One Day Seminar on

INNOVATIONS IN PHARMACEUTICAL RESEARCH – 2018

AND

POSTER PRESENTATIONS

25th September 2018

ABSTRACTS

GPRCP - 2018

"Pharmacists: Your medicines experts"

Organized by

G. PULLA REDDY COLLEGE OF PHARMACY

Mehdipatnam, Hyderabad

and

INDIAN PHARMACEUTICAL ASSOCIATION

Telangana State Branch

Mehdipatnam, Hyderabad-500 028. Phone: 040-23517222, 23515513
E- Mail: gprcphyd@yahoo.co.in, Website: www.gprcp.ac.in

G. PULLA REDDY COLLEGE OF PHARMACY

CELEBRATING 23 GLORIOUS YEARS Estd. 1994-1995

(Affiliated to Osmania University Approved by AICTE and PCI)

ISO 9001 - 2008 Certified institution for Graduate and Post Graduate Education

Website: www.gprcp.ac.in E-mail: gprcphyd@yahoo.co.in

Phone: 040-23517222 Fax: 040-23515513

VISION

G. Pulla Reddy College of Pharmacy envisages to become the centre of excellence for research in Pharmacy. It aims to contribute significantly to drug development and drug discovery.

MISSION

G.Pulla Reddy College of Pharmacy aims to be on forefront in imparting the disciplined and quality Pharmacy education. The Graduate & Post-graduate students shall be groomed as responsible & highly acclaimed professionals in the Pharmaceutical Arena.

COURSES OFFERED

B. Pharm

M. Pharm - Pharmaceutical Chemistry
Pharmaceutics
Pharmacology
Pharmaceutical Analysis
Pharmacognosy

Pharm. D

EAMCET CODE: GPRP

PGECET CODE: GPRP1

INDIAN PHARMACEUTICAL ASSOCIATION
TELANGANA STATE BRANCH

G.PULLA REDDY COLLEGE OF PHARMACY
HYDERABAD

Cordially invites you
to attend a seminar on the occasion of

World Pharmacist Day

"Innovations in Pharmaceutical Research-2018"

on Tuesday, 25-09-2018
from 10.00 a.m. to 12.30 p.m. followed by lunch
at G.Pulla Reddy College of Pharmacy
Mehdipatnam, Hyderabad

Chief Guest

Prof. C.K. Kokate
Former Vice-Chancellor
Kakatiya University & KLE Deemed Medical University

Guests of Honour

Prof. B. Prabhakar
Former Principal
Osmania General Hospital
& Head of Gastroenterology
Osmania Hospital

Dr. Ram Kishan
Deputy DCGI
New Delhi

Dr. K. Satyanarayana
Vice-President R&D
Natco Research Centre,
Natco Pharma Ltd.

Dr. B. Prabha Shankar
President
IPA, TS Branch

Mr. K. Ramprasad Reddy
Secretary
IPA, TS Branch

Dr. B. Madhava Reddy
Principal
G. Pulla Reddy College of Pharmacy

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MESSAGE

I take great pride in welcoming all the attendees of the ***"INNOVATIONS IN PHARMACEUTICAL RESEARCH - 2018" AND POSTER PRESENTATIONS.*** To encourage young pharmacy students and researchers, G. Pulla Reddy College of Pharmacy has been organizing these series of seminars every year to bring out the creative and innovative ideas among the students. On behalf of the, staff and students of G. Pulla Reddy college of Pharmacy, I welcome and wish you to gain knowledge in research and innovations.

Prof. B. Madhava Reddy
Principal
G. Pulla Reddy College of Pharmacy,
Hyderabad

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MESSAGE

I would like to congratulate the members of G. Pulla Reddy College of Pharmacy and Indian Pharmaceutical Association, Telangana state Branch for organizing One day seminar on ***"INNOVATIONS IN PHARMACEUTICAL RESEARCH - 2018" AND POSTER PRESENTATIONS*** scheduled on September 25th, 2018, with the aim to create and inspire young minds of students towards innovations in pharmaceutical research. I wish the seminar to become successful.

Prof. Chandrakanth Kokatae
M. Pharm, Ph.D, F.G.A.E.S (Germany)
Former Vice Chancellor of Kakatiya and KLE University.
Ex President of Pharmacy Council of India
Hyderabad

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25th September 2018

MESSAGE

Dear Colleagues,

It is my great pleasure to welcome you on behalf of the Indian Pharmaceutical Association, Telangana branch to one day seminar on **INNOVATIONS IN PHARMACEUTICAL RESEARCH - 2018" AND POSTERPRESENTATIONS** being hosted in G. Pulla Reddy College of Pharmacy, Hyderabad on 25th September 2018. The proceedings of the seminar should end with some strong take-home messages. We hope you will join us to make this one day seminar on Innovations 2018 a memorable event!

Dr. B. Prabha Shankar
President- Indian Pharmaceutical Association,
Managing Directror, Eurodrugs India Ltd
Hyderabad

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INDIAN PHARMACEUTICAL ASSOCIATION, Telangana State Branch

One Day Seminar on

INNOVATIONS IN PHARMACEUTICAL RESEARCH – 2018 and POSTER PRESENTATIONS

25th September 2018

Guest of Honour and Speaker

Dr. SATYANARAYANA KOTA
Vice President R&D
Natco Research Centre
NATCO PHARMA LTD
Sanatnagar
Hyderabad – 500018
India

A graduate in pharmacy. Did B. Pharma, from Kakatiya University, Warangal in the year 1984, M. Pharma from Birla institute of technology, Ranchi in the year 1986. Joined Manipal College of Pharmaceutical sciences, Manipal university, Manipal as lecturer, then promoted to assistant professor, reader and then to associate professor. During this period did PhD in the year 1993. Later went to Gemany and did postdoctoral studies at Freie University, Berlin. From teaching shifted to industrial research and development in year 1997.

Joined as group leader at Divis laboratories ltd, Hyderabad and worked there for about 6 years. In Divis laboratories developed processes for active pharmaceutical ingredients, peptides and building blocks for peptide synthesis. Developed non-phosgene based technology for industrial production a widely used Boc protecting contributing reagent. Technology developed was single pot and it was produced at multi tonnage scale in as big as 50KL reactor. During this period developed technologies for peptide coupling reagents, many Fmoc/Boc protected amino acids, unnatural amino acids. Developed technologies for active pharmaceutical ingredients involving multistep and many of which are produced in multi tonnages.

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Later joined in the Natco Pharma ltd and initiated peptides program and working in Natco from last 15 years. Here joined as deputy general manager, promoted to general manager then senior general manager and later to vice president. Presently, working as Vice president R&D., and heading the peptides division. Involved in development of processes for peptide active pharmaceutical ingredients by both solution and solid phase synthesis. Instrumental in the development of world's first generic version of glatiramer acetate a highly complex generic. It is a peptide polymer used for treatment of multiple sclerosis, cracking this molecule is considered as challenge in pharmaceutical industry. After nine years US FDA review, Natco along with its marketing partner Mylan Pharmaceuticals received FDA approval in October 2017. Presently working on some more complex generic peptides with the intention to become global niche player in complex generic.

Member United States Pharmcopoeia (USA) expert panel for Glatiramer acetate monograph and general chapter on synthetic peptides. Author of about 25 papers in the peer reviewed journals, 11 patents and a text book. Guided three PhD scholars. Received the best research paper award from Indian Drugs.

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Abstract of the lecture

Speaker: **Dr. SATYANARAYANA KOTA**

POLYAMINO ACIDS: FROM PROTEIN MODELS TO A DRUG FOR TREATMENT OF MULTIPLE SCLEROSIS

Glatiramer acetate is a drug used in the treatment of Relapsing Remitting Multiple Sclerosis (RRMS). Multiple sclerosis is a chronic neurological disorder that affects the central nervous system. Multiple sclerosis patients suffer from loss of muscle strength, balance, and vision. It is a common cause of neurological disability, particularly in young adults. It affects about 50000 people in India and about 2.5 million in the world. Women are thrice more prone to this disease than men. It is a difficult to diagnose, chronic debilitating disease and which had no proper medication till nineties. Multiple sclerosis is an autoimmune disease and glatiramer acetate is first choice of drug in the treatment of multiple sclerosis.

Glatiramer acetate is chemically a peptide copolymer, and basically a polyamino acid. Polyamino acids has interesting place in the history of science particularly with respect to protein structure, immunity, immonogenicity, and deciphering the genetic code. The lecture will be directed towards the historical developments in this interesting area.

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ORGANIZING COMMITTEE

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Patron: Dr. B. Prabha Shankar, President, IPA Telangana

Convener: Dr. B. Madhava Reddy, Principal, GPRCP

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PROGRAMME SCHEDULE

09.30 AM-10.30 AM	**Registration**
10.30 AM-10.45 AM	**Inauguration**
10.45 AM-11.45 AM	**Address by Guests of Honour and Chief Guest**
11.45 AM-12.00 PM	**Tea Break**
12.00 PM-01.00 PM	**Scientific Lecture**
01.00 PM-02.00 PM	**Lunch Break**
02.00 PM-04.00 PM	**Poster Presentations**
04.00 PM-05.00 PM	**Valedictory function Prizes & Certificates Presentation**

One Day Seminar on

INNOVATIONS IN PHARMACEUTICAL RESEARCH – 2018 and POSTER PRESENTATIONS

On 25th September 2018

VOLUNTEERS

ABSTRACT COMMITTEE

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M. Sathish	B.Pharm III Year
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Neha	M.Pharm
Sravya	M.Pharm
Arshiya	M.Pharm
Namratha	M.Pharm
Shreya	M.Pharm
Krishnakumari	M.Pharm
Fatima	M.Pharm

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Fatima Unnisa	Pharm.D IV Year
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A Poojitha	Pharm.D IV Year

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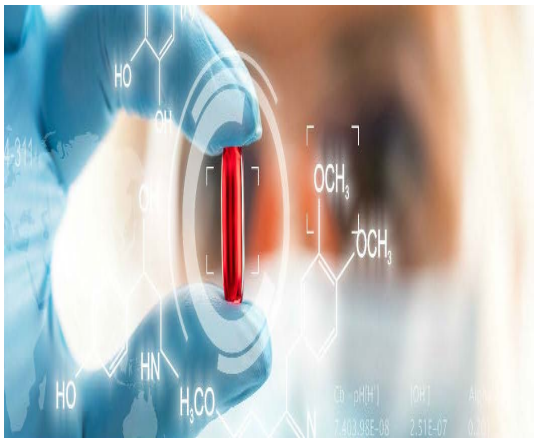
PHARMACEUTICS



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CODE: PCU001

ORO DISPERSIBLE TABLETS: A RECENT APPROACH

TayyabaJeelani, S M Shahidulla
Department of Pharmaceutics, Deccan School of Pharmacy, Hyderabad

Now-a-days, orodispersible drug delivery systems are extensively used to improve bioavailability and patient compliance. Over the past three decades, oro dispersible tablets (ODTs) have gained considerable attention as a preferred alternative to conventional tablets and capsules due to better patient compliance, improved solubility and stability profiles. The purpose of the article is to revise advancements of ODT technology in drug delivery applications. Various techniques employed to prepare ODTs include direct compression method, freeze drying, spray drying, tablet moulding, sublimation and mass extrusion. ODTs could be preferred choice especially with those drugs sensitive to GI and for patients under category of paediatrics, geriatrics, bedridden, postoperative and who may have difficulty in swallowing the conventional tablets and capsules. ODTs are solid dosage forms containing medicinal substances which disintegrate rapidly, usually in a matter of seconds, when placed on the tongue. ODTs render enhanced acceptability due to its patient compliance as well as improved bioavailability and stability.

CODE: PCU002

MICROSPHERES AS DRUG DELIVERY SYSTEM: A NEW CONCEPT

Saniya Fatima, S M Shahidulla
Deccan School of Pharmacy, Agharpura, Goshamahal, Hyderabad

Oral modified-release multiple-unit dosage forms have always been more effective therapeutic alternative to conventional or immediate release single-unit dosage forms. With regards to the final dosage form, the multiparticulates are usually formulated into microspheres and filling them into hard gelatin capsules. Microspheres received much attention not only for prolonged release, but also for targeting of drugs. In future microspheres will find the central place in novel drug delivery, particularly in diseased cell sorting, diagnostics, genetic materials, targeted and effective drug delivery. The current aim of novel system is to study various aspects of the microparticulates drug delivery system including method of formulation, evaluation & characterization.

CODE: PCU003

GRANULATION TECHNIQUES AND TECHNOLOGIES: A RECENT APPROACH.

Amatul Kareem Hafsa, S M Shahidulla
Deccan School of Pharmacy, Agharpura, Goshamahal, Hyderabad

Granulation, the process of particle enlargement by agglomeration technique, is one of the most significant unit operations in the production of pharmaceutical dosage forms, mostly tablets and capsules. Granulation process transforms fine powders into free flowing, dust free granules that are easy to compress. Granulation process can be divided into two types: wet granulation that utilize a liquid in the process and dry granulation that requires no liquid. The type of process selection requires thorough knowledge of physiochemical properties of a drug, exciepients, required flow and release properties. Among currently available technologies, spray drying, roller compaction, high shear mixing, and fluid bed granulation are worth of note. This study focus on the recent progress in the granulation techniques and technologies such as pneumatic dry granulation, reverse wet granulation, steam granulation, moisture-activated dry granulation, thermal adhesion granulation, freeze granulation and foamed binder or foam granulation.

CODE: PCU004

NANOSPONGES IN DRUG DELIVERY

Ayesha Jabeen, Mrs. Parbatikirtania Roy
Sultan Ul Uloom college of Pharmacy, Banjara Hills, Hyderabad

Nanosponges (NS) is a novel and emerging technology which offers controlled drug delivery. Nanosponges are tiny sponges with a size of about a virus, which can be filled with a wide variety of drugs (both lipophilic and hydrophilic drugs can be loaded). These tiny sponges can circulate around the body until they encounter the specific target site and stick on the surface and begin to release the drug in a controlled and predictable manner. The ideal delivery system will solubilize the drug, lead the therapy to the target site, and release the therapy to fulfil the individual need of the patient and disease stage. They can be crafted for targeting drugs to a specific site, prevent drug and protein degradation, and prolong the drug release in a controlled manner. NSs play a key role in targeting drug delivery in a controlled manner. Due to their advantages, NS have not only been explored for their pharmaceutical applications but also have large popularity in allied sciences, especially in water purification.

CODE: PCU005

PULSATILE DRUG DELIVERY SYSTEM: AN APPROACH OF MEDICATION ACCORDING TO CIRCADIAN RYTHM

Yasmeen Sultana, Shahid Mohammed
Deccan School of Pharmacy, Agharpura, Goshamahal, Hyderabad

Pulsatile drug delivery systems (PDDS) drugs is released rapidly after a well defined lag time, could be advantageous for many drug s or therapies. These systems are designed according to the circadian rhythm of the body, and the drug is released rapidly and completely as a pulse after a lag time. These products follow the sigmoid release profile characterized by a time period. These systems are beneficial for drugs with chronopharmacological behavior, where nocturnal dosing is required, and for drugs that show the first-pass effect. Marketed technologies, such as Pulsincap™, Diffucaps®, CODAS®, OROS® and PULSYS™, follow the above mechanism to render a sigmoidal drug release profile. Diseases wherein PDDS are promising include asthma, peptic ulcers, cardiovascular ailments, arthritis and attention deficit syndrome in children and hypercholesterolemia. Pulsatile drug delivery systems have the potential to bring new developments in the therapy of many diseases.

CODE: PCU006

FORMULATION AND EVALUATION OF GASTRORETENTIVE FLOATING TABLETS OF CAPTOPRIL

G. Ganesh Kumar[1], D.V.R.N. Bhikshapathi[2]
[1]Srikrupa Institute of Pharmaceutical Sciences, Siddipet.
[2]Vijaya College of Pharmacy, Hyderabad.

The purpose of this research was to develop a novel gastroretentive drug delivery system based on wet granulation technique for sustained delivery of active agent. Quick GI transit could result in incomplete drug release from the drug delivery system above the absorption zone leading to decreased efficacy of the administered dose and thus less patient compliance. Gastroretentive floating tablets, which was designed to provide the desired sustained and complete release of drug for prolonged period of time. Gastroretentive floating tablets of captopril were prepared by wet granulation technique using different concentrations of Gum Kondagagu, Gum olibanum and Locust bean Gum. The optimized formulation (F14) exhibited 99.54% drug release in 12 hrs, while the buoyancy lag time was 33 sec. In-vitro drug release kinetics was found to follow both the Zero order and the possible mechanism of captopril release from the optimized formulation might be attributed to super case II transport mechanism. The optimized formulation (F14) showed no significant change in physical appearance, drug content, floating lag time, *in vitro* dissolution studies after 75%±5% RH at 40 ± 2^0C relative humidity for 6 months.

CODE: PCU007

SILVER NANOPARTICLES: A NOVEL APPROACH

V. Shilpa, Dr .Gyati Shilakari Asthana
Gokaraju Rangaraju College of Pharmacy, Bachupally, Hyderabad

Recent advances in nanoscience and nanotechnology radically changed the way we diagnose, treat and prevent various diseases in all aspects of human life. Nanoparticles of novel metals such as gold, silver and palladium have drawn immense attention due to the wide range of new applications in various fields of industry. Silver nanoparticles (AgNPs) are one of the most vital and fascinating nanocarrier among several metallic nanoparticles that are involved in biomedical applications. Particularly, silver nanoparticles have significant interest in medical applications such as very effective antibacterial agents without the toxic effects and industry application such as inkjet inks containing well uniform dispersions of nano-sized silver particles that are useful for producing electronic circuits. It is important that the silver nanoparticles require not only the particles to be of nano-size, but also synthesis of the nanoparticles to be produced easily and at low cost. Over the past few decades, many synthetic methods of silver nanoparticles have been studied. The synthesis of AgNPs using physical, chemical and biological methods. The multifunctional bio-applications of AgNPs; for example, as antibacterial, antifungal, antiviral, anti-inflammatory, anti-angiogenic and anti-cancer agents and the mechanism of the anti-cancer activity of AgNPs. In addition, therapeutic approaches and challenges for cancer therapy using AgNPs.

CODE: PCU008

NANOPARTICLES HITCHHIKE ON RED BLOOD CELLS: A POTENTIAL NEW METHOD FOR DRUG DELIVERY

Amrutha Mounica, Dr. P. Veeresh Babu, Dr. M. Ganga Raju, Dr. CVS Subrahmanyam
Gokaraju Rangaraju College of Pharmacy, Bachupally, Hyderabad

A major challenge in drug delivery is ensuring that the drug reaches the target organ at a concentration sufficient to treat the disease. Only a tiny fraction of drug reaches the target organ while the rest diffuses to reminder of the body, producing off-target side effects. This is especially problematic for acute critical illness, in which multiple organ systems are perturbed and therefore cannot tolerate off-target side effects. Nanoparticle drug delivery system is one of the most widely investigated approaches for drug delivery, however there are two major roadblocks: rapid clearance of foreign materials by immune system & limited ability to target delivery of therapeutics to site of interest. Researches in University of California, Samir Mitragotri, Santa Barbara & colleagues discovered that attaching polymeric nanoparticles to the surface of the RBCs dramatically increases the *in-vivo* lifetime of nanoparticles. The RBC – Hitchhiking Nanoparticles (RHNs), utilizes soft nanoparticles such as liposomes & nanogels loaded with drugs and natural properties of RBC's to target the epithelium. Nanoparticles are adsorbed on to the RBCs and injected intravenously. The target organ for delivery of the drugs is determined by which blood vessels the RHNs are injected into. When RHNs were injected in to carotid artery ~10 folds increased efficiency was observed in mice. Hence, it is poised to augment drug delivery in acute lung disease, stroke and several other diseases.

CODE: PCU009

FORMULATION AND EVALUATION OF MEDICATED LIPSTICK

B. Geethika Reddy, Dr. Gyatri Shilakari Asthana
Gokaraju Rangaraju College of Pharmacy, Bachupally, Hyderabad

Lipstick formulations are most widely used to enhance the beauty of lips and to add glamour touch to the makeup.It is difficult to apply lipsticks to the dried, chafed, chapped, cracked lips with sores and lesions. In such cases, one can use medicated lipsticks for the purpose of curing topical infections and beautification of lips.With this aim and objectives, an attempt was made to formulate medicated lipstick by using salicylic acid(topical aid in the removal of excessive keratin) and annatto extract as natural colouring agent. It was formulated by simple melting and mixing method. The lipstick was evaluated for melting point, breaking point, force of application, surface anomalies, aging stability, solubility test, skin irritation test and perfume stability. The melting point and breaking point were found to be 40^{o}C and 30g for 90sec respectively, also no surface anomalies were observed. There were no changes in the fragrance after 30days. Finally concluded that the lipstick was free from surface anomalies, was stable and had no skin irritation.

CODE: PCU010

ROLE OF COMPUTER AIDED DRUG DESIGNIN DRUG DEVELOPMENT AND DISCOVERY: AN OVERVIEW

Sameera Begum, S M Shahidulla
Deccan School of Pharmacy, Agharpura, Goshamahal, Hyderabad

The process of drug development and discovery is very challenging, expensive and time consuming. It has been accelerated due to development of computational tools and methods. Over the last few years, computer aided drug design also known as in silico screening had become a powerful technique because of its utility in various phases of drug discovery and development to various advanced features. In silico screening also paves path for the synthesis and screening of selected compounds for better therapeutics. Aim to covered a wide range of computational approaches including new methodologies as well as practical aspects in this area. This review provides an insight about developmental chain, approaches and applications of CADD, various data sources, computational method for the discovery of new molecular entities. The crucial steps of in silico drug designing like homology modeling, docking, multi-target searching and design, pharmacophore development , conformation generation, quantitative structure activity relationship(QSAR).

