magnus Group

JUNE 2022

13-14

VIRTUAL EVENT

6th Edition of Global Conference on

PHARMACEUTICS

AND NOVEL DRUG DELIVERY SYSTEMS

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BOOK OF ABSTRACTS

6TH EDITION OF GLOBAL CONFERENCE ON

PHARMACEUTICS AND NOVEL DRUG DELIVERY SYSTEMS

13-14 JUNE

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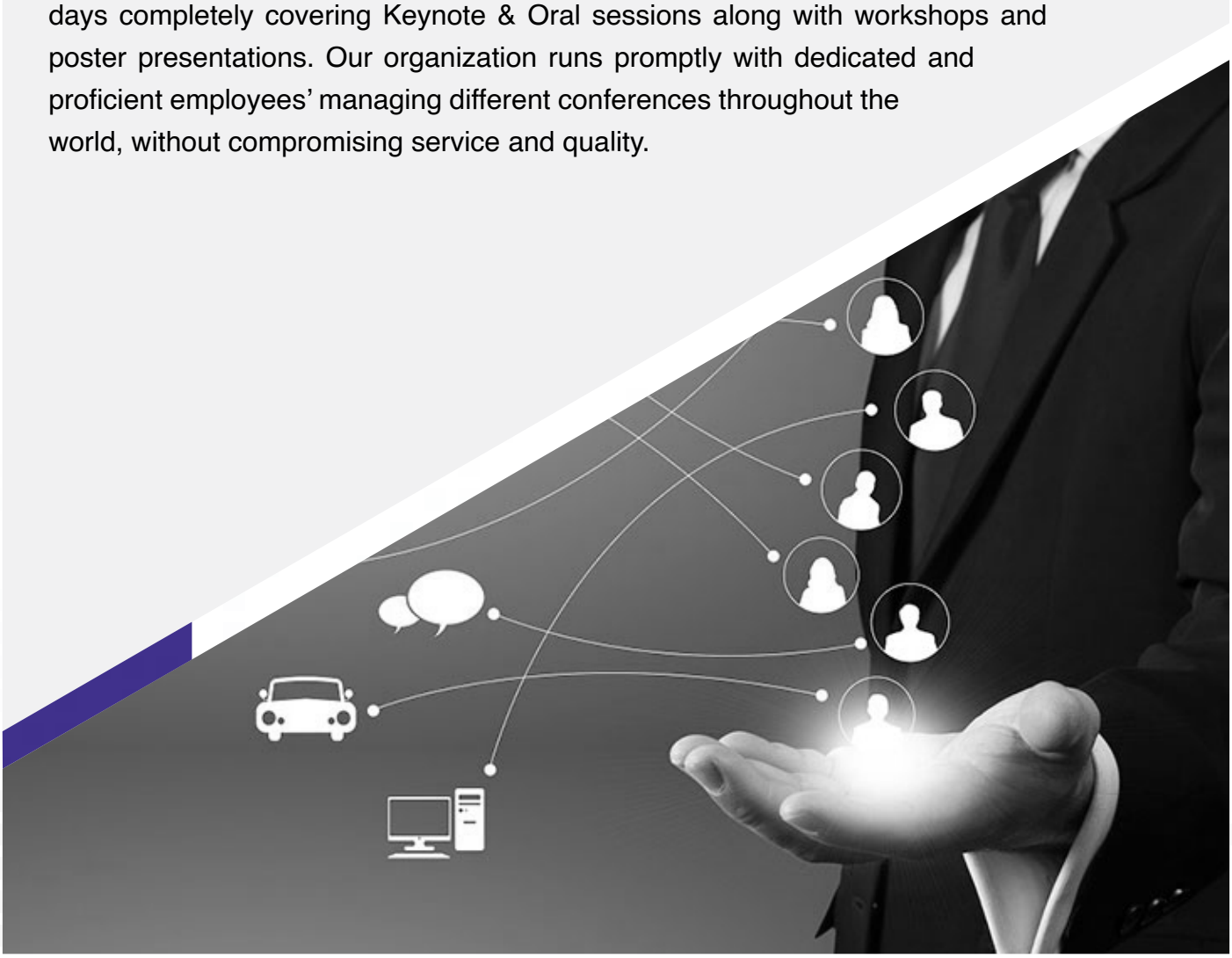
ABOUT MAGNUS GROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.



ABOUT PHARMACEUTICS 2022

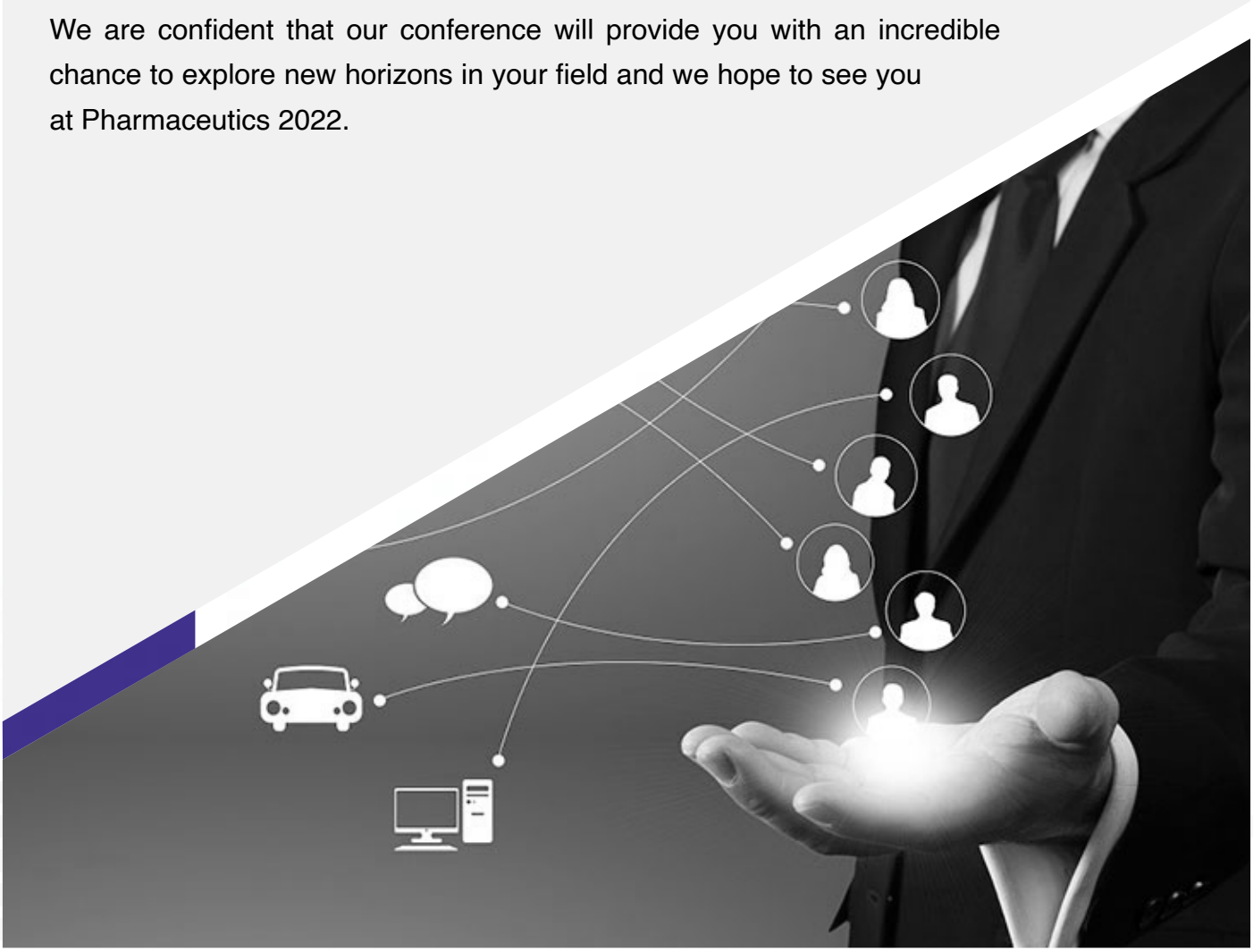
With an earnest objective to congregate pharma professionals, researchers, scientists and pharma industries, Magnus Group proudly enunciates and welcomes you to its 6th Edition of Global Conference on Pharmaceutics and Drug Delivery Systems (PHARMACEUTICS 2022), which is going to be held Virtually during June 13-14, 2022.

This year the global summit will move forward with the theme PHARMA: Panoramic Perspectives on Healing and Recent Medical and Pharmaceutical Advancements.

Unique and curated agenda for this year is to open doors for many researchers in academia, clinicians and industry representatives to explore disruptive technology and novel platforms, as well as to discuss cost-cutting and productivity-boosting strategies.

The two-day colloquium is designed to foster collaboration and innovation, with pharma and technology poster presentations, interactive panel discussions, and visionary keynotes sessions.

We are confident that our conference will provide you with an incredible chance to explore new horizons in your field and we hope to see you at Pharmaceutics 2022.



KEYNOTE FORUM

DAY 01

6TH EDITION OF
GLOBAL CONFERENCE ON

PHARMACEUTICS AND NOVEL DRUG DELIVERY SYSTEMS

13-14 JUNE

Barbara De Filippis*[1], Morena Petrini[2], Tania Pierfelice[2], Emira D'Amico[2], Simonetta D'Ercole[2]

[1]Department of Pharmacy, University G. d'Annunzio, Via dei Vestini 31, 66013 Chieti, Italy

[2]Department of Medical, Oral and Biotechnological Sciences, University G. d'Annunzio Chieti-Pescara, Via dei Vestini 31, Chieti, Italy

Resveratrol derivatives: A new tool for osteogenic induction in the treatment of peri-implantitis

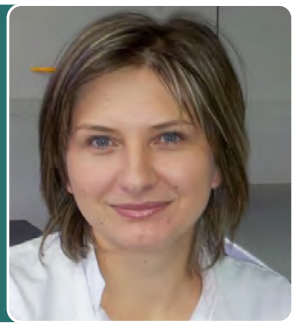
Dental implants offer a reliable therapeutic option for tooth replacement therapy. However, the early and late failures are still a major concern of clinicians. Peri-implant tissues contribute to ensuring healthy conditions, stable osseointegration, and long-term survival because they prevent microbial invasion, and consequently peri-implantitis. Moreover, the fibroblasts, particularly rich in the gingival tissue, acts against bacterial invasion and the possible inflammation, which may involve bone tissue causing marginal bone resorption and soft tissue recession. The treatment of peri-implantit involves the surface decontamination that could be performed with mechanical and chemical compounds; the regeneration of the lost tissues, soft and hard, still represent the most difficult goal to achieve. For this purpose, a molecule with both antimicrobial properties, and proliferative action on osteoblasts and endothelial cells, may offer a valuable approach to overcoming limits of other strategies. Many natural polyphenols are involved in pathways that can cross-talk to other multiple transduction signals; they possess promising higher beneficial efficacy and safety, and represent an alternative to pharmaceuticals due to low immunogenicity and toxicity. These characteristics make phenolics a promising natural source to be employed in the development of plant-based therapeutics, with a wide application-use ranging from bone diseases to cancers and neurodegenerative disorders. Resveratrol (trans-3,4',5-trihydroxystilbene, RSV, Figure 1) is a polyphenolic phytoalexin present in natural sources with a large range of beneficial physiological effects. It exhibits several biological activities as antioxidant, anti-inflammatory, and antibacterial. Administration of RSV has been shown to inhibit alveolar bone loss and modulates many critical factors in gingival tissues, diminishes oxidative stress and pro-inflammatory cytokine production showing an anti-inflammatory effect by acting on key signals. In addition to the inhibitory action against osteoclasts, RSV may be a promoter of osteoblast proliferation improving oxidative stress and mitochondrial dysfunction. These results suggest that RSV-like compounds promote bone regeneration and reduce oxidative stress. On the best of our knowledge, there are not recent studies on the activity of RSV derivatives on bone regeneration. Based on these premises, and to overpass the unfavorable bioavailability of RSV, we synthesized and studied a set of sulfonamide derivatives of RSV (Figure 1) containing the stilbene core of RSV bound by a sulfonamide bridge to a lipophilic portion, as a substituted aromatic ring, an alkyl chain or benzyl group or the bioisostere thiophene. We evaluated their cytocompatibility with human osteoblasts, human gingival fibroblasts, and endothelial cells of the human umbilical vein (Huvec) by proliferation and viability studies. This work could reveal a potential synergistic action on the targets of these new compounds and may contribute to expand their biological applications in regenerative fields.

