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Two Days E-Conference

on

Translational Research for Nanomedicines

22nd & 23rd April, 2022

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President
PCI, India

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President, IPGA, India

Special Guest

Dr. Arun Garg
Gen. Sec., IPGA, India

Special Guest

Dr. Karunakar Shukla
President, IPGA(MP), India

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Ex. Emeritus Fellow (U.G.C.)
Ex. Prof. & Head
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Translational Research For Nanomedicines

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PATRON'S MESSAGE

It gives me great pleasure to announce that Indore Institute of Pharmacy is organizing an AICTE-Sponsored two days e-conference entitled "Translational Research for Nanomedicine" on 22 and 23 April, 2022. This conference is being conducted for the purpose of presenting, educating, and discussing frontline topics in Nanomedicines with special emphasis on the methods which will help the researchers to make a mark by transforming their innovation from bench to bedside. The conference shall be graced by Eminent Scientists in the field.

Nanomedicines are increasingly being studied by scientists for different medicinal applications. These include more efficient drug delivery and targeting as well as personalised nanomedicine where a drug is administered to a patient based on their genetic profile. Carbon nanotubes, quantum dots, dendrimers, are some of the materials for future nanomedicines. Artificial Intelligence (AI) is also being applied extensively in nanomedicine and it is further believed that AI-enabled nanomedicine would bring down the translational bench to bedside gap.

I hope this conference will provide a unique opportunity to integrate the thought process of eminent scientist and budding pharmacist on a virtual platform. I wish the organizing committee all the success in this endeavor.

Shri Arun S. Bhatnagar *IRS*
Director General IIST / IIP / IIMR
Group of Institutions

MESSAGE

I am pleased to know that Indore Institute of Pharmacy is organizing an AICTE-Sponsored two days e-conference entitled "Translational Research for Nanomedicine" on 22 and 23 April, 2022. This conference is being conducted in association with IPGA-MP-State Branch. The association has a mission to improve the professional status of pharmacy graduates and to secure their rightful place in pharmacy and allied professions.

Nanotechnology is the way ahead for any kind of research let alone translational research. Nonetheless, any research shall immensely be benefitted when a translational approach is used for its conduct. I hope this conference will provide a unique opportunity to integrate the knowledge provided by eminent scientist from the field and help nurture the developing researcher all across the nation to help fulfil them their professional needs thereby achieving its objectives.

On this occasion, I extend my heartfelt compliments to the Co-ordinator and the Organizing team at Indore Institute of Pharmacy for the conduct of this Conference.

Dr. Karunakar Shukla
President, IPGA
MP State Branch

CONFERENCE REPORT

It is a moment of happiness and great pride for me to present the report of this conference. I would like to inform you all that the idea of this conference was conceived during Covid-19 and now finally bore fruit after due sanctions by the Apex bodies like AICTE, New Delhi and IPGA MP-State Branch the conference is being conducted on 22-23 April, 2022.

Due to some technical issues the announcement of the conference was delayed and we could get a short span of 3-4 weeks for its preparations. In spite of this limitation I am very happy to inform that we received overwhelming response from across India, with registrations from different states like Chhattisgarh, Haryana, Himachal Pradesh, Maharashtra, Punjab, Uttarakhad, Uttar Pradesh, and West Bengal. Overall 253 registrations were received by the committee and most of them are faculty members. Furthermore, 38 oral presentations were made faculty members and 42 poster presentations were done by PG and UG students.

The inaugural ceremony of the conference witnessed the gracious presence of President of Pharmacy Council of India, Dr. Montu M. Patel, President National Branch IPGA, Dr. Atul Nasa, General Secretary National Branch IPGA, Dr. Arun Garg, President IPGA MP-State Branch Dr. Karunakar Shukla and Hon'ble Director General of IIST-IIP-IIMR group of Institution Shri Arun S Bhatnagar Sir.

I am happy to share that in welcome speech our Patron and DG Shri Arun S. Bhatnagar briefed the guests about various academic initiatives being implemented in the Institution and also stressed that students must be well equipped to handle the stress of failure. He also emphasized the various initiatives taken to promote Green Campus. The key point for me was the fact that he put forth the most important issue faced by Pharmacy Students and appealed to the President of PCI that he should look into the matter and take necessary initiatives to curb malpractices in the profession.

Respected President reciprocated by assuring that we can expect improvements in time to come. He also informed the gathering that this conference is the first occasion where he is being invited as Chief Guest after joining the office of President PCI. He further informed that he was happy with the theme of conference as he also shares the same area of research. Dr. Atul Nasa appealed to all graduates and post graduates to join IPGA platform and help in the objectives of the association.

The scientific sessions of day 1 witnessed talks by Senior eminent speakers Prof. N.K. Jain who talked about the theme of the conference; Dr. Sanjay K. Jain talked about emerging technologies in colon specific drug delivery; and Dr. Padyumna K. Mishra delivered a talk on low cost innovations in predicting and preventing future disease susceptibility. These sessions were chaired by Dr. P.K. Mishra, Dr. G.D. Gupta, and Dr. Subheet Kumar Jain.

Post-lunch the day witnessed oral presentations by faculty members in front of Panel of Judges comprising Dr. Deepti Jain, Prof. UTD, RGPV Bhopal and Dr. Sanjay Sharma, Asso. Prof. SPPPTM, Mumbai.

Day 2 was opened with scientific session by Dr. Sanyog Jain who spoke about Design of cancer nanomedicine with improve therapeutic efficiency and safety. Later Dr. Rakesh Kumar Tekade spoke on prospectus and retrospects in nanomedicine. On day 2, 40 poster presentations were made by students in front of panel of judges comprising Dr. G.N. Darwhekar, Prinicpal AIPER, Indore and Mr. Pritam Siraskar, Manager, Glenmark Ltd., Indore

Out of these we have selected three best oral and three best poster papers. Looking at the virtual nature of this meeting, the scientific sessions were made open for our institute UG, PG and diploma students so that they can learn from the Eminent Persons of the field. In addition, the conference was streamed live on face book and YouTube to increase its outreach.

I hope the event has achieves its objective in broadest extent.

Dr. Dinesh Kumar Mishra
Co-ordinator of conference &
Principle, Indore Institute of Pharmacy
Indore, M.P.

Abstract of Talks by Eminent Speakers

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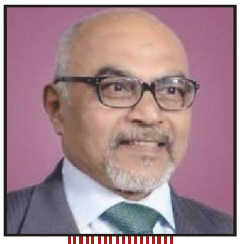

Translational Research for Nanomedicines

Translational research is an effort build on basic scientific research to create new therapies, medical procedures, or diagnostics. TR is often used interchangeably with translational medicine/translational science/ bench to bedside. Nanomedicine is concerned with the application of nanotechnology for medical purposes. Nanomedicines are medical application of nanotechnology in treatment, diagnosis, prognosis and control of biological system. Nanomedicine concept in drug delivery is practical reality of long cherished "magic bullet" concept of Paul Ehrlich. Key issues related to clinical development of nano medicines include biological challenges, large-scale manufacturing, biocompatibility and safety, intellectual property (IP), government regulations, and overall cost-effectiveness in comparison to current therapies. These factors can impose significant hurdles limiting the appearance of Nanomedicines on the market, irrelevant of whether they are therapeutically beneficial or not.

Translation of Nanomedicines From Bench To Clinic : The field of nanomedicine has significantly influenced research areas such as drug delivery, diagnostics, theranostics, and regenerative medicine; however, the further development of this field will face significant challenges at the regulatory level if related guidance remains unclear and unconsolidated.

Current approaches in translational research include regulatory considerations, GMP + GLP + GCP, statistics, documentation and validation, optimization, artificial intelligence and quality management systems for next generation nanomedicines.

Translational research [TR] poses a challenge to serious scientists who crave to contribute to the drug delivery to the patients across the globe.

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Low-Cost Nanobiosensors for Prediction of Future Disease Susceptibility

Acute or chronic exposure to environmental toxins can trigger various ailments of human reproductive system that include early or delayed puberty, menstrual irregularities, infertility, preeclampsia, impaired foetal growth, premature birth, structural or functional birth defects, polycystic ovarian syndrome, endometriosis and reproductive tract cancers. Circulating bio-entities found in body fluids such as plasma, saliva, urine, milk, seminal plasma, tears, and amniotic fluid have emerged as important signatures for disease monitoring. These circulating entities include high molecular weight complexes, membrane fragments, extracellular vesicles, lipid rafts, exosomes, microvesicles, DNA, non-coding RNA and proteins. Among all, circulating nucleic acids (ccf-NAs); DNA, RNA, miRNA and mitochondrial DNA are probably the most extensively studied. The functional significance of cell-free circulating nucleic acids that recapitulate specific disease profiles is now well established. Characterization of these novel ccf-NAs through molecular technologies has prompted the development of range of laboratory-based strategies, thereby accelerating their broader translational purpose. However, largest opportunity for innovation lies in developing point-of-care tests with accurate diagnostic and higher prognostic score that is applicable for screening of high-risk populations. Our laboratory has made concerted efforts to develop and validate nano-biosensors based point-of-care test for detection of ccf-NAs for human bio-monitoring. These point-of-care assays being developed by our laboratory may be used as a "liquid biopsy" approach for predicting and preventing susceptibility to a number of future diseases that culminate from environmental toxin exposure during critical windows of developmental vulnerability. Besides biological framework, in this talk I shall discuss about the analytics being developed at ICMR-NIREH, Bhopal to capture and detect ccf-NAs using nano-acoustic algorithms.

Acknowledgements : The financial support received from national funding agencies: Department of Science & Technology (DST); Department of Biotechnology (DBT); Ministry of Human Resource & Development (MHRD); Indian Council of Medical Research (ICMR); Department of Health Research (DHR); and India Cancer Research Consortium (ICRC) are thankfully acknowledged.

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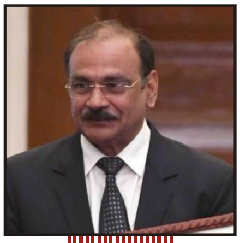

Emerging Technology for Colon Specific Drug Delivery

The drug delivery to the colon has been the focus of the increasing interest of scientists not just for the treatment of local diseases associated with the colon but also for its potential for the translational research. Number of nanoconstructs has been developed to deliver therapeutic molecules including proteins and peptides to colon for their systemic absorption and number of drugs has been designed for its local delivery to colon. The specific drug delivery to colon can reduce the incidence of systemic side effects as drug releases close to target site i.e. colon and very less amount will reach to systemic circulation. This approach increases the therapeutic efficacy of drug, reduces the side effects of drug and maximizes drug utilization. For the successful colonic delivery, a drug needs to be protected from absorption and/or the environment of the upper gastrointestinal tract and then be abruptly released into proximal colon, which is considered the optimum site for colon targeted delivery of drugs. Colon targeting is naturally of value for the topical treatment of diseases associated with colon such as Crohn disease, ulcerative colitis, colorectal cancer and amoebiasis. There are various emerging technology for specific delivery of the drug to colon viz. prodrug approaches, Surface charge dependent drug-delivery systems, pH dependent drug-delivery systems, Biodegradable drug-delivery systems, Redox drug-delivery systems, Active targeting dependent drug-delivery systems, Nanocomposites based colon specific drug delivery, Dendrimer based Colon Targeting, Timed release systems. Various nanoconstructs based strategies shall be discussed during the deliberation.

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Design of Cancer Nanomedicine with Improved Therapeutic Efficacy and Safety

Drug delivery is the science and engineering of converting potent therapeutic drug molecules into practical medical therapies. Delivering drugs to patients in a safe, effective and compliant way is a major challenge in today's health care. Furthermore, many drugs, regardless of their mode of administration, need to localize in specific diseased tissues and systemic administration of these drugs to healthy tissues can be toxic. The ability of drugs to reach from the point of administration to target tissue is limited by multiple barriers in the body such as enzymatic degradation, poor permeability across the capillary epithelium, rapid metabolic clearance and accumulation in non-targeted tissues. These barriers protect various tissues, cells, and organelles from their environment and the existence of these barriers is essential to life but the ability to deliver drugs for therapeutic applications is challenged. Accordingly, the primary challenge in the field of drug delivery lies in understanding these barriers and developing novel strategies to overcome them in order to cargo drugs and their carriers to their destination without compromising safety. That is the challenge that we have undertaken. Nanotechnology, which is also termed as NANOMEDICINE, offers very promising applications. Smart nanocarriers are able to specifically target tumor once they are into the systemic circulation. This leads to reduced side effects related to cancer chemotherapy, although the approach to co-deliver an antioxidant with the anticancer drug further improves the therapy in controlling chemotherapy related distress. This improves the overall effectiveness of therapy. The route of administration also remains an important aspect since parentral, more preferably intravenous administration, gives absolute bioavailability and instant action, but remains to be poorly complying delivery for patients. Nanotechnology provides various techniques for improving oral bioavailability since this route of administration remains to be the most popular route for patients. Nanocarriers holds answer to all these questions of targeted co-delivery of drugs through oral or other preferred routes. Thus this improvised technique provides the benefit of targeting with efficient multicomponent delivery which leads to effective cancer chemotherapy. The present talk deals with fundamentals of targeted drug delivery and all other aspects of cancer nanotechnology with emphases on the development of smart nanocarriers for effective cancer chemotherapy.

Prof. Sanyog Jain

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Prospects and Retrospect's of Targeted Nanomedicine

Nanomedicine refers to the medical application of nanotechnology. It exhibits exclusive returns in clinical outcomes as compared to conventional therapeutics. The past decade has witnessed massive progress in nanomedicine, as evidenced by the successful commercialization of numerous nanomedicine products globally and a steep rise in the number of products under the clinical trial pipeline. The key to advancing the field relies on a deep understanding of the biological barriers, regulatory challenges, and market demands. This lecture presents an overview of the nanomedicines that have been widely investigated so far.

This lecture also explicates next-generation targeted nanomedicines, as exemplified by formulations with passive targeting, active targeting, and stimuli-sensitive release. The discussion aims at igniting the discussion to understand the importance of translating nanomedicine research from bench to bed, listing issues of safety assessment, biological fortune, manufacturing hurdles, production cost, and regulatory hurdles. Lastly, the lecture provides viewpoints on the challenges and prospects to advance in this stimulating field full of hopes, expectations, and aptitudes.

Rakesh K. Tekade

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OP-1 : Formulation and Characterization of Polyherbal Topical Gel Containing *Jasminum Grandiflorum, Cynodondactylon and Andrographis Paniculata*

Medicinal and aromatic plants and their combinations have been shown to have medicinal and cumulative effects in healthcare. In light of this, a polyherbal topical gel formulation based on plant extracts was developed to improve patient compliance, broaden the antibacterial spectrum, and improve cosmetic characteristics. The goal of this research was to develop and characterize a topical polyherbal gel for the delivery of active plant ingredients to treat skin disorders. For the formulation of topical gel, plant extracts of Jasminum grandiflorum (JG), Cynodondactylon (CD), and Andrographis paniculata (AP) were used. Different formulation batches (F1 and F2) were created using carbapol-934 as a gelling agent at various concentrations. The pH, appearance, and homogeneity of the polyherbal gel formulation, as well as its viscosity, spreadability, and skin irritation tests, were all examined. All physicochemical parameters of the developed polyherbal cream were determined to be stable.

Keywords : Jasminum grandiflorum, Cynodondactylon, Andrographis paniculata, Polyherbal gel.