CODE: PCU011

FORMULATION AND EVALUATION OF SUSTAINED RELEASE BI LAYER TABLETS OF AMLODIPINE BESYLATE AND METOPROLOL SUCCINATE

Roozena, G.Ganesh Kumar
Srikrupa Institute of Pharmaceutical Sciences, Siddipet

The present study was to establish Bi- layer tablets containing Amlodipine besylate immediate release layer and Metoprolol succinate as sustained release tablets. Immediate release layers were prepared by direct compression method using super disintegrants such as sodium starch glycolate and sustained layer were prepared by wet granulation method using different viscosity grade HPMC K100M Carbopol 940 as polymers. The tablets were evaluated for physicochemical properties. All the values were found to be within limit. *In-vitro* release studies were carried out by USP type-2 paddle apparatus. The results showed that combinations of polymers namely HPMCK100M and Carbopol 940 in sustained layer can control the release of drug. The *in-vitro* release profiles of drug from sustained release layer could be best expressed by Higuchi's equation as the plots showed high linearity (R2>0.988) and diffusion was the dominant mechanism of drug release. The formulations (AT5) having immediate release layer produces immediate effect within 45 seconds followed by sustained release (98±0.23%) at 22 hrs and it is comparable with innovator. The present study concluded that Bi layer tablets of Amlodipine besylate and Metoprolol succinate as an alternative to the conventional dosage form.

CODE: PCU012

FORMULATION AND EVALUATION OF TRANSDERMAL DRUG DELIVERY SYSTEM FOR DARIFENACIN

Sairoja, G. Ganesh Kumar
Sri Krupa Institute of Pharmaceutical Sciences, Siddipet.

Transdermal delivery system bypass the hepatic first pass metabolism and avoid drug degradation due to gastrointestinal pH, enzymes etc., minimize plasma level fluctuations and extend the drug activity besides improving patient compliance. Transdermal films of darifenacin were prepared using polymers such as ethyl cellulose, poly vinyl alcohol, Eudragit RL100, Eudragit L100. Di-n-butyl phthalate was used as plasticizer. The study was undertaken to report the film forming properties of polymers used and *in vitro* drug release from the prepared monolithic matrices. Effect of drug loading on the drug release rate was also studied. The transdermal films were prepared using solvent casting method. These films were evaluated for Thickness, Percent moisture loss, Percent moisture absorption, Drug content, Weight variation and folding endurance. *In-vitro* drug release kinetics was studied using Franz-diffusion cell. Drug release followed zero order kinetics. Drug loading at different concentrations found to have less effect on the film forming properties of the constituent polymers. In conclusion combination of ethyl cellulose, poly vinyl alcohol, Eudragit RL100, Eudragit L100 and Di-n-butylphlthalate can potentially be optimized to develop an effective Transdermal drug delivery system for darifenacin.

CODE: PCU013

ETHOSOME: A NOVEL DRUG CARRIER

Zareena Begum, Dr.Sirisha Mittapally
Deccan School of Pharmacy, Agharpura, Goshamahal, Hyderabad

Skin acts as a major target as well as a principal barrier for topical or transdermal drug delivery. Despite many advantages of this system, the major obstacle is the low diffusion rate of drugs across the stratum corneum. Ethosomes as novel vesicles in transdermal drug delivery show significant effects on drug penetration through the biological membrane. Ethosomes are phospholipid-based elastic nanovesicles containing a high content of ethanol (20-45%). Ethosomal systems are much more efficient in delivering substances to the skin in the terms of quantity and depth, than either conventional liposomes or hydroalcoholic solutions. Enhanced delivery of bioactive molecules through the skin and cellular membranes by means of an ethosomal carrier opens numerous challenges and opportunities for the research and future development of novel improved therapies.

CODE: PCU014

FORMULATION AND EVALUATION OF INVASOMAL ANASTROZOLE FOR THE TREATMENT OF BREAST CANCER

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G. Pulla Reddy College of Pharmacy, Mehdipatnam, Hyderabad

Anastrozole is a drug used in the treatment of breast cancer in post-menopausal women. Transdermal application of anastrozole is anticipated to be an effective treatment as several side effects are associated with the oral administration. Invasomes are the novel vesicles incorporating terpenes which enhance the permeation when compared to the conventional liposomes. It also consists of phospholipids and ethanol. In this study, anastrozole loaded invasomes were prepared by using thin film hydration method. The effect of different lipids (Phospholipon 80H & soya lecithin), quantity of lipids and percentage of terpene on the properties of the prepared invasomes was investigated using a full factorial experimental design. Optimized formulations were additionally evaluated for particle size, drug entrapment and release efficiency. Morphological assessment (SEM) of the optimized formulation showed spherical shaped vesicles. Lastly, the ability of the prepared anastrozole loaded invasomes to deliver anastrozole through the skin was studied in ex-vivo studies using male Wister rats. The maximum ex-vivo percentage skin deposition amount of anastrozole was found to be 46.96 % for invasomes versus 4.26 % for the drug solution, representing about 42.7-fold higher for the invasomes compared to the drug solution. Invasomes were later incorporated into a gel for ease of application. The anastrozoleinvasomal gel was found to have percentage skin deposition of 73.11 versus 5.57 % of skin deposition for control gel, representing about 67.54-fold increase for the invasomal gel compared to the control gel. These results reveal that the skin retention of anastrozole can be enhanced using invasomes. Cell line studies were performed which showed that positive results.

CODE: PCU015

A COMPLETE REVIEW OF: DISPERSIBLE TABLETS

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Now a day, orodispersible drug delivery systems are extensively used to improve bioavailability and patient compliance.over the past three decades, orodispersible tablets (ODTs) have gained considerable attention as a preferred alternative to conventional tablets and capsules due to better patient compliance, improved solubility and stability profiles.The purpose of the article is to review potential advancements of ODT technology in drug delivery applications. Various techniques employed to prepare ODTs include direct compression method, freeze drying, spray drying, tablet moulding, sublimation and mass extrusion.ODTs could be preferred choice especially with those drugs sensitive to GI and for patients under category of pediatrics,geriatrics,bedridden, post-operative and who may have difficulty in swallowing the conventional tablets and capsules.ODTs are solid dosage forms containing medicinal substances which disintegrate rapidly,usually in a matter of seconds,when placed on tongue.ODTs render enhanced acceptability due to its patient compliance as well as improved bioavailability and stability.This article reviews recent undertaken to develop ODTs,newODTstechnologies,suitability of drug candidate and characterization of ODTs.

CODE: PCU016

A COMPLETE REVIEW OF ORAL THIN FILMS

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In late 1970s, rapid disintegrating drug delivery system was developed as an alternative to capsules, tablets and syrups for geriatric and paediatric patients having problems in swallowing. To overcome the need, number of orally disintegrating tablets which disintegrate within one minute in mouth without chewing or drinking water were commercialized. Then later, oral drug delivery technology had been improved from conventional dosage form to modified release dosage form and developed recently rapid disintegrating films rather than oral disintegrating tablets. Oral disintegrating film or strips containing water dissolving polymer retain the dosage form to be quickly hydrated by saliva, adhere to mucosa, and disintegrate within a few seconds, dissolve and releases medication for oromucosal absorption when placed in mouth. Oral film technology is the alternative route with first pass metabolism. This review give a comprehensive detail of material used in ODF, manufacturing process, evaluation tests and marketed products.

CODE: PCU017

A REVIEW ON NANO CAPSULES

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Study of small particles is called Nanotechnology, it is derived from Greek word "Nano" which gives meaning-dwarf small. Nano capsule are type of vesicular system. It is submicroscopic colloidal drug carrier system. In Nano capsules the drug is enclosed inside a cavity of inner liquid oily or aqueous core which is surrounded by a polymer membrane.Nano capsules can be prepared by Natural polymers and Synthetic polymers. Solvent evaporation, Nano precipitation, emulsification/Solvent diffusion, Salting out, Dialysis and Super critical fluid technology are the different methods which can be used for the preparation of Nano capsules. Interfacial polymerization of a monomer or the interfacial Nano deposition of a preformed polymer are the two technologies used to prepare Nano capsules. The Nano capsules facilitate targeted to cell specific and site specific targeting via intravenous and subcutaneous routes. Nano capsules have wide range of pharmaceutical applications such as neuroscience, cancer and infections. Modern Nano-particulate drug delivery systems provides wide space for pharmaceutical research and development. The drug encapsulation inside Nano capsule protect them from the biological environment and ease their transport through biological barriers.

CODE: PCU018

CARDIAC MUSCLE CELL REGROWTH: ROLE OF PROTEIN PATCH

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Heart failure is a common ailment that causes the death of cardiac cells. Lower animals like fish can regenerate heart muscles,this became the basis of research.The dead cardiac muscle cell is replaced by a scar that reduces the ability of heart to perform. Complex surgeries like valve replacement, heart transplantation, angioplasty need to be performed; that are time consuming as well as expensive. Advancing Tissue engineering research led to the development of a 'protein patch' that is said to reverse damage caused by heart attack. Using mass spectrometry more than 300 proteins were analyzed . Protein FSTL1 was finally discovered, which is found to stimulate the replication of cardiomyocytes .Embedding FSTL1 protein in a patch and applied to the surface of mouse and pig hearts that had underwent an experimental form of myocardial infarction or "heart attack.". With the successful clinical trials on mice and pig hearts this is soon to enter the phase of human trials. This novel innovation brings the end of complex heart surgeries and a 100% success rate.

CODE: PCU019

DISSOLUTION METHOD DEVELOPMENT AND VALIDATION OF ZAFIRLUKAST TABLETS

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Zafirlukast is an oral leukotriene receptor antagonist used in the treatment of asthma. Poor solubility in biological fluids is the major problem with this drug which results in poor bioavailability after an oral administration. The rate of absorption and the extent of bioavailability for such a poor soluble drug is controlled by rate of dissolution in gastrointestinal fluids.The aim of the study was to develop and validate, "Dissolution method development and validation of Zafirlukast tablets. The UV spectrophotometric method developed was based on the direct estimation method using 238nm as λmax of Zafirlukast. The method was validated according to International Conference on Harmonization (ICH) guidelines which include precision, specificity and linearity. The dissolution medium i.e. Methanol + Phosphate buffer pH 6.8was selected on the basis of solubility studies. The established dissolution conditions were 900ml dissolution medium at temperature 37 ± 0.5 °C, using apparatus II at stirring rate 75 rpm. The corresponding dissolution profiles were constructed and the selected brand showed appropriate results. Thus, the proposed dissolution method can be used successfully.

CODE: PCU020

NOVEL APPROACHES FOR INSULIN DELIVERY

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Diabetes mellitus is a serious pathologic condition which is responsible for major healthcare problems worldwide and costing billions of dollars annually. Insulin replacement therapy has been used in the clinical management of diabetes mellitus for more than 84 years. Insulin has remained indispensable in the management of diabetes mellitus since its discovery in 1921. Comparatively, a large percentage of world population is affected by diabetes mellitus, out of which approximately 5- 10% with type 1 diabetes while the remaining 90% with type 2.The present mode of insulin administration is by the subcutaneous route through which insulin is introduced into the body in a non-physiological manner having many challenges. Hence novel approaches for insulin delivery are being explored. Challenges that have adverse effect on oral route of insulin administration mainly includes rapid enzymatic degradation in the stomach, inactivation and digestion by proteolytic enzymes in the intestinal lumen and poor permeability across intestinal epithelium because of its high molecular weight and lack of lipophilicity.Approaches such as liposome, micro emulsions, nanocubicle, insulin chewing gum and so forth have been prepared to ensure the oral delivery of insulin. Attempts have been made to achieve oral insulin delivery using various systems. Scientists have been able to protect the insulin delivery systems from acidic environment of the stomach and target it to the intestine.

CODE: PCU021

DEVELOPMENT AND EVALUATION OF CONTROLLED POROSITY OSMOTIC PUMP TABLET OF LOSARTAN POTASSIUM

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The aim of the present work was to prepare and evaluate controlled porosity osmotic pump tablets of Losartan potassium to prolong the release of drug oral administration. Losartan potassium is an anti - hypertensive drugand it acts as an angiotension II receptor antagonist. The tablets were prepared by the wet granulation method using mannitol as an osmogen and polymers like polyox N-80, polyox N-205 at different concentrations. Thetablets were coated with opadry CA upon contact with water it results in an *in situ* formation of a micro porousstructure. Total twelve (F1-F12) were formulated and the tablets were evaluated for various parameters such ascompatibility studies, drug content, weight variation, hardness, thickness, friability, *in vitro* drug release studiesand release rate kinetics. The drug-polymer interaction was also studied by conducting FTIR. The *in vitro*release kinetics studies reveal that all formulations fits well with Zero order, followed by Korsmeyer –Peppasand the mechanism of drug release follows super case II transport. After analysis of different evaluationparameters and drug release kinetics, formulation code F9 was selected as a promising formulation for deliveryof Losartan potassium as a controlled porosity osmotic pump tablet with 99.82 % *in vitro* drug release at 24thhour. The stability studies were carried out at 40°C/75% RH for 90 days. There was no significant change in thephysical property during the study period.

CODE: PCU022

PREPARATION AND EVALUATION OF MUCOADHESIVE MICROSPHERES OF LEVOFLOXACIN

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H.pylori bacteria is the causative agent of gastric ulcers and also is a carcinogenic organism. Certain conventional dosage forms fail to eradicate the bacteria from the stomach hence a novel drug delivery system is the need of the hour for proper elimination of these bacteria locally as well as systemically. The rationale of the present investigation is to develop a new oral drug delivery system utilizing both the concepts of controlled release and mucoadhesiveness, which could remain in stomach and control the drug release for longer period of time. Gelatin/ Acrypol 934P mucoadhesive microspheres of Levofloxacin were prepared by Emulsification cross- linking method. The prepared mucoadhesive microspheres were subjected for various evaluation parameters. The average particle size for optimized formulations of Gelatin/ Acrypol 934P microspheres was found to be 41.5µm. Photomicrographs revealed that the microspheres were spherical in shape. The drug entrapment efficiency for Gelatin/ Acrypol 934P microspheres was found to be 85.43%. *In vitro* drug release was carried out in 0.1N Hydrochloric acid and was found to be higher in comparison with pure drug. Drug release from showed more than 75% of the drug was released within 8 Hr, while pure drug showed complete drug release within 3 hours. This suggested controlled delivery of Levofloxacin for a longer period. Regression analysis revealed that the drug release from the microspheres was followed zero order kinetics.

CODE: PCU023

TREATMENT OF CANCER BY USING NANOPARTICLES AS A DRUG DELIVERY

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Although the "war on cancer" is now in its fourth decade and despite much progress has been made in categorizing the environmental causes and cellular and molecular biological basis for this dreaded disease, we still do not have a precise understanding of the differences between a cancer cell and its normal counterpart. If we do not understand cancer, we cannot control, conquer, and eliminate it. The completion of the human genome sequence and its subsequent improvements in the sequence data are important steps to fully comprehend cancer cell biology. Nanotechnology, a new, novel focus of research evolved from the convergence and coalescence of many diverse scientific disciplines and as a general term for the creation, manipulation, and application of structures in the nanometer size range. In this article, Nano medicine aspects of nanotechnology will be stressed and will cover areas such as drug delivery systems and new drug therapies as they relate to cancer. One of the ultimate goals of Nano medicine is to create medically useful Nano devices that can function inside the body. It is envisioned that Nano devices will be hybrids of biologic molecules and synthetic polymers that can enter cells and the organelles to interact directly with DNA and proteins. Additionally, Nano medicine will have an impact on the key challenges in cancer therapy: localized drug delivery and specific targeting. Among the newly developed Nano medicine and Nano devices such as quantum dots, nanowires, nanotubes, Nano cantilevers, and Nano pores, Nano shells and nanoparticles are the most promising applications for various cancer treatments.

CODE: PCU024

A COMPARATIVE STUDY OF THE *IN-VITRO* DISSOLUTION PROFILE OF ACETAMINOPHEN IN DIFFERENT DISSOLUTION MEDIA USING HPLC.

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Dissolution testing is an in-vitro technique of great importance in formulation and development of pharmaceutical dosage forms, as it can be used as a substitute for in-vivo studies under strictly defined and specified conditions. The main objective of the present study is to conduct the comparative dissolution studies of the in-vitro dissolution profile of acetaminophen in different dissolution media using similarity factor to determine whether all the formulations used were equivalent or significantly different. Six randomly picked drugs containing acetaminophen were used in the study, and dissolution testing in different dissolution media viz., water, 0.1N HCL, phosphate buffer of pH 4.5 and phosphate buffer of pH 6.8 were conducted for 6 tablets for 60 min, by using dissolution testing apparatus USP type II. Samples were withdrawn at 10 min. time interval and analysed for drug content by using HPLC technique. Percentage drug release at each time interval was calculated for tablets using tetra butyl ammonium hydrogen sulphate as mobile phase for water and 0.1% of ortho phosphoric acid for 0.1N HCl, phosphate buffer of pH 4.5 and 6.8.

CODE: PCU025

COLON TARGETED DRUG DELIVERY SYSTEM: DESIGN TRENDS AND APPROACHES

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Colon targeted drug delivery system has gained enormous importance in the recent past as it is extremely desirable for local treatment of various colonic ailments like Irritable Bowel Syndrome, Crohn's disease, ulcerative colitis. Colon is believed to be a suitable absorption site for several drugs because of less diversity and intensity of digestive enzymes; greater systemic bioavailability; and longer residence time. Targeted drug delivery to the colon would ensure direct treatment of the disease site with lower dose and fewer systemic side effects. This approach can also be used for systemic delivery of protiens, therapeutic peptides, anti-asthmatic drugs, antihypertensive drugs and antidiabetic agents. Formulations for colonic drug delivery are also suitable to deliver drugs which are polar, susceptible to degradation in the upper GI tract and the ones which are highly affected by firstpass metabolism. Oral route is the most convinient route for colon targeted drug delivery due to greater patient compliance and flexibility. Current review focuses on various Primary and Novel approaches in colon targeted drug delivery system such as: 1)PRIMARY APPROACHES - pH sensitive polymer coating, Time controlled system, Microbially triggered drug delivery system, Hydrogels, Prodrug approach. 2) NOVEL APPROACHES - Pressure controlled drug delivery system, osmotic controlled drug delivery, pulsincap.

CODE: PCU026

CARBON NANOTUBES: A NANO TECHNOLOGY TOOL

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Current discoveries of different forms of carbon nanostructures have motivated research on their applications in various fields. Carbon nanotubes have emerged as promising system for drug delivery as well as biomedical applications. Carbon nanotubes are allotropes of carbon with a long, hollow, quasi one dimensional cylindrical nanostructure, which are classified into single walled and multi walled nanotubes based on number of graphene sheets. Different methods have been developed for fabrication of CNT's like chemical vapour deposition, laser ablation technique. The cylindrical carbon molecules have unusual physicochemical properties which are valuable for nanotechnology, electronics , optics and other fields of material science and technology. CNT's have the unique property such as ultra high surface area which make them as promising potential for delivery of drugs ,peptides, nucleic acids. Due to its high biocompatibility it has various biomedical applications such as recognisation of cancer specific receptors on cell surface ,ability to cross the cell membrane , efficient and effective release of chemotheraupetic agents ,incorporation of DNA into cell, neuron growth and regeneration. Nanomaterials explain probability and promise in regenerative medicine for the reason that of their attractive chemical and physical properties. Carbon nanotubes have a high potential of finding unique applications in wide areas of medicine.

CODE: PCU027

PATCH VACCINATION AS A MODERN FORM OF DRUG DELIVERY

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Nanopatch is a modern technique which designed to target the network of immunologic antigen presenting cells in the dermis and epidermis layers under the skin to enhance the efficacy of vaccination. Nano patch contains the micro sized needles that are painlessly penetrating and the nano-formulated medicines, drugs and vaccines directly go to the immune system. The central element of this technology is the Nanopatch array itself which consist of a 1 cm^2square of silicon with approximately 20,000 microprojections on its surface invisible to the naked eye. The Nanopatch array penetrates through the protective outer skin layer(stratum corneum) and targets immune activating material to the immune cell rich layers just beneath the outermost skin layer utilising the microprojections with optimised spacing and length.The comparative studies outline that there is increased stability, conventional route, easy to use and also the wide range of vaccines can be used. Nano patch one day will be self-administered or given by a non-medical person, which reduces the administration cost and also relieve from burden on health care professionals.Receiving vaccines from doctor's office or health clinic may soon be outdated.

CODE: PCU028

CANCER NANOTHERANOSTICS: A NEW APPROACH IN NANOTECHNOLOGY FOR BOTH DIAGNOSIS AND THERAPY

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Cancer is a multi-factorial disease characterized by uncontrolled proliferation of cells, local tissue invasion and metastasis. Despite improvements in our understanding of cancer and the emerging concept of personalized medicine for the treatment of this disease, it is the third leading cause of death in the world. As of today, nanotechnology has an impact on almost every aspect of Healthcare. Disease diagnosis and treatment is one of the highest impact areas where nanotechnology has excellent potential and promise. Nanotheranostics is a burgeoning field which makes use of nanotechnology for diagnosis and therapy of cancer. Integration of therapeutic compounds into nanoparticles with diagnostic agents refers to theTheranostic nanoparticles. The Theranostic nanomedicine can achieve systemic circulation, evade host defenses and deliver the drug and diagnostic agents at the targeted site to diagnose and treat the disease at cellular and molecular level. Various nanocarriers developed for Nanotheranostics includes- polymer conjugations, dendrimers, micelles, liposomes, metals inorganic nanoparticles, carbon nanotubes and nanoparticles of biodegradable polymers for sustained, controlled and targeted co-delivery of diagnostic and therapeutic agents with fewer side effects.Nanomaterials composed of either inorganic or polymer based nanoparticles is useful for Nanotheranostics applications such as diagnosis, treatment; monitoring the therapeutic response in vivo; to enhance the control, evaluation and optimization of drug delivery and release; to target the drug by conjugating theranostic nanoplatforms with biological ligands; for simultaneous imaging and therapy; for the targeted delivery in cancer therapy.