Take Away Notes:

- Audience can draw useful information on the state of the art in the field of osseointegration
- The proposed research work offers a useful information about the pathways involved in the tissue regeneration
- This presentation offers an interesting starting point in the field of the design of derivatives of natural substances
- This study intends to provide a scientific and reliable basis for the development of RSV-based agents useful in the osseointegration field

Biography

Barbara De Filippis got her PhD in Pharmaceutical Sciences at the University of Chieti (Italy) and is currently an Assistant Professor in Medicinal Chemistry. Her research work is focused on the design and synthesis of small molecules with anticancer, antimicrobial and antioxidant activities. Her studies are related on derivatives of natural phenols, as resveratrol. She is author/co-author of many international papers and guest editor and reviewer for many journals.



Cornelia Braicu*[1], Raduly Lajos[1], Vlad Morhan[1], Zsofi Papi[2], Ancuta Jurj[1], Oana Zanoaga[1], Ioana Berindan-Neagoe[1]

[1]Research Center for Functional Genomics, Biomedicine and Translational Medicine, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

[2]Faculty of Medicine, University of Szeged, Hungary

MiR-29b inhibition in triple negative cells target apoptosis and autophagy related mechanisms

Introduction: The lack of receptors in triple-negative breast cancer (TNBC) restricts therapeutic alternatives options that can be used for clinical management. MicroRNAs (miRNAs) are short non-coding RNAs that post transcriptionally regulate gene expression. MiR-29b was proved not only to be overexpressed but also correlated with overall survival in TNBC. Therefore, the purpose of our study was to evaluate the effect on miR-29b transient inhibition on TNBC cells.

Materials and methods: BT549 and MDA-MB-231 cells, two relevant TNBC model's expression with high level for miR-29b, were used for our study, followed by the evaluation of cellular and molecular alteration as effect of miR-29b inhibition using lipofectamine transfection.

Results: Transient inhibition of miR-29b induced a decrease of cell proliferation and colony forming ability, along with an activation of apoptosis and autophagy as observed by fluorescence microscopy evaluation. Microarray technology was used for the evaluation of alteration on miRNA pattern as effect of inhibition of miR-29b, revealing 8 upregulated and 11 downregulated miRNAs in BT549 cells, and 33 upregulated and 10 downregulated miRNAs in MDA-MB-231 cells. Additional qRT-PCR validation step of most relevant miR-29b target was done, revealing activation of MCL2 and BCL2 two important genes responsible for the resistance to therapy.

Conclusion: miR-29b modulates the crosstalk between apoptosis and autophagy signaling, at the same time were activated the drug resistance mechanisms (overexpression of BCL2 and MCL1); this might limit the therapeutic potential in TNBC.

Acknowledgement: This study was financed by PCE grant Testing small molecule targeting mitogen activated protein kinases: Successes, challenges and opportunities in triple negative breast cancer systems- ORIENT.

Take Away Notes:

This is a complex study presenting the cellular and molecular effects on inhibition of miR-29b. The presentation will start with the description of the study design, selection of relevant models for study the inhibition of miR-29b, selection of optimal doses, followed by the evaluation of cellular and molecular effect. Then the discussion related to the specific miRNA pattern obtained from the two cell lines used for the study, emphasis the important role of the mutational signature. We Furthermore, are discussed the activation of mechanisms responsible for the resistance to therapy, limitation of miR-29b application as treatment strategy.

Biography

Cornelia Braicu is a researched at Research Center for Functional Genomics, Biomedicine and Translational Medicine, Iuliu Haţieganu University of Medicine and Pharmacy. Dr. Braicu has a background in biotechnology, the major field of interest being functional genomics and she have over 110 ISI papers, of which 35 as first author, h-index (web of science): 31. Contribution to Science: https://www.ncbi.nlm.nih.gov/pubmed/?term=braicu+c.

Subas Chandra Dinda

Teerthanker Mahaveer University, India

Mucoadhesive microcapsule: A novel approach for controlling & sustained drug delivery!

Problems associated with poor bioavailability through oral route and administration difficulties through injectable routes promoted the impetus for exploring alternative routes for the delivery of such drugs. Application of dosage forms through mucosal surfaces may be able to benefit the drug molecules, which are not amenable to the oral route, such as those that undergo acid degradation or extensive first-pass metabolism. Trans-mucosal routes of drug delivery (i.e., the mucosal linings of the nasal, rectal, vaginal, ocular, and oral cavities) offer distinct advantages over peroral administration for systemic effect. The rationale behind the designing of muco-adhesive dosage forms include: These dosage forms readily localize in the region applied, and improve the bioavailability of drugs; Facilitate intimate contact of the formulation with the underlying absorption surface, which allows modification of tissue permeability for absorption of therapeutic moieties as well as macromolecules, such as peptides and proteins; It prolongs the residence time at the site of application and absorption to permit Controlled and Sustained drug delivery. The targeting sites of Muco-adhesives Drug Delivery includes: Buccal Route; Sub-lingual Route; Vaginal Route; Rectal Route; Nasal Route; Ocular Route; Gastro Intestinal Tract; May target delivery at Stomach / Intestinal region. Approaches followed to incorporate drugs into the bio adhesive polymers include: Microencapsulation; Granulation by matrix formulation; Palletization techniques, etc. Techniques used for Preparation of Mucoadhesive Micro-particle include: Coacervation / Phase separation technique; Air suspension techniques (Wurster); Cross-Linking / surface polymerization; Ionotropic Gelation by using CaCl2 / Chitosan; Emulsification and Solvent Evaporation; and Spray Drying / Congealing methods; etc.

Biography

Subas Chandra Dinda, did his Master degree course in Pharmaceutical Technology from Andhra University, India in 1999 and Ph.D. in Pharmacy from Jadavpur University, India in 2008. Who serving at present as Professor & Head, Department of Pharmaceutics, Teerthanker Mahaveer University, India is found to be having a wide research experience in the frontier of Drug Delivery and Drug Targeting Research covering the area of design and development of Matrix systems, Floating Drug delivery systems, Muco-adhesive microcapsules, and Nano-particle based formulations? He explored several poorly bio-available drugs through muco-adhesive as well as nano-particle based dosage forms and found to be very effective through oral route. He also actively involved in guiding the scholars in the field of Drug Delivery System as well as interdisciplinary research covering the area of Drug Synthesis and Herbal Drug Research under the joint collaboration with the teachers from other University as well. To date some of his research finding claimed patents and published in more than hundreds of peer reviewed journals for the benefit of scientific community. He is serving as reviewer of many journals including ELSEVIER, SPRINGER, and SCIENCE DIRECT publications. To his credit he supervised/awarded more than 18 Ph.D candidates in the field of pharmaceutical sciences for the professional development and having a vast administrative experience in establishing the new pharmacy institutions as well as designed new pharmacy course curricula as the chairperson of Board of Studies/Council for the development of pharmaceutical sciences at Berhampur University in India as well as Mekelle University in Ethiopia.

Liwu Li

Virginia Polytechnic Institute and State University, USA

Innate Immune-memory based therapeutics in the resolution of inflammation

Emerging studies suggest a novel role of innate immune memory during the pathogenesis and treatment of diverse inflammatory diseases. However, the fundamental principles that underlie the generation of innate immune memory are not well understood, thus hindering the effective development of innate-based therapeutics. We have defined the signal-strength and history dependent memory adaptation of innate immune cells including monocytes and neutrophils in both murine and human systems. Integrative single cell RNA seq and protein-based analyses reveal the existence of unique subsets of memory monocytes/neutrophils with divergent inflammatory and/or resolving natures. Genetic studies reveal that TRAM-mediated signaling circuitry is required for the establishment of inflammatory and/or exhausted innate memory leukocytes, and that the deletion of TRAM can effectively reprogram innate immune cells into a novel resolving phenotype. Our pharmacological approach independently reveal that the application of 4-PBA can similarly reprogram resolving innate immune cells conducive for the treatment of both acute sepsis as well as chronic inflammatory atherosclerosis. Taken together, our systems analyses reveal that resolving innate leukocytes have therapeutic potentials in restraining inflammation and promoting host defense.

Biography

Liwu Li, is a professor of Inflammation/Immunology, the director of GBCB (Genetics, Biotechnology, and Computational Biology), at the Virginia Tech University, USA. He obtained a PhD in biology at the University of Michigan in 1996, followed by post-doctoral training with Dr. Jack Dixon related to enzyme kinetics of key phosphatases till 1999. He was a faculty at Wake Forest University for 6 years before relocating to Virginia Tech University. He served as the President of Inflammation Research Association, and published over 140 articles regarding innate immune memory and leukocyte therapeutics related to sepsis, atherosclerosis and cancer.

Sebastien Fortin

Laval University, Canada

Targeting breast cancer through prodrug activation by cytochrome P450 1A1

Human cytochromes P450 (CYPs) constitute a large superfamily of monooxygenase enzymes that catalyze over 40 different redox reactions. They are ubiquitous and are the main enzymes involved in drug biotransformation. CYPs also metabolize a considerable number of structurally different endogenous and exogenous compounds such as steroids, fatty acids, prostaglandins, and plant metabolites. They also metabolize chemical carcinogens, mutagens and other environmental contaminants. In humans, 57 isoforms were identified that are divided in 18 families of genes. CYPs are mainly expressed in the liver, small intestine and lungs and can exhibit interindividual variation and interspecies differences in expression and activity. Moreover, the expression and the distribution of CYP isoforms vary according to tissues and organs and can be modified according to their state of health and their interaction with certain substrates. For example, the CYP isoform 1A1 (CYP1A1) which is known to promote breast cancer cell proliferation and survival, and to correlate positively with the tumor grade, is highly expressed in some tumors such as breast cancers but it is generally weakly expressed or undetected in healthy tissues. Consequently, CYP1A1 is considered as a potential druggable enzyme that could be used in the so-called *enzyme-based prodrug approach* where a cytocidal prodrug is specifically bioactivated into its active form directly into the tumor site via a local enzymatic activation. In this regard, we recently discovered and developed a new family of enzyme-based prodrugs designated as phenyl 4-(2-oxo-3-alkylimidazolidin-1-yl) benzenesulfonates (PAIB-SOs). PAIB-SOs are potent prodrugs of antimitotics named phenyl 4-(2-oxo-imidazolidin-1-yl) benzenesulfonates (PIB-SOs) that are bioactivated by CYP1A1 and showing high selectivity towards breast cancers overexpressing that enzyme. During the screening of PAIB-SO chemolibraries, we have optimized their anticancer activity, their hepatic stability, their toxicity as well as their physicochemical properties. For this purpose, we identified AIMZ-938 as a potential drug candidate. AIMZ-938 has *in vitro* hepatic stability in murine liver microsomes similar to that of rats and humans. Moreover, AIMZ-938 does not show any noticeable toxicity in all animal models studied so far (mice, rats and chick embryos). In addition, the anticancer activity of the cytocidal metabolite of AIMZ-938 is not affected in most cells exhibiting chemoresistance. Finally, AIMZ-938 shows a $t_{1/2}$ of 11.3 h in mice and antitumor activity similar to paclitaxel in the human hormone-dependent MCF7 breast cancer xenograft mouse model. These results evidence the potential of PAIB-SOs as promising antimitotic prodrugs to target breast cancers overexpressing CYP1A1 via an enzyme-based prodrug approach.

Take Away Notes:

- Overview of the expression, role, functions, interindividual variation and interspecies differences of cytochromes P450
- Outline of isoforms overexpressed in some cancer tumors
- Introduction to the role of prodrugs in drug design and the enzyme-based prodrug approach
- Rational design and optimization of phenyl 4-(2-oxo-3-alkylimidazolidin-1-yl)benzenesulfonates (PAIB-SOs) as new class of antimicrotubule prodrugs targeting breast cancers overexpressing CYP1A1

Biography

Fortin is a medicinal chemist who completed his Ph.D. in cotutelle from both Université Laval in Canada and the Université d'Auvergne 1 in France (2010). Afterward, he was a postdoctoral fellow at Université du Québec à Trois-Rivières (2013), he became an assistant professor in 2013 and an associate professor in 2018 at the Faculté de pharmacie, Université Laval. Dr. Fortin is a researcher at the Centre de recherche du CHU de Québec-Université Laval and the director of the pharmaceutical chemistry laboratory located at the Hôpital Saint-François d'Assise. He is the author and co-author of 39 publications and 84 presentations.