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OP-2 : Development and Characterization of Pegylated Liposomes for Oral Delivery of Insulin

Liposomes shows as an effective drug delivery system due to their flexible physicochemical and biophysical properties, which allow easy manipulation to improve the bioavailability and biocompatibility by targeting drugs. But physical instability, short shelf-life, low drug loading, leakage of entrapped drug and high production cost make it impractical for commercialization especially for treatment of chronic diseases such as diabetes. Although several options for diabetes treatments are available in market, they are associated with various side effects and resistance of body towards their pharmacological effects. Insulin and peptide drugs namely GLP-1 (Glucagon-like peptide 1), GLP1RAs (receptor agonists) are available primarily as subcutaneous (SC) injections while peptide analogues, i.e. DPP-4 (Dipeptidyl-peptidase 4) inhibitors (vildagliptin, (Galvus), sitagliptin (Januvia), saxagliptin (Onglyza)) are available in the global market as tablets Oral hypoglycemics after immediate release get absorb from the biological membranes and move toward the site of action. However, to attain the therapeutic concentration into the blood for whole day, about 2 to 3 doses are required to be administered. These dosage forms offer various untoward effects/limitations like gastric irritation, diarrhea, loss of appetite, lactic acidosis in people with abnormal kidney or liver function due to gastrointestinal degradation, insolubility in water and do not comply with the safety and efficacy of the patients.Peptide analogues, usually taken in form of subcutaneous injection. But pain at injection site, injection phobia, not suitable for pediatric and geriatric is another limitation of using these subcutaneous dosage form. Enhancing oral bioavailability of these analogues is a challenge. Therefore, it is desired by examining new and more specific drug delivery carriers to deliver insulin orally using novel delivery approaches. By grafting polyethylene glycol (PEG) polymers on the surfaces of liposomes, protein absorption can be reduced, resulting in less macrophage cellular uptake and therefore prolonged blood circulation times. PEGylation of liposomes often produced by using certain PEG-phospholipid like, methoxy-PEG-distearoylphosphoethanolamine with the molecular weight of 2000 (mPEG-DSPE2000) which is considered to be the most utilized PEG lipid. The hypoglycemic effect by PEGYlated liposomes lasted for much longer duration. The slow release of insulin from the surface coating liposomes achieved the longer duration of oral hypoglycemic activity. Consequently, the surface coating should be the potential way to add desirable functions to the liposome for oral drug delivery

Keywords : PEGYlated liposomes, PEG, diabetes

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OP-3 : Development and Exploration on Flowability of Solid Self-Nanoemulsifying Drug Delivery System of Morin Hydrate

The presented work endeavours the design of a solid self nano-emulsifying drug delivery system (S-SNEDDS) of Morin hydrate (MH) to elicit its solubility and bioavailability also, the investigation of powder flow behaviours employing powder flow tester (PFT). MH is a promising flavonoid and possesses a diverse range of biological activities; unfortunately, it finds limited clinical application due to its low water solubility. Herein, we developed SNEDDS employing Labrafil M 1994 CS, Cremophor RH 40, and Transcutol HP and carried out solidification by physical adsorption using Neusilin US2 and Aerosil 200. The S-SNEDDS of MH was thoroughly investigated for flow function test, wall friction angle, and internal friction angle employing PFT. The S-SNEDDS prepared using Neusilin US2 exhibits excellent flow properties and their solid-state characterization by DSC, PXRD, and SEM exhibited transition of crystalline to the amorphous state of MH resulting in improvement of dissolution and bioavailability. The stability studies also showed excellent physical and chemical stability with an estimated shelf life of 27.5 months. In brief, the solidification of S-SNEDDS and investigation of flow behavior by PFT could be found attentions in the pharmaceutical and food industry for commercial purposes.

Keywords : Labrafil, Transcutol, S-NEDDS

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OP-4 : Formulation and Evaluation of Doxofylline-Loaded Polymeric Micelles for Pulmonary Administration

The pulmonary administration of drugs offers advantages over administration by intravenous injection. The present work was to prepare polymeric micelles nanomicelles containing Doxofylline as dry powder for inhalation. In order to bypass the drawbacks of predictable preparations, nanotechnology-based drug delivery systems for pulmonary administration and pulmonary targeting have been oppressed. The present study was aimed towards formulating the Doxofylline loaded Soluplusnanomicelles with polymer Soluplus by film hydration technique in different ratios. The nanomicelles so prepared were characterized for its particle size, ?-potential, XRD, SEM, drug content and drug release rate. SoluplusDoxofylline Polymeric Micelles showed mean size of 70.73nm and Zeta Potential is - 8.71. The Drug Entrapment Efficiency is 87.7% and The Drug Loading Capacity is 10%. In-Vitro study reveals the drug release is 44%. The Doxofylline-Soluplus Polymeric Nanomicelles could have the significant value in the treatment of Asthama and COPD.

Keywords : Polymeric Nanomicelles, Asthama, COPD, Doxofylline, Film Hydration Technique, Lyophilisation, Dry powder for Inhalation.

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OP-5 : Applicability of Sintering Technique in the Fabrication of Controlled Release Gastro Retentive Floating Drug Delivery Systems

Sintering technique is a relatively new, convenient, economic process for the design of controlled release dosage form. Sintering means fusion of particles or formation of welded bonds between particles of polymer. Sintering has been described as the mechanism for solid bond formation during tablet compression, for thermal curing of polymer latex film coatings and for strengthening of the mechanical properties of consolidated pharmaceutical powders at elevated temperatures. The sintering technique has been used for the fabrication of matrix tablet for sustained release and retardation of release of drug from various systems. The changes in the microstructures, hardness, friability, wettability, disintegration time and dissolution rate of tablets stored at elevated temperature were also described as a result of sintering. The sintering condition markedly affected the drug release characteristics from the sintered tablets. Among the several physical approaches employed for the design of controlled release dosage form, sintering of polymeric matrix in which a drug is dispersed is an alternative technique. In the application of this sintering technique to the fabrication of controlled release dosage form, the main research focus has been on the influence of sintering on the alteration of the microstructures in a polymeric matrix and the release of the active ingredients from the matrix. The challenges associated with floating drug delivery system can be overcome by upcoming novel sintering technique. This presentation explains the various aspects of sintering technique and highlighted some research work on floating drug delivery systems prepared by sintering technique.

Keywords : Sintering, Controlled drug release, Gastro retentive, Floating tablet.

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OP-6 : A Review on Nanomaterials and their Medical Applications

Nanoparticles are the only type of structures within the size in nm range. The atoms are bonded together within a structural radius of < 100 nm can be considered Nanoparticles. In the present time Nanoparticles are widely used in many dosage forms due to their good solubility, less size and better penetrability.Nanoparticles are smaller than or comparable to a virus range, a protein, or a gene, and it is bigger than the molecule of water but smaller than bacteria (1 µm) or pollen (100 µm). They are directly resemblance to medicine because of its nanoscale structure, such as enzyme action, cell cycle, cell signaling, and damage repair etc. They can be used to create precisely targeted drugs material that are engineered to locate and sit on specific proteins and nucleic acids associated with the disease and/or a particular disorders. It can also be used to deliver small organic molecules and peptides at specific sites of action to carry out their function more effectively, protected from degradation, immune attacks and free from different barriers that block the passage of large molecules.Nanoparticles have different biomedical applications in targeted drug delivery. They can be used to deliver different chemicals like drugs, chemotherapeutic agents, diagnostic and imaging substances, or biological substances like antigens, antibodies, RNA and DNA through endocytosis. They can even be used to deliver heat and light to their target cells when needed. The use of Nanoparticles is attracting increasing attention day by day due to their unique capabilities and their negligible side effects not only in cancer therapy but also in the treatment of other ailments.

Keywords : Nanoparticles, Nanomedicines, Targeted drug delivery.

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OP-7 : A Review on Approaches of Nano Formulations of Celastrol and Its Therapeutic Applications

Celastrol is a herbal bioactives obtained from the root extraction of Tripterygium wilfordi and categorized in terpenes i.e. Quinone methide triterpene, also known as tripterine (In traditional medicine of Chinese, thunder god vine). Due to its potential activity as anti-oxidant, anti-inflammatory, anti-Cancer, and in neuroprotective have attracted the researcher's attention towards using as medicine with minimum side effect along with potential effects in disease treatment like autoimmune and other above diseases. However, it shows very poor solubility which leads to poor bioavailability and toxicity in organ. Hence it is very challenging in delivery to patient. To overcome these complicated issues with these bioactive, pharmaceutical researchers have investigated the various nanotechnology based formulation strategies to gain maximum therapeutic efficacy and minimum side effect and or no toxicity of celastrol. In this mini review, many formulations of celastrol based on nanotechnology explored in order to its maximum utilization by suitable formulation approach. This mini review mainly focused at summarizing of last 15 years' literatures of nano-formulations of celastrol which have been developed and clinically tested for its therapeutic applications. In addition, this review also highlights gap in clinical translation of nanotechnology-based formulations and path forward.

Keywords : Herbal Bioactive, Celastrol, Tripterine, anti-inflamatory, anti- Cancer, anti-oxidant, nanotechnology, neuroprotective.

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OP-8 : Formulation and Evaluation of Omeprazole Pellets Using Tamarind Kernel Powder

From past few decades natural resources especially from plants are being explored for their phytoconstituents, pharmacological activities and their use as excipients in various dosage forms. Use of natural materials as excipients is generally for getting a safe and relatively less costlier products or in some cases for obtaining specific results. In this study, Omeprazole pellets containg Carboxymethyl tamarind kernel powder (CMTKP) were prepared using extrusion-spheronization technique. Pellet formulation was optimized for formulation parameters considering two most important parameters like concentration of CMTKP and ratio of water:isopropyl alcohol while speed and duration of spheronization (process parameters) were optimized using factorial design. The formulated batches of Omeprazole pellets were evaluated for yield, particle size, drug content and drug release. The optimized batch showed 91.45%yield, 1.15 mm average particle size, and89.52% drug content. Drug release of the optimized batch and marketed formulation (OMEZ) was found to be 87.61% and 85.03%, respectively after 60 min in phosphate buffer 6.8. From study it was clear that CMTKP can be used as excipient in pellet formulation which can serve as binder and spheronising agent in pellet formulation. In recent future Tamarind kernel powder and its modified forms can be further explored for their different potential or use in various dosage forms to achieve certain objectives.

Keywords : Omeprazole, Pellets, Extrusion-spheronization, Tamarind kernel powder

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OP-9 : A Review on Carbon Dots and Their Pharmaceutical and Biomedical Applications

For the last two decades, carbon dots, a revolutionary type of carbon nanomaterial with less than 10nm diameter, have attracted considerable research interest. CDs exhibit a wide range of physicochemical properties and favorable characteristics, including excellent water solubility, unique optical properties, low cost, eco-friendliness, and abundance of reactive surface groups and high stability. As a result, the synthesis of CDs and their applications in pharmaceutical and related disciplines have received increasing interest. Since CDs are biocompatible, biodegradable with low toxicity, they appeared to be a promising tool for the health care sector. In order to modify the physicochemical properties of CDs, many studies are performed on different methods of their synthesis. CDs have emerged as innovative pioneered nanoparticles beneficial for pharmacological and therapeutic applications due to their superior programmable photoluminescence (PL). CDs are extensively employed for numerous applications till date, including theranostics, bioimaging, drug delivery, biosensing, gene delivery, cancer therapy, electrochemical biosensing, and inflammatory treatment. The purpose of this review is to conduct a comprehensive study on various pharmaceutical applications of CDs and identify the major obstacle and future prospects for CDs.

Keywords : Bioimaging; Carbon dots; Cancer therapy; Drug delivery; Nanomaterial; Photoluminescence.

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OP-10 : Formulation and Development of Nanoparticulate System Containing Rutin from Leaves Extract of *Aegle Marmelos* for Effective Management of Diabetes

Current work aimed at the modified release of content from carrier system at predetermined rate and secondly, to decrease the use of synthetic drug on biological system. Successive solvent extraction of crude drug of Aegle Marmelos plant was done. Active constituent of leaves that is rutin was isolated and identified through HPTLC and FTIR. SLN was selected as carrier system and fabricated by solvent diffusion method. Characterization and performance evaluation of particulate system loaded with herbal plant extract of the Aegle Marmelosleaveswas done. TEM, In-vitro drug release profile, entrapment efficiency and particle size was determined. Solid lipid nanoparticles have enormous effect in loading high amount or loading dose concentration in body and also maintain the same over prolonged interlude of time. SLN was formulated and characterized for the particle size, shape and its distribution, percentage drug entrapment and In-vitro drug release profile along with the stability studies. In-vivo bio distribution studies on animals suggested the accumulation of formulations in the different organs. Solid lipid nanoparticles also show good stability as compared to other novel carrier systems. Prolonged release of natural drug from carrier system, decrease the dosing frequency and also decrease the dose size. Better results than marketed synthetic anti-diabetic drugs.

Key Words : Particulate system, plant extract, Aegle Marmelos, diabetes mellitus, controlled release

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OP-11 : A review on the Utilization of 3D-QSAR and Docking Studies in the Discovery of Novel HIV-Protease Inhibitor Medicines

3D QSAR technique is one of the most common techniques to determine the physicochemical properties of different new compounds which vastly helps in the development of new drugs against such diseases as cancer and HIV. So many attempts were taken to treat HIV by using different drugs. For that, the properties of the new drugs should be determined and so the QSAR techniques, as well as the molecular docking, are being used for years to know the effects of drugs against HIV. One of the modes of action is to inhibit the protease enzyme of HIV. Many drugs already have been invented to inhibit the desired enzyme. Still, studies are going on to develop more new drugs which can inhibit the protease enzyme so that the virus cant' replicate or infect more inside the body. Also, there should be fewer side effects with more efficacy of the drug. To achieve these goals more QSAR and molecular docking studies are going on different compounds which have the potential ability to inhibit the targeted site. This review article aims to give insights into 3D QSAR studies for anti-HIV protease activity which could be used to design highly potent drug candidates for both wild and mutated forms of viruses.

Keywords : QSAR, HIV, Cancer, Protease, Docking, Drug candidate

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OP-12 : Formulation and *In vitro -Ex Vivo* Evaluation of Polymeric Micro-Needles for Targeting Posterior Segment of Eye

Currently, intravitreal (IVT) injection and implants along with systemic intravenous injection are the only means of delivering drugs to posterior segment of eye. In most of the ailments of posterior segment like in, retinal vein occlusion (RVO), Diabetic macular edema (DME), Diabetic Retinopathy, Age-related macular degeneration (AMD), Choroidal neovascularization (CNV), Cytomegalovirus retinitis(CMV) etc. elevated VEGF, diminished antioxidants, and inflammation are found to be major causes. So, therapeutics involves anti-VEGF, antioxidants, and antiretroviral drugs and in few cases, non-steroidal anti-inflammatory drugs (NSAIDs). Till date, several attempts have been made to deliver medicaments to the site of action i.e., posterior segment but only few have reached to the market and are available to patients. Therefore, in this study an attempt is made to prepare microneedles based on gelatin and pullulan and containing betamethasone valerate which is an anti-inflamatory, glucocorticosteroid for the treatment of diabetic retinopathy. Microneedles were evaluated invitro for drug release, drug content and for surface morphology. Ex vivo study include the penetrability evaluation of microneedle in isolated goat eye.

Key words : Microneedle, Betamethasone, Diabetic retinopathy, Posterior eye, Ophthalmic drug delivery

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OP-13 : A Review on Role of Tacrolimus in the Treatment of Rheumatoid Arthritis

Rheumatoid arthritis is an autoimmune disorder that affects synovial joints and results in joint destruction, pain and swelling. It is a global concern affecting approximately 1.5% of world's population. Tacrolimus is regarded as a gold standard immunosuppressive medication that can be used for the treatment of rheumatoid arthritis. Tacrolimus's immunosuppressive properties are a result of immunophilin's affinity to attach to it. Immunophilin is a broad family of cytosolic proteins that is divided into subgroups based on how they interact with immunosuppressant. FK506 binding proteins (FKBPs) engage with Tacrolimus or rapamycin, whereas cyclophilins interact with cyclosporine A. After associating with their respective immunosuppressant, the immunophilins create a binary complex that inhibits T-cell activation and proliferation. Tacrolimus is also used topically for the treatment of T-cell mediated illnesses such as eczema and psoriasis, as well as for the management of dry eye in dogs and cats. Tacrolimus, at high doses and for long periods, can cause nephrotoxicity, neurotoxicity, infections, hypertension, post-transplant diabetes, and cancers.

Keywords : Tacrolimus, autoimmunity, rheumatoid arthritis, pathophysiology, anti-inflammatory.

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OP-14 : Free Radical Scavenging Activity and Antimicrobial, Activity of Phyllanthus Niruri

Phyllantus niruri Linn, herbaceous shrub belonging to phyllanthaceae family is a popular medicinal plant and widely used for treatment of different diseases like antioxidant, antimicrobial, diabetes, intestinal parasites, inflammation, prostate, influenza, dropsy and jaundice problems. The objective of current work was to evaluate the Free Radical Scavenging activity and Antimicrobial Phyllanthus Niruriethanolic extract (PNEE). In the present study, Antimicrobial activity was investigated by agar well diffusion method and the antioxidant activity of PNEE was investigated using various in-vitro models such as 1,1-diphenyl-2-picrylhydrazyl (DPPH), total antioxidant activity, metal chelating activity and superoxide, hydroxyl. Antimicrobial activity showed the bacterial strain showed highest Zone of inhibition when compared to fungal strain. Ethanolic extract was found potent in all in-vitro models. PNEE showed significant scavenging activity hydroxyl & superoxide radicals. The presence study suggested that Phyllantusniruriethanolic extract, a potential source of natural antioxidants.

