Indian Pharmacy Graduates' Association

Sponsored

National Seminar

On

Fundamentals and Prospective of Pharmaceutical Education & Research

Saturday, 18th November, 2017

ABSTRACT BOOK

CELEBRATING 25th ANNIVERSARY

ASBASJSM COLLEGE OF PHARMACY BELA

COP BELA

www.copbela.org

Organized By

Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial College of Pharmacy, BELA

Ropar (Punjab)

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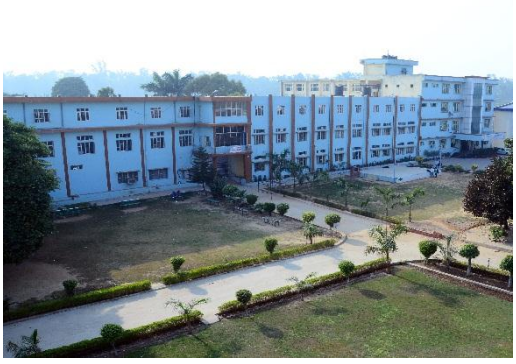
Institute Profile

Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial (ASBASJSM) College of Pharmacy, Bela-Ropar came into existence in the memory of Sahibzada's Ajit Singh and Jujhar Singh, the elder sons of Guru Gobind Singh Ji. The college is run by a Non-Profitable organization and charitable society. The college was established in the year 1993 initially as a diploma college. With the expanding Pharmaceutical industry the course of Diploma in Pharmacy was upgraded to a 4-year degree course (B. Pharm.) in 2000 and Post Graduate Courses started i.e. M. Pharm. in Pharmaceutics (2006), Pharmaceutical Chemistry (2007), and Pharmacology (2008). The College is approved center for Ph. D. by University. All courses are approved by AICTE, PCI and Govt. of Punjab and affiliated to Punjab Technical University, Jalandhar. This is the only college in Punjab where B.Pharm. Course is accredited by NBA.

The college is equipped with modern infrastructural facilities, such as LCD in all seminar rooms, Wi- Fi for internet browsing, international journals etc. At present the college acclaimed 27 faculty members, beside the college organizes guest faculty lecture by renowned academician & industrialist on weekends on recent trends in specialized areas of pharmaceutical sciences. All UG and PG labs are well equipped with all necessary instruments. The college has state of its kind CPCSEA approved central animal house and huge medicinal plant herbal garden. The institute has shown excellent results in university examinations.

Institute Highlights

- Institute is run by well-experienced and highly qualified persons.
- Non-Profitable organization and charitable society.
- Dedicated and committed for rural development of technical education.
- Result oriented quality education and training.
- Excellent library facilities with 76 science direct e-journals.
- Computer lab. is connected with round the clock broadband internet facility. The whole campus is Wi-Fi enabled.
- Modern and conventional methods of teaching are being employed.
- Healthy and conducive ambience away from busy life of the city.
- Transport facility from all corners of neighboring cities *i.e.* Chandigarh, Mohali, Ropar.
- A 2000sq.ft. Central animal house, duly approved by CPCSEA, Govt. of India for experiments on animals.
- All round development of students through co-curricular activities.
- Guest lectures by renowned academicians and scientists.
- Effective Student–Teacher–Guardian interaction.
- All time security inside the campus with CCTV surveillance.
- Separate Boys and Girls Hostels within the campus.
- Well-planned and informative Medicinal Plant Garden.



Central Facilities

ASBASJSM College of Pharmacy is situated at a distance of 5 Kms from historical and very religious seat of Sikhism, Chamkaur Sahib and 13 Kms away from Ropar. The institutional campus is spread on an area of 4.42 acres and possesses pollution free lush green echo free environment, which is highly conductive for teaching and learning.

COURSES

D. Pharm:	**60 Seats**
B. Pharm:	**60 Seats**
M. Pharm:	**92 Seats**
Pharmaceutics:	15 Seats
Pharm. Chem.:	15 Seats
Pharmacology:	10 Seats
PHD (Pharm. Sci.)	
DMLT:	**50 Seats**
B Sc. (MLS):	**30 Seats**

Laboratories

The college has well equipped laboratories (25) for B. Pharm. and M. Pharm. Experiments are designed so that the basic concepts are well understood by the students. Advanced experiments in the laboratories, help the students to get an insight into the new frontiers of pharmacy.

Classrooms

The institute has four well-furnished seminar-cum-lecture halls. Each hall is equipped with state-of-the-art audio-visual equipment like OHP's, Video Projectors and Cameras, TV's, VCR's, LCD, built-in audio systems, pull down screens and public address systems with cordless microphones. Regular guest lectures by dignitaries from India and abroad are conducted. Personality development and Communication skills workshop are regularly organised.

Library

The College has an excellent Library and Information Centre, one of the central support services of the institution, which acts as a primary source for information seekers, be it students, faculty or researchers. Situated in an easily accessible place, it covers 2000 sq. ft. and occupies two sections of the references/ technical and lending section. It has a more than 6500 books, 35 journals, 76 e-journals, 5 magazines periodicals.

Computer centre/ Internet facility

In the institute fully furnished two computer labs comprising of 40 computers to provide for smooth carrying out of laboratory exercise of the students. The above two labs are provided with internet facility through 2 MB broadband leased telephone line and dial up line connection. The Wi-Fi system gives internet facility in full campus.

Animal House

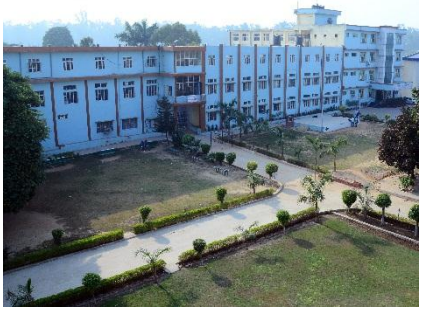
The central animal house has state-of-the art facilities for housing and breeding of small experimental animals (rats, mice, guinea pigs and rabbits), approved by Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Govt. of India, New Delhi. The animal house is equipped with a diesel operated incinerator for safe disposal of animals.

Medicinal Garden

College has a beautiful medicinal plant garden having more than 50 species (herbs, shrubs and trees). A special emphasis will be given to the plants having potential therapeutics and pharmacological activity.

Hostels

The institution has separate hostel facilities for boys and girls within the campus. The hostel mess has an ultra-modern kitchen with state-of-the-art equipment's to prepare the food hygienically and a beautiful dining hall.



Transport Facility

Cozy and comfortable buses ply for transportation from different corners of the cities Chandigarh, Mohali, Morinda and Chamkaur Sahib.

Sport Centre

Institute's Sport Centre is equipped with facilities for in-door and out-door games activities.

Canteen

Provides hygienic refreshment at reasonable rates.

INDEX

MESSAGE

Capt. M.P. Singh
Chairman

Dr. B. S.Bola
President

We on behalf of the management and our personal behalf welcome the Resource Persons, Special Guests of the scientific sessions and delegates to the of IPGA Sponsored National Seminar. It is a matter of pride and privilege that the Central Council of Indian Pharmacy Graduates' Association (IPGA) has sponsored this seminar for which we are very grateful. We are happy to know that there is great demand for the quality pharmacy graduates not only in India but abroad also. Therefore, it is our moral duty to impart quality education to our budding graduates and equip them with latest expertise to meet future challenges. It is a matter of pride that ASBASJSM College of Pharmacy has excellent infrastructure and facilities for higher studies, made remarkable progress and achieved various distinctions following the initiation of post graduate and Ph.D. programmes. It has established itself as one of the pioneer institutes of pharmaceutical education and research through its sustained and sincere efforts. We are confident that the pharmacy graduates participating from all over country will be benefited by discussions, deliberations and interactions with the senior pharmacy professionals in this seminar. Their guidance will lead to the better health care of the society. I extend my best wishes for the great success of IPGA Sponsored National Seminar “Fundamentals & Prospective of Pharmaceutical Education & Research”.

MESSAGE

Prof. (Dr.) Ashish Baldi
IPGA Punjab State Coordinator
Dean (Faculty of Pharmacy)
Maharaja Ranjit Singh Punjab Technical University
Bhatinda

It is heartening to note that one of the best college in the region, ASBASJSM College of Pharmacy, Bela, Ropar, is organizing IPGA sponsored National Seminar on "Fundamentals and Prospective of Pharmaceutical Education & Research "on 18th November 2017.

The seminar will surely bridge the gap between industry and academia and will address pertinent issues to define the future outcomes in Pharmaceutical Sciences. I appreciate the institute for drawing eminent personalities from different spheres of Pharmacy.
It is really heartening to note that pharmacy graduates from the area will showcase their observations in form of presentation of technical papers. It is a matter of great satisfaction that the scientific programme covers several important and major aspects of growing Pharma Profession.

I am sure that the event will be remembered as a platform for exchange of ideas for fruitful discussions.

Best wishes for the success of the event.

MESSAGE

Prof. (Dr.) Shailesh Sharma
Director- cum- Member Secretary

It gives me immense pleasure to welcome you all attendees, renowned speakers, subject experts and special guests to IPGA sponsored One Day National Seminar on "Fundamentals & Prospective of Pharmaceutical Education & Research". The seminar is being organized with an aim to enlighten the basics of pharmaceutical sciences by the renowned scientists, teachers and industry professionals in their respective fields to share their knowledge and experience with the students and young faculty members. The seminar will provide updates in the field of pharmaceutical education and research in all disciplines like Pharmaceutics, Pharmaceutical Chemistry and Pharmacology. During conference ideas and information exchange would be executed through plenary technical sessions, poster presentation, discussions and interactions. It has been very heartening to observe that all the committees working in unison towards making this seminar a great success. I would like to thank them all for contributing their time, sweat and energy without whom, this event would have been impossible. I am so honored to be the convener for the national seminar and welcome you all to COP-BELA, to have a great time, new knowledge, collaborations, friendships and entertainment. Expecting a sound response from you all.

Above all I express my sincere gratitude to the management of the Institute *Sardarni Rajbans Kaur*, Hon'ble President, MC, *Capt. M. P. Singh*, Hon'ble Chairman, *Dr. B. S. Bola*, Hon'ble President and Hon'ble members of Management Committee for their full support for organizing this seminar.

I have my special thanks to the Local Organizing Committee, staff and the students. Their enthusiasm and unflinching co-operation would certainly make this event a memorable one.

MESSAGE

Prof. (Dr.) Nitin Bansal
Co-convener

It is my pleasure to welcome you all for national seminar at College of Pharmacy, Bela. This meeting is being organized with an objective to enlighten and to revise the principles of pharmaceutical sciences which provide the foundation stone for effective education and research in the field of pharmacy.

I am delighted that the program of this meeting will provide attendees with opportunities not only to hear the basics of pharmaceutical sciences from the eminent teachers and scientists but also to ask their own queries from the veterans of the field.

I wish all of you that this seminar will prove to be scientifically enriching, stimulating and interactive meeting.

MESSAGE

Prof. (Dr.) Sandeep Kumar
Organizing Secretary

It is my proud privilege to state that our institute Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial College of Pharmacy, Bela (Ropar) is organizing a National Seminar on "Fundamentals and Prospective of Pharmaceutical Education and Research" in collaboration with Indian Pharmacy Graduate Association (IGPA). The idea of holding such a seminar is to bring academicians, researchers, industry leaders, pharmacy consultants, pharma experts and students on a common platform to discuss the various issues related to the fundamentals and prospective of pharmaceutical education and research. I am sure that these scientific discussions and deliberations would develop new concept and innovative idea for the betterment of pharmaceutical education and research. I am thankful to the management committee for their full support for organizing the seminar. I also deliver my thanks to the Indian Pharmacy Graduate Association for their sponsorship and timely support.

MESSAGE

Dr. Rajeev Garg
Coordinator Scientific Committee

It gives me immense pleasure to come up with this scientific abstract book of Poster Presentation at IPGA Sponsored National Seminar on Fundamentals and Prospective of Pharmaceutical Education and Research on 18th Nov., 2017 organized by Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial College of Pharmacy, Bela, Ropar. The main objective of the seminar is to enlighten the basics of pharmaceutical sciences by the renowned scientists, teachers and industry professionals in their respective fields to share their knowledge and experience with the students and young faculty members.

I must place on record that we had an overwhelming response from the teachers, research scholars and student delegates for the poster presentation. We received around 125 abstracts which are reviewed by experts and more than 90 abstracts were accepted for presentation. Thus in this book the abstracts of the accepted/ presented posters are compiled. It is to be noted that the posters shall be evaluated during the seminar and best poster presentation award will be given to first three positions separately for students and teachers delegate.

Being a scientific coordinator all efforts have been made to present this abstract book to all budding pharmacist, teachers and pharmaceutical industry. At this juncture it gives me immense pleasure to express my gratitude to the worthy management committee of the institute for providing the necessary facilities to come out with that abstract book.

I would like to express my gratitude to Prof. (Dr.) Milind Parle, Prof. (Dr.) A. K. Tiwary, Prof. (Dr.) Ashish Baldi and Ms. Renu Bala for their valuable write-ups and consent for making the abstract book richer. I would like to place on record the constant cooperation extended by the registration committee. I am grateful to Prof. (Dr.) Shailesh Sharma (Convener and Director), Prof. (Dr.) Nitin Bansal (Co-convener) and Prof. (Dr.) Sandeep Kumar (Organizing Secretary) for their valuable guidance and direction. I further take this opportunity to thank all the members of scientific committee for their support.

FUNDAMENTAL ELEMENTS OF PHARMACEUTICAL EDUCATION

Dr. Milind Parle
Professor of Pharmacology
Guru Jambheshwar University of Science and Technology
Hisar, Haryana

The word "Educate" is derived from Latin word *Educare* meaning to Instruct, Teach, Coach, Experience, Brief, Civilize, Explain, Inform, Train, Enlighten, Nurture, Bring up, Tuition, Prepare, Refine, Supervise, Enrich, Impart skill/knowledge, Guide, Preach, Familiarize, Illuminate, Elevate, Uplift, Transform, Inspire, and / or Motivate. Education/Training may be imparted at Home / School / College / University. The purpose of organized coaching is to Develop Physical, Mental, Emotional, Intellectual, and Spiritual Faculties of an individual. Education in its general sense is a teaching-learning phenomenon through which the knowledge, skills, and habits of a group of people are transferred from one generation to the next through instruction, training, or research. Just as a parent (whether a mother/father), we prepare our ward (a son/daughter) to face the challenges of life without any syllabus in hand, we need to guide our students. Often a good Teacher, in order to deliver the goods effectively has to play multiple roles as a Father / Mother, Teacher, Supervisor, Guide, Tutor, Mentor, Instructor, Trainer, Facilitator, Advisor, Captain, Counsellor, Director, Professor, Master, Coach, Educationist etc. Unfortunately, the present Education system puts more emphasis on the theoretical knowledge than the practical skills. We must not forget that every individual is different and has unique set of talents, which necessitate nurturing and encouragement. Teachers should have a sense of belonging for the institution; they have opted to work for and continually strive to become Role-Models. Teacher-student bonding soon becomes a life-long relationship, when it's pure, selfless and beneficial, since students mature soon. The present Challenges of Education system include: *Lack of will to learn among youth, Poor quality of Teaching, Reservation policy of Govt., and Inadequate infrastructure in majority of educational institutes.*

The growth of any country relies on development of skills, efficient team work, constructive productivity and continuous innovation. Innovation distinguishes between a leader and a follower. In order to be innovative, one should have a big vision and take small steps on daily basis to get there gradually. One should be very humble, when one starts functioning, but at the same time one should be imaginary, visionary and unique in one's aspirations. Learning and innovation go hand in hand. Simple and effective form of professional development is being innovative and nurturing innovation. The arrogance of success is to think that what you did yesterday, will be sufficient for tomorrow / life-time. It is not about sudden accomplishment of grand invention; but it is all about a little innovation every day, every week and every month. It's about making something work a little bit better day by day. We do not have satisfactory animal models for screening of several kinds of medicines.

ANIMALS FOR EXPERIMENTATION – HUMANE THOUGHTS

Dr. A. K. Tiwary
Professor
Department of Pharmaceutical Sciences & Drug research
Punjabi University, Patiala

It has been quite some time that the debate on the use of animals for testing drugs and pharmaceuticals began. Various drug testing approving agencies have now become stricter on the use of animals for testing purposes. Primarily, the stringent rules have been promulgated due to rampant and unnecessary use of animals for testing a variety of drug(s) and their formulations. More important is the fact that the animals are subjected to unethical suffering as they cannot tell tehri plight and cannot resist undue torture unlike humans. The final blow comes when they are often left to fend for themselves after they have been handicapped, diseased or made incapable to walk. This results in their falling easy prey to bigger animals, which they would not have deserved if they had not been used for testing purpose.