SPEAKERS

DAY 01

6TH EDITION OF
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Chetna Modi*[2], Pathan Lukmankhan S[1], Late Dr. Mukesh C. Gohel[2], Ms. Nikita Udhwani[2], Vaishali T Thakkar[2], Hardik B. Rana[2]

[1]M. Pharm, Anand Pharmacy College, Anand, Gujarat, India

[2]Department of Pharmaceutics, Anand Pharmacy College, Anand, Gujarat, India

Introducing novel hybridization technique for solubility enhancement of Bosentan formulation

Bosentan is one of 40% NCEs developed in Pharma-Industry which are practically insoluble in water & choice of drug for pulmonary arterial hypertension. Due to poor solubility in aqueous media, treatment leads to frequent dosing & increasing cost of therapy subsequently. One cannot unseen shortcomings of solubility enhancement techniques such as physical and chemical modifications of the drug, salt formation, solid dispersion, complexation because of the need for sophisticated equipment, decreased yield, incomplete removal of organic solvents, etc. The novel hybridization technique is a fusion of complexation and liquisolid technique. In this research work, Bosentan was complexed with captisol in the first step. In the second step, the complex was dispersed in non-volatile solvent & mixed with the carrier using mortar-pestle followed by the addition of coating material to form a free-flowing powder. Then it was compressed into tablets by mixing with other excipients. The formulation was characterized by phase solubility study, DSC, FTIR, and XRD to confirm drug-excipients compatibility, crystallinity etc. The phase solubility study showed ~28.85-fold increases solubility. From screening, Avicel PH101 & Parteck SLC 500 as carrier and coating material & PEG-600 as non-volatile solvent was recognized. Explotab as super-disintegrant and Pearlitol 100SD as direct compression excipient to address all types of patients including pediatric and diabetic were used. By 32 factorial design, optimized Bosentan tablet was disintegrated in 7-8 min and showed 87.264±0.823 % drug release in 30 min which was higher than marketed tablet i.e., 61.750±1.226 %. From the stability study, the Novel hybridization technique was also proved as a choice for solubility enhancement.

Take Away Notes:

- Solubility techniques are very well known to all audience
- This presentation focusses on novel hybridization technique for solubility enhancement by incorporation of complexation technique with liquisolid technology

Biography

Chetna Dipak Modi is a academician and having 13 years of research, teaching and guiding experience and 2 years of Pharmaceutical Industrial experience. She was graduated in pharmacy from Shri Sarvajanik Pharmacy college, Mehsana, India in 2004, post-graduated in pharmaceutical technology from MS University of Baroda, Vadodara, India in 2009. She completed PhD in 2015 under guidance of Dr. Praful Bharadia, Professor, LM college of Pharmacy, Ahmedabad. Her expertise is in nanotechnology, vesicular drug delivery system and solubility enhancement techniques. She received third rank in national level elocution competition at Chennai in 2003. Her PhD thesis was nominated in top 5 by PharmaInnova Award in 2015. She received many prizes in Poster and oral presentations.

Neha Bajwa*, Nupur Madhavi, Ashish Baldi

Maharaja Ranjit Singh Punjab Technical University, India

Formulation development and characterization of novel nano formulation to enhance bioavailability by using quality by design approach

Background: Malaria is endemic in over 90 countries in which 2400 million people live (WHO, 2017). With emergence of widespread chloroquine resistance and worldwide scarcity of quininine, search for newer antimalarial drugs has become imperative (Chadda et al., 2011). WHO recommends the use of Artemisinin and its semisynthetic derivatives. Arteether is semi-synthetic derivative of artimisinin specifically for treatment of chloroquine-resistant.

Purpose: The main problems associated with arteether are its low solubility (≅17 µg/ml) and ≅ 40 % degradation in stomach. The present study will enhance bioavailability of arteether and preventing its degradation in stomach.

Method: In present study, solid lipid nano-p rticles (SLNs) containing arteether. Concept of Quality by Design and Formulation by Design was successfully employed during formulation of SLN for screening of factors that affect the quality profile of SLN.

Results: The developed nanoformulations (SLNs) was characterized for various parameters such as particle size (109.7±3 nm), particle charge, PDI (0.034), zeta potential (-4.53) and SEM. The maximum EE of optimised formulation was 47±1.9%. In vitro drug release pattern of optimised formulation showed that only 28% drug in first 5 h with maximum cumulative release of 77% in 13 h.

Conclusions: The present research work represents preparation of alternative novel dosage form of arteether in the form of SLN. The formulated preparations passed all the characterization parameters and can be further employed for bioavailability enhancement studies. The study may lead to new dosage forms of arteether with better bioavailability.

Biography

Neha Bajwa is presently working as Ph.D. Research Scholar and ICMR-SRF (Indian Council of Medical Research- Senior Research Fellow) at Department of Pharmaceutical Sciences & Technology, MRSPTU, Bathinda. She has more than five years of teaching and research experience. She has more than 20 publications in international and national journals with total impact factor more than 45 with 5 H-index. In addition she has been frequent writer at various magazines and newspapers. Presently, she is also Fellow/ Life member of Indian Pharmacy Graduate Associations and the Association of Pharmaceutical Teachers of India. She had attended and presented research papers in more than 20 national and international conferences. She won Best poster research award in various international and national conferences. She also won various grants like UGC-NRC grant, CIPP as research fellow of Industrial project from Lyra Labs Ltd. Baddi, ICMR-SRF, FIP travel grant for PSWC 2020. Presently working on ICMR, New Delhi sponsored project entitled Molecular Encapsulation Augmented Oral Delivery of Arteether: Formulation Design using Total Quality Management Approach under the supervision of Prof. Ashish Baldi at Department of Pharmaceutical Sciences & Technology, MRSPTU, Bathinda

Srishti Narya* , Subh Naman, Ashish Baldi
Maharaja Ranjit Singh Punjab Technical University, India

Quality by design based development and characterization of patient compliant dosage form for pediatrics

The development of pediatric dosage forms can be challenging due to administration route, strength, and toxicity issues. In addition, children do not well receive the conventional pediatric formulations for various reasons, including choking due to larger size, vomiting due to unpleasant taste, and pain in case of injectables. Therefore, a need to develop patient compliant and effective novel dosage forms for children is realized. Fizzy tablets might be a valuable alternative to pediatrics' current conventional dosage form. This active ingredient is delivered in the form of an effervescence tablet with a range of flavours that increases the probability of dosage form acceptability and therapeutic impact. Non-aqueous wet granulation followed by direct compression has been utilized for the preparation of fizzy tablets/ effervescent tablets in this study. Formulation by Design has been implemented for the formulation of effervescent tablets. Critical process parameters, critical quality attributes & critical material attributes have been outlined. Taguchi Design has been employed to screen various critical attributes and response variables that affect the formulation of fizzy tablets. A central composite design (CCD) was used to optimize the different factors, and 2D contour and 3D response plots were developed to demonstrate the relationships between the independent variables and response parameters. Developed polynomial mathematical models were found appropriate to define the selected responses of the optimized formulation with 98.46% and 91.24% validity. Final optimized formulations were subjected to various quality control tests, and the results obtained were promising enough to be considered a patient compliant novel dosage form for the pediatric population.

Take Away Notes:

- The audience will learn about, Fizzy tablets, which have been regarded as a promising candidate for pediatric use. They also learn the concept of the 'Quality by design (QbD)' approach, successfully applied to ensure formulation quality development
- The quality by design approach is an indispensable pioneering concept currently utilized in manufacturing quality pharmaceutical products. It will assist the formulation scientist in getting the product's desired quality
- Yes, this research will help the faculty understand and teach their students about the detailed concept of the QbD (quality by design) approach
- Yes, the quality by design approach will provide the practical solution to the problems associated with product development, thus providing a complete solution to the researchers/scientists working in association with quality assurance and product development in laboratories or industries
- Yes, as the name implies, the quality by design technique in formulation development will offer product quality that meets the desired quality specification of the designed product
- Acknowledging various formulation challenges with pediatrics dosage forms
- Learning pproaches to overcome the limitation faced in development of pediatroc doage form using unconventional formulations
- Due to their mimicking effervescent tablets, effervescent tablets increase the acceptability of the product and improve patient compliance
- Dose flexibility, easy to transport, and single-use product
- Fizzy tablets are a very compatible dosage form for children and adults

- Improvement of product safety and quality
- Optimization of quality and performance of a product
- Provides better coordination during the review and inspection process
- It is a continuous process improvement with efficient corrective actions
- Fast approval of product ANDA

Biography

Srishti Naryal studied at the Himachal Pradesh Technical University, India, and graduated (B. Pharm) in 2020. As a Postgraduate student (Master of Pharmacy in Pharmaceutics) from Department of Pharmaceutical Sciences & Technology M.R.S.P.T.U, Bhatinda, Punjab (India), she has been trained to discover new research areas develop an analytical mind to think through problems while maintaining flexibility within a challenging schedule. Her interest areas are Oral drug delivery systems, Nano drug delivery systems, Novel nanocarrier drug delivery systems, and the QbD approach.

Pallvi Saroch*, Ashish Jain, Subh Naman, Ashish Baldi

Maharaja Ranjit Singh Punjab Technical University, India

Development, optimization and characterization of golden milk as immunobooster in Covid-19 using Qbd approach

In the wake of the COVID-19 outbreak, enhancing the body's immunity plays an important role in maintaining optimum health. Turmeric in milk generally known as golden milk is recommended to consume for boosting immunity. In the present study, turmeric milk powder was prepared by a spray-drying method due to quality and efficiency requirements and optimized by using response surface methodology. For defining the relationship between input variables (turmeric milk concentration and run time) and output variables (Hausner's ratio, moisture content) central composite design was selected. With the second-order quadratic polynomial model, main and interaction effects were detected, also ANOVA parameters were analyzed and the overlay plot represents the desired region for the experiment. The developed model was then validated. After optimization turmeric milk powder was characterized by moisture content, bulk density, tapped density, carr's index, angle of repose, and drug content. Based on characterization F1 with 75% conc. of turmeric milk and run time for 67 min showed the optimum result. The curcumin content of the formulation was precisely balanced by the addition of curcumin to avoid the problem of content variability as faced in many herbal formulations. The results of turmeric milk powder after evaluations of the above parameters were found to be satisfactory and its compliance with existing industrial practices. The present formulation may offer a ready-to-serve drink for delivery of assured curcumin for immunomodulation as well as a wide range of therapeutic benefits with patient compliance and also helps in building strong immunity to fight against COVID-19 to peoples.

Take Away Notes:

- The audience will learn about, curcumin as immunobooster which have been identified as promising candidates against COVID-19 with immunity boosting properties. They also learn the concept of 'Quality by design (QbD) which has been successfully applied for assuring the quality development of Golden milk
- The quality by design approach will assist the formulation scientist in achieving the desired product quality
- Yes, this research will assist faculty in understanding and teaching their students the detailed concept of quality by design
- Yes, the quality by design approach will provide a practical solution to the problems associated with product development, thus providing a complete solution to researchers/scientists working in quality assurance and product development in lab or industry
- Yes, as the title suggests, the quality by design approach in developing immune-boosting formulation that will provide quality that meets the desired specification of the designed product
- It can be used to treat cuts and burns as a natural antiseptic and antibacterial agent
- It has been found to help prevent prostate cancer and delay the growth of existing prostate cancer when mixed with cauliflower
- Lowers the risk of paediatric leukaemia
- It may help to prevent cancer and encourage cancer cells to commit suicide
- It's a liver detoxifier made from herbs
- It's a natural pain reliever as well as a cox-2 inhibitor
- A number of promising studies on the effects of turmeric on pancreatic cancer are currently underway

- It's possible that this material will help with fat metabolism and weight loss
- It may help to prevent and halt the progression of Alzheimer's disease by preventing the accumulation of amyloid plaque in the brain
- It has the potential to inhibit metastasis in a variety of malignancies

Biography

Pallvi saroch studied at the Himachal Pradesh Technical University, India, and graduated (B.Pharm) in 2020. As a Postgraduate student (Master of Pharmacy in Pharmaceutics) from Department of Pharmaceutical Sciences & Technology M.R.S.P.T.U, Bhatinda, Punjab (India), she has been trained to discover new areas of research and develop an analytical mind to think through problems while maintaining flexibility within a challenging schedule. Her interest areas are Oral drug delivery systems, Formulation development techniques, Nano drug delivery systems and QbD approach.

Trisha Sharma*, Nupur Madhavi, Subh Naman, Ashish Baldi

Maharaja Ranjit Singh Punjab Technical University, India

Quality by design approach based development of Arteether loaded solid lipid nanoparticles

Malaria is a severe endemic disease that affects 5% of the population across the globe. In 2018, there were 198 million cases of malaria, which resulted in 5, 84,000 fatalities. The majority of these instances (90%) occurred in children under the age of five in Sub-Saharan region. The current inability to control malaria effectively through vector control and disease treatment is primarily due to an inability to provide proper case management to a substantial proportion of patients, particularly those on the periphery of the health system. Emergence of resistance to currently available treatment agents, particularly chloroquine, is also a cause for concern. Arteether, a BCS Class 2 is antimalarial medication which demonstrates effective erythrocytic schizonticidal action against P. falciparum strain. It is primarily used to treat cerebral malaria and chloroquine-resistant malaria. However, the primary issues with arteether are its low solubility (≅17 µg/ml) and 40% degradation in the stomach, which results in poor bioavailability. Currently only parenteral formulation is available with erratic absorption pattern and patient compliant oral dosage forms are not generated due to these issues. The purpose of this study is to increase the oral bioavailability of the drug and to avoid its degradation in the stomach. Arteether-loaded solid lipid nanoparticles using the homogenization approach were prepared and optimised using QbD approach. SLNs were subjected to quality control tests including particle surface size, shape, charge, XRD, entrapment efficiency, and in vitro release. This work demonstrated an effective strategy to developing and optimising novel drug delivery systems for arteether, which may potentially result in an increase in the arteether's bioavailability.