Keywords : Phyllantus niruri, DPPH assay, antimicrobial activity

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OP-15 : A Short Review on Pharmacovigilance and Its Status in India

Pharmacovigilance is the pharmacological science relating to the recognition, assessment, understanding and prevention of adverse effects, particularly long term and short-term adverse effects of medicines. India is fourth largest producer of pharmaceuticals in the world and emerging as Clinical trial hub. Many new drugs are coming up.Therefore, there is a need for a vibrant Pharmacovigilance system to be followed to protect the population from the potential risk by some of these new drugs. On WHO recommendation the Central Drugs Standard Control Organization (CDSCO) has initiated a well-structured and highly participative National Pharmacovigilance programme in India.In India problems with Pharmacovigilanceis essentially due to the absence of a robust ADR monitoring system and also the lack of awareness of reporting concepts among Indian health care professionals. The present review a seeks attention of healthcare professionals, patients, pharmaceutical industries to follow and adopt pharmacovigilance programme for betterment of society which is greatly affected by undesirable and unwanted drugs in a large population.

Keywords : Pharmacovigilance, Healthcare, CDSCO

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OP-16 : Development and Evaluation of Nanoemulsionof Primaquine for Prevention of Relapsing Malaria

Malaria relapsing refers to the reactivation of the infection via Relapse is when symptoms reappear after the parasites have been eliminated from blood but persist as dormant hypnozoites in liver cells. Malaria relapse commonly occurs between 8-24 weeks and is commonly seen with P. Vivax and P. Ovale infections. Primaquine (PQ) is one of the most widely used antimalarial and is the only available drug till date to combat relapsing form of malaria especially in case of Plasmodium Vivax and Plasmodium Ovale. Primaquine acts specifically on the pre-erythrocytic schizonts which are concentrated predominantly in the liver and causes relapse after multiplication but one of the major drawback of this drug is that it dissolves in less proportion in systemic circulation to show an active effect. So to reduce these effects, Primaquine incorporated into oral lipid nanoemulsion having particle size in the range of 10-200 nm. The absorbtion capacity of primaquine was significantly increased as nanoemulsion of Primaquine was used. The drug was readily absorbed by the liver 45% more than before. So the results declared the successful absorbtion of primaquine by the liver in its nenoemulsion form as it will be used further in the treatment of malaria because it is less toxic.

Keywords : Relapsing malaria, Nanoemulsion, Primaquine, Pre-erythrocytic schizonts

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OP-17 : Effect of *Heliantus annus* Seeds Extract on Biomarkers of Alzheimer's Disease in Streptozotocin Induced Alzheimer

The main purpose of the present study was to characterize the anti-Alzheimer's activity of Helianthus annus seed extract on biochemical markers of brain in Alzheimer's like Amyloid beta ($A\beta_1$-40 and $A\beta_1$-42), Acetylcholinesterase (AChE), Catalase (CAT),Superoxide Dismutase (SOD), Glutathione (GSH), and Thiobarbituric acid reactive substances (TBARS). Streptozotocin (STZ) is a glucosamine-nitrosourea compound which was originally identified as an antibiotic. It is toxic to beta cells of pancreas and usually transported through glucose transporter 2 and commonly used to induce experimental diabetes in animals. STZ administration through route such as intracebroventricular injection produces reduced cognition and increased cerebral aggregated A? fragments, total tau protein, and A? deposits. These changes were accompanied with decreased glycogen synthase kinase (GSK-3) alpha/beta ratio (phosphorylated/total) in the brain. The extract of Helianthus annus seed extract was administered in two doses (100 and 200 mg/kg) for 7 days. Piracetam (120 mg/kg) was used as a standard agent. Orally supplementation of Helianthus annus seed extract showed significant decrease $A\beta_1$-40 {58 ± 0.21**(100mg/kg) and 53 ± 0.79**(200mg/kg)} and $A\beta_1$-42 {17±0.89**(100mg/kg) and 15±1.02**(200mg/kg)}. Helianthus annus seed extract elevated brain antioxidant enzymes CAT (15.5 ± 2.8**and 14.0 ± 1.12**), SOD (13.5 ± 1.4**and 18.3 ± 1.7**) GSH (203.3 ± 15.3**and 218.0 ± 13.5**), TBARS (200.3 ± 7.3** and 208.0 ± 11.0**) at 100 mg/kg and 200mg/kg respectively. Orally supplementation of Helianthus annus seed extract also showed significant inhibited AChE activity 4.907±0.31** and 4.967±0.31** at 100 mg/kg and 200mg/kg respectively.

Keywords : Helianthus annus seed extract, Amyloid beta ($A\beta_1$-40 and $A\beta_1$-42),Superoxide dismutase (SOD), catalase (CAT), contents of thiobarbituric acid reactive substances (TBARS) and reduced glutathione (GSH) and Acetylcholinesterase (AChE)

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OP-18 : Immunoinformatics and Computer-Aided Drug Design as New Approaches Against Emerging and Re-Emerging Infectious Diseases

Infectious diseases are initiated by small pathogenic living germs that are transferred from person to person by direct or indirect contact. Recently, different newly emerging and reemerging infectious viral diseases have become greater threats to human health and global stability. Investigators can anticipate epidemics through the advent of numerous mathematical tools that can predict specific pathogens and identify potential targets for vaccine and drug design and will help to fight against these challenges. Currently, computational approaches that include mathematical and essential tools have unfolded the way for a better understanding of newly originated emerging and reemerging infectious disease, pathogenesis, diagnosis, and treatment option of specific diseases more easily, where immunoinformatics plays a crucial role in the discovery of novel peptides and vaccine candidates against the different viruses within a short time. Computational approaches include immunoinformatics, and computer-aided drug design (CADD)-based model trained biomolecules that offered reasonable and quick implementation approaches for the modern discovery of effective viral therapies. The essence of this review is to give insight into the multiple approaches not only for the detection of infectious diseases but also profound how people can pick appropriate models for the detection of viral therapeutics through computational approaches.

Keywords : CADD, Computational Approaches, Infectious diseases, immunoinformatics

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OP-19 : Antiobesity Activities of Different Extracts of Nagarmotha in High fat Diet Induced Obese mice

Nagarmotha is traditionally used to treat obesity in world but due to lack of scientific validation to support their use. The aim of this study was to determine the antiobesity activity of petroleum ether, ethyl acetate and alcoholic root extract of this plant in high fat diet induced mice. The activity of the extract was orally bio screened in high fat diet (HFD) induced obese mice at 100mg/kg/bw and 200kg/bw. Body mass index was calculated once in a week up to four weeks and blood samples were analyzed at the end of the experiment for lipid profile analysis. Atiobesity activities of the extracts were compared with the controls. Root extracts of Nagarmotha at dose concentrations of 100 mg/kg/bw and 200 mg/kg/bw, showed significant effect on body mass index ($p<0.05$). There was not significant difference between the three extracts on lipid parameter profiles ($p>0.05$). The present study showed high food intake in the negative control group as compared with normal control, positive control and treatment groups. These extracts contained various phytochemicals such as saponins, flavonoids, alkaloids, and steroids and therefore validate use of Nagarmotha in reduction of obesity and their use for management of obesity is recommended.

Keywords : Nagarmotha, High fat diet induced diabetes, BMI, Antiobesity

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OP-20 : A review on Salixcaprea Linn.

Willows (genus Salix) are trees, shrubs, or prostrate plants that are widely spread in Africa, North America, Europe, and Asia, with over 330-500 species and 200 hybrids. Salix Caprea is a valuable source of biologically active chemicals, including salicin, in Vednasthapan, Hirdya, Shvashar, and Naygrodhadi. It has 8-13 % acacia in its bark. Additionally, the bark contains delphidinin, cyanidin, pipecholic acid, phujillin, pycnine, salicin, salicin, salicyroside, diandrin, vimelin, and salicase. Flowers contain alkaloids in addition to glycosides and saponins. Apart from these, diosmetin, isoremnetin, capreoside, and salicaprioside have been discovered. Sublimation of aromatic flowers produces flying oil. The leaves also release an oil in this manner. It is reported that a pleasant discharge on the leaves freezes.

Keywords : Willows, Prostrate plants, Salix Caprea

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OP-21 : Formulation and Optimization of Delayed Release Microspheres of Lornoxicam using Natural and Synthetic Polymer

The nonsteroidal anti-inflammatory drugs (NSAIDs) are among the most widely used medications in the world because of their demonstrated efficacy in reducing pain and inflammation. The arthritis, pain and inflammation are effectively treated with Lornoxicam, an effective NSAIDs. The present research work was focused on the development of lornoxicam microspheres using natural and synthetic polymers along with sodium alginate prepared by Ca^{2+} induced ionic-gelation cross-linking in a complete aqueous environment were successfully formulated. The microspheres were prepared by using sodium alginate with natural polymer and synthetic polymers in different ratios by Ca^{2+} induced ionic-gelation cross-linking. The formulations were optimized on the basis of drug release. The formulated microspheres were characterized for particle size, percentage drug entrapment efficiency, micromeritic properties, surface morphology, percentage swelling index, in-vitro drug release study and mechanism of drug release. The microspheres exhibited good flow properties and also showed high percentage drug entrapment efficiency. It was suggested that increase in polymer concentration, the drug release from the prepared microspheres got retarded producing sustained release of lornoxicam. In-vitro drug release data obtained were fitted to various release kinetic models to access the suitable mechanism of drug release. The present study conclusively demonstrates the feasibility of effectively encapsulating Lornoxicam into natural polymer and synthetic polymer to form potential sustained drug delivery system. In conclusion, drug release over a period of time could be achieved from these prepared microspheres. A pH-dependent swelling and degradation of the optimized microspheres were also observed, which indicates that these microspheres could potentially be used for intestinal drug delivery.

Keywords : Microspheres, Intestinal drug delivery, NDDS

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OP-22 : Evluation of Allometric Scaling Methods For Predicting Human Pharmacokinetics of Novel Jak Inhibitor-Baricitiniband Dose Extrapolations

The major goal of this exercise was to examine advantages of allometry scaling strategies for correct prediction of pharmacokinetics of baricitinib in human from preclinical species. The allometry scaling of baricitinib was made possible by the availability of pharmacokinetic data in preclinical species. The relationship between the main pharmacokinetic parameters [volume of distribution (Vd) and clearance (CL)] and body weight (BW) was investigated in three mammalian species, with double logarithmic plots used to predict the human pharmacokinetic parameters CL and Vd using simple allometry and correction factors for better prediction. For the prediction of intravenous human Vd and CL for baricitinib, a simple allometry relationship was found to be satisfactory. The Vd predicted by simple allometry (65.3 L) was found to be in agreement with the reported value (75.5 L); the CL predicted by simple allometry was found to be 1.06 fold closer to the reported value (245 mL/min); Both brain weight and maximum life span potential (MLP) predicted the CL with 0.52- and 0.61-fold difference respectively; while CL was predicted with 0.81 fold using monkey liver blood flow (MLBF), which was in close agreement with the reported value. The CL prediction was also extrapolated using the LBF (Liver blood flow) approach of different species and it was observed that higher species (Dog and Monkey) predicted CL more accurately than rats. Overall, the simple allometry, monkey liver blood flow and application of liver blood flow methods showed excellent correlation with human. The time vs. plasma concentration simulated graph also showed the similar closeness with human profile. The FIH dose extrapolation was carried out by FDA guidelines; the results showed that PK guided approach and exponent for BSA based approach was found closer to actual human dose of 4.0 mg/Kg.

Keywords : Clinical Pharmacokinetics, FIH, Interspecies Scaling, Pre-clinical, Simulations

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OP-23 : A Review on Novel Techniques to Formulate Nano Sunscreens

In this review an emphasize has been given on sunscreens required in prolonging the protection to the skin from UV-induced skin damage byusing nanotechnology. The use of sunscreen is beneficial in minimizing skin damage. Older generation inorganic sunscreens confer greater photoprotection than other agents against a broader spectrum of UV light. However, due to their texture and unfavorable cosmetic appearance its use has been limited. Chemicals such as Iron, titanium and zinc used in bulk form are difficult to suspend in nongreasy vehicles and has tendency to leave a chalky, opaque white residue on the skin. Nanosuncreens are becoming the most prominient carriers of UV filters. Various advancements using nanotechnology such as nanoemulsions, liposomes and ultradeformable vesicles (transfersomes, ethosomes and transethosomes), solid lipid nanoparticles, nanostructured lipid carriers, polymeric nanoparticles, mesoporous silica nanoparticles, nanocrystals and Sunspheres had gain a greater importance to impart in the formulations of nanosuncreens. Smaller particles of sunscreen, with their higher surface-to-volume ratio and the presence of polar oxygen on their exterior, have increased solubility in water-based emulsions, allowing them to be suspended in greaseless, cosmetically pleasing vehicles. Small particles of sunscreen also allow for denser packing of these blocking agents between the corneocytes of the upper epidermis and stratum corneum, covering the skin more evenly. It is also important to recognize that the toxicity of nanoparticles is highly dependent on a variety of factors including their size, structure, surface properties (coating) and ability to aggregate, all of which can be manipulated and altered in the manufacturing process.

Keywords : Nanotechnology, nanoparticles, nanocrystals, mesoporous, nanoemulsions, vesicles

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OP-24 : Ligand Associated Drug Delivery System for Tumor Targeting

Ligand targeted therapeutics (LTTs) has been widely used for active targeting of drug substances. The vital problems related with conventional drug administration to systemic circulation are: uniform biodistribution of pharmaceuticals in whole body; the absence of drug selectivity against a pathological site; the need for substantial drug dose for attaining higher concentration at local site; imprecise toxicity and other adverse reactions owing to higher dose of drug. Targeting of drug may rectify numerous problems. An absolute targeted delivery approach enhances the drugs therapeutic efficacy and reduces drug toxicity to permit lesser dose of the drug meant to be utilized in the therapy. Ligand targeted therapeutics (LTTs) is a favourable mode for enhancing the selective toxicity of anticancer therapeutics and numerous of them are currently in clinical trials. Ligand can bind specifically to the cell surface proteins with greater affinity to target drugs or drug-carriers to the tumor site. Numerous ligands and antibodies utilized to target ligand targeted therapeutics and some commonly used ligands are RGD, NGR, folic acid, transferin, galactosamine and hyaluronic acid. These ligands offer potential to reverse forms of both intrinsic and acquired drug resistance in solid tumors.

Key words : Targeted drug delivery, Ligand targeted therapeutics, Ligand, Antibody.

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OP-25 : New Approaches in Topical Disease Management Through siRNA Delivery

Topical diseases are common in India. Various skin diseases can be caused by viruses, bacteria, fungi, or parasites. The most common bacterial skin causative agents are Staphylococcus aureus. Cellulitis, Impetigo and boils are various types of bacterial infections. Herpes simplex, Shingles and Warts are the very common found viral diseases. The topical treatments which repeatedly includes several topical antibiotic preparations like bacitracin, triple antibiotic ointment, mupirocin cream Gentamycin and clindamycin found equally efficacious.Coal tar is used to treat conditions including seborrheic dermatitis. Corticosteroids are prefer for the treatment of skin conditions including eczema. RNA interference is made suitably via Gene silencing process which demand small double stranded RNA molecules. dsRNA molecule include the base pair between 21 and 25 nucleotides named as small interfering RNA. This technology is popularly known as siRNA. In length they are same to the miRNA; siRNA is a class of double strand RNA molecule. It is also known sometime as the dsRNA. As Each siRNA is highly specific for the target nucleotide sequence it degrades. As any gene can be targeted via using RISC or siRNA to degrades the protein making gene which are responsible for the central dogma of life this possible by inducing the complimentary base pair..

Keywords : siRNA, RNA interference, topical treatment, novel approach

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OP-26 : Recent Advances in Nanotechnology to Enhance Bioavailability of Eluxadoline and Target Delivery Adjuvant in Treatment of Irritable Bowel Syndrome

Oral administration is the most appropriate route amongst various routes of drug delivery as its proposal's high patient compliance. Conversely, the poor aqueous solubility and poor enzymatic/ metabolic stability of drugs are major restrictions in successful oral drug delivery. There are numerous approaches to improve difficulties related to hydrophobic drugs. Eluxadoline is used for predominant irritable bowel syndrome with diarrhea (IBS-D) as result of it reduces enteric ability normalizes stress-induced acceleration of higher GI transit. Currently this drug is administered orally as tablets. Eluxadoline is low soluble and poorly permeable across the gastric mucosa, the drug displays oral bioavailability (bioavailability-1.02%) problems in conventional dosage forms. Nanoparticulate delivery systems are available in many areas of medication. The application of these systems in the treatment of irritable bowel syndrome continues to broaden. The confront for drug carrier systems that are used for the treatment of irritable bowel syndrome and delivery of the active ingredient to the site of inflammation. A site intended for target should direct to higher local drug concentrations, less systemic absorption, and therewith to less adverse effects. Because nanoparticulate drug carrier systems have the capacity to accumulate in the swollen regions, they propose a new targeting approach in disease irritable bowel syndrome. Drug delivery to the target site of action is one of the main challenges for successful treatment and subsiding the adverse effects of the drugs. Nanoparticulate system provides benefits in term of bioavailability, solubility, selective targeting and control release of drug formulations. The current evaluation attentions on numerous nanoparticulate systems remaining in oral drug administration for improving dissolution, solubility profile, and bioavailability of water insoluble drugs.

Keywords : Nanoparticles, Irritable bowel syndrome, Bioavailability, hydrophobic drugs, Drug delivery.

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OP-27 : Aldose Reductase Inhibitory Potential of Seed Extracts of *Hibiscus esculentus Linn*.

Antidiabetic potential of extracts of Hibiscus esculentus Linn.is evaluated by in-vitro aldose reductase inhibitory activity using purified goat lens in which decrease in NADPH concentration was estimated at 340nm using UV Visible spectrophotometer. The seeds of Hibiscus Esculentus Linn. were subjected to successive Soxhlet extraction and specific saponin extraction. The aqueous and methanolic extracts were found to inhibit Aldose Reductase (AR) activity, but at different extent. From dose response curve it was found that methanolic extract (ME) is more effective AR inhibitor then aqueous extract (AE). The IC_{50} values of ME and AE is observed 66.68 ± 2.82 µg/ml and 146.7± 0.84 µg/ml respectively.

Keywords : Hibiscusesculentus Linn., Aldose reductase, Soxhlation

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OP-28 : Formulation and Development of Matrix Diffusion Control Transdermal Patches for Antiepileptic Drug

Transdermal drug delivery system (TDDS) was designed to sustain the release and improve the bioavailability of drug and patient compliance. Among the various types of transdermal patches, matrix dispersion type systems disperse the drug in the solvent along with the polymers and solvent is allowed to evaporate forming a homogeneous drug-polymer matrix.

The objective of the present study was to design and formulate TDDS of topiramate (TPM) and to evaluate their extended release in vitro and ex vivo.

In the present study, an attempt has been made to develop a matrix-type transdermal therapeutic system comprising TPM with different ratios of hydrophilic and hydrophobic polymeric combinations using solvent casting technique.

The physicochemical compatibility of the drug and the polymers was studied by Fourier transform infrared spectroscopy. The results obtained showed no physical-chemical incompatibility between the drug and the polymers. The patches were further subjected to various physical evaluations along with the ex vivo permeation studies using pig ear skin.

On the basis of results obtained from the physical evaluation and ex vivo studies the patches containing the polymers, that is, Eudragit L 100 and PVP, with oleic acid as the penetration enhancer were considered as the best formulations for the transdermal delivery of TPM.

Keywords : Eudragit L 100, matrix dispersion system, oleic acid, penetration enhancers, permeation studies, polyvinylpyrrolidone.

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OP-29 : A review on Nanotechnology Tool for the Development of Nanomedicine

Nanotechnology is the science which used materials at nanoscale. It's new but fleetly developing science where materials in the nanoscale range are employed to serve as means of diagnostic tools or to deliver therapeutic agents to specific targeted spots in a controlled manner. Nanotechnology in pharmaceutical field have numerous advantages like enhanced solubility, increased dissolution rate, enhanced stability, reduction in dose, increase in bioavailability and rapid onset of action. And also offers multiple benefits in treating chronic human conditions by site-specific, and target-acquainted delivery of precise drugs. Recently, there are a number of outstanding usages of the nanomedicine (chemotherapeutic agents, biological agents, immunotherapeutic agents etc.) in the treatment of various diseases. This review paper presents, presents an updated summary of recent advances in the field of nanomedicines and nano-based drug delivery systems, approaches of medication, advantages and usage of nanomaterials in upgrading both the efficacy of new and old medicines.

Keywords : Nanotechnology, Nanoparticles, Liposomes, drug delivery system

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OP-30 : Estimation of Active Components in Gokshura tablet & Pushyanug Churna Formulation Using HPTLC Method

Gokshura Tablet is an ayurvedic formulation with Gokhru (Tribulus terrestris)as best fixing recommended for builds vitality level, it enhances life, sexual want and drive.

Pushyanug Churna is an ayurvedic Poly herbal formulation, accordingly it is essential to convey out the substance institutionalization of bioactive marker mixes exhibit in the Polyherbal ayurvedic formulation like Pushyanug Churna. The point of the exhibit work was to create what's more, approve a HPTLC strategy for assurance of Diosgenin present in Gokshura tablet. Mangiferin & Chlorogenic acid Present in PushyanugChurna.

A new Simple and precise HPTLC methods were developed for standardization of biomarker compound Diosgenin in Gokshura tablet and Mangiferin, Chlorogenic acid Present in Pushyanug Churna. The method was developed using Precoated silica gel 60, F 254 as stationary phase and Toluene :Ethyal acetate : Formic acid (5:4:1) as mobile phase for Diosgenin, Ethyl acetate : Methanol (40:60 v/v) used as mobile phase in Mangiferin& Ethyl acetate : Formic acid : Acetic acid : Water (10:1.1:1.1:2.6 v/v) used as mobile phase in Chlorogenic acid. The Rf value of markers compound was found to be 0.77 (Diosgenin) in Gokhsura tablet and 0.23 Mangiferin, 0.75 Chlorogenic acid in PushyanugChurna. The developed HPTLC methods for bioactive markers compound present in-house and marketed formulations were found to be simple, accurate, precise and robust.

Keywords : Gokshura Tablet, Pushyanug Churna, Polyherbal, Bioactive marker.

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OP-31 : Development, Characterization and Invitro Evaluation of Gamma Oryzanol Loaded Self-Nano Emulsifying Drug Delivery Systems

The Gamma Oryzanol (GOZ), the concept of biopharmaceutical classification systems (BCS), methods for enhancement of solubility and bioavailability, gamma oryzanol has been used for number of applications especially due strong antioxidant activity and lipid lowering properties. As gamma oryzanol have many curative effects it can beneficial for Pharmaceutical industry. But application of gamma oryzanol in medical and functional food systems may be limited due low water solubility, poor bioavailability and rapid metabolism of gamma oryzanol. ?-Oryzanol is insoluble in water and various ways of solubilizing the compound for cosmetic, pharmaceutical, and food applications have been described.

Based on the preliminary screening of different unloaded SNEDDS formulation, eight formulation of GOZ stacked SNEEDS were arranged utilizing Capryol 90, Labrasol and Transcutol HP as oil, surfactant and cosurfactant, separately. Among the different surfactants screened, Labrasol showed the best solubilizing potential for GOZ (239.12±6.28 mg/mL). On 100 fold dilution, the percentage transmittance of GOZ SNEDDS formulation was found to be between 97.54% ± 0.29% and 99.57% ± 0.74%. From droplet size analysis it was seen that GOZ loaded SNEDDS formulation had the mean particle size in the range of 14.91±0.12 to 22.97±0.44 nm indicating their efficiency as SNEDDS.

Visual perception showed that there was no stage partition or any flocculation in all formulation and the actual appearance of all plan within the underlying one hour of the in vitro discharge study, just 12.23% ± 0.45% and 42.33% ± 2.78 % of GOZ was dissolved from pure drug and marketed tablets respectively.

Key words : Gamma Oryzanol, Solubility, Bioavailability, SNEDDS.

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OP-32 : Clinical Approval of Nanotechnology-Based SARS-Cov-2 mRNA Vaccines

One year after the first human case of SARS-CoV-2, two nanomedicine-based mRNA vaccines have been fast-tracked, developed, and have received emergency use authorization throughout the globe with more vaccine approvals on the heels of these first two. Several SARS-CoV-2 vaccine compositions use nanotechnology-enabled formulations. A silver lining of the COVID-19 pandemic is that the fast-tracked vaccine development for SARS-CoV-2 has advanced the clinical translation pathway for nanomedicine drug delivery systems. The laboratory science of lipid-based nanoparticles was ready and rose to the clinical challenge of rapid vaccine development. The successful development and fast tracking of SARS-CoV-2 nanomedicine vaccines has exciting implications for the future of nanotechnology-enabled drug and gene delivery; it demonstrates that nanomedicine is necessary and critical to the successful delivery of advanced molecular therapeutics such as nucleic acids, it is establishing the precedent of safety and the population effect of phase four clinical trials, and it is laying the foundation for the clinical translation of more complex, non-lipid nanomedicines. The development, fast-tracking, and approval of SARS-CoV-2 nanotechnology-based vaccines has transformed the seemingly daunting challenges for clinically translating nanomedicines into measurable hurdles that can be overcome. Due to the tremendous scientific achievements that have occurred in response to the COVID-19 pandemic, years, perhaps even decades, have been streamlined for certain translational nanomedicines.

Keywords : Nanomedicine, Clinical translation, SARS-CoV-2 vaccines · Drug delivery systems COVID-19, Nanotechnology

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OP-33 : Psoriasis - A Critical Review

Psoriasis is a chronic papulosquamous skin condition that affects people of all ages and causes a significant burden on individuals and society. It's linked to a number of serious illnesses, including depression, psoriatic arthritis, and cardiometabolic syndrome. Psoriasis vulgaris, the most prevalent form, is caused by a combination of genetic predisposition (especially in the presence of the HLA-C*06:02 risk allele) and environmental triggers include streptococcal infection, stress, smoking, obesity, and alcohol intake. There are numerous phenotypes, with pustular and chronic plaque forms being distinguished by research. IL-17 and IL-23 have been identified as important drivers of psoriasis development in immunological and genetic research. Biological treatments that target these cytokines and TNF on the immune system have transformed the treatment of severe chronic plaque disease. Although psoriasis cannot be eradicated, it can be managed to reduce victimizations by treating patients early in the disease process, recognizing and preventing related multimorbidity, establishing lifestyle changes, and using a personalized therapy approach.

Keywords : Psoriasis Vulgaris, immune targeting, plague, cardiometabolic syndrome, multimorbidity

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OP-34 : Nanoparticles in Nanomedicines : An Updated Overview of Current States, Challenges, and New Opportunities

Rapid advances in nanomedicine and nanoparticle (NP) materials provide unique solutions that are set to revolutionize the healthcare sector with enormous potentials including improved efficiency, bioavailability, and bioavailability. use, drug targeting, and safety. This review provides a comprehensive update on widely used organic and inorganic NPs, focusing on recent developments, challenges, and future prospects for biological applications, in accordingly, further study of innovative synthesis methods, properties and applications of NPs may reveal new and improved relevance in biomedicine. NPs exhibit exceptional physical and chemical properties due to their high surface-to-volume ratio and nanoscale size, which have led to breakthroughs in treatment techniques, diagnostics and repeatable flow screening. Finally, an update of FDA approved NPs is explored where innovative design engineering has enabled paradigm shifts in their market share. This review will serve as a source of insight and comprehensive information for learners who are looking for an advanced assessment but have been surprised by the size of the publications.

Keywords : Nanomedicine, Nanoparticles, Drug delivery systems, Biomedical applications, Drug targeting

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OP-35 : Micelles-in-Liposomes- Advances in Sustainable Drug Delivery

Polymeric micelles are nanoscale core-shell structures that emerge when an amphiphilic copolymer self-assembles in an aqueous media. Because of their ability to store water-insoluble medicines inside the hydrophobic core of micelles, polymeric micelles have been studied as a promising drug delivery vehicle. Drug solubility is increased using a variety of polymeric micelle systems.

Amphiphilic copolymers, a type of micelle-forming chemical, are gaining popularity. Polymeric micelles have high in vitro and in vivo stability, as well as strong biocompatibility, and can solubilize a wide range of poorly soluble medicines. Many of these drug-loaded micelles are currently undergoing preclinical and clinical trials at various levels. Lipid-core micelles, or micelles generated by conjugates of soluble copolymers with lipids (such as polyethylene glycol-phosphatidyl ethanolamine conjugate, PEG-PE), comprise a distinct group within polymeric micelles. All of these micelles can be employed as drug delivery systems with specific targets.

In areas with compromised vasculature, polymeric micelles containing stimuli-responsive polymers or specialized targeting ligand molecules shows enhanced permeability and retention. Micelles have been reported to dissociate and release encapsulated drugs prematurely after being diluted in a cell culture medium or injected into the bloodstream.

Keywords : Polymeric micelles, amphiphilic copolymers, nanoscale

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OP-36 : 3d Printing : A Promising Revolutionary Technology in Pharmaceutical Drug Development and Health Care

The three-dimensional (3D) printing technique is an emerging paradigm shift in the field of drug manufacturing. It also proved to be a promising technology with respect to the pharmaceutical, clinical medicine, and regulatory sciences. It is a modern additive manufacturing technology in which digital information is used to produce a physical model. Unlike other subtractive and formative manufacturing processes which involves removing sections of a material by machining or by cutting it away, in 3D printing technology objects are prepared from 3D model data in the process of joining materials layer by layer. In drug therapy the 3D printing has abundant opportunity of rapid preparation of multifunctional customized drug delivery systems with improved drug release features, flexible and personalized dosage forms, implants matching to specific patient anatomical needs as well as cell based materials for regenerative drug therapy and prosthesis. The 3D printing methods has gained vast importance in the field of pharmaceutical and medical applications. It is an interdisciplinary approach with the aim of exploring to newer drug-delivery systems. 3D printing could also become a part of the drug production line in the pharmaceutical industry which tends to move towards personalised medicine along with mass manufacture. Presently 3D printing technology is broadly investigated in the field of drug delivery after the approval of first 3D printed tablet containing an antiepileptic drug, levetiracetam under the trade name of Spritam® by Aprecia Pharmaceuticals in 2015. The present review recapitulates the novel applications of 3D printing technology in the field of pharmaceutical drug development and health care. It also reviews the working principle of various techniques of 3D printing along with their advantages and disadvantages.

Keywords : 3Dprinting, Drug, Pharmaceutical, Printers, Personalised medicines.

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OP-37 : Formulation and evaluation of Griseofulvin Loaded Nanosponges

Nanosponge drug delivery system comprises of tiny particles with a nano-sized cavity.The main objective of proposed research work wasto prepare nanosponge hydrogel preparation of a BCS class II, which will help in the topical delivery of drug by increasing its water solubility.

The objective of this research work was to formulate antifungal nanosponges by emulsion-solvent method for sustained release of drug that reduces frequency of dosing and improve patient compliance.

The nanosponges were prepared by using ethylcellulose, polyvinylalcohol, and dichloromethane. Different formulations of nanosponges (NS1, NS2, NS3, and NS4) were produced by reacting ethylcellulose and polyvinylalcohol at different ratios. NS4 formulation provided desired particle size and yield and hence selected for drug loading. The morphology of drug loaded nanosponges was evaluated by using scanning electron microscopy. The entrapment efficiency was determined using UV-spectroscopy.

Electron microscopy revealed spherical shapes of nanosponges along with spongy nature, which were in the range of 200- 400nm. UV-analysis revealed drug entrapment efficiency in between 81.4 % to 88.1 %.

The present study showed nanosponges provide a viable alternative for the topical delivery of Grieseofulvin.

Keywords : Griseofulvin, Nanosponges, Drug entrapment

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OP-38 : Antimicrobial Resistance : Magic Bullets Turning Rusty

Antibiotic treatment is one of the main approaches of modern medicine which is used to combat infections. They have helped to extend expected life spans by changing the outcome of bacterial infections. Antimicrobial resistance could lead to a post-antibiotic era in which antibiotics would no longer work. This would mean that common infections and minor injuries that became straightforward to treat in the 20th century could again become deadly. Resistome is a dynamic and mounting problem as microorganisms are undergoing Darwinian selection to develop some stringent mechanisms to escape the lethal effects of antimicrobial substances. The plausible causes of "the global resistome" or AMR include excessive use of antibiotics in animals (food, pets, aquatic) and humans, antibiotics sold over-the-counter, increased international travel, poor sanitation/hygiene, and release of nonmetabolized antibiotics or their residues into the environment through manure/ feces. Although overuse of antibiotics is the principal cause of resistance evolution, as it was also warned by Sir Alexander Fleming that "public will demand [the drug and] then will begin an era of abuses". In the past two decades, acquired MDR infections have increased due to the production of β-lactamases (eg. extended spectrum β-lactamases [ESBLs] enzymes, carbapenemases, and metallo-β-lactamases), leading to third generation cephalosporin and carbapenem resistance. This crisis is global, reflecting the worldwide overuse of these drugs and the lack of development of new antibiotic agents by pharmaceutical companies to address the challenge. Numerous important organizations, like the Centers for Disease Control and Prevention (CDC), Infectious Diseases Society of America, World Economic Forum, and the World Health Organization (WHO) have declared antibiotic resistance to be a "global public health concern". Coordinated efforts to implement new policies, renew research efforts, and pursue steps to manage the crisis are greatly needed.

Keywords : Anti-microbial resistance, resistome, antibiotic treatment.

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OP-39 : Formulation, Optimization, and Invitro Evaluation of Super Porous Microspheres Loaded with the Antidiabetic Drug

In this, ethylcellulose and suitable porogen-based super porous microspheres were prepared with chloroform and polyvinyl alcohol by solvent diffusion technique. Vildagliptin was chosen as a drug and used at different drug/polymer/porogen ratios in super porous microspheres preparation. The aim of the work was to evaluate and fabricated the super porous microspheres, which improved the absorption of drugs and increase the release kinetics. The resulting microspheres were evaluated for percentage yield, percentage entrapment efficiency, particle size and size distribution, surface morphology, drug release rates, and release mechanism. Results indicated that physicochemical properties of microspheresare strongly affected by the presence of drug/polymer/porogen ratios and changing their concentrations of them. And also influences that the presence of porogen enhanced the absorptionbehavior and release kinetics and release mechanisms.

Keywords : Vildaglitpin, Ethylcellulose, Porogens, Polyvinyl Alcohol, Chloroform, Super Porous Microspheres.

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OP-40 : Antiulcer Effect of *Ziziphus Mauritiana* Leaf Extract

The methanolic extract of Ziziphus mauritiana leaves was evaluated for its antiulcer activity using two models. Models are ethanol induced gastric ulcers model and aspirin induced gastric ulcer model in mice. It was found that the methanolic extract of leaves have significant antiulcer activity in dose dependent manner where 3 different oral doses prepared (100 mg/kg of body weight, 200 mg/kg of body weight and 400 mg/kg of body weight). Evaluation was done on both models comparing with reference standard Omeprazole (20 mg/Kg/ p. o.). The compounds like alkaloids, carbohydrates, saponins, phytosterols, flavanoids and tannins were detected by usual chemical test in methanolic extract. The above result shows that Ziziphus mauritiana leaves probably contains some active ingredients that could be developed for above mentioned abnormal condition as have been claimed by traditional system of medicine.

Key Words : Ziziphus mauritiana, gastric ulcer, ethanol, aspirin

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OP-41 : Role of Eicitor for Enhancement of Flavanoids in Indian Medicinal Plant

Elicitation method is significant method of the cell suspension culture for the enhancing the production of secondary metabolites production in medicinal active plants under the controlled and aseptic conditions. This review mainly deals with the enhancement of the production of flavonoids in the different parts of medicinal plants by potent effects of the different elicitors (biotic and abiotic) and its derivative which act as elicitors. Medicinal plants are factory of medicinal active phyto-constituents which helps in the production of potent medicines. Flavonoids are the polyphenolic compounds which shows anti-viral activity, anti-oxidant activity, hepato-protective activity, anti-inflammatory, free radical scavenging activity and treats coronary heart disease. Flavonoids production mainly depends upon the concentration, types and the time of the exposure of the elicitors. The present review focused on flavonoids production in different medicinal plants like Artemisia absinthium,Ajuga bracteosa,Bacopa monnieri, Catharanthus roseus, Gymnemicsylvestre,Hypericum perforatum,Panax ginseng,Podophyllum hexandrum, Salvia miltiorrhiza,Plumbago indica,Saturejakhuzistanica,Silybum marianum,Thevetia peruviana, Taxus bacata, Withaniasomnifera, lavandula angustifolia, fagopyrum escuentrum, Tanacetum parthenium etc by using different elicitors (biotic and abiotic) and its derivative elicitors .

Keywords : Salicylic acid, Abiotic elicitors, Flavonoids, Elicitors, Cell suspension culture.

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OP-42 : Virtual Screening of Small Database as Anti-Tubercular Agents

Tuberculosis (T.B.) is an air-borne contagious disease caused by Mycobacterium Tuberculosis (Mtb) and is one of the major causes of ill health, making it one top 10 causes of death worldwide. Decaprenylphosphoryl-β-D-arabinose (DPA) an essential component in biosynthesis of arabinogalactan and lipoarabinomannan which constitute the cell wall of Mtb. Decaprenylphosphoryl-β-D-ribose-2'-epimerase oxidase (DprE1) and decaprenylphosphoryl-β-D-ribose-2'-epimerase (DprE2) are the two enzymes involved in biosynthesis of DPA. The epimerization of DPR to DPA is catalyzed by the oxidoreductase DprE1 and then by the reductase DprE2.Formation of DPA (a sole donor) for Mtb cell wall biosynthesis As there is no known alter-native pathway for the synthesis of DPA, thereby making DprE1 a promising drug target. To date, 31 DprE1 structures are available in Protein Data Bank. Among 31 structures, the three best PDBs i.e. 4FDO, 4KW5, and 4P8L were selected for further scrutiny. For about 5000 compounds were virtually screened against DprE1 using molecular docking program of AutoDock Vina. Compounds were extracted from MolMall Database and virtual screening was performed. All the screened compounds were visualized using Pymol. Using Virtual screening approach to target DprE1, identified certain compounds displaying activity against the Mtb.Compounds were excellent lead candidates for the future development of anti-TB compounds targeting DprE1.

Keywords : Tuberculosis, DprE1, DprE2, Virtual screening

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OP-43-Formulation and Evaluation of Trolamine Salicylate Microemulsion

The aim of this study was to formulate and perform optimization, characterization, in-vitro evaluation and stability studies of microemulsion containing Trolamine Salicylate (TMS) an anti inflammatory agent for topical application.

Trolamine salicylate (TMS) is a salt formed between triethanolamine and salicylic acid. TMS is an inhibitor of cyclo-oxygenase (COX) enzymes and serves as an active ingredient in topical over-the-counter products for temporary management of mild to moderate muscular and joint pains. Microemulsion formulations of TMS were prepared from optimized microemulsion and effects of formulation variables such as solubility in different oils, surfactants and co-surfactants were assessed. Oleic acid was selected as oil phase, tween-80 and ethanol as surfactant and cosurfactant respectively.

The microemulsion formulation A6 was found to be optically clear, transparent and elegant in appearance when compared to the other microemulsion formulations with pH values of 5.3 to 6.5 showing suitability for topical preparations. The TEM image of A6 showed that globules were spherical in shape, smooth surface and indicated the existence of an isotropic dispersion of spherical droplets, leading to the assumption of inverse micelles because of the proportion of the constituents. The cumulative % drug release for A6 microemulsion through the egg membrane comes out to be 97.24 ± 2.2% in 8 hr. Drug degradation was found to be in the range 98.17±4.1% at higher temperature after three months and A6 showed the smallest changes in this parameter.

Micro emulsion has low interfacial tension and allows excellent contact with skin surface, with the vehicle filling even wrinkles and microscopic gaps. This enhances the vehicle skin drug transfer. They have been used to improve the bioavailability of various poorly soluble drugs including Non-steroidal anti-inflammatory drugs (NSAIDs).

Key words : Microemulsion, Trolamine Salicylate, Isotropic Dispersion, Oleic acid

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OP-44 : Advances in Ocular Drug Delivery System : An Updated Review

Now a day's if we compare different routes of drug delivery, ocular drug delivery is one of the most intriguing and difficult endeavours confronting the pharmaceutical scientist.Recent study has aimed to compile the unique benefits and drawbacks of various drug delivery methods, and more research will be required before the establishment of an optimum system for delivering drug. In ocular region when medicament is administered via traditional delivery techniques, the dosage form has limited time of contact with the epithelium and hence they are eliminated very quickly.Ultimately reduced residence period leads to the lower bioavailability of the drug. which is depicted through the formation of tears, non-productive absorption along with impermeability to epithelial corneal layer. The present review aims to provide information regarding the recent advances in ocular delivery including chemical delivery systems such as prodrugs, different technologies used in solubility enhancement of different drugs with special emphasis on other widely used ocular drug delivery systems such as in-situ gels, polymeric gels, bioadhesive hydrogels etc. which will help the pharmaceutical scientist working in this field. Recent research on ophthalmic have shown the enhanced use of excipients that are capable of modifying the viscosity along with thebioadhesion.Novel formulations with such excipients formulated as gels and colloidal systems have undergone in-vitro and in-vivo studies, which shows the sustained release pattern of drug along with enhanced bioavailability. Hence, such formulations are the most promising strategy for the development of dosage form for ocular administration.

Keywords : ophthalmic delivery, in-situ gels, colloidal system, cyclodextrin, bioadhesive.

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OP-45 : Current trends, Development and Applications of Analytical and Bioanalytical Techniques - A review

Drug development plays a key role in curing the diseases and improving human health. The pharmaceutical product need to maintain the quality, free from various possible degradants, possible contaminants and to be administered in a proper amount to provide the therapeutic effect. These drugs may develop impurities at various levels from its development to storage, which creates a risk for its administration. The need of an hour is to evolve a systematic approach and to develop well-designed, hyphenated and advanced instrumental techniques for the purpose of drug estimations. The advancement of analytical and bioanalytical techniques with enough accuracy, selectivity, sensitivity, speed, robustness, resolution, use of solvents, cost factors etc is thus bringing a new era of development which will serve as a rapid and unambiguous tool for the estimation and quantitation of drugs. This advancement in technique is also applicable for environmental analysis, food analysis, plant analysis, insecticides, nutraceuticals and other bioactive compounds hereby setting up quality standards and specifications for seeking the regulatory authorities approval. The purpose of this review is to highlight a variety of recent and advanced extraction, analytical and bioanalytical techniques, their corresponding principles and applications that are used in the analysis of not only the synthetic drugs, but also for the quantitative and qualitative evaluation of herbal medicines and its formulations.

Keywords : Microwave-assisted extraction, Biosensors, Microarray, Nanotechnology, High-temperature liquid chromatography, Microextraction

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OP-46 : Formulation and Evaluation of Poly Herbal Fruit Face Mask Using Natural Ingredients

The main objective of the work is to formulate and evaluate poly herbal fruit face mask for cosmetic purposes. Mulberry, Orange peel, Amla, Tomato, Strawberry and Papaya were purchased from the local market and dried, powdered, sieved through sieve no 40, mixed geometrically and packed in an airtight container for further use. The powders were evaluated and a polyherbal fruit face mask was formulated. The powder had passable flow property which is suitable for a face mask. The particle size range of the powder was found to be 25-30?m. An antimicrobial evaluation was performed with three organisms Staphylococcus aureus, Staphylococcus epidermidis and Propionibacterium acnes. Polyherbal faces masks are used to stimulate blood circulation rejuvenate the muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. The advantage of polyherbal cosmetics is that they are non-toxic in nature and reduce allergic reactions. Thus the investigation concluded that the face mask has good properties for human skin.

Keywords : Polyherbal face mask; Propionibacterium; Amla; Tomato

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OP-47 : Preparation and Evaluation of Eladiquatha for Kidney Disorders for Special Reference to Urolithiasis

The study of ancient surgical text Sushrutasamhita, it becomes evident that the urological problems form an important part of medical sciences. Among all the urinary problems described in Ayurveda texts, there is one variety where both the medicinal and the surgical treatments are advised and agreed upon by all the Surgeons and this entity is the Renal Calculi. Further, according to modern science the formation of stone in urinary system is one of the main problems of urology. The cause and mechanism of their formation is still uncertain. On one hand, surprisingly stone does not always form when such factors are present and on the other hand, stones may develop when factors are apparently absent too. Furthermore renal calculus occurs in both the sexes at all the ages but commonly in the 3rd and 4th decades, stone in kidney or in ureter is probably little more frequent in men than women are. Renal calculi an agonizing complex disorder representing with severe colicky pain radiating to loin to groin, burning micturition, dysuria.The therapies aim at expulsion of the existing calculi, cannot breakdown the pathogenesis behind the formation of stone.The recurrence of calculi is becoming a great problem and constant efforts are made to evolve an effective modality in the prevention of recurrence of the disease. In Ayurveda, many formulations are mentioned in the management of Ashmari.The 'Eladi Quatha' used for the management of kidney stone hence the research is an attempt to establish the scientific evidence for the management of kidney stone. Hence, the clinical study will be undertaken to evaluate the efficacy of 'Eladi Quatha' in the management of Urolithiasis.

Key words : Renal calculi, Eladi quatha, Evidence, Clinical evaluation

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OP-48 : Drug Induced Liver Injury (DILI) : Use of Phytochemicals for its management there of

Drug-induced liver injury (DILI) is one of the major concerns for the regulatory authorities and medicinal practitioners nowadays. DILI is observed as a potent adverse drug reaction to be caused by the long term as well as short term treatment with a wide variety of the therapeutics prescribed for other disease and disorders. DILI accounts for <1% of cases of acute liver injury and most common cause for acute liver failure in the developed countries such as USA, Europe and in India as well. As per the reported literature in France and Iceland alone, the incidence of DILI occurs annually at a rate of about 1,00,000 cases. DILI is also reported to be one of the leading hurdles during the phase of drug development. It is also and one of the two most frequent causes for drug withdrawals, project terminations and also the reason for the withdrawal of 76 drug molecules from the market during the time of 1969 and 2002. The most common reported drugs causing DILI are acetaminophen, pazopanib, temozolomide and flupirtine on single and multiple doses. The cases of DILI can be reduced with the co-administration of herbal extracts of Nyctanthes arbortristis and the formulations. In the current paper a thorough review of the drugs causing DILI, regulatory guidelines and the co-administration of herbals extracts, and herbals formulations have been summarized and presented.

Key words : Drug induced liver injury, acetaminophen, regulatory authorities, herbal formulations, Nyctanthes arbortristis.

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PP-01 : Control of Various Renal Functions by Circadian Rhythm: Revisited

Endogenous rhythms that coordinate with the internal biological clock in a 24 hour time cycle powered by endogenous biological pacemakers are the subject of chronopharmacology. External synchronizers monitor and regulate circadian rhythms, which are genetically determined (the daylight cycle). Chronopharmacology investigates how biological rhythms affect pharmacokinetics, pharmacodynamics, and toxicity, as well as whether administering a drug at different times of the day affects its pharmacological properties. Renal plasma flow, glomerular filtration rate, and tubular reabsorption and/or secretion processes have all been found to peak in the active phase and fall in the inactive phase in the kidneys. The circadian clock, a self-sustaining biological process, is responsible for at least some of these functional cycles. In animal models, disrupting the circadian clock causes a loss of blood pressure control as well as significant alterations in the diurnal rhythm of water and electrolyte excretion in the urine. The intrinsic renal and extrarenal circadian clocks are both implicated in these illnesses by kidney-specific inhibition of the circadian clock in animals. Notably, Hypertension, chronic kidney disease, renal fibrosis, and kidney stones are all linked to changes in the circadian cycle of renal functioning. For example, animal studies have demonstrated that genes encoding proteins involved in xenobiotic metabolism as well as various sodium transport genes are regulated by the clock mechanism. Moreover in humans, a small study in healthy volunteers showed that protein levels of Na + -Cl ? cotransporter (NCC) in urinary exosomes varied over a 24-hour period, consistent with what has been shown using mouse models. Thus, renal circadian clocks may also interact with the pharmacokinetics and/or pharmacodynamics of many medications, making them a significant factor in the treatment of some renal illnesses and disorders.

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PP-02 : Quality by Design Based Development and Characterization of Patient Compliant Dosage Form For Pediatrics

Conventional pediatrics dosage forms are not very acceptable by the children. Due to various reasons such as larger size, bitter taste etc. pediatric patients reject the present conventional dosage form in many cases. So, there is need for development of patient compliant and effective dosage form for children. Fizzy tablet can become good alternative of current conventional dosage form. In this medicament are given in form of effervescence tablet with variety of flavor which increases the chance of acceptance of dosage form and have required therapeutic effect. In present study fizzy tablets are prepared by non-aqueous wet granulation followed by direct compression. Formulation by Design has been applied for formulation of effervescent tablets. critical process parameters, critical quality attributes & critical material attributes have been identified. Taguchi Design has been used for screening of various significant and response variables that affects the formulation of fizzy tablets. Central composite design has been employed for optimizing the various variables and 2D contour and 3D response plots were generated for the depicting the relationships between the independent variables and response variables. Developed polynomial mathematical models were found suitable to define the selected responses of the optimized formulation with 98.46% and 91.24% validity. Final optimized formulations were characterized for different characterization methods and result were found to be promising to consider it as a patient compliant novel dosage form.

Keywords : Fizzy tablet, Formulation by Design, Characterization

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PP-03 : Effect of Anandamide-A Putative Endocannabinoid in Experimental Models of Inflammatory and Neuropathic Pain

Pain is an uncomfortable sensation in the body. It stems from activation of nervous system. It is caused by extreme or damaging stimuli such as burning of finger, alcohol at a cut. Pain can be generally divided into nociceptive pain caused by tissue damage and other is neuropathic pain caused by nerve damage. Neuropathic pain feels like a stabbing, shooting, burning or prickling sensation. Endocannabinoid are class of compound which are clinically used in pain and various type of disorders. Recently reported that cannabinoid agonists play important role in pain by the activation of CB1receptors. In the present study we have used anandamide, which is reported to be an endocannabinoid to identify its therapeutic potential in the management of pain.

In, this research two models were used chronic constriction injury (CCI) induced neuropathic pain and carrageenan induced inflammatory pain. The animals divided in to five groups (n=6) in each model. In carrageenan induced inflammatory model, Group I treated as carrageenan control, Group II, III, IV received anandamide in different doses, Group V received anandamide and indomethacin. In chronic constriction injury (CCI) induced neuropathic model, Group I treated as CCI control, Group II, III, IV received anandamide in different doses (25, 50, 100 mg/kg i.p) Group V received anandamide and pregabalin (30 mg/kg oral). After, that behavioral parameters assessed by the help of mechanical hyperalgesia, thermal hyperalgesia and paw edema in both of the models. The present study demonstrates the analgesic effect of anandamide in neuropathic and inflammatory pain models. Anandamide reversed the hyperalgesic effect of pain induced by CCI and carrageenan.

Anandamide attenuates the development of experimental neuropathic and inflammatory pain. The beneficial effect of anandamide may be due to CB1 receptor and potentiation of ATP sensitive potassium channels.

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PP-04 : Exploring Anticancer Potential of Steroidal Alkaloid Camptothecin Isolated From *Nothapodytes nimmonianain* the treatment of Cancer

Cancer is life threatening disease which is major threat to global health which continues to affect many lives predominantly in developing nations. Present research work has been oriented towards determination of anticancer potential of camptothecin (CPT) steroidal alkaloid for the treatment of lung and prostate cancer in the form of herbal medicine. Chemical fingerprinting of isolated camptothecin was performed by different analytical techniques. Anticancer potential was tested on prostate and lung cancer cells lines. FTIR spectra of camptothecin shows peaks related to specific structural which are nearly equal to standard structure of camptothecin. NMR spectra of camptothecin shows specific peaks in the region of delta 8.686 -5.279, the signals of H-7 related to structural features similar to camptothecin. LCMS spectra of camptothecin shows mean retention time at 3.620 and covered 100 % area also mass spectra gives at 349.2.Camptothecin effectively used as competent alternative to systemic chemotherapy for the treatment of lung and prostate cancer having IC50 value 3.561 μg/ml and 5.253 μg/ml respectively which successfully induce apoptosis in A549 Lung and prostate Cancer cell lines cell lines 58.38 ± 3.46 % and 66.47 ± 4.58 as compared to control 3.36 ± 1.45 and 1.36 ± 0.52 respectively which was proved by DAPI and Flow cytometry. Chemical fingerprinting and structural elucidation conforms that isolated moiety was steroidal alkaloid camptothecin and anticancer it has potential in treatment of lung and prostate carcinoma as competent alternative to chemotherapy in the form of herbal medicine.

Keywords : Camptothecin, NMR Spectroscopy, lung cancer, Prostate Cancer, Apoptosis, Herbal Medicine etc.

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PP-05 : Pharmacological Evaluation of Anthocephaluscadambabark Extract For Hypolipidemic And Anthelmintic Activities

Introduction : Anthocephalus cadamba bank (Rubiaceae) has been reported to have a various pharmacological effects including hypoglycemic, vasorelaxant, analgesic, antidiabetic, antidiarrhoeal, diuretic & laxative, hepatotoxicity, antioxidant, anti-inflammatory, anti-bacterial, hypolipidemic and anthelmintic activity. The present study explores the effect of petroleum ether and ethyl acetate extract of Anthocephaluscadambabark in hypolipidemic and anthelmintic activity.

Materials & Method : In, this research two models were used hypolipidemic and anthelmintic. The animals divided in to seven groups (n=6) in each model. In induction of hyperlipidemia Group, I treated as normal control, Group II hyperlipidemic control, Group III, IV, V, VI received hyperlipidemic and bark extracts (50, 100 mg/kg, oral). Group VII received hypolipidemic and standard drug (fenofibrate 65 mg/kg, oral) and for anthelmintic activity the standard drug piperazine hydrate (10 mg/ml). After, that biochemical parameters assessed.

Results : The present study demonstrated that effect of fenofibrate and bark extracts in hyperlipidemic model was found to be more significant. On, other hand the piperazine hydrate and bark extracts have also potent action against helminths.

Conclusion : The result obtained that standard drug showed significant role in hyperlipidemic activity as well as anthelmintic activity. The plant extracts also showed more significant activity at the dose of 100 mg/kg in hypolipidemic activity and at 50 mg/kg bark extract was found to be most active against the helminths.

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PP-06-Nanocosmetics : Future of Cosmetics & Cosmeceuticals Preparartions

Nanotechnology is an innovative area of science that includes the design, characterization, production, and application of materials, devices and systems by controlling shape and size at the nanometer scale (1-100 nm). Now, Cosmetics are those preparations which are used to enhance or modify the natural appearance of the human skin and Cosmeceuticals are that sub-class of cosmetics which also contain similar properties like cosmetics but with medicinal or therapeutic effects which can be used to treat specific skin diseases or disorders caused by internal or external factors. After witnessing the successful applications of nanotechnology in various fields like medical science, automobile or in defence mechanisms, Researchers and experimentalists tried to overcome those drawbacks, which are experienced by customers in their day-to-day life after applying those cosmetics or cosmeceutical preparations. Nanocarriers or Nanomaterials such as liposomes nanoemulsions, nanocapsules, nanocrystals, dendrimers, etc. have been used in sunscreens, moisturizers, perfumes, and anti-aging and hair products. These carriers increase formulation efficacy and promote controlled release of active ingredients. To date, nanotechnology has been demonstrated to improve the performance of cosmetics in a number of different ways: increasing both the entrapment efficiency and dermal penetration of the active ingredient, controlling drug release, enhancing physical stability, improving moisturizing power, and providing better UV protection. Thus, after seeing various advantages of Nanocosmetics over conventional cosmeceutical preparations, we assume that Nanotechnology can definitely be a great idea to be applied in the field of cosmetics.

Keywords : Nanotechnology, Nanocosmetics, Dermal Preparations, Nanoparticles

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PP-07 : Quality By Design - Modern Approach to Achieve Quality Targets

Quality by Design is utilized by the pharmaceutical industryin order to achieve the quality product. This approach focuses on designing and developing products and processes to ensure the predefined quality. It is a science- based approach that reduces the product variation and enabling process control strategies which results in improving process reliability and understanding. It is considered as the sensible approach in minimizing the batch failures, deviations and expensive investigations. QbD elements include Quality Target Product Profile (QTPP), Critical Quality Attributes (CQAs), Critical Material Attributes (CMAs), Critical Process Parameters (CPPs), a control strategy that includes specifications for the drug substance(s), excipient(s), and process capability and continual improvement. Thus, the QbD is a modern approach for developing an effective and quality pharmaceutical product.

Keywords : Quality, Modern approach, continual improvement QbD elements

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PP-08 : Liposomes : As An Advanced Drug Delivery System

The bilayered vesicles with having one or more phospholipid bubbles for upgrading delivery of a maximum number of drug .Drug category which is based on liposome carrier are antimicrobial agents,drugs against cancer ,peptides hormons ,antifungal drugs, enzymes, vaccines, and genetics materials. After the discovery in the 1960s liposomes were accept as model to analysis as biological membrane and as adaptable DDS of both nonpolar and lipophilic molecules. Forthcoming Drug Delivery System will focusing on protein, peptides and DNA therapeutics and upcoming generation analogs and derivatives. Through the midst of several skilful new drug delivery systems,liposomes specify an advanced technology to convey active molecules to the area of activity and bring down to troublesome complication correcting its invitro and invivo activity, also bring down the toxicity of the drug and magnify the efficacy of the encapsulated drug. As a result of their adaptable and wide body of familiar features liposomes based preparations will pick up to hold or leading role between the large choice of showing DDS. These review will detailed describe the characeteristics, merits

Demerits, types, preparations and their application.

Keywords : liposomes, Advanced drug delivary systems, Bilayered vesicles.

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PP-09 : Formulation Design and Characterization of Silver Sulfadiazine Loaded Nano Gel In The Treatment Of Burn Infection

Background : In permeation of drug, size of drug plays a very important role as size of dug as much as smaller, it become very easy to permeate so that researchers attract towards making size in nano range. Silver sulfadiazine on of the drug which is very useful in the treatment of burn. Many processes are adapted to make nanoparticles of this drug but the promising method of preparation of NPs of this drug is still vacant.

Objectives : Development of silver sulfadiazine loaded Nano gel by using Carbopol 934 as gelling agent in the treatment of burn infections.

Method : First of all, nanoparticle of silver sulfadiazine was prepared by ionic gelation method. Natural polymer chitosan at different concentration for different formulation was used in preparation of Nano particle by ionic gelation method. Then a gel was prepared by using Carbopol 934 as gelling agent. Prepared formulations were subjected to evaluation accordance with standard Nano gel.

Result : the formulation of Nano gel of silver sulfadiazine was prepared successfully and evaluation data were found in satisfactory level. In order to obtain particle size in Nano range, chitosan was used for ionic gelation method in which at 0.75% concentration of chitosan found to bring Nano size of particle in the range 10 to 100 nm. Formulation was evaluated for % drug entrapment efficiency, cumulative % drug release, spreadibility, homogeneity. pH, clarity of gel etc. All the results were found in limit and showed satisfactory level of formulation for F14.

Conclusion : Silver sulfadiazine loaded Nano gel by using chitosan by ionic gelation method would be very promising approach and convenient economically.

Keywords : Silver sulfadiazine, loaded, Nano gel, burn, chitosan, carbopol

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PP-10 : A Review on Polyherbal Formulations as Antipyretics : A Global Perspective

Medicinal and therapeutic effect of herbal-herbal formulation i.e. Polyherbal formulation has been widely applied in the treatment of various diseases in all over world due to its potential benefit along with easily availability and it neutrality. Herb-herb combination is known as polyherbal preparations for medicinal purpose. This review article overviews the commercial and non-commercial polyherbal formulation's properties. Author had focused on last five-year research studies of different countries in which India was found higher number of research studies on polyherbal products which followed by Bangladesh, South Korea, Pakistan, Nigeria. This article explored scientific contribution of many other countries in formulation of polyherbal products which will make an impact on development of poly herbal preparation in management of various chronic diseases. In addition, it reviewed a list of research studies on polyherbal preparations in the management of different diseases along with pharmacological activities. Most of the polyherbal formulations found to be active as antidiabetic, anti-inflammatory, anti-cancer, anti-anxiety and hepatoprotectives.

Keywords : Polyherbal Formulation, herb-herb, commercial, non-commercial, herbal combination.

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PP-11 : A Review on Carriers Used In Solid Dispersion For Fast Dissolving Tablets

Problem associated with solubility of poorly water soluble drug leads to development of solid dispersion technology to improve solubility and enhance bioavailability. This can be achieved by using carrier to increase solubility character of drug. In pharmaceutical excipient, a large number of carriers available in the form of either hydrophilic carriers or hydrophobic carriers for the formulation of drug product by using technology of solid dispersion. Pharmaceutical carriers are varying in nature, depending on carrier's nature, formulation can be prepared as immediate release or controlled release of solid dispersion. In beginning, carriers in nature of crystalline were used in the preparation of solid dispersion by transforming it from crystalline to amorphous. In starting, synthetic carriers were mostly used but now a day, in recent trends natural carriers were mostly using due to its susceptible to suitability character in context with side effect, interaction so on. Hence natural carriers were replaced with synthetic one. This review focused on various carriers used in solid dispersion such as natural, semisynthetic, modified natural carries along with hydrophilic and hydrophobic.

Keywords : Solid dispersion, solubility, drug carriers, Hydrophilic carriers, Hydrophobic carriers, bioavailability.

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PP-12 : Pharmacological Aspects of *Quisqualis Indica Linn* and Its Medicinal Properties

Treatment of chronic diseases like Rheumatoid Arthritis, Diabetes, stroke, heart disease etc. when treated with herbal bioactives considered as promising and more suitable due to its minimum or no side effect and therapeutically effective treatment. These herbal bioactives as herbal medicine obtained from plant source and vegetable source so called as natural sources. From the past two decades, herbalists are using phytogenic agents for the treatment of several chronic as well as acute diseases. In this review article, we had explained briefly about Quisqualis Indica Linn plant as medicinal plant. This plant has been approved as medicinal plant but still used rarely as medicines so this view contrast on medicinal properties of Quisqualis Indica Linn. so as one can utilize in medicinal purpose. Other important application of this plant as for decoration, ornamental purpose. It is evergreen plant and does not depend upon seasons to grow, and available easily. Quisqualis Indica Linn contains phytochemicals such as L-Plorin (?-amino acid), Quisqualic acid (against AMPA receptor), Trigonelline (Alkaloid), L-Aspargine (?-amino acid), Rutin (flavonoid) two forms of cysteine synthase are as Isenzyme A and Isoenzyme B. These phytoconstituents responsible for the various pharmacological activities such as anti-inflammatory activity, antipyretic activity, antibacterial activity, antiseptic activity, immunomodulatory activity, antianthalmentic activity.

Keywords : Quisqualis Indica Linn, phytogenic agent, herbal bioactives, pharmacological activiithy, alkaloid, flavonoid.

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PP-13 : Liposomes and Nanoparticles in Ocular Drug Delivery Systems

Liposomes and nanoparticles are novel dosage forms to prolong the residence time of the encapsulated drug within the eye, or used as drug carriers for targeting the drug to ocular tissues. Liposomes are microscopic vesicles composed of membrane-like lipid layers surrounding aqueous compartments. Depending on the composition, liposomes can have positive, negative, or neutral surface charge. The major components of liposomes are lipids, water, drug, and possibly electrolytes. Liposomes have been studied for ocular drug delivery by various ways of administration. Liposome-encapsulated dihydrostreptomycin sulfate, a hydrophilic compound, produced lower drug levels in ocular tissues compared to its solution form. The liposome preparation containing dexamethasone valerate provided the highest ocular drug levels, but in the cases of dexamethasone and dexamethasone palmitate, the liposomal form provided a lower drug level than the suspension form. The potential of targeting the delivery of dyes and drugs to specific sites in the eye was investigated using temperature-sensitive liposomes. And Nanoparticles are colloidal dispersion with a size range between 10 to 1000 nm. Depending on the method of preparation, nanospheres or nanocapsules can be obtained. Nanoparticles composed of lipids , protein, and natural or synthetic polymeric system. It can be administer by various routes including oral, nasal,, parenteral and intra-ocular.

Keywords : Liposomes, Encapsulated, Nanoparticles, Dihydrostreptomycin sulfate, Dexamethasone, Palmitate

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PP-14 : An Overview on Emulgel - A Cutting Edge Drug Delivery Method For The Delivery of Hydrophobic Drug

When gels and emulsions are mixed as a dosage form, an emulgel with dual release is formed and because of its unique set of characteristics the usage of gels has emerged in both cosmetics and pharmaceutical preparations, in comparison to the other semisolid preparations. Despite its many advantages, the category gel has limits when it comes to transporting hydrophobic medicine molecules through the skin. To compensate for this shortcoming, a recent emulsion-based method has been developed, allowing even a hydrophobic medicinal moiety to benefit from the special features of gels.. The usage of polymers with greater effect in release pattern has emerged as a result of this strategy, allowing for continuous and regulated release. A gelling ingredient in the aqueous phase transforms a traditional emulsion into an emulgel. In numerous areas, these emulgels outperform conventional systems as well as innovative vesicular systems. Emulgels are thixotropic, greaseless, readily spreadable, easily removable, emollient, nonstaining, long shelf life, bio-friendly, clear, and appealing in appearance, making them ideal for dermatological application. As a result, emulgels may be a better topical drug delivery mechanism than current technologies. Emulgels can be used in analgesics, anti-inflammatory, anti-fungal, and anti-acne medications, as well as a variety of cosmetic formulations. This study provides information on Emulgel, including its features, benefits, formulation considerations, and recent research breakthroughs.

Keywords : Cutting Edge, Emulgel, Novel Drug Delivery, Hydrophobic Delivery

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PP-15 : Applicatons of Nanofabric

Nanoparticle also referred as "zero-dimensional" nanomaterial. Nanoparticle heaving size under 100 nm. In recent years, nanoparticles also brings with them unique environmental and societal challenges, particularly in regard to toxicity. Researchers have turned to the development of a number of nanofiber fabrications techniques such as electrospinning and flash spinning, chemical vapour deposition, force spinning. Fabric cloth containing nanoparticles can blocks 99% UV rays, filters 95% pollution, inhibits viruses and bacteria. It also protect from pollen and can filters out polluting gases like sulphur-dioxide and nitrogen-dioxide. Cotton as a fabric alone cannot fight off these viruses or blocks out UV rays but there are cavities in the fabric that can be filled up with nanoparticles. These nanoparticles obtained from many ways like, Extracted from plants like turmeric and neem that are heaving germ killing properties, metal oxides such as ZnO heaving high UV absorption efficiency. These nanoparticle fabric can be use to make antiviral ace masks, headgear for children, items to prevent hospital acquired infections like patient gowns, bad sheets, doctors coats , surgical gowns, etc.

Keywords : nanoparticle, nanoparticle, UV, antiviral.

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PP-16 : Nanotechnology Based Cosmeceuticals

Nanotechnology manifests the progression in the arena of research and development, by increasing the efficacy of the product through delivery of innovative solutions. Cosmeceuticals are the fastest growingsegment of the personal care industry, and a number of topical cosmeceutical treatments for conditions such as photoaging, hyperpigmentation, wrinkles, and hair damage have come into widespread use. In the cosmeceutical arena nanotechnology has played an important role. To overcome certain drawbacks associated with the traditional products, application of nanotechnology is escalating in the area of cosmeceuticals. The revolution they triggered is apparent from the fact that cosmetics are no longer visualized as products that cover up or camouflage imperfections in personal appearance. The latest trend in these products is to combine clinically proven ingredients with patented delivery systems and the aesthetics of fine cosmetics.

In recent years, cosmetics have emerged as the fastest flourishing field in the personal care products industry. This field has amplified the treatment arena for medical practitioners to treat patients associated with skin disorders. At present, nanotechnology is explored in this cosmetic industry with a wide array of possible applications. Using new techniques to manipulate matter at an atomic or molecular level, they have been at the root of numerous innovations, opening up new perspectives for the future of the cosmeceutical industry.

Key-Words : Nanomedicines; nanotechnology; nanomaterial; cosmetics; cosmeceuticals; nanocosmetics; nano cosmeceuticals

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PP-17 : Aptamers as A Future Drug

Aptamers are short nucleic acid sequences capable of specific, high-affinity molecular binding. They are isolated via SELEX (Systematic Evolution of Ligands by Exponential Enrichment), an evolutionary process that involves iterative rounds of selection and amplification before sequencing and aptamer characterization. As aptamers are genetic in nature, bioinformatic approaches have been used to improve both aptamers and their selection. Aptamers have been extensively used in basic research, to ensure food safety and to monitor the environment. They can also be used for targeting of protein of wide range of organism like viruses, bacteria or cells from any other organism. Certain form of aptamers have ability to bind proteins including surface proteins. These aptamers are capable of binding active region of the proteins, helping treatment of many diseases. Their stability and high binding affinity equivalent to the antibodies makes them a strong candidate for the protein targeting for the purpose of diagnosis.

Keywords : Aptamers, SELEX, Diagnosis.

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PP-18 : Gene Therapy

Gene Therapy is understood as the ability of genetic improvement through the correction of altered (mutated) genes or site-specific modifications that target therapeutic treatment. This therapy became possible through the advances of genetics and bioengineering that enabled manipulating vectors for delivery of extrachromosomal material to target cells. The ability to make local modifications in the human genome has been the objective of Medicine since the knowledge of DNA as the basic unit of heredity. Gene Therapy carries the excitement of a cure to most of diseases. There are two different types of gene therapy depending on which types of cells are treated; Somatic gene therapy: transfer of a section of DNA to any cell of the body that doesn't produce sperm or eggs. Germline gene therapy: transfer of a section of DNA to cells that produce eggs or sperm. The methods used for gene therapy include design of therapeutic DNA or RNA constructs, generation of gene transfer vectors, delivery of genes into the target cells, and regulation of transgene expression. This review focus on the advantages of Gene Therapy and recent approaches in Gene Therapy.

Keywords : Gene Therapy, DNA, Somatic Cells, Genome,

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PP-19 : Six Sigma - A Quality Improvement Method For Pharmaceutical Industries

Six Sigma is a statistical tool that is applied by the quality management system for process improvement. It is used to measure the degree of deviation of a process from precision. In this approach less than 3.4 parts per million (ppm) of faults is considered as the quality indicator. This methodology actively links people, processes, and results logically to achieve intended outputs and customer satisfaction. In 1980s Motorola adopted this method as a tool for improving process quality. It focuses mainly on Process development, process design/redesign, and process. The DMAIC (Define, Measure, Analyze, Improve, and Control) and DMADV (Design, Measure, Analyze, and Define & Verify) procedures are used to achieve the six sigma goals. The two effective methodologies for continuous improvement that shares a common purpose and base are Total Quality Management (TQM) and Six Sigma (Six Sigma). The variables, methods, concepts, advantages, limitations, and applications of six sigma in the pharmaceutical business will be the point of discussion in this article.

Keywords : Total Quality Management (TQM), continual improvement, Methodology, Tools, Quality management,Root cause,Statistical tools

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PP-20 : Quality Metrics as Pharmaceutical Industry Performance Indicator

Quality plays an important role to achieve customer satisfaction as their valuable feedbacks add more to the quality of product. It helps in making an effective quality management plan to reach the goal of quality. In most of the pharmaceutical industries monitoring of quality systems are done by Quality metrics. During the manufacturing operations Key Performance Indicators (KPI) are represented by a systematic approach of Quality metrics. Its aim is to measure, evaluate and monitor the product and process lifecycle. It also plays a key role in selection of material suppliers and also to minimize the supply chain disruptions. The data of quality metrics can contribute in the development of an effective Pharmaceutical Quality Management which leads to higher level of safety, efficacy, delivery, and performance. Quality metrics helps in gaining the desired quality output by meeting the FDA and cGMP requirements. Therefore it is an important aspect to enhance product quality and helpful in operations and continuous improvement.

Keywords : Quality, Performance indicator, Quality metrics, Manufacturing operations

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PP-21 : Polycystic Ovarian Syndrome : Etiology, Management and Impact

Polycystic ovarian condition is one of the most far reaching metabolic and conceptive issues among ladies of regenerative age. It is a condition which influences the ladies' chemical level, creates more than ordinary measure of male chemicals, because of which there is a skirt in feminine cycle and trouble in the pregnancy. Significant side effects of PCOS are feminine brokenness and unreasonable androgen creation which impacts their personal satisfaction. Also, numerous sicknesses which incorporates corpulence, insulin opposition, type II diabetes mellitus, cardiovascular illness, barrenness, disease and mental problems. PCOS is a recognisation of avoidance, dependent basically upon the presence of hyperandrogenism, ovulatory brokenness and PCOM. The treatment incorporates the focusing on metabolic deformity through way of life changes, exercise, prescriptions and possibly medical procedure for the counteraction and the executives of abundance weight, decrease in the androgen level, security of endometrial conceptive treatment and therapy of physiological element. This gives us the data about the study of disease transmission, component, pathophysiology, conclusion, screening, anticipation, the board and future exploration bearings of the problem.

Keywords : PCOS, ovary, insulin, obesity, diabetes, hyperandrogenism, PCOM

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PP-22 : Nanosponges Drug Delivery System: An Emerging Technology Using Qbd Approach

Nanosponges is recent novel technique for control release as well as targetspecific drug delivery system. Therefore, many researchers are attracted towards theNanosponges drug delivery system. Nanosponges technology has been introduced in topicaldrug products to increase the controlled release of active drug into the skin in order to reduceentry of drug in blood and maintain drug on skin surface. Nanosponges technology offersentrapment of ingredients, improved stability, reduced side effects, increased elegance, andenhanced formulation flexibility. Various studies have shown result that nanosponges systemis non-irritating, non-allergenic, non-mutagenic, and non-toxic. This technology is usedcurrently in cosmetics, over-the-counter (OTC) skin care, sunscreens and prescriptionproducts. This technology has the best feature that it is self-sterilizing. We focused on methodof preparation, characterization (Particle size and its distribution, surface morphology,porosity, density is covered), advantages, disadvantages and application of Nanosponges

KEY WORDS : Nanosponges, QbD

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PP-23 : Anti-Cancer Activity of Natural Compounds

Cancer is abnormal growth of cells in the body that can lead to death. The current trend in cancer management requires the use of herbal remedies since the majority of anticancer drugs are known to be toxic, costly, and with unwanted side effects. The standard treatment for cancer is generally based on using cytotoxic drugs, radiotherapy, chemotherapy, and surgery. However, the use of traditional treatments has received attention in recent years. With the aim of identifying some potential anticancer plants for probable drug development, this study was undertaken to review plants reported by botanical surveys. About 24 plant species belonging to twenty families have been reported to be used for the traditional management of cancer, only 16 species have been explored scientifically for their anticancer activities. The results indicate that grape, soybean, green tea, neem, garlic, olive, daruhaldi, sadabahar flower, hemp, turmeric, flax and pomegranate are the most effective plants against cancer. In these studies, fruits, seeds, leaves, flowers and plant roots were used for in vitro and in vivo models. Purification of herbal compounds and demonstration of their efficacy in appropriate in vivo models, as well as clinical studies, may lead to alternative and effective ways of controlling and treating cancer.

Keywords : Cancer, Chemotherapy, Cytotoxicity, Herbal anticancer ingredients.

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PP-24 : Overview of *Clematis Triloba*

Clematis triloba (Marsdeniatenacissima) is a medicinal plant. And commonly known as murva or moorva. It is a perennial climber, bearing green flowers and found in tropical hilly tract of peninsular India, and vindhya ranges as well as lower Himalayan tracts this plant prefers poor soil. Murva is found growing in tropical, and subtropical dry, and moist Deciduous forests having annual rainfall between 1000nm and 1500mm. It grows in moist place in nature and is shade loving plant. It is distributed throughout India, form kumavn to Assam up to altitude of 15000 meters. Bihar, Madhya Pradesh, orissa, southern state, Deccan penisula also found in Bangladesh, Sri Lanka, Myanmar, China, Nepal and Thailand. The root of murva plant is single drug and also in compound formulation of Ayurveda for treating of fever, polyuria, dryness of mouth, worm infestation, itching, bleeding pile, bleeding disorder and excessive thirst.

It belongs to aragwadhadi group of herbs which are especially used for chronic obstinate urinary disorder, diseases of skin, vomiting etc. It is detoxifies blood and give relief in skin disease. It has purgative action.

Keywords : Clementis triloba, polyuria, murva

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PP-25 : Liposomes as a Gene Delivery Carrier

Gene therapy is an active field that has progressed rapidly into clinical trials in a relatively short time. Gene therapy is a cure of diseases by fixing gene for gene inhibition, gene augmentation or gene replacement. The key to success for any gene therapy strategy is to design a vector able to serve as a safe and efficient gene delivery vehicle. One promising form of gene delivery system (DDS) is liposomes. This has encouraged the development of non-viral DNA-mediated gene transfer techniques such as liposomes. Many liposome-based DNA delivery systems have been described, including molecular components for targeting given cell surface receptors or for escaping from the lysosomal compartment. Another recent technology using cationic lipids has been evolved and has generated substantial interest in this approach to gene transfer .

Keywords : Gene Therapy, Liposome.

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PP-26-Application of Nanoparticles in the Pharmacy

Nanotechnology is rooted in physics, chemistry, biology and engineering science where a novel approach was revealed for investigation and a molecule of multiple applications in various fields of the scientific world. Nanoparticles can be found in many everyday products. The review will focus on the use of the nanoparticle in drug delivery and in the determination and sensitivity of the drug to pharmaceuticals. Nanotechnology provides a solution to a few problems of drug delivery. Research is of great interest in studying the different features of nanoscale material. Nanoparticle is an attractive tool in many medical fields and fields. The different types of polymers used in the manufacture of nanoparticle drug delivery are discussed in the article. Reducing the particle size is an effective solution to improve melting. Nanoiozation is an attractive development solution. Nanoiozation is a good solution to improve the bioavailability of low-soluble drug, improved therapeutics. Nanotechnology is related to the design, production and use of a building. Medical nanotechnology provides the use of nanoscience in pharmacy as a nanoparticle as well as in drug delivery, photography, diagnostics and biosensor.

Currently research and advances in nanotechnology and validation based on the various effects of nanomaterial size reveal many new discoveries and future designs will be based on nanomaterial quality. Nanoparticle is widely used in bulk form due to its melting properties, smaller size and better penetration. Materials used as nanomaterial advantages over the same material with a larger size. In drug delivery, the use of nanotechnology is called nano drug delivery systems (NDDS). In this article a nanosized drug, its unique dosage form, production and use in different dosages are listed.

Keywords : Nano-ionization; NDDS; Nanotechnology

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PP-27 : Artificial Intelligence in Pharmaceutical Industry

Artificial intelligence (AI) uses personified knowledge and learns from the solutions it produces to address not only specific but also complex problems. Remarkable improvements in computational power coupled with advancements in AI technology could be utilised to revolutionise the drug development process. At present, the pharmaceutical industry is facing challenges in sustaining their drug development programmes because of increased R&D costs and reduced efficiency. The possible ways that AI can improve the efficiency of the drug development process and collaboration of pharmaceutical industry giants with AI-powered drug discovery firms. The fast improvement of the computing power and the rapid development of the computational chemistry and biology, the computer-aided drug design techniques have been successfully applied in almost every stage of the drug discovery and development pipeline to speed up the process of research and reduce the cost and risk related to preclinical and clinical trials. Owing to the development of machine learning theory and the accumulation of pharmacological data, the artificial intelligence (AI) technology, as a powerful data mining tool, has cut a figure in various fields of the drug design, such as virtual screening, activity scoring, quantitative structure-activity relationship (QSAR) analysis, de novo drug design, and in silico evaluation of absorption, distribution, metabolism, excretion and toxicity (ADME/T) properties. Although it is still challenging to provide a physical explanation of the AI-based models, it indeed has been acting as a great power to help manipulating the drug discovery through the versatile frameworks, and will further promote the application of AI technologies in the field of drug design.

Keywords : Artificial Intelligence, Research & Development, QSAR.

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PP-28 : Niosome; A Novel Drug Delivery System

Niosomes are a novel drug delivery system, in which the medication is Summarised in a vesicle. The vesicle is made up of a bilayer of non-ionic surface active agents and hence the name Niosomes. Structurally, Niosomes are similar to liposomes, in that they are also composed of a bilayer. However, the bilayer in the case of niosomes is made up of non-ionic surface active agents rather than phospholipids as seen in the case of liposomes.These systems can be designed in a way that is prescribed via different root of administration , such as oral, parenteral, topical, and so forth for use in drug delivery. It is a fact that liposomes are similar to the niosomes in structure, but liposomes are less stable and also low cost-effective than Niosomes. Niosomes have great drug delivery potential for Novel drug delivery of anti-cancer, anti-infective agents.This article presents an overview of the techniques of preparation of niosome, types of niosomes, characterisation and their applications.

Keywords : Introduction of Niosome, Niosome Preparation, Advantage & Disadvantage of Niosome , bilayer & Applications.

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PP-29 : Nanosponges: Its Application as Novel Drug Delivery System

Now-a-days pharmacokinetics issues and poor water solubility of drug in water are main concern of various developing chemical entities. Drug with poor water solubility demonstrate numerous formulating troubles in conventional dosages form and low bioavailability linked with it. A nanosponge is an emerging technology which can overcome these problem and precisely control the release rates of controlled drug delivery. These nanosponges are tiny mess like structure with size less than 1µm due to their porous structure and small size they can easily bind to drug which are poorly soluble and , these formulations are able to enhance the solubility and bioavailability of drug it can include both lipophilic and hydrophilic drug these minute sponge can circulate until they reach the definite target site, attach themselves to the surface and initiate the discharge of drug in a predictable and controlled manner . Nanosponges are solid in nature and it can be developed in various dosage form such as parental , topical ,oral or inhalation nanosponges drug delivery system has been developed as one of the most capable aspects in the field of pharmaceuticals here an attempt has been made to highlight the advantages characteristic and application of nanosponges in various drug delivery systems.

Keywords : solubility enhancement , bio-availability, controlled release, nanosponges, targeted drug delivery system;

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PP-30 : Liposomes, A Drug Delivery System

Liposome is a drug delivery system, which is having spherical-shaped vesicles of one or more phospholipid bilayer. Liposomes characterize an advanced technology for delivering drug molecules to the site of action. They show more biocompatibility, completely biodegradability, non-toxicity, and ability to trap both hydrophilic and lipophilic drugs. Provides longer duration of therapeutic effect for drugs. Potential benefits of liposomal drug carriers - solubilising, controlled drug release, directed drug delivery, overcoming biological barriers, enhancing immune response. For the preparation of liposomes number of techniques have been developed and applied. In general, the process comprises of hydration of the lipid resulting in formation of liposomes, adaption of liposome size and loading of active ingredient into liposome. Its shelf life depends on the stability of both active ingredient and bilayer forming lipids. Liposomes have been used in a broad range of pharmaceutical application. As they show enhanced drug delivery to disease locations, they have established their position in modern delivery system and are promising and is sure to undergo further development in future.

Keywords : liposomes, drug delivery system, liposome preparation, potential benefits, controlled release.

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PP-31 : Solid Lipid Nanoparticles For Transdermal Delivery System of Antifungal Drug

Fungal infections are frequent in much of the natural world. In humans, fungal infections occur when an invasive fungus invades a part of the body and is too much for the immune system to manage. Despite the availability of several effective agents in the antifungal drug, their therapeutic results are not optimal due to limitations related to the physicochemical properties and toxicity of the drug. Improving the bioavailability of drug is the one greatest challenge in drug formulations. Many commonly used azole antifungal drugs, such as clotrimazole, miconazole, fluconazole, oxiconazole, tioconazole and sertaconazole are hydrophobic and have poor aqueous solubility. To overcome these problems, it is necessary to develop Lipid based nanocarrier drug delivery systems due to their capacity to increase the solubility. Therefore, the purpose of this research is to formulate the well-known antifungal agent loaded SLNs topical preparation to improve its effectiveness. Solid lipid nanoparticles are at the forefront of the rapidly developing field of nanotechnology with many potential applications in drug delivery, clinical medicine and research, as well as in other varied sciences. Due to their unique size-dependent properties, lipid nanoparticles provide an opportunity to develop new therapeutics. The capacity to incorporate drugs into nanocarriers provides a new prototype in drug delivery that could be used for secondary and tertiary levels of drug targeting. As a result, solid lipid nanoparticles are very promising for achieving the site specific controlled drug delivery objective and hence have attracted wide attention of researchers.

Keywords : Fungal infections, solid lipid nanoparticles, nanotechnology, efficiency, bioavailability.

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PP-32 : A Review on Pharmaceutical Nanotechnology

Nanotechnology is the study of very small structures. Pharmaceutical nanotechnology deals with the formation and development of small structures like atoms, molecules, or compounds of size 0.1 to 100 nm. Nanotechnology is also being employed to develop new and improved therapeutic devices. With such a huge customer based and an increasing demand, pharmaceutical industries will respond to patient's demands by expanding their technologies. As drugs become more complex and increasingly toxic, new modes of delivery are necessary to transport them to the desired sites of the body. For this reason the renowned pharmaceutical companies are applying new methods and technologies. One of the most comprehensive technologies is pharmaceutical nanotechnology. Pharmaceutical nanotechnology offers new tools, opportunities and scope, which are expected to have a great impact on many areas in disease diagnostics and therapeutics. Pharmaceutical nanotechnology is now well-established as specialized area for drug delivery, diagnostics, prognostic, and treatment of diseases through its nano-engineered tools. Pharmaceutical nanotechnology provides opportunities to improve materials, medical devices and help to develop new technologies where existing and more conventional technologies may be reaching their limits. This review article presents the most outstanding contributions in the field of nanotechnology as drug delivery system. Pharmaceutical nanotechnology based systems, methods of preparation, applications, advantages, and disadvantages.

Keywords : Nanotechnology; Nanoengineering; NDDS

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PP-33 : A Review On Magnetically Modulated Drug Delivery System

Novel drug delivery is often approached via a drugs chemical formulation, but it may also involve medical devices or drug-device combination products. a number of novel drug delivery system have been emerged comprises various route of administration, to achieve targeted and controlled drug delivery, magnetic microcarrier being one of them. These microcarrier include magnetic microsphere, magnetic liposomes, magnetic resealed erythrocytes, magnetic emulsion, nanoparticles biomodulators, magnetic neutrophiles etc. the advantages of this drug delivery is avoidance of acute drug toxicity directed against endothelium and normal parenchymal cells. molecular magnetic labels and magnetic micro/ nanoparticles have been used for great number of applications in various areas of biosciences, imaging, bio separation technology, targeted drug delivery system. magnetically targeted drug delivery by particulate carrier is an efficient method of delivering drugs to localized disease sites such as tumours. High concentration of chemotherapeutic or radiological agent can be achieved near the target site without any toxic effects to normal surrounding tissue. Non-targeted application of magnetic microspheres and nanospheres include their use as contrast agent and as drug reservoirs that can be activated by a magnet applied outside the body.

Keywords : NDDS; biosciences; magnetic microsphere

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PP-34 : Microsphere, an Excellent Technique for Novel Drug Delivery System

Targeted drug delivery is designed to try to concentrate the drug in the tissues of interest while minimizing the drug-associated overload in the non targeted tissues. where the drug is placed inside the target area. therefore, the encompassing tissues aren't affected by the drug. A controlled drug delivery device can over come the problems of conventional drug treatment and provide better drug therapy. Microsphere is a free flowing powder together with synthetic proteins or polymers with particle sizes starting from 1-1000µm. The Microspheres' Strategic treatment guide offers an expansion of opportunities to control drug manage aspects and improve the effectiveness of a specific drug treatment. There are numerous approaches to carry a drug substance to the target place in a sustained and controlled manner. Microspheres has a drug which is positioned centrally between the particles, wherein they may be trapped internal a completely unique polymeric membrane. inside the destiny of numerous other strategies, microspheres will play a key function inside the delivery of novel tablets, particularly in the diagnosis of diseased cells, diagnostics, genes and genetic materials, safe, targeted and effective in vivo delivery.

Keywords : microsphere, targeted drug delivery, controlled release, novel drug delivery

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PP-35 : Importance of Stability Studies For Pharmaceuticals

The most important property of a drug product is its stability. Stability studies of pharmaceutical products assure the maintenance of product quality, safety and efficacy throughout the shelf life which are foremost requirements for the acceptance and approval of any pharmaceutical products. These studies are required as per the guidelines issued by ICH, WHO or other agencies. For identification of structural modification early in drug discovery phase implementation of stability is important. The frequently applied stability studies in drug discovery are stability- pH profile, gastrointestinal fluids, bioassay media, excipient compatibility, and prodrug screening. These studies are done for both new drug substances and new drug products (finished products). Factors such as ambient temperature, humidity, light, and, other product-related factors (the physicochemical properties of active ingredients and of pharmaceutical excipients) , the dosage form and its composition, the manufacturing process, the nature of the container-closure system and the properties of the packaging materials are collectively responsible for the stability of finished product. This review focuses on the importance, need and effect of stability studies to maintain the quality of pharmaceutical products.

Keywords : Stability, Stability testing, Regulatory guidelines, New drug product, Stability profile

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PP-36 : Biosimilar Drugs

A Biosimilar Drug is a medicine that is very close in structure and function to a biologic medicine. It is a medicine made in a living system, such as yeast, bacteria, or animal cells. They are similar to a biological reference that has already received marketing authorization for biologic drugs. Biosimilars have the same amino acid sequence and highly similar glycosylation patterns that overlap with the originator product. Both efficacy and toxicity are difficult to predict due to subtle molecular changes that might have profound effects on clinical efficacy, safety and immunogenicity. Their main advantage is related to cost savings. A biosimilar drugs needs to be tested in clinical trials and approved by the FDA before it can be used to treat a disease. The number of biosimilars approved to treat cancer is expected to go up. Many experts believe having more biosimilars available can lower the cost of treating some cancers, kidney disease, diabetes, multiple sclerosis, etc. Riabni, Hulio, Nyvepria ,Avsola, etc are some examples of biosimilar drugs. On June 27, 2013, Hospira's Inflectra (INX) was the first biosimilar monoclonal antibody to receive positive opinion from European Medicines Agency's Committee for Medicinal Products for Human use for rheumatoid arthritis, inflammatory bowel disease and plaque psoriasis. The aim of this study is then to assess the degree of similarity between the biosimilar and its reference biopharmaceuticals, trying to understand the production process, requirements necessary for approval and its impact on the quality, safety, efficacy and costs. Biosimilars will be increasingly present in the future as promising therapeutic arsenal and targeted therapy, however, issues related to interchangeability, automatic substitution and extrapolation.

Keywords : Biosimilar, efficacy, immunogenicity, extrapolation, biologics, interchangability.

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PP-37 : 3D Printing of Pharmaceuticals - A Review

Three dimensional printing (3DP) is a revolutionary and novel technique in the pharmaceutical field. The 3D printing technology are also known as additive manufacturing, is a method of creating a three dimensional object layer-by-layer using a computer aided design (CAD). It creates physical objects by successive deposition or addition of material based on a geometrical representation. The high degree of flexibility and control with 3D printing enables the preparation of dosage forms with multiple active pharmaceutical ingredients with complex and tailored release profiles. 3DP will allow wider adoption of personalised medicine due to the diversity and simplicity to change the design and dosage of the products, designed specific to the individual with the ability to alternate the drugs added to the product. Techniques used in 3D printing are Thermal ink-jet printing, Inkjet printing, Fused deposition modelling (FDM), Powder based 3D printing, Extrusion 3D printing, Zipdose, Hot melt extrusion (HME), Selective laser sintering, stereo lithography, Continuous layer interface production.

Keywords : 3Dprinting, Drug, Pharmaceutical, Printers, Personalised medicines.

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PP-38 : Nanomedicine in Cancer Treatment and Nanomedicine in Market Industry

Cancer has been a deadliest disease on the earth and as per data of 2020 mentioned in WHO database there have been nearly 10 million deaths were recorded. Common cancer include breast cancer (2.26 m) , lung cancer (2.2 m) , colon cancer (1.93 m), prostate (1.41 m), skin (1.20 m), stomach (1.09 m). Around one-third of deaths from cancer are due to tobacco use, high body mass index, alcohol consumption, low fruit and vegetable intake, and lack of physical activity. Nanotechnology: Looking at history Nanotechnology was coined by Noble Prize Winner Physicist Mr. Richard Feynman where in a meeting he said "there's a plenty of room at bottom". Branch of science and engineering devoted in designing, studying and using the devices or systems to manipulate the molecules at nanoscale. Nanomedicine in Cancer : Nanomedicine which has a advantage of understanding molecular assembling become our main source for treating cancer by using nanomedicine. At molecular level we try to study about protein-nanoparticle interaction, tumour tissue penetration, physiobiochemical changes, tumour tissue penetration and others. Study also includes the targeted biomarkers with the tumour microenvironment. Nanomedicines Market Industry : Current value is $1,71,695 million and expected to grow at a CAGR of 9.2% to $3,93,046 million. Covid 19 has also driven the industry to an extensive level. North America denoted as a market leader of Nanomedicine. Nanomedicine is marketed on the basis of modality, application, indication and region.

Keywords : Biomarkers, protein-nanoparticle interaction, modality, indication.

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PP-39 : Nanorobotics : The Evolving Field In Pharmaceuticals

Nowadays advances in technology have increased our ability to manipulate the world around us on an ever-decreasing level. Nanotechnologies are fastly emerging within the area of medicine, and this subfield has been termed nanomedicine. Make use of of nanoparticle technology has become recognizable and increasingly commonplace, particularly with pharmaceutical technology. An exciting and promising area of nanotechnological advancement is the building of nanorobots, which are devices with components manufactured on the nanoscale. Nanorobot is an excellent tool for future medicine. We can envision a day when you could inject billions of these nanorobots that would float around in your body. Nanorobots could carry and deliver drugs into defected cells. These nanorobots will be able to repair tissues, clean blood vessels and airways, transform our physiological capabilities, and even potentially counter act the aging process. A multifunctional platform based on nanorobots, with various types of nanomachines will surely fight against major diseases like cancer, HIV etc. Nanorobot is an excellent tool for future medicine.

Key words : Nanorobots, nanomedicine, cancer, HIV

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PP-40 : Intranasal Drug Delivery For Brain Targeting

The treatment of various brain disorders has been challenging, despite the rapid development of several novel treatment approaches. The blood-brain barrier (BBB) is one of the major issues in the treatment of psychiatric disorders, it is the major hurdle for drugs targeting the brain. Also the low bioavailability and limited brain exposure of oral drugs, the rapid metabolism, elimination, the unwanted side effects and also the high dose mean both inconvenience and high costs for the patients. Since conventional dosage forms face difficulty in brain targeting. So a novel approach like the Intranasal route for drug delivery to brain has been explored, wherein the drug is directly delivered to the brain by the nasal epithelium into the brain. It offers many advantages over standard systemic delivery systems, such as its non-invasive character, a fast onset of action and in many cases reduced side effects due to a more targeted delivery. In this review the focus is on giving an overview on the anatomical and cellular structure of nasal cavity and absorption surface. It presents some possibilities to enhance the drug penetration through the nasal barrier and summarizes some in vitro, ex vivo and in vivo technologies to test the drug delivery across the nasal epithelium into the brain. A few marketed and investigational drug formulations will also be discussed. Finally, a evaluation of the nasal route of administration showing its main advantages and limitations of this route for brain drug targeting has been discussed.

Keywords : intranasal drug delivery, brain disorder, brain targeting, targeted drug delivery, Nasal drug absorption.

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PP-41 : Taste Abatement and Dry Suspension Formulation of Fluoroquinolone's Resonates

Ciprofloxacin (Cipro) is a fluoroquinolone antibiotic used to treat a number of bacterial infections with an unpleasant taste when administrated orally. This work was to mask the bitter taste of Cipro and enhance its oral bioavailability. Dry suspensions were prepared by means of wet granulation method and solid dispersion method. Binders, suspending agents and other compositions involved in the formulation were optimized. The differential scanning calorimetry (DSC) analysis indicated that Cipro was amorphous in the solid dispersion with stearic acid as the carrier, which contributed to an improvement of the dissolution rate. Taste evaluation was performed by three volunteers and taste masking was successfully achieved by the methods mentioned above. A pH 7.0 phosphate buffer was adopted to study the in vitro dissolution performance of the three formulations, i.e., two self-made dry suspensions and the commercial one. With a better release characteristic and a satisfying taste masking ability, the solid dispersion suspension was selected as the optimal formulation for the further pharmacokinetic study in beagle dogs. The values of Cmax and AUC0-12 for the solid dispersion suspension were about 1.78-fold and 2.17-fold higher than these of reference suspension, respectively. The obtained results demonstrated that the solid dispersion can efficiently mask the bitter taste of Cipro and significantly enhance its oral bioavailability.

Keywords : bioavailability, Dry suspensions, wet granulation, DSC, solid dispersion, pharmacokinetic,

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PP-42 : Effect of Dill Seed Cake On Dyslipidemia and Hormonal Imbalance Against High Fructose-Diet Induced Obesity In Rats

The present study was investigated about the anti-obesity effect of dill seed cake on rats fed with high fructose diet. 45 days experimental study of high fructose diet feeding induced obesity, dyslipidaemia, hormonal imbalance, insulin insensitivity and increased atherogenic index. The control rat continued to receive either a control diet or high fructose diet, and the treatment groups were fed high fructose diet with 6 % of Dill Seed Cake and Dill seed Cake alone (8 %) and high fructose diet with orlistat (12mg/kg I.P.) for a period of 6 week. In result treatment of Dill Seed Cake along with feed material decreased the weight gain, normalized the dyslipidemia, hyperlipidaemia and hormonal imbalance, and reduced the serum cholesterol level. Rats fed with high fructose diet supplemented with 8gm/kg of Dill seed Cake significantly reduced the metabolic disorder, hormonal imbalance and hypothyroidism. Intake of Dill Seed Cake supplementation can be adopted as a therapeutic strategy for the prevention of high fructose diet induced obesity complications in rat.

Key words : High fructose diet, Dill Seed Cake, Obesity, Dyslipidemia, Hormonal imbalance.

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About IIP:

Moving ahead, the smart campus at IIP integrates the academic and administrative functioning of the college and connects students and their parents with the system. Adding sheen to our campus is aesthetically contrived with state-of-the-art equipments, facilities and ambience that facilitate students in their bid for all-round development.

With Pharmaceutical giants setting up base in Indore and in state, the increased demand for Pharmacy graduates spurred the initiation of Indore Institute of Pharmacy in 2004. Set up under Shail Education and Welfare Society (SEWS), the institute offers Masters and Bachelors degree in Pharmacy (M. Pharm and B. Pharm) as well as Diploma in Pharmacy (D. Pharm).

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About the Conference:

In the present-day scenario, where Covid-19 has halted the wheels of humanity, scientific research in Pharmacy Industry is at a new high, wherein Translational Research is thought to be the way ahead in terms of new vaccine development and/or new pharmacotherapy.

The use of Nanotechnology in medicine is predicted to have a major impact in prevention, diagnosis and treatment of diseases especially via development of nanomedicines. This approach aims to increase therapeutic efficacy while reducing the toxicity. But, for moving from bench to bedside, several challenges need to be addressed.

This Conference shall provide a platform for experts and eminent scientist to put forth current trends and challenges and provide potential ways for clinical translation of nanomedicines. The areas of focus shall include current challenges, large-scale manufacturing, intellectual property, government regulations and cost-effectiveness.

Students and faculty alike can utilize this opportunity to put forth their research in the filed of nanomedicine to scrutiny by experts and get maximum benefit. Thus, the event shall provide a platform for budding researchers and eminent Scholars to interact.

Objective of Conference:

- To promote research in the area of nanomedicine.
- To provide a platform for young pharmacist to share their research.
- To gather eminent scientists and academicians on one platform.
- To outlay the path for young scientists towards successful development fo nanomedicines for clinical use.

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