agent. Vanillic acid is recognized for its anti-inflammatory, antihypertensive, and anticancer activities, alongside its hepatoprotective and antidepressant-like effects. This review explores the analytical methods used for detecting and quantifying phenolic acids, emphasizing their effectiveness in achieving precise and reliable analysis.

Keywords: Ferulic Acid, Vanillic Acid, Pharmacological Activities, Analytical Techniques.

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Poster code:PCOL 02

Title: Ethics, Regulation, And Innovation: The State Of Stem Cell Therapy In India

Authors:Mahima Shah[1], Dr. Komal Patel[*], Dr. Puja Bhavsar*

Affiliation:Department of Regulatory Affairs, Parul Institute of Pharmacy, Vadodara, Gujarat

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ABSTRACT:

Stem cell therapy in India represents a significant advancement in regenerative medicine, offering hope for treating various diseases. However, this rapidly evolving field faces critical ethical, regulatory, and innovation challenges. This presentation explores the current landscape of stem cell therapy in India, focusing on the ethical frameworks and regulatory guidelines that govern its research and clinical applications. India's National Guidelines for Stem Cell Research (NGSCR), established in 2007 and revised in 2017, provide a structured approach to ensure the safety and efficacy of stem cell therapies. These guidelines mandate compliance from researchers and clinicians involved in both basic and clinical research with human stem cells. Key regulatory bodies like the Indian Council of Medical Research (ICMR) and the Department of Biotechnology (DBT) oversee funding and ethical practices while promoting innovation. Despite these advancements, challenges persist, including public misconceptions about stem cell therapies and the commercialization of unproven treatments. The inconsistent enforcement of guidelines has led to instances of unethical practices, highlighting the need for stronger oversight mechanisms. This presentation will address key ethical considerations, regulatory frameworks, and the role of innovation in shaping the future of stem cell therapy in India. By examining case studies and ongoing research initiatives, we aim to provide insights into how India can navigate these complexities to fully harness the potential of stem cell therapies while ensuring patient safety and maintaining ethical integrity.

Keywords: Stem cell therapy, Ethics, Regulation, Innovation, India, ICMR

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Poster code:PCOL 03

Title: Stem Cell Therapy: Promises and Challenges in Regenerative Medicine

Authors: Palak Vyas

Affiliation: IICP

ABSTRACT:

Stem cell therapy has emerged as a promising frontier in regenerative medicine, offering potential treatments for a variety of debilitating diseases and injuries, including neurodegenerative disorders, cardiovascular diseases, and musculoskeletal injuries. This presentation explores the potential of stem cell therapy, focusing on the unique properties of stem cells, such as self-renewal and differentiation into specialized cell types, which make them valuable for tissue repair and regeneration. Key advancements in stem cell technologies, including induced pluripotent stem cells (iPSCs) and mesenchymal stem cells (MSCs), have opened new possibilities for personalized medicine and complex tissue engineering. However, significant challenges remain in translating stem cell therapies to clinical applications. Issues such as ethical considerations, immune rejection, tumorigenicity, and the need for precise control over differentiation and integration pose substantial hurdles. This poster will discuss these challenges alongside current solutions, including improved gene-editing techniques, scaffold innovations, and protocols to enhance safety and efficacy. As the field progresses, addressing these challenges is essential to realizing the full therapeutic potential of stem cell therapy in regenerative medicine.

KEYWORDS: Stem Cell Therapy, Regenerative Medicine, Induced Pluripotent Stem Cells (iPSCs), Mesenchymal Stem Cells (MSCs), Tissue Engineering, Immune Rejection, Tumorigenicity, Personalized Medicine, Gene Editing, Scaffold.

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Poster code:PCOL 04

Title: Uterotonic activity and Molecular Docking Analysis of Caesalpinia bonduc Leaf Extract on Isolated Rat Uterine Smooth Muscles

Authors: Jinal Tandel*, Usmangani Chhalotiya, Heta Kachhiya

Affiliation: Department of Pharmaceutical Analysis and Chemistry, Indukaka Ipcowala College of pharmacy

ABSTRACT:

Caesalpinia bonduc (Family: Caesalpiniaceae), commonly known as Latakaranj, has been widely utilized since ancient times for its various medicinal properties. Phytochemical investigations have identified the presence of several bioactive compounds, including steroids, flavonoids, alkaloids, triterpenes, and diterpenes. Traditionally, the leaves of this plant have been employed to induce or expedite labor in pregnant women. The present study focuses on understanding the molecular mechanism of bioactive compounds of Caesalpinia bonduc for uterine contraction. The molecular docking of compounds that are present in Caesalpinia bonduc named α caesalpin, β caesalpin, ε caesalpin, caesalpin F, and Bonducellin were performed against 1FDS, 3S79, 1E3G, 3ERT targets following to evaluate the Uterotonic activity of Caesalpinia bonduc crude extracts on isolated rat uterine smooth muscles and investigate its potential mechanism of action. The extracts were tested for Uterotonic activity on uterine smooth muscles isolated from estrogen-primed adult non-pregnant female Sprague Dawley rats weighing 200–250 g. To explore the mechanism of action, the plant extract's activity was also assessed in the presence of the standard drug, Oxytocin. The standard drug exhibited the potency, with an EC 50 value of 0.49 and pD2 of 0.30. In comparison, the plant extract shows potency, with an EC 50 value of 1.4 and a pD2 of -0.14. This study provides scientific validation of the uterotonic activity of Caesalpinia bonduc.