Most of the countries have now come up with clear guidelines on the rationale use of animals for testing purposes. These include restricting the number to be used on the basis of rationale of the study and outcome (Reduction), fine tuning the testing procedure so that the animals do not suffer from trauma and pain (Refinement) and finding alternative testing methods that yield correct and reliable results (Replacement). It is now mandatory to get the approval for each experiment comprising testing on animals whether invasive or non-invasive according to the rules of the appropriate animal regulatory body.

With the increasing volume of research, it is imperative for us to understand the intricacies of animal use in drug testing. This presentation shall delve on the humane issues of use of animals in testing of drugs and pharmaceuticals.

FUNDAMENTALS AND PROSPECTIVE OF INTERNATIONAL REGULATORY AFFAIRS

Ms. Renu Bala
Director
Deren Pharma

As healthcare becomes a global economy, there is a more than ever growing need of the Pharmaceutical Companies not only for International Marketing Rights for them to have a fair share of the global market, they also need to conduct Clinical trials across the globe. To meet both objectives, it is critically important for them to be conversant with the Regulatory Affairs Climates of these countries.

A set of norms, standards, and code of conduct govern the pharmaceutical industries across the globe to ensure a safe and secured healthcare system to all. The central focus is on the mechanisms and criteria enlisted to show Safety, Effectiveness and Quality of a product and its prescribed usage. These laws are varying from country to country. The global regulatory environment is changing at an ever-increasing speed to address scientific and technological developments. Competent Authorities are struggling to keep pace with the continually changing demands of the life sciences industry. At the same time, numerous efforts have been made to deregulate, streamline and harmonize regulatory processes across regions as the industry continues to move toward globalization. Varying registration regulations mean duplication of effort for each country or region to obtain marketing approval that is time-consuming and expensive. According to the International Conference of Harmonization (ICH), the move to rationalize and harmonize regulations has been driven by concerns over rising costs of healthcare and R&D, the need to meet public expectations and the push to have life-saving medicines reach patients with minimum delay. Other international initiatives include the Global Harmonization Task Force (GHTF) for medical device regulations, the Pharmaceutical Inspection Convention and Pharmaceutical Inspection Cooperation Scheme (jointly referred to as PIC/S) for Good Manufacturing Practice compliance, the International Organization for Standardization (ISO) and the International Cooperation on Harmonization of technical Requirements for Registration of Veterinary Medicinal Products (VICH).

The global regulatory affairs group and the regulatory professionals in the pharmaceutical industry occupy a central and pivotal role to all the functional groups. The regulatory team is charged with a strong leadership role that ensures compliance with regulations and enables understanding and interpretation of the dynamic regulatory landscape, while creating opportunities in the highly-regulated and complex environment. The scope of the regulatory affairs group function spans the entire spectrum of product development, manufacturing, registration, post-marketing activities and lifecycle optimization. This span of involvement and responsibility is sometimes referred to as bench to bedside and beyond, from cradle to grave, from inception through lifecycle optimization, from laboratory to launch, etc. The regulatory team and professional hold a unique position of importance with impressive diversity in function and significant breadth and depth of responsibility.

Evolution in the regulatory profession has been largely driven by: • Expanding scope and global reach of industry • Keen attention to global regulatory intelligence • Need for innovative, cutting edge technologies including e-submission • Complexity of disease area targets for development • Need for comprehensive and robust global regulatory strategies, all demanding highly skilled regulatory professionals with expertise, broad leadership and strategy capabilities.

The future of Regulatory Affairs warrants an enhanced knowledge and understanding about various aspects of the regulatory framework pertaining to Clinical Research Governance, Human Drugs, Animal Drugs, Biologics and Biotechnological products, Medical devices, Generic medicinal products and Biosimilars, Orphan drugs, Combination Products, Traditional or Herbal Medicines, Food supplements and Cosmetics, and Advertising and Promotion and Enforcement, Pharmacovigilance and Biosafety issues, among other things.

Global regulatory affairs' role in the pharmaceutical industry as a function, critical business partner, strategic contributor and honest broker for some of industry's most important decisions is ever increasing. Therefore, it is highly imperative that our educational institutions educate and prepare Regulatory Affairs professionals who will play a pivotal role in ensuring compliance with applicable laws and regulations in the development and commercialization of the healthcare products worldwide while ensuring the quality, efficacy and safety of the developed products for human and veterinary use.

Abstract ASC-01

NOVEL HERBAL DRUG DELIVERY SYSTEM

Azaz Khan*, Vinod K Dhote, H. S Chandel
Truba Institute of Pharmacy, Bhopal (M.P.)
azazkhan23@gmail.com

Novel drug delivery system is a new emerges in the drug delivery system that overcomes the limitations of the old drug delivery systems. Our country India has a rich culture of Ayurveda and is used since time immemorial to cure the diseases. The oral route is considered is the best route but it has limitation of being reducing the efficacy of the drug. If the novel drug delivery technology is applied in herbal medicine, it may help in increasing the efficacy and reducing the side effects of various herbal compounds and herbs. The novel formulations are reported to have remarkable advantages over conventional formulations of plant actives and extracts which include enhancement of solubility, bioavailability, protection from toxicity, enhancement of pharmacological activity, enhancement of stability, improved tissue macrophages distribution, sustained delivery, and protection from physical and chemical degradation. This is the basic idea behind incorporating novel method of drug delivery in herbal medicines.

However, modern phytopharmaceutical research can solve the scientific needs (such as determination of pharmacokinetics, mechanism of action, site of action, accurate dose required etc.) of herbal medicines to be incorporated in novel drug delivery system, such as nanoparticles, microemulsions, matrix systems, solid dispersions, liposomes, solid lipid nanoparticles and so on.

Abstract ASC-02

OCULAR DRUG DELIVERY SYSTEM: CURRENT SCENARIO

Kanika Dhote*, Vinod Kumar Dhote, Chandel H.S
Truba Institute of Pharmacy, Bhopal (M.P.)
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Eye diseases are commonly encountered in day to day life, which are cured or prevented through the conventionally used dosage forms like eye drops, ointments. Delivery to the internal parts of the eye still remains troublesome due to the anatomical and protective structure of the eye. The newly developed particulate and vesicular systems like liposomes, pharmacosomes and discomes are useful in delivering the drug for a longer extent and helpful in reaching the systemic circulation. The most recent advancements of the ocular delivery systems provide the delivery of the genes and proteins to the internal structures which were once inaccessible and thus are of great importance in treating the diseases which are caused due to genetic mutation, failure in normal homeostasis, malignancy but also maintaining the physiological function of eye.

The effective dose of medication administered ophthalmically may be altered by varying the strength, volume, or frequency of administration of the medication or the retention time of medication in contact with the surface of the eye. They improve ocular drug bioavailibity by increasing ocular drug residence time, diminishes side effect due to systemic absorption.

Abstract ASC-03

NANO DRUG DELIVERY SYSTEM: THERAPEUTICS AND CHALLENGES

Sharad Prakash Pandey*[1], Tripti Shukla [2], Chandel H.S[1]
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[2]School of Pharmacy & Research, Peoples University, Bhopal
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The field of drug development experiences very low success rates with regards to drugs that enter the market. Nanotechnology received a lot of attention with the never-seen-before enthusiasm because of its future potential that can literally revolutionize each field in which it is being exploited. In drug delivery, nanotechnology is just beginning to make an impact, because materials reduced to nano scale can show different properties compared to what they exhibit on a macro scale. Drug delivery nano systems constitute a significant portion of nanomedicine.

Many of the current "nano" drug delivery systems, however, are remnants of conventional drug delivery systems that happen to be in the nanometer range, such as liposomes, polymeric micelles, nanoparticles, dendrimers, and nanocrystals. Due to nano particles, modern chemistry has reached the point where it is possible to prepare small molecules to almost any structure, which are very useful in manufacturing variety of useful pharmaceuticals.

Nanotechnology based drug delivery systems, have advanced quite significantly in the treatment of cancer, where a number of products are already in the market however, it is evident from this review that much work still needs to be conducted to fully exploit the potential of nanotechnology drug delivery systems for infectious diseases.

Abstract ASC-04

DRUG DESIGN AND DELIVERY - NANOMEDICINE NETWORK

Vinod K Dhote*, Azaz Khan, H.S Chandel
Truba Institute of Pharmacy, Bhopal (M.P.)
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Drug design, sometimes referred to as rational drug design or more simply rational design, is the inventive process of finding new medications based on the knowledge of a biological target. In the most basic sense, drug design involves the design of small molecules that are complementary in shape and charge to the biomolecular target with which they interact and therefore will bind to it. New generations of drugs often gain their great specificity and potency through complex molecular structures and this has fuelled much research into how to best create these complex bioactive molecules with the right structure and with as few by-products as possible. This can be, for example, by manipulating and engineering enzymes that can mimic those that naturally produce molecules within the body.

Nanoscience and nanotechnology may play an important role in both understanding the mechanisms by which a drug works and in helping to target the drug to its intended site. As well as vectors such as viruses that can target a drug, or a gene, to a particular type of cell or tissue, novel nanomaterials such as dendrimers or nanosomes can be used to transport drugs to their target sites. This may be combined, for example in novel cancer therapies, with nanoparticles that may be used to activate or release the drug once it has reached its desired site, e.g. by a magnetic field or other external low-level energy sources like light or ultrasound.

Abstract ASC-05

DEVELOPMENT AND POTENTIALS OF MUSHROOMS

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A mushroom, or toadstool, is the fleshy, spore-bearing fruiting body of a fungus, typically produced above ground on soil or on its food source. 'Mushroom' is not a taxonomic category. The term 'mushroom' should be used here according to the definition of Chang and Miles as 'a macrofungus with a distinctive fruiting body, which can be hypogenous or epigeous, large enough to be seen with the naked eye and to be picked by hand'.Some mushrooms or extracts are used or studied as possible treatments for diseases, including polysaccharides, glycoproteins and proteoglycans. Some mushrooms or extracts are used or studied as possible treatments for diseases, including polysaccharides, glycoproteins and proteoglycans. Compounds and complex substances with antimicrobial, antiviral, antitumor, antiallergic, immunomodulating, anti-inflammatory, antiatherogenic, hypoglycemic, hepatoprotective and central activities.

Abstract ASC-06

FORMULATION AND EVALUATION OF FAST DISSOLVING ORAL FILM OF GLIMEPIRIDE

Bir Pawan Kumar * and Sandeep Kumar
Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial
College of Pharmacy, Bela, Ropar- 140111, Punjab

Fast dissolving drug delivery systems such as mouth dissolving films (MDF) are novel dosage forms that disintegrate or dissolve within the oral cavity. These offer a convenient way of dosing medications, not only to special population groups with swallowing difficulties such as children and the elderly, but also to the general population. Mouth dissolving films of glimepiride were prepared by solvent casting method, which involved the deaeration of the solution, transfer of appropriate volume of solution into a mould, drying the casting solution, cutting the final dosage form into strips (size 2x3 cm) to contain the desired amount of drug (10mg), packaging and storage. The films were specifically designed for people with swallowing difficulties such as pediatric and geriatric populations. Several formulations were developed by varying polymer (hydroxypropyl methyl cellulose) and plasticizer (glycerol) concentrations. The films were evaluated for thickness, folding endurance, weight variation, disintegration time, dissolution time and drug content.

Abstract ASC-07

DEVELOPMENT STRATEGIES FOR HERBAL PRODUCT HAVING ANTI-DIABETIC ACTIVITY

Palwinder Singh* and Rajeev Garg
Department of Pharmaceutics
Amar Shaheed Baba Ajit Singh Jujhar Singh Memorial
College of Pharmacy, Bela, Ropar- 140111, Punjab

The synthetic drugs are more costly and lead to side effects. The usage of herbal medicines are getting importance due to promising results and less or no side effects. The plant containing active biological compounds are prepared from various parts of medicinal plants and used as drugs for curing diseases including diabetes and tumor diseases to human and proved for controlling blood glucose level. Therefore the present study involved in assessing of antidiabetic activity of*Strychnine* main constituent of *nux-vomica*.Diabetes mellitus(DM) comprises a group of metabolic disorder that share the phenotype of hyperglycemia.several distinct type of DM exist and are caused by a complex interaction of genetics, environmental factors and life style choices. There are two main categories of this disease. Type 1 diabetes mellitus also called insulin-dependent diabetes mellitus (IDDM) and Type 2, the non-insulindependent diabetes mellitus (NIDDM). NIDDM is far more common and results from a combination of defects in insulin secretion and action. This type of disease accounts for 90 to 95% of all diabetic patients. Treatment of Type 2 diabetes is complicated by several factors inherent to the disease process, typically, insulin resistance, hyperinsulinemia, impaired insulin secretion, reduced insulin-mediated glucose uptake and utilization. The present study indicated a significant anti-diabetic effect of strychnine and supports its traditional uses in the control of diabetes.

Abstract ASC-08

PHOTOCHROMIC CHROMOPHORES: THE BASIS OF PHOTOCHROMISM

Mandeep Kaur*, Baljeet Kaur and Monika Gupta
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Photochromism is the reversible transformation of a chemical species between two coloured forms by the absorption of electromagnetic radiation, where the two forms have different absorption spectra; this can be described as a reversible change of colour upon exposure to light. Photochromism has been observed in the variety of reactions *e.g.* pericyclic reactions, cis-trans isomerizations, intramolecular hydrogen transfer, intramolecular group transfers, dissociation processes and electron transfer. Photochromic compounds are considered to be "thermally stable". Dyes may also possess the Photochromic chromophores. The term "irreversible photochromic" is used to describe materials that undergo a permanent colour change upon exposure to ultraviolet or visible light radiation. The properties of photochromism include quantum yield, fatigue resistance, photostationary state and polarity and solubility. The present paper discusses the utility of various organic compounds that can be utilized as phtochromic chromophores.

Abstract ASC-09

SUZUKI REACTION: A USEFUL COUPLING TOOL

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The Suzuki reaction is a coupling reaction, where the coupling partners are a boronic acid and an organohalide catalyzed by a palladium complex. The reaction is able to conjoin a variety of aryl halides and alkenyl halides with alkenylboranes and arylboronic acid. The reaction involves three steps viz. oxidative addition of palladium to the halide to form the organopalladium species. Reaction with base gives intermediate, which via transmetalation with the boron-ate complex forms the organopalladium species and reductive elimination of the desired product restores the original palladium catalyst which completes the catalytic cycle. Due to advances and the overall flexibility of the process have made the Suzuki coupling widely accepted for chemical synthesis. This reaction is having the applications in industrial as well as pharmaceutical chemistry e.g. Suzuki coupling has been reported to be utilized for the synthesis of caparratriene, which is highly active against leukaemia.

Abstract ASC-10

APPLICATION OF SONOCHEMISTRY IN PHARMACEUTICAL INDUSTRY

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Sonochemistry is the branch of science which deals with passage of ultrasonic waves to enhance oralter chemical reactions. The use of ultrasound in chemical reactions in solution provides specific activation based on a physical phenomenon: acoustic cavitation. Sonochemistryinvolves the ultrasound waves of frequency ranging from 20 kHz to around 1 MHz.Several applications of sonochemistry in the pharmaceutical industry includesonophoresis, sonocrystallization, lowering extraction time, solution atomization and crystallization by sonication, melt sonocrystallization and particle rounding technology. Sonocrystallization is mediated by the bubbles caused by acoustic effects. The major advantages that we get by using ultrasound in our process is shorter reaction; reduction of the sample preparation time; minimal amounts of material required; so minimum expenditure on solvents, reagents leads to overall efficient process.

Abstract ASC-11

A REVIEW ON MUCOADHESIVE BUCCAL GELS

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The buccal region of the oral cavity is an attractive target for administration of drug of choice, particularly in overcoming deficiencies associated with the latter mode of administration. The development of mucoadhesive system that allows increased retention time on mucosa is necessary. For this reason the development of mucoadhesive preparation for buccal administration becomes important and mucoadhesive gels are easily dispersed through the oral mucosa. Gels prepared with mucoadhesive polymers such as natural and synthetic polymers constitute a promising option. An accurate selection and combination of the materials allow the design of pharmaceutical forms suitable for different purposes, by simply modifying the formulation composition. The selective polymers displaying mucoadhesive properties that are capable of –H bond formation, processes, swelling over water load properties and sufficient flexibility for intangle ment with mucous. The formulation according to few inventions cover the mouth cavity by being gelled at body temperature by means of using polymers being liquid at room temperature and gelling at body temperature when it sprayed into the mouth, which can be adhered into the oral cavity by means of mucoadhesive polymers. Gels of mucoadhesive polymers resulted in preparations with desirable rheological features as well as texture (firmness and adhesiveness) and mucoadhesive properties, which could benefit the therapeutic efficacy, by increasing the residence time and easiness for topical application for the buccal mucosa. Additionally, the developed preparations exhibited sustained drug release as intended for these systems. This review provides the brief knowledge about the mucoadhesive gels by discussing briefly the structural features of mucosa, mechanism of mucoadhesion, various theories of mucoadhesive buccal dosage forms, permeation enhancers, and the various evaluation method along with the literature survey of the buccal mucoadhesive drug delivery system.