Take Away Notes:

- The audience will learn about, bioavailablity enhancement approach using encapsulation of arteether which is regarded as efficient anti-malarial drug. They also learn the concept of 'Quality by design (QbD) which has been successfully applied for assuring the quality development of Solid Lipid Nanoparticles
- The quality by design approach will help the formulation scientist to get the desired quality of the product. Nanotechnology techniques are novel approaches with significant advantages in drug delivery
- Yes, this study will allow the faculty to comprehend and educated their students about the precise notion of quality by design and nanotechnology
- Yes, the quality by design approach will provide the practical solution to the problems associated with product development thus providing a complete solution to the researchers/scientists working in association with quality assurance as well as product development in lab or industry. Nanotechnology provide efficient approach for overcoming the constraints of conventional drug delivery systems
- Yes, as the name says quality by design technique in the formulation creation will offer quality of the product that will satisfy the required accuracy of the intended product
- SLNs are well established formulation for enhancing the bioavailability of encapsulated compound and provide protection again gastric degradation
- Imporvised stability, biocompatibility and controlled release formulation
- Application versatility
- Insight in QbD approach for optimization of product and performance of final product
- Improvement of product safety and quality
- Provides better coordination during review and inspection process

- It is a continuous process improvement with efficient corrective actions
- Fast approval of product ANDA
- Less batch to batch variation

Biography

Trisha Sharma studied at the Himachal Pradesh Technical University, India, and graduated (B.Pharm) in 2020. As a Postgraduate student (Master of Pharmacy in Pharmaceutics) from Department of Pharmaceutical Sciences & Technology M.R.S.P.T.U, Bhatinda, Punjab (India), she has been trained to discover new areas of research and develop an analytical mind to think through problems while maintaining flexibility within a challenging schedule. Her interest areas are Pediatric drug delivery system, Oral drug delivery system, Targeted drug delivery systems, Novel drug delivery systems, and QbD approach.

Shipra Mahal*, Subh Naman, Neha Bajwa, Ashish Baldi

Maharaja Ranjit Singh Punjab Technical University, India

Development of flavoured oral disintegrating mini tablets by using quality by design approach

Designing a pediatric formulation is a challenge due to palatability, administration issues and also requires a thorough understanding of developmental physiological changes, specific dose requirements according to child's body surface area, age as well as toxicity issues. Oral disintegrating mini-tablets (ODMTs) have been identified as a promising candidate for pediatric use. The current work presents a methodical approach for the development of oral disintegrating mini-tablets for pediatric use through Quality by Design (QbD). For this, Quality target product profile (QTPP) was established and critical quality attributes were identified through severity and impact analysis. Risk assessment was performed to identify possible variables affecting product quality through a cause-and-effect diagram as well as matrix analysis. Optimization of these variables affecting quality was achieved through central composite design and 2D, 3D contour plots were created. The developed mathematical model was determined to be valid at 93.18% and 90.27% for defining disintegration time and hardness. Prepared ODMTs were subjected to various quality control tests, including hardness, friability, disintegration time, and in vitro drug release profile, and satisfactory results were obtained. In conclusion, combining QbD techniques with risk and quality management tools resulted in an effective and efficient approach for incorporating quality for the development of patient compliant formulations.

Take Away Notes:

- The audience will learn about, oral disintegrating mini-tablets (ODMTs) which have been identified as promising candidates for pediatric use. They also learn the concept of 'Quality by design (QbD) which has been successfully applied for assuring the quality development of ODMTs
- The quality by design approach will help the formulation scientist to get the desired quality of the product.
- Yes, this research will help the faculty to understand and taught their students about the detailed concept of quality by design
- Yes, the quality by design approach will provide the practical solution to the problems associated with product development thus providing a complete solution to the researchers/scientists working in association with quality assurance as well as product development in lab or industry
- Yes, as the name suggests quality by design approach in the formulation development will provide quality of the product that will meet the desired accuracy of the designed product
- ODMTs are well established as colored and flavored formulations increase the acceptability of the product and improve patient compliance
- Mini-tab is a very compatible dosage form for children as well as for adults
- Mini-tab has optimal particle size, uniform distribution so we can easily fill it into capsules
- Improvement of product safety and quality
- Optimization of quality and performance of a product
- Provides better coordination during review and inspection process
- It is a continuous process improvement with efficient corrective actions
- Fast approval of product ANDA
- Less batch to batch variation

Biography

Shipra Mahal studied at the Himachal Pradesh Technical University, India, and graduated (B.Pharm) in 2019. As a Postgraduate student (Master of Pharmacy in Pharmaceutics) from Department of Pharmaceutical Sciences & Technlogy M.R.S.P.T.U, Bhatinda, Punjab (India), she has been trained to discover new areas of research and develop an analytical mind to think through problems while maintaining flexibility within a challenging schedule. Her interest areas are Oral drug delivery systems, Nano drug delivery systems, Novel nanocarrier drug delivery systems, and QbD approach. I had communicated two research articles and some articles are in pipeline.

Ashwini Jadhav

Genba Sopanrao Moze College of Pharmacy, India

Studies on formulation and evaluation of orally disintegrating tablets using Musa Acuminata as a natural disintegrant for paediatric use

The aim of the present study was to optimize an orally disintegrating tablet of ibuprofen (~100mg) using Musa acuminata (dehydrated banana powder) as a natural super disintegrant. In this work dehydrated banana powder was used as pharmaceutical excipient because of natural origin and high nutrition properties for paediatric formulation. These tablets were prepared by direct compression technique and compared with formulations made by using synthetic super disintegrants croscarmellose sodium, micro crystalline cellulose and cross povidone. FTIR studies of formulations have shown no interactions between drug and excipients. In vitro disintegration and in vitro dissolution profiles were shown that comparative disintegration properties of dehydrated banana powder to that of commonly used synthetic super disintegrants. Short term stability study indicated that formulations were stable for three months. It can be concluded that dehydrated banana powder could be used as natural super disintegrant effectively in paediatric dosage forms and also promises its use as a nutritional pharmaceutical excipient.

Take Away Notes:

- Rationale for using natural super disintegrants
- Orally disintegrating tablet and evaluation
- Tablets and their classification

Biography

Ashwini V. Jadhav is currently working in department of Pharmaceutics at Genba Sopanrao Moze college of Pharmacy Wagholi, Pune, Maharashtra. She has total 12 year academic and one year industrial experience. She obtained her M. Pharm in Pharmaceutics from SPPU, Pune University India in 2014 and perusing PhD from VISTAS, Vels University, Chennai, Tamilnadu, India. She has more than 10 years of research experience with over 30 national and international publications. She has approved Teacher from SPPU and MSBTE governing Body. She worked as research coordinator in the institute. She has guided around 5 M. Pharm students. Her research areas for interest include Nano carries development, advance drug delivery system for pediatric patient, design of targeted drug delivery systems.

Richard Cheng
Cheng Integrative Health Center, USA

Nutraceuticals in the prevention and treatment of Covid-19

Over a short 2+ years of the Covid-19 pandemic, SARS-Cov-2 virus has undergone numerous mutations with several major global outbreaks such as the delta and omicron variants. Covid-19 is not over yet, monkeypox is now lurking at the corner. Global responses to Covid-19 include social distancing, masks, lockdowns and vaccines. However, there is not much discussion on the obvious deficiencies of these strategies. Research in the past and especially in the last 2+ years has demonstrated the importance of boosting our body's immunity against viruses. Further research in this area to develop such drugs or nutraceuticals is of urgent importance, not only to further control Covid-19 and hopefully future epidemics/pandemics. New epidemics are on the rise. Due to the lengthy development of at least several years, vaccines are not available to stop or control new epidemics. More and more evidence emerge that shows population immunity may be the only way to stop epidemics/pandemics. However, unprotected exposure of the public to new epidemics (viruses) may result in high morbidity, mortality and economic losses. It may also seem irresponsible or unethical for governments not to offer any protection to its citizens. Early and sufficient use of nutrients (including vitamin C, Vit D3, zinc, magnesium among others) in addition to healthy lifestyle to boost our immunity is able to offer a high level of protection. A strategy of combining supplements of vitamins and other nutrients with traditional herd immunity to form the basis of the Protected Population Immunity warrants consideration and further study and may become a better preventive measure to stop Covid-19 and future epidemics.

Take Away Notes:

- The audience will learn the evidence based nutritional supplementation to boost immunity against viral infections
- The information I present will enable audience in their practical application, for personal protection or that of their clients or in their R&D efforts of new antiviral agents
- My presentation will provide the framework to enable faculty in their teaching or research
- My presentation will also enable researchers in their design of new antiviral strategies
- My presentation will improve the accuracy of the design of new antiviral strategies

Biography

Richard Cheng is a practicing physician with offices in USA and Shanghai, China, integrating conventional medicine with anti-aging medicine, orthomolecular medicine, and functional medicine. Dr. Cheng is also a public educator and international public speaker with frequent media interviews including China Global TV Network and US media on health and medicine. Dr. Cheng also has numerous publications on health and medicine. Dr. Cheng graduated from Shanghai Medical University and received his medical residency and subspecialty trainings from Shanghai Medical University, the University of Arkansas for Medical Sciences (UAMS), and the National Cancer Institute, National Institutes of Health (Bethesda, MD). Dr. Cheng also received a Ph.D. in biochemistry/Molecular Biology from UAMS. After serving in the Boston, MA biotech industry and serving as dept chief at USA MACH hospital, Dr. Cheng has been enthusiastic and engaged full time in anti-aging/functional/orthomolecular for over a decade. Dr. Cheng is also guest medical commentator and appears frequently on CCTV-English and other medical platforms.

Florjana Rustemi
Albanian University, Albania

Cost effectiveness of antineoplastic agents preparations for personalized cancer therapy in the UHC Mother Theresa Tirana

This study determines the cost effectiveness of personalized cancer therapy based on the reduction of costs for each treatment cycle for the drug Bortezomib using antineoplastic agents' preparation in the bio-safety cabinet of the Hematology pharmacy of the UHC Mother Theresa Tirana.Bortezomib is used in the Hematology Department for the patients diagnosed with multiple myeloma taking in consideration international treatment protocols. In this study we have evaluated the cost effectiveness of personalized cancer therapy comparing the costs of the same drug, which is Bortezomib, administered in different years to the same patient. The study has been conducted in the period 01.01.2015 – 30.06.2015 (before using the bio-safety cabinet for personalized therapy) and 01.01.2016 – 30.06.2016 (using the bio-safety cabinet for personalized therapy). We have decided to calculate the cost effectiveness with focus to the cost reduction in ALL for the treatment with the same drug and same treatment protocol for each cycle in order to determinate the cost effectiveness of the equipments used for the preparation of the antineoplastic agents for personalized cancer therapy. The reduction of costs for the same patient for each cycle after using the bio-safety cabinet for Bortezomib varies from 30857.15 ALL – 41142.86 ALL in comparison to the period when we didn´t use the bio-safety cabinet. Further studies are needed to evaluate the full cost effectiveness of the personalized cancer therapy, calculating the cost reduction for each patient and each drug prepared in the UHC Mother Theresa Tirana.

Biography

Florjana Rustemi studied in the University of Tirana, Department of Pharmacy and graduated in 2009. She joined the University of Camerino, Italy for further studies in Hospital and Community Pharmacy and obtained a M.A in 2012. She received her PhD degree in 2021 from the University of Medicine, Tirana and is focused in education and research in pharmaceutical sciences. She has over ten years of experience with a history of working in the university, hospital & pharmaceutical industry. Skilled in pharmacology, individualized chemotherapy treatment, cost-effective medicine, forecasting, budgeting and procurement of medicines, clinical study of new medicines and GxP.