Keywords- Caesalpinia bonduc, molecular docking, Uterine smooth muscle, Oxytocin, myometrium

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Poster code:PCOL 05

Title: A CRITICAL ROLE OF CDx IN PERSONALIZED MEDICINE

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ABSTRACT:

Companion diagnostics (CDx) have become fundamental to advancing personalized medicine, enabling precise therapeutic strategies tailored to individual patient profiles. By identifying biomarkers, genetic mutations, and molecular signatures, CDx plays an essential role in determining each patient's likelihood of response to specific therapies. Its impact is especially evident in oncology, where CDx guides targeted treatments to align with the genetic and molecular characteristics of a patient's tumor, improving efficacy and safety. Beyond oncology, CDx is now extending its reach into cardiology, infectious diseases, and neurology, where it provides clinicians with actionable insights across a range of complex conditions. As the field expands, CDx offers significant benefits: increased treatment accuracy, reduced adverse effects, and overall healthcare cost reduction by optimizing therapeutic interventions. However, integrating CDx into mainstream healthcare comes with challenges, including rigorous regulatory demands for safety, accuracy, and clinical validity, which vary across regions. Regulatory bodies like the FDA and EMA play a critical role in ensuring that CDx technologies meet these standards, thereby supporting broader adoption. This poster involves the critical role of CDx in modern medicine, covering the essential technologies behind CDx, its diverse applications across multiple disease areas, and the tangible benefits it brings to personalized treatment. Furthermore, it discusses the regulatory landscape, challenges, and future opportunities for CDx integration within healthcare, highlighting its potential to advance patient-centered care on a global scale.

Keywords: Personalized medicine, Companion diagnostics, Targeted therapies, Biomarkers, Regulatory standards.

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Title: Evaluation of The Impact of An Educational Pharmaceutical Care Program on Type-2 Diabetes Mellitus Patients- An Interventional Study

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ABSTRACT:

Title: "Evaluation of The Impact of An Educational Pharmaceutical Care Program on Type-2 Diabetes Mellitus Patients"- An Interventional Study Objectives: 1. To Evaluate the Patients' Knowledge, Attitude and Practice (KAP) About Diabetes Before and After Application of Pharmaceutical Care. 2. To Evaluate the Impacts of Pharmaceutical Care Program on Diabetes Distress Scale (DDS) in Patient with Diabetes Mellitus Before and After Application of Pharmaceutical Care. Materials and Methods: A prospective and longitudinal study carried out on Type-2 Diabetes mellitus patients of aged 18-75 years, Visiting Saarathi Institute of Diabetes Sciences, Privat health care hospital situated in Anand district. Duration of this study was 16 months, 4 months Follow Up. This study was carried out during March 2023 to July 2024, over a period of 16 months. Total 145 patients enrolled in the study. Results: Total 145 Type-2 Diabetes mellitus subjects were enrolled in the study. Mean age (in years) of all study participants N=145 is 57±11. Mean value of glycosylated haemoglobin of N=139 participants were 8.6±1.42. Knowledge, attitude, and practice score at Baseline for N=145 was 5.34±1.16 (Mean ± Standard Deviation), 5.01±0.52 (Mean ± Standard Deviation), 4.02±0.96(Mean ± Standard Deviation) respectively. After Educational interventional Knowledge, attitude, and practice score at visit 4 for N=145 was 8.03±0.77 (Mean ± Standard Deviation), 9.0±0.00 Mean ± Standard Deviation), 8.06±0.77 (Mean ± Standard Deviation) respectively which showed, total KAP score 36% higher from baseline score. Total DDS score of 145 patients at baseline 2.88±0.38 which was reduced at visit 4 to 1.92±0.16. Conclusion: This study showed that educational PCP intervention plays very crucial role in enhancement of Knowledge and practice, which improve self-regulatory behaviour of patients and reduction of distress in all domain. This enhances understanding of disease, a management of disease with medication and overall patients' satisfaction.

Keywords: Diabetes mellitus, KAP, Pharmaceutical care program, Diabetes distress

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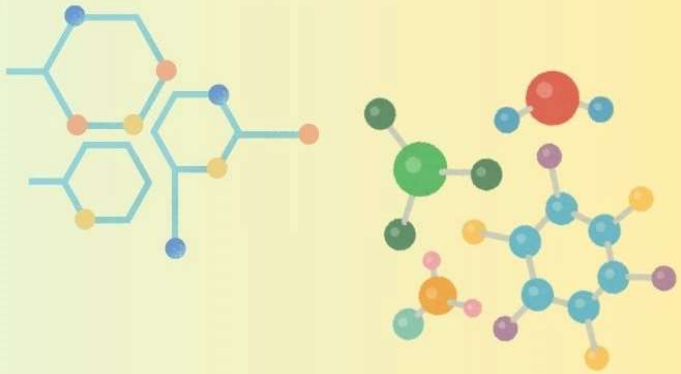

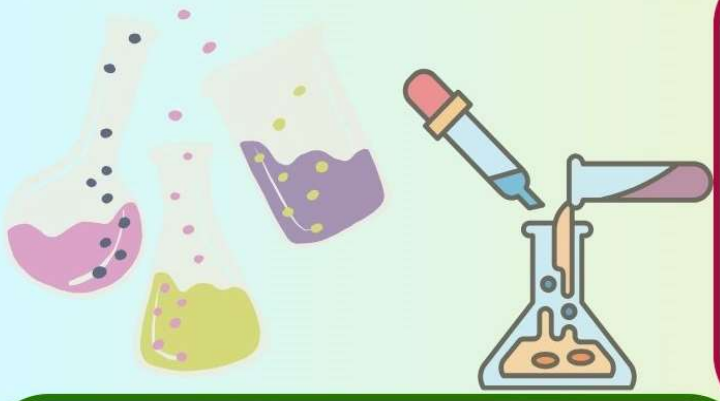

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