Abstract ASC-12

GASTRORETENTIVE DRUG DELIVERY SYSTEM

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The purpose of writing this review on gastroretentive drug delivery systems was to compile the recent literature with special focus on various gastroretentive approaches that have recently become leading methodologies in the field of site-specific orally administered controlled released drug delivery. A controlled drug delivery system with prolonged residence time in the stomach is of particular interest for drugs that i) are locally active in the stomach, ii) have an absorption window in the stomach or in the upper small intestine, iii) are unstable in the intestinal or colonic environment, or iv) exhibit low solubility at high pH values controlled release drug delivery. The purpose of this paper is to briefly describe the gastro retentive drug delivery (GRDD), factors related to GRDD, its advantages disadvantages, and emphasis is given over its significance over conventional form of drug deliveries.

Abstract ASC-13

UTILIZING EUDRAGITS FOR FORMULATION AND EVALUATION OF CHRONOTHERAPEUTIC DOSAGE FORM

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The objective of the present investigation was to design a chronotherapeutic dosage form containing microspheres of antihypertensive drug. The microspheres of drug were prepared using Eudragit by optimization technique through application of Design Expert® software. The microparticles were prepared by emulsion solvent evaporation method where the effect of two independent variables drug:polymer ratio and stirring speed on two response variables particle size and entrapment efficiency was investigated. The prepared formulations were evaluated for in-vitro evaluation study parameters viz. micromeritics, mean particle size, percent yield, entrapment efficiency drug release profile. The optimized microsphere formulation was then incorporated into treated hard gelatin capsule shell. Validation of optimization model and Statistical interpretation of results was done using Analysis of Variance (ANOVA) which indicated that the independent variables had significant effect on response variables. The whole capsular system was evaluated for lag time and in-vitro drug release. The results indicated that the optimized double coated capsule shells showed an extended release of drug from microspheres after a lag time of 4 hrs. Conclusively, the dosage form to be dosed at bed time was successfully prepared that has the potential for effective chronotherapeutic management of hypertension.

Abstract ASC-14

1,3,4 OXADIAZOLES DERIVATIVES AS PRECURSOR FOR CANCER TREATMENT:- AN OVERVIEW

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In this review we are presenting the Anticancer activity of the 1,3,4 Oxadiazole. Therefore designing new anti-cancer drugs with high efficiency and broad spectrum activity is a significant need of today. Drug resistance, generally caused because of long term cancer treatment is rapidly becoming a major worldwide problem. The design of new compounds to deal with the resistance problem has become one of the most important goals of anti-cancer research today. This review article describes the anticancer activity of 1,3,4 oxadiazole ring being reported on various cancer cell lines system and will be useful in guiding the researchers across the world working on this moiety and consequently will be instrumental in the advancement of 1,3,4-oxadiazole chemistry.

Abstract ASC-15

EXPLORING THE POTENTIAL OF PULLULAN BY FORMULATING FAST DISSOLVING FILMS FOR NAUSEA AND VOMITING

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Recent advances in Novel Drug Delivery System aim to enhance safety and efficacy of drug molecule by formulating a convenient dosage form for administration and to achieve better patient compliance. The aim of the present study was to prepare fast dissolving dosage form of antiemetic drug for management of nausea and vomiting following chemotherapy, radiation therapy and surgery. In the present investigation, an attempt was made to develop fast dissolving films of antiemetic drug to achieve fast disintegration and dissolution characteristics with improved bioavailability by oral route. To optimize the composition, formulation variables was determined using response surface methodology. Various batches of formulation were prepared by taking independent variables (X1 = film forming poymer, X2 = plasticizer ratio) and dependent variables (Y1 = disintegration time in oral cavity, Y2 =folding endurance, Y3= drug release) at three levels. Oral film was evaluated for physicochemical parameters. Best formulation was selected by the Design-Expert software which exhibited low DT and maximum in vitro drug release. The present work revealed that natural polymers are a good potential as film forming agent in the formulation of fast dissolving films as these showed fast disintegration dissolution of drugs in salivary pH. In vivo studies showed significant improvement in pharmacokinetic parameters (AUC, Cmax, tmax and MRT) and in bioavailability as compared with pure drug.

Abstract ASC-16

CHRONOTHERAPEUTIC DRUG DELIVERY SYSTEM

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Recent advances in chrono-pharmacological and requirement of an appropriate technology to deliver the drug at specific time and site led to the development of novel type of drug delivery systems as "chronotherapeutic or Pulsatile drug delivery systems". Rationale behind designing these drug delivery systems is to release the drug at desired time which results into improved therapeutic efficacy and patient-compliance. These systems are meant for treatment of those diseases that are caused due to circadian changes in body like asthma, peptic ulcer, cardiovascular diseases, arthritis and when zero order drug release is not desired. These drug delivery systems are designed to release the drug within a short period of time, immediately after a predetermined lag time. The current poster focuses on the various types of chronotherapeutic drug delivery systems and recent advances.

Abstract ASC-17

METHOD DEVELOPMENT AND VALIDATION FOR SIMULTANEOUS ESTIMATION OF ATORVASTATIN CALCIUM AND CELECOXIB BY RP-HPLC

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The objective of present work was method development and validation of RP-HPLC for estimation of atorvastatin calcium and celecoxib.A stable, rapid, accurate and selective method has been developed for estimation of atorvastatin calcium (ATV Ca) and celecoxib (CXB) using buffer (pH 3.7) and acetonitrile (40:60 v/v) ratio in combination as mobile phase and at the flow rate of 1.5 ml/min at λ_{max} 254 nm.Calibration curve was linear over the concentration range of 1-10 µg/ml for atorvastatin calcium (ATV Ca) and celecoxib (CXB) respectively. The results suggested that proposed method gives good peak resolution of atorvastatin calcium (ATV Ca) and celecoxib (CXB) within short analysis time (<10 min) and high percentage of recovery shown that method is free from interference of excipients. The % RSD of each parameter lies below the limit of 2% proven the suitability. The statistical analysis proved that the proposed method is precise, accurate, selective and rapid for the estimation of both drugs.

Abstract ASC-18

DEVELOPMENT AND EVALUATION OF ANTIMICROBIAL HERBAL GEL FORMULATION OF *JATROPHA CURCAS* LINN. LEAVES

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The aim of the study was to formulate and evaluate antimicrobial herbal gel formulation of methanoland chloroform extract of *Jatrophacurcas*(Biodiesel plant) leaves.For this the leaf extracts were prepared bysuccessive solvent extraction using Soxhlet apparatusand screened for antibacterial activity against *S. aureus, P. aeroginosa, B. subtilis*and antifungal activity against *C. albicans and Fusariumsolani*. The activity was performed by Agar cup method. The methanol and chloroform extract of *Jatropha* leaves were selected for their better antimicrobial activity against three bacterial strains and two fungal strains. After that individual hydro gel formulation of both the extracts were prepared with different concentration of carbopol (5%) and screened for antimicrobial activity. An optimum concentration was selected and the release was also observed by using disc diffusion cell method. The gel formulations containing maximum release were combined to make a new formulation of both the extracts in different ratios. Furthermore, antimicrobial activity of gel formulations was investigated and concluded that the gel formulation of Methanol extract (F2) showed the most significant antimicrobial activity and it was comparable with standard drug.

Abstract ASC-19

SOLUBILITY ENHANCEMENT OF POORLY WATER SOLUBLE DRUG CEFPODOXIME PROXETIL

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The aim of this present study was to enhance the solubility and bioavailability of cefpodoxime proxetil (CP) through Complexation with 2 hydroxyl-β-Cyclodextrin (HP-β-CD). Cefpodoxime proxetil is a poorly water soluble antibiotic drug. Cefpodoxime proxetil is a hydrophobic molecule that is practically insoluble in aqueous media and exhibits slow intrinsic dissolution rate. It has slow erratic and complete oral administration. Cefpodoxime proxetil (CP) is belonging to BCS class 1V with poor solubility and poor permeability. So it is difficult to formulate this type of dosage form because they show maximum side effects and also have low therapeutic index. So, solid dispersion is one of the most widely used techniques to enhancement the solubility and dissolution of poorly water soluble drugs. Various different technologies are available for the preparation of solid dispersions like melting method, solvent method,and freezedrying method, spray drying, melt extrusion method, Lyophilisation technique etc. In the Preformulation studies, cefpodoxime proxetil was characterised by various physiochemical properties such as UV, FTIR Study, Melting point, Partition coefficient calibration curves and solubility profile. The drug was formulated as solid dispersion with β- Cyclodextrin as a carrier. Different ratios of solid dispersion were prepared 1:1, 1:3, 1:5 by kneading techniques. It was concluded that the solubility of cefpodoxime proxetil drug was increase by using solid dispersion method.

Abstract ASC-20

NANOPARTICLES: FUNDAMENTAL AND PROSPECTIVES

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This review explores the recent therapeutic work on drug delivery using nanoparticles as carrier for small and large molecules. As compare to direct delivery of drug, delivery through a carrier increase the efficacy of a drug as well as decrease the side effects by enhancing permeability and retention effect. Nanoparticles are solid colloidal particles in size from 10nm-1000nm. They consist a macromolecular particle which entrapped, dissolved or encapsulate pharmacologically active agent and release in a control manner to achieve site specific action at optimum rate and dose regimen. They also alter and improve pharmacokinetic and pharmacodynamic properties of less efficacious drugs. The main approach in designing nanoparticles are to control particle size, surface properties and release pattern. Current review reveals the method of preparation, characterization and application of several nanoparticles drug delivery system.

Abstract ASC-21

DESIGN OF BEXAROTENE-CARBAPOL TOPICAL GEL FOR EFFECTIVE TREATMENT OF CUTENOUS T-CELL LYMPHOMA

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Bexarotene, a novel retinoid with a high affinity to the retinoid X receptor, was approved by the US Food and Drug Administration (FDA) in 1999 for treatment of patients with refractory MF. Monotherapy at a dose of 300 mg/m^2 per day was shown to produce response rates of 20% to 67% in a randomized open-label multi-center trial. Gels have gained great interest for controlled topical and systemic delivery of drugs. Formulations of acyclovir gels were prepared with different Carbapol grades at various concentrations. The prepared gels were evaluated for its texture, drug content, pH, spreadibilty, viscosity. The gel prepared with Carbapol 940 was found promising for delivery of Bexarotene. The gel has smooth and no greasy feeling and no irritation to skin. In 2%w/v concentration has optimum viscosity and spreadibilty. The gel formulation shown slow drug release advantageous over marketed ointment or creams. The results of the characterization and evaluation established the safety for use, suitability and compatibility of carbapol 940 as a gelling agent with Bexarotene.

Abstract ASC-22

FORMULATION AND EVALUATION OF TOPICAL HYDROGEL OF ACYCLOVIR

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The aim of present work was to develop and characterize liposomal topical gel of antiviral agent Acyclovir for the effective treatment and prevention of herpes simplex virus on the skin especially in case of cold sores. The objective of the work was to prepare and evaluate various physicochemical and biological properties of topical gels prepared by using different grades of Carbopol. The liposomes were developed from indigenous, natural solid lipid by using simple reverse phase evaporation technique. Topical drug delivery system offers localized effect, controlled release of drug, it enables a steady blood-level profile, resulting in reduced systemic side effects and sometimes improved efficacy over dosage form. Carbopol 940 hydrogel in polymer concentration of 1% w/v is promising for topical as well as controlled release systems for Acyclovir than Carbopol 934 and Carbopol 971.Acyclovir liposomal formulation with desired characteristics for topical administration could be successfully prepared by using cholesterol and lecithin in ratio 1:2. Acyclovir loaded liposomes showed enhanced skin permeation as well as retention of drug molecules in skin thus therapeutic level of drug could be achieved topically.

Abstract ASC-23

DESIGN AND FABRICATION OF pH DEPENDENT PULSATILE DRUG DELIVERY SYSTEM OF THEOPHYLLINE

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Aim of the present work was to Design and Fabricate pH Dependent Pulsatile Drug Delivery System of Theophylline for the treatment of asthma. Asthmatic attack mainly takes place in the early morning at 4 o'clock. Pulsatile delivery system is an ideal approach for delivering drug when and where it is required. The tablet in capsule system gives the desired lag time to release and carry the two different type of tablets in the same unit dosage form i.e immediate release tablet and enteric coated sustained release tablet. In the immediate release tablets crospovidone and cross carmellose sodium were used as super disintegrating agents and in sustained release tablet HPMC K100 and bael gum were used as polymers in different ratios.*In vitro* dissolution studies were performed using USP II dissolution apparatus at 50 rpm using 900 ml at 37 ± 0.5^0 C throughout the studies of all formulations. The promising formulation i.e TFCS containing IRT6 and SRT6 were subjected *to invitro* evaluations. So, it can be conclude that tablet in capsule system of Theophylline control the risk of asthma attack, by giving immediate release within 10 mins and maintain the drug level for 8 hrs.

Abstract ASC-24

QUALITY, SAFETY AND EFFICACY: ISSUES AND CHALLENGES

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Harmonisation of regulatory requirements was initiated by the European Community (EC), in the 1980. At the same time there were bilateral discussions between Europe, Japan and the US on possibilities for harmonisation. ICH is a unique undertaking that brings together the drug regulatory authorities and the pharmaceutical industry of Europe, Japan and the United States. ICH regulatory authorities are among the first to evaluate new chemical entities and new products obtained from biotechnology. ICH provides various guidelines which are categorized into four category, Quality guidelines, safety guidelines, efficacy guidelines and multidisciplinary guidelines. The major aim of ICH is to achieve greater harmonization in the interpretation and application of technical guidelines for the registration of new active substances or products obtained by biotechnology by its members; to improve the efficiency of global drug development; to reduce redundant studies; and to improve pharmacovigilance activities and quality assurance.

Abstract ASC-25

PHARMACOVIGILANCE: NEED AND PRESENT SCENARIO

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Pharmacovigilance is an important and integral part of clinical research. Pharmacovigilance defined by the World Health Organization as: The science and activities relating to the detection, assessment, understanding and prevention of adverse effects, or any other drug related problem plays a key role in ensuring that patients receive safe drugs. Safety and efficacy are the two major concerns about any drug. The pharmacovigilance has been known to play an important role in rational use of drugs, by providing information about the adverse effects possessed by the drug in general population. Our knowledge of a drug's adverse reaction can be increased by various means, including spontaneous reporting, intensive monitoring and database studies. The present review presents in brief about the relevance, need, functioning, role and importance of pharmacovigilance.

Abstract ASC-26

GLOBAL SUBMISSION OF INDA, NDA AND ANDA

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Pharmaceutical Regulatory Affairs (PRA) is a vital unit in a pharmaceutical company that successfully drives the Research and Development (R&D) efforts of the company to the market. The regulatory requirements of various countries of the world vary from each other. Therefore, it is challenging for the companies to develop a single drug which can be simultaneously submitted in all the countries for approval. Developing a new drug requires great amount of research work in chemistry, manufacturing, controls, preclinical science and clinical trials. Drug reviewers in regulatory agencies around the world bear the responsibility of evaluating whether the research data support the safety, effectiveness and quality control of a new drug product to serve the public health. Every country has its own regulatory authority, which is responsible to enforce the rules and regulations and issue the guidelines to regulate the marketing of the drugs. This Review focuses on global submission and approval process of different drug product in regulated and semiregulated regions.

Abstract ASC-27

MICROSPONGE DRUG DELIVERY SYSTEM FOR TOPICAL DELIVERY

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Microsponge Delivery System (MDS) is a unique technology for the controlled release of topical agents and consist of macro porous beads, typically 10-25 microns in a diameter, loaded with active agent. Microsponges are porous, polymeric microspheres that are mostly used for prolonged topical administration. Microsponges are designed to deliver a pharmaceutically active ingredient efficiently at minimum dose and also to enhance stability, reduce side effects, and modify drug release profiles. When applied to the skin, the microsponge releases its active ingredient on a time mode and also in response to other stimuli (rubbing, pH, etc.). MDS technology is being used currently in cosmetics, over-the-counter (OTC) skin care, sunscreens and prescription products. Conventional preparations have some disadvantages like unpleasant odour, greasiness and skin irritation. These problems are overcome by microsponge delivery system. Microsponge based drug delivery system produces controlled released action. It also produces site specific and target organ action produced. Microsponge (MDS) mainly developed in topical drug delivery as well as oral controlled delivery system. It also used in cosmetic formulations.

Abstract ASC-28

A SCIENTIFIC REVIEW ON *CORDIA DICHOTOMA*

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*Cordia dichotoma*Forst. (Family Boraginaceae) is a tree of tropical and sub-tropical regions, grows in the sub-himalayan tract and outer ranges, ascending upto about 1500 m elevation. It found in a variety of places like, the dry deciduous forests of Rajasthan and moist deciduous forest of western ghat and tidal forests in Mayanmar. The common name of the plant is Lasura, Borla, Bhokar etc. Phytochemically it consists of carbohydrates, alkaloids, glycosides, flavonoids, tannins and saponins. Chemical screening of both fruit and leaves shows the presence of pyrrolizidinealkaloids, coumarines, flavonoids, saponins, terpenes and sterol. Pharmacologically proved activities are anti-ulcer, wound healing, anti-inflammatory, anti-oxidant, anti-diabetic and hepatoprotective activity.

