WELCOME MESSAGE

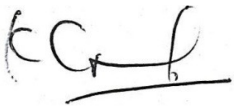
MESSAGE-PATRON

It is an pleasured to know that Faculty of Pharmacy, DIT University is organizing an International Conference on "Pharmaceutical Innovations for Global Excellence; Ignite, Invent, Implement" from February 27-28, 2015 in collaboration with Society of Pharmaceutical Education & Research [SPER]. On my personal behalf and on behalf of DIT University, I extend a hearty welcome to all delegates and professionals.

Pharmaceutical Innovations for Global Excellence (PIGE) is a premier forum for the presentation of new advances and novel research ideas in the subject of Pharmaceutical Sciences. The conference will bring together leading researchers, Entrepreneurs and Academicians in the domain of interest from around the world. It will provide a platform for Senior Scientists, delegates, professionals and our students to interact and share ideas and knowledge with each other. I understand that more than 500 students, delegates and practicing professionals are attending this important meeting.

The faculty of Pharmacy of our University is training human resource both at under graduate and post graduate levels. They are also involved in quality of research activity in collaboration with government and non-government organizations. The faculty has got recognition from its peers in the innovation and technology transfer.

I wish this conference a great success.



Prof. (Dr.) K.K. Raina
Patron
SPER 4th Annual International Conference & Exhibition 2015
Vice Chancellor
DIT University, Dehradun [Uttarakhand] India

MESSAGE CHAIRMAN-ORGANIZING COMMITTEE

It is a matter of immense pleasure that 4th Annual International Conference & Exhibition is being organized by Society of Pharmaceutical Education & Research [SPER] under the theme **"Pharmaceutical Innovations for Global Excellence; Ignite, Invent, Implement"** on February 27-28, 2015 at Vedanta Auditorium, DIT University, Dehradun [Uttarakhand] India.

I hope this scientific conference will provide an excellent opportunity to young pharmacy aspirants to discuss views on upcoming trends in innovations going on in the pharmaceutical discipline.

I request you to support SPER 4th Annual International Conference & Exhibition wholeheartedly. Our team is striving hard to ensure highest level of value addition and satisfaction to all participants.

I look forward to welcoming you to the SPER 4th Annual International Conference & Exhibition 2015.

With Best Wishes,

Prof. (Dr.) S. H. Ansari
Chairman-Organizing Committee
SPER 4th Annual International Conference & Exhibition 2015
Professor & Head, Department of Pharmacognosy & Phytochemistry
Jamia Hamdard, Hamdard University, New Delhi, India

MESSAGE-ORGANIZING SECRETARY

I am very delighted to share with you that Society of Pharmaceutical Education and Research [SPER] is organizing its 4th Annual International Conference & Exhibition under the theme **"Pharmaceutical Innovations for Global Excellence: Ignite, Invent, Implement"** at DIT University, Dehradun [Uttarakhand] India on February 27-28, 2015. The conference has been organized in collaboration with "DIT University, Dehradun" and supported by the Knowledge partner "IFTM University", Moradabad (U.P.).

The conference is supported by IPA [Education Division], APTI, Bangalore, IPGA, New Delhi, IHPA, New Delhi & Society of Pharmacognosy, Bhopal and sponsored by various reputed industries/organizations.

SPER had already been celebrated grand success of its three successive conferences viz. 1st Annual conference at Delhi Institute of Pharmaceutical Science and Research, New Delhi on 23rd June 2012, 2nd Annual Conference at Jamia Hamdard, New Delhi on 9th March 2013 and 3rd Annual Conference at Lovely Professional University [LPU], Punjab on 08th March 2014.

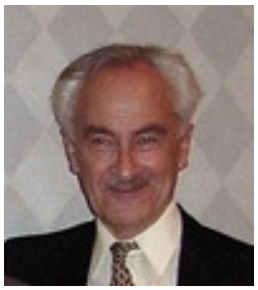
This two day international conference & exhibition will bring together many of the international and national professionals and health care experts to discuss various prospects and share their views for achieving global excellence through pharmaceutical innovations and thus will prove to be a landmark event in the relevant areas. It basically aims to make our young budding pharmacist updated about the latest technologies in research and development of Pharmacy discipline.

I on behalf of entire local organizing committee invite you all to participate in the SPER 4th Annual International Conference & Exhibition [SPER 2015].

With Warm Regards,

Dr. Upendra Nagaich
M.Pharm., Ph.D., FSPER
Organizing Secretary, SPER 4th Annual International Conference & Exhibition 2015
Secretary, Society of Pharmaceutical Education & Research [SPER]
Editor, Journal of Advanced Pharmaceutical Technology & Research [JAPTR]
Editor-in-chief, SPER Times

MESSAGE CHAIRMAN-SCIENTIFIC COMMITTEE



I am delighted to welcome delegates, participants in the fourth international conference and exhibition of the Society of Pharmaceutical Education and Research [SPER]. It follows the highly successful annual conferences in New Delhi and Phagwara. These conferences have importantly contributed to the advancement of research in pharmaceutical sciences and to its innovative applications and industrial implementations. The fourth conference in Dehradun is, for the first time, international in scope and extends for two days. This signals the growing importance of SPER as an advocate of excellence in education and research in pharmacy, a promoter of innovative developments in the pharmaceutical industry, an important link between pharmacists in academia, industry and government.

These roles contribute substantially to the creative growth and achievements of pharmaceutical science and industry which are recognized within India and internationally. There are great challenges for the further development of efficacious and safe drugs and drug products. New approaches will provide exciting opportunities.

For example, applications of nanotechnology could lead to new pharmaceuticals. Biological and nonbiological macromolecules are of increasing interest. Indeed, the biotechnological development of new drugs is growing at a much faster pace than that for the more traditional, synthetic, and small-molecule pharmaceuticals. The spreading applications of genomics and proteomics yield new therapies and enable the individualization of drug treatments. The search for blockbuster drugs is being increasingly replaced by the development of treatments and pharmaceuticals which are beneficial to smaller, targeted groups in specific genetic categories or with subtypes of disease markers. Also, technological innovations such as novel formulations can lead to new, effective drug products.

With the wider reach and growing expectations of healthcare, the development of new generic products has increasing prominence. Here, too, biological formulations, biosimilars, gain importance. Efficiency is aided by refinements in diagnostic and analytical methods and by new approaches including quality by design and the simplifying Biopharmaceutics Drug Disposition Classification System (following the Biopharmaceutics Classification System).

The international conference and exhibition of SPER will promote new achievements in pharmaceutical science and also stimulate and greatly contribute to innovative industrial developments.

Prof. (Dr.) Laszlo Endrenyi,
Chairman-Scientific Committee
SPER 4th Annual International Conference & Exhibition 2015
Professor Emeritus,
University of Toronto, Department of Pharmacology and Toxicology
Toronto, ON, M5S 1A8, Canada

MESSAGE CHAIRMAN-LOC

On behalf of Local Organizing Committee, it is my great honor to invite you to attend the upcoming International Conference on a theme: **"Pharmaceutical Innovations for Global Excellence: Ignite, Invent, Implement"** on February 27-28, 2015 at DIT University, Faculty of Pharmacy, Dehradun, Uttarakhand India.

The basic philosophy of conference is to ignite budding Pharmacists, Professionals for great Innovations in Pharmaceutics, Pharmacognosy, Pharmacology areas in order to cater a competitive effective economic Health solution to the society. The ignited ideas can be implemented their innovative ideas in bench work to beside for better patient compliance. The conference will make a visible and concentrated form in current and futuristic Research approaches in Pharmaceutical Innovations.

I am sure this conference run in the spirit of open communication among all participants and yield Scientific Innovation profit to all of the participants so that this meeting will contribute for promoting the profession to reach Global Excellency.

We look forward to seeing you in Devbhoomi and explore your innovation potential!!!!!!!!

Prof. (Dr.) N. V. Satheesh Madhav
Chairman-LOC
SPER 4th Annual International Conference & Exhibition 2015
Director, Faculty of Pharmacy, DIT University,
Dehradun [Uttarakhand] India

INVITED TALK

THE REALITY OF CONTINUOUS MANUFACTURING FOR SOLID DOSAGE FORMS

Dr. Paul W S Heng
GEA-NUS Pharmaceutical Processing Research Laboratory,
National University of Singapore,
Singapore

ABSTRACT

The future of pharmaceutical manufacturing is shaped by changes and developments in the pharmaceutical regulatory environment, new technologies and global economies, and driven by the affordability, new discoveries and innovations. Many developed economies have been strained by escalating healthcare costs whilst the pharmaceutical industry faces the dearth of patent-protected blockbuster drug products to introduce. Collectively, pressures will be on the price of medicaments, and consequently, profitability of the business. There is a need to recognize the changing trends in the manufacturing industry and the need to supply of appropriate answers. As a consequence of thinner profit margins, production will have to leaner and better stream-lined to meet changing demands, without incurring high inventory costs yet capable of churning out large product volumes with reduced manpower and space required. One solution by manufacturers is towards high volume, high throughput integrated processes. Nevertheless, for many companies, production volumes do not warrant such high throughputs. Thus, the solution should be towards a flexible production system, capable of volume expansion without the pains of scale-up. Such a solution should fit both during early development phase to post-registration product manufacture. Production processes also need to well understood and controlled, leading to high quality products, and fewer product failures. With globalization, shipment of large product volumes from relatively fewer production sites where very high quality products could be made at very low unit cost. The alternative is to ship small compact plants, capable of churning high quality products and in large product volumes in where they would be needed. This is the arena where continuous manufacturing will be fit well, and this possibility is now becoming a reality. This presentation will examine the technological advances in continuous solid dosage form manufacturing for the pharmaceutical industry and the challenges that had to be met for this technology to be widely adopted. There is also a need for quality workforce, for which the appropriate knowledge, skills and training need to be imparted.

INNOVATING NOVEL AND NANOSTRUCTURED DRUG DELIVERY PRODUCTS FOR GLOBAL EXCELLENCE, FEDERAL COMPLIANCE AND PATIENT ACCEPTANCE

Prof. Bhupinder Singh Bhoop
Chairman, University Institute of Pharmaceutical Sciences,
Panjab University, Chandigarh

ABSTRACT

After remaining shrouded for several years, nanotechnology is fast evolving to yield enormous benefits to the patients and society. One of the biggest challenges confronting the contemporary drug delivery science today is to improve upon the oral bioavailability of a vast number of drugs exhibiting poor and inconsistent gastrointestinal absorption. In this regard, lipid-based nanostructured drug delivery systems have incredible potential for revolutionizing the therapeutic efficacy of the drug molecules by several orders of magnitude. These include lipidic emulsions, liposomes, nanoemulsions, self-nanoemulsifying drug delivery systems; solid lipid nanoparticles, nanostructured lipid carriers, lipid-polymer hybrid nanoparticles, nanocapsules, and many more have been extensively investigated for augmenting the biopharmaceutical performance of the drugs. These systems tend to provide enhanced oral absorption of drugs by virtue of their diminutive globule size, drug solubilization potential and circumnavigation of the hepatic first-pass effect via intestinal lymphatic pathways, coupled with robust formulation advantages and ease of scalability.

Design and development of impeccable nanostructured drug delivery systems involve a plethora of excipients, carriers, polymers, lipids and processes. For decades, the task has been endeavored through the customary approach marked with trial-and-error, supplemented with the previous experience, knowledge and wisdom of the formulator. The recent regulations from the key federal agencies to practice "Quality by Design (QbD)" paradigms have coerced the researchers, esp. in industrial milieu, to employ experimental designs during drug delivery product development.

Touching upon the salient aspects of methodology, characterization and applications of nanostructured lipidic systems, the present talk would focus on the key instances on the QbD-based development of some of the nanostructured systems developed in our laboratories for improving the biopharmaceutical performance of the drugs.

PASTILLATION TECHNOLOGY BASED MULTIPARTICULATE DRUG DELIVERY SYSTEM

Prof. (Dr.) B. Mishra
Professor and Head, Department of Pharmaceutics,
Indian Institute of Technology [Banaras Hindu University],
Varanasi [Uttar Pradesh] India

ABSTRACT

Pastillation is a robust technology in chemical industry to convert hazardous chemical powders to solidified hemispherical pellets, called Pastilles using large equipment called "rotoformer". In this process the dusty chemicals are heated to convert them into a melt and then this melt is dropped on a cold surface to solidify the melt into pastilles. There are several pharmaceutical excipients, like waxes, lipids and PEGs, which can be liquefied by melting and then can be moulded into desired shape. Waxes and lipids are hydrophobic in nature and are being used to control the release of drugs in the aqueous gastric environment. On the other hand PEGs are water soluble drug carrier and can deliver the entrapped drug as soon as it comes in contact with GI fluids. Considering above concept, we explored the possibility of utilizing pastillation technology in the design and development of oral modified release multiparticulate delivery system of Doxofylline, which can be used for the better treatment of asthma and COPD. We designed a small setup of laboratory scale to prepare the pastilles. Using this technology, issues like improved patient compliance with enhanced therapeutic efficacy of Doxofylline was addressed. Controlled release pastilles were prepared using lipids carrier for improving patient compliance. Whereas issue of enhanced therapeutic efficacy of doxofylline, specifically for the management of nocturnal asthma, was addressed by designing immediate release pastilles using PEG as drug carrier, which was further enteric coated to achieve the required drug release profile. The developed formulations were characterized for their physicochemical characteristics, in-vitro performance and in-vivo behaviour. The laboratory scale preparation of pastilles, experimental details and findings will be discussed.

ALPHA GLUCANS: A NOVEL CARBOHYDRATE POLYMERS AND AN ALTERNATIVE THERAPEUTIC MEDICINE

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Senior Principal Scientist & Deputy Director,
Bioengineering and Environmental Sciences,
Indian Institute of Chemical Technology [IICT], Hyderabad

ABSTRACT

Alpha-glucans are carbohydrates of the glucan type, in which the glucose molecules are linked together by alpha-glycosidic bonds. These polysaccharides are often quite heterogeneous and containing slight modifications of the repeating unit. Depending on the structure, these macromolecules possess distinct properties and show biofunctional properties. Among them glucans (α and β) which play a special role in Pharmaceutical sector. Glucans are mainly found in the cell walls of bacteria, fungi, yeasts, algae, lichens, and plants, such as oats and barley hence, these cell wall components could be considered as a source of novel therapeutic compounds. *Streptococcus mutans* (MTCC 497) cell associated α-(1-3)-glucans were isolated, characterized and evaluated their bioactivity profile. Acid hydrolysis of α-(1-3)-glucans revealed presence of glucose moieties. Water insoluble α-(1-3)-glucans (WIG) were sulfated to convert them into water soluble glucans which were characterized by FT-IR spectral studies. The sulfation of WIG was confirmed by the presence of -O-SO_3- and C-O-SO_3- characteristic peaks at 1240 and 820 cm^{-1}. Antibacterial profile studies revealed higher growth inhibitory activity against gram negative than gram positive bacterial strains by sulfated α-(1-3)-glucans only. SDS-PAGE studies indicated that the glucosyltransferase produced by *S. mutans* has a molecular weight around 140 kDa. Antibacterial profile studies revealed higher growth inhibitory activity against gram negative than gram positive bacterial strains by sulfated α-(1-3)-glucans only. One-fold higher anti-inflammatory activity with IC_{50} value of 0.11 mg/ml was observed with sulfated α-(1-3)-glucans over WIG. Time dependent fibrinolytic potential without requirement of tissue plasminogen activators was observed for sulfated α-(1-3)-glucans.

ORAL PRESENTATIONS

[ABSTRACTS]

OP-01

HEALING ACTIVITY OF *THUNBERGIA LAURIFOLIA* ON SECOND DEGREE BURN WOUND IN RATS

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ABSTRACT

This study investigated healing activity of the supercritical CO_2 extract of *Thunbergia laurifolia* leaves on burn wound in rats. Rats were induced to second degree burn wounds and randomly divided 6 groups of treatments (6 rats/group). These rats were topically and daily applied with 2.5%, 5% and 10% *T. laurifolia* gel (TLL gel) on burn wound for 14 days. Rats treated with gel base and 1% silver sulfadiazine were used as the negative and the positive controls, respectively. Wound closure and epithelization time were monitored for 28 days after burn. Histological examinations of wound areas on day 3, 7, and 14 using haemotoxylin and eosin (H&E) for pathological study and Masson's trichrome staining for collagen content determination were also performed. Rats treated with 10% TLL gel had wound healing rate higher than untreated burned rats ($P< 0.01$). The healing rate was confirmed by histological observation using H & E staining. 10% TLL gel trated rats also increased in collagen content which indicates good regeneration of wound skin at day 3, 7, and 14 observed from histological study by Masson's trichrome. The results from this study suggest that the supercritical CO_2 extraction of *T. laurifolia* leaves may promote the recovery of wound skin by stimulating fibroblasts proliferation and migration to wound area and thus increasing the collagen content.

OP-02

EFFECTS OF AROMATASE INHIBITOR (FADROZOLE) INDUCED SEX-REVERSAL IN CHICKEN (GIMMIZAH STRAIN) ON MORPHOLOGY

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ABSTRACT

Aromatase inhibitors administered before sexual differentiation of the gonads can induce sex reversal in female chickens (phenotypic male). To analyze the process of sex reversal, we have followed for several months the changes induced by Fadrozole, a nonsteroidal aromatase inhibitor on morphology of female sex reversed and female sex reversed supplemented with L-tyrosine which was previously shown to stimulate release of Gn Rh (Steven., 1986). Fadrozole (1mg/egg) was injected into eggs on day four of incubation, phenotypic males and phenotypic males treated with L- tyrosine and males hatched from eggs injected Fadrozole were sacrificed by slaughtering at 16 weeks old and the remaining chicks were sacrificed at 28 weeks old. Both sexes from control chickens were sacrificed at the same age (16 &28 weeks). Hatchability, behavior, body weight, shank length, comb weight, testes weight, blood cells count and wattle weight of sex reversal were tested at 16 and 28 weeks. The results showed that body weight, comb weight, wattles weight and shank length of sex-reversed females were significantly different from control female. Behavior of phenotypic males and phenotypic males fed on L-tyrosine showed aggressive sexual behavior like that of control males and absence of laying

behavior. In conclusion our results confirm that Fedrazole injection in eggs before sex differentiation produce a male behavior and morphological index of male in female chicken.

OP-03

INHIBITORY EFFECTS OF *CASSIA* OIL FROM THE LEAVES OF *CINNAMOMUM CASSIA* AND CINNAMALDEHYDE ON LIPOPOLYSACCHARIDE-STIMULATED MURINE MACROPHAGE J774A.1 CELLS

Chinjarernpan Pannee[1*], Itthipanichpong Chandhanee[2], Limpanasithikul Wacharee[2]
[1]Interdisciplinary Program in Pharmacology, Graduate School, Chulalongkorn University, Bangkok, 10330, Thailand
[2]Department of Pharmacology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, 10330
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ABSTRACT

This study aimed to investigate and compare the effects of *cassia* leaf oil (CO) and cinnamaldehyde (CIN) on lipopolysaccharide (LPS)-activated J774A.1 cells. Volatile compositions in *cassia* leaf oil were identified by gas chromatography-mass spectrometry (MS)/MS. Effects of CO and CIN on LPS-activated J774A.1 cells were investigated by determining the production of tumor necrosis factor (TNF)-α and interleukin (IL)-10 using ELISA. The phagocytic activity was determined by zymosan-nitroblue tetrazolium reduction assay. The expression of anti-inflammatory cytokines and iron exporter ferroportin1 (Fpn1) was evaluated by reverse transcription-polymerase chain reaction. The main component of CO was cinnamaldehyde (78.35%). CO and CIN at 1–20 μg/ml markedly inhibited TNF-α production in LPS-activated J774A.1 cells. They markedly inhibited the phagocytic activity at both 10 and 20 μg/ml. In the opposite way, they up-regulated mRNA expression and production of anti-inflammatory cytokines IL-10 and transforming growth factor (TGF)-β in LPS-activated cells. In addition, they promoted the expression of Fpn1. These results demonstrated that inhibitory effects of *cassia* leaf oil from *C. cassia* mainly came from cinnamaldehyde. This compound not only inhibited inflammatory mediators but also activated anti-inflammatory mediators in LPS-activated J774A.1 cells. It may also have an effect on iron regulatory proteins in activated macrophages.

OP-04

ADVANCES IN EVALUATION AND FORMULATION STRATEGIES OF RAPIDLY DISINTEGRATING TABLETS

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GEA-NUS Pharmaceutical Processing Research Laboratory,
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ABSTRACT

Rapidly disintegrating tablet (RDT) is an oral solid dosage form which disintegrates or disperses instantly upon wetting with saliva in the buccal cavity and can be ingested without the need of water. Market studies have indicated that more than half of patients studied prefer RDTs to other dosage forms. One of the most important evaluation criteria of RDT is its disintegration time. However, no specific pharmacopeial apparatus has been identified for determining the short disintegration time of RDT. In our study, a combined computational and experimental approach was used to develop visiometric RDT disintegration apparatus which further evaluated RDT disintegration. The designed disintegration apparatus together with the developed visualisation method enabled efficient and precise determination of the very short

disintegration times of RDTs. Considering the formulation perspective, one of the challenges faced in RDT formulation is to identify the efficient use of disintegrant(s), especially when RDT is manufactured by compression methods. Understanding the disintegration mechanisms of currently available disintegrants could help in optimising RDT formulations by bringing about rapid matrix break-up. To achieve this objective, high-speed video imaging was used to visualise and elucidate the mechanisms of action of disintegrants when incorporated into compacts and as free disintegrant particles. The results from this visualisation study provided an in-depth understanding of the disintegrant behaviour of free and compacted disintegrant particles upon wetting. The mechanisms of swelling, capillary action, disruption of particle-particle bonds and strain recovery were successfully monitored. Based upon this visualisation study, four disintegrants were selected and Quality by design (QbD) paradigm was implemented to investigate possible synergistic behavior of disintegrants and select disintegrants at particular concentrations for optimal RDT formulation. The study demonstrated that the RDTs with desired disintegration times and hardness can be formulated with a larger area of design space by combining disintegrants at difference compression pressures. In summary, findings of the complete study expanded the understanding of the evaluation and formulation strategies of RDTs.

OP-05

ROLE OF OXIDATIVE STRESS AND NITRIC OXIDE IN THE PROTECTIVE EFFECTS OF SIMVASTATINE AGAINST ISONIAZID-RIFAMPICIN-INDUCED HEPATOTOXICITY IN RATS

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ABSTRACT

Despite the great efficacy of isoniazid (INH) and rifampicine (RIF) combination in the treatment of tuberculosis, hepatotoxicity is the most common serious complication. The potential protective effect of simvastatin (sim) against combination-induced hepatotoxicity was investigated in the present study. The administration of INH-RIF combination (50mg/kg each for 14 days) resulted in an a significant increased activities of serum alanine and aspartate aminotransferases, such effects were further supported by histopathological studies. INH-RIF combination produced a significant increase in liver lipid, decreased SOD and CAT, and a significant depletion of GSH level. Additionally, treatment with INH-RIF combination resulted in a significant increase in liver MPO activity. The lipid lowering drug, Sim demonstrated in the current study an evident antioxidant action, such effect was mediated via decreasing the elevated MDA, MPO and restoring liver CAT activity. Additionally Sim restored liver NO level to near basal valueFurthermore, one cannot rule out the lipid-lowering effect of Sim that would probably add to its beneficial hepatoprotective antioxidant activity, where Sim decreased the elevated cholesterol, TGs and LDL cholesterol level and increased the serum HDL cholesterol level.

OP-06

PHARMACOECONOMIC EVALUATION OF ORGANOPHOSPHOROUS POISONED PATIENTS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Organophosphate poisoning (OPP) is a major challenging public-health problem in developing countries. The objective of the study is to analyze the treatment costs from provider's point of view, and it will attempt to estimate the economic burden of OPP in developing countries. Data of OPP patients were collected from medical record section of the tertiary care hospital from south India. .Multiple linear regression was used to find the factors associated with total cost of hospitalization of OPP. A significant variance in log mean treatment costs was observed in different parameters like pseudo cholinesterase levels, type of poison consumed, anticholinergic administered and incidence of intermediate syndrome. A high mean cost was observed in patients with a pseudo cholinesterase level of less than 2000 and those who consumed WHO class Ib pesticide. A cost difference of INR 25,000 was noted in patients who developed intermediate syndrome. For every one-unit increase in pre-hospitalization period, APACHE II score and length of hospital stay, the log cost increases by INR 1.01, 1.27 and 1.5 respectively. High costs of treatment coupled with a proportionately great loss of man-days, make OPP an extremely important area for pharmacoeconomic evaluation and for framing appropriate policies for remedial measures.

OP-07

EFFECTS OF LEVETIRACETAM AS MONOTHERAPY ON BONE MINERAL DENSITY AND VITAMIN D IN PATIENTS WITH EPILEPSY

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ABSTRACT

In patients with epilepsy, chronic therapy with conventional enzyme inducing antiepileptic drugs like phenytoin, carbamazepine, primidone, phenobarbitone and benzodiazepines causes abnormalities in calcium metabolism, including hypocalcaemia, hypophosphatemia, elevated levels of serum alkaline phosphatase and reduced serum levels of biologically active vitamin D metabolites. Comparatively much less is known about the effect of new antiepileptic drug levetiracetam on bone mineral density and Vitamin D. Therefore, the purpose of our study was to find out the effects of levetiracetam monotherapy on Bone mineral density and vitamin D levels in patients with epilepsy. Our study was a prospective interventional study conducted at PGIMS, Rohtak, in which 50 patients with diagnosis of epilepsy were administered the antiepileptic drug levetiracetam. Patients were followed up for a period of one year. Baseline investigations, Hemogram, renal and liver function tests, calcium, phosphate, vitamin D and bone mineral density and T scores were noted. All investigations were repeated after one year of levetiracetam monotherapy. There was no significant change in serum calcium and Vitamin D levels over one year of levetiracetam monotherapy. There was no significant change in bone mineral density and T-score over one year of levetiracetam therapy. From the present study we conclude that levetiracetam as monotherapy does not seem to have adverse effect on bone mineral density or vitamin D levels unlike the conventional enzyme inducing antiepileptic

drugs. Our study has shown an overall beneficial effect on serum calcium, Vitamin D level, bone mineral density and T scores on DEXA scan.

OP-08

SYNTHESIS AND ANTICONVULSANT EVALUATION OF SOME NOVEL SEMICARBAZONES: FOUR SITE BINDING HYPOTHESIS STUDIES

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ABSTRACT

Epilepsy is a neurological disorder, described by paroxysmal cerebral dysrhythmia, manifested as episodes of loss or disturbance of consciousness, often followed by convulsions. About 50 million people worldwide have epilepsy, with almost 90% of these people being in developing countries. Three series of novel semicarbazones were designed and synthesized to meet structural requirements necessary to meet four site binding hypothesis for anticonvulsant activity. The search for a better anticonvulsant and the importance of semicarbazones and 2,5-disubstituted 1,3,4-thiadiazoles as anticonvulsant pharmacophore encouraged us to carry out this research work. The structures of the compounds were confirmed by IR, NMR and MS spectroscopy. The anticonvulsant evaluation was performed using maximal electroshock seizure (MES) and subcutaneous pentylenetrtrazole (scPTZ) methods. The rotarod assay was performed in mice to evaluate neurotoxicity of test compounds. The most active compound showed considerable activity in MES (at 100 mg/kg after 0.5 h and 4.0 h) and *sc*PTZ model (at 300 mg/kg after 4.0 h) without any neurotoxicity (up to 300 mg/kg after 4.0 h). The results of these studies validated that the pharmacophore model with four binding sites is crucial for antiepileptic activity.

OP-09

THE STUDY ON THE PRESCRIBING PATTERN OF *ACINETOBACTER* INFECTION IN A TERTIARY CARE HOSPITAL

Rajesh V*, Vinayak S, Deepak K , Surulivelrajan M
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E-mail: rajshtalk@gmail.com

ABSTRACT

Acinetobacter genuses of bacteria have become a challenge for every hospital with regards to its treatment and cost of therapy due to its penchant to acquire resistance. The aim of the present study was to ascertain the prescribing pattern of antibiotics in Acinetobacter infection. A cross sectional, observational, retrospective study was carried out, over a period of 6 months. The data collected was analysed to understand the pattern with respect to patient demographics, prescription patterns, co-morbidities and resistance patterns. The study results showed that male patients had greater risk for *A. baumannii* infections with an age group of 41-60 years. The length of stay of a patient of *A. baumanni* infection was 23.51±27.97 days. The bacteria were found to be resistant to almost all categories of drugs. The least prescribed antibiotic was Piperacillin – Tazobactam prescribed to 25 (42.9%) patients. Cefoperazone-sulbactam was found to have an antibiotic action against the bacterium. The study concluded that male patients were at a greater risk of A.*baumannii*infections. Length of stay of patients was on average 23.51±27.97 days. The study showed tigecycline and cefixime were the most prominently used antibiotic. The strain in this study was resistant to almost all cephalosporins except Cefoperazone-Sulbactam which had activity in 57.14% of the samples tested.

OP-10

RECEPTOR MEDIATED TARGETING DRUG DELIVERY SYSTEM FOR THE TREATMENT OF *HELICOBACTER PYLORI* INFECTIONS USING AMOXICILLIN BEARING FUCOSE CONJUGATED CHITOSAN NANOPARTICLES

R. B. Umamaheshwari[1]*, R. Murugesan[1], N. K. Jain[2]

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ABSTRACT

The aim of the present study was to develop Amoxycillin bearing (L)-fucose conjugated chitosan-glutamate nanoparticles (FCG-NP) and to characterize those formulations that recognize surface associated lectin receptors on *H. pylori*. The synthesis of chitosan-glutamate conjugate (CG) was mediated by carbodiimide whereby glutamic acid was covalently attached to chitosan. The influence of pH and weight ratio of chitosan:glutamic acid (GA) on the amount of GA bound with CG conjugates during the coupling reaction was evaluated. The CG nanoparticles (CG-NP) were prepared by a ionotropic gelation method. The (L)-fucose was fixed by a covalent procedure to CG nanoparticles by a two-stage carbodiimide method. To examine the specific binding propensity of (L)-fucose with H. pylori strain, we have performed an in situ adherence assay with CG-NP (HPC) and FCG-NP (HPF) incubated H. pylori strains. The intensity of HPF binding was much lower compared to that of the control (H. pylori alone) and of HPC. Amoxycillin (AMOX) bearing Nanoparticles were prepared by a desolvation method. The effect of initial AMOX loading on particle size, entrapment efficiency and AMOX release was studied. In addition, the antimicrobial activity of the formulations was evaluated by percent growth inhibition studies (%GI) in isolated H. pylori strain. The inhibitory efficacy of FCG-NP was approximately two-fold higher compared to CG-NP and a plain drug. The positively charged AMOX loaded nanoparticles are expected to interact with the negatively charged sialic acid and fucose residues of mucin in the stomach b electrostatic interactions and prolong the residence time. In summary, the data are a first identification that site-specific drug delivery with FCG-NP could be a promising approach in treating H. pylori infection.

OP-11

UTILIZATION OF SECOND GENERATION ANTIPSYCHOTICS IN SCHIZOPHRENIA PATIENTS

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ABSTRACT

Background: Schizophrenia is one of the most complex and challenging of psychiatric disorders globally. Studies shows that Second- generation antipsychotics (SGAs) are now preferred in place of First-generation antipsychotics. Objective: To identify the utilization pattern of atypical antipsychotics in a tertiary care teaching hospital. Methodology: All case files of in-patients with diagnosis of Schizophrenia were retrospectively reviewed from 2011 to2012. Patient demographic characteristics like age, sex, body mass index, occupation, marital status, family history, social habits, medication history of antipsychotic drugs usage, clinical characteristic and treatment pattern were collected. Data was analyzed using SPSS 20.0. Result: Second generation antipsychotics (59.1%) were the major class used among which resperidone (36.5%) received maximum prescriptions. Most prescriptions had combinations of first and second generation

antipsychotics as compared to only first generation antipsychotics. The result showed the maximum number of second generation antipsychotics was prescribed to patients in age group of 41-50 years, whereas first generation antipsychotics were prescribed to patients in age group of 31-40 years and combination prescribed in age group 21-30 years. Conclusion: Maximum usage of SGAs in middle age group patients with respiridone as the preferred drug was observed in our study population.

OP-12

ASSESSMENT OF VALIDITY OF AN INDICATOR MODULE IN IDENTIFICATION OF ADVERSE DRUG EVENTS IN PATIENTS OF MEDICINE DEPARTMENT

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ABSTRACT

An indicator is a clue that helps a health care organization to identify adverse drug events and assess the overall harm that occurs from medical care within that organization. The main aim of the study was to investigate use of an indicator list for identification of adverse events in the health care setting studied. The study was a prospective observational study in a tertiary care teaching hospital. The study mainly involves the review of medical records of patients in general medicine department who were admitted due to drug related problems with the help of trigger tool. A total of 275 patients were included in the study for case review as per the study criteria. Out of 275 patients, 150 patients had at least one indicator (55%) and detection of adverse events was about 19.2%. Ratio of actual adverse event detected to the presence of indicators was calculated as true positives. The average true positive value of indictors was 33%. Average number of indicators present per patient was determined to be 3.82. The present study showed that indicator tool could be used to review the cases prospectively and identify adverse events. The identified indicators helped to identify the pattern and frequency of adverse events.

OP-13

SYNTHESIS, CHARACTERIZATION, CHEMICAL HYDROLYSIS AND PHARMACODYNAMIC PROFILES OF POTENTIAL NOVEL MUTUAL PRODRUGS OF 2-ACETOXYBENZOIC ACID

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ABSTRACT

Aspirin (2-acetoxybenzoic acid) has been conjugated with propyphenazone (1,2-Dihydro-1,5-dimethyl-4-(1-methylethyl)-2-phenylpyrazol-3-one) by direct coupling and by using spacer technique (amino acid was taken as a spacer) with the objective of obtaining Aspirin-propyphenazone mutual prodrugs as safer nonsteroidal anti-inflammatory drugs (NSAIDs) devoid of ulcerogenic side effects. The structures of synthesized prodrugs were confirmed by IR, ^{1}H NMR, ^{13}C NMR, mass spectroscopy (MS) and their purity was ascertained by TLC and elemental analysis. In vitro hydrolysis was carried out in non-enzymatic simulated gastric fluid (SGF, pH 1.2) and simulated intestinal fluid (SIF, pH 7.4). The results showed that the drug release from prodrugs was comparatively higher at pH 7.4 indicating that drug release should take place predominantly at the alkaline condition rather than at acidic one. The synthesized derivatives were screened for analgesic, anti-inflammatory and ulcerogenic activity. The

percentage anti-inflammatory activity of aspirin was found as 42.86 % where as an improved value of 60.57 % and 52.57 % were obtained for AP_1 and AP_2 mutual prodrugs respectively at the end of 6th h. Both prodrugs showed improved analgesia and reduced ulcerogenicity than aspirin, thereby proving to be better in action than parent drug.

OP-14

EFFECT OF GERANIOL ON THE TRANSGENIC *DROSOPHILA* MODEL OF PARKINSON'S DISEASE

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ABSTRACT

The role of Geraniol was studied on the transgenic *Drosophila* model flies expressing normal human alpha synuclein (h-αS) in the neurons. Geraniol at final concentration of 10, 20 and 40 µM was mixed with the diet and the flies were allowed to feed on it for 24 days. The effect of geraniol was studied on the climbing ability, activity pattern, lipid peroxidation, protein carbonyl, glutathione, dopamine content, and glutathione-S-transferase activity in the brains of transgenic *Drosophila*. The exposure of PD model flies to 10, 20 and 40 µM of geraniol results in a significant delay in the loss of climbing ability ($p<0.05$), improved activity pattern reduced the oxidative stress ($p<0.05$) in the brains of transgenic *Drosophila* as compared to unexposed PD model flies. The results suggest that geraniol is potent in reducing the PD symptoms in transgenic *Drosophila* model of Parkinson's disease.

OP-15

RS 102895 ATTENUATES MECAMYLAMINE PRECIPITATED NICOTINE WITHDRAWAL SYNDROME IN MICE

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ABSTRACT

Nicotinic acetylcholine receptor activation linked chemokine stimulation is reported to mediate certain effects produced by prolonged nicotine exposure. The present study investigates the effect of RS 102895, selective inhibitors of CC chemokine receptor 2 on propagation of nicotine dependence and resultant withdrawal signs *in vivo*. Our experimental protocol consisted of administration of nicotine, (2.5 mg/kg, subcutaneously), four times daily for 7 days. In order to precipitate nicotine withdrawal, mice were given one injection of mecamylamine (3 mg/kg, intraperitoneally), 1 h after the last nicotine injection on the test day (day 8). Behavioral observations were made for a period of 30 min immediately after mecamylamine treatment. Withdrawal syndrome was quantitated in terms of a composite withdrawal severity score, jumping frequency, piloerection, tremors and withdrawal syndrome related anxiety was assessed by elevated plus maze test results and hyperalgesia using tail flick test. RS 102895 markedly and dose dependently ($p<0.01$) attenuated mecamylamine induced experimental nicotine withdrawal syndrome in mice measured in terms of jumping frequency, piloerection, tremors, withdrawal severity score, anxiety score and hyperalgesia. Thus, it is suggested that CC chemokine receptor 2 activation may serve as a viable pharmacological target to tackle the problem of nicotine addiction.

OP-16

EFFECT OF *CENTELLA ASIATICA* (LINN) FRESH LEAF EXTRACT ON DENDRITIC MORPHOLOGY OF HIPPOCAMPAL CA1 NEURONS OF RAT NEONATES

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ABSTRACT

Introduction: *Centella asiatica* (CeA) is a creeper growing in moist places in India and other Asian countries. Leaves of CeA are used for memory enhancement in Ayurvedic system of medicine, an alternative system of medicine with its origins in India. In the present study, we investigated the role of CeA fresh leaf extract treatment on dendritic morphology hippocampal CA1 neurons; a region associated with learning and memory. Methods: Seven day old neonatal rat pups (n=6) were fed with 6 ml/day/ kg body weight of fresh leaf extract of CeA for 6 weeks. After the treatment period, the rats were killed, their brains removed and the hippocampal neurons impregnated with silver nitrate (Golgi staining). Hippocampal CA1 neurons were traced using camera lucida, and dendritic branching points (a measure of dendritic arborization) and intersections (a measure of dendritic length) were quantified. These data were compared with data of age-matched saline control rats (SC) which were fed with 6 ml/day/ kg body weight of normal saline for 6 weeks (n=6) and normal control rats (NC) which remained undisturbed in home cage for 6 weeks (n=6). Results: The results showed a significant increase in the dendritic length ($P<0.001$) and dendritic branching points ($P<0.001$) in both apical and basal dendrites of hippocampal CA1 neurons of rats treated with CeA fresh leaf extract when compared to that of NC group. However, there was no significant difference in the CA1 neuronal dendritic arborisation between NC and SC groups. Conclusions: CeA fresh leaf extract has hippocampal CA1 neuronal dendritic growth stimulating property; hence, the use of this extract can be considered for improving dendritic arborisation in stress, neurodegenerative and memory disorders.

OP-17

PROTECTIVE EFFECT OF NO MODULATORS IN CISPLATIN INDUCED NEPHROTOXICITY

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ABSTRACT

The aim and objective of our studies was to evaluate protective effect of NO modulators in Cisplatin induced renal injury in rats. Nephrotoxicity was induced in both male and female rats by intraperitoneal (i.p) injection of single dose of Cisplatin (7 mg/kg). The animals were divided into eight groups. Molsidomine and Aminoguinidine at dose of 4mg/kg and 100mg/kg and their combination with alpha Tocopherol were administered to different groups orally. At the end of 15 day blood was collected under chloroform anesthesia, centrifuged, and serum was separated out to evaluate various biochemical parameters. Finally the animal was sacrificed and kidney was removed and homogenized to evaluate Nitrosative and oxidative parameters significant improvement in biochemical parameters were observed in Nephrotoxic rats treated with Aminoguinidine alone and combination of aminoguinidine with alpha tocopherol respectively. Combination of Molsidomine with alpha tocopherol has shown significant results as compared to animals treated with Molsidomine alone. It may suggest the effect of combination may be due to antioxidant property of the alpha tocopherol.

OP-18

ANTICANCER ACTIVITY OF *LUFFA ACUTANGULA* ON HUMAN CANCER CELL LINES

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ABSTRACT

Cancer is a growing public problem whose estimated worldwide new incidence is about 6 million cases per year. It is the second major cause of deaths after cardiovascular diseases. For many years, the cytotoxic actions of the chemotherapeutic drugs were ascribed solely to their ability to induce genotoxic death. Therefore, there is an urgent need to develop alternative therapeutic measures such as use of biological and natural products against this deadly disease. Cancer chemoprevention with strategies using foods and medicinal herbs containing antioxidant micronutrients has been regarded as one of the most visible fields for cancer control One such plant, *Luffa acutangula,* (Family: Cucurbitaceae), commonly known as Ridge gourd and tiroi, is a large monoecious, annual climber, found wild and also cultivated throughout the greater parts of India. It contains crystalline bitter principle similar to cucurbitacin B, luffin, and colocynthin. Seeds show presence of saturated and unsaturated fatty acid palmatic, stearic, oleic, linoleic and traces of lignoceric acid while fruits contain cucurbitacin B, E and oleanalic acid. The ancient literature also revealed that the plant is significantly used as abortifacient and antifungal agent. Antioxidant activity of *Luffa acutangula* has been reported and leaf extracts of *Luffa acutangula* exhibits high antiproliferative activity against various cell line as determined with MTT assay. In context with the important phytochemical and therapeutic findings, it was considered worthwhile to assess the anticancer properties of fruit extract of *Luffa acutangula* against human neuronal glioblastoma cells (U343) and human lung cancer cells (A549) by using the *in-vitro* screening models such as brine shrimp lethality bioassay, MTT assay and SRB assay. Our study revealed that aqueous extract significantly reduces cancer cell growth *in vitro*. In preliminary cytotoxic screening, considerable cell death was observed in the brine shrimp lethality bioassay. Particularly aqueous and alcoholic extracts at higher dose showed promising cytotoxicity in brine shrimp which gives preliminaryinformation about toxic nature of compounds in rapidly multiplying cells, and supports their cytotoxic nature. The cytotoxic potency of the extracts is further confirmed by MTT and SRB assay using two cancer cell lines. Result concluded that Aminoguinidine NOS inhibitor can be the treatment strategy for the renal injury in future. It further concluded that the combination of Aminoguinidine with alpha tocopherol act synergistically in treating Nephrotoxicity.

OP-19

MECHANISTIC APPROACH OF EVALUATION OF ANTI-DIABETIC ACTIVITY OF *COCOS NUCIFERA* IN COMBINATION WITH METFORMIN

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ABSTRACT

Background: *Cocos nucifera* L. inflorescence contains amino acids, tannins, sugars, phenolic compounds. Amino acids have potential to rejuvenate β cells of islets of Langerhans. In Type 1 Diabetes mellitus (IDDM), due to auto-immune condition, these cells are destroyed by the body and the ability to produce insulin is lost overtime. Objective: The present study was done with an objective to evaluate anti-diabetic potential of *Cocos nucifera* L. inflorescence extract alone

and in combination with Metformin, an established marketed drug. Materials and Method: In the present study, Type 1 Diabetes mellitus (IDDM) was induced in Wistar rats using a single dose of Streptozotocin (45mg/kg i.p). The treatment groups comprised of Ethanolic extract of inflorescence of Cocos *nucifera* 250 mg/kg and 500mg/kg; and the two doses in combination with 22.5mg/kg Metformin. The extract was checked for *In-vitro* α-glucosidase inhibitory activity in comparison with acarbose as standard. Biochemical analysis of lipid profile, kidney profile, plasma glucose and Oral Glucose Tolerance Test (OGTT) was performed. Histopathological studies were done on pancreatic tissue samples. Results: IC_{50} of the extract for β-glucosidase inhibitory activity was found to be 560ppm. Extract of *Cocos nucifera* L. inflorescence (250 mg/kg amd 500mg/kg alone and in combination with extract (250 mg/kg) along with metformin (50mg/kg and 25 mg/kg) significantly decreased ($p<0.001$) PGL. There was observed a significant decrease in triglyceride, creatinine and BUN plasma levels. Histopathological studies revealed that the treatment of extract in combination with Metformin was able to regenerate the cells in islets of Langerhans in STZ induced pancreatic cytotoxicity. Conclusion: The extract of *Cocos nucifera* L. inflorescence exhibits anti-diabetic activity through α-glucosidase inhibition. It can be concluded that combination therapy produced a greater anti-antdiabetic effect which could be an effective and alternate way to reduce the dose of synthetic drug and thereby its side effects.

OP-20

MODULATORY EFFECT OF MELATONIN AND CYANOCOBALAMINE IN ALUMINIUM CHLORIDE INDUCED DEMENTIA IN RATS

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ABSTRACT

Nitric Oxide is a unique biological messenger molecule and neurotransmitter in the brain. NO signaling is essential for the normal physiological function in the CNS, including learning and memory. However this NO mediated signaling pathway is compromised in many disease states including neurodegenerative disorders like Alzheimer's disease (AD). The aim of present study was to evaluate the protective effect of melatonin and cyanocobalamin in AlCl3 induced dementia in rats. In the present study dementia was induced by aluminium chloride at a dose of 17 mg/kg, p.o. The demented rats were treated with melatonin and cyanocobalamin alone for a period of 30 days. Donezepil was used as a standard drug. At the end of treatment period various behavioral models (morris water maze & elevated plus maze) were used for evaluation of memory of the treated rats. The brain level of nitrates, calcium, total protein and LDH were estimated to evaluate the protective effect of the treatment. The brain level of lipid peroxidation and antioxidant enzymes (reduced glutathione, superoxide dismutase and catalase) were estimated to evaluate the role of oxidative stress in dementia. The level of acetylcholinesterase, glutamate and serotonin was also estimated to see the effect of the treatment on brain neurotransmitter level. Histopathology of brain was also done to confirm any damage or necrotic changes in brain of demented rats. Administration of melatonin and cyanocobalamin caused significant decrease in escape latency time and transfer latency showing improvement of memory in demented rats. Treatment of the demented rats with melatonin and cyanocobalamin caused significant improvement in the level of Ach and total protein and decreased the level of nitrates, calcium and LDH. The level of malondialdehyde and antioxidant enzymes was also restored to the normal level in demented rats. Histopathology reports also indicate that the treatment protected neurones from degeneration in dementia. Results concluded that both

antioxidants melatonin and cyanocobalamin caused significant improvement in the memory of demented rats and hence can be used as adjuvant therapy for the treatment of dementia.

OP-21

IN-SILICO ANALOG GENERATION OF TOXIC PLANT METABOLITES AND THEIR DOCKING STUDIES AGAINST MAJOR PROTEINS INVOLVED IN ENCEPHALITIS

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ABSTRACT

Plants and their metabolites have been known to be the major component of Ayurvedic drug formulations. Besides this traditional home remedies involve usage of plants and their parts which provide a direct source of plant metabolites. Although plants are indispensible for life but many plants metabolites are known to be toxic not only to humans but also animals. This is a novel research whereby using publicly available software tools like ChemSketch various analogs of plant toxic metabolites were prepared. Only those analogs that showed no toxicity against human proteins were further considered for our study. The most virulent proteins of Encephalitis virus which do not have homology with human self proteins were discovered using HLAPred server. Docking studies against these virulent proteins were performed using iGemDock. Results have shown good docking with five mono and di analogs of plant toxins. This research highlights the use of analogs of plant toxic metabolites with reduced or no toxicity against major virulent proteins of Encephalitis. This kind of study can be extended towards controlling other pathogens and their virulent proteins. This *in-silico* work which can reduce constraints of money and time to a large extent both for pharmaceutical and drug industry and hence is a boon for the coming generations.

OP-22

SYNTHESIS, CHARACTERIZATION AND ANTIBACTERIAL STUDY OF MACROCYCLIC METAL COMPLEXES DERIVED FROM MALONIC DIHYDRAZIDE AND 5-CHLOROISATIN

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ABSTRACT

A new macrocyclic ligand was prepared by refluxing malonic dihydrazide and 5-chloroisatin in methanolic medium and formulated as: $C_{11}H_8N_5O_2Cl$. The complexes were synthesized by template condensation of 5-chloroisatin and malonic dihydrazide in methanolic medium in the presence of divalent cobalt, nickel, copper, zinc salts and may be represented by formula: $[M(C_{11}H_8N_5O_2Cl)X_2]$, where M = Co(II), Ni(II), Cu(II), Zn(II) and X = Cl^-, NO^{3-}, CH_3COO^-. The complexes were characterized with the help of various physico-chemical techniques like IR, NMR, elemental analyses, electronic spectra, conductance and magnetic susceptibilities. Based on these studies, a six coordinate octahedral geometry is proposed for divalent metal complexes. The invitro antimicrobial activities of these macrocyclic complexes have also been investigated against bacterial strain *Bacillus cereus (MTCC 1272), Salmonella typhi (MTCC 733), Escherichia coli (MTCC 739)* and *Staphylococcus aureus (MTCC 1144)*. Minimum inhibitory concentration shown by these complexes against these pathogens was compared with MIC shown by standard antibiotic drugs. Some of the complexes showed good antibacterial activity.

OP-23

ANTIMICROBIAL AND SPECTROSCOPIC STUDIES OF MACROCYCLIC DIVALENT METAL COMPLEX DERIVED FROM BENZYL DIHYDRAZONE & DIKETONES (ISATIN & 3 METHYL 2,4 PENTANEDIONE)

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ABSTRACT

A new series of macrocyclic metal complexes have been synthesized by the template condensation reaction of benzyl dihydrazone and isatin & 3 methyl 2,4 pentanedione resulting into the formation of complexes of type :$[M(C_{44}H_{30}N_{10})X_2]$ and $[M(C_{40}H_{40}N_8)X_2]$respectively; where M= Cu(II),Fe(II),Ni(II),Mn(II) and $X=SO_4^{2-}$,Cl^-. The synthesized complexes have been characterized with the aid of elemental analysis, molar conductivity, FT-Infrared spectroscopy, UV spectroscopy, fluorescence, mass spectral studies. The low value of molar conductance indicates them to be non electrolyte. The invitro antimicrobial activities of these macrocyclic complexes have also been investigated against bacterial strain *Bacillus cereus (MTCC 1272), Salmonella typhi (MTCC 733), Escherichia coli (MTCC 739)* and *Staphylococcus aureus (MTCC 1144)*. Minimum inhibitory concentration shown by these complexes against these pathogens was compared with MIC shown by standard antibiotic drugs.

POSTER PRESENTATIONS
PHARMACEUTICS [PC]
[ABSTRACTS]

PC-01

FABRICATION OF PHBV BASED POLYMERIC NANOPARTICLES TO ENCAPSULATE AN ANTINEOPLASTIC DRUG FOR CANCER THERAPY

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ABSTRACT

In the present research an attempt was made to develop a novel nanotherapeutic system that will encapsulate as well as protect the selected antineoplastic drug against premature degradation and make it effective at low concentration to target cancerous site without being toxic to healthy tissues. To meet the above requirement, we employed biodegradable, biocompatible and non-toxic natural polyester Polyhydroxybutyrate-co-hydroxyvalerate (PHBV) with Poloxomer 127 and polyvinyl alcohol. The PHBV having merits of being produced with low cost biotechnological production using bacterial fermentation technique. This makes it more attractive alternative for large scale pharmaceutical production. Different PHBV nanoparticles were prepared using the emulsion solvent evaporation technique. Physicochemical characteristics such as morphology, particle size and surface charge of blank and drug loaded nanoparticles were studied. Thus, the novel amphiphilic drug carrier of hydrophobic antineoplastic drug was developed which shown great potential to increase the bioavailability at tumor site.

PC-02

PREPARATION AND EVALUATION OF EFFICIENCY OF HYDROPHILIC POLYMER BLEND IN MASKING THE BITTER TASTE OF CHLORPHENIRAMINE MALEATE

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ABSTRACT

The aim of this research is to evaluate the efficiency of hydrophilic polymer Blend in masking the bitter taste of chlorpheniramine maleate with the combination of polymers like SCMC, HPMC and sodium alginate through the preparation of microbeads. Encapsulation was the basic technique used for the taste masking. Microbeads were characterized by particle size analysis, SEM studies, IR spectrophotometry and in vitro release studies. SEM and IR studies indicated that microbeads were spherical, free flowing and there was no significant interaction between drug and polymer .The percentage yield was found to be in the range of 50 %to 72% indicated good yield of microbeads. It was observed that the combination of SCMC: SA in the ratio of 1:2 was able to completely overcome the bitter taste of chlorpheniramine maleate. So it confirms that the hydrophilic polymer blend may be used for the masking of bitter taste of chlorpheniramine maleate.

PC-03

DEVELOPMENT OF BIO-NANOPARTICLES LOADED WITH ANTIEPILEPTIC DRUGS FOR BRAIN TARGETING VIA EAR BY USING NOVEL BIO-POLYMER

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ABSTRACT

The researches investigates the feasibility of delivering drugs to brain via ear, and provides a novel route for delivering drugs to the brain tissues. Ear is an excellent platform for administering dug loaded bio-nanoparticles for brain targeting and it shows great potential and offers a promising alternative to brain-targeted drug delivery. In present time biopolymer has attracted and concentrated on its use for novel drug delivery and utilization of drug. A number of biopolymers have been isolated by N.V. Satheesh Madhav for drug delivery system. I have isolated the biopolymers from natural sources like *Faba Vulgaris, Cicer Arietinum, Zea mays, Pistachio nuts seeds, Juglans regia, Fragaria ananassa , Cestrum nocturnum , Calendula Officinalis, Phyllanthus emblica* by using their different parts like seeds, flower, fruits etc. with different solvents. The studies have revealed that biopolymers showed their inbuilt retardability and

stability property which was confirmed by suitably formulating drug loaded dosage forms. The conclusion was drawn that bio-material having all the above described and evaluated properties possess potent inbuilt properties and it can serve as a bio-excipient for formulating various dosage forms.The prepared bio-nanoparticle may be used for the brain drug targeting via ear.

PC-04

OPTIMIZATION AND CHARACTERIZATION OF POLYMERIC NANOPARTICLES OF CATECHIN HYDRATE FOR NEURODEGENERATIVE DISEASE

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ABSTRACT

Catechin hydrate, an important natural phenol derived as plants secondary metabolite, has gained considerable attention due to their potential therapeutic activity like antioxidative and anti-inflammatory properties. Recent researches have demonstrated their immense role in prevention and treatment of diseases caused due to oxidative damage and their various biological effect including cardio protective, neuroprotective and anti-cancer effects. Oxidative stress and damage to brain macromolecules is one of the key pathophysiological mechanisms in neurodegenerative disorders. Owing to high antioxidant activity of polyphenols, it is believed to provide protection to various neurodegenerative disorders. Catechins, being one of the widely studied polyphenols, possibly exert their antioxidant activity by chelating metal ions such as copper (II) and iron (II), and thereby preventing generation of free radicals. However, their therapeutic action is limited by their low oral bioavailability, poor stability and intestinal absorption, therefore, there rises a need for development of a targeted nanoparticle based carrier system which can overcome its physiochemical limitations and enhance its biological activity as well. The objective of the present study was to formulate nanoparticle based formulation by ionic gelation method and analyze the effects of various process variables on encapsulation efficiency of the Catechin hydrate. Further, characterization of the developed chitosan nanoparticles by particle size analysis, scanning electron microscopy (SEM) and transmission electron microscopy (TEM) studies were done, confirming the nanometric size range of nanoparticles below 200 nm with spherical morphology. The FTIR spectral studies indicated that there was no interaction between the drug and polymers used and various rheological parameters indicated a good stability of the nanoparticle formulation. *In-vitro* release kinetic of optimized Catechin hydrate nanoparticles showed sustained release till 24 hours.

PC-05

DEVELOPMENT OF HYDROPHOBIC STRUCTURED PMMA (POLYMETHYLMETHACRYLATE) FILMS BY ASSISTED MICROWAVE METHOD FOR ENHANCING BACTERIAL ANTI ADHESION

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ABSTRACT

A novel, non ionizing method for the films were used to develop micro/nanostructures structures using microwave treatment. In this method 1X1Cm^2 prepared films (GF_1, GF_2), standard film (SF) were placed in a microwave oven and exposed for non ionizing electromagnetic radiations at predetermine intervals like 1, 3, 5, 10, 15, 20mins. After treatment bacterial anti-adhesion on films were determine by film method. When films were subjected for 1min radiation then there was significant change in the contact angle were observed in films (GF_1, GF_2) in compared to untreated films which clearly indicates the presence of micro/nanostructures with improved hydrophobicity. Further increase in the exposure time to 3, 5, 10mins does not showed drastic variation in the contact angle in compared to control films. When the films were exposed to 15mins to 20mins the integrity of the films was lost and its contact angle was not determined due to its physical change of the films. The structured film showed that contact angle of the films was modified to 4.3^0 upon exposure time to 1min with

improved topography and retardation in microbial growth was observed due to significant improvement in anti-adhesivity of the film and improved hydrophobicity.

PC-06

FORMULATION AND EVALUATION OF TRIPLE LAYERED BUCCAL FILMS OF ATENOLOL AND NIFEDIPINE FOR THE CONTROL OF HYPERTENSION

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ABSTRACT

The triple layer mucoadhesive film was fabricated with objective of avoiding first pass metabolism and prolonging duration of action of nifedipine drug. Atenolol was used in combination with nifedipine to provide antihypertensive effect at a low dose combination and eliminate dose related side effects. The Polymers used in the formulation were Hydroxy propyl methyl cellulose (HPMC E15), Polyvinyl alcohol (PVA), Chitosan and Polyvinyl pyrrolidone K-30 (PVP K-30). These formulations were characterized for physiochemical parameters, *in-vitro* bioadhesive strength, swelling index, *in-vitro* drug release, and *in-vitro* drug permeation. The modified physical balance assembly was used to measure the bioadhesive strength of buccal film with fresh goat buccal mucosa as a model tissue. Incorporation of PVP K-30 and PVA improved the film characteristics with positive effect on swelling, drug release and bioadhesive strength at increased concentration. PVA was used to attach the other two layers containing nifedipine and atenolol drugs. These films were formulated in such a way that the release of atenolol drug was immediate and nifedipine drug was sustained. FTIR and UV spectroscopic methods revealed that there was no interaction between drug and polymers.

PC-07

FOLATE CONJUGATES DOUBLE LIPOSOMES FOR DUAL TARGETING FOR THE EFFECTIVE MANAGEMENT OF RHEUMATOID ARTHRITIS

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ABSTRACT

The objective of this is aimed to explore the rheumatoid arthritis targeting potential of folate conjugated double liposome for encapsulation of two drugs in a single drug delivery system. Double liposomes due to unique construction (ability to encapsulate two drugs in different parts) can be a choice in this context. Double liposome preparation involve two steps, first formation of inner liposome by thin layer hydration and the addition of suspension of inner liposome on thin film of lipid. The folate conjugated double liposomes were synthesized and characterize by FTIR spectroscopy. Monotherapy is generally not recommended for treatment of *rheumatoid arthritis* due to the danger of development of resistance, unacceptably low eradication rates and single drug not provides benefits to relieve in disease. Therefore combination therapy with prednisolone (PL) as anti-inflammatory agent and methotrexate (MTX) as disease modifying anti rheumatoid agent (DMARA) were selected for the study with an expectation that this dual-drug delivery approach could exert anti rheumatoid arthritis activity. Double liposomes system solves several shortcomings of conventional liposomes such as low entrapment efficiency, stability and release of drug after single breach of external membrane. Ligand-mediated targeting of drugs especially in antirheumatic drug delivery is an effective approach.

PC-08

STUDIES ON DISSOLUTION ENHANCEMENT OF DRUG RELEASE OF A POORLY WATER-SOLUBLE DRUG USING CYCLODEXTRIN AS A WATER-SOLUBLE CARRIERS

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ABSTRACT

Cyclodextrin are useful functional excipient, which are being used in an ever-increasing way to camouflage undesirable pharmaceutical characteristics especially poor aqueous solubility. It has generally been assumed that mechanism where cyclodextrin exert their effects, especially their augmentation of solubility is via the formation of non-covalent dynamic inclusion complexes. The aim of this study was to prepare and characterization of atenolol- cyclodextrin complex. Atenolol is widely use as anti-hypertensive drug (beta blocker) it oral bioavailability is 46-60% such low bioavailability has been attributed to low aqueous solubility of atenolol. To increase its aqueous solubility two different type of cyclodextrins (CDs): beta Cyclodextrin (BCD) and hydroxy-propyl beta cyclodextrin (HPBCD) were used. Solubility depends on the type of CDs, increased solubility were obtained. When the more substituted CDs (HPBCD) were used instead of non-substituted cyclodextrin. Solid-ATN-CDs complex were prepared by kneeded and freeze-dried methods these complex were compared with physical mixture of ATN-CDs. The characterization of these complexes was made by Differential scanning calorimeter (DSC), FTIR, NMR, SEM and drug release studies. Drug release studies shows that freeze dried inclusion complex increase the solubility rate of ATN. A bioavailability studies on albino wister rates was done with a formulation of ATN-BCD and ATN-HPBCD was compared with conventional ATN tablets.

PC-09

FORMULATION AND EVALUATION TRANSDERMAL EFFICACY ASSESSMENT OF ETODOLAC NANOEMULSION

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ABSTRACT

The aim of the present study was to investigate the potential of a nanoemulsion formulation for transdermal delivery of Etodolac. Nanoemulsions were prepared by the spontaneous emulsification method. The nanoemulsion area was identified by constructing pseudoternary phase diagrams. The prepared nanoemulsions were subjected to different thermodynamic stability tests. The nanoemulsion formulations that passed thermodynamic stability tests were characterized for viscosity, droplet size, transmission electron microscopy, and refractive index. Topical permeation of etodolac was determined by Franz diffusion cell. the best formulations were incorporated in MC and HPMC gel bases for studying the release behaviour in comparing with conventional etodolac gel. A significant increase in permeability was observed in optimized nanoemulsion formulation NE4 which contained lemon oil (30% wt/wt), Tween 20 (40% wt/wt) and distilled water (30% wt/wt) The anti-inflammatory effects of formulation showed a significant increase percent inhibition value after 24 hours when compared with etodolac conventional gel and nanoemulsion gel. These results suggested that nanoemulsions are potential vehicles for improved transdermal delivery of etodolac.

PC-10

DEVELOPMENT AND CHARACTERIZATION OF FLOATING MICROSPHERES OF FAMOTIDINE FOR PROLONGED GASTRIC RETENTION TIME

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ABSTRACT

The objective of the present research work was to formulate and evaluate the Famotidine loaded floating microspheres for prolonged and uniform release of drug in the stomach.

Famotidine loaded microspheres were prepared by solvent evaporation method using different concentrations of polymers, ethyl cellulose and PEG 4000 in acetone and methanol organic solvent system. Microspheres were evaluated for their particle size, surface morphology, production yield, loading efficiency and *in-vitro* drug release study. From the evaluation it was observed that increase in amount of polymers (Ethyl Cellulose and PEG 4000) led to increase in percentage yield, entrapment efficiency and average size of microspheres. The percentage yield, entrapment efficiency and particle size of prepared microspheres was found to be 54.23% to 78.48%, 36.62% to 90.43% and 82.43µm to 163.31µm respectively. SEM revealed the presence of pores on microspheres due to matrix erosion, which are responsible for the floating ability. Increase in rotation speed leads to decrease in particle size which increases drug release. The above results reveal the possibility of development of floating drug delivery system of Famotidine using EC/PEG polymer blend for sustained and local drug delivery to stomach.

PC-11

PREPARATION, EVALUATION AND STANDARDIZATION OF COPPER NANOPARTICLES BY CHEMICAL REDUCTION METHOD AND EVALUATION OF THEIR ANTIMICROBIAL PROPERTY

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ABSTRACT

Copper and the compounds of Au, Ag, Pd and Pt are widely used these days. Copper has an excellent electrical conductivity. Due to relatively low costs, this metal plays a significant role in modern electronic circuit. They also show good medical application because of their good antibacterial property and less toxicity as compared to silver nanoparticles. They are more economical to manufacture by reduction of copper salt by elemental iron. It yields copper nanoparticles. The UV-vis analysis, FT-IR, SEM, XRD, shows the formation of stable copper nanoparticles having the particle size less than 200 nm. The prepared copper nanoparticle also shows good antibacterial property.

PC-12

POLYMERIC NANOPARTICLES OF ATORVASTATIN CALCIUM: ASSESSMENT OF ORAL BIOAVAILABILITY, SAFETY AND EFFICACY STUDIES

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ABSTRACT

Hyperlipidemia is considered to be a dominant cause for the genesis of atherosclerosis complication which leads to a number of cardiovascular diseases. Atorvastatin calcium (ATR) is a second generation statin drug mostly prescribed in hyperlipidemia and atherosclerosis. In spite of being a blockbuster drug, low oral bioavailability and acute toxicity (myopathy and rhabdomyolysis) are major drawbacks. To overcome these drawbacks, Eudragit RSPO based polymeric nanoparticles have been prepared by emulsification solvent evaporation method. Central composite experimental design has been used to optimise the properties of ATR loaded Eudragit RSPO based nanoparticles (AURSNs) such as particle size, entrapment efficiency and polydispersity index. The optimized formulation was further subjected to *in vitro* and *in vivo* characterizations. FTIR study exhibited good compatibility of ATR in AURSNs. Further, DSC and XRD studies showed existence of amorphous nature of ATR in AURSNs. *In vitro* release profile exhibited 24 h sustained release in phosphate buffer (pH: 7.4). Surface morphological study (AFM) revealed the spherical shape of AURSNs. Further, pharmacokinetic study in rats showed a significant enhancement in oral bioavailability, $T_{1/2}$ and MRT of AURSNs compared to pure drug suspension. AURSNs also showed similar efficacy and better safety profile at reduced dose than that of pure drug suspension.

PC-13

DEVELOPMENT AND EVALUATION OF FAST DISINTEGRATING EXTENDED RELEASE TABLETS OF MELOXICAM

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ABSTRACT

The aim of this work was preparing once daily fast disintegrating tablets to handle easily for adult patients who have difficulty in swallowing. Solid dispersions Meloxicam (SD-MX) was prepared by using EC and HPMC in different ratios. A 3* 22 full factorial design was used to investigate the main formulation parameters (different fillers, binder differ in the molecular weight and different coat type). Disintegration time, wetting properties, friability, and hardness of FDTs were evaluated. Percent drug dissolved was determined. Furthermore, the bioavailability was compared with commercial market product. The mean production yield of BH-MXs was 93.50 ± 0.39 %. The tablets demonstrated a hardness of 2-5 N, friability 0.04-0.56% and disintegration time of 67 ± 1.54 sec. The formulations were subjected to accelerated stability study as per ICH guidelines and were found to be stable after three weeks at 60 °C and 75 % R.H. Based on The present study; the suggested FDTs which delivers a solid dispersions' 50 mg MX using HPMC and EC in 1:1 ratio showed an extended effect and decrease the disintegrating time lesser than commercial oral tablets.

PC-14

SCREENING OF THE FORMULATION COMPONENTS FOR THE DEVELOPMENT OF NANOSTRUCTURED LIPID CARRIERS OF ANTICANCEROUS PHYTOCONSTITUENT

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ABSTRACT

The present study was carried out with the aim to screen the formulation components for the development of Nanostructured lipid carriers (NLCs) containing anticancerous phytoconstituent. Preparation of NLC requires the screening of different formulation components like oil, solid lipid and surfactants. The solubility study of the phytoconstituent was performed to assess its solubility in various oils and lipids. Phytoconstituent showed maximum solubility in Capmul MCM NF and hence, it was selected as liquid lipid. Further, solid lipids like Compritol ATO 888 & Imwitor 90 K were observed to have good affinity for the drug. Pluronic F68 was selected as the main surfactant for the preparation of NLC because of its good emulsification property for the solid lipid and liquid lipid mixture. FT-IR study of the selected components with the phytoconstituent (drug) was performed to assess the compatibility of the components with the drug which revealed the absence of interaction. Thus the study helped us in ascertaining the various components required for the formulation of NLCs carrying anticancerous phytoconstituent.

PC-15

SYNTHESIS AND EVALUATION OF A NOVEL SODIUM CMC-GLYCINE AZO POLYMERIC CONJUGATE

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ABSTRACT

Sodium CMC is the sodium salt of a cellulose derivative with carboxymethyl groups bound to some of the hydroxyl groups of the glucopyranose monomers that make up the cellulose backbone. It is used as a viscosity modifier or thickener and to stabilize emulsions. In order to make it colon specific, it was conjugated with the glycine using azo bond conjugation. The synthesized conjugate was subjected to physico-chemical characterization, spectral analysis and acute toxicity studies in rats as per OECD guidelines. The synthesized sodium CMC-glycine azo polymeric conjugate was further used to prepare leucovorin loaded tablets. The tablets were

evaluated for hardness, thickness and friability. The prepared tablets were subjected for evaluating the colon targeting property by performing release studies in HCl buffer pH 1.2 followed by simulated colonic fluid. Our experimental results revealed that sodium CMC-glycine azo polymeric conjugate was free from any toxic effects in animals. The tablets prepared using synthesized conjugate revealed hardness of 5.00±0.36 Kg/cm^2, thickness of 4.55±0.03 mm and friability 0.69. *In-vitro* release studies revealed that tablets did not show any release in HCl buffer pH 1.2, but a significant release of 66.50±3.19% in simulated colonic fluid in 24 hours. So conclusion was drawn that azo polymeric conjugate can serve as an excipient for formulating colon targeted dosage forms.

PC-16

FREEZE DRIED TECHNOLOGY USED FOR PREPARING FAST DISINTEGRATING/DISSOLVING TABLETS

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ABSTRACT

Drug delivery system have become increasingly sophisticated as pharmaceutical scientists acquire a better understanding of physicochemical and biochemical parameters pertinent to their performance. These freeze dried/ lyophilized tablets have unique property of rapidly disintegrating and/or dissolving, releasing the drug generally within less than 60s as soon as they come in contact with saliva thus obviating the requirement of administration of water. These offer an advantage for populations who have difficulty in swallowing conventional tablets with water among pediatric, geriatric, psychiatric patients with dysphasia. Technologies used for manufacturing are either conventional (freeze drying) and patented technologies (Lyocs, Zydis, Quicksolv, Nanocrystal) mainly involving the process of lyophilization. Lyophillised/Freeze drying is the process in which water is sublimed from the product after it is frozen. This technique creates an amorphous porous structure that can dissolve rapidly. The freeze-drying technique has demonstrated improved absorption and increase in bioavailability due to rapid disintegration and dissolution because of their highly porous nature, allowing penetration of saliva into the matrix of the tablets, resulting in disintegration. This process involves the transition of water from liquid to solid during freezing, and then solid to vapor during sublimation.

PC-17

ORAL DELIVERY OF CROMOLYN SODIUM ENCAPSULATED SOLID LIPID NANOPARTICLES FOR THE TREATMENT OF ALLERGIC DISEASES

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ABSTRACT

Cromolyn sodium (CS) is a widely used drug for the prevention and treatment of allergic conditions such as allergic rhinitis, mastocytosis and food allergy. However, high hydrophilicity and poor oral permeability hinders its application. In order to ensure the efficacy of such promising drug, solid lipid nanoparticles (SLN) have been developed for the purpose of oral bioavailability enhancement thereby, therapeutic efficacy. The SLN were prepared by w/o/w double emulsification method and optimized by using box-behnken experimental design. The surface and solid state characterizations using HR-TEM, DSC, XRD and FTIR revealed the presence of CS in amorphous form without any physical and chemical interaction inside the smooth, spherical shaped SLN. The *in-vitro* release study showed extended release up to 24 hr by diffusion controlled process. *Ex-vivo* and Caco-2 cell line study showed marked increase in permeability of CS by forming SLN. Further, no significant changes in the physicochemical characteristics of the SLN were observed during the 3 month stability study at various conditions. The *in-vivo* pharmacokinetic study exhibited the enhancement of oral bioavailability of CS by encapsulating inside SLN, proving importance of SLN as potential therapeutic carrier system for CS in the treatment of allergic diseases.

PC-18

NATURAL MUCOADHESIVE MATERIAL BASED BUCCAL TABLETS OF PROPRANOLOL HYDROCHLORIDE –FORMULATION AND *IN VITRO* EVALUATION

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ABSTRACT

In the present research, mucilage isolated from the leaves of *Aster ericoides* was characterized and investigated for mucoadhesive property by formulating bilayered mucoadhesive buccal tablets Propranolol HCl. The mucilage was isolated by cold maceration technique, using acetone as non-solvent. The isolated mucilage was studied for purity, *in vitro* cytotoxicity, microbial load using MTT assay. The mucilage was investigated for physicochemical properties and compatibility with Propranolol HCl by FTIR and DSC technique. The bilayered mucoadhesive buccal tablets were formulated with different drug: polymer ratio (1:1, 1:2, 1:3and 1:4) and investigated for average weight, drug content, thickness, hardness, friability, *ex vivo* mucoadhesive strength, *ex vivo* mucoadhesion time, surface pH, swelling index and *in vitro* drug release. The mucilage was found to be non-toxic and microbial load was with in the official limit. The pH of the mucilage (6.82) was found to be suitable for buccal delivery. Surface tension value (81 cps) indicated that mucilage was having good wetting property. The mucilage was found to be compatible with the propranolol HCl. The swelling index, *ex vivo* mucoadhesive strength and mucoadhesion time increased with increase in the concentration of mucilage. The cumulative percent drug release decreased with the increased concentration of mucilage. The formulations containing drug: polymer ratios (1:1 and 1:2) showed drug release upto 90% within the observed mucoadhesion time. The isolated mucilage in lower concentrations was found suitable to be used in design of buccal mucoadhesive drug delivery system.

PC-19

RECENT ADVANCES DRUG DELIVERY STRATEGIES FOR TREATMENT OF OVARIAN CANCER AND OTHER TUMOUR CELLS (NANO- PARTICLES AND SLNS)

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ABSTRACT

Ovarian cancer is associated with the highest mortality rate of all gynecological malignancies, due in part to inadequate treatment strategies and the asymptomatic nature of the disease. Current standard of care includes surgery and systemic chemotherapy. However, this approach can result in toxicities and eventual disease relapse, due to the emergence of multidrug resistance. Drug delivery systems (DDS) have shown promise in overcoming many of the limitations facing conventional treatment regimen.Nano-sized DDS enable passive targeting to tumors due to their size, and further improvements in tumor localization can be made using targeting moieties. Microspheres, implants and injectable depots have been investigated for peritoneal localized and sustained therapy. Overall, the benefits of using DDS for ovarian cancer therapy include higher drug levels at the diseased site, circumvention of drug resistance mechanisms, minimization of non-specific toxicities, improvements in solubility of poorly soluble drugs and elimination of toxicities associated with conventionally used pharmaceutical excipients. Drug delivery systems, lipid- or polymer-based nanoparticles, can be designed to improve the Pharmacokinetic and biodistribution of the drug. However, the pharmacokinetics and pharmacodynamics of nanomedicine is highly variable among different patients. When designed to avoid the body's defence mechanisms, nanoparticles have beneficial properties that can be used to improve drug delivery.

PC-20

FORMULATION AND EVALUATION OF ARIPIPRAZOLE LOADED MUCOADHESIVE BIO-FLEXY FILMS FOR BRAIN TARGETING VIA TRANS SOFT PALATAL ROUTE

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ABSTRACT

The aim of research was to target Aripiprazole to the brain via trans-soft palatal. Aripiprazole is an anti-psychotic drug having 75% bioavailibity and having serious side effects.The biopolymer was isolated from the natural edieble source by addition of optimized quantity of non-solvent and was tested for mucoadhesivity and mucoretentibility. Five aripiprazole bio-flexy films were formulated of concentration 1%, 2%, 3%, 4%, 5% and standard polymers (Sodium CMC) by solvent casting method. Evaluation parameters tested were weight, thickness, mucoadhesivity and content uniformity, surface pH, folding endurance, in-vitro drug penetration and in-vivo studies. The formulation FR1 was found to be the best formulation on the basis of mucoadhesion, amount of drug reached to brain, $t_{50\%}$, $t_{80\%}$ and pharmacodynamics studies like locomotors activity with R^2 value 0.9905. The research work was focused to exploit a novelistic route for brain specificity and In vitro/in vivo studies revel reduction in the drug dosing up to 10 folds.

PC-21

IN VITRO RELEASE KINETICS FOR ESCITALOPRAM AND ESCITALOPRAM LOADED NANOPARTICLES

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ABSTRACT

Escitalopram oxalate (ETP), an FDA approved antidepressant drug from the category of SSRI (selective serotonin reuptake inhibitor) and is used in treatment of general anxiety disorder (GAD), major depressive disorder (MDD).When taken orally, it is metabolized to S-demethylcitalopram (S-DCT) and S-didemethylcitalopram (S-DDCT) in the liver by enzymes CYP2C19, CYP2D6 and CYP3A4 causing side effects such as fast or irregular heartbeat, dizziness, headache, nausea. Therefore, sustained drug delivery at targeted site will be a helpful tool for reducing side effects and increasing its efficacy. The present study is designed for formulating mucoadhesive polymeric nanoparticle formulation for Escitalopram were prepared by ionic gelation method and characterization of the optimised formulation was done by zeta average particle size (93.63nm), zeta potential (-1.89mV), TEM (range of 60nm to 115nm) analysis also confirms nanometric size range of the drug loaded nanoparticles along with polydispersibility index of 0.117. In this study we have studied the *in vitro* drug release profile for ETP nanoparticles, through a semi permeable dialysis membrane. The three important characteristics affecting the drug release behaviour were – particle size, ionic strength and morphology of the optimised nanoparticles. The data showed that on increasing the particle size of the drug loaded nanoparticles, the initial burst was reduced which was comparatively higher in drug. Whereas, the formulation with 1mg/ml chitosan in 1.5mg/ml tripolyphosphate solution showed steady release over the entire period of drug release. Then this data was further validated through mathematical modelling to establish the mechanism of drug release kinetics, which showed a typical linear diffusion profile in optimised ETP loaded nanoparticles.

PC-22

EVALUATION OF BINDING PROPERTY OF *HIBISCUS SYRIACUS* MUCILAGE

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ABSTRACT

In the present research work mucilage isolated from the leaves of *Hibiscus syriacus* was characterized and investigated for binding property by formulating conventional tablets. Paracetamol was used as model drug. The mucilage was isolated by cold maceration technique, using acetone as non-solvent. The isolated mucilage was studied for purity, *in vitro* cytotoxicity and microbial load. The mucilage was investigated for physicochemical properties such as pH, surface tension and compatibility with paracetamol by FTIR and DSC technique. The conventional tablets were formulated with polymer in concentration range of 2, 2.5, 3, 3.5 and 4% as a binder and investigated for average weight, drug content, thickness, hardness, friability and *in vitro* drug release. The mucilage was found to be non-toxic and microbial load was under specified limit for natural polymers. The pH of the mucilage (7.22) was found to be suitable for conventional delivery. Surface tension value (84.2 cps) indicated that mucilage was having good wetting property. The mucilage was found to be compatible with the paracetamol. The cumulative percent drug release decreased with the increased concentration of mucilage. The formulations containing polymer concentration 2.5 and 3 % showed drug release up to 90% within the 30 min. The isolated mucilage in lower concentrations can be further investigated as binder in tablet formulations.

PC-23

SOLID DISPERSION OF CEFIXIME TRIHYDRATE USING COMBINATION OF HYDROPHILIC AND HYDROPHOBIC POLYMERS: A NOVEL APPROACH TO CONTROL ITS RELEASE

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ABSTRACT

Solid dispersion controlled release is a single step approach to increase the solubility of drug and to sustained the drug release by using appropriate carrier system. Solid dispersion consist of at least two different components, generally a hydrophilic matrix and a hydrophobic drug. The drug can be dispersed molecularly, in amorphous particles or in crystalline particles. In the present study, an attempt was made to improve solubility and bioavailability by preparing solid dispersion of cefixime and sustained its release by melt method by using a combination of hydrophilic polymer HPMC K4M and hydrophobic polymer stearic acid. Six formulations were prepared and saturation solubility studies, drug content studies and *in vitro* dissolution study were performed on them. Optimized formulation C4 was selected for FTIR, PX-RD, DSC. All the prepared solid dispersions have shown a uniform drug content, and increment in the solubility in water as compared to pure drug alone and corresponding physical mixtures. *In vitro* drug release for formulation C4 showed maximum drug release of 94.01% after 24hrs. All the formulations followed higuchi release and undergo non-fickian diffusion transport. From the PX-RD results, a considerable reduction in crystillinity of cefixime has been observed confirming that drug has been converted into amorphous form. DSC results showed that complex has been formed between drug and polymers as indicated by change in ΔH values. This also suggested that drug has been converted into amorphous form. Thus it can be concluded that sustained drug release can be achieved by formulating the cefixime in solid dispersion.

PC-24

APPROACH TO PRODUCE BANANA- INSULIN

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ABSTRACT

Diabetes, often referred to by doctors as diabetes mellitus, describes a group of metabolic diseases in which the person has high blood glucose (blood sugar), either because insulin production is inadequate, or because the body's cells do not respond properly to insulin, or both. If our pancreas secretes little or no insulin (Type 1 diabetes), or our body doesn't produce enough insulin or has become resistant to insulin's action (Type 2 diabetes), the level of sugar in our bloodstream increases because it's unable to enter cells. Left untreated, high blood sugar can lead to complications such as blindness, nerve damage (neuropathy) and kidney damage. Insulin therapy is often an important part of diabetes treatment. Insulin plays an important role in managing our blood sugar. Banana is a popular and tasty fruit which often is restricted in the diet prescribed for diabetic patients owing to the high content of free sugars. However, in under-ripe bananas starch constitutes 80-90% of the carbohydrate content, which as the banana ripens changes into free sugars. Banana plant (*Musa acuminata*), if transgened with genes of human insulin, and expressed in the mesocarp of unripe fruits, it will be a boon for patients of Diabetes Mellitus (I). It will open a new prospect for insulin delivery, different from the usual S.C./I.V. injections. Unripe banana has a lower glycemic index and glycemic load. Thus they are effective as diabetic diet.

PC-25

TIME AND SITE SPECIFIC, PULSATILE DELIVERY OF TRANYLCYPROMINE FOR THE TREATMENT OF DEPRESSION

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ABSTRACT

In this study, an oral colon specific, pulsatile device to achieve time and site specific release of tranylcypromine, based on chronopharmaceutical consideration was investigated. The basic design contains of an insoluble hard gelatin capsule body, filled with starch granules of tranylcypromine and sealed with a hydrogel plug. The entire device was enteric coated, so that the variability in gastric emptying time can be overcome and a colon-specific release can be achieved. The tranylcypromine granules were prepared by wet granulation technique. The prepared granules were evaluated for the particle size, drug content and *in vitro* release profile. Different hydrogel polymers sodium alginate, guar gum were used as plugs, to maintain a suitable lag period and it was found that the drug release was controlled by the proportion of polymers used. *In vitro* release studies of pulsatile device revealed that, increasing the hydrophilic polymer content resulted in delayed release of tranylcypromine from granules. Programmable pulsatile, colon-specific release has been achieved from a capsule device over a 2–8 h period, consistent with the demands of chronotherapeutic drug delivery.

PC-26

GREEN SYNTHESIS COPPER AND SILVER NANOPARTICLES OF *AZADIRACHTA INDICA* AND EVALUATION OF THEIR ANTIBACTERIAL PROPERTY

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ABSTRACT

Azadirachta indica is also known as Neem is a tree in the in the mahogany family *Meliaceae*. It is well known for its antibacterial properties. The preparation of copper and silver nanoparticles was done by Green synthesis microwave method. Nanoparticles were evaluated by performing UV-vis spectrophotoscopy, AFM, SEM, DLS. These results confirmed the formation of copper and silver nanoparticles having the particle size smaller than 1000 nm. The prepared nanoparticles

were evaluated for their antibacterial activity. Copper nanoparticles show good antibacterial activity. But the Silver nanoparticle doesn't show any antibacterial activity.

PC-27

ETHANOL AS BIOFUEL: A BOON FOR THE INDIAN PHARMACEUTICAL INDUSTRY IN AN ERA OF ENERGY CRISIS AND ENVIRONMENTAL CONCERNS

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ABSTRACT

The Indian pharmaceutical industry has a primary energy consumption of 930 kilo tonnes of oil equivalent. With energy crisis and environmental concerns over fossil fuels, ethanol as a biofuel has been recognized as a suitable replacement for petroleum-derived fuels. Ethanol is obtained from fermentation of carbohydrates by yeast, *Saccharomyces cerevisiae*. However, high concentration of ethanol is toxic to yeast. An alteration in composition of the medium in which yeast is grown by adding potassium and hydroxide ions have shown to boost the tolerance of yeast to ethanol and the production of ethanol increased by 80 percent. The polymeric carbohydrates need to be prehydrolysed with appropriate enzymes and the hydrolysate is used for fermentation. In the pre-treatment stage, the cellulose is freed from lignin which requires high temperature which is deteriorating for many enzymes. So, the breaking down of cellulose into simple sugars has to be done separately. The discovery of extremely thermophilic Archaea has solved the problem as an enzyme in the microbe can breakdown cellulose at high temperature. The advantages are that the entire process is carbon-neutral and the waste products produced can be used as dried soil fertilizer, cattle feed supplement, and as a feedstock for methane production.

PC-28

POLYMERS USED IN IN-SITU GEL DRUG DELIVERY SYSTEMS: AN REVIEW

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ABSTRACT

In situ gel drug delivery systems are used in sol form before administration in the body, but once administered, undergo gelation *in situ*, to form a gel. The formation of gel depends on factors like temperature modulation, pH change, presence of ions and ultraviolet irradiation, electrical sensitivity, enzyme sensitive from which drug get released in a sustained and controlled manner. Typically, aqueous solutions of hydrogels used in biomedical applications are liquid at ambient temperature and gel at physiological temperature. The *in situ* gel forming polymeric formulations offer several advantages like sustained and prolonged action in comparison to conventional drug delivery systems. From a manufacturing point of view, the production of such devices is less complex and thus lowers the investment and manufacturing cost. This review stresses on the polymeric use of natural polymers and synthetic polymers.

PC-29

EVALUATION OF ANTIOXIDANT POTENTIAL OF AgNP NANOEMULSION PREPARED USING ORANGE PEEL

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ABSTRACT

Nanoemulsions consist of fine oil-in-water dispersions, having droplets covering the size range of 100–600 nm. In the present work, AgNP nanoemulsion prepared using Orange peel extract. AgNP's were synthesised using silver nitrate with the help of microwave, the rapid formation of silver nanoparticles takes place. AgNP were evaluated for Antioxidant activity by using DPPH Assay and their toxicity studies were carried out using Daphnia Fish Model for the Efficacy and Safety. The synthesised particles were characterized using UV-visible (UV vis)

spectrophotometer, Scanning Electron microscopy (SEM), X-ray diffraction (XRD), Fourier transformation infra-red spectrometry (FTIR) and Dynamic Light Scattering (DLS). The synthesised orange peel nanoparticles show potent Antioxidant property.

PC-30

FORMULATION AND DEVELOPMENT OF HERBAL HANDWASH FROM MANGIFERA INDICA LEAVES

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ABSTRACT

Mangifera indica (MI), also known as mango, aam, it has been an important herb in the Ayurvedic and indigenous medical systems for over 4000 years. Mangoes belong to genus *Mangifera* which consists of about 30 species of tropical fruiting trees in the flowering plant family Anacardiaceae. Studies indicate mango possesses antidiabetic, anti-oxidant, anti-viral, cardiotonic, hypotensive, anti-inflammatory properties. Various effects like antibacterial, anti fungal, anthelmintic, anti parasitic, anti tumor, anti HIV, antibone resorption, antispasmodic, antipyretic, antidiarrhoeal, antiallergic