Tarek Aboul-Fadl*[1], Ahmed K. Hamdy[1], Hend A.A. AbdEl-wahab[1], Wesam S Qayed[1], Wael M. El-Sayed[2]

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Novel Spiro Hybrids of 2-indolinone and Thiazolodinone Scaffolds as Cell Cycle Checkpoints' Pathways Regulators with potential anticancer activity

In recent years, cell cycle and checkpoint pathways regulation are offering new therapeutic approaches against cancer. 2-Indolinone is a well exploited scaffold in the anticancer domain. Accordingly, and in continuation of our previous studies, the current work describes merged structural hybrids and structure-based design and synthesis of novel derivatives of spiro [2-indolinone and Thiazolodinone]. These hybrids were tested in vitro for their cytotoxicity against three human epithelial cell lines, liver (HepG2), breast (MCF-7), and colon (HT-29) in addition to the diploid human normal cells (WI-38) and compared to doxorubicin as a reference drug. Variable cytotoxic effects (IC50 2.59 – 100 micromole) were obtained by these molecules on the three cancer cell lines with pronounced selectivity compared to the normal one WI-38. The most active compounds, with IC50 2.23 – 9.02 micromole, were tested on the expression of four genes; p53, cdk1, caspase3, and topoisomerase II (to poII) in HepG2 cells as cell cycle key genes for revealing the possible molecular mechanism(s) of their antiproliferative efficacy. As a general pattern the tested compounds elevated the expression of p53 and caspase3 by 5-6-folds and downregulated the expression of cdk1 and topoII by 50 - 55%, compared to untreated cells. It is worthy to note that these compounds exert their antiproliferative activity on more than one molecular target.

Take Away Notes:

- Potential of Structure based drug design for drug discovery and development
- How to improve the activities of the current clinically approved drugs
- Opening the windows for global scientific collaborations
- Improvement of the accuracy of drug design and providing new information to assist in solving drug design problems

Biography

Tarek Aboul-Fadl has completed his PhD in Medicinal Chemistry from Assiut University, Egypt (1994) under the channel system and joint supervision scheme between Assiut University and Josai University/Japan. He performed his postdoctoral training as a postdoctoral research fellow and scientist of Pharmaceutical and Medicinal Chemistry at University of Vienna, Austria (1997- 1998), Friedrich-Alexander-Universität, Erlangen-Nürnberg, Germany (1999 and 2013) and University of Utah, USA (2001-2002 and 2004-2005). He has over 78 publications and 4 patents that have been cited over 1921 times, and his publication H-index is 23 (google scholar). He awarded ACDIMA Research Award for the Best Scientific Research in Arab World, 2012.

Ahmet Dogan Ergin*[1] and Dilek Kazazi Ozge İnal[2]

[1]Department of Pharmaceutical Technology, Faculty of Pharmacy, Trakya University, Edirne, Turkey

[2]Department of Pharmaceutical Technology, Faculty of Pharmacy, Ankara University, Ankara, Turkey

In vitro and Ex-vivo evaluation Of Curcumin loaded olive oil/beeswax oleogels

Oleogels are organic gels that are prepared by adding an organogelator agent to a liquid oil that will gel it, turn into solid/semi-solid form at room temperature, mostly consisting of thermo reversible three-dimensional network structures. It is a newly developed technology in recent years to solidify the edible oils without making any changes in the fatty acid composition. They are healthy products as there is no accumulation of trans and saturated acids in the product and there is no change in bioactive components. It is widely used as a drug delivery system. It is used as a new generation semi-solid form, especially since it allows making liquid oils usable. Curcumin; Curcuma longa l., popularly known as turmeric, turmeric, Indian saffron, saffron root. It is a yellow-orange colored, antioxidant polyphenolic compound obtained from the rhizomes of (C. Longa). Studies have shown that curcumin has a wide range of biological and pharmacological effects with its antioxidant, anticarcinogenic, antimutagenic, antidiabetic, antibacterial, antiviral, anti-inflammatory, and antinociceptive effects. However, it exhibits bioavailability of about 1% due to low solubility, high first pass effect and rapid clearance. In our study, it is aimed to develop new formulations to increase the permeability of curcumin, which has been used in many diseases in recent years due to its high potential, through the skin. By using olive oil, which is an important export product in both food and cosmetics, as a carrier system, oleogels have been developed as new generation semi-solid formulations. Beeswax was used as an oleogelator at a concentration of 1% to 10%. With the oleogel technology, the topical use of liquid oils has been ensured and olive oil has been turned into a spreadable carrier system. The obtained gel formulations were subjected to physicochemical characterizations such as appearance, pH and viscosity. Then, texture analyses were carried out to determine the spread ability and structural properties of the gel. In structural analysis hardness, compressibility, adhesiveness, cohesiveness and elasticity properties of the gels were examined; in spread ability analysis work of shear and firmness were measured. According to the results obtained, oleogel with spreadable and suitable structure properties were obtained. The permeability different oleogels through the skin was examined using a whole piece of skin taken from the rat skin rat abdominal region, and it was observed that the penetration through the skin decreased as the oleogelator concentration increased.

Take Away Notes:

- The audience will have information about oleogels
- Oleogels are new generation of semisolid drug delivery system. Awareness will be increased in this area and new studies will emerge
- Other faculties can add this study to their research topics
- Curcumin is one of the most studied drugs because of various therapeutic effects. This study will show another uses by oleogels

Biography

Ergin studied Pharmacy at the Marmara University, Faculty of Pharmacy, Turkey and graduated as BSc in 2012. He then started Ankara University, Faculty of Pharmacy, Pharmaceutical Technology Department. He received his PhD degree in 2019 at the same institution. After then, he worked in Regulatory Department in Turkish Medicines and Medical Devices Agency for one year. Currently he is currently working as an Assisstant Professor in Trakya University, Faculty of Pharmacy, Pharmaceutical Technology Department from 2020. He is working on nanoparticles, drug delivery systems, pharmacokinetic studies and nanobubbles.

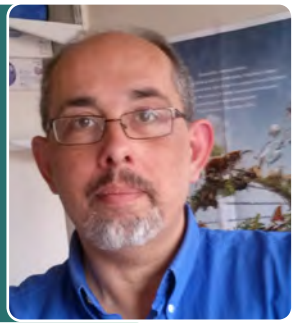
KEYNOTE FORUM

DAY 02

6TH EDITION OF
GLOBAL CONFERENCE ON

PHARMACEUTICS AND NOVEL DRUG DELIVERY SYSTEMS

13-14 JUNE



Laurent Metzinger*[1] and Valerie Metzinger-Le Meuth[1,2]

[1]Hematim EA 4666, University Center for Health Research, University of Picardie Jules Verne, Amiens, France

[2]Inserm Umrs 1148, Laboratory for Vascular Translational Science (LVTS), UFR SMBH, Sorbonne Paris Nord University, CEDEX, Bobigny, France

Non-coding RNAs in the cardiovascular disorders linked to chronic kidney disease

Non-coding RNAs were discovered at the turn of the 21th century. Several families exist, including long non-coding RNAs, and short non -coding RNAs. The importance of these various RNA species are just beginning to be understood in the nephrology field and related cardiovascular diseases. MicroRNAs (miRNAs) are involved in the post-transcriptional regulation by modulating expression of several messenger RNAs. Up to 3 000 miRNAs are expressed by human cells. They are 21-25 nt single stranded nucleic acids that trigger translational repression of mRNA by base pairing with the 3' untranslated region of up to a hundred mRNA targets. Renal diseases are consecutive to a deregulation of gene expression, which is at least in part modulated by non-coding RNAs. We and others have shown in the last 12 years that several miRNAs are deregulated during the onset of chronic kidney disease (CKD) which is linked with cardiovascular damages. miR-223 expression is increased in vivo in big vessels of a mouse model of CKD whereas it is decreased in the serum of both murine models but also human CKD patients. Results on a cohort of 627 CKD patients will be shown. We also evaluated the impact of miR-223 modulation on restenosis in a rat model of carotid artery after balloon injury. The up- and down-expression of miR-223 were induced by adenoviral vectors that coded either a pre-miR-223 sequence allowing artificial miR-223 over-expression or a sponge sequence, to trapp and inhibit the endogenous miRNA respectively. Restenosis was measured on stained rat carotid sections. We showed that down-expression of miR-223 significantly reduced neointimal hyperplasia in carotids, and was correlated with a 2-3-fold overexpression of miR-223 targets in vitro. We concluded that the down-regulation miR-223 by a sponge strategy may protect against restenosis and could be an innovative therapeutic approach in order to protect blood vessels from restenosis after angioplasty.

Take Away Notes:

- More than 60% of the genome is transcribed into various families of non-coding RNAs
- Non-coding RNAs are important in pathophysiology
- Non-coding RNAs biomarkers of renal disorders
- Long non coding RNAs and miRNAs impact gene regulation at numerous levels
- Non coding RNAs are innovative ways to develop new therapies

Biography

Laurent Metzinger has completed his PhD in Biological Sciences and Pharmaceutical studies in Strasbourg, France and was a postdoctoral fellow from the University of Oxford (UK) in a leading lab on Duchenne muscular Dystrophy (Pr. Kay Davies). He works on microRNA regulation in the HEMATIM team in Amiens, and focuses on anemia and related vascular disorders associated with Chronic Kidney DIsease. He has authored some of the first papers showing a role for microRNAs in CKD and published in reputed journals, including Nature and Cell. He teaches Biochemistry, Genetics and Molecular Biology in the Pharmacy School of Amiens (Université de Picardie Jules Verne).

Anna Weronika Sobanska

Medical University of Lodz, Poland

Drugs as an environmental problem - chromatographic and computational studies of drugs' partition between soil and water

The fate and transport of solutes in the environment depend on their physico-chemical properties such as lipophilicity, volatility, water solubility and ability to partition between soil and water. The soil-water partition coefficient Koc (normalized to the soil organic carbon content to reduce the differences among soils) is a very important parameter governing the fate of compounds in the soil-water compartment. It influences the chemicals' mobility in soil, their environmental persistence and the processes of their removal in wastewater management facilities. Direct determination of Koc is based on studies of partitioning phenomena in biphasic soli-water systems using batch or continuous flow experiments. Such tests are, however, tedious and time-consuming and the results tend to be inconsistent due to experimental difficulties - incomplete separation of phases and volatilization, biological or chemical degradation of solutes. Alternatively, it is possible to predict soil – water partition using chromatographic descriptors obtained by liquid chromatography on octadecyl-, cyano-, diol-, ethyl-, trimethylammonium- or aminopropyl-modified silica or on sorbents containing immobilized humic acid or soil. Chromatographic methods of Koc determination are fast and relatively cheap, with the benefit of high reproducibility, especially when commercially available stationary phases are used. Chromatographic retention factor log kIAM obtained from IAM HPLC chromatography with buffered, aqueous mobile phases and several calculated molecular descriptors obtained for a group of 175 structurally unrelated compounds were tested in order to generate useful models of solutes' soil-water partition coefficient normalized to organic carbon log Koc. It was established that log kIAM is not sufficient as a sole predictor of the skin permeability coefficient. Simple, potentially useful models based on log kIAM and a selection of readily available, calculated descriptors was generated. The models proposed in the study were tested on a group of 50 compounds with known experimental log Koc values.

Biography

Anna Weronika Sobanska studied Chemistry at the Technical University of Lodz, Poland and graduated as MSc in 1992. She then joined the research group of Prof. Jeremy Robertson at Dyson Perrins Laboratory, Oxford University, UK. She received her PhD degree in Organic Chemistry in 2007 at the same institution. She obtained the position of a Formulation Chemist in Cosmetic Factory Pollena-Ewa in Lodz, Poland. In 2005 she joined the Department of Analytical Chemistry, Medical University of Lodz, Poland. She has published several research articles in SCI (E) journals.

Hitendra M. Patel

Sardar Patel University, India

Synthesis and in vitro study of antiproliferative heterocyclic scaffolds

To discuss the reports on various antiproliferative Heterocyclic Scaffolds (APHSs) produced by different reaction protocol such as optimization conditions, importance of catalyst, routes for the diverse synthesis etc. The antiproliferative assay will be explore for all synthesized APHSs against the six human solid tumors cell lines. SAR of some potent Heterocyclic molecules and ADMET prediction, the effect of P-glycoprotein on the antiproliferative activity will be discussed. Furthermore, How our method allows eco-friendly access to APHSs as potential anticancer drugs that will be highlight.

Take Away Notes:

- The audience will be able to know the simplest method to prepare many Heterocyclic Scaffolds with higher yields and to understand the importance of functionality present in different heterocyclic compounds leads to explore the potency for antiproliferative activity with different cell lines
- The audience may utilize this kind of methodology and will be able to prepare new kinds of APHSs
- Yes, the other interested researcher may utilize it

Biography

Hitendra Patel is a Professor of Chemistry at the Department of Chemistry of the Sardar Patel University, V. V. Nagar, Gujarat, India. He was an Elected Member of the Organic Division Council and was admitted as a Fellow of the Royal Society of Chemistry, London in 2020. He acts as Editor and Review Editor, Editorial board member in many international high repute journals. His research interests include the Development of Bioactive Heterocyclic Scaffolds via Multi-component reactions, with a focus on Green Chemistry approaches and Medicinal Chemistry, including synthesis of small molecules, virtual and biomolecular screening. He has published more than 32 research and review papers.