Abstract ASC-29

TECHNIQUES USED TO ENHANCE BIOAVAILIBILITY OF POORLY WATER SOLUBLE DRUGS

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Solubility of drugs molecules remains one of the most challenging aspects in formulation development. Many water soluble drugs are present in the BCS class Π category, which are characterized by low solubility and high permeability. By increasing the dissolution rate, the solubility of drug can be easily enhanced. As oral route is one of the most desirable and preferred method for drug administration, thus solubility of drug is a major challenge in formulation designing. About 40% of the orally administered drugs are having solubility problems. Thus, because of these solubility problems, the bioavailability of drugs also gets affected. Various solubility enhancement techniques are available for increasing the solubility as well as permeability of drugs like Micronization, Salt formation Complexation, Co-solvent addition, conservation and Solid dispersion. The purpose of this review we concentrated on improvement of the solubility of poorly water soluble drugs by preparing various methods.

Abstract ASC-30

MICROENCAPSULATION-A PROMISING OF NOVEL APPROACH IN DRUG DELIVERY SYSTEM: REVIEW

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Microencapsulation is the process of surrounding or enveloping one substance within another substance on a very small scale, yielding capsules ranging from less than one micron to several hundred microns in size. The encapsulation efficiency of the microparticles or microsphere or microcapsule depends upon different factors like concentration of the polymer, solubility of polymer in solvent, rate of solvent removal, solubility of organic solvent in water etc. Microparticles offer various significant advantages as drug delivery systems, including: (i) an effective protection of the encapsulated active agent against (e.g. enzymatic) degradation, (ii) the possibility to accurately control the release rate of the incorporated drug over periods of hours to months, (iii) an easy administration and (iv) Desired, pre-programmed drug release profiles can be provided which match the therapeutic needs of the patient. This article is a review of microencapsulation and materials involved in it, morphology of microcapsules, microencapsulation technologies, purposes of microencapsulation, and benefits of microencapsulation, release mechanisms, and application and their use in a wide variety of industrial, engineering, pharmaceutical, biotechnology and research applications.

Abstract ASC-31

ANTIAMNESIC ACTIVITY OF AZELNIDIPINE IN STREPTOZOCIN INDUCED DEMENTIA IN RATS

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The present study is an effort to reveal the role of azelnidipine in the management of ICV-STZ induced Alzheimer's disease in rats. Wistar rats (either sex, 12-15 weeks, 260-280 g) were administered with azelnidipine (1.5, 3 and 6 mg/kg; p.o) daily for 14 successive days. Alzheimer's disease was induced in rats by intracerebroventricular (ICV) injection of STZ (3 mg/kg) using stereotaxic apparatus. Memory status of rats was measured with the help of elevated plus maze and novel object recognition task. After behavioral evaluation, the animals were sacrificed and their brains were isolated for estimating brain AchE activity, TBARS and GSH levels. Administration of azelnidipine (3 and 6 mg/kg; p.o) reduced ($p<0.05$) the TL and increase in DI of rats during their elevated plus maze and novel object recognition task session, respectively as compared to surgical control group. Azelnidipine treated rats showed decrease ($p<0.05$) in brain AchE activity, TBARS level and increase ($p<0.05$) in GSH level. Azelnidipine may prove to be useful remedy for the management of Alzheimer's disease owing to its possible neuroprotective and antioxidant properties.

Abstract ASC-32

LEUKEMIA: AN OVERVIEW

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Leukemia is type of cancer that develop in bone marrow. It is caused due the production of large number of WBCs. In 2000, approximately 256,000 children and adults around the world develop a form of leukemia, and 209000 died from it. In 2010, globally approximately 281,500 peoples died due to leukemia. Leukemia, lymphoma and myeloma are expected to cause the death of an estimated 58,300 people in us in 2017. Leukemia patients have extremely low count of healthy blood cells and platelets. Symptoms of leukemiaare osteopoisis (thinning of bones), low blood cell counts, infection, graft versus host disease, kidney stones, mouth ulcers, diarrhoea , temporary hair loss, rashes, nausea and vomiting , fatigue. Different types of natural plants and drugs available for treatment of leukemia arevincristine sulfate, thioguanine, hyper-CVAD, arsenic trioxide, clafen, withania simnifera, madhukaparni, carrot, ginger, turmeric, etc.

Abstract ASC-33

ANTIPARKINSON ACTIVITY OF *EPIPREMNUM AUREUM* LEAVES IN RATS

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The present study explore the neuroprotective effect of ethanol extract of *Epipremnumaureum* in rotenone induced Parkinson's disease in rats. The PD was induced in rats by intracerebroventricular administration of rotenone (3µg/µl). EEA has been administered in 3 doses (125, 250 and 500mg/kg; p.o.) daily to rats for 28successive days. The behavior of animals was assessed using rearing score, catatonia score, ambulation score and paw retraction time. After behavioral evaluations, the animals were sacrificed for estimating TBARS levels, GSH levels and catalase activity. Rotenone infusion caused a decrease in rearing and ambulatory scores and increase in catatonic score and paw retraction time. Rotenone infused rats showed higher brain TBARS level and lower GSH levels and catalase activity. The administration of EEA significantly ($p<0.05$) increased rearing and ambulation scores on the other hand the paw retraction time and catatonic scores were also reduced suggesting behavioral improvements. EEA treated mice showed a significant decrease in TBARS level along with significant ($p<0.05$) increase in GSH levels and catalase activity. Therefore, EEA may prove to be a beneficial remedy for Parkinson's disease by virtue of its neuroprotective and antioxidant properties.

Abstract ASC-34

DECODING THE SIGNATURE OF MOLECULAR MECHANISM INVOLVED IN MUTATION ASSOCIATED RESISTANCE TO BTZs (1, 3-BENZOTHIAZIN-4-ONES) BASED DprE1 INHIBITORS

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Different resistant strains of *Mycobacterium tuberculosis* like MDR, XDR and TDR highlight the urgent need for novel anti-tubercular drugs. In Mycobacteria, DprE1 is a key enzyme required for the cell wall assembly that biosynthesize DPA, a sole donar substrate for membrane embedded Arabinosyltransferases, resulting in higher levels of arabinogalactan thereafter. The already identified electron deficient nitro containing BTZ043 and related compounds are novel class of DprE1 inhibitors, as these suicide inhibitors have been reported to inhibit DprE1 irreversibly by covalent bonding. But Cys387Ser mutation resulted in resistance to nitro-containing compounds like BTZ043 as reported by Makarov et al., (2014) due to arrival of BTZ043 resistant strain NTB1 of Mtb. To understand the molecular cause of resistance to nitro containing BTZs related drugs due to reported Cys387Ser mutation, employed *in-silico* analysis. The single point mutant Cys387Ser DprE1 was modelled via homology modeling using MODELLER 9.16 and explored it for the molecular docking and molecular dynamics studies. We had calculated Burgi-Dunitz angle and favourable distance for nucleophillic attack in both wild and mutant. Quantum mechanics approach used to justify it.

Abstract ASC-35

NO DRUGS, HAVE PROBIOTICS

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The beneficial health effects imparted by probiotics as well as prebiotics have been extensively studied and is commercially being explored in the subject of research arena in the past few decades.The products yielded from probiotics increases ability to digest food and promotes bowel regularity.They produces antibacterial compounds to help crowd out unfriendly bacteria.*Lactobacillus* and *Bifidobacterium* are the main probiotic strains.Consumption of natural and processed probiotics stimulates the immune system. They control inflammation to restore organisms in the colon. Prebiotics are the most commonly used fibres when they are used with probiotics they are termed as synbiotics which improve viability of probiotics.This review focuses on probiotics and their role in improving health, food areas and new trends in probiotic products.

Abstract ASC-36

MOLECULAR DYNAMICS/QUANTUM MECHANICS GUIDED DESIGNING OF NATURAL PRODUCTS BASED PRODRUGS OF EPALRESTAT

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Activation of polyol pathway and oxidative stress are two well established pathological indicators in diabetic complications. Simultaneous targeting of these two molecular pathways is more beneficial than targeting either of these. In present studies, mutual prodrugs of Epalrestat with different natural antioxidants were designed, synthesized and evaluated. In silico techniques like molecular dynamic simulations and quantum mechanical approaches, considering human esterase enzyme (hCE1) as the site of hydrolytic cleavage were employed in designing of these mutual prodrugs. Parameters such as distance for nucleophilic attack, Burgi-Dunitz angle and HOMO-LUMO energy gap, which govern the reactivities of hydrolytic cleavage of ester prodrugs by esterase enzyme, were calculated to determine the putative site and mechanism of cleavage of these mutual ester prodrugs. These in silico analysis indicate that prodrugs are biotransformed to parent drug Epalrestat. Further, on the basis of in silico studies, five mutual prodrugs were synthesized and the best one among them (EPL-GUA) was subjected to in vivo antioxidant activity which showed significant free radical scavenging capacity. Our results indicate that these mutual prodrugs could be optimized to develop molecules for the management of diabetic complications.

Abstract ASC-37

CORDIA OBLIQUA WILLD. LEAF ANTIOXIDANT ACTIVITY STUDY AND DETERMINATION OF TOTAL PHENOL & FLAVONOID CONTENT

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Cordia obliqua Willd. (Clammy Cherry) belongs to genus *Cordia* and family Boraginaceae. It is a medium-sized deciduous tree and found throughout the mid-Himalayas up to elevations of 1,470 meters. It possesses a number of traditionally mentioned medicinal activities. The work is related with determination of total phenol & total flavonoid content and anti-oxidant potential of *Cordia obliqua* leaf methanol extract. Successive soxhlet extraction was performed for leaf powder with various solvents in increasing order of polarity like Hexane, Chloroform, Methanol and water. The yield of these extracts was calculated and recorded their colour and consistency. Total phenol content was determined by Folin Coicalteu's reagent using Gallic acid as standard and total flavonoid content by Aluminium chloride (10%) reagent using Rutin as standard. The *in-vitro* antioxidant activity was determined by two methods DPPH radical scavenging activity and H_2O_2 radical scavenging activity. The maximum amount of phenol and flavonoid content was observed for leaf methanol extract as 6.838±0.0121% and 3.801±0.008% respectively. In similar way the leaf methanol extract was found better antioxidant as compared to other extracts. So *Cordia obliqua* leaf methanol extract is rich in phyto-constituents and its potent antioxidant effect suggest that this extract has good therapeutic potential.

Abstract ASC-38

BIOSORPTION OF HEAVY METALS FROM INDUSTRIAL EFFLUENT BY USING VARIOUS MICROORGANISMS

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Microorganisms play a significant role in bioremediation of heavy metal contaminated industrial effluents. Different types of microorganism like bacteria, fungi, yeast are used to remove the heavy metals like Cr, Ni, Cd, Cu, Zn, Pb from industrial effluents. Conventional treatment technologies (chemical precipitation, chemical oxidation or reduction) for removal of heavy metals from aqueous solution are not economical and generate huge quantity of toxic chemical sludge. Biosorption of heavy metals by metabolically inactive non-living biomass of microbial origin is an innovative and alternative technology for removal of heavy metal pollutants. Biomass of *Aspergillus niger*, *Penicillium chrysogenum*, *Rhizopus nigricans*, *Ascophyllum nodosum*, *Sargassum natans*, *Chlorella fusca*, *Oscillatoria anguistissima*, *Bacillus firmus* and *Streptomyces* sp. have highest metal adsorption capacities ranging from 5 to 641 mg g^{-1} mainly for Pb, Zn, Cd, Cr, Cu and Ni. Biomass generated as a byproduct of fermentative process offers great potential for adopting an economical metal recovery system.

Abstract ASC-39

DESIGN, DEVELOPMENT AND EVALUATION OF NAIL LACQUER OF AN ANTIFUNGAL DRUG

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The present study aims at optimizing, developing and evaluating the nail lacquer formulation for transungual delivery of ketoconazole for the management of onychomycosis. Nail lacquer (NL) of ketoconazole was formulated using two different types of polymers i.e. hydrophobic (Eudragit RL 100) and hydrophilic polymer (Klucel LF; hydroxyl-propyl cellulose).The optimization of NL was done statistically using 3^2 full factorial design. Different polymer ratios (Eudragit RL 100/ Klucel LF; X_1) and solvent ratios (ethanol/water; X_2) were selected as independent variables. The formulations were evaluated for drying time (sec; Y_2), drug permeation (µg/cm^2/h; Y_1) and peak adhesive strength (PAS) of NL film (g; Y_3). The optimized formulation was then characterized for various parameters by utilizing different techniques like ATR-FTIR, DSC and SEM. *Ex vivo* activity of the optimized formulation was assessed against *Candida albicans* (MTCC No. 3018). The optimized NL formulation was observed to exhibit better penetration (~ 2.81 fold) as well as better antifungal activity as compared to the marketed formulation.

Abstract ASC-40

NANOTECHNOLOGY IN PHARMACEUTICALS

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Pharmaceutical nanotechnology offers new tools, opportunities and scope, which are expected to have a great impact on many areas in disease diagnostics and therapeutics. It has emerged as a discipline having enormous potential as carrier for spatial and temporal delivery of bioactives and diagnostics and provides smart materials for tissue engineering. It is now well-established as specialized area for drug delivery, diagnostics, prognostic and treatment of diseases through its nanoengineered tools. Few nanotechnology based products and delivery systems are already in market. It provides opportunities to improve materials, medical devices and help to develop new technologies where existing and more conventional technologies may be reaching their limits. It raises new hope to pharmaceutical industries by providing new cutting age patentable technologies in view of revenue loss caused due to off-patent drugs. Scientific societies, industries and governments all over world are looking with great anticipation and contributing their best to clutch the potential of this technology. This technology has the potential to make significant contributions to disease detection, diagnosis, therapy, and prevention. It could have a profound influence on disease prevention efforts because it offers innovative tools for understanding the cell as well as the differences between normal and abnormal cells. It could provide insights into the molecular basis of disease. However going towards bottom size increases the unknown health risk. However, some suggested initiative must be taken in order to exploit the advantage of this very fascinating and ever growing potential technology. Some of these are (i) identifying, defining and characterizing model nanomaterials, (ii) developing toxicity testing protocol, (iii) detecting and monitoring exposure level, (iv) assessing the impact of environment, and (v) developing the biocompatible hybrid system. We still lack sufficient data and guidelines regarding safe use of these nanotechnology based devices and materials. There are several confounding unresolved issues, which warrant the application in its full bloom. It is still ininfancy. Some concerning issues like safety, toxicity hazards, bioethical issues, physiological and pharmaceutical challenges get to be resolved by the scientists.

Abstract ASC-41

ISOLATION AND IDENTIFICATION OF *E.COLI* AND *S.AUREUS* FROM LOCAL AREA WASTE WATER

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The research work was conducted to detect and characterize of *E. coli* and *S. aureus* found in the waste water. A total of 3 samples (w_1,w_2,w_3) were collected from the local area of district Ropar. Samples were propagated MacConkey agar and MS media for the detection of *S.aureus* and*E.coli* respectively. Identification was carried out by using colonial morphology biochemical tests and gram's staining. Confirm the presence of *E.coli* and *S.aureus* in waste water samples. The result revealed that higher concentration of *E. coli* are found in pond water &*S. aureus* in tap water & pond water. The presence of these bacteria is alarming situation for environment and waste water treatment. So waste water treatment methods should we employed like phase separation, biosorption, sedimentation.

Abstract ASC-42

A REVIEW ON ANTIDIABETIC PLANT: ACTIVE INGREDIENT, EXTRACTION TECHNIQUE AND ACTING MECHANISM

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Diabetes mellitus is a chronic disorder characterized by hyperglycemia because of impaired insulin action, diminished insulin production, increased hepatic glucose production, and oxidative stress. There are multiple therapies available to treat diabetics, but total recovery from diabetes may not possible. In addition, allopathic drugs have some adverse effects such as renal impairments, mal-absorption, flatulence, diarrhea, and abdominal bloating. The anti-diabetic medicines from plants have a similar mechanism of action as allopathic drugs and reduce side effect with low cost. Anti-diabetic effects of herbals are attributed to their ability to restore the function of pancreatic tissues by causing an increase in insulin release or inhibit intestinal absorption of glucose or increase facilitation of metabolites in insulin-dependent processes.Berberisaristata herb is called Indian barberry or tree turmeric and it belongs to family Berberidaceae. It is used in ayurvedic medicine system from long times. The stem bark of Berberisaristata herb is rich in berberine and isoquinoline alkaloids. Both chemical compounds are anti-fungal, anti-bacterial, anti-oxidant, anti-viral, ant-diabetic, anti-tumor and anti-inflammatory in nature. A brief review on the extraction techniques for mentioned parts is also included. Furthermore, the acting mechanisms for the anti-diabetic activity were described, and the related active ingredients were identified.