CODE: PCU029

RECENT ADVANCES IN TRANSDERMAL DRUG DELIVERY SYSTEM (TDDS)

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Transdermal drug delivery system [TDDDS] provides a means to sustain drug release as well as reduce the intensity of action and thus reduce the side effects associated with oral therapy. It delivers drug through intact skin at a controlled rate into the systemic circulation. Delivery rate is controlled by the skin or membrane in the delivery system. The materials of construction, configuration and combination of the drug with the proper co- solvent, excipient, penetration enhancer and membrane are carefully selected and matched to optimize adhesive properties and drug delivery requirements. It is an approach used to deliver drugs through the skin therapeutic use as an alternative to oral, intravascular, subcutaneous and transmucosal routes. The most commonly used transdermal system is the skin patch using various types of technologies. Transdermal technologies may be applied for several categories of pharmaceuticals used for the treatment of disorders of the skin or for systemic effect to treat diseases of other organs. Several transdermal products and applications include hormone replacement therapy, management of pain, angina pectoris, smoking cessation and neurological disorders such as Parkinson's disease. It enhances bioavailability via by passing first pass metabolism, minimizing pharmacokinetic peaks and troughs, improving tolerability and dosing.

CODE: PCU030

FORMULATION AND EVALUATION OF DOLUTEGRAVIR SODIUM LOADED SOLID LIPID NANOPARTICLES AS A VAGINAL DELIVERY SYSTEM

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The aim of this study was to formulate the anti-HIV drug, Dolutegravir sodium (DTG.Na) for pre exposure prophylaxis as topical semisolid Solid Lipid Nanoparticles (SLN) formulation using a rapid, economical one step process. SLN formulations were prepared using solvent injection method combined with sonication, using different type of lipids (e.g. Phospholipon 80H, Phospholipon 90H, Soy lecithin) and Poloxamer 407, Poloxamer 188, Tween 80 as surfactant. DTG.Na SLN were prepared by solvent injection method using a systematic approach of design of experiments (DOE), evaluated and found to be having particle size of 455 nm, polydispersity index of 0.411, zeta potential of -26.6 mV with flux of 43.7±0.12µg/cm^2/hr and entrapment efficiency of 76.2%.Drug release studies were conducted using two membranes via; dialysis membrane and goat vaginal mucosa. The release pattern of the drug followed first order kinetics with Higuchi release mechanism. The value of 'n' from Korsemeyer equation indicates theFickian diffusional drug release. F2 formulation showed 64.89% of skin deposition which was 16 times more than the pure drug. This study concluded that the DTG.Na sustained release SLN gel may have increased bioavailability and might show site targeted effect.

CODE: PCU031

NANO FORMULATIONS, NANO TECHNOLOGY IN THE FIELD OF PHARMACEUTIAL SCIENCE

The advent of nanotechnology has reignited interest in the field of pharmaceutical science for the development of nanomedicine. Nanomedicinal formulations are nanometer-sized carrier materials designed for increasing the drug tissue bioavailability, thereby improving the treatment of systemically applied chemotherapeutic drugs. It is a novel approach to deliver the pharmaceuticals through different routes of administration with safer and more effective therapies compared to conventional methods. There are various pharmaceutical applications of nanosized cargos of drugs/vaccine/DNA therapeutics including nanoparticles, nanoclusters, nanospheres, nanosuspensions etc. Such particles have unique characteristics related to their size, surface, drug loading, and targeting potential. They are widely used to combat disease by controlled delivery of bioactive(s) or for diagnosis of life-threatening problems in their very early stage. Wide varieties of synthesis methods are available for the preparation of nano-formulations to deliver drugs in biological system. The choice of synthesis methods depend on the size and shape of particulate formulation, biochemical properties of drug, and the targeted site. This documentation focuses on the potential of nanotechnology in medicine and discusses different nanoparticulate drug-delivery systems including polymeric NPs, metal NPs, magnetic NPs, polymeric micelles and dendrimers as well as their scale-up technologies

CODE: PCU032

SOLID LIPID NANOPARTICLES AND NANOSTRUCTURED LIPID CARRIERS: STRUCTURE, PREPARATION AND APPLICATION

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Lipid nanoparticles (LNPs) have attracted special interest during last few decades. Solid lipid nanoparticles (SLNs) and nanostructured lipid carriers (NLCs) are two major types of Lipid-based nanoparticles. SLNs were developed to overcome the limitations of other colloidal carriers, such as emulsions, liposomes and polymeric nanoparticles because they have advantages like good release profile and targeted drug delivery with excellent physical stability. In the next generation of the lipid nanoparticle, NLCs are modified SLNs which improve the stability and capacity loading. Three structural models of NLCs have been proposed. These LNPs have potential applications in drug delivery field, research, cosmetics, clinical medicine, etc. The current aim is to focuses on features, structure and innovation of LNPs and presents a wide discussion about preparation methodsand applications of LNPs by focusing on SLNs and NLCs.

CODE: PCU033

AQUASOMES: A NOVEL NANOPARTICULATE DRUG CARRIER

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Aquasomes are three layered self-assembled nanoparticulate carrier system. This three layered system contains a core coated with polyhydroxy oligomer upon which biochemically active molecules are adsorbed. Ceramics are mainly used as core material because of high degree of order and structural regularity. Polyhydroxy oligomer coating provides water like environment & protect biochemically active molecule from dehydration. As a whole aquasomes provide stability to biochemically active molecule. Poorly water-soluble drugs, insulin, hemoglobin, serratiopeptidase can be delivered through aquasomes. this includes brief introduction of aquasome, role of core & carbohydrate, properties, methods of preparation, characterization study and application of aquasomes.

CODE: PCU034

FORMULATION AND EVALUATION OF ZIDOVUDINE TRANSDERMAL PATCH USING PERMEATION ENHANCERS

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The objective of this research was to study the permeation of zidovudine using permeation enhancers. Transdermal patches were formulated using permeation enhancer namely T-Anethole. Zidovudine patches were prepared by solvent casting method. The prepared patches were evaluated for drug content, thickness and weight variation, folding endurance, moisture uptake, water vapor transmission, ex-vivo permeation study and skin irritation study. Fourier Transform Infrared revealed no interaction among the drug, polymers and terpene used in the present study. The exvivo permeation studies were performed in 7.4 phosphate buffer saline using a Franz diffusion cell. Different formulations were prepared and variations in drug release profiles were observed. About 69.77% and 67.42% of drug release was observed for TPN and TPS respectively without permeation enhancer whereas for TPN7 and TPS4 patches containing t-anethole as permeation enhancer, drug release at the end of 8hrs was found to be 89.59% and 93.21% respectively. The skin irritation test was performed in rabbits and the results suggested that both placebo and drug-loaded films produced negligible erythema. Exvivo studies indicated that formulations TPN7 and TPS4 has shown better release of zidovudine for 8 hrs with flux 550.19 and 614.05µg/cm2/hr respectively.

CODE: PCU035

FORMULATION AND EVALUTION OF FLOATING DRUG DELIVERY SYSTEM OF ASPIRIN

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Aspirin is the prototypical analgesic used in the treatment of mild to moderate pain. It has anti-inflammatory and antipyretic properties and acts as an inhibitor of cyclo oxygenase which results in the inhibition of the biosynthesis of prostaglandins. Aspirin also inhibits platelet aggregation and is used in the prevention of arterial and venous thrombosis. Formulation of floating drug delivery system (floating on the gastric fluid) is designed to improve the bioavailability of aspirin. The aim of the present study was to develop the drug release for desired period of time (12hrs) from the floating matrix tablets of Aspirin, prepared by using natural gum like Guar Gum and in combination with hydrophilic polymers like HPMC K100M by using Sodium bicarbonate and citric acid as gas generating agents. The formulation were optimized on the basis of In-vitro buoyancy lag time, total floating time and In-vitro drug release in 0.1N HCL for 12hrs. The results of the In-vitro release studies showed that the optimized formulations could control the drug release for 12hrs and remain buoyant for 12hrs. Th**e** formulation FS4 was showed better controlled release of the drug 99.24% in 12hrs, so it was selected as a best formulation among all the formulations. From this study it can be concluded that Aspirin can be formulated as floating drug delivery system.

CODE: PCU036

FORMULATION AND EVALUTION OF GASTRO RETENTIVE MUCOADHESIVE DRUG DELIVERY SYSTEM OF METAPROLOL TARTRATE BY DIRECT COMPRESSIION METHOD

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Metoprolol Tartrate is absorbed in gastric pH and get degrade in to the alkaline pH. Therefore an attempt was made to increase oral bioavailability of Metoprolol Tartrate be retaining the dosage form in stomach for longer period of time and by preventing alkaline degradation. This is achieved by developing gastro-rententive mucoadhesive tablets were prepared using various polymers such as HPMC K4M, Carbopol 934P and NaCMC in different combinations and proportions. Prepared tablets were subjected to various evaluations parameters such as hardness, weight variation, % friability, thickness, drug content, swelling Index, *In-Vitro* drug release profile and *In-Vitro* Residence time. The formulation F6 was optimized formulation based on its sufficient *In-Vitro* bioadhesion, maximum *In-Vitro* residence time and better in-vitro drug release profile and further subjected to evaluation parameters like SEM and stability studies. Results revealed that the tablet of all formulations has acceptable physical parameters. The *In-Vitro* release of all the formulations was subjected to pharmacokinetics data analysis and found that the suitable model for all formulations was Korsmeyer-peppas. The values of Diffusional exponent suggest that the release of drug from the matrix was anomalous (diffusion followed by the erosion). The stability study during three month revelaed that there was no significant change in drug release profile.

CODE: PCU037

FORMULATION AND *IN-VITRO* EVALUATION OF ATENOLOL FLOATING TABLETS

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Drugs that have narrow absorption window in the gastrointestinal tract (GIT) will have poor absorption. For these drugs, gastro retentive drug delivery systems offer the advantage in prolonging the gastric emptying time. Atenolol is an antihypertensive drug, which has low elimination half-life: 3–4 hrs. The floating tablets of Atenolol were prepared to increase the gastric retention and to improve the bioavailability of the drug. Atenolol was chosen as a model drug because it is better absorbed in the stomach than the lower gastro intestinal tract. The rapid gastro-intestinal transit could result in incomplete drug release from the drug delivery system above the absorption zone leading to poor bioavailability of the drug. The floating tablets were formulated using Xanthan gum is the release retardant polymer, and sodium bicarbonate as the gas generating agent to reduce the floating lag time. The tablets were prepared by direct compression. The formulated tablets were evaluated for weight variation, hardness, friability, swelling index floating lag time, total floating time and dissolution rate in pH 1.2. The floating tablets extended the drug release up to 8 hrs.

CODE: PCU038

EFFECT OF POLYMERS ON THE RELEASE OF ESOMEPRAZOLE FROM SUSTAINED RELEASE TABLETS

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The present work was to know effect of polymers on the release of Esomeprazole from sustain release tablets. In the present study three polymers were used namely HPMC E5, Xanthum gum, Carbopol 934 with different concentrations. Initially pre formulation studies were performed to check the solubility, flow properties, incompatabilities and melting point of drug. Tablets are formulated using different concentrations and proportions of polymers by wet granulation method, keeping the drug concentration constant. Nine formulations were prepared by varying concentrations and type of polymers. Evaluation tests were performed and In-vitro dissolution studies were carried out for all the nine formulations in phosphate buffer pH 6.8. From the In-vitro permeation studies tablets prepared with Xanthum gum polymer (F3,F4,F5) formulations showed more sustain release and F4 formulation showed retarding the drug release compared to remaining formulations.

CODE: PCU039

DEVELOPMENT AND CHARACTERIZATION OF ORANGE PEEL EXTRACT BASED NANOPARTICLES

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The main objective of the present work was to prepare orange peel extract based nano particles by chemical complexation method. Ethanolic extracts of orange peel were prepared by using Soxhlet apparatus and evaluated for phyto-chemical constituents. Qualitative analysis showed that orange peel extract showed positive results for alkaloids, tannin and saponins. The percentage moisture content and pH of the extract was found to be 96.1% and 3.8 respectively. A zeta potential and particle size of prepared nanoparticles was found in the range of – 32.0 mV to -21.4 mV and 178.8 nm to 191.6 nm, respectively. These range confirms that obtained particles were in nano range, i.e. <500 nm size. SEM results indicated the formation of nanoparticles and were relatively spherical in shape. Energy dispersive spectrometry (EDS) analysis confirms the presence of AgNPs. Further the study will be extended for anti-microbial and wound healing activities.

CODE: PCU040

NANO PARTICLES IN DRUG DELIVERY SYSTEM

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Nano word is originated from latin word means dwarf. The most emerging branch in pharmaceutical sciences know as "PHARMACEUTCAL NANO TECHNOLOHY", presents new tools, opportunities and scope which expected to have significant applications in disease diagnostics and therapeutics. A more generalized description of nano technology was subsequently established by the NATIONAL NANO TECHNOLOGY INITIATIVE which defines nano technology as the manipulation matter with at least one dimension sized from 1- 100 nanometers(nm). It includes diverse sciences such as surface science, organic chemistry, molecular biology, semiconductor physics, energy storage, micro fabrication, molecular engineering and nano biotechnology.

CODE: PCU041

PHARMACOSOMES: A NOVEL DRUG DELIVERY SYSTEM

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Pharmacosomes are colloidal dispersions of drugs covalently bound to lipids, and may exist as ultrafine vesicular, micellar, or hexagonal aggregates, depending on the chemical structure of drug-lipid complex. It is based on the principle that the drug binds covalently to a lipid where the resulting compound is the carrier and the active compound at the same time. The physicochemical properties depend on drug as well as the lipid. This system shows low entrapment efficiency and drug leakage during storage for hydrophilic drugs. Pharmacosomes have advantages over liposomal, transferosomal, and niosomal drug delivery systems. They are mainly prepared by hand-shaking and ether injection method. The Pharmacosomes were evaluated for different parameters such as size, NMR, surface morphology and In vitro release rate. They minimize drug degradation and increase bioavailability of poorly soluble drugs. Pharmacosomes can only encapsulate the water insoluble drugs in relatively small hydrophobic regions within membrane bilayer rather than relatively large surface. Pharmacosomes are used in drug targeting in cancer and also brain targeting by using 5-flouro-2-deoxyuridine Pharmacosomes. Marketed preparations of include veterinary iron dextrans and other dextrans.

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CODE: PCL001

THERAPEUTIC ROLE OF CALCIUM CHANNEL BLOCKERS IN OXIDATIVE STRESS AND INFLAMMATION

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Influx of Ca^{2+} is an essential step in the synthesis and release of prostaglandins (PGs) which are the main mediators in inflammation. Increased levels of calcium activate ROS-generating enzymes and formation of free radicals. Calcium channel blockade might attenuate stress and inflammation. Hence this study was planned to evaluate the antioxidant and anti-inflammatory activity of CCBs like verapamil, diltiazem and amlodipine in preclinical models. *In vitro* antioxidant activity was evaluated by superoxide radical scavenging and hydroxyl radical scavenging assay whereas anti-inflammatory activity was carried out using carrageenan and formaldehyde induced inflammatory models. These drugs markedly scavenged the free radicals in superoxide and hydroxyl radical scavenging assays indicating their antioxidant potential. The acute and chronic inflammation produced by carrageenan and formaldehyde respectively was significantly reduced by pretreatment with calcium channel blockers demonstrating their anti-inflammatory activity. Amlodipine exhibited better antioxidant and anti-inflammatory activity than verapamil and diltiazem which might be due to its prominent PGs inhibitory ability. The study marked novel therapeutic strategy for the management of inflammation related disorders.

CODE: PCL002

SYNERGISTIC INTERACTION BETWEEN AZATHIOPRINE AND PIOGLITAZONE ON EXPERIMENTAL INDUCED IMMUNOMODULATION

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Major role of immune system is to protect the host from infectious agents by phagocytosis and destruction by phagocyte-mediated reactive oxygen species (ROS). In addition, the immune system has various regulatory functions that are dependent upon an oxidant/ antioxidant balance. Thus, increased ROS is associated with decreased immune responses, mainly T-cell mediated functions. Azathioprine is considered as a mainstay in the management of immune related disorders. However, monotherapy with azathioprine is often limited by long-term toxicity. The present study was designed to investigate if azathioprine-pioglitazone combination therapy has an add-on benefit over monotherapy. The antioxidant activity of the test drugs was evaluated using Hydrogen peroxide radical scavenging assay and Nitric oxide scavenging assay whereas immunomodulatory activity was carried out by Nitro blue tetrazolium test (NBT) test, Delayed type hypersensitivity test and Carbon clearance test.The test drugs in combinationshowed better inhibitionof free radicals in both $H_2O_2$and Nitric oxide radicals scavenging assay than individual counterparts revealing its potential antioxidant activity. The combination showed itssignificant effect on both cell mediated and humoral immunity to suppress stimulated immune responses in Nitro blue tetrazolium test (NBT) test, Delayed type hypersensitivity test and Carbon clearance test.The present study demonstrates that the combination therapy of azathioprine with pioglitazone offers better control of immune related disorders as compared to azathioprine or pioglitazone monotherapy.

CODE: PCL003

EVALUATION OF PHYTOCHEMICAL ANALYSIS, ANTI-STRESS AND ANTI-OXIDANT EFFECTS OF *TECOMA STANS* IN RODENT MODELS

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Stress can be described as "a physical or physiological stimulus that can produce physiological reactions that may lead to illness, and also considered to be any conditions which results by scavenging free radicals, inhibiting the lipid peroxidation and by other mechanisms and thus prevent diseases. The present study was undertaken to investigate anti-stress and anti-oxidant activities of methanolic extract of leaves of *Tecoma stans* in rodent models. Methanolic extract of leaves of *Tecoma stans* (METS) were screened for its phytochemical constituents. The results revealed presence of alkaloids, flavonoids, phenols, sterols, terpenoids, tannins, glycosides, saponins, aminoacids and carbohydrates. Further these constituents were confirmed by using gas chromatography linked with mass spectrometer. Acute toxicity studies were carried out as per OECD guidelines 425 and the extract was found to be safe up to 2000 mg/kg body weight. *In-vivo* anti-stress activity was performed by swimming endurance test and cold restraint stress. The anti-oxidant potential was evaluated by lipid peroxidation and hydrogen peroxide radical scavenging assay. METS remarkably improved swimming endurance time and showed significant ($p<0.05$) reduction in biochemical parameters like serum glucose, cholesterol, triglycerides and cortisol levels in cold restraint stress. The extract showed significant scavenging activity against the lipid peroxidation and hydrogen peroxide radical scavenging assay. From the results it is clear that METS possess anti-stress and anti-oxidant activities perturbation of body's homeostasis". Antioxidants may offer resistance against the oxidative stress.

CODE: PCL004

ANTIHYPERTENSIVE, ACE INHIBITORY AND ANTIOXIDANT ACTIVITY OF WHOLE PLANT *OF RHYNCHOSIA BEDDOMEI*

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Pharmacological investigation of methanolic extract of *Rhynchosia beddomei* whole plant (MERB) for its antihypertensive activity, ACE inhibition, antioxidant activity via radical scavenging activity. Albino Wistar rats were treated with dexamethasone (30 µg/kg/day s.c) or saline for 14 days. MERB (300 mg/kg b.w., p.o.) was administered from day 8 to 14 day of study. Chronic fructose treatment in rats has repeatedly been shown to elevate blood pressure in association with insulin resistance. MERB (300 mg/kg b.w, p.o) was able to prevent the establishment of hypertension by decreasing the elevated blood pressure levels. The reduction in blood pressure is attributed to the inhibition of ACE by 49.6%. The preliminary phytochemical investigation suggests that the MERB possesses flavonoids, phenolics and steroids. MERB exhibited 1, 1-diphenyl-2-picrylhydrazyl radical-scavenging activity with IC_{50} value of 7.4 µg/ml as well as superoxide ion extinguishing ability with IC_{50} value of 12.5 µg/ml. MERB exhibits antihypertensive activity by inhibiting angiotensin converting enzyme and antioxidant activity by radical scavenging property. These findings reveal the presence of potential active constituents of MERB.

CODE: PCL005

DIABETIC PERIPHERAL NEUROPATHY: CURRENT NOVEL THERAPEUTIC APPROCHES

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Diabetic neuropathy is the most common disorder and is defined as a type of nerve damage that occurs if the person is diabetic. High blood sugar (glucose) can injure nerves throughout the body .Diabetes has become one of the largest health care problems of 21st century. Diabetes neuropathy is associated with diabetes mellitus followed by signs and symptoms like peripheral nerve dysfunction, numbness, increase in endothelial vascular resistance thereby causing decrease in blood flow. Hyperglycemia induces oxidative stress. The treatment of DN is aimed at preventing the progression of neuropathy and symptomatic relief. The role of glycemic control and management of cardiovascular risk factors aid in the prevention and treatment of neuropathic complications. The drugs such as benfotiamine and alpha-lipoic acid are often used in pathogenetically oriented treatment of DN. The combination therapy, which includes pathogenetic and symptomatic agents, should be often suggested to the patients.

CODE: PCL006

LUNG CANCER - ITS MANAGEMENT

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Lung cancer is the uncontrolled growth of abnormal cells that start off in one or both lungs; usually in the cells that line the air passages. The abnormal cells do not develop into healthy lung tissue, they divide rapidly and form tumors.Lung cancer occurs when a lung cell's gene mutation makes the cell unable to correct DNA damage and unable to commit suicide.Risk factors include: smoking, radon gas, asbestos air pollution and genetics.Lung cancer can be broadly classified into two main types: Non-small cell lung cancer -80%and small cell lung cancer-20%. NSCLC can be further divided into four different types: 1-Squamous cell carcinoma**,** 2-Adenocarcinoma**,** 3-Bronchioalveolar carcinoma, 4-Large-cell undifferentiated carcinoma**.** Symptoms of lung cancer include: Persistent or intense coughing, Pain in the chest shoulder, or back from coughing, Changes in color of the mucus that is coughed up from the lower airways, Difficulty in breathing and swallowing, Hoarseness of the voice, Harsh sounds while breathing, Chronic bronchitis or pneumonia, Coughing up blood, or blood in the sputum.diagnostic tests includes: Imaging tests, Sputum cytology, Tissue sample (biopsy)Treatment of lungcancer refers to the use of medical therapies, such as surgery, radiation, chemotherapy, and palliativecare alone or in combination, in an attempt to cure or lessen the adverse impact of malignant neoplasms originating in lung tissue.

CODE: PCL007

ROSEHIP NEURONS: A NOVEL BREAK TO EXCITATORY DISORERS

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Rosehip neurons are novel & recently discovered neuronal cells. That has distinctive shape with compact bushy axons that connects dendrites of excitatory neurons into by 3 layers. They were discovered by "KATHERINE LINDEMANN" on 28th August 2018 by using technology called single nucleus RNA sequencing technique. Using 2 brains donated to science from deceased men in their mid 50ies labs used different techniques to investigate neurons. They exists in human but not in rodents like mice & rats such as spindle neurons .They are inhibitory GABAergic neurons present in 1st layer of human cerebral cortex which can inhibit electrical activity & depresses the brain activity .They regulate the brain in the excitatory conditions& works like breakers to car. These neurons have been described in journal of " Nature Neuroscience'' In depth exploriation regarding the role of rosehip neurons might help in finding pathways of various central excitatory disorders & designing better remedies for the management**.**

CODE: PCL008

POINT OF CARE TESTING - HYPERCHOLESTEROLAEMIA

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Point-of-care testing is an activity relevant to chronic disease management. It gives the opportunity for monitoring of parameters during patients' visits.The main objective is to propose and evaluate interventions carried out to monitor lipid profile and educate patients on lifestyle modifications in a community pharmacy setting.The process includes 41 patients, chosen by convenienc sampling were monitored for blood lipid parameters during 3 visits over 8 months (at 4 month intervals). During each visit a questionnaire was completed, docuitoring programme proposed to detect risks of hypercholesterolaemia can be conducted in a community pharmacy setting. Improvements in lifestyle and dietary take parameters were detected between visits but were not statistically significant.The conclusion is that more than a year is needed for lifestyle changes to statistically affect lipid parameters. It is important to consider the attenuation of the impact of pharmacist advice throughout the three visits. This could be improved by applying a motivational approach to the intervention and highlight the intervention by providing patient leaflets and other information,for example,interactive demonstration of benefit obtained through visual demonstration using an online cardiovascular risk assessment tool Such as QRISK 2.

CODE: PCL009

ANASARCA

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Anasarca is the medical term referred to individual who experiences generalized oedema. It is diverse from slight swelling or oedema that occurs mainly in the feet and is very familiar in patients with heart failure, kidney failure and capillary permeability disorders. It happens because of an underlying problem. Selection of proper diagnostic methods can be used in confirmation of anasarca. The differential diagnosis of anasarca, a relatively common clinical sign, should include IVL although the diagnosis may still be challenging. Application of proper diagnostic test is vital in finding this disorder in the initial condition and use of pharmacological measures to manage anasarca and its underlying diseases.

CODE: PCL010

APICOPLAST: THE EVOLUTION, METABOLISM AND FUNCTIONS

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The discovery of the apicoplast ushered in an exciting new prospect for drug development against the parasite. The eubacterial ancestry of the organelle offers a wealth of opportunities for the development of therapeutic interventions. Morphological, biochemical and bioinformatics studies of the apicoplast have further reinforced its 'plant-like' characteristics and potential as a drug target. However, it is still not sure why the apicoplast is essential for the parasite's survival. This review explores the origins and metabolic functions of the apicoplast. In an attempt to decipher the role of the organelle within the parasite we also take a closer look at the transporters decorating the plastid to better understand the metabolic exchanges between the apicoplast and the rest of the parasite cell.

CODE: PCL011

SIRENOMELIA/MERMAID SYNDROME

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Sirenomelia is a congenital malformation that results in the fusion of the lower limbs together with multiple visceral anomalies. The baby with Mermaid syndrome had fused lower extremities and bony structures for each leg. The umbilical cord consists of a single artery and one vein. The external genitalia are absent and an imperforate anus is also seen. There is a poorly expanded lung and two distinct sets of femur and tibia which can be seen on imaging. Multiple theories have been suggested for the pathogenesis of this condition, and despite recent progress in pathology, this condition remains debated. Hence there is a wide scope for the exploration of Mermaid syndrome which offers the development of new remedies and better preventive measures to contain this rare syndrome.

CODE: PCL012

PREDATORY BACTERIA: LIVING ANTIBIOTICS, BIO CONTROL AGENTS OR PROBIOTICS?

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Predatory bacteria seek out and kill other bacteria for food. These predators have been hypothesized to be useful "living antibiotics". Recent data suggested that predators are prevalent in the environment and can even be isolated from the human GI tract .For seven decades human kind has benefited from availability of antibiotics to treat bacterial infections. Antibiotics are critical because vaccines are not available for prevention of all infectious diseases. After the dawn of antibiotic era, a new class of "enemies" of bacterial pathogens was discovered in 1960s: Predatory bacteria. Bdellovibrio bacteriovorous is a predatory bacterium that invades the periplasm of gram negative bacteria, replicates and finally lyses the host cell. Bdellovibrio and like organisms (BALOs) have been shown to prey upon and kill a broad spectrum of gram negative bacteria. They have been considered as potential therapeutic agents against multi drug resistant pathogens. Our work underlines the non pathogenic attributes of predatory bacteria on human cells and highlights their potential use as live antibiotics against human pathogens.

CODE: PCL013

HEALTH BENEFITS OF PROBOITICS: A REVIEW

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Probiotic bacteria have become increasingly popular during the last two decades as a result of the continuously expanding scientific evidence pointing to their beneficial effects on human health. As a result they have been applied as various products with the food industry having been very active in studying and promoting them. Within this market the probiotics have been incorporated in various products, mainly fermented dairy foods. In light of this ongoing trend and despite the strong scientific evidence associating these microorganisms to various health benefits, further research is needed in order to establish them and evaluate their safety as well as their nutritional aspects. The purpose of this paper is to review the current documentation on the concept and the possible beneficial properties of probiotic bacteria in the literature, focusing on those available in food.

CODE: PCL014

LISTERIOSIS

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Listeria monocytogenes is the causative agent of human listeriosis, a potentially fatal food borne infection. Clinical manifestations range from febrile gastroenteritis to more severe invasive forms, including sepsis, meningitis, rhombencephalitis, perinatal infections, and abortions. In recent years, an increasing rate of listeriosis has been reported in several European countries. These increases primarily reflect a higher rate of bacteraemic listeriosis in those ≥65 years of age, and are not otherwise correlated with geography, gender, ethnicity, socioeconomic factors or infectious serotypes. In the late 1980s, an upsurge in listeriosis rates was due to the contamination of a small number of food products. However, a restricted range of strains was responsible for most of the additional cases at that time, and no evidence exists for such a pattern since 2001. From a clinical perspective, the importance of isolating the pathogen as a prerequisite for an accurate epidemiological investigation and ultimately stopping transmission cannot be overemphasized.

CODE: PCL015

ANTIHYPERLIPIDEMIC ACTIVITY OF METHANOLIC EXTRACT OF *SYZYGIUM ALTERNIFOLIUM BARK* AGAINST HIGH FAT DIET AND DEXAMETHASONE INDUCED HYPERLIPIDEMIA IN RATS

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Hyperlipidemia is a major contributor to pathogenesis of cardiovascular diseases and diabetes mellitus. Medicinal plants play pivotal role in preventing various disease. *Syzygium alternifolium* (Wt.) Walp. belonging to the family Myrtaceae with many pharmacological activities like anti-inflammatory, antibacterial, antiulcer, antitumorogenic, antidiabetic activity. The present study is an attempt to investigate its antihyperlipidemic activity. Crude bark extract of *Syzygium alternifolium* was forwarded to preliminary phytochemical investigation which shows the presence of alkaloids, glycosides, terpenoids, steroids, flavonoids, volatile oils, tannins, proteins and carbohydrates. Rats were fed with high fat diet for 21 days and Administration of dexamethasone (10 mg/kg, *s.c*) to the adult wistar rats for 8 days induces hyperlipidemia characterized by marked increase in serum cholesterol and triglyceride levels along with increase in atherogenic index. The methanolic extract of bark of *Syzygium alternifolium* (Wt.) Walp (100 and 200 mg/kg) treatment has showed significant inhibition ($p<0.05$) against high fat diet and dexamethasone induced hyperlipidemia in rats by maintaining the serum levels of cholesterol, triglycerides and near to the normal levels. The extract was also capable of decreasing the atherogenic index. From the above results it is confirmed that the MESA possess antihyperlipidemic activity.

CODE: PCL016

PHARMACOLOGY OF ANTIEPILEPTIC DRUGS

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Several different types of chemical compounds are useful as antiepileptic drugs. Their mechanisms of action, as well as their physical structures, differ. Compounds such as carbamazepine, phenytoin, and probably valproate act by modifying ionic conductances, particularly sodium and calcium, in excitable membranes, thus limiting sustained high-frequency neuronal discharges. In contrast, barbiturates and benzodiazepines tend to affect gamma-aminobutyric acid (GABA) mediation of the chloride channel opening. Knowledge of drug mechanisms is important for choosing the proper drug for various seizures types. In addition, an understanding of antiepileptic drug pharmacokinetics, nontherapeutic effects, and interactions is essential for optimal therapy. The lack of uniform pharmacokinetics among patients and among different formulations of a drug can make it difficult to arrive at uniform criteria for both seizure control and determinations of toxicity. Both pharmacokinetic and pharmacodynamic interactions can occur between antiepileptic medications and other drugs. Three major types of side effects with anticonvulsants can be identified: dose-related alterations of neurologic function, idiosyncratic reactions, and nonidiosyncratic function, idiosyncratic reactions, and nonidiosyncratic direct actions on other organ systems. These effects often compromise treatment.

CODE: PCL017

EVALUATION OF ANTI DIABETIC ACTIVITY OF FRESH LEAVES JUICE OF *Coccinia indica* BY α -AMYLASE, α-GLUCOSIDASE INHIBITION AND GLUCOSE DIFFUSION INHIBITORY ACTION IN *INVITRO* MODELS

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The blood transfers glucose to the body to provide energy to perform daily activities. The dietary complex carbohydrates are broken down into simple glucose in the GIT by the action of α- amylase and α-glucosidase enzyme. The glucose is then absorbed by the GI epithelial cells and transported into the blood. Hyperglycemia occurs because of an uncontrolled hepatic glucose output and reduced uptake of glucose by skeletal muscles. Diabetes mellitus is a chronic metabolic disorder characterized by a high blood glucose levels concentration-hyperglycemia due to insulin deficiency or insulin resistance. Alpha glucosidase inhibitors delay the absorption of carbohydrates from small intestine and thus have lowering effect on post prandial blood glucose and insulin levels. Alpha amylase inhibitors are also known as starch blockers because they contain substances that prevent dietary starches from being absorbed by the body. In the present study, we report the effect of *Coccinia indica* with respect to diabetes in *invitro* model. The results of our study indicate that the fresh leaves juice of *Coccinia indica* can significantly inhibit the conversation of complex carbohydrates to simple sugars and also decreases the rate of glucose absorption, thus limiting postprandial hyperglycemia.

CODE: PCL018

NEW DRUGS FROM VENOMS: SCORPION VENOM & BEE VENOM

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Venom is a poisonous compound secreted by the various organisms, currently researchers define venom as cocktail mixture containing hundreds bioactive elements that interact with each other inevitably producing toxic effects. This mixture of ingredients includes proteins, peptides, and non-peptidic molecules. The active components of these venoms are isolated, purified, and screened in assays. These may be either phenotypic assays to identify component having desirable therapeutic properties (forward pharmacology) or target directed assays to identify their biological target and mechanism of action (reverse pharmacology). Scorpion venom is most expensive liquid as its proteins shows Anti-cancer, Anti-malarial, Anti-microbial properties. The Drug Vidatox (Cuba's miracle drug) obtained from blue scorpions shows promising anti-cancer activity. Researchers are further working on Scorpion Venom special peptides which supresses immune response thereby helping in autoimmune diseases. Bee venom has 40% to 60% major component Melittin which is powerful toxin. It shows Melittin shows antiviral activity against HIV and other viruses. It destroys HIV by creating holes in the protective viral envelope free Melittin in large quantities cause considerable damage to cells, therefore researchers used special nanoparticles that carry Melittin toxin. These nanoparticles are called bumpers which targets only HIV leaving healthy cells unharmed. Most HIV drugs inhibits replication ability of virus , so virus gets time to develop resistance , while Melittin attacks viral core and kills it before infection spreads. It also kills effectively Hepatitis B & C . Melittin shows effective in killing tumor cells by nanoparticles carrying Melittin.

CODE: PCL019

ANTIHYPERLIPIDEMIC EFFECT OF *DERRIS SCANDENS, PULICARIA WIGHTIANIA & CURCUMA INODORA LEAF* EXTRACT IN STREPTOZOTOCIN INDUCED DIABETIC RATS

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Dyslipidemia is one of the most common complications of diabetes mellitus, significantly contributing to cardiovascular mortality in diabetic patientst. In this study, we examined ethanolic leaf extract of *Derris scandens, Pulicaria wightiania & Curcuma inodora* to determine its lipid-lowering activity in normal and streptozotocin (STZ)-induced diabetic rats. Experimental diabetes mellitus was induced by a single intraperitoneal administration of streptozotocin.Normal and streptozotocin-induced diabetic rats were separated into four groups. The groups were fed with 100, 200, 400 mg/kg body weight of respective ethanolic leaf extract for 14 days. The results show that there were significant ($P < 0.05$) increases in triglyceride and LDL cholesterol and a decrease in HDL cholesterol in streptozotocin-induced diabetic rats. Treatment of diabetic rats with ethanolic leaf extract over a period 14 days returned these levels close to control. These results suggest that ethanolic leaf extract D. *scandens, P. wightiania &C. inodora* has hypolipidemic effects in streptozotocin-induced diabetic rats.

CODE: PCL020

THE PHARMACOLOGY OF ANTIDEPRESSANTS

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Till date the pharmacology of antidepressants is unclear. The earliest and widely accepted theory of depression is the monoamine hypothesis, which states that depression is due to an imbalance (most often may be a deficiency) of the monoamine neurotransmitters (namely serotonin, norepinephrine and dopamine). It was originally proposed based on the observation that certain hydrazine anti-tuberculosis agents produce antidepressant effects, which was later linked to their inhibitory effects on monoamine oxidase, the enzyme that catalyses the breakdown of the monoamine neurotransmitters. All currently marketed antidepressants have the monoamine hypothesis as their theoretical basis, with the possible exception of agomelatine which acts on a dual melatonergic-serotonergic pathway. Despite the success of the monoamine hypothesis it has a number of limitations: for one, all monoaminergic antidepressants have a delayed onset of action of at least a week; and secondly, there is a sizeable portion of depressed patients that do not adequately respond to monoaminergic antidepressants. Contrary to monoamine hypothesis recent findings that ketamine, an antagonist of the NMDA receptor infusion produced rapid (within 2 hours), robust and sustained (lasting for up to a fortnight) antidepressant effects. Monoamine precursor depletion also fails to alter mood. To overcome these flaws with the monoamine hypothesis a number of alternative hypotheses have been proposed, including the glutamate, neurogenic, epigenetic, cortisol hypersecretion and inflammatory hypothesis.

CODE: PCL021

TEIXOBACTIN-COMBAT SUPERBUGS

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Resistance to antibiotics has grown out to be serious health dilemma. Despite this serious health crisis, no new antibiotics have been revealed since last 30 years. A new ray of hope in the form of teixobactin has come out of the dark which can prove to be effective in defeating resistance. This new antibiotic has an interesting mechanism of action against bacteria. The discovery of this wonderful compound has evolved as major breakthrough especially in this era of antibiotic catastrophe. Teixobactin, a cyclic undecapeptide, displays excellent antibacterial activities against a range of pathogenic bacteria, such as methicillin-resistant Staphylococcus aureus (MRSA) and Mycobacterium tuberculosis. Interestingly, it operates by multiple modes of actions and is bactericidal toward Staphylococcus aureus without detectable resistance. This unique combination of wide Gram-positive activity coupled with its inability to elicit resistance make teixobactin a very attractive molecule for antimicrobial therapeutic development. This is an important milestone in the quest to develop a new antibiotic in the war against antibiotic-resistant superbugs. In experimental infections of MRSA and Streptococcus pneumoniae in mice, teixobactin was effective at reducing the bacterial load. Although teixobactin is at an early stage of development and there are no guarantees it will make it to market, the use of the iChip will hopefully result in the discovery of further potential new antibiotics.

CODE: PCL022

THE BRAIN AND ITS ADDICTIONS: A NEUROPHARMACOLOGICAL OVERVIEW

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Neuropharmacology is a rapidly developing branch of pharmacology. Neuropharmacology is the study of how drugs affect nervous system functions from molecular, cellular, synaptic, network and behavioral levels; in turn treating a variety of neurological diseases. This branch is closely associated since it is concerned with the interactions with neurotransmitters, neuropeptides, neuromodulators, enzymes, receptor proteins, second messengers, co-transporters and ion channels in the central and peripheral nervous systems. Drugs of abuse interact with the neurochemical mechanisms of the brain. Some of these interactions are directly related to the reinforcing properties of a drug, while others are related to other effects associated with the drug. Drug addiction presents as a chronic relapsing disorder characterized by persistent drug-seeking and drug-taking behaviours. Although drugs of abuse possess diverse neuropharmacological profiles, activation of the mesocorticolimbic system, particularly the ventral tegmental area, nucleus accumbens, amygdala and prefrontal cortex via dopaminergic and glutamatergic pathways, constitutes a common pathway by which various drugs of abuse mediate their acute reinforcing effects. However, long-term neuroadaptations in this circuitry likely underlie the transition to drug dependence and cycles of relapse.Therefore combining various reports here is an overview of how the pathways of addiction work and how they alter the neural chemistry of the working brain.

CODE: PCL023

BLOWFISH TOXIN AMELIORATES CHEMOTHERAPY INDUCED NEUROPATHY

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Cancer is a very wide spread disease affecting billions of people worldwide. Several procedures such as chemotherapy are used for treatment. However, among the patients who undergo this treatment, 30-40% suffer from chemotherapy induced neuropathy. Drugs administered to treat this however come with various adverse effects such as addiction. Recent studies have reported that using the toxin, i.e. tetrodotoxin(TTX) extracted from the ovaries of the oblong blowfish (*Takifugu oblongus*), can be used as a treatment option against chemotherapy induced neuropathy compared to existing drugs. TTX blocks sodium channels on the surface of neurons, effectively ceasing their electrical transmission. Among these channels is NaV1.7, whose inhibition is known to help stop pain. Also unlike drugs such as morphine, tetrodotoxin cannot pass through the blood brain barrier due to its charge and shape of the respective molecule. It merely inhibits the signals from the periphery nerves from transmitting to the brain. In the duration of the clinical trials, it was reported that patients administered with the TTX-based drug subcutaneously, twice a day for a period of five days. Those who received this treatment experience upto two months of relief. This drug is currently in the phase 3 of the clinical trials and awaiting approval from the FDA.

CODE: PCL024

MULTIPLE SCLEROSIS AND ITS EFFECTS ON HORMONES

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Multiple Sclerosis (MS), is a long-lasting disease that can affect brain, spinal cord, and the optic nerves in the eyes. It can cause problems with vision, balance, muscle control, and other basic body functions. It is considered as an autoimmune disorder in which immune system attacks the protective sheath (myelin) that covers nerve fibres and causes communication problem between brain and body. Eventually, the nerves get deteriorates or becomes permanently damaged (Neurodegeneration). The cause of MS is unknown; however, it is believed to occur as a result of some combination of genetic and environmental factors such as infectious agents such as a virus alters the immune system so that the immune system perceives myelin as an intruder and attacks it. MS is more common in people who live farther from the equator and in women than men. Thus it can effect sex problems in women such as puberty, pregnancy, puerperium and menopause and other various problems. In this review, we discuss clinical evidence of sex hormone (estrogens, progesterone, prolactin and testosterone) impact on MS, and attempt to elucidate hormonal and immunological mechanisms potentially underlying these changes. We also review current knowledge on the relationship between sex hormones and resident CNS cells, and provide new insights in the context of MS.

CODE: PCL025

ONCHOCERCIASIS

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Onchocerciasis is a parasitic, vector borne disease caused by the filarial nematode Onchocerca volvulus. The microfilarial parasite that causes the disease was first identified in 1874 by an Irish naval surgeon John O'Neill, who was seeking to identify the cause of a common skin disease. More than 99% of the populations at risk of infection live in Africa. The flies which cause onchocerceiasis live near rivers, it almost always leads to blindness hence the common name of the disease called River Blindness (or) "filarial blinding disease". It is the second-most common cause of blindness due to infection, after trachoma. Infected people show symptoms such as skin rashes, extreme itching, swelling, inflammation and loss of vision. It is diagnosed by placing a biopsy of the skin in normal saline, skin patch test using diethyl carbamazepine(DEC), nodulodectomy. The most widely used treatment for onchocerciasis is Ivermectin. It is the drug used for mass chemotherapy, under the WHO African Programme for Onchocerciasis Control.

CODE: PCL026

CYBERCHONDRIA IN RELATION TO UNCERTAINTY AND RISK PERCEPTION

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Cyberchondria, otherwise known as compucondria. Cyberchondria is a growing concern among many healthcare practitioners as patients can now research any and all symptoms of a rare disease, illness or condition and manifest a state of medical anxiety. Due to consumers increased access to information via the internet, online self-diagnosis of health conditions has proliferated. The Internet makes it much easier for many people to seek health information themselves, become more exposed to a wider array of health information, and become more involved in their own healthcare. Nevertheless studies have shown that the use of the Internet as a diagnostic methodology can lead to consumers misdiagnosing themselves and adopting treatments that are inappropriate, wasting money and unnecessarily worrying about illnesses that they do not have. They persist in high levels of anxiety, rather than seeking advice from a qualified health care professional. This makes the web a potentially dangerous and expensive place for health information seekers. Thus, increased consumer access to self-diagnosis tools creates a double-edged sword for consumer well-being.

CODE: PCL027

DETERMINATION OF CRUDE FIBER CONTENT AND EVALUATION OF LAXATIVE POTENTIAL OF COMMONLY AVAILABLE GRAINS ON WISTAR ALBINO RATS

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In recent years crude fiber has become the considerable interest in human nutrition because of its beneficial attributes. The present study was designed to determine the crude fibre content and to evaluate the laxative potential of commonly available grains such as *Cajanus cajan, Cicer arietinum, Triticum aestivum, Hordeum vulgare, Vigna unguiculata, Vigna radiate, Macrotyloma uniflorum* by using Maynard, A.J. (Ed.) (1970) method and method of Capasso *et al respectively* on the wistar albino rats. From the values of crude fiber percentage in different grains it is found that they contains a varying amounts of crude fiber. The laxative effect was evaluated by supplying the fibre rich grains in the form of pellets to the fasted rats and the effect of laxation was determined on the basis of weight of feaces output. The results showed the significant increase in faeces output in the rats at different time intervals (0 hrs, 6hrs, 24 hrs). The order of effectiveness of laxation induced by the grains is as follows *Vigna radiate, Triticum aestivum, Cicer arietinum, Vigna unguiculata, Cajanus cajan, Macrotyloma uniflorum, Hordeum vulgare*.

CODE: PCL028

DEPRESSION

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Depression is one of the most common and debilitaing psychiatric disorders and is a leading cause of suicide. Most people who become depressed will have multiple episodes and some depressions are chronic. Persons with bipolar disorder will also have manic or hypo manic episodes. Given the recurrent nature of the disorder it is important not just to treat the acute episodes. But also to protect against its return and the onset of subsequent episodes. The different medication classes are rough comparable in efficacy, although some are easier to tolerate than are others. Electro convulsive therapy is particularly effective for most severe and resistant depressions, but raises concerns about possible deleterious effects on memory and cognition.

CODE: PCL029

IN VIVO ANTIDEPRESSANT AND ANXIOLYTIC LIKE EFFECTS OF METHANOLIC EXTRACT OF *TAGETES PATULA* IN RODENT MODELS

Depression and anxiety are the common and debilitating life threatening illness with a high incidence. Medicinal plants play a key role in preventing various neurological disorders. The present study was carried out to investigate anti-depressant and anxiolytic activity of methanolic flower extract of *Tagetes patula*. The anti-depressant activity was evaluated by using forced swim test and tail suspension test and anxiolytic activity was evaluated by using elevated plus maze and rota-rod test. *Tagetes* species commonly known as marigold are known to posses various pharmacological activities and the main active constituents identified are phenolic acids flavonoids, essential oils, thiophene derivatives, benzafunan derivatives, carotenoids, alkaloids, tannins. Acute toxicity studies were carried out and the extract was found to be safe up to 2000 mg/kg bd.wt. The extract was evaluated at two doses levels namely 200 and 400 mg/kg bd.wt respectively. The extract significantly reduced the duration of immobility in both forced swim test and tail suspension test. The extract significantly increased the number of entries and time spent in open arms in elevated plus maze and increased the number falls and decreased the time of permanence in rota–rod test. The results demonstrated that antidepressant effect of METP may be mediated via lowering the corticotrophin releasing hormone in brain; anxiolytic activity through enhanced GABAergic neurotransmission in brain. These observations provide support for the potential anti-depressant and anxiolytic effects of *Tagetes patula*.

CODE: PCL030

OREXIN, A HORMONE AND TREATMENT FOR CNS DISORDERS

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Orexin, also called as hypocretin is a Neuropeptide synthesized in the lateral hypothalamus area (LHA) and prefrontal region and a neurotransmitter that regulates arousal, wakefulness, and appetite, regulates energy expenditure, and modulates visceral functions by acting through Orexinergic neurons on orexin receptors (ORX-1, ORX-2), Metabotropic glutamate receptors, Cannabinoid receptor-1, Adenosine $A_{1,}$ Muscarinic M_3, 5-HT_{1A} NeuropeptideY receptors as well as acts on ghrelin, leptin and glucose. Orexinergic neurons can be differentiated into two groups based on connectivity and functionality. Orexinergic neurons in the lateral hypothalamic group are closely associated with reward related functions such as conditioned place preference. In contrast to the lateral hypothalamic neurons, the prefrontal-dorsal group of orexinergic neurons involved in functions related to arousal and autonomic response. Due to regulation of sleep/wake cycle and mood, the orexin/hypocretin system is the target of the insomnia medication Suvorexant, which works by blocking both orexin receptors, treatment of excessive daytime sleepiness (Narcolepsy) and other various disorders. Thus this review focuses on the physiology of orexin, disorders due to orexin, ways to increase it levels and finally potential areas where it can be used in research.

CODE: PCL031

SODIUM-GLUCOSE COTRANSPORTER-2 INHIBITORS NEW DRUG TREATMENT FOR DIABETES MELLITUS

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Though several regimen options are available to treat type II diabetes mellitus but the targeted glycemic levels are not reached in individuals diagnosed with type II diabetes mellitus. Hence new drug agents are being used to lower the glucose levels. New agents such as the sodium glucose co-transporters inhibitors (SGLT2) are used especially in patients suffering with diabetes due to resistance to glucose uptake. The function of renal sodium glucose co-transport for absorption of glucose filtered by the kidneys. The inhibitors of SGLT2 act on the proximal convoluted tube by preventing absorption of glucose and causing frequent urination and glycosuria. Hence the required glucose levels are achieved. The mechanisms of action of SGLT2 inhibitors are independent of secretion and action of insulin. The occurrence of hypoglycemia is minimum and no risk of fatigue of beta cells is involved. The SGLT2 inhibitors are involved in reducing body weight and lower blood pressure.

CODE: PCL032

SLGT2 INHIBITORS: A NEW DRUG TREATMENT FOR TYPE-II DIABETES

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Despite the availability of numerous treatment options for type 2 diabetes, the proportion of patients achieving glycemic goals is unacceptably low; therefore, new pharmacotherapies are needed to promote glycemic control in these patients. Sodium glucose co-transporter-2 (SGLT2) inhibitors (Medicines include canagliflozin, dapagliflozin, and empagliflozin) offer a novel approach to treat diabetes by reducing hyperglycemia via increased glucosuria. The kidney plays an important role in glucose metabolism, and has been considered a target for therapeutic intervention. The kidney normally reabsorbs 99% of filtered glucose and returns it to the circulation. Glucose reabsorption by the kidney is mediated by sodium-glucose co-transporters (SGLTs), mainly SGLT2. The SGLT2 (Sodium-Glucose co-transporter 2) inhibitors block the reabsorption of glucose which is secondary active transport to sodium in the proximal convoluted tubule of renal tubular system and thus increase glucose loss in the urine. This is responsible for their modest glucose-lowering effect. SGLT2 inhibitors offer several advantages over other classes of hypoglycemic agents and is generally well tolerated. Due to their insulin-independent mode of action, SGLT2 inhibitors provide steady glucose control without major risk for hypoglycemia and may also reverse β-cell dysfunction and insulin resistance they also cause reduction in both body weight and blood pressure.

CODE: PCL033

DENDRIMERS: SYNTHESIS, APPLICATIONS AND PROPERTIES

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Dendrimers are nano-sized, radially symmetric molecules with well-defined, homogeneous, and monodisperse structure that has a typically symmetric core, an inner shell, and an outer shell. Their three traditional macromolecular architectural classes are broadly recognized to generate rather polydisperse products of different molecular weights. A variety of dendrimers exist, and each has biological properties such as polyvalency, self-assembling, electrostatic interactions, chemical stability, low cytotoxicity, and solubility. These varied characteristics make dendrimers a good choice in the medical field, and this review covers their diverse applications.

CODE: PCL034

ANTI-BODIES AS CLINICALLY USEFUL DRUGSS

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Antibodies are used extensively as diagnostic tools in many different formats. The term applied for antibody based diagnostic tests is "immunoassay". Antibody-based immunoassays are the most commonly used confirmatory diagnostic assays and is the fastest growing technologies for the analysis of biomolecules trends in antibody based diagnosis show advances in assay sensitivity and specificity is ensured depending on whether or not the antigen to be quantified competes with labeled antigen for a limited number of antibody binding sites. Rhesus factor, also known as rhesus d (rhd) antigen, is an antigen found on red blood cells. Presence of the antigen makes a person rhesus-positive (rh+) and absence makes a person rhesus-negative (rh–). During normal childbirth, delivery trauma or complications during pregnancy, blood from a fetus can enter the mother's system. In the case of an rh-incompatible mother and child, there may be sensitization of an rh- mother to the rh antigen on the blood cells of the rh+ child.this, however, is a difficult process.monoclonal antibodies have been used in clinical diagnosis for many years but it is only now that these agents are being licensed for clinical treatments. This review will focus on UK licensed monoclonal antibodies highlighting their clinical benefits, limitations, and side effects.

CODE: PCL035

GENE THERAPY IN CANCER

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Cancer has been from the beginning a target of intense research for gene therapy approaches Currently more than 60% of all ongoing clinical gene therapy trials worldwide are targeting cancer. Globally it is estimated that 42million people across the world are suffering from any forms of cancer. The most common type of cancer on the list is breast cancer and lung cancer. Gene Therapy is way of treating or preventing disease by altering the genetic instructions with in individual's cells. Gene Therapy can involve replacing abnormal or absent genes with healthy ones that enable cells to produce useful proteins. It also can involve changing the way genes are regulated, so that under or over active genes operate properly. Finally gene therapy can be used to express entirely foreign genes in cells that alter their function and survival .The most common types of carriers used in gene therapy are viruses because they are more efficient at transfer their own DNA in to the host cell genome, types of viruses used are retro virus, adenovirus, pox viruses and even non-viral vectors are also used in gene therapy. Different gene therapy strategies have been employed such as pro-drug activating suicide gene therapy, anti angiogenic gene therapy, manipulation of apoptotic and tumor invasion pathways, antisense and RNAi strategies. The intention of this results how gene therapy is used in cancer treatment and its strategies.

CODE: PCL036

BINDING SITE AND INHIBITORY MECHANISM OF THE MAMBALGIN-2 PAIN RELIEVING PEPTIDE ON ACID-SENSING ION CHANNEL 1a

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Acid-sensing ion channels (ASICs) are neuronal proton-gated cation channels associated with nociception, fear, depression, seizure, and neuronal degeneration, suggesting roles in pain and neurological and psychiatric disorders. It recently discovered that black mamba venom peptides called mambalgin-1 and mambalgin-2, which are new three-finger toxins that specifically inhibit with the same pharmacological profile ASIC channels to exert strong analgesic effects in vivo. We now combined bioinformatics and functional approaches to uncover the molecular mechanism of channel inhibition by the mambalgin-2 pain-relieving peptide. Mambalgin-2 binds mainly in a region of ASIC1a involving the upper part of the thumb domain, the palm domain of an adjacent subunit, and the β-ball domain. This region overlaps with the acidic pocket (pH sensor) of the channel. The peptide exerts both stimulatory and inhibitory effects on ASIC1a, and we propose a model where mambalgin-2 traps the channel in a closed conformation by precluding the conformational change of the palm and β-ball domains that follows proton activation. These data help to understand inhibition by mambalgins and provide clues for the development of new optimized blockers of ASIC channels.

CODE: PCL037

RECENT ADVANCES IN THE TREATMENT OF NARCOLEPSY

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Narcolepsy is a neurological disorder characterised by sudden and uncontrollable sleep attacks, excessive daytime sleepiness, hallucinations and cataplexy. People with narcolepsy suddenly fall asleep at any time of the day. These sleep attacks can last from only a few seconds to a couple of hours. It requires pharmacologic treatment in more than 90% of patients. Wake-promoting compounds are used to treat excessive daytime sleepiness (EDS) and anticataplectics are used for cataplexy. The treatment of EDS includes the use of amphetamine-like CNS stimulants (such as dextroamphetamine and methylphenidate), modafinil, and it's R-enantiomer, armodafinil. Because of its high safety and low side-effect profiles, modafinil has become the first-line treatment of choice for EDS associated with narcolepsy. However, wake-promoting compounds do not improve cataplexy and dissociated manifestation of REM sleep, and so antidepressants (monoamine uptake inhibitors) are additionally used for the treatment of cataplexy and REM sleep abnormalities. Tricyclic antidepressants potently reduce REM sleep and thus have been used for the treatment of cataplexy and REM sleep abnormalities, but these have recently been replaced by more selective serotonin and/or noradrenaline uptake inhibitors with better side-effect profiles. As sodium oxybate (the approved formula of γ-hydroxybutyrate in the United States), given at night, improves both EDS and cataplexy, the number of US patients treated with sodium oxybate is increasing, while much progress has been made in understanding the modes of action of amphetamine-like CNS stimulants.

CODE: PCL038

ROLE OF METFORMIN IN TREATMENT OF DIABETES MELLITUS / DIABETES CARE

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Metformin (dimethylbiguanide) is an antihyperglycemic drug used to treat non-insulin dependent diabetes mellitus. It acts in the presence of insulin to increase glucose utilization and reduce glucose production, thereby countering insulin resistance. The effects of metformin include increased glucose uptake, oxidation and glycogenesis by muscle, increased glucose metabolism to lactate by the intestine, reduced hepatic gluconeogenesis and possibly a reduced rate of intestinal glucose absorption. Metformin appears to facilitate steps in the postreceptor pathways of insulin action, and may exert effects that are independent of insulin. In muscle, metformin increases translocation into the plasma membrane of certain isoforms of the glucose transporter. The effects of metformin are generally moderate, and do not cause clinical hypoglycaemia or increased weight gain. Metformin has an antihyper glycedaemic effect and exerts various potentially useful effects on haemostasis. A risk of lactic acidosis is negligible provided that the contraindications, particularly renal incompetence are respected.

CODE: PCL039

MOLECULAR MECHANISM OF ACTION OF CISPLATIN IN CANCER TREATMENT

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Cisplatin, cisplatinum, or *cis*-diamminedichloroplatinum (II), is a well-known chemotherapeutic drug. It has been used for treatment of numerous human cancers including bladder, head and neck, lung, ovarian, and testicular cancers. It is effective against various types of cancers, including carcinomas, germ cell tumors, lymphomas, and sarcomas. Its mode of action has been linked to its ability to crosslink with the purine bases on the DNA; interfering with DNA repair mechanisms, causing DNA damage, and subsequently inducing apoptosis in cancer cells. However, because of drug resistance and numerous undesirable side effects such as severe kidney problems, allergic reactions, decrease immunity to infections, gastrointestinal disorders, hemorrhage, and hearing loss especially in younger patients, other platinum-containing anti-cancer drugs such as carboplatin, oxaliplatin and others, have also been used. Furthermore, combination therapies of cisplatin with other drugs have been highly considered to overcome drug-resistance and reduce toxicity. This comprehensive review highlights the physicochemical properties of cisplatin and related platinum-based drugs, and discusses its uses (either alone or in combination with other drugs) for the treatment of various human cancers. A special attention is given to its molecular mechanisms of action, and its undesirable side effects.

CODE: PCL040

3D BONE PRINTING

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3D printing is an emergent manufacturing technology recently being applied in the medical field for the development of custom bone prostheses and scaffolds. However, successful industry transformation to this new design and manufacturing approach requires technology integration, concurrent multi-disciplinary collaboration, and a robust quality management framework. This latter change enabler is the focus of this study. The advent of 3D printing technologies and the prospects for mass customisation provides significant market opportunities, but also presents a serious challenge to regulatory bodies tasked with managing and assuring product quality and safety. Before 3D printing bone prostheses and scaffolds can gain traction, industry stakeholders would require a high degree of confidence that customised manufacturing can achieve the same quality outcomes as standardised manufacturing. A Quality by Design (QbD) approach to custom 3D printed prostheses can help to ensure that products are designed and manufactured correctly from the beginning without errors. This paper reports on the adaptation of the QbD approach for the development process of 3D printed custom bone prosthesis and scaffolds. This was achieved through the identification of the Critical Quality Attributes of such products, and an extensive review of different design and fabrication methods for 3D printed bone prostheses. Research outcomes include the development of a comprehensive design and fabrication process flow diagram, and categorised risks associated with the design and fabrication processes of such products.

CODE: PCL041

A REVIEW: APERT SYNDROME

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Apert syndrome is a rare autosomal dominant disorder characterized by craniosynostosis craniofacial anomalies and severs symmetrical Syndactyly of hands and feets.It is caused by a rare mutation on a single gene FGFR2.This mutated gene is normally responsible for guiding bones to join together at right time during development. Because of multiple alterations in patients, a multi disciplinary approach consisting of dentist, neonatologist, neurosurgeons, plasticsurgeons, ophthalmologists, otolaryngologists and geneticists is essential for a succesful planning and treatment. Craniectomy is performed during 6 months of age. Cosmetic correction for syndactyly is done in first year of life and completed by 3 to 4 years of age. Orthodontic and orthognathic surgery is performed after permanent teeth eruption and completion of growth. It is usually diagnoised by examining the skull of the child properly to determine from its shape, if any sutures of the skull have fused or not. Genetic testing can identify this syndrome

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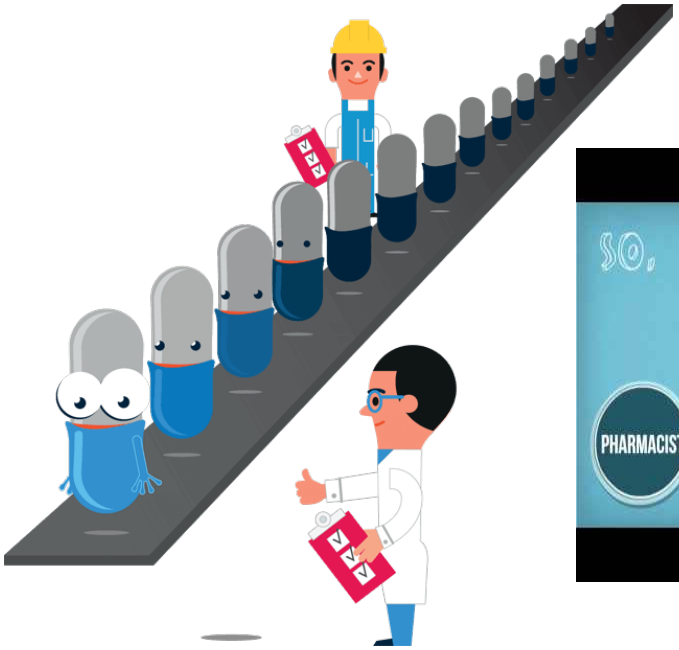

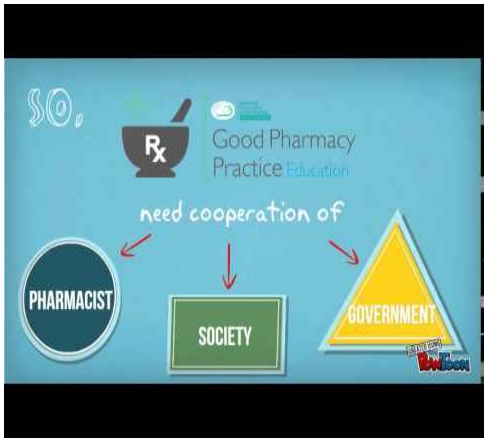

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CODE: PPP001

ANTIBIOTIC RESISTANCE SUPERBUGS

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The increasing threat to global health posed by antibiotic resistance remains of serious concern. Human health remains at higher risk due to several reported therapeutic failures to many life threatening drug resistant microbial infections. The resultant effects have been prolonged hospital stay, higher cost of alternative therapy, increased mortality, etc. This opinionated review considers the two main concerns in integrated human health risk assessment (i.e., residual antibiotics and antibiotic resistant genes) in various compartments of human environment, as well as clinical dynamics associated with the development and transfer of antibiotic resistance (AR). Contributions of quorum sensing, biofilms, enzyme production, and small colony variants in bacteria, among other factors in soil, water, animal farm and clinical settings were also considered. Every potential factor in environmental and clinical settings that brings about AR needs to be identified for the summative effects in overall resistance. There is a need to embrace coordinated multi- locational approaches and interrelationships to track the emergence of resistance in different niches in soil and water versus the hospital environment. The further integration with advocacy, legislation, enforcement, technological innovations and further research input and recourse to WHO guidelines on antibiotic policy would be advantageous towards addressing the emergence of antibiotic resistant superbugs.

CODE: PPP002

TELEPHARMACY: - A PHARMACISTS PRESPECTIVE ON THE CLINICAL BENEFITS AND CHALLENGES

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The use of information and telecommunication technologies has expanded at a rapid rate, which has a strong influence on healthcare delivery in many countries. Rural residents and communities, however, often lack easy access to healthcare services due to geographical and demographical factors. Telepharmacy, a more recent concept that refers to pharmaceutical service provision, enables healthcare services, such as medication review, patients counseling, and prescription verification, by a qualified pharmacist for the patients located at a distance from a remotely located hospital, pharmacy, or healthcare center. Telepharmacy has many recognizable benefits such as the easy access to healthcare services in remote and rural locations, economic benefits, patient satisfaction as a result of medication access and information in rural areas, effective patient counseling, and minimal scarcity of local pharmacist and pharmacy services. Telepharmacy undoubtedly is a great concept, but it is sometimes challenging to put into practice. Inherent to the adoption of these practices are legal challenges and pitfalls that need to be addressed. The start-up of telepharmacy (hardware, software, connectivity, and operational cost) involves considerable time, effort, and money. For rural hospitals with fewer patients, the issue of costs appears to be one of the biggest barriers to telepharmacy services. Moreover, execution and implementation of comprehensive and uniform telepharmacy law is still a challenge. A well-developed system, however, can change the practice of pharmacy that is beneficial to both the rural communities and the hospitals or retail pharmacies that deliver these services.

CODE: PPP003

GENERIC DRUG IN INDIA: A COST EFFECTIVE APPROACHES

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After the expiry of patent or marketing right of the patented drug, generic drug are marketed. Generic drug are available at affordable prices with maintaining quality. These 'GENERIC' formulation balance public interest as critical disease life cancer, AIDS etc. in situation where demand for medicines exceed supply ,criminally minded people tend to profit out of crime by manufacturing and distributing counterfeit medicines as a substitute for genuine medicines (branded and generic) . India's pharmaceutical market grew at 15.7% during December 2011. This study revises various aspects of generic, branded and counterfeit drug and their impact on the Indian pharmaceutical industry.

CODE: PPP004

ANTIDEPRESSENT THERAPY

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The aim of this study was to identify reasons for discontinuation and noncompliance with antidepressant medications, the impact of AEs on compliance and quality of life (assessed using impact of AEs on activities of daily living) and patients' suggestions for improving their medication, using a patient survey. Patients aged 18 to 65 years with mild to severe depression were randomly selected by their physicians to be sent an invitation to complete the 42-question survey. Three hundred physicians nationwide assessed the severity of depression and symptoms of anxiety in each respondent, using their judgment. Patients were asked specific questions to assess reasons for discontinuation/noncompliance. Patients were also asked to rate AEs based on how difficult they were to "live with," and what aspects of their antidepressant medication they would change if they could. Results: 175 (50%) individuals were mild to moderately depressed and 84 (24%) as severely depressed. Ninety-one respondents (26%) were classified as having symptoms of anxiety. Two hundred seven patients (60%) indicated they had discontinued treatment with an antidepressant agent at some point in their lives, the most common reason for which was lack of efficacy (92 patients [44%]). Of the 344 patients currently being treated with an antidepressant, 75 (22%) reported noncompliance.

CODE: PPP005

PHARMACOGENOMICS: THE SCIENTIFIC BASIS OF RATIONAL DRUG DEVELOPMENT AND PRESCRIBING

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It is more important to know what sort of a patient as a disease then what sort of a disease a patient has (Hippocrates 460 BC-370BC).The holy grail of drug discovery is to ensure that and individual response positively to an in investigational drug with minimal or no adverse events. This could then translate to newly discovered drugs being licensed for prescribing as safe and effective therapeutics. Pharmacogenomics may herald the technology for this aspiration to become reality. This review will begin by reviewing the history of drug development and then proceed to discuss the use of pharmacogenomics in drug development through case studies in oncology, respiratory and vaccinology. It will then go on to discuss how pharmacogenomics presently influences prescribing practices and how this technology may have the potential to enhance patient safety when medicines are administered.

CODE: PPP006

NECROTISING FASCIITIS DUE TO MYCOBACTERIUM KANSASII PATIENT WITH RHEUMATOID ARTHRITIS ON INFLIXIMAB

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A patient with Rheumatoid arthritis and gout treat for 4 years with Infliximab, methotrexate and prednisone daily presented with a painful swollen left arm. He had staphylococcal right elbow and tumor one year earlier the ulcer recurrent and persistent despite antibiotics and intralesional steroidal therapy was negative for bacteria. These works place to prevention of non-painful edema with two larges distinct, deeply erythromatous developed on left arm tenderness ensured, a precaution, there was fever substantial left extensive forearm flatulence swollen under left extensive propulence and necrotising fasciitis were found surgery requiring debriment of left exterior and forearm beside and all intraoperative specimens grow mycobacterium kansasi with rifampin. Bacterial and fungal cultures negative. Blood cultures and echocardiogram were negative. Two weeks later detorement of right index finger also grew. Approximately 45 cases of musculoskeletal infection with mycobacterium kansasii, mostly septic arthritis in rheumatologic disease have been described. This first reported case of reoccurring fasciitis due to mycobacterium kansasii and presentation and association with infliximab therapy.

CODE: PPP007

NOVAL ORAL ANTI COAGULENTS (VIT. K ANTAGONIST)

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Long-term oral anticoagulant (OAC) therapy is used for the treatment and prevention of thrombosis and thromboembolism. As OAC use is so widespread, emergency physicians are likely to encounter patients on anticoagulant therapy in the emergency department (ED) on a regular basis, either for the same reasons as the population in general or as a result of the increased bleeding risk that OAC use entails.The vitamin K antagonist warfarin has been the standard OAC for several decades, but recently, the newer agents dabigatran,rivaroxaban and apixaban (collectively, novel OACs, non-vitamin K OACs, or simply 'NOACs') have become available for long-term use. Protocols for assessing and managing warfarin-treated patients in the ED are well established and include international normalised ratio (INR) testing, which helps guide patient management. However, the INR does not give an accurate evaluation of coagulation status with NOACs, and alternative tests are therefore needed for use in emergency settings. This paper discusses what information the INR provides for a patient taking warfarin and which coagulation tests can guide the physician when treating patients on one of the NOACs, as well as other differences in emergency anticoagulation management.

CODE: PPP008

CYBERCHONDRIA

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Cyberchondria is a growing concern among many healthcare practitioners as patients can now research any and all symptoms of a rare disease, illness or condition, and manifest a state of medical anxiety. Cyberchondria, otherwise known as compucondria, is the unfounded escalation of concerns about common symptomology based on review of search results and literature online. Articles in popular media position cyberchondria anywhere from temporary neurotic excess to adjunct hypochondria.The Cyberchondria Severity Scale (CSS) was recently developed to provide a valid measure of cyberchondria across multiple dimensions Finally, the researchers did a survey of over 500 people that confirmed the prevalence of web-induced medical anxieties and that probed several aspects of the phenomenon. The survey noted that a significant portion of subjects considered the ranking of a list of results on a medical query as somehow linked to the likelihood of relevant disorders.

CODE: PPP009

EMERGING TRENDS IN ADVANCE THERAPY IN TREATING IMMUNE THROMBOCYTOPENIA

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Immuno thrombocytopenia (ITP) is an autoimmune disorder characterized by isolated thrombocytopenia caused by immune-mediated platelet destruction and impairment of platelet production. Recent studies have uncovered details involving the target regions of platelet-associated anti-GPIIb/IIIa antibodies, pathological differences depending on the specificity of target antigens, and cellular abnormalities, especially impairment of regulatory T cells contributing to the pathogenesis of ITP. Treatment of ITP has been changed dramatically by the application of thrombopoietin receptor agonists, TPO-RAs, in patients unresponsive to traditional steroids and splenectomy. Rituximab has also been used in Western countries for ITP patients and its long-term efficacy has become increasingly clear. Clinical problems awaiting solution in ITP management include improving the efficacy of treatments for newly-diagnosed ITP, confirmation of the long-term efficacy and safety of TPO-RAs, and determination of the positioning of rituximab in the treatment sequence of ITP.

CODE: PPP010

SMART CONTACT LENSES

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The advancement in technology has various medical applications. Like recent advances in wearable electronics combined with wireless communication technique made health monitoring lot easy .For example, smart contact lenses, which is capable of assisting the people with diabetes by constantly measuring the glucose levels in their tears. The lens consists of a wireless chip and a miniaturized glucose sensor. A tiny pinhole in the lens allows for tear fluid to seep into the sensor to measure blood sugar levels. The electronics lie outside of both the pupil and the iris so there is no damage to the eye. There is a wireless antenna inside of the contact that is thinner than a human's hair, which acts a controller to communicate information to the wireless device. The controller will gather, read, and analyze data that will be sent to the external device via the antenna. Future enhancements like new services can be derived with the use of this lens which opens up new opportunities such as remote monitoring of glucose level, real time insulin dosage adjustment, and valuable data collection. It is a simple and painless method which offers continues glucose monitoring. Provides accurate reading – ensures efficiency and safe use.

CODE: PPP011

REVOLUTIONARY BREAK OF CANCER THROUGH IMMUNOTHERAPY

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Immunotherapy is a type of cancer treatment that helps your immune system to fight against cancer .Many different types of immunotherapy are used to treat cancer they include : Monoclonal antibodies: these are the drugs that bind to specific targets in the body . Adoptive cell transfer: which is a treatment that attempts to boost the natural ability of our T cells to fight cancer .Cytokines: which are proteins that are made by our body cells to treat cancer .Treatment vaccines: which work against cancer by boosting our immune system's .BCG: which stands for Bacillus calmette-guerin is an immune therapy to treat bladder cancer.Immunotherapy is a treatment that causes certain parts of our immune system to fight against disease such as cancer. This can be done in couple of ways stimulating our own immune system to work harder smarter to attack cancer cells. Giving you immune system components which are from man -made immune system, proteins such type of immune therapy is called as Biological therapy or Biotherapy.

CODE: PPP012

NOVEL THERAPIES FOR HEART FAILURE

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Congestive Heart failure [Heart failure] occurs when cardiac output is insufficient to meet the demand of tissue perfusion or does so by elevating filling pressure. Despite advances in therapy, patients with heart failure continue to experience unacceptably high rates of hospitalization and death as well as poor quality of life. As a consequence, there is an urgent need for new treatment that can improve the clinical course of the growing worldwide population of heart failure patients. This presentation will highlight the novel therapeutic approaches for heart failure including new pharmacological agents: Ivabradine, Sacubitril/Valsartan, Omecamtiv mecarbil (GALACTIC – HF trial), Serelaxin, Ularitide resynchronisation therapy- Recent breakthrough in sensor and nanotechnology have made Cardiac Resynchronization Therapy[CRT] and Implantable Cardiac Defibrillator [ICD] in a single device ,Sensi Vest, Cardiomems, Mitraclip and Artifical heart. Stem cell therapy is a promising treatment strategy for patient with heart failure. Gene therapy is emerging as potential strategies for the treatment of heart failure.

CODE: PPP013

PROGERIA

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Progeria is an extremely rare autosomal dominant genetic disorder in which symptoms resembling aspects of aging are manifested at a very early age. Progeria was first described in 1886 by Jonathan Hutchinson. It was also described independently in 1897 by Hastings Gilford. The condition was later named Hutchinson–Gilford progeria syndrome. Scientists are interested in progeria partly because it might reveal clues about the normal process of aging. Progeria is one of several progeroid syndromes. Those born with progeria typically live to their mid-teens to early twenties. It is a genetic condition that occurs as a new mutation, and is rarely inherited as carriers usually do not live to reproduce. Although the term progeria applies strictly speaking to all diseases characterized by premature aging symptoms and is often used as such, it is often applied specifically in reference to Hutchinson–Gilford progeria syndrome (HGPS).

CODE: PPP014

ROLE OF ORACLE'S ARGUS SAFETY DATABASE IN PHARMACOVIGILANCE

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As per WHO pharmacovigilance (PV) is defined as the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other drug-related problem. The aims of PV are to enhance patient care and safety in relation to the use of medicines; and to support public health programmes by providing reliable, balanced information for the effective assessment of the risk-benefit profile of medicines. Drug developers are increasingly shifting their focus to a more holistic view of product safety beginning in clinical development and continuing through post-market surveillance. Oracle's Argus Safety is a comprehensive platform designed specifically to address the life sciences industry's complex pharmacovigilance requirements. Argus Safety's advanced database helps to ensure global regulatory compliance, enables sound safety decisions and integrates safety and risk management functions. Oracle Argus safety is an advanced and a comprehensive adverse events [AE] management system that helps life sciences companies enable regulatory compliance, drive product stewardship, and integrate safety and risk management into one comprehensive platform. Argus safety is industry proven and accepted, having been used for more than decade at leading pharmaceuticals, BOTECH, CRO and IT companies. In this paper we will discuss about the evolution of pharmacovigilance, objectives, importance, where and when it is applied, types of Argus database, procedure of reporting, types of reporting forms, regulatory authorities, and terms related to Argus safety and scope of this software as a career option.

CODE: PPP015

RELAXIN – THE HEART SAVING HORMONE

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Relaxin is a female peptide hormone secreted by the corpus luteum that helps to soften the cervix and relax the pelvic ligaments in child birth. It plays a central role in the haemodynamic and renovascular adaptive changes that occur during pregnancy. Triggering similar changes could potentially be beneficial in the treatment of patients with heart failure. The effects of relaxin lead to potent vasodilation and cardioprotective action. The recognition of this led to study of relaxin for the treatment of heart failure. A recombinant version of human relaxin-2 "Serelaxin (RELAX AHF-2)"has been developed as a novel therapeutic agent by "Novartis". Its studies demonstrated improvements in symptoms and reduced worsening of heart failure and received a breakthrough designation from FDA. However on March 22, 2017. Novartis announced the results of global phase III trials that they studied did not meet primary end points of reduced cardiovascular death/worsening of heart failure but the company remains committed to invest in ways to improve their outcomes. This review will summarize both the biology of relaxin and the data supporting its potential efficiency in Human heart failure.

CODE: PPP016

BIKTARVY DRUG

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Gilead sciences has developed a single tablet as anti-HIV-1 medication (Bikyarvy®) combining the novel integrase stand transfer inhibitor (INSTI) bictegravir with the nucleos(t)ide reverse transcriptase inhibitors (NRTIS) emtrictakine and tenofovir alafenamide. This fixed dose combination has demonstrated efficacy as treatment for both anti-retroviral naive and virologically suppressed HIV-1 infection in patients switching therapy and was recently approved in the USA. This article summarizes the milestones in the development of bictegravir leading to this first approval of bictegravir / emtrictabine/ tenofovir alafenamide as treatment for HIV-1 infection.

CODE: PPP017

EMERGING THERAPY FOR DENGUE

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Dengue fever is an acute febrile illness caused by Dengue virus(DENV).It is a mosquito borne disease transmitted by the Aedes mosquito. There are 4 antigenically distinct dengue virus serotypes: DENV-1, DENV-2, DENV-3, DENV-4. . It is an RNA virus of the family Flaviviridae and genus Flavivirus. Each serotype is sufficiently different that there is no cross-protection and epidemics caused by multiple serotypes can occurs. The incidence of dengue has grown around the world in recent a period of ten years. Currently, there is no treatment for dengue infection.Even though a vaccine against Dengue is now available which is a notable achievement but drugs directed at the viral targets or critical host mechanisms that can be used safely as prophylaxis or treatment to effectively ameliorate disease or reduce disease severity and fatalities are still needed to reduce the burden of dengue. The current review focuses on the therapeutic research and development for Dengue.

CODE: PPP018

BIORESORBABLE STENTS: CLINICAL APPLICATIONS AND BENEFITS

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Angioplasty has made a remarkable progress in the recent years. It is being used in the treatment of Coronary Heart Disease. The introduction of stents has reduced the target-lesion restenosis rates. Bare-metal stents were first introduced, followed by drug-eluting stents. Bio-Resorbable stents (also known as biodegradable stents) are highly effective in the treatment of CHD. Not only that but they are also raising the concerns associated like restenosis. They are being developed as an alternative to permanent stents. The arteries can remain flexible even after the device dissolves. In comparison to metallic stents - with a thin coated drug, a fully degradable stent may be more potential in targeted drug delivery. Biodegradable materials like polycarbonates, polyesters, corrodible metals and bacterial-derived polymers are being used by several research groups in designing stents. An ideal bio-reabsorbable stent is effective under the fluoroscopic guidance and locate the target lesion with an insubstantial endovascular trauma. In addition to this the byproducts produced during the degradation should lead to the minimal inflammation at the target site, should disappear in a minimal period of time without a significant displacement from the disposal site and they should also be non-toxic. More advanced researches are required to solve the various problems corresponding with these biodegradable stents.

CODE: PPP019

EDIBLE VACCINES – A NEW APPROACH TO ORAL IMMUNISATION

Mekala Harika
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Edible vaccines offer a new approach towards reducing the impact of diseases like diarrhoea, hepatitis etc. Edible vaccines are obtained from transgenic plants and animals which contain agents that can trigger an animal's immune response. In simple terms, edible vaccines are plant or animal made pharmaceuticals. It involves introduction of selected desired genes into plants and then inducing these altered plants to manufacture the encoded proteins. Edible vaccines are currently being developed for a number of human and animal diseases. These are mucosal-targeted vaccines, which cause both mucosal and systemic immune response. There is growing acceptance of transgenic crops in both industrial and developing countries like India. They are grown locally using standard methods and do not require immense capital investment of pharmaceutical manufacturing facilities and exhibit good genetic stability. It was introduced as a concept about a decade ago; it has become a reality today. Edible vaccines are being developed for various diseases like measles, cholera, hepatitis B etc. Thus they may also help to suppress autoimmune disorders such as Type-I diabetes, diarrhoea, multiple sclerosis, rheumatoid arthritis, etc. Human trials conducted by the National Institute of Allergy and Infectious Diseases (NIAID), US Department of Health and Human Services, USA show that edible vaccines are feasible. They hold great promise as a cost-effective, easy-to-administer, easy-to-store vaccine delivery system.

CODE: PPP020

CARDIOMETABOLIC SYNDROME: A GLOBAL HEALTH ISSUE

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Cardiometabolic syndrome (CMS) also known as insulin resistance syndrome or metabolic syndrome X is characterized by I nsulin resistance, A bdominal obesity, Hypertension, Dyslipidemia, Microalbuminuria, Diabetes mellitus are the following few metabolic disorders which causes A ssociated D evelopment of A therosclerotic C ardiovascular D isease (ASCVD) CMS is two times dangerous than Coronary Heart Diseases (CHD) and three times than of Heart stroke. Fortunately, CMS can be minimized by controlling the calorie intake and regular exercises and frequent checkup. CMS is also minimized by taking suitable drugs such as: Ramipril, Telmisartan(Antihypertensive) that are characterized so that they can maximize the success in reducing it. More than 25% people across the world are suffering with CMS. In this presentation we will review the pathophysiology, difficulties of CMS, treatment, economic burden of CMS**.**

CODE: PPP021

APITOXIN-MELITTIN, A NOVEL THERAPEUTIC APPLICATION IN CANCER

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While knowledge of the composition and mode of action of bee venom dates back to 50 years, the therapeutic value of these toxins remains relatively unexplored, the properties of these venoms are now being studied with the aim to design and develop new therapeutic drugs. The multiple therapeutic applications of bee venom have been developed for certain diseases. Melittin, the main component of bee venom (apitoxin) which is responsible for breaking up and killing cells in the cancer therapy . Many studies report that melittin inhibits tumour cell growth and induces apoptosis, thereby indicating a potential application of this venom peptide as an alternative or complementary medicine for the treatment of cancers. Melittin has emerging applications with antimicrobial properties, anti viral properties, as vaccines, anti-inflammatory and rheumatic applications and in atherosclerosis.

CODE: PPP022

ALZHEIMER'S DISEASE

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Clinical criteria for the diagnosis of Alzheimer's disease include insidious onset and progressive impairment of memory and other cognitive functions. There are no motor, sensory, or coordination deficits early in the disease. The diagnosis cannot be determined by laboratory tests. These tests are important primarily in identifying other possible causes of dementia that must be excluded before the diagnosis of Alzheimer's disease may be made with confidence. Neuro psychological tests provide confirmatory evidence of the diagnosis of dementia and help to assess the course and response to therapy. The criteria proposed are intended to serve as a guide for the diagnosis of probable, possible, and definite Alzheimer's disease; these criteria will be revised as more definitive information becomes available.

CODE: PPP023

GENETIC APPROACH TOWARDS PREVENTION OF CANCERS

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Cancer is a disease of uncontrolled growth and proliferation whereby cells have escaped the body's normal growth control mechanisms and have gained the ability to divide indefinitely. It is a multi-step process that requires the accumulation of many genetic changes. The completion of Human Genome Project in 2003 established foundations for precision medicine based on sequencing technologies continues its journey from RNAi, ZFNs and TALENs and now it steps into a unique CRISPR/Cas9 genome editing tool. Genetic engineering has become pivotal in the treatment of cancer and other genetic diseases, especially the formerly-niche use of Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) Associated with Cas9. The rapid development of the genome editing technologies need an adequate attention towards improving pre-clinical and clinical assays to assess the toxicity, off-target effects, and other possible side effects. CRISPR-Cas systems are now established as an important tool to aid in combating this evasive and resilient disease. Improvements of viral and non-viral delivery methods will be necessary to improve the in vivo application of CRISPR/Cas9, laying the ground for the therapeutic use of CRISPR in the future.

CODE: PPP024

CORONARY HEART DISEASE: CAUSES, SYMPTOMS AND TREATMENT

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Heart attack occurs when a conduit to the heart turns out to be completely blocked and blood stream to part of the heart is halted. This denies the heart of oxygen, and part of the heart muscle begins to bite the dust. Early medicinal treatment is basic to guarantee this harm is not perpetual. Coronary artery disease is blockage of the coronary supply routes, the veins that give blood to the heart. Much of the coronary artery disease individuals experience is brought on by atherosclerosis, which is also known as hardening of the arteries. Coronary artery infection can grow gradually and take decades before it produces symptoms, or it can come on suddenly. Left untreated, it can prompt angina or intense myocardial dead tissue. Treatment for coronary artery disease can include lifestyle changes, solutions, or surgical and insignificantly obtrusive techniques.

CODE: PPP025

PSORIASIS: CAUSES, TRIGGERS, TREATMENT AND MORE

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Psoriasis is a common, chronic inflammatory skin disease affecting 2–3%. A family history of psoriasis occurs in approximately 30% of patients, and usual age of onset is 20–35 years. Psoriasis is predominantly an immunological T lymphocyte-driven disease, involving both the innate and T-cell-mediated immune systems. Chronic plaque psoriasis accounts for 85% of cases. Commonly affected sites include the scalp, extensor surfaces of the knees and elbows, umbilicus, genitalia, anterior lower legs and nails. Psoriasis can significantly impact on a patient's quality of life. Associated co-morbidities include psoriatic arthritis, obesity and the metabolic syndrome, cardiovascular disease and fatty liver disease. Treatment is stratified by disease severity, impact on quality of life, patient preference, relevant co-morbidities and treatment efficacy. Topical treatment such as emollients, tar, vitamin D analogues and corticosteroids are first line for localized/mild disease. In the UK, up to 30% of patients may require specialist referral for phototherapy or systemic therapy (methotrexate, ciclosporin, acitretin, apremilast). Recent therapeutic advances with targeted biological therapies have revolutionized the management of patients with severe disease. Despite this, erythrodermic and pustular forms may still present as life-threatening dermatological emergencies.

CODE: PPP026

BIO ARTIFICIAL PANCREAS

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The artificial pancreas is a Technology in the development to help people with diabetes auto matically controls their blood glucose level by providing the substitute endocrine functionally of a healthy pancreas .The bio engineering approach the development of a bio –artificial pancreas consisting of a bio compatible sheet of encapsulated beta cells. When surgically implanted, the islet sheet will behave as the endocrine pancreas and will be viable for years. The gene therapy approach the therapeutic inflation of diabetic person by a genetically engineered virus which causes a DNA change of intestinal cells to become insulin Producing cells. The goals of the artificial pancreas two –fold.To improve insulin replacement therapy until glycemic control is practically normal as evident by the avoidance of the complications of hyper glycemic. To ease the burden of therapy for the insulin dependent.

CODE: PPP027

NEW TARGETS FOR SCHIZOPHRENIA TREATMENT BEYOND DOPAMINE HYPOTHESIS

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Schizophrenia is a mental disorder that usually appears in late adolescence or early adulthood characterized by delusions,hallucinations,cognitive difficulties.It is primarily associated with dopamine dysfunction and traditional treatments have been developed that target the dopamine pathway in the central nervous system.Dopaminergic dysfunction is reported as the final common pathway leading to psychosis in schizophrenia.The pathophysiology of schizophrenia have implicated the limbic,cortex region using postmortem,structural data especially in the hippocampus (HC). The original dopamine hypothesis include contributions of other neurotransmitter systems in the pathophysiology of schizophrenia like glutamate,serotonin,acetylcholine GABA. Schizophrenia treatment based on the dopamine hypothesis has been successful. However, despite many decades of effort by both scientists and drug companies, all currently available clinical treatments still primarily target the dopamine D2 receptor. In the context of the complex heterogeneity of schizophrenia,this presentation highlights new potential therapeutic targets for treating schizophrenia beyond dopamine hypothesis- dopamine antagonists and stabilizers, glutamatergic agents, serotonin agents, gaba allosteric modulators, cholinergic agonists, neuropeptides, anti inflammatory cytokines. Furthermore, this presentation outlines the treatment targets that can be possibly integrated with novel treatment strategies aimed at different symptoms or phases of the illness.

CODE: PPP028

CRISPR/CAS9 GENE EDITING

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Disrupting a gene to determine its effect on an organism's phenotype is an indispensable tool in molecular biology. Such techniques are critical for understanding how a gene product contributes to the development and cellular identity of organisms. The explosion of genomic sequencing technologies combined with recent advances in genome-editing techniques has elevated the possibilities of genetic manipulations in numerous organisms in which these experiments were previously not readily accessible or possible. Introducing the next generation of molecular biologists to these emerging techniques is key in the modern biology classroom. This comprehensive review introduces undergraduates to CRISPR/Cas9 editing and its uses in genetic studies. The goals of this review are to explain how CRISPR functions as a prokaryotic immune system, describe how researchers generate mutations with CRISPR/Cas9, highlight how Cas9 has been adapted for new functions, and discuss ethical considerations of genome editing. Additionally, anticipatory guides and questions for discussion are posed throughout the review to encourage active exploration of these topics in the classroom. Finally, the supplement includes a study guide and practical suggestions to incorporate CRISPR/Cas9 experiments into lab courses at the undergraduate level.

CODE: PPP029

RECENT UPDATES IN THE KNOWLEDGE OF ETIOLOGICAL AGENTS IN ALZHEIMER'S DISEASE

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Alzheimer's disease (AD) is the most common neurodegenerative disease characterized clinically by progressive memory loss and decline in cognitive abilities and characterized pathologically by the presence of abnormal deposits, like senile plaques (SP) and neurofibrillary tangles (NFT), and by extensive synapse and neuronal loss, alterations in neurotransmission, beta-amyloid production, plaque formation and cytoskeletal abnormalities. Several studies have been performed on this disease and there have been identified various factors that may be causing Alzheimers. In this presentation, we are attempting to find out the incidence of etiological agents for alzheimer's disease in a comprehensive manner. Multiple scientific journal articles like: Google scholar, PubMed were referred to and the information was collected from the reffered and cited articles. Several new factors for Alzheimers are being identified due to the amount of recent efforts in research following the recognition of the burden of this disease. This not only increases the scope for improvement of current therapies and introduction of novel therapies but also increases the awareness and better understanding about this disease for the public and professionals.

CODE: PPP030

ARTIFICIAL INTELLIGENCE: THE BEGINNING OF NEW ERA IN PHARMACY PROFESSION

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Artificial intelligence(AI) is a branch of computer science that deals with the problem-solving by the aid of symbolic programming. It has greatly evolved into a science of problem-solving with huge applications in business, health care and engineering. One of the pivotal applications of AI is the development of the expert system. With the Advent of big data and AI, robots are now becoming more trustworthy for doctors and a large number of institutions are now employing robots along with human supervision to carry out activities that were previously done by humans. The major advantage of AI is that it reduces the time that is needed for drug development and in turn, it reduces the costs that are associated with drug development,enhances the returns on investment and may even cause a decrease in cost for the end user. A large number of researchers are being carried out to improve the current available AI technology to make the pharmacy profession more efficient. The present article briefly describes the importance of AI in the process of drug development and then looks at the various AI tools that are available at the disposal of a modern-day pharmacist to aid in a more efficient functioning.

CODE: PPP031

NEUROPROTECTIVE EFFECTS OF ENHANCING NAD+ METABOLISM IN PARKINSON'S DISEASE.

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While mitochondrial dysfunction is emerging as key in Parkinson's disease (PD), a central question remains whether mitochondria are actual disease drivers and whether boosting mitochondrial biogenesis and function ameliorates pathology. We address these questions using patient-derived induced pluripotent stem cells and Drosophila models of GBA-related PD (GBA-PD), the most common PD genetic risk. Patient neurons display stress responses, mitochondrial demise, and changes in NAD+ metabolism. NAD+ precursors have been proposed to ameliorate age-related metabolic decline and disease. We report that increasing NAD+ via the NAD+ precursor nicotinamide riboside (NR) significantly ameliorates mitochondrial function in patient neurons. Human neurons require nicotinamide phosphoribosyltransferase (NAMPT) to maintain the NAD+ pool and utilize NRK1 to synthesize NAD+ from NAD+ precursors. Remarkably, NR prevents the age-related dopaminergic neuronal loss and motor decline in fly models of GBA-PD. Our findings suggest NR as a viable clinical avenue for neuroprotection in PD and other neurodegenerative diseases.

CODE: PPP032

DRUGS THAT STOP MOSQUITOES CATCHING MALARIA COULD HELP ERADICATE THE DISEASE

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Preventing transmission of malaria is a key part of efforts to eliminate the disease. A person can be cured of the disease using drugs that wipe out the replicating form of the parasite, but still carry dormant, sexual forms. These are responsible for transferring the parasite to the mosquito when it bites them. Inside the mosquito, the dormant parasites rapidly mature and then multiply, leaving them ready to infect a new person when the insect feeds again. A number of compounds that prevent the parasite maturing inside the mosquito have been identified. The team screened more than 70,000 compounds and identified six compounds that have the potential to be turned into drugs that block disease transmission. Current antimalarial drugs can cure a person of the disease, but that person is still infectious to mosquitoes, and can therefore still cause someone else to become infected. In this research antimalarial drugs that protect mosquitoes, blocking the parasites from continuing their infectious journey. By combining such a drug with a conventional antimalarial, we not only cure the individual person, but protect the community as well.

CODE: PPP033

SUBJECT RECRUITMENT AND RETENTION AT THE TRIAL SITE

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The discipline of patient recruitment was formed over three decades ago in the U.S. to meet the challenge of successful on-time enrollment. It has evolved into a field that includes feasibility modeling and analysis; country selection; site selection, training and support; metrics and evaluation; marketing communications, media; and public relations. The patient recruitment sector has experienced rapid growth in recent years, particularly in response to increasing number of global clinical trials. Patient recruitment services are contracted by pharmaceutical companies, biotechnology companies, medical device companies, contract research organizations (CROs), or a medical research site. Services include: Media support Study feasibility,Population research, Site selection, Site assessment, , Media management, Site training materials, Study Web site, Patient referral follow-up, Translations, Community outreach, Physician outreach, Site support, Site support**.** A variety of support services that are considered retention specific include: Visit reminders, Patient support items,Care giver support**.** There are many different recruitment methods, including media (i.e., television, radio and newspaper), physician referrals, press releases, fliers, random mailings, cold calls and the internet. These methods must be selected before study start. Also, some common factors such as-sample size, suitability of the strategy as per study design and overall budgetary constraints must not be ignored.

CODE: PPP034

NEURAPHERESIS-AN EMERGING TECHNIQUE FOR MANAGEMENT OF CRYPTOCOCCAL MENINGITIS

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Cryptococcal meningitis (CM) has emerged as the most common life-threatening fungal meningitis worldwide.Cryptococcal infections burden the immunocompromised population with unacceptably high morbidity and mortality. This population includes HIV-infected individuals and those undergoing organ transplants, as well as seemingly immunocompetent patients (non-HIV, non-transplant). These groups are difficult to manage with the current therapeutic options and strategies. Current management involves a sequential, longitudinal regimen of antifungals; Neurapheresis therapy is a new technique for the management of cryptococcal meningitis under investigation.Neurapheresis therapy is a extracorporeal filtration of yeasts from cerebrospinal fluid (CSF) in infected hosts, is presented here as a novel, one-time therapy for CM. Neurapheresis potentially provides a three-fold advantage in the management of cryptococcal meningitis: A rapid decrease of fungal burden in the subarachnoid space; A reduction in or prevention of elevated ICP; Delivery and circulation of antifungal agents such as amphotericin B directly into the subarachnoid space.

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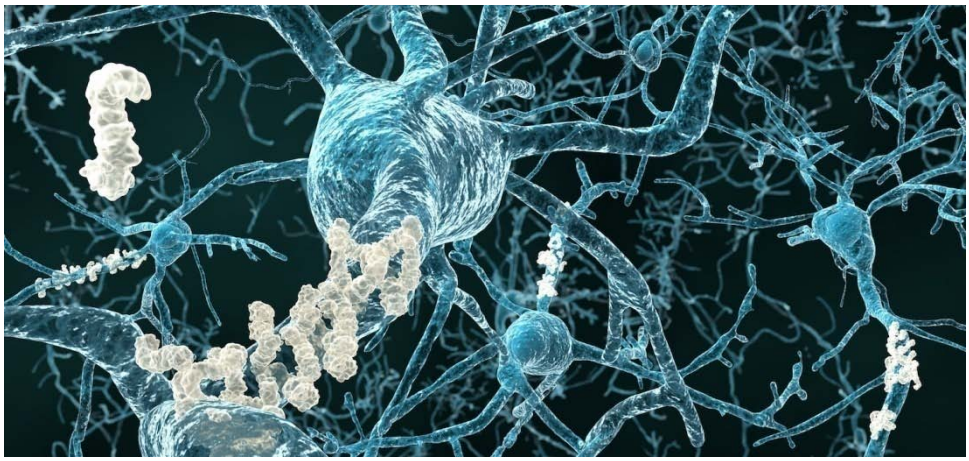

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CODE: PCG001

COMPARATIVE STUDIES ON PHYTOCHEMICAL SCREEINING, TOTALPHENOLIC, TOTAL FLAVOID CONTENT AND METAL ANALYSIS OF HYDRPONIC (NFTSYSTEM) AND GEOPONIC CULTIVATED SPINACH

Meghana Chowdary, Nayini Sowjanya, Vyshnavi Reddy, Dr Chandaka Madhu, Dr K MuraliKrishna
MLR Institute of Pharmacy, Dundigal, Hyderabad

Now a days the crops are excessively exposed to chemical/synthetic Fertilizers and pesticides for getting more yield within the limit of timef or money. By consuming such food material, a large proportion of the population has been suffering from a lot of disorders because they contain arsenic,mercury,nitrates and lead more than permitted levels.In view of health hazards posed by indiscriminate use of chemical fertilizers and pesticides,extremely difficult situations of land and water managements and adverse influences of climatic conditions such as heavy rains, airpollution, water pollution,soil pollution, heavy sun effect on the quality and the quantity of agricultural products, we have planned the cultivation of spinach hydroponically.The objective of present study was to compare the phytochemical constituents of geoponic and hydroponic cultivated spinach and screening for antioxidant activity based on their phenolic and flavonoid contents. Further,how much extent the hydroponic cultivation is in fluencing the presence of metals by carrying out metalanalysis By Inductively Coupled Plasma/Optical Emission Spectrometry. The most important thing was the hydrponic plants don't have heavy metals butineoponics we have arsenic and lead which are dangerous to humanlife.

CODE: PCG002

GREEN TEA IN GREEN WORLD

Sridevi P.V
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Green tea is one of the most popular beverages in the world, and it has received considerable attention because of its many scientifically proven beneficial effects on human health. Several epidemiologic and experimental observations have confirmed that there is a close relationship between green tea consumption and the prevention of both cancer development and cardiovascular disease. These effects have been largely attributed to the most prevalent polyphenol contained in green tea, namely epigallocatechingallate. Epigallocatechingallate is known to induce apoptosis in various types of tumor cells, but has little or no effect on normal cells. Recently, it has been reported that epigallocatechingallate could induce the apoptotic cell death of osteoclasts. Thus, it can prevent alveolar bone resorption by inhibiting osteoclast survival through the caspase-mediated apoptosis and can be beneficial to periodontal health.

CODE: PCG003

BIOENHANCERS – AN APPROACH TO IMPROVE BIOAVAILABILITY

Nishat Ara,
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Drug molecules often suffer with problems such as solubility, stability, bioavailability and side effects. Low bioavailability is one of the serious problems in case of drug molecule. The term, 'bioavailability' is one of the principal pharmacokinetic properties of the drug. It shows the rate and extent of the active pharmaceutical ingredients in the blood. This helps in calculating that how much amount is absorbed from blood and how much is unabsorbed and first pass metabolized. The use of natural products is the effective method for enhancement of bioavailability because they suffer several advantages in being safe, non-toxic, economical, easily procured, non-additive, pharmacologically inert, non-allergenic in nature etc. Bioenhancers also known as bioavailability enhancers or drug facilitators are the molecules which by themselves don't show typical drug activity, but when used in combination enhance the activity of drug molecules in several ways. Moreover, efficacy is enhanced by increased bioavailability.

CODE: PCG004

GARLIC – A MIRACLE DRUG FOR CANCER TREATMENT

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Cancer is the leading cause of death globally. Despite of different therapies available to cure/treat the cancer or prolong the life of cancer survivors, chemotherapy is still central to cancer therapy. Other modes of treatments such as radiation, surgery, chemo-therapy, targeted therapy, immunotherapy etc. The patients with present day, modern cancer therapies are associated with several toxicities and lack of quality of life. Herbal remedies for cancer treatment are found notion to the Oncologists. Garlic known as *Allium sativum* (Family: Liliaceae), is one of the promising drug found to treat cancer patients and also to treat the toxicity effects produced by other cancer treatment. Allicin is a major pharmacological component of garlic, reported to have anti-cancer properties and also used to treat drug-induced toxicity.

CODE: PCG005

ALDOSE REDUCTASE INHIBITORS IN PREVENTING DIABETIC COMPLICATIONS

Ameena Anjum
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Prolonged exposure to hyperglycaemia in diabetes, can lead to various complications such as cataracts, retinopathy, neuropathy and nephropathy. Several mechanisms such as increased aldose reductase-related polyol pathway, increased advanced glycation end products (AGE) and excessive oxidation stress are involved in this process. AR is the principal enzyme of polyol pathway which plays a vital role in development of diabetic complications. Aldose reductase inhibitors (ARIs) are drugs used to prevent eye and nerve damage in diabetes. Many synthetic ARIs have been developed, but suffer drawbacks and safety issues. Therefore research to find new, potent and safe ARIs from natural sources have been done and many naturally occurring compounds have been reported to have AR inhibitory activity. AR inhibition is a significant strategy to prevent some of the diabetic complications.

CODE: PCG006

MULTIPURPOSE MEDICINAL PLANT: *ACHYRANTHUS ASPERA*

Thaiseen sultana*
G. Pulla Reddy College of Pharmacy, Mehedipatnam, Hyderabad

Prolonged exposure to hyperglycaemia in diabetes, can lead to various complications such as cataracts, retinopathy, neuropathy and nephropathy. Several mechanisms such as increased aldose reductase-related polyol pathway, increased advanced glycation end products (AGE) and excessive oxidation stress are involved in this process. AR is the principal enzyme of polyol pathway which plays a vital role in development of diabetic complications. Aldose reductase inhibitors (ARIs) are drugs used to prevent eye and nerve damage in diabetes. Many synthetic ARIs have been developed, but suffer drawbacks and safety issues. Therefore research to find new, potent and safe ARIs from natural sources have been done and many naturally occurring compounds have been reported to have AR inhibitory activity. AR inhibition is a significant strategy to prevent some of the diabetic complications.

CODE: PCG007

ANTI-INFLAMMATORY AND ANTIRADICAL POTENTIAL OF METHANOLIC EXTRACT OF *CAJANUS CAJAN*

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Gokaraju Rangaraju College of Pharmacy, Bachupally, Hyderabad.

The present study was carried out to investigate the anti-inflammatory and antioxidant activity of methanolic extract of *Cajanus cajan.* The extract was evaluated for its in *vivo* anti-inflammatory activity by carrageenan induced paw oedema model using indomethacin as standard and *in vitro* anti-inflammatory activity by protein denaturation method using diclofenac sodium as standard. The extract was evaluated for its antioxidant activity by reducing power assay and hydrogen peroxide assay using ascorbic acid as standard. The methanolic root extract of *Cajanus cajan* (MECC) significantly ($p<0.05$) inhibited the paw oedema volume. The extract significantly ($p<0.05$) protected protein membranes from denaturation. The extract also significantly scavenged the free radicals. The lupeol present in the extract targeted inflammatory signalling pathways there by exerting its anti-inflammatory activity. The phenolic constituents present in the extract might be responsible for its antioxidant activity as phenolics possess strong ability to inhibit oxidants and free radicals. From the above it is clear that MECC possess anti-inflammatory and antiradical activities.

CODE: PCG008

COLOURS FROM LIVING ORGANISMS

Janamolla Sreeja
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Colour is an attractive ingredient in pharmaceutical and non pharmaceutical preparations. As it is an important part of any preparation, using synthetic colours can be harmful for the formulated product and consumer. In today's generation as everyone is preferring a natural originated products for their safety. The demand for biocolours is increasing and search for better substitute for synthetic colours are in demand. Biocolours are made by extraction process from plants, animals and microorganisms. Curcumin from turmeric gives bright lemon colour, Bixin from *Bixa orelana* gives orange colour these are some of the plant extracts. Microorganisms extracts are lycopene from *Blakesela trispora* gives red colour, pycocyanin blue from *Pseudomonas aeruginosa* gives green colour.

CODE: PCG009

EVALUATION OF ANTIULCER ACTIVITY OF POLYHERBAL FORMULATION AGAINST ETHANOL INDUCED GASTRIC ULCER IN ALBINO RATS

Sana Fathima, Dasarapu Santhosha, Alluri Ramesh
G. Pulla Reddy College of Pharmacy, Mehedipatnam, Hyderabad

This study is to formulate poly herbal formulation which is more effective at a lesser dose. In our present study, three plants were extracted and poly herbal formulation was prepared. The CMC suspension of Poly herbal formulation was investigated for its anti ulcer activity against ethanol induced ulcer in rats at 100 and 200 mg/kg body weight p.o. Omeprazole was used as standard at a dose of 20 mg/kg. Five groups of adult albino rats were orally pre-treated respectively with CMC solution (ulcer positive control group),Group pre treated with CMC suspension(ulcer negative control group), Omeprazole 20 mg/kg (standard group), 100 mg/kg of Poly herbal formulation(PHF) suspended in CMC suspension(experimental group-1), and 200mg/kg of poly herbal formulation Suspended in CMC suspension(experimental group-2) one hour before oral administration of absolute ethanol to produce gastric mucosal injury. Rats were sacrificed and the ulcer areas of the gastric walls were determined. Pretreatment of rats with PHF suspension produced protection in the ethanol induced ulceration model as compared to control group. The protection was statistically significant and reduced the severity of ulcer and caused a significant reduction of ulcer index in this model.

CODE: PCG010

"MAGICAL HERBAL REMEADY FOR DIABETES"- INSULIN PLANT

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Diabetes is commonly known as "MADHUMEHA". It is disorder with increased hyperglycemia associated with retinopathy, cardiac problems and renal failures. Diabetes is one of the top 10 chronic disorder responsible for severe mortality. CostusigenousNAK , commonly known as spiral flag and insulin plant is popularly used in present day to control the hyperglycemia .The leaves of Costus igneous helps to build up insulin in human body , so known as "Insulin plant" . Traditional uses of this plant are anti-oxidant, root and rhizome shows anti-bacterial activity. These leaves were among the plants known to be effective use for treating diabetes by the tribal people of kholi hills of Namkkal district Tamil Nadu.Costusigneous leaves are rich in protein ,iron and antioxidantslike beta carotene , terpenoids and steroids . In ayurvedic treatment diabetes patients are advised to chew leaves for one month, 2 leaves per day morning and evening. It is marketed in the name of Gudmarphala.

CODE: PCG011

ANTIDIABETIC AND ANTIOXIDANT ACTIVITY OF*RHYNCHOSIA BEDDOMEI BAKER*

Ch. Pravallika, B. RavaliManohari, N.V.L Suvarchala Reddy V
Gokaraju Rangaraju College of Pharmacy, Bachupally, Hyderabad

To screen the antidiabetic and antioxidant activity of*Rhynchosiabeddomei*whole plant by oral glucose tolerance test,streptozotocin (STZ)-induced and dexamethasone induced diabeticrats using oral administration of methanolic extract (MERB) andethyl acetate extract (EARB).In oral glucose tolerance test, both MERB and EARBmarkedly reduced the external glucose load. The extracts were givenorally at doses 150 mg/kg b.w. and 300 mg/kg b.w. and wereobserved after 21 days in STZ induced diabetes and 11 days indexamethasone induced diabetes. *In vitro* models using a-amylaseand a-glucosidase inhibitory assay were also evaluated. *In vitro*antioxidant study of the methanolic extract (MERB) and ethyl acetateextract (EARB) was done by DPPH assay and NBT inhibition assayrespectively.From the preliminary phytochemical investigation*Rhynchosiabeddomei*whole plant showed the presence offlavonoids, phenolics and steroids. The antioxidant effect of plantsare often attributed to the presence of phytochemical constituentsmainly phenolics, flavonoids and flavonols. MERB at 300 mg/kg, b.w. was found to have significant antioxidant and antidiabeticactivity.This study clearly shows that the extracts of *Rhynchosiabeddomei*possess effective antioxidant and antidiabetic activity.

CODE: PCG012

PHYTOSOMES

Harshitha Jaligam, Suha Tanzeem, B. Rajeshwari
G. Pulla Reddy College of Pharmacy, Hyderabad, Telangana, 500028

Phytosome is a novel drug delivery dosage form. Phytosome is a patent technology. It is a used for the development of formulation for improved availability of medicaments of phytoconstituents present in herbal extracts.phytosome are prepared by using the phospholipids and forming complex between phytoconstituents and phospholipids . Phytosomes now a days have most valuable space in pharma industries and good research space for industries scholar.phospholipids are employeed as natural digestive aids and carriers for water soluble and lipid soluble nutrients.

CODE: PCG013

HYPOGLYCEMIC ACTIVITY OF LEAVES OF BOUGAINVILLEA SPECTABILIS EXTRACTS IN STREPTOZOTOCIN – INDUCED DIABETIC RATS.

R.Bhargavi, M.Vinitha, Mrs.Vijaya Boga
Omega College of Pharmacy, Hyderabad

Diabetes mellitus is a disease in which blood glucose levels are above normal. The ß cells of the pancreas do not make sufficient insulin. Herbal drugs treat diabetes by improving insulin sensitivity, increasing insulin production and/or decreasing the amount of glucose in blood. The present study was aimed to investigate antidaibetic activity of methanolic leaf extract of Bougainvillea spectabilis (B. spectabilis) alone and in combination with glibencliamide in Streptozotocin induced diabetic rats. Primarily acute toxicity study and oral glucose tolerance test were performed. The powdered plant was successfully extracted with methanol by using soxhlet extractor. The Wister strains of male albino rats were used for present study. The methanol extracts of B. spectabilis (200mg/kg and 400mg/kg) were administered to both normal and streptozotocin induced diabetic rats at defined time intervals. Blood glucose levels were measured at 0,30,60,120 minutes and 0, 7, 14, 21 and 28th day after oral administration of extracts. Of the doses test, highest anti -hyper glycemic effect was observed by the extract of leaves at 400mg/kg after a week treatment. *B. spectabilis* extract exhibited significant hypoglycemic activity at different doses and intervals. The toxicity study results showed that the medium lethal dose (LD50) of the extract is higher than 2g/kg body weight, and hence, in a single dose administration, the plant extract had no adverse effect.

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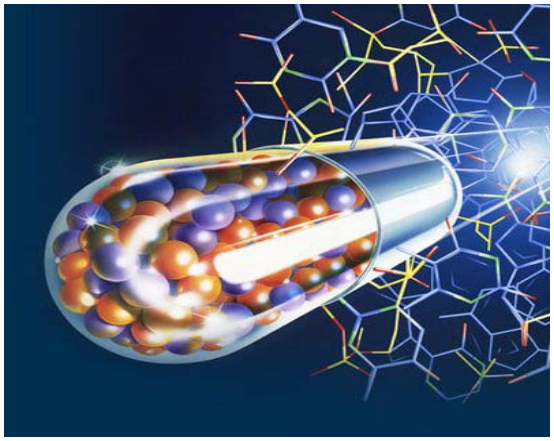
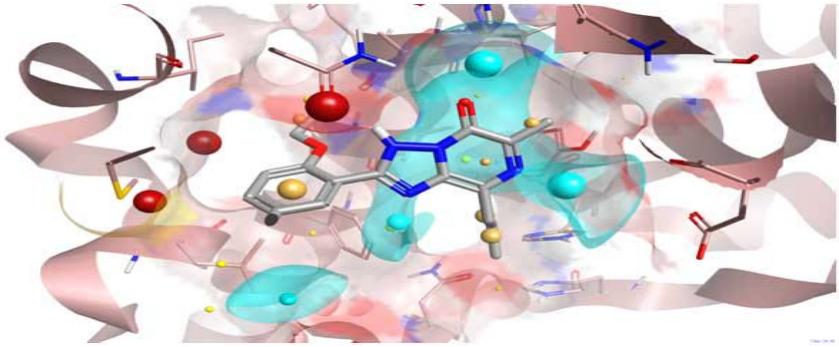
PHARMACEUTICAL CHEMISTRY





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CODE: PCH001

DOCKING STUDIES OF SOME NOVEL N-4 PIPERZINYL DERIVATIVES OF SPARFLOXACIN

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Sparfloxacin, a fluroquinolones analogue has activity against a wide range of gram-negative and gram positive microorganisms by inhibiting the enzymes topoisomerase-II (DNA gyrase) and topoisomerase-IV which are required for bacterial DNA replication, transcription, repair and recombination. A series of sparfloxacin derivatives were synthesized (Q_1-Q_{10}) Via N-Piperzinyl linkage. In present investigation, we screened docking stimulation for synthesized compounds (Q_1-Q_{10}) to find out binding modes of derivatives with 3FV5 and 3IMW studies was performed by using Auto Dock vina 1.12 version and chimera 1.12 version. The compounds Q_5 & Q_4 showed good antibacterial activity against gram positive (S. Aureus) and compound Q_4 & Q_9 showed good antibacterial activity against gram negative (E. Coli) in comparison with standard drugs (Ciprofloxacin and Sparfloxacin).enhanced acceptability due to its patient compliance as well as improved bioavailability and stability.

CODE: PCH002

''SYNTHESIS, CHARACTERIZATION AND *IN VITRO* ACTIVITY OF CAFFIC BENZOIC ESTERS, CAFFEOYL ARBUTIN AND TIGLOYL ARBUTIN''

N. Priyanka* Sujit Das
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In the present study caffeoic benzoic esters (KA-6, KA-7) were synthesized from ferulic acid (KA-1) and hydroxy benzyl esters (KA-2, KA-3). 6-O-Caffeoylarbutin (KA-16) and 6-O-tigloylarbutin (KA-18) was synthesized compounds were characterized by IR, NMR and Mass spectral analysis. The compounds were evaluated for *in vitro* antioxidant assay by DPPH (diphenyl picryl hydrazyl) radical scavenging assay and NBT (nitro blue tertrazolium) radical scavenging assay, Among caffeoyl benzoic esters (KA-6, KA-7) AND 6-O-caffeoylarbutin, 6-O-tigloylarbutin showed significant antioxidant activity with IC_{50} value for NBT, as KA-6(19.73); KA-7(12.18); KA-16(10.05); KA-18(28.06) and DPPH as KA-6(4.58); KA-7(2.49); KA-16(4.26); KA-18(4.21) when results were compared with standard as Vitamin – C NBT(160); DPPH (3.5).The compound 6-O-Caffeoylarbutin (KA-16) and 6-O-tigloylarbutin (KA-18) were evaluated for *in vitro* anti-tyrosinase assay. The compound 6-O-Caffeoylarbutin (KA-16) and 6-O-tigloylarbutin (KA-18) showed significant anti-tyrosine activity with IC_{50} value KA-16 (16.04); KA-18(23.8) when results were compared with standard Sodium benzoate (72.4). The caffeic benzoic esters (KA-6, KA-7) were evaluated for in vitro 5-lipoxigenase assay, showed significant 5-lipoxygenase inhibitory activity with IC_{50} value KA-6(2.02); KA-7(2.86) when results were compared with standard curcumin (8.03)

CODE: PCH003

3D PRINTING OF A DRUG – AN UNIQUE APPROACH OF RATIONAL DRUG DESIGN

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3D printed drugs are yet another case of technology challenging the traditional aspects of a specific field. In medicine, it will improve distribution options and allow for personalization of pharmaceuticals. Recently, epilepsy drug Spritam (pictured) became the first 3D printed drug to be approved by the FDA. The drug's manufacturer, Aprecia Pharmaceuticals, says that it makes the oral medication through a three-dimensional printing process, which builds the pill by spreading layers of the drug on top of one another until the right dose is reached. This technique allows the pill to deliver a higher dose of medicine – up to 1000 mg – while being porous enough to dissolve quickly. These attributes can be particularly beneficial for patients who have difficulty swallowing their medication, which can affect adherence to treatment regimens.Researchers at the School of Pharmacy of University College London have been developing a technique to 3D-print pills in different shapes, from pyramids to doughnuts, using a technique known as "hot melt extrusion". This breakthrough clears the path for future 3D printed drugs – an area that could change not only the way that drugs are manufactured, but also administered.

CODE: PCH004

A BRIEF REVIEW ON COMBINATORIAL CHEMISTRY

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In the field of medicine, drug discovery is the process by which new medications are discovered. In the past, chemists have traditionally made one compound at a time. Compound A would have been reacted with compound B to give product AB, which would have been isolated after reaction work up and purification through crystallization, distillation, or chromatography. In contrast to this approach, combinatorial chemistry offers the potential to make every combination of compound A1 to An with compound B1 to Bn. Combinatorial chemistry is a technique by which large numbers of structurally distinct molecules may be synthesized in a time and submitted for pharmacological assay. The key of combinatorial chemistry is that a large range of analogues is synthesized using the same reaction conditions, the same reaction vessels. In this way, the chemist can synthesize many hundreds or thousands of compounds in one time instead of preparing only a few by simple methodology. Combinatorial chemistry is especially common in CADD (Computer aided drug design) and can be done online with web based software, such as Molinspiration.

CODE: PCH005

GREEN SYNTHESIS OF METAL NANOPARTICLES USING PLANTS

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In recent years, the development of efficient green chemistry methods for synthesis of metal nanoparticles has become a major focus of researchers. They have investigated in order to find an eco-friendly technique for production of well-characterized nanoparticles. One of the most considered methods is production of metal nanoparticles using organisms. Among these organisms plants seem to be the best candidates and they are suitable for large-scale biosynthesis of nanoparticles. Nanoparticles produced by plants are more stable and the rate of synthesis is faster than in the case of microorganisms. Moreover, the nanoparticles are more various in shape and size in comparison with those produced by other organisms. The advantages of using plant and plant-derived materials for biosynthesis of metal nanoparticles have interested researchers to investigate mechanisms of metal ions uptake and bioreduction by plants, and to understand the possible mechanism of metal nanoparticle formation in plants. In this review, most of the plants used in metal nanoparticle synthesis are shown.

CODE: PCH006

COMPUTER AIDED DRUG DESIGN- A Rational Drug Designing Tool.

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Modern drug discovery and development is characterized by production of vast quantities of compounds which is a very time consuming and resource consuming process. Through Computer Aided Drug Design (CADD), computational approach is applied to combined chemical and biological space in order to streamline drug discovery, design, development and optimization. In current drug discovery arena, computer aided design is utilized to expedite and facilitate hit identification, hit to lead selection, optimize pharmacodynamic interaction and pharmacokinetic interaction like absorption, distribution, metabolism, excretion and toxicity profile. Commonly used computational approach include ligand based drug design, structure based drug design and Quantitative structure activity-relationship. Computer Aided Drug Design aids in predicting the biological activity or toxicity before being tested in animal models. With the help of these computational tools there has been significant improvement in effectiveness and success rate of drug discovery and development process also with a significant decrease in usage of animals and increase in predictability.

CODE: PCH007

BIOSIMILAR APPROACH OVER INNOVATOR PRODUCT

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The aim of biosimilar drug development is to offer additional treament options that may increase savings and efficacies to health care systems. A "biosimilar" is a biological product that is similar to, or nearly identical to, an existing FDA-approved reference biological. There are no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency of the product. Biologics are very specific, highly effective medicines made in living cells. As they are prepared from living cells it is impossible to produce an exact copy without using the exact same ingredients, the same living cell lines, and identical manufacturing conditions and hence biosimilar products have come into picture. Zarxio biosimilar to filgrastim was the first to obtain approvalby FDA on March 6 2015. This is the first product to be passed under the Biologics Price Competition and Innovation Act of 2009 (BPCI Act), which was passed as part of the Affordable Healthcare Act. It was given to people whose ability to make white bloodcells was reduced (due to chemotherapy chronic neutropenia, or exposure to large amounts of radiation). Biosimilar medicines provide cost savings for patients who can benefit from biologic medicines. By potentially providing more affordable options, biosimilar medicines can allow for the reallocation of resources to other areas of patient care. In addition biosimilars could lead to earlier intervention with the appropriate biologic medicines, potentially improving treatment outcomes.

CODE: PCH008

DISCOVERY OF 1-BENZYL-1H-BENZIMIDAZOLES AS NON-CARBOHYDRATEGALECTIN-1 MEDIATED ANTICANCER AGENTS

Nerella Sridhar Goud[a], S. Mahammad. Ghouse[a], Jatothvishnu[b], D. Komal[a], M. Shravan Kumar[a], Jyotshnasoman[a],VenuTalla[b], Ravi Alvala[c], MallikaAlvala[a]*

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In our pursuit to develop novel non-carbohydrate small molecule Galectin-1 Inhibitors, we have designed a series of 18 1-benzyl-1H-benzimidazole derivatives possess anticancer activity. The compound 6g, 4-(1-benzyl-5-chloro-1H-benzo[d]imidazol-2-yl)-N-(4-hydroxyphenyl) benzamide found to be most potent with an IC_{50} value of 7.01 ± 0.20 µM and arresting MCF-7 cell growth at G2/M phase and S phase. Induction of apoptosis was confirmed by morphological changes like cell shrinkage, bubbling and cell wall deformation, dose dependent increase in the mitochondrial membrane potential (ΔΨm) and ROS levels. Further, dose dependent decrease in Gal-1 protein levels proves Gal-1 mediated apoptosis by 6g. Molecular docking studies were performed to understand the Gal-1 interaction with compound 6g. In addition, compound 6g binding to Gal-1 was studied using RP-HPLC method and found 85.44% of 6g was binding to Gal-1.

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CODE: PAQ001

QUANTIFICATION OF APIXABAN ANCHORED IN EMISSION INTENSITY BY SPECTRO FLUORIMETRY

Sajeeda Unnisa, PD Anumolu, Ceema M , Sunitha G,
Gokaraju Rangaraju College of Pharmacy, Bachupally, Hyderabad

A simple and sensitive spectrofluorimetric method has been developed for the estimation of Apixaban in pure and pharmaceutical dosage forms. Linearity was obeyed in the range of 0.5 – 3.0 µg/ml in SLS as solvent at an excitation wavelength (λ_{ex}) of 304 nm and an emission wavelength (λ_{em}) of 450 nm with good correlation coefficient of 0.9998. The limit of detection (LOD) and limit of quantification (LOQ) for this method are 0.00396 and 0.0132 µg/ml, respectively. The developed method was statistically validated as per ICH guidelines. The percentage relative standard deviation values were found to be less than 2 for accuracy and precision studies. The results obtained were in good agreement with the labelled amounts of the marketed formulations.

CODE: PAQ002

DEVOLPMENT AND VALIDATION OF ANALYTICAL METHOD BY HPLC FOR THE ESTIMATION OF BUDESONIDE IN CAPSULES DOSAGE FORM

Sravanthi G, Anumolu PD , Sunitha G, Sahitya M.
Gokaraju Rangaraju College of Pharmacy, Bachupally, Hyderabad

The present investigation was aimed to establish a "Devolpment and validation of analytical method by HPLC for the estimation of Budesonide in capsules dosage form". The drug was well resolved using Column: ZORBAX SB PHENYL (150 ×4.6 mm, 5µ) reverse phase chromatography using Mobile phase, Methanol : Phosphate buffer (60:40) at a flow rate 1.0 ml/min and detection at 240 nm. The response was a linear function of analyte response (R^2 =1.00) over the concentration range of 25-150 µg/ml for Budesonide. The method was validated for precision, accuracy, robustness and specificity. The percent recovery at three different levels (50%, 100% & 150%) ranged between 98-102% in optimized formulation Budesonide in capsules dosage form. The method holds promise for routine quality control of this drug in bulk and pharmaceutical formulations.

CODE: PAQ003

METHOD DEVLOPMENT AND VALIDATION OF METFORMIN AND EMPAGLIFLOZIN IN PHARMACEUTICAL DOSAGE FORMS IN RP-HPLC

Sandhya Rani Bandham, Sree Giri Prasad Beri and Krishna Mohan Chinnala
School of Pharmacy, Nalla Narasimha Reddy Education Society's Group of Institutions, Hyderabad

A reverse phase high performance liquid chromatographic method was developed for the determination of Metformin and Empagliflozin in bulk and Pharmaceutical dosage form. The separation was effected on aC18 column (150 mm x 4.6 mm;5µ)using a mobile phase mixture 50 volumes of methanol and 50 volumes of phosphate buffer in a ratio of40:60 v/v with a flow rate of 1ml/min. The detection was made at 255 nm. Calibration curve was linear over the concentration range of 60-140 µ g/ml of Metformin and 3-7µg/ml of Empagliflozin. The propose method was validated as per the ICH guidelines. The method was accurate, precise, specific and rapid found to be suitable for the quantitative analysis of the drug and Pharmaceutical dosage form.

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- G. Narayanamma High School, Mehdipatnam, Hyderabad
- G. Narayanamma Institute of Technology & Science (for Women), Shaikpet, Hyderabad
- G. Narayanamma Hospital, Gokavaram, Atmakur, Tq., Kurnool, Kurnool District.
- G. Narayanamma Pulla Reddy Respite Home for Mentally Retorted Women, Kurnool.
- Samskrutha Bhasha Prachara Samiti, Nampally Station Road, Abids, Hyderabad.
- Vignana Peetham (Orphanage), Kurnool.
- Bhakta Kannappa Gurukulam for Welfare of Tribal Children, Gokavaram, Kurnool District.
- Seshacharyulu Hospital, G. Pulla Reddy Engineering College Campus, Kurnool.


Parliamentary Sub Committe visit- 2000

New Building Inauguration - 1999


College Annual Day Celebrations


Health Camp at GPRCP


"Prof. M. L. Khorana medal (IPA)" at 63rd IPC, Bengaluru, 2011


Inaugaration of HPLC

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