Vivek Gupta

St. John's University, USA

Nano-repurposing strategies for enhanced efficacy against new indications

Drug repurposing may be defined as developing old drugs for new indications. These old drugs may include already commercialized products, and drugs in clinical development. Drug repurposing approach is very cost-effective in putting new drugs in market, especially for rare diseases. While promising, drug repurposing has several limitations while being developed for new indications, including different dose requirements, acute vs. chronic treatment needs, limited safety by new administration route, and patentability pertaining to possible commercialization. Encapsulating repurposed drugs in site-specific nanocarriers may provide an alternative to overcome these limitations. Nano-encapsulation i.e., nano-repurposing will be able to avoid off-target localization, reduce dose exposure to the body; and will also provide a patentable IP based on novel delivery methods. Our research group at St. John's University works in the domain of nano-repurposing for developing novel therapeutics for respiratory disorders, in a cost-effective fashion, that will also be scalable for commercial production. We aim to develop non-invasive ways of delivering therapeutics to the lungs by inhalation. In this presentation, I will present some of the recent works from our group, detailing about repurposing currently FDA-approved drugs for newer indications including lung cancer, mesothelioma, and breast cancer. I will also show some data about scale-up potential of formulation development approaches, employed by our group.

Take Away Notes:

- Understand the concept and limitations of drug repurposing
- Appreciate the importance of drug delivery strategies in enhancing translational value of repurposed drugs
- Understand few approaches about drug nano-repurposing

Biography

Vivek Gupta is an associate professor at St. John's University. He is an experienced pharmaceutical researcher with interests in developing novel therapies for respiratory disorders. His expertise lies in the fields of novel drug discovery and repurposing, and non-invasive delivery of small and macromolecules via oral and inhalation routes. He also has significant research interest in the fields of pharmaceutical scalability, and nano-repurposing. Diseases of interest include lung cancer, pulmonary fibrosis, pulmonary hypertension, and mesothelioma. Dr. Gupta's group has published >75 high-impact publications in peer reviewed journals like Journal of Controlled Release, Materials Science & Engineering C, Drug Discovery Today, to name a few. Dr. Gupta also serves on editorial boards of many peer-reviewed journals. Multiple technologies and therapies developed by Dr. Gupta's group have been patented and are at various stages of preclinical/clinical development.

magnus Group

SPEAKERS

DAY 02

6TH EDITION OF
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Smita More*[1] and Dhananjay More[2]

[1]Pharmaceutics, PES Modern College of Pharmacy (For Ladies), Savitribai Phule Pune University, Pune, Maharashtra, India

[2]Pharmaceutics, Arrotex Pharma, Pune, Maharashtra, India

Emulgel: A potential tool for topical drug delivery system

Emulgel as a topical drug delivery system which is an emerging field if given more efforts in its formulation and development it will turn out as a boon for topical delivery of drugs. Emulgels are oil-in-water or water-in-oil emulsions gelled by using gelling agents. Gels have so many advantages despite of that it exhibit limitation in the delivery of hydrophobic drugs. Emulgel enables the delivery of hydrophobic drugs and has dual control release and advantages of both the gel and emulsion. Emulgels are non-greasy, thixotropic, easily spreadable, emollient, easily removable, transparent and non-staining. This project focuses on advantages, additives used, formulation method and characterization techniques for emulgel. Expert's opinion says that emulgel is a new tool for delivery of hydrophobic drugs topically and is vastly growing field of topical drug delivery system and up till now emulgels has limited marketed products which can be used as a potential drug delivery system, than present conventional drug delivery system in market.

Take Away Notes:

Emulgels are emerging novel drug delivery systems and are now most commonly used because it is easy to use and enhances patient compliance. Emulgels are easily removable, spreadable, thixotropic, greaseless, have a pleasing appearance, emollient, long shelf life, and transparent. In the present era, the emulgels are being used for the delivery of many drugs like analgesics, anti-inflammatory, anti-acne and anti-fungal. Hence, it is of great pharmacological importance and is relatively free of side effects. These parameters indicate easy acceptability and patient compliance. Yes the researcher and other faculty can utilize this concept for formulation of such type of dosage form.

Biography

Smita More studied Pharmaceutics at Dr. DYPatil College of Pharmacy Pimpri at the Savitribai Phule Pune University, Pune and done PhD from JNTU, Hyderabad. Currently I am working as Associate professor at PES Modern College of Pharmacy (For Ladies) Moshi in department of Pharmaceutics. I have total 16years experience in teaching and research. I have supervised 15 M. Pharm students and currently guiding PhD students. I have numerous publications and also have done oral and poster presentations.

Rudra Pratap Singh Rajput*[1], H. V.Gangadharappa[2], Anshita Gupta Soni[1]

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Formulation, Characterization and evaluation: Micellar loaded complex of Cuminum Cyminumto treat causing disease of COVID 19 (Respiratory infection)

Coronaviruses are a family of viruses that can cause illnesses such as the common cold, Fever, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), Cancer, Asthma etc. Respiratory infection (RTI) is a viral spreading disease and it transmits from individual to individual, particularly in youngsters and aged peoples. The treatments are available but have so many limitations. To treat RTI, the phyto-constituent antibacterial drug cuminaldehyde (Cuminum Cyminum L.) was selected but it exhibits low bioavailability, poor water-solubility and is rapidly eliminated from the body. To overcome these issues, novel drug delivery (nanoparticle) based micellar loaded complex approach was adopted. In this study, the micellar (CM) was prepared by mixing of cuminaldehyde and soya lecithin using anti-solvent precipitation technique and further the micellar loaded complex (CMLC) was prepared by loading of micellar (CM) in aqueous solution of chitosan. The physical compatibility studies by DSC and FT-IR, demonstrated the confirmation of CMLC with soya lecithin and chitosan. The optimized CMLC and CM were irregular particle shapes and crystalline structures, with a mean particle size of 279.10±0.02 nm, 296.24±0.10 nm and zeta potential of -8.18 mV, -8.77 mV, respectively. The % entrapment efficiency and % drug loading of CMLC (72.13±0.26 %, 06.46±0.01 %) and CM (89.09±0.20%, 08.05±0.19 %) was found efficiently. The in vitro release rate of CM (88.09±0.41 %) was slower than CMLC (89.02±0.06 %) in pH 7.4 phosphate buffer up to 24 h by diffusion process (KorsmeyerPeppas model). Furthermore, CMLC has shown the potent in vitro antioxidant activity, susceptible antibacterial activity and significant anti-inflammatory activity as compared to CM against stress, microbial infection (S. aureus and E. coli) and inflammation which were causable reason for the respiratory infections. CLMC has shown the significant bioavailability and more efficient hematological parameters value on rabbit blood against the incubation of bacterial organism. CLMC may have the effective potential to treat causing disease of COVID 19 i.e. RTI.

Biography

Rudra studied Ph.D degree in 2018 at JSSAHER, Mysuru, Karnataka, India and post graduated as M.Pharm in Pharmaceutics specialization in 2014 from Pune University, Pune (MH). He, then joined in academics at Shri Rawatpura Sarkar Institute of Pharmacy (SRIP), Kumhari, Durg, Chhattisgarh. He has more than 8 years of teaching and research experience in Novel drug delivery systems, nano-technology as so on. He has published more than 33 review and research papers in SCI(E) and Scopus indexed journals. He, also received number of awards at National and International platforms.

Prerna Sharma*[1], Nidhi Rani[2]

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An Overview of pharmacological potential of Curcuma longa

Background: Since, ancient times various ayurvedic drugs have been widely explored for their therapeutic potencies.

Aim: Among the various crude drugs, Curcuma longa is one of the most important medicinal plant. It exhibits various useful pharmacological properties and used in Indian cuisine from ancient times. It exhibits antifungal, antimicrobial, antioxidant, renal and hepato protective activities. This review is an attempt to explore the various pharmacological properties of curcumin.

Method: This paper provides an overview of methodology available to organoleptic properties, chemical constituents and pharmacological potential of curcuma longa (haldi).

Results: Curcuma longa is widely documented for its healing effects in Indian material medicine. The genus of plant is Curcuma longa. Curcuma longa belongs to the Zingiberaceae family. Curcuma longa is widely used in cosmetics. It is considered the best anthelmintic property for GIT disorders. In many research papers, curcumin is the best anti-inflammatory agent. Curcumin is known for its synergistic effect against an anticancer agent. The effectiveness of Curcuma longa is known worldwide as a curative and preventive measure.

Conclusions: In general, in addition to: To understand the advantages and disadvantages of each assessment tool, researchers must take into account the experience the cost and availability of the interdisciplinary research team and the measures taken in the institutions.

Biography

Prerna Sharma is currently working as a assistant professor in Guru Gobind Singh College of Pharmacy, Yamunanagar. She is 9.7 years teaching experience as assistant professor and Training & Placement Officer and she is selected as panel expert for AICTE STTP programme. Her field of specialization is Pharmacogonosy and she has completed his master in Pharmaceutical sciences (2012) honour with gold medalist / appreciation in RITS, Sirsa, India and recently she is pursuing his PhD from the Uttarakhand Technical University, Dehradun, India, Her field of expertise is standardization of herbal plants/ herbal formulation. Her research area includes pharmacognostical & phytochemical investigation of Indian medicinal plants; she has 30 research/review publication national/ international journals of repute to her credit, 40 Copyrights, 2 Patents and deligated more than 30 National/international conferences /workshops. She is honored with young research scientist award by SPER and TIPA in Thailand .She is also president in SPER women forum and life member of professional bodies like association of pharmaceutical teachers of India (APTI).

Gejalakshmi.S*, Harikrishnan.N

Dr. MGR Educational and Research Institute Velappanchavadi, Chennai, India

Analysis of bioactive compounds whole plant extract of Clitoria Ternatea by using HRLC-MS techniques

Medicinal plants have emerged an important source in governing healthy condition and minimizing the side effects of modern- day medicine. Many evidence-based reports are paved in the literature about the numerous beneficial aspects of medicinal plants. Clitoria ternatea L. belongs to the family Fabaceae and is known to be one of the important Ayurvedic medicinal plants whose uses are specified mainly for the modification of Central nervous system activities. 'Medhyarasayana' is one of the Ayurvedic formulations which is used to promote the intellectual capacity, revive the body and nervous tissue, Clitoria ternatea serves as a major constituent of 'Medhyarasayana.' Phytochemical screening and identification of C. ternatea will help to isolate the important phytoconstituents responsible for the central nervous system effects, isolated components via screening can be utilized in future for the formulation of herbal medicine for various neurodegenerative disorders. In the present study, the phytochemical evaluation of the hydroalcoholic extract of Clitoria ternatea was performed using the HR-LCMS technique. Preliminary qualitative phytoconstituents analysis showed the presence of tannins, alkaloids, saponins, steroids, carbohydrate, protein, flavonoids and triterpenoids in the whole plant extract of Clitoria ternatea. Nearly 50-80 compounds were isolated via HR LC MS technique.

Biography

S. Gejalakshmi Assistant Professor at Faculty of Pharmacy, Jaya College of Paramedical Sciences, Chennai, She joined as Associate Professor at Faculty of Pharmacy, Dr. M.G.R. Educational and Research Institute, pursuing her Phd programme. She has published more than 35 papers in indexed Journals; She received many awards, such as Best Young faculty award, Best Educationist award, Best Researcher and Best oral Presentation award.

Lakshmi Sivasubramanian* and R.Manikandan

Chettinad School of Pharmaceutical Sciences, Chettinad Academy of Research and Education, Chettinad Healthcity, Kelambakkam , Tamilnadu, South India

Paediatric drug development using PBPK models

The pharmacokinetics (PK) of a drug is important as it dictates the pharmacological activity and therapeutic response. When it comes to paediatric population, a number of anatomical and physiological factors determine the pharmacokinetic profile of a drug and thereby becomes a challenging task to determine the exact dose to be given especially when children in the paediatric age group tend to be growing at a rapid rate. Traditionally it has been noted that paediatric doses were calculated via allometric scaling, which has its own demerits. It is currently recognized that the research into the design of paediatric doses can be predicated using Physiology based Pharmacokinetic modelling (PBPK) approaches. A combination of bottom up, middle-out and top down methods can help aid in designing mathematical models using PBPK tools to serve as an appropriate method of dose calculation for paediatric age group. Some of the uses of these models include dosage form design, formulation modification (IR to ER) for paediatric use and understanding of toxicity. PBPK modelling, though with its limited exposure has gained popularity with the introduction of Paediatric exclusivity programmes by regulatory bodies such as US-FDA and EMA. Presentation describes a detailed overview of PBPK in paediatric population and enumerates the merits and demerits as tool for safe and effective dose selection in paediatric age group.

Take Away Notes:

- Chellenges of pediatric dosage forms
- Overview on selection of PBPK models
- Significance of PBPK models
- Limitations of PBPK models

Biography

Lakshmi Sivasubramanian is a Professor and Dean at Chettinad School of Pharmaceutical Sciences, Chettinad Academy of Research and Education. She has completed her PhD in the year 2011 in the field of Chemometrics, an analytical tool for quantitative analysis of drugs. Currently working on PBPK models with research group comprising of scholars from Pharma Industries. She has published 64 articles in various National and International Journals with a total of 540 citations. She has delivered various invited talks in different seminars, conferences, workshops and faculty development programs. She has received several awards and recognitions for her academic achievements.

Neha Agarwal

Navyug Kanya Mahavidyalaya, India

Critical risk assessment and challenges associated with of release and accumulation of pharmaceuticals and their byproducts in environment: Remediation techniques

Pharmaceuticals are indispensable and an integral part of our daily lives and are used for our well-being yet the extensive and uncontrolled usage under different classes such as antibiotics, analgesics, antipyretics, antidepressant, anticonvulsants, beta-blockers, steroids, antihypertensive etc. pose high environmental and human health hazards when exposed to and accumulated in the environment and ecosystem. In recent years pharmaceutical ingredients accumulation as emerging pollutants, intermediates and raw materials in environment has received great attention all over the world due to their frequent detection in aquatic environment as subclasses of organic contaminants. Still, there is a lack of knowledge concerning pharmaceutical quantities and their metabolites entering the environment, active pharmaceutical ingredients (APIs), metabolism and transformation pathways, and their persistence or degradability in the environment. Human health is directly or indirectly affected by pharmaceutical effluents especially in vicinity of pharmaceutical industrial zones due to greater probability of contamination in areas of proximity including drinking water. Latest epidemiological studies predicted the possibility of relative risks of brain disorders increase due to paracetamol exposure. Therefore, there is an urgent need of assessment of increasing concentration of pharmaceutical compounds as effluents in order to save environment as well as the human lives. Traditional treatment methods of waste water are not sufficient for the eradication of active pharmaceutical ingredients and their metabolites from aquatic environment and advanced treatment techniques are not sustainable because of energy consumption, high operational cost, efficiency, and efficacy. Therefore, it is very important to discuss the effective bioremediation techniques for the decontamination of environment including a shift to the production of better biodegradable pharmaceuticals in the long run for sustainable pharmacy.

Take Away Notes:

- A comprehensive insight into the persistence, accumulation and toxicity associated with uncontrolled usage and release of pharmaceuticals in the environment
- Present and future challenges in biomonitoring, environmental risks, and bioremediation of pharmaceutical pollutants on a global scale
- Would be able to assess the removal efficiency of pharmaceutical byproducts from the global environment and waste disposal techniques
- Waste-minimizing measures to achieve sustainable supply and environment
- They will learn about the fair usage of pharmaceuticals keeping in mind the repercussions behind it in the form of global threat to environment
- They can work for further research, treatment techniques for a safe and healthy environment and can work for developing sustainable and green pharmacy
- Yes, this could be used for pharmaceutical and environmental science in research and teaching, both
- Yes, the research in this field would definitely provide us solution to move towards a green and sustainable environment.
- This would provide a new concept for green and sustainable pharmacy which could be gradually replaced with the existing pharmaceutical products to minimize environmental toxicity

Biography

Neha Agarwal had been awarded Ph.D. in Chemistry at the University of Lucknow, Lucknow, India, in 2017 and qualified UGC-CSIR-NET Chemical science in 2013. She then joined the Navyug Kanya Mahavidyalaya, a leading women's college; associated with the University of Lucknow in 2019. She is presently giving her services as the Head of Department of Chemistry in Navyug Kanya Mahavidyalaya as a permanent faculty. She had published many research papers on oxidation of Pharmaceuticals in journals of National and International repute. She is an active member in the field of chemical science and is an editorial board member of WJPR (ISSN 2277-7105), open access, peer reviewed international journal of high repute.

Gil Goncalves

University of Aveiro, Portugal

Advanced multifunctional carbon-based nanomedecides for cancer therapy

Carbon-based nanomaterials have led to exciting new challenges in the design of smart materials capable of addressing a wide range of social challenges. New synthetic strategies have been extensively investigated for the development of advanced functional carbon nanomaterials, showing a high potential for many different applications ranging from the environment to healthcare. Recent improvements in the development of unusual synthetic methods for nanoengineering carbon nanocapsules show that they could be used as highly efficient nanomedicines in cancer treatment. Carbon nanocapsules are a new therapeutic concept that consists of hermetically sealed short CNTs that store in their interior chosen payloads with exciting properties for cancer therapy or bio imaging. In fact, these carbon shelters allowed exploring, for the first time, payloads that are characterized by high levels of toxicity or inability to reach the desired target. 4 Remarkable work reported by Serpell et al. showed for the first time the ability to successfully encapsulate Krypton in SWCNTs nanocapsules decorated with peptides for X-ray fluorescence mapping of sub-cellular targets. Recently, their use was extended to the therapeutic field, by developing hot nanocapsules by sealing radioactive 153Sm, that are able to provide simultaneously high resolution bioimaging and radiotherapy against lung cancer metastases after intravenous injection. Nevertheless, strong controversy about the toxicological behavior of CNTs has restricted their application to invasive therapeutic approaches. Recently, carbon nanodots recently revealed the capacity to encapsulate atomically dispersed gold, displaying a high potential for cancer nanotheranostic. The results showed that imaging-guided injection of carbon nanocapsules strongly suppresses tumour growth (carcinoma models) by means of amplifying the mitochondrial oxidative stress, without causing significant side effects. In this work, new ways to develop carbon nanocapsules (CNCs) from carbon nanohorns able to be filled with diverse relevant solid materials will be presented. Additionally, different strategies for the functionalization of external surfaces with organic molecules will be described that can bring a huge potential for the design of new multifunctional CNCs for longer blood circulation times and improved accumulation in tumor sites. Consequently, it will be expected to significantly increase its performance in terms of cancer therapy and bioimaging.

Take Away Notes:

- This work will present novel synthetic methodologies for the development of novel carbon nanocapsules
- The novel chemical strategy adopted allowed us to explore a new kind of carbon nanocapsule for cancer therapy
- In this study, we showed that carbon nanocapsules made of carbon nanohorns have a higher filling rate of inorganic materials
- Biocompatible carbon nanocapsules were obtained by external surface functionalization.

Biography

Gil Goncalves received his PhD in Mechanical Engineering at the University of Aveiro in 2012. After obtaining a Marie Curie grant in 2016, he started working at the Institute of Material Science of Barcelona (ICMAB-CSIC (Spain)) on the development of nanotherapeutic anticancer agents for neutron capture therapy. Currently, he is working at TEMA-UA (Portugal) as a researcher on the development of new carbon-based nano composites for environmental and healthcare applications. Gil has (co-)authored numerous scientific papers (h-index 22 and > 2500 citations), communications at national and international conferences, and he is an editorial board member of Scientific Reports (Nature Publishing Group).

Andre Luiz Pereira

Information and Communication Technology Management, Fundacao Hemominas, Brazil

Pharmacopollution and household waste medicine (HWM): An applied view

Pharmacopollution is a public health and environ-mental outcome of some active pharmaceutical ingredients (API) and endocrine-disrupting compounds (EDC) dispersed through water and/or soil. Its most important sources are the pharmaceutical industry, healthcare facilities (e.g., hospitals), livestock, aquaculture, and households (patients 'excretion and littering). The last source is the focus of this presentation. Research questions are What is the Household Waste Medicine (HWM) phenomenon?, How HWM and pharmacopollution are related?, and How is the reverse logistic system for HWM in Brazil?. The Brazilian HWM case is remarkable because it is the fourth pharmaceutical market (US$ 65,971 billion), with a wide number of private pharmacies and drugstores (3.3:10,000 pharmacy/inhabitants), self-medication habits. The HWM generation is estimated in 56.6 g/per capita, or 10,800 t/year. National take-back programs were recently implemented.

Biography

Andre Luiz Pereira has a Ph.D in Sanitation, Environment and Water Resources (Federal University of Minas Gerais – UFMG, Brazil), Master in Administration – reverse logistics (FUMEC University), and bachelor in Administration (UESB). Author of international articles, such as Environ Sci Pollut Res and others. Author of Reverse Logistics and Sustainability (Cengage) and Solid Waste Management and Management (Juris Lumen). Top 6 Fedex Reverse Logistics Professional 2014 Award and Top 3 9th Public Management Award. Dr Pereira also has experience in Germany and Brazil. Dr Pereira is Springer Nature, Pan American Journal of public Health Journal and Waste Management reviewer.

Helena Freitas

University of Lisbon, Portugal

A brief review of the impacts of medical cannabis production – A Mini-Review

Introduction: Cannabis has recently gained a medical status in several countries in the world. Its production for medical purposes should be analysed based on the three pillars of sustainability, taking into account the country in which it is located. Methods: literary research was conducted through scientific databases and grey literature, such as institutional websites.

Results: Studies from the United States of America and Australia on the socio-economic and environmental impacts of medical cannabis production were consulted, showing that this crop can be socially and economically beneficial in the place where it is executed but, in environmental terms, there is still a long way to go to understand the impacts on the consumption of energy, water, pesticides, fertilizers and waste waters compliance.

Conclusions: The introduction of new non-autochthonous species should be accompanied by studies assessing their impact on the production site. The production of medical cannabis has been increasing and it is imperative to study its impacts in order to be able to implement measures to mitigate potential negative effects.

Biography

Helena Freitas studied Pharmacy at Escola Superior de Tecnologia da Saúde de Lisboa and Pharmaceutical Sciences at Pharmacy. Faculty in Lisbon University with a master's degree in Pharmaceutical sciences under the thesis Use of biopharmaceuticals in colorectal cancer in 2016. In 2020, she began her Phd in Science of Sustainability at the University of Lisbon, with the theme Impacts of Medical Cannabis Production in Portugal: a legal, economic and environmental assessment. Dr. Helena Freitas has worked in several areas of pharmaceutical science, such as community and hospital pharmacy, palliative care, and performed professional internship in the laboratory area.

Aysu Yurdasiper
Ege University, Turkey

Itraconazole dry powder inhaler formulation for effective treatment of invasive aspergillosis

Invasive pulmonary aspergillosis (IPA) is a major cause of morbidity and mortality in immunocompromised patients. In recent years, there has been a significant increase in the frequency of invasive fungal infections with the increase in patients with immunodeficiency. The use of drugs by inhalation has been increasingly used in the treatment of lung diseases due to the local and rapid effect as well as minimizing systemic exposure. Today, Metered Dose inhalers (MDI), Dry Powder inhalers (DPI) and nebulizers are used to treat respiratory disease. DPIs are propellant free systems with good stability and don't require hand-breath coordination. Also, they can provide a high quantity of drugs in the lung with a single dose. Local delivery of the antifungal drug to the lung via the pulmonary route improves therapeutic outcomes compared to oral therapy. Itraconazole (ITZ) is a broad-spectrum triazole antifungal. Like other azole antifungals, it shows its effect by inhibiting ergosterol synthesis in the membrane of the fungal cell. ITZ is the first-line treatment drug for IPA but the oral bioavailability of itraconazole is around 55% and oral administration is not preferred for patients with hepatic and/or renal impairment. Administration of ITZ via pulmonary route could provide advantages including reduced side effects, improved patient compliance and no drug-drug interactions. Therefore, it is aimed to increase the accumulation of the drug in the lung by the pulmonary route and to obtain higher therapeutic efficacy with less dosing. ITZ DPI formulations were prepared with different ratio of leucine using spray dryer. DPI formulations were characterized by scanning electron microscopy (SEM), differential scanning calorimetry (DSC), thermogravimetric analysis (TGA) and particle size analyses. Flowability of the spray-dried powders was determined by measuring Carr's compressibility index and Hausner ratio. In vitro aerosolization performances were evaluated by next generation impactor (NGI). The concentration of ITZ was determined by using a validated HPLC method. Morphologies of the spray dried microparticles were observed by SEM and the particles have a wrinkled shape and their surfaces were rough. The increasing amount of leucine in formulations has a significant effect on the flow properties of the particles. Hausner ratio and Carr's index (%) ranged between 1.29 to 1.54 and 22.73 to 35.44, respectively. DPI formulations containing 25% leucine with lower MMADs (< 2.77±0.58) and with higher fine particle fraction (FPF%) 51.26±1.83 showed better pulmonary deposition in lungs. The formulation mean volume diameter (Dv50) was 3.42±0.61 µm. Taken together, DPI formulation provides an opportunity for a more effective therapy with deeper deposition of ITZ.

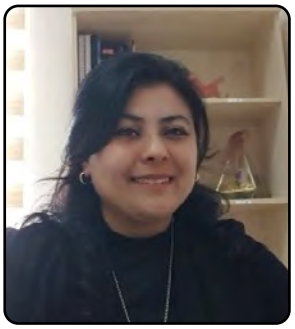
Take Away Notes:

This study demonstrates an innovative formulation design. The prepared formulation has a higher therapeutic effect compared to conventional formulations.

- They will have knowledge about the design of new formulations and will be able to use this knowledge in their own work
- It will be explained which parameters should be considered in the new formulation design
- Yes. They will be able to design better formulations with a new perspective
- It will enable them to foresee the difficulties and risks that may be encountered in the preparation of formulations
- It provides new information to assist in a design problem
- This conference can enable to provides new multidisciplinary studies and new collaborations with the audience

Biography

Aysu Yurdasiper obtained her BSc and MSc degree in Faculty of Pharmacy from Ege University, Izmir, Turkey and respectively, followed by a Ph. D degree from Department of Pharmaceutical Technology, Ege University, studying on Nano gel delivery system invitro- invivo studies on dermal drug delivery. Her work is focused on dry powder inhalers, dermal delivery (topical, transdermal drug systems), controlled release formulations (nanoparticles, micro particles) for drug delivery and Nano medicine in pulmonary delivery. She is Editor in chief in American Journal of Drug Delivery and Therapeutics also Editor and on the Editorial Board of several International Journals. She has filed a National patent on dry powder inhaler formulation and she is a member of Turkish Pharmaceutical Technology Scientists' Association (TUFTAD), Turkish Pharmacists' Association (TEB), Controlled Release Society (CRS) and American Association of Pharmaceutical Scientists (AAPS). She has been working as an Assistant Professor in Department of Pharmaceutical Technology, Ege University. Her current research interest focus on development of novel Nano medicine including polymers and in vitro-in vivo evaluation for treatment of respiratory diseases.



Hilal Erdogan
Nevsehir University, Turkey

Current perspectives on the bioactivity of tricalcium silicate-based sealers in the root canal treatment

Biocompatibility and non-toxicity of endodontic materials play an important role in the success of the treatment of pulp and periapical tissues. Due to the toxic effects of most of the sealers used in root canal filling, delay in wound healing, inflammation, and bone resorption are observed in the tissues. Bioactive materials are used in pulpal-periapical tissues and other endodontic procedures for improving healing results, especially to reduce the possibility of extraction. Bioactivity is attributed only to materials capable of inducing a desired tissue response from the host. These materials, which are specially designed to fulfill their functions in clinical practice, are classified as bioactive, bio inert, and biodegradable. There are many canal sealers with different contents and properties in endodontics. Root canal sealers based on tricalcium silicate are becoming popular in endodontics due to their biocompatibility and bioactivity. Tricalcium silicate-based sealers are offered to the market under different names as bioactive, bio ceramic endodontic sealers. This presentation aims to review the bioactivity properties of tricalcium silicate-based root canal sealers with an emphasis on their benefits, drawbacks, and clinical applications. Thus, it will help to gain a perspective on developments in this field.

Take Away Notes:

- To provide participants with an update on the novel bioactive sealers that are being developed to treat the endodontic diseases
- To raise awareness of the participants about bioactive tricalcium silicate-based root canal sealers commercially available.
- To provide participants with a comprehensive literature review on the bioactivity, biological relationships, biocompatibility, and cytotoxicity of tricalcium silicate-based root canal sealers
- To summarize the characteristics of an ideal root canal filling sealer and discuss whether it can be realistically achieved for consumer use
- To introduce participants to novel bioactive tricalcium silicate-based products for treating specific endodontic conditions
- To emphasize the need for well-designed long-term clinical practices to elucidate the mechanism and confirm the sustainability of their use in clinical practice

Biography

Hilal Erdogan graduated from Selcuk University Faculty of Dentistry, Konya Turkey, and obtained her Doctor of Dental Surgery (DDS) degree in 2009. Subsequently, she completed a Ph.D. program at Selcuk University Faculty of Dentistry Department of Endodontics, Konya, Turkey in 2016. She worked at the Ministry of Health Oral and Dental Health Hospitals as an endodontist until 2019. She has been working as an Assistant Professor Doctor in the department of Endodontics, Faculty of Dentistry, Nevsehir Haci Bektas Veli University, Nevsehir, Turkey since 2019 and the head of the endodontics department. She is a member of the Turkish Endodontic Society. Dr. Erdogan has publications in national and international journals related to her specialty and attends many national and international conferences.

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POSTERS

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6TH EDITION OF
GLOBAL CONFERENCE ON

PHARMACEUTICS AND NOVEL DRUG DELIVERY SYSTEMS

13-14 JUNE

Deeksha Choudhary*, Mohit Kumar, Ashutosh Verma, Uttam Kumar Mandal and Amit Bhatia

Department of Pharmaceutical Sciences & Technology, Maharaja Ranjit Singh Punjab Technical University (mrsptu), Bathinda, Punjab, India

Formulation and evaluation of immediate release tablets of Raloxifene hydrochloride prepared by solid dispersion method

The present study involves enhancement of dissolution rate of 60 mg raloxifene HCl (RLX) immediate release tablets prepared by solid dispersion technique. Melting method was adopted for solid-dispersion technique. Melting point, FTIR and UV-spectrophotometric scanning were performed as pre-formulation tests. DSC method was used to check Drug-excipients incompatibility. An average weight of 310 mg tablet was prepared by direct compression method with solid dispersed powders, sodium starch glycolate, and talc and magnesium stearate. Aqueous solubility of raloxifene HCl was found to be 0.334mg/ml. PVPK 30 and PEG 6000 provided maximum solubility of RLX (1.736 mg/ml and 1.178mg/ml, respectively) at drug: carrier of 1:1 ratio. Immediate release 60 mg RLX tablet was prepared by solid dispersed powders containing 1:1 ratio of PVPK 30 and PEG 6000. Pre-compression parameters and other tableting properties were within the Pharmacopoeia limit. There was significant difference in in vitro dissolution results among tablets prepared by solid dispersed powders (F3) (containing 1: 1 ratio of PVP K30 and PEG 6000 and SSG), then tablets prepared by solid dispersed powders (F2) (containing 1: 1 ratio of PVP K30 and PEG 6000) and tablets prepared by physical mixing of all the composition (F1). The optimized formulation (F3) was found to be stable for one month and all other tableting parameters were within limit.

Take Away Notes:

- The audience will learn about one of the most frequently utilized approaches for the enhancement of the dissolution rate of BCS class 2 drugs which can lead to delivery of promising results in formulation development. Also, formulating and evaluation of oral patient compliant immediate release dosage form.
- The formulation development scientist as well as research scholars will be able to gain knowledge about approaches that can be utilized when facing constraints in dissolution of the lipophilic dugs and formation of immediate release oral formulation.
- This research will familiarize the researchers and teachers to the solid dispersion approach while also learning ANOVA applications.
- Yes, the technique could provide practical solution to problems associated with erratic dissolution pattern observed in BCS class 2 Drugs product development
- Yes, the approach aims at providing a better dissolution rate for the release of drug from an immediate release tablets which will result in better bioavailability as well as therapeutic efficacy
- Learning various techniques involved in improvement of dissolution profile of the lipophilic drug
- Familiarizing the method for development of UV spectrophotometric method for the estimation of particular drugs
- Screening various polymers utilized for formation of solid dispersions
- Preparation, formulation and characterization of immediate release formulation of raloxifene hydrochloride which is employed in treatment of postmenopausal osteoporosis in women
- Carrying out comparative in vitro dissolution studies and application of two- way ANOVA
- Learning about accelerated stability studies employed for determining the formulation stability

Biography

Deeksha Choudhary studied at the Himachal Pradesh Technical University, India, and graduated (B.Pharm) in 2020. As a Postgraduate student (Master of Pharmacy in Pharmaceutics) from Department of Pharmaceutical Sciences & Technology M.R.S.P.T.U, Bhatinda, Punjab (India).Her interest areas are Transdermal Drug Delivery System, Targeted drug delivery system, Pharmaceutical 3D printing, Topical dosage form, Semisolid dosage form. She has been educated to identify new research areas and to acquire an analytical mind to work through challenges while being flexible within a challenging schedule.

Neeraj Bainsal
Chandigarh University, India

Pharmacognostic characterization and development of standardization parameters vis-a-vis quality control of Thalictrum foliolosum DC.-an unexplored traditional herb

Context: Ethnomedicinally, the roots of Thalictrum foliolosum DC has long been used traditionally in opthalmia as a collyrium, improves eye-vision, relieves toothache, in diarrhea, cure piles to god extent, nail troubles, and also in discoloration of the skin. Because of lack of proper identification of plants, standardization of crude drugs becomes difficult. So, to ensure efficacy, safety and purity of T. foliolosum, there is a requirement to create quality control parameters by using pharmacognostical and phytochemical screening.

Aim: To perform evaluation of pharmacognostical parametrs including organoleptic, microscopical and physico-chemical and phytochemical screening of T. foliolosum roots.

Methods: organoleptic and microscopical characters of dried sample of root were observed. Physico chemical parameters performed by applying WHO guidelines, fluorescence analysis and phytochemical screening of root sample were also completed for standardization and identification of root of T. foliolosum.

Results: Macroscopical characters like color, odor, shape, texture, size, fracture were observed from root and powdered root material of T. foilolosum. Microscopical characters of root showed the presence of parenchymatous cells, cork cells along with pitted and sclariform vessels. Phytochemical evaluation specified the presence of various secondary plant metabolites like alkaloids, steroids, saponins, proteins, tannins, flavonoids and triterpenoids. Physico-chemical parameters such as extractive value, Moisture content, ash value, florescence behavior of root powder was performed. These all evaluated parameters help to distinguish the powdered drug material.

Conclusion: This current study will help in standardization and identification along with carrying out further research in herbal medicinal system.

Biography

Neeraj Bainsal, at Chandigarh University, Mohali, India and graduated B.Pharmacy from Himachal Pradesh University Shimla in 2011. She completed her M. Pharmacy in Pharmacognosy from Baddi University in 2013. She worked at KC group of Institution as Assistant Professor for 3 years from 2013 to 2016. Then she joined Chandigarh University as Assistant Professor and started Ph.d from same institute in 2017. She has published more than 18 research articles in Scopus indexed journals.

Avinash Choudhary*, Amit Bhatia

Maharaja Ranjit Singh Punjab Technical University, India

Development, optimization and evaluation of medicated lozenges for the treatment of oral Lichen Planus

Oral lichen planus is a chronic inflammatory illness that affects the mouth's mucous membrane. It appears as white lacy patches, if not diagnosed early, can progress to mouth cancer. Oral treatment is commonly delivered in the form of pills, capsules, tablets, and syrups. The main disadvantage of this conventional dosage form is that, it only stays in the oral cavity for a shorter period of time, resulting in diminished therapeutic efficacy. Our study's goal was to develop and test clobetasol propionate-medicated lozenges for the treatment of oral lichen planus. Lozenges, as a dosage form, solved the problem of limited stay by allowing the medicine to be exposed in the oral cavity for a longer period of time. Heat and congealing methods were used to formulate medicated lozenges with sucrose and dextrose used as the formulation's bases. The melting point was found to be 196-197°C whereas the enthalpy of heat was seen 196.73°C in the DSC experiments. The modified lozenges formulation achieved friability (0.798%), hardness (8.7±0.5%), and thickness (4.85±0.07). The moisture level was determined to be 0.3% in the desiccator and 0% in the gravimetry and Azeotropic distillation methods, with a drug content of 98%. According to the drug release study, 50% of the medication was released within 2 minutes and 96% within 12 minutes. The lozenges were found to be stable.

Take Away Notes:

- The audience will learn about the different techniques, used for the development of lozenges. The other formulations like pills, tablets, and syrups will only stay in the oral cavity for a shorter period of time, and then they will go in systematic circulation whereas lozenges as a dosage form will solve the problem of limited stay. Because their retention time in the oral cavity is much more as compared to tablets, pills and other dosage form
- Lozenges have a local effect which can be used in the treatment of Oral lichen planus as compared to other conventional oral dosage form
- Minimal adverse effect as compared to conventional oral and parenteral formulation

Biography

Avinash Choudhary studied at the Himachal Pradesh Technical University, India, and graduated (B.Pharm) in 2019. As a Postgraduate student (Master of Pharmacy in Pharmaceutics) from Department of Pharmaceutical Sciences & Technology M.R.S.P.T.U, Bathinda, Punjab (India). Area of interest are oral drug delivery system, topical dosage form and novel drug delivery system. He has been trained to explore and develop new research areas and having an analytical mind in order to work through problems while being flexible within a challenging schedule.

Participants List

UPCOMING CONFERENCES

7th Edition of Global Conference on

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