Abstract ASC-43

CAFFEIC ACID PHENETHYLESTER PREVENTED MEMORY IMPAIRMENT IN STREPTOZOTOCIN-TREATED RATS THROUGH PI3-KINASE-eNOS PATHWAY

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The present study was undertaken to elucidate the role of PI3-kinase in memory enhancing potential of CAPE against centrally administered streptozotocin (STZ-ICV) induced cognitive deficits in rats. The STZ-ICV (3 mg/kg) treated rats showed profound loss of memory during Morris water maze paradigm. Chronic treatment with CAPE (6 mg/kg, 28 days) attenuated STZ-ICV triggered memory loss in rats. Subsidence of nitric oxide activity by wortmannin (5 µg/rat) or L-NAME (20 mg/kg, 28 days) interfered with memory restorative function of CAPE in STZ treated rats. Interestingly, chronic L-Arginine (100 mg/kg, 28 days) treatment moderately ($p>0.05$) lowered the memory functions. Administration of CAPE attenuated STZ-ICV induced increase in brain AChE activity, nitrite and NFκB levels, and reduction in eNOS level. Injection of Wortmannin elevated the brain AChE activity, and decreased the nitrite, eNOS and NFκB level. Rise in AChE activity, eNOS and NFκB levels, and decline in brain nitrite content was observed in L-NAME treated group. L-Arginine group showed enhanced nitrite content, and diminished AChE activity, eNOS and NFκB levels. It can be concluded that PI3-kinase mediated nitric oxide facilitation is an essential feature of CAPE action in STZ-ICV treated rats.

Abstract ASC-44

MICRONEEDLES: A NOVEL TECHNOLOGY FOR TRANSDERMAL DRUG DELIVERY SYSTEM

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Microneedles are minimally invasive devices long enough to penetrate skin barrier and short enough to avoid dermal nerve stimulation. Therefore, the principal benefit of Microneedles is the pain-free delivery of both small and large molecular weight active pharmaceutical ingredients. It is a novel drug delivery technology that can offer promising advantages as an alternative to classical needle injections and other routes of administration. Many therapeutic agents are unable to reach the systemic circulation, due to the barrier properties of stratum corneum (SC) of the skin. Only drugs with very specific physicochemical properties (molecular weight < 500 Da, adequate lipophilicity, and low melting point) can be successfully administered transdermally. Transdermal delivery of hydrophilic drugs and macromolecular agents is problematic, which could be possible through by-pass or reversible disruption of SC molecular architecture. Microneedles by-pass the SC and create transient aqueous transport pathways and enhance the transdermal permeability of macromolecular agents and hydrophilic drugs. Microneedles have tremendous potential to yield real benefits to patients like: (i) Less pain (ii) Simple medication administration possibly by patients themselves, which enhances patient comfort and compliance (iii) Enhanced drug efficacy, resulting in reduced drug usage, and (iv) Enhanced treatment safety, simplicity, and cost effectiveness.

Abstract ASC-45

SILK PROTEIN SERICIN: A REVIEW

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Silks are evidently going on polymers which have been used clinically as sutures for hundreds of years. It's so for obtained from insects or worms, silk includes a filament middle protein, termed fibroin, and a glue-like coating made up of sericin proteins. An vital factor of silk has an prolonged history of being discarded as a waste inside the path of silk processing. The price of sericin for tissue engineering is underestimated and its functionality in using as regenerative treatment has certainly began to be explored. Its variable amino acid composition and various purposeful corporations confer upon it appealing bioactive proteins, which can be specifically interesting for biomedical applications. Because of its antioxidant houses, moisturizing capability, and mitogenic impact on mammalian cells, sericin is useful in cellular regeneration and tissue engineering. Research indicates that keratinocytes and fibroblasts have brought about the development of sericin-based biomaterials for pores and skin tissue repair, in particular as wound dressings. Moreover, sericin may be used for bone tissue engineering due to its capability to spark off nucleation of bone-like hydroxyapatite. Stable silk sericin biomaterials, as films, sponges, and hydrogels, are acquired by means of cross-linking, ethanol precipitation, or mixing with extraordinary polymers. Now an afternoon, sericin will also be used for transport of drugs due to its chemical reactivity and pH-responsiveness which facilitate the fabrication of nano and microparticles, hydrogels, and conjugated molecules, improving the bioactivity of medicine.

Abstract ASC-46

REVIEW ON COUMARIN AND ITS DERIVATIVES

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Coumarins owe their class name to 'Coumarou', the vernacular name of the tonka bean (*Dipteryxodorata*Willd.,Fabaceae). Coumarin is classified as a member of the benzopyrone family of compounds, all of which consist of a benzene ring joined to a pyrone ring. Various methods are used for the synthesis of coumarin derivatives. Coumarin is used for treatment of High Protein Edema (HPE). Coumarin has been shown to activate cells of immune system and used in treatment of cancer. Coumarins are competitive inhibitors of Vit. K,thus act as anti-coagulant.Coumarine and its derivatives are highly effective against inflammatory response.Both coumarin and itsderivatives have shown promise as potential inhibitors of cellular proliferation in various carcinoma cell lines.
Key words: Synthesis of Coumarin derivatives, Anti-inflammatory activity, Anti-cancer activity

Abstract ASC-47

SWINE FLU-A DESCRIPTIVE OVERVIEW ON CAUSES, SYMPTOMS, PATHOPHYSIOLOGY AND TREATMENT

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Swine flu (swine influenza) is a respiratory disease caused by viruses (influenza viruses) that infect the respiratory tract of pigs and result in nasal secretions, a barking-like cough, decreased appetite The infection is communicable to humans. Presently this new infection is seen around the world. Swine flu is a kind of variant of H1N1 influenza infection. Due to the nature of respiratory virus, the transmission of this pathogenic virus is air borne transmission. Hence, the rapid spreading and difficulty in control of this infection can be expected. It enters the body through the mucous membranes - the eyes, the nose or the mouth. Swine flu is spread just like the regular seasonal flu spreads. In the present review, we are trying to present the common sign and symptoms, spreading, pathophysiology and latest treatment used for swine flu.

Abstract ASC-48

DEVELOPMENT AND VALIDATION OF STABILITY INDICATING UV SPECTROPHOTOMETRIC METHOD FOR THE ESTIMATION OF BENZYDAMINE HYDROCHLORIDE IN BULK AND IN PHARMACEUTICAL DOSAGE FORM

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The objective of the present study is to develop and validate a novel stability indicating UV spectrophotometric method for estimation of Benzydamine Hydrochloride (BNZ) in pharmaceutical dosage form as not a single UV spectrophotometric method has been reported for the estimation of Benzydamine Hydrochloride, which makes the present work novel. In the present research work, UV spectrophotometric determination was carried out at an absorption maximum of 305.6 nm in pH 6.8 phosphate buffer. The purposed method was validated statistically for linearity, accuracy, precision, repeatability, ruggedness, sensitivity as per International Conference on Harmonization guidelines. The drug substance was exposed to acid hydrolysis, alkaline hydrolysis, oxidative degradation, photolytic degradation, and thermal degradation and the stressed samples were analyzed by the proposed method to demonstrate the specificity of the method. The proposed method obeyed beer lambert's law in the concentration range of 5-50 µg ml^{-1} with correlation coefficient (r^2) of 0.999. Percentage relative standard deviation associated with all the validation parameters were ≤ 2%. There were no significant changes in absorbance after performing the forced degradation studies & the % age drug recovery was found to be 98.53% and 98.53 % for film and gel respectively. The proposed method was found to be novel, simple, rapid, precise, selective, re-producible economical and stability indicating can be successfully applied to the determination of Benzydamine Hydrochloride in bulk and in pharmaceutical dosage form.

Abstract ASC-49

UNDERLYING MECHANISMS OF ANTICANCER COUMARINS: AN OVERVIEW

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Coumarin derivatives either natural or synthetic have become an interesting subject of investigation for many researchers due to their wide range of biological activities. Coumarin scaffold has been reported to have inhibitory effect on number of cell lines serving as a pharmacophore of utmost importance for anticancer drug development. Action of coumarins on tumour cells is being exhibited *via* different mechanisms and some of them have been reported to possess high selectivity towards the cancer cell lines. In present work, the role of coumarins as potential anticancer drugs has been briefly reviewed which can serve as an excellent tool for future investigations on design and synthesis of such derivatives. Other than anticancer activity, the Coumarin also possess anti-inflammatory , antimicrobial , antiviral, antinociceptive , antiasthmatic , antidepressant, anti- Alzheimer activity. The coumarin derivatives such as costatolide and calanolide B have been marketed and utilized in the treatment of breast cancer.

Abstract ASC-50

EXPLORING THE POTENTIAL OF VARIOUS POLYMERS – PEG 400 AND GUAR GUM TO ENHANCE THE SOLUBILITY BY SOLID DISPERSION TECHNIQUE

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Lercanidipine is a vasoselective dihydropyridine calcium antagonist, mainly used for the treatment of hypertension and angina pectoris. However, it suffers from food dependent absorption, poor solubility, low permeability and considerable first pass metabolism, resulting in highly variable and low bioavailability of 10%. Nowadays, there has been significant interest and development in transdermal and transmucosal routes of drug administration because these routes have potential to decipher such problems associated with oral administration of certain drugs. Several mucosal surfaces have been investigated as delivery routes for systemic drug delivery due to their low level of keratinisation compared to skin.. Rapid disintegration of the tablet in the oral mucosa releases lercanidipine which may facilitate orotransmucosal absorption of the drug to reach the systemic circulation, thus bypassing gastrointestinal tract and first-pass metabolism. Solid dispersions of lercanidipine were prepared using PEG 400 and Guar gum using various optimized ratios. The best LR-SD5 batch with enhanced solubility was incorporated in fast disintegrating tablets and they were finally evaluated for various tests.

Abstract ASC-51

SUBSTITUTED HYDRAZONES: A VERSATILE PHARMACOPHORE

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Hydrazone is a class of organic compounds with general structure $R_1R_2C=NNH_2$. Hydrazone derivatives of carbonyl compounds are synthesized by the action of different hydrazine on ketones or aldehydes. Hydrazones possessing an azometine -NHN=CH- proton has been reported to be substituted with a number of heterocycles such as pyridine, furan, isooxazole, isoindole, thiophene, pyrimidine constituting an important class of compounds for new drug development. Therefore, many researchers have synthesized these compounds as target structures and evaluated their biological activities. Literature studies revealed that hydrazones and various substituted hydrazones are associated with a broad spectrum of biological activities such as antioxidant, antibacterial, anti-inflammatory, analgesic, antiviral, antifungal, antiplatelet, antitubercular, anticonvulsant, antimicrobial, and anticancer activities etc. Nifuosroxazide, Isoniazid, isocarboxazide, nitrofurazone, furazolidone and nitrofurantoin are some marketed hydrazone derivatives. The present review focuses on the different biological activities possessed by different hydrazones.

Abstract ASC-52

ACRYLAMIDE MEDIATED CARDIOTOXICITY AND ITS PROMISING TREATMENTS

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Acrylamide is, α, βunsaturated carbonyl derivative, a food borne chemical, belongs to class Type-2 alkenes. It is utilized in industry to synthesize polymers, gels and have various commercial applications. Exposure to humans can be from diet and external sources, a need exists to develop the understanding of its distribution in food and environment. Acrylamide is present in food rich in carbohydrates and is derived from heat-induced reaction between the free amino acid (asparagine) and reducing sugar. It is reported that acrylamide exposure has been linked to major organ system toxicity. The possible reasonsforcardiotoxicity of acrylamide is, its high reactivity and ability to bind cell thiols, amine group in proteins, DNA bases, and induces oxidative stress and proinflammatory effects. It is evident that oxidativestress possesses important effect in pathogenesis of CVD (cardiovascular diseases).Given the pervasive environmental and endogenous presence of these potentially toxic compoundsdiscussion of molecular mechanism and possible toxic risk could be important. Various strategies can be adapted for acrylamide toxicity treatments that are, the agronomical approach, technological approach and pharmacological approach.

Abstract ASC-53

AN OVERVIEW ON: MYOCARDIAL ISCHEMIA AND REPERFUSION INJURY

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Cardiovascular diseases (CVD) cover a wide array of disorders, diseases of the cardiac muscle and of the vascular system. Prominent causes of CVD mortality and morbidity are ischemic heart disease (IHD), Stroke and Congestive heart failure (CHF). Myocardial ischemia results from severe impairment of coronary blood supply and produced a spectrum of clinical syndrome like myocardial infarction (MI), angina pectoris and sudden cardiac death. Myocardial ischemia results in cessation of oxidative phosphorylation, causing decrease in ATP, decrease in level of glutathione, phosphocreatine and ion distribution also altered. Thrombolysis, percutaneous transluminal coronary angioplasty and coronary bypass surgery are the general treatment strategies of cardiovascular disorders. All of these treatment strategies can cause a myocardial ischemia reperfusion (MI/R) injury, which is known to occur on the restoration of coronary blood flow after a period of myocardial infarction. MI/R is a combine entity with diverse components. Reperfusion often aggravates cardiac dysfunction via increase in the generation of reactive oxygen species (ROS), calcium overloading, and the loss of membrane phospholipids. In this review, we have discussed the various mechanisms and implications of ischemic reperfusion injury.

Abstract ASC-54

RECENT ADVANCES IN SUBSTITUTED 4-THIAZOLIDINONES AS ANTICANCER AGENTS

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4-Thiazolidinones are a saturated pharmacophore of thiazole that possesses diversity in the biological activities. 1, 3-Thiazolidin-4-ones are heterocycles that have an atom of sulphur at position 1, a nitrogen at position 3 and a carbonyl group at position 4. Anti-tumour properties of 4-thiazolidinones are related to their affinity to anticancer bio targets such as a JNK stimulating phosphates-1 (JSP-1), tumour necrosis factor TNFα, anti-apoptotic bio complex Bcl-XL-BH3, integrin αvβ3, etc. 4-thiazolidinone derivatives with antitumor activity on human lung cell line (H460 and H460/TaxR), colon cell line (HT29), breast cancers cell line (MCF-7 & MDA-MB 231), cervical cell line, leukaemia, renal & prostate cell line have become a promising area of research. 4-Thiazolidinone also have antiviral, anti-fungal, antibacterial, anti-inflammatory, anti-convulsant, anti-diabetic, anti-hyperlipidemic, cardiovascular and anti- tubercular. The compounds such as ralitoline (anti-convulsant), etozoline (anti-hypertensive), pioglitazone (hypoglycemic), and thiazolidomycin (activity against streptomyces species) have already been successfully introduced in the market.

Abstract ASC-55

CALCIUM CHANNEL BLOCKERS AMELIORATES DEPRESSION-LIKE SYMPTOMS IN MICE

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Monoamine depletion, oxidative stress and altered calcium signaling through inter-dependent mechanism adversely affect the neurons, leading to depression. Calcium channel blockade may be a promising target in the management of depression. The present study investigates the effect of lacidipine on reserpine induced depression in mice. Lacidipine was administered at three doses i.e. 0.3, 1 and 3 mg/kg, *i.p.* to different groups of mice (Swiss albino, either sex, 18-25 g)daily for 14 consecutive days. Reserpine (5 mg/kg, *i.p.*) was given to mice to induce depression, and afterwards rectal temperature was measured, catalepsy and ptosis were scored and TST was performed. Brain TBARS, GSH, nitrite-nitrate levels, andSOD and catalase activities were estimated after behavioral evaluation. Lacidipine improved ptosis and catalepsy score and prevented induction of hypothermia in mice. Immobility induced by reserpine in tail suspension test was reduced following lacidipine administration. A decrease in oxidative stress parameters as evident by higher brain GSH content, SOD and catalase activities, and decline in TBARS and nitrite-nitrate levels was observed after lacidipine administration. Lacidipine treatment ameliorated the depression like symptoms and averted the rise in oxidative stress induced by reserpineadministration in mice.

Abstract ASC-56

NEW THERAPEUTIC OPTIONS IN MANAGEMENT OF ALZHEIMER'S DISEASE

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Alzheimer's disease (AD) is the most prevalent cause of dementia worldwide with multifactorial etiology and complex pathophysiology. The three main popular theories that define different aspects of Alzheimer's disease are cholinergic, amyloid and tau hypothesis. The various target- based pharmacological treatment in clinical practice or under development are discussed below. 1) Cholinergic hypothesis: Anti-cholinergic drug (donepezil) 2) Amyloid hypothesis: a) Decreasing production of Aβ (MK-8931), b) Promoting clearance of Aβ {Passive immunization (bapineuzumab) and active immunization(ACC-011)}, 3) Tau-based therapy {Targeting tau phosphorylation (Lithium), Microtubule stabilization (paclitaxel), Tau aggregation inhibitors (TRx0237) 4) Oxidative stress {Exogenous antioxidants (selenium), Facilitating endogenous antioxidant (tertbutylhydroquinone)}, 5) Receptors {muscarinic, nicotinic acetylcholine receptors, sigma receptors (Lecozotan-HT1A antagonist)}. 6) Enzymes(α-secretase, β-secretase, gamma-secretase, caspases, cyclooxy-genase, 3-hydroxy-3-methylglutaryl-coenzyme A reductase, phosphodiesterases, protein kinase C. 7) Multi-target-directedligands(Ladostigil). A lot of compound are effective preclinically but in clinical trial results are not promising. This indicates to develop better preclinical models of AD that could be correlated with disease progression of AD in humans. Additional we need to optimizing dosing, symptomatic parameters and biomarkers in clinical trials so that effective drugs can be launched for treatment of AD.

Abstract ASC-57

PATHOPHYSIOLOGY OF GOUT

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Gout is a metabolic disease in which increased level of uric acid in the blood start depositing within joints and tissues. The major cause of gout is the ineffective metabolism of a nucleic acid in the body called purine. The normal metabolism of purine result in an endproduct called uric acid, which is then excreted by the kidneys. In gout, however, metabolic problems cause uric acid to be overproduced and/or under-excreted. In about 90% of cases, gout is due to the under-excretion of uric acid from the kidneys. Gout is a very complex disorder and also very less explored one. No recent advancement on this topic has been seen in recent times. This review will explore pathophysiological parameters and indicates towards the future perspectives for research.

Abstract ASC-58

TRICHOSANTHESSPIECES: AN OVERVIEW

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Trichosanthes, a genus of family Cucurbitaceae is an annual or perennial herb distributed in tropical Asia, Polynesia and Australia. Over more than 20 species are recorded in India.Most common among them are *T. anguina,T. dioica,T. kirilowii and T. tricuspidata. T. anguina*wholeplant including roots, leaves, fruits, seedshave medicinal properties like anthelmintic, anti-inflammatory, anti-histaminic and gastro protective. *T. diocia*is used traditionally as anti–HIV, anxiolytic, anti-diarrheal, anti-pyretic, antioxidant, anti-diabetic, anti-microbial, abortifacient, diuretic, expectorant, wound healing, anti-inflammatory, cholesterol-lowering and cardiotonic agent. *T. kirilowii*chineseflowering plant is used to drain heat and generate fluids, clear and drain lung heat, transform phlegm, and moisten lung dryness, and resolve toxicity and expel pus.*T. tricuspidata*fruits are used in the treatment of asthma, earache andozoena, curemigraines, foropthalmiaand rheumatism. Other species include *T. anaimalaiensis,T. cuspidaT. dunniana,T. incise,T. lobata,T. nervifolia,T. wallichianaT. scabra,T. rubriflos* and *T. villosula.*Thus these unexploredspecies could further be used as a potential resource for drug research.

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Abstract ASC-59

SYNTHESIS AND ANALYSIS OF BENZIMIDAZOLE

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Benzimidazole is a heterocyclic aromatic chemical compound consists of the fusion of benzene and imidazole. Synthesis of benzimidazole involves condensation of o-phenylenediamine with formic acid and analysis by the IR spectroscopy. The benzimidazole ring possesses a high degree of stability. Benzimidazole is not affected by concentrated sulfuric acid, hot hydrochloric acid as well as alkalis.Benzimidazole and it's derivatives play very important role as therapeutic agents e.g. antiulcer and anthelmintic drugs. Apart from this the benzimidazole derivatives exhibits pharmacological activities such as antimicrobial, antibacterial, antifungal, antimalarial, antiviral and antihypertensive etc

Abstract ASC-60

DENGUE FEVER: A VIRAL DISEASE

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Dengue fever "breakbone fever" or "dandy fever" is a mosquito-borne caused by the dengue virus. Dengue is spread by several species of mosquito of the *Aedes* type, *A. aegypti* family *Flaviviridae*; genus *Flavivirus*. Dengue Hemorrhage fever (DHF) and Dengue shock syndrome (DSS) are the extreme forms of dengue fever. Symptoms severe joint and muscle pain, swollen lymph nodes, headache, fever, exhaustion and rash. Since it's a virus there is no treatment for the disease itself, but only of symptoms. It can be prevented by eliminating mosquito vector population and reduce mosquito biting specially during day time.

Abstract ASC-61

SYNTHESIS, SPECTRAL STUDIES AND ANTIMICROBIAL ACTIVITY OF COUMARIN DERIVATIVES

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The Present research work is aimed to synthesize a serious of various substituted derivatives of 8-methyl-2-substituted-6*H*-chromeno [6,7-d] oxazol-6-one (6a-6f) and (7a-7b) from 6-Amino-7-hydroxy-4-methyl-2*H*-chromen-2-one by reaction with different substituted aldehydes and acetic anhydrides in the presence of glacial acetic acid and pyridine. The structure for compounds has been determined by IR, ^{1}HNMR spectroscopy. All the synthesized compounds 1-8 have been screened for their anti-microbial activity with reference drug Ciprofloxacin by using cup-plate method. Among all the synthesized derivatives, compounds which are substituted with 4-phenyl (6a), 4-bromo phenyl (6b), 4-nitro phenyl (6c), 4-chloro phenyl (6d), 2-chlorophenyl (6f) exhibited the most promising antimicrobial activity against*Escherichia coli* (MTCC 614) and *Staphylococcus aureus*(MTCC 3160).Coumarin nucleus incorporating oxazole moiety also possess synergism with total eight conventional antibacterial agents, *i.e.* chloramphenicol (CL), gentamycin (CN), fosfomycin (FF), levofloxacin (LE), minocycline (MI), tazobactam (P/T), teicoplanin (TE), vancomycin (VA), against Methicillin-resistant *staphylococcus aureus* (MRSA) strains.

Abstract ASC-62

GOLD NANOPARTICLES: A REVIEW

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The prominent challenges in manufacturing carrier system for chemical,biological,and medical applications are to produce stable,nontoxic and uniform dimension particles by using various macromolecules.in this respect, the emerging field of nanotechnology enables various approaches towards optimising synthesis ,protocols and methodologies. Gold nanoparticles are widely used in many fields as preferred materials for their unique optical and physical properties, such as surface plasmon oscillations for labeling, imaging, and sensing. Recently, many advancements were made in biomedical applications with better biocompatibility in disease diagnosis and therapeutics. Au-NPs can be prepared and conjugated with many functionalizing agents, such as polymers, surfactants, ligands, dendrimers, drugs, DNA, RNA, proteins, peptides and oligonucleotides. This review addressed the use of gold nanoparticles and the surface functionalization with a wide range of molecules, expanding and improving gold nanoparticles in targeting drugs for photothermal therapy with reduced cytotoxic effcts in various cancers, gene therapy and many other diseases. Overall, Au-NPs would be a promising vehicle for drug delivery and therapies.

Abstract ASC-63

NANOMEDICINE IN CARDIOVASCULAR DISEASES: REVIEW

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Cardiovascular diseases are a major cause of disability and they are currently responsible for a significant number of deaths in a large percentage of the world population. In this situation, the need arises to continue exploring new technologies and strategies in order to overcome the disadvantages and limitations of conventional therapeutic options. A large number of therapeutic options have been developed for the management of cardiovascular diseases. Nanomedicine in the the research field makes use of nanoparticulate agents for biomedical applications.The initial goals included altering pharmacokinetics, increasing the percentage of injected dose , accomplishing target-specific delivery and uptake therefore decreasing doses of compounds. Many nanoparticle formulations have been shown to exhibit increased therapeutic efficacy and diminished adverse effects, which have ultimately resulted in their clinical applications. More specifically, there have been important advances in the area of nanotechnology and the controlled release of drugs, destined to circumvent many limitations of conventional therapies for the treatment of diseases such as hyperlipidemia, hypertension, myocardial infarction, stroke and thrombosis.

Abstract ASC-64

A REVIEW ON NANOTECHNOLOGY MEDIATED NOSE TO BRAIN DRUG DELIVERY FOR PARKINSON'S DISEASE

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In the recent years brain delivery of neurotherapeutics through nasal route have attracted attention of several researchers, exploiting the olfactory pathway to explore the virtues of this route as circumvention of BBB and avoidance of hepatic metabolism. Rapid drug absorption via highly vascularized mucosa, ease of administration, non-invasiveness, improved bioavailability, convenience and compliance of nasal route made this a potential route for brain delivery. Nanotechnology and nanoparticles are emerging modality for the treatment of Parkinson's disease (PD) as it offers targeted delivery and enhances the therapeutic efficacy and/or bioavailability of neurotherapeutics. This review presents a concise incursion into the nanomedicines suitable for PD therapy delivered via nasal to brain transport. An enormous range of neurotherapeutics, both macromolecules and low molecular weight drugs, can be delivered to the central nervous system (CNS) via this route. On the basis of preclinical research by means of drug delivery systems such as polymeric nanoparticles, liposomes, solid lipid nanoparticles, nanostructured lipid carriers, many drugs such as bromocriptine, ropinirole are being tested for the delivery to brain through nasal route. Nanoparticle transport into the brain, delivery only to specific brain regions and variability in the adsorbed dose still represent research topics that need to be considered before it become clinically relevant in the field of neurological diseases such as PD.

Abstract ASC-65

SKIN DELIVERY OF DILTIAZEM HCl BY MEANS OF SOLID LIPID NANOPARTICLES: FORMULATION DESIGN AND CHARACTERIZATION STUDIES

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Diltiazem hydrochloride, is an anti-arrhythmic class 4 calcium channel blockers, highly hydrophilic in nature was selected as a model drug for delivery through skin. In the present study solid lipid nanoparticles of diltiazem hydrochloride were prepared by solvent diffusion technique to improve its permeation via skin. Lipid nanoparticles were formulated by solvent diffusion technique and optimized. Drug and lipid i.e. stearic acid and compritol (1:1) together were dissolved in organic phase maintained at temperature 70^0C. The resulting organic solution was poured into aqueous system containing tween 80 (0.05% v/v) with stirring at 70^0C . The organic solvents were removed by stirring for 45min. Process variables were optimized for particle size, PDI and zeta potential. The solid lipid nanoparticles formed were lyophilized using cryoprotectant. Operating variables and process variables like surfactant concentration, amount of lipid, stirring time and rpm were studied. After evaluation, all parameters found to have significant effect on the particle size and entrapment efficiency of the nanoparticles. Maximum entrapment efficiency was found to be 28% (due to hydrophilic nature) with particle size 415nm, polydispersity index 0.184 and zeta potential -24.19mV. The optimized batch was also analyzed for SEM, TEM and drug release property. Hence, it is concluded that diltiazem lipid nanoparticles can be used as a carrier to improve drug permeation via skin.

Abstract ASC-66

AN APPROACH TO ORAL DRUG DELIVERY SYSTEM: AN OVERVIEW

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Recent technological and scientific advancements have been made in the research and development of novel drug delivery system by overcoming physiological such as short gastric residence times and unpredictable gastric residence times. Differences in gastric physiology such as gastric ph and motility exhibit both intra and inter variability demonstrating significant impact on gastric residence time and drug delivery behavior. Several approaches are currently utilized in the prolongation of the GRT, including floating drug delivery system, swelling and expanding system, bio adhesive system, modified shape systems, also known as hydro dynamically balanced system ,high density systems, or other delayed gastric emptying devices have been discovered till now. FDDS are of particular interest for drugs that are locally active and narrow3 absorption window in stomach or upper small intestine, unstable in the intestinal or colonic environment, and exhibits low solubility at high ph values. The purpose of writing this review on floating drg delivery system was to compile the recent literature with special focus on the principal mechanism of floatation to achieve gastric retention. The most recent developments of FDDS including the physiological and formulation variables affecting gastric retention, approaches to design single unit and multi unit floating systems,a and their classification and formulation aspects are covered in detail. This review also summarizes the in vitro techniques, in vivo studies to evaluate the performance and application of floating systems, and applications of these systems.

Abstract ASC-67

TRANSETHOSOMES: A NOVEL TRANSFORMATION IN TRANSDERMAL DRUG DELIVERY

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Transdermal route is one of the attractive routes for drug delivery due to its easy accessibility. Effective delivery of bioactive molecules through the skin is, however, still a challenge. The development of vesicular formulations has generated some promising solutions to the problems associated with drug delivery not only related to drugs but also those of barriers like the skin. To overcome this drawback of conventional lipidic systems, ethanol based vesicular carriers were developed by pharmaceutical scientists. Transethosomes are novel ethanol based carrier systems composed of phospholipid, ethanol, water, and edge activators (like span 60) or permeation enhancers (like oleic acid). These are non-invasive carriers, which enable the drug to reach in deeper epidermal layers or systemic circulation. They have higher skin penetration power and stability compared to ethosomes. They are used for transdermal delivery of various therapeutic agents like antifungal, antihypertensive, or antiinflammatory drugs.

Abstract ASC-68

ESTIMATION OF BACOSIDE-A IN *BACOPA MONNIERI* AERIAL PARTS USING TLC DENSITOMETRY

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The objective of present work was to estimate bacoside A in *Bacopa monnieri* aerial parts using a validated TLC densitometric method. The content of bacoside A was estimated using standardized procedures. A standard curve was prepared by applying different concentrations of the marker. The estimation of bacoside A was achieved on precoated TLC plate using solvent system, i.e., toluene: ethyl acetate: methanol: formic acid (3:3.5:2.5:1) followed by scanning at 225 nm. The developed method was validated for the parameters described in the ICH guidelines. The content of bacoside A was determined to be 1.13±0.019% w/w in *B. monnieri a*erial parts. The instrumental precision, repeatability, linearity range, correlation coefficient, intra-day precision, inter-day precision, limit of detection (LOD), limit of quantification (LOQ) and accuracy were found to be 0.61% CV, 0.87% CV, 150-900 ng, 0.998, 1.43% CV, 1.79% CV, 32 ng/spot, 92 ng/spot and 97.19±0.39% respectively. The developed method was found to be simple, economic, accurate, precise, and can be utilized for the quantitative as well as qualitative estimation of bacoside A in *Bacopa monnieri*.

Abstract ASC-69

DEVELOPMENT AND VALIDATION OF UV-SPECTROPHOTOMETRIC METHODS FOR DETERMINATION OF GEMCITABINE HYDROCHLORIDE IN BULK AND POLYMERIC NANOPARTICLES

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The objective of the present work was to develop and validate a novel, specific, precise and reliable method for estimation of gemcitabine hydrochloride in bulk and polymeric nanoparticles using UV-visible spectroscopy method. The UV-Visible spectrophotometric determination was performed with double beam Systronics UV-visible spectrophotometer; model UV-2201 (India). The proposed methods were validated for various parameters like linearity, precision, accuracy, robustness, ruggedness, detection, quantification limits, and formulation analysis as per international conference on harmonization (ICH) guidelines. The method was based on measurement of absorbance at wavelength maxima i.e. 267.2 nm, λmax of the drug in distilled water, phosphate buffer pH 6.8 and 7.4. The method obeyed Beer Lambert's law in the concentration range of 5-30 µg/ml andR2-value was found to be 0.999. Moreover, the % drug recovered from polymeric nanoparticles was found to be 97.97%. According to results, the currently developed method shows compliance with acceptance criteria with Q2 (R1) and international conference on harmonization (2005) guidelines, because the % RSD was found to be less than 2%. The developed method was simple, accurate and précised.

Abstract ASC-70

GREEN CHEMISTRY

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Green chemistry, also called sustainable chemistry, is an area of chemistry and chemical engineering focused on the designing of products and processes that minimize the use and generation of hazardous substances. Attempts are being made not only but also to quantify the *greenness* of a chemical process but also to factor in other variables such as chemical yield, the price of reaction components, safety in handling chemicals, hardware demands, energy profile and ease of product workup and purification.

Abstract ASC-71

PHYTOCHEMICALS IN CANCER MANAGEMENT AND TREATMENT

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Cancer is most vulnerable disease and major cause for mortality in India as well as in other developing and developed countries. Despite of better results with modern drug targeted therapy, still research is continued for improved efficacious and safer phytochemicals with an addition of economical treatment for cancer. Phytochemicals are compounds found in plants, which are responsible for the colour, taste and aroma of foods and are rich in fruits and vegetables. According to various experimental studies and traditional recommodations, many of these compounds have been reported to exert anti-carcinogenic effects in animal models. Anti-oxidant property of these phytochemicals help to protect DNA from ingested or environmental carcinogens. According to an analysis from the World Cancer Research Fund and other reviews, it is reported that individuals eating phytochemical-rich foods such as vegetables, fruit, legumes, nuts, herbs and spices, have a lower risk of cancer or relapse after treatments. Based on the literature review, Apigenin, Curcumin, Crocetin, Cyanidins, Epigallocatechin gallate, Fisetin Genistein, Lycopene, Resveratrol, Vitamin E are few of the phytochemical that are chemoprotective and reduce the incidence of numerous cancers like breast, prostate, ovarian and oesophageal cancer. Since for phytochemicals, bioavailability is another challenge that needs to be overcome. However, nanotechnology, liposomes, and coating materials have been applied to improve bioavailability. There is increasingly convincing evidence to show that plant phytochemicals have significant benefits for humans will continue to be a promising and active research area in the near future.

Abstract ASC-72

DEVELOPMENT AND VALIDATION OF UV-SPECTROPHOTOMETRIC METHOD FOR DETERMINATION OF APREPITANT

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The main objective of this work to put forth the assorted strategies to develop and validate a novel, specific, precise and reliable method for estimation of aprepitant in different solvents using uv- visible spectroscopy method.The uv-visible spectrophotometric determination was performed with double beam systronicsuv-visible spectrometer, model uv-2201 (India). The proposed method was validated for various parameters like linearity, precision, accuracy, robustness, ruggedness, detection, quantification limits of formulation analysis as per International Conference on Harmonization (ICH) guidelines. UV-spectroscopic determination was carried out at an maximum absorption 263.6nm using pH 6.8 buffer + 1.1% tween 80 and 264.8nm using methanol, distilled water& tween80. The method obeyed Beer Lambert's Law in the concentration range of 8-48 µg/ml and R^2 value was found to be 0.999. According to results, the currently developed method shows compliance with acceptance criteria with Q2 (1) and international conference on harmonization (2005) guidelines, because the %RSD was found to be less than 2%. The developed method was simple, accurate and precised.

Keywords:-Aprepitant, UV-Visible spectrophotometer, Correlation Coefficient, λmax.

Abstract ASC-73

A NOVAL APPROACH FOR TRANSDERMAL DRUG DELIVERY THROUGH TRANSFERSOMES

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Transfersomes are a form of elastic or deformable vesicle, which were first introduced in the early 1990s. Elasticity is generated by incorporation of an edge activator in the lipid bilayer structure. The original composition of these vesicles was soya phosphatidyl choline incorporating sodium cholate and a small concentration of ethanol. Transfersomes are applied in a non-occluded method to the skin and have been shown to permeate through the stratum corneum lipid lamellar regions as a result of the hydration or osmotic force in the skin. They have been used as drug carriers for a range of small molecules, peptides, proteins and vaccines, both *in vitro* and *in vivo*. It has been claimed by Idea AG that intact Transfersomes penetrate through the stratum corneum and the underlying viable skin into the blood circulation. However, this has not been substantiated by other research groups who have extensively probed the mechanism of penetration and interaction of elastic vesicles in the skin. Structural changes in the stratum corneum have been identified, and intact elastic vesicles visualized with in the stratum corneum lipid lamellar regions, but no intact vesicles have been ascertained in the viable tissues. Using the principle of incorporating an edge-activator agent into a bilayer structure, a number of other elastic vesicle compositions have been evaluated. This review describes the research into the development and evaluation of Transfersomes and elastic vesicles as topical and transdermal delivery systems.

Abstract ASC-74

ROLE OF NATURAL ANTIOXIDANTS IN NEURODEGENERATIVE DISEASES

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Free radicals are common outcome of normal aerobic cellular metabolism. Antioxidant system of body plays an important role in prevention of any loss due to free radicals. There is a delicate balance between free radicals and defensive antioxidants. Overproduction of free radicals from environment to living system leads to serious consequences like neuro-degeneration which is hallmark of many neurodegenerative diseases. Neuronal cells suffer functional or sensory loss in neurodegenerative diseases. There are several factors from environment along with genetic factors, oxidative stress (OS) leading to free radical induced damage to neuronal cells. Although, oxygen is essential for life but imbalanced metabolism and excess reactive oxygen species (ROS) generation can form the basis of many disorders such as Alzheimer's disease, Parkinson's disease, aging and many other neural disorders. Excess production of free radicals contributes to proteins and DNA injury, inflammation, tissue damage and subsequent cellular apoptosis. Natural Antioxidants are potential therapeutic agents against neuronal loss, as these agents have the capacity to neutralize free radicals. Diet is major source of antioxidants. Medicinal herbs are used since ancient times in ayurvedic system. Antioxidant therapy to reduce oxidative stress is proven in many studies. Protection from Neuronal damage as well as free radical scavenging effects of natural Antioxidants have a wide scope to prevent oxidative stress. Antioxidant therapy is vital in scavenging free radicals and ROS preventing neuronal degeneration therefore neurodegenerative diseases.

Abstract ASC-75

ORALLY FAST DISSOLVING FILMS: INNOVATIONS IN FORMULATION AND TECHNOLOGY

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Recently, Orally fast dissolving films (OFDFs) are gaining interest as an alternative of fast dissolving tablets. The films are designed to dissolve upon contact with a wet surface, such as the tongue, within a few seconds, meaning the consumer can take the product without need for additional liquid. This convenience provides both a marketing advantage and increased patient compliance. As the drug is directly absorbed into systemic circulation, degradation in gastrointestinal tract and first pass effect can be avoided. OFDFs are very similar to postage stamp in their shape, size and thickness. These films have a potential to deliver the drug systemically through intragastric, sublingual or buccal route of administration and also has been used for local action. This type of technology offer a convenient way of dosing medication, not to special population groups like pediatric, geriatric, bedridden patients, mentally ill patients, but also to the general population. Dissolvable oral thin films are in the market since past few years in the form of breath strips and are widely accepted by consumers for delivering vitamins, vaccines and other drug products. In case of chronic disorders these fast dissolving films are better for delivering drugs and obtaining faster therapeutic blood levels.

Abstract ASC-76

EMERGING TRENDS IN PHARMACEUTICAL EDUCATION AND RESEARCH

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In 2020 Pharmaceutical industry will continue to witness foremost changes and challenges. Rapid development of budding markets, advancement in drug research, the increase in generic production, the availability of high potency drugs, innovations in manufacturing process are modifying the global scenario of pharmaceutical Education and Research.For example some of important trends in pharmaceutical analysis are hyphenated techniques, High-throughput analysis, structural analysis by combination techniques such as FIA/DI-MS,MALDI-FT-MS,DI-NMR/HPLC-UV/UV-MS/ELSD/NMR,CLND,FIA-CLND,SFC-UC/M,ESI-FT-ICR-MS etc. chemometrics, ADME Advances, miniaturization, nanotechnology. The application of nanotechnology in genomics and proteomics is going to change the face of pharmaceutical education and research. Some current trends are Continued growth in speciality Market, leveraging pharmacy Data Analytics to Make strategic decisions, health System Pharmacy seen as a Revenue and Margin generator, Centralizing Pharmacy Operations and Improving Clinical Services, Future Directions for Reform and the Affordable Care Act(ACA). For win-win situation, industry players, researchers, academicians, health professionals, regulators along with public have to cooperate.

Abstract ASC-77

DESIGN AND DEVELOPMENT OF SELF MICROEMULSIFYING DRUG DELIVERY SYSTEM FOR CEFPODOXIME

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The objective of the present investigation was to formulate self-microemulsifying drug delivery systems (SMEDDS) of to increase the solubility, dissolution rate and oral bioavailability of poorly water soluble drug Cefpodoxime (CFP). Solubility of CFP in oily phases and surfactants was determined to identify components of SMEDDS. Various surfactants and co-surfactants were screened for their ability to emulsify selected oily phases. Pseudo-ternary phase diagrams were constructed to identify the efficient self-emulsification region. Prepared SMEDDS were characterized for drug content uniformity, droplet size, polydispersity index, zeta potential, thermodynamic study, viscosity study, robustness to dilution study, drug loading efficiency, dispersibility test, in vitro release studies, ex-vivo diffusion studies and stability study. The particle size distribution, zeta potential, and polydispersity index were found to be >200 nm, −24.6, and between 0.283-0.859 respectively. The SMEDDS was robust to dilution and did not show any phase separation and drug precipitation even after 12 h. The in vitro and ex vivo diffusion rate of the drug from the SMEDDS was significantly higher than that of the plain drug. Our studies illustrated the potential use of SMEDDS for the delivery of hydrophobic compounds, such as Cefpodoxime by the oral route.

Abstract ASC-78

INTRANASAL DRUG DELIVERY FOR THE TREATMENT OF CNS DISORDERS: AN OVERVIEW

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The objective of this review is to provide an overview on strategies involved in delivering the drugs from nose to brain. Since the people have been suffering from many CNS disorders like Sclerosis, Alzheimer's disease, Parkinson's disease etc., many drugs have been developed for their treatment which fail toproduce the required concentration necessary for showing sufficient amount oftherapeutic effect. Nose can be a route to deliver the drugs directly to brain. Olfactory route of drug transport bypasses the blood brain barrier and allows the direct transport of drug from the nose to brain. That is the reason why intra-nasal administration of brain targeted drug delivery system is gaining popularity in circumventing blood brain barrier and enhance drug availability in brain. It also shows promising reduction of systemic adverse effect incurred by the drug. The nasal mucosa, when compared to other mucous membranes, is easily accessible and provides a practical entrance portal for small and large molecules. Intranasal administration offers rapid onset of action, no first pass effect, no gastrointestinal degradation or lung toxicity and non-invasive application along with improved bioavailability. This script attempts to have an overlook over anatomy of nasal mucosa and review the present strategies for improving the drug delivery to brain via nasal mucosa and recent advances in this field.

Abstract ASC-79

POLYHERBAL FORMULATION FOR THE EFFECTIVE TREATMENT OF DIABETES MELLITUS

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Diabetes is a leading cause of morbidity and mortality in the world. According to International Diabetes Federation's (IDF) estimates, 80% of the world diabetic population will be from low- and middle-income countries in 2030. Diabetes mellitus is treated by hormone therapy (insulin) or by administering glucose-lowering agents such as alpha-glucosidase inhibitors, sulfonylureas, biguanides, and thiazolidinediones. But due to enormous side effects of the medicines from modern allopathic system of medicines, there is currently an active search for antidiabetic drugs with greater effectiveness with fewer and less adverse side effects. It is believed that herbal compounds like chirata, gudmaar, kutki *etc.* containing multiple plant products have synergistic antidiabetic effects and could enhance the desired actions. So in present scenario the polyherbal formulation is best suited substitute for existing medicine system.

Abstract ASC-80

PESTICIDES: ENEMY OF HUMAN HEALTH

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India's consumption of pesticides per hectare is just 475g as compared to 11800 g/hectare in USA. Despite the comparatively low use of pesticides in India the contamination of plants in the country is alarming. Most of the environment problems are said to be caused only by one class of chemicals— Organochlorine. This class includes the notorious DDT, dioxin HCH (hexachloracyciohexane) and Aldrin. Unfortunately, 400/b of all pesticides used in India belongs to the organo-chlorine class of chemicals. Another 30% of the pesticides used belong to the organophosphate category. Monocrotophos phorate, phospharnidon, ethane, methyl parathion and dimethoate are some of the highly hazardous pesticides that are continually and indiscriminately used in India. Most of these chemicals are banned in other countries and the rest are waiting risk assessments reports before action can be taken. While DDT, HCH, Aldrin and endosulfan were banned in the US and many other countries as early as in the 70s, they are still being used in India In fact, DDT, HCH (the gamma form) and Malathion account for 70% of the total pesticides consumption in the country. The pesticides banned in India continue to flow into the market despite government notifications posing a potential hazard to human life & its environment. Though the bulk volume pesticides like BI-IC and DDT still constitute a bulk of the pesticides consumed India is moving gradually into the production and use of high performance low volume products. The government research laboratories, pesticides industry and several other agencies in the field of R & D, studies for efficacy, toxicology, environmental impact as well as technology commercialization are taking steps to limit the use of pesticides. The notable recent entrants are synthetic pyrethroids, cypermetrin, and fenvalerate acephatre acilphos, glyphosate, neemetrats, etc.

Abstract ASC-81

TURMERIC FROM KITCHEN TO HERBAL REMEDY

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Turmeric (Curcuma longa) is a rhizomatous herbaceous perennial plant of the ginger family, Zingiberaceae. Turmeric has been used in spices, herbal remedies for health benefits. It was first used as a dye, and then spices later for its medicinal properties. The health benefits of turmeric include an improved ability to digest fats, reducing gas and bloating, decreased congestion, and improved skin conditions such as psoriasis, and acne. Turmeric has been used as a powerful anti-inflammatory in Indian medicine for millennia. It has powerful antioxidant activity. Curcumin is the main active ingredient in turmeric. Curcumin is poorly absorbed into the bloodstream. Turmeric is used for arthritis, heartburn (dyspepsia), joint pain, stomach pain, and ulcerative colitis, bypass surgery, hemorrhage, diarrhea, intestinal gas, stomach bloating, loss of appetite, jaundice, liver problems, Helicobacter pylori (H. pylori) infection, stomach ulcers, irritable bowel syndrome. Turmeric may prevent and slow the progression of Alzheimer's disease by removing plaque build up in the brain. It may prevent metastases occurring in many different forms of cancer. Because of its anti-inflammatory properties, turmeric is a natural treatment for arthritis and rheumatoid arthritis. Turmeric is possibly safe when it is used as an enema or a mouthwash in the short-term.

Abstract ASC-82

A REVIEW ON VARIOUS SYNTHETIC APPROACHES OF QUINAZOLINONE DERIVATIVES

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Quinazolinone is an aromatic heterocycle having molecular formula $C_8H_6N_2O$ with a bicyclic structure consisting of two fused six-membered aromatic rings, a benzene ring and a pyrimidine ring and keto group at 4 position. The quinazoline-4(3*H*)-one and its derivatives constitute an important class of fused heterocycles that are found in more than 200 naturally occurring alkaloids having various biological activities like antibacterial, antifungal, antiviral, anticancer, anti-tubercular, anti-inflammatory, antidepressant, anticonvulsant, hypolipidemic, analgesic, and antiulcer. With passage of time, newer and more complex variants of the quinazolinone structures are being discovered. The stability of the quinazolinone nucleus has inspired researchers to introduce many bioactive moieties to this nucleus to create new potential medicinal agents. The current review focus on recent developments in the synthesis of highly challenging and potentially bioactive quinazolinone compounds. The purpose of this review is to demonstrate that quinazolinone derivatives can be accessed through a variety of synthetic methodologies.

Abstract ASC-83

PRESENT STAUS OF DIABETES MELLITUS: A REVIEW

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Diabetes mellitus (DM), is a group of metabolic diseases in which a person has high blood sugar, either because the body does not produce enough insulin, or because cells do not respond to the insulin that is produced. Diabetes has been divided into three types namely: Type 1 DM or insulin-dependent diabetes mellitus (IDDM) in which body fails to produce insulin, and presently requires the person to inject insulin or wear an insulin pump. This is also termed as "juvenile diabetes". Type 2 DM or non insulin-dependent diabetes mellitus (NIDDM), results from insulin resistance, a condition in which cells fail to use insulin properly, with or without an absolute insulin deficiency. This type was previously referred to as or "adult-onset diabetes". The third main type is gestational diabetes which occurs when women without a previous history of diabetes develop a high blood glucose level during her pregnancy. Currently available pharmacotherapy for the treatment of diabetes mellitus includes insulin and oral hypoglycemic agents and various herbal drugs have been also proved effective due to their beneficial contents in treatment of diabetes. It is an attempt to focus on the physiological aspects of diabetes, its complications, goals of management, and synthetic and herbal treatment of diabetes.

Abstract ASC-84

ISOLATION AND SCREENING OF PROBIOTICS MICROORGANISMS FROM DAIRY PRODUCTS

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Probiotics are living bacteria that are good for our health. Probiotics called good or helpful bacteria because they keep our gut healthy. Probiotics are believed to provide health benefits when consumed. Probiotics cooperatively maintain a delicate balance between the gastrointestinal tract and immune system. When this balance is disrupted, disease and inflammation result. The present study carried out to isolate and identify *Lactobacillus spp*. *Lactobacillus* belongs from lactic acid producing bacteria. The change in color of the MRS dye plates indicates the presence of lactic acid producing bacteria. The samples were collected from different regions. The probiotic *Lactobacillus* strain was isolated from daiy products (i.e., curd sample, cow milk, buffalo milk and probiotic tablets) and subjected to acid, bile and lysozyme tolerance and test for cell surface hydrophobicity and antimicrobial activity. *Lactobacillus* isolate exhibit higher probiotic attributes than the standards used. The MRS media were used for cultivation of the microorganisms from dairy products. Characterization of the bacteria was performed using gram staining, biochemical test i.e., oxidase test, nitrate test, simmon citrate test, hugh leifson test and urease test. The identification based on colony, characteristics, gram character, morphology and arrangement of bacterial cells. Colony characteristics such as color, texture, margin & elevation were observed to isolate streaked on MRS plates isolated from collected. The morphologyical features were confirmed using electronic microscope. Micoorganisms use certain biochemical tests which are used for metabolism and this property is used for identification of groups of bacteria belonging to same genera and bacteria from same genus can be differentiate on their ability to utilize sugars and amino acids. Effect of inoculation methods and cultivation conditions on the growth and yield of the bacteria were studied. The isolated strains was gram positive rod-shaped bacteria. Pour plate method provided a relatively higher viable count than the spread plate. The bacterial strain was successfully isolated after series of purification. The isolates having comparable properties with the standards which holds a very good potential for further investigation to evaluate their potential health benefits and their application in many industries.

Abstract ASC-85

TO EVALUATE THE AMELIORATIVE EFFECT OF ETHANOLIC EXTRACTS OF GRAPEFRUIT PEEL ON ALLOXAN INDUCED DIABETIC CARDIOMYOPATHY IN RATS

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The ameliorative effect of the ethanolic extract of grapefruit peel (EEGP) on diabetic cardiomyopathy was studied in diabetic rats. Diabetes was induced by injecting single dose administration of alloxan (150mg/kg, i.p). Total 30 rats were used in study, divided into 6 groups, each group containing 5 animals; Non diabetic group, Diabetic group, Glibenclamide (10mg/kg, i.p) treated group, EEGP treated groups (100mg/kg / 200mg/kg / 400mg/kg, p.o). Isoproterenol was administered subcutaneously at the dose of 5.25mg/kg and 8.5mg/kg on 12th and 13th days respectively. Administration of Glibenclamide and EEGP (100mg/kg, 200mg/kg, 400mg/kg, p.o) was found to decrease the level of Fasting blood glucose, Total cholesterol, (HDL), Creatine kinase, Lactate dehydrogenase, total heart protein, Lipid peroxidation (TBAR, SOD & MDA), Reduced glutathione and Catalase as compared to diabetic control rats. EEGP at the dose level of (400mg/kg) attenuate the above parameters more significantly as compared to other ethanolic extracts. Histopathological studies of diabetic rats shows increased levels of above parameters leads to diabetic cardiomyopathy. The administration of EEGP (400mg/kg, p.o) was showed decreased necrotic lesions, perivascular oedema and infiltrations of cells as compared to diabetic control rats. The present study concludes that administration of EEGP (400mg/kg, p.o) in diabetic rats attenuates the severity and improves the myocardium functioning significantly.

Abstract ASC-86

FOCUS ON MUCOADHESIVE BUCCAL DRUG DELIVERY SYSTEM: A REVIEW

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Mucoadhesion can be defined as a phenomenon of interfacial molecular attractive forces in the surfaces of biological substrate and the natural or synthetic polymers, which allows the polymer to adhere to biological surface for an extended period of time. Owing to the ease of the administration, the oral cavity is an attractive site for the delivery of drugs. Through this route it is possible to realize mucosal and transmucosal drug administration. The aim is to achieve a site-specific release of the drug on the mucosa, whereas the second case involves drug absorption through the mucosal barrier to reach the systemic circulation. The main obstacles that drugs meet when administered via the buccal route derive from the limited absorption area and the barrier properties of the mucosa. Moreover, rapid onset of action can be achieved relative to the oral route and the formulation can be removed if therapy is required to be discontinued. Mucoadhesive polymers are used to improve drug delivery by enhancing the dosage form's contact time and residence time with the mucous membranes. This presents a brief description of advantages and limitations of buccal drug delivery, anatomical structure of oral mucosa, and mechanisms of drug permeation followed by current formulation design in line with developments in buccal delivery systems, factor affecting buccal absorption, methodology and evaluation methods.

Abstract ASC-87

RECENT PROSPECTIVES IN NAVAL DRUG DELIVERY SYSTEM: A NEW ERA

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Naval route has been widely used for many years as a trans-peritonial site for the administration of a number of drugs. Naval means "umbilicus" or through "belly button". Hence the administration of drug through umbilicus route/belly button route can be called as a naval drug delivery route. It is a form of transdermal/transperitonial drug administration with a sustained effect as well as a controlled release medication. The drugs which can easily penetrate through skin like nitroglycerine, scopolamine at a rate sufficient to achieve the therapeutic blood levels required for systemic effect, can be used for designing of naval drug delivery system routes. Long-term controlled navel administration of testosterone used in male fertility. Male fertility has reportedly been regulated by the long-term, continuous administration of testosterone. To deliver the testosterone at a controlled rate for a month or longer and greater systemic bioavailability (more than twofold) was achieved as compared with drug disposition directly onto the navel or *via* the placebo device *i.e.*, drug is deposited onto the prefabricated placebo device. As comparative to trans-oral route, trans-naval route has less side effects and higher penetration power with long lasting effects. Hence with such advantages still there is no bioavailability data yet available to justify the use of naval drug delivery system. The transdermal bioavailability of testosterone through the skin tissues at the naval area was compared with the data that obtained from the transdermal administration. The systemic bioavailability and pharmacokinetic profile of testosterone after topical administration on the naval was compared using intravenous data as the reference. The conclusion generated from various researches suggest that administration via the naval yields a relatively faster absorption and also greater systemic bioavailability of testosterone. Both routes of percutaneous absorption give well-defined first order elimination kinetics, which is very much in parallel to that of intravenous administration. It is interesting to quote that the systemic bioavailability of testosterone by naval absorption is relatively close to the level obtained by the intravenous administration of an equivalent dose and is substantially greater than the level achieved by forearm administered. The beauty of this novel naval route is feasibility of deployment through any category of patients unbiased with gender, age, race or others. It leads to great patient compliance with better tolerability. Being a novel route, it urges for many more exploration.

Abstract ASC-88

A ROADMAP FOR EDUCATIONAL RESEARCH IN PHARMACY

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Educational research must play a critical role in informing practice and policy with in pharmacy education. Understanding the educational environment and its impact on students, Faculty members and other stakeholders. In imperative for improving outcomes and preparing pharmacy students to meet the need of 21st centaury healthcare. To aid in the design and implementation of meaningful educational research with in colleges and schools of pharmacy, this roadmap addresses philosophy and educational language, guidelines for the conduct of educational research. Research design including four approaches to defining, collecting, and analyzing educational data, measurement issues, ethical consideration, resources and tools and value of educational research in guiding circular transformation.

Abstract ASC-89

INNOVATIVE TEACHING LEARNING: A NEW APPROACH

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Education is a very powerful instrument for social change and transformation. Students must be empowered to be able to withstand the global challenges of the 21st century. The problems which society faces are essentially the problems of educational institutions which are required to be innovative as they teach new skills and develop new insights and approaches towards the solving of social problems which the nation faces. Therefore, innovative teaching learning practice is the only way to enhance the quality of our education system. Although innovative teaching and learning method makes effective studying yet it cannot replace a traditional teaching methodology in education sector. However it is clear from the literature, that innovative teaching methods do provide students with greater experience in dealing with the world of work related issues they encounter. These methodologies will lead to a learning society in which the creative and intellectual abilities of students will allow them to meet the goals of transformation and development. Innovative teaching methodologies include developing the capability of students to use ideas and information, testing of ideas and evidence, generation of new ideas and evidence, facilitation of personal development and development of a student's capacity to plan and manage their learning experience. In addition, student problems include excessive workloads and insufficient feedback system. Lecturers need to consider these aspects when adopting any methodology. By integrating skills, students are able to become self-motivated and develop an ability to think independently while working with others in a team. Education for the future requires that we explore as many varieties of models and teaching methodologies as possible. Today, technology plays an important role in every part of our lives as in education. 21st century education requires effective student integration in the classes. To be able to support this, we, educators are searching and trying to apply different techniques to teach in an inductive way and to make teaching and learning process more effective and sustainable.

Abstract ASC-90

DESIGN, SYNTHESIS AND ANTI-HIV-1 RT EVALUATION OF 1,2,3,4-TETRAHYDROISOQUINOLINE BASED COMPOUNDS

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Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) are structurally diverse group of compounds which binds to Reverse Transcriptase (RT) enzyme of HIV. Clinical effectiveness of approved anti-HIV-1 drugs has been hampered due to the rapid development of drug resistance, which drive the need of new drugs. In the present study, two series of novel thirty, 6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline analogues (5a-o) and (8a-o) were designed and synthesized as inhibitor of HIV-1 reverse transcriptase. Synthesized compounds were characterized by spectroscopic techniques and evaluated for *in-vitro* RT inhibitory activity. Among the tested compounds, eighteen compounds exhibited more than 50% inhibition, while two compounds 8h and 8l showed significant inhibition (74.82 and 72.58 %) respectively. The SAR studies of the test compounds and docking studies of the two significantly active compounds 8h and 8l were performed to examine their putative binding with HIV-RT. The results obtained from this investigation revealed that, the synthesized compounds (5a-o) and (8a-o) showed moderate to promising HIV-1 RT inhibition activity. The overall studies can help in identification of further lead as well as in designing of newer potential inhibitor of HIV-1 RT.

Abstract ASC-91

RECENT ADVANCES IN MOUTH DISSOLVING TABLETS

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Recent advances in Novel Drug Delivery Systems (NDDS) aim for designing dosage forms, convenient to be manufactured and administered, free of side effects, offering immediate release and enhanced bioavailability, so as to achieve better patient compliance. Though oral drug delivery systems, preferably, tablets are the most widely accepted dosage forms, for being compact, offering uniform dose and painless delivery. Yet, dysphagia is the most common disadvantage of conventional tablets. This is seen to afflict nearly 35% of the general population and associated with a number of conditions, like parkinsonism, mental disability, motion sickness, unconsciousness, unavailability of water etc. To overcome such problems, certain innovative drug delivery systems, like 'Mouth Dissolving Tablets' (MDT) have been developed. These are novel dosage forms which dissolve in saliva within a few seconds, when put on tongue. Such MDTs can be administered anywhere and anytime, without the need of water and are thus, quite suitable for children, elderly and mentally disabled patients.

Abstract ASC-92

FLOATING DRUG DELIVERY SYSTEM: A REVIEW

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Floating drug delivery systems (FDDS) are controlled release drug delivery systems, which get retained in the stomach for longer periods, thus helping in absorption of drug for the intended duration of time. Gastro-retentive drug delivery devices can be useful for the spatial and temporal delivery of many drugs. In general, drugs with narrow therapeutic window and prone to degradation in intestine and colon along with drugs having low retention time in gastrointestinal tract (GIT) are selected for FDDS which helps drugs to stay long time in stomach thus increasing gastric residence time and reduces dosing frequency. The present review article shows the various methods of FDDS for increasing retention time of drugs in GIT.

Abstract ASC-93

NIOSOMES A NOVEL DRUG DELIVERY SYSTEM: A REVIEW

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Niosomes are a novel drug delivery system, in which the medication is encapsulated in a vesicle. Niosomes are formations of vesicles by hydrating mixture of cholesterol and nonionic surfactants. Different novel approaches used for delivering these drugs include liposomes, microspheres, nanotechnology, micro emulsions, antibody loaded drug delivery, magnetic microcapsules, implantable pumps and niosomes. Niosomes and liposomes are equiactive in drug delivery potential and both increase drug efficacy as compared with that of free drug. Niosomes are now widely studied as an alternative to liposomes. They improve the therapeutic performance of the drug molecules by delayed clearance from the circulation, protecting the drug from biological environment and restricting effects to target cells. The application of niosomal technology is widely used to treat a number of diseases.

Abstract ASC-94

CRYONICS: PUTTING DEATH ON ICE

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Cryonics is the low-temperature preservation of people who cannot be sustained by contemporary medicine, with the hope that resuscitation and restoration to full health maybe possible in the far future. Cryonics depends on the belief that the cryonics patient has not experienced information-theoretic death. Many experiments performed on various animals have proved to be successful. Alcor is the largest organisation, and distinguished among cryonics organisations by its advanced technology and advocacy of a medical approach to cryonics. The goal is to keep the brain alive by present day criteria for as long as possible into the procedure. Alcor's future goals include expanding ice-free cryopreservation (vitrification) beyond the brain to include the entire human body and reducing the biochemical alterations of the process to move closer to demonstrable reversibility.
We believe that demonstrably reversible preservation of human brain is the medical objective that could be achieved in the natural lifetime of most people living today.

Abstract ASC-95

DEVELOPMENT AND IN VITRO-IN VIVO CHARACTERIZATION OF CHRONOMODULATED PULSATILE DELIVERY FORMULATION OF TERBUTALINE SULPHATE BY BOX-BEHNKEN STATISTICAL DESIGN

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In the present study, we have designed a press-coated pulsatile delivery tablet (PDT) of Terbutaline sulphate (TS) intended for prevention of early morning asthma attacks. The formulation is capable of giving burst release of drug after 6 h of lag time. In this study press-coating technique was employed to coat a fast release core tablet containing TS with a polymeric release retarding coat comprising of Ethyl cellulose, HPMC K15M, and Carbopol 971P. Fast release core tablets were formulated using sodium starch glycolate with Ac-Di-Sol (disintegrants). Optimization of PDT was done by response surface methodology employing Box Behnken design. The formulations underwent physical evaluation and drug release study. A lag time of 6 h was obtained by the optimized PDT formulation (OP1). The accelerated stability studies showed no significant changes in physicochemical properties and release behaviour before and after storage. Further *in vivo* pharmacokinetic studies were performed on rabbits to determine pharmacokinetic parameters. The formulation OP1 showed $C_{max,}$ T_{max} values of 162.92 ± 9.85 ng/mL and 10 h respectively. A large value of MRT for the formulation OP1 (12.34 ± 0.778 h) signify that formulation OP1 was able to delay the release. The study concludes that the chronotherapeutic PDT of TS can be successfully formulated and used to provide a pulsatile release for the chronotherapy of nocturnal asthma.

Abstract ASC-96

FORMULATION EVALUATION AND OPTIMIZATION OF FAST DISINTEGRATING TABLETS OF KETOROLAC TROMETHAMINE

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In this study, we aimed to design fast disintegrating tablets (FDT) of ketorolac tromethamine (KT) to reduce gastric side effects of KT by physically associating it with phospholipon 80H (PL) by wet granulation. First preliminary batches were formulated to determine the effect of PL on tablet characteristics and to select best superdisintegrant among sodium starch glycolate and crospovidone. The effect of PL and maltodextrin (MD) concentrations on hardness, disintegration time and % drug release at 4 min was studied for the optimization of FDT. Optimization of FDT was done by employing 3^2 full factorial design using Design expert 10.1 software. The optimized batch of FDT showed disintegration time and percent release value of 37.33±1.47 s and 42.74±1.53% respectively. It was also found that 91.87% of drug was released within 10 min. Thus, by an appropriate combination of excipients, it was possible to formulate FDT capable of undergoing fast disintegration and having optimum hardness using simple and conventional techniques.

Abstract ASC-97

MICROSPHERES: A REVIEW

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The goal of any drug delivery system is to provide a therapeutic amount of drug to the proper site in the body and then maintain the desired drug concentration. A well designed controlled drug delivery system can overcome some of problems of conventional therapy and enhance therapeutic efficacy of the given drug. There are various approaches in delivering therapeutic substance to the target site in sustained and controlled release fashion. One such approach is using microspheres as carriers for drug. Microspheres are characteristically free flowing powders consisting of proteins or synthetic polymers which are biodegradable in nature ideally having particle size less than 200µm.Various synthetic and natural materials are used for the preparation of microspheres. These are prepared by methods like Single emulsion, Double emulsion, Spray drying, and Solvent extraction. Microspheres are having wide range of applications because of controlled and sustained release. Most important application is that it is used for targeting tumours using anticancer drugs. It is important carrier for safe and effective *in vivo* drug delivery.

Abstract ASC-97

MICROENCAPSULATION: A VITAL TECHNIQUE IN NOVEL DRUG DELIVERY SYSTEM

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Novel drug delivery systems have several advantages over conventional multi dose therapy. Much research effort in developing novel drug delivery system has been focused on controlled release and sustained release dosage forms. Now considerable efforts are being made to deliver the drug in such a manner so as to get optimum benefits. There are various approaches in delivering a therapeutic substance to the target site in a sustained controlled release fashion. One such approach is using microspheres as carriers for drugs. Microencapsulation is a process where by small discrete solid particles or small liquid droplets are surrounded and enclosed by an intact shell. Microencapsulation is used to modify and delayed drug release form pharmaceutical dosage forms. A well designed controlled drug delivery system can overcome some of the problems of conventional therapy and enhance the therapeutic efficacy of a particular drug. It is the reliable means to deliver the drug to the target site with specificity, if modified, and to maintain the desired concentration at the site of interest without untoward effects. Microspheres received much attention not only for prolonged release, but also for targeting of anticancer drugs to the tumor. The intent of the poster is to highlight the potential of microencapsulation technique as a vital technique in novel drug delivery.

AUTHORS INDEX

COURSES OFFERED

D.Pharmacy	B.Pharmacy	M.Pharmacy
Ph. D. (Pharmaceutical Sciences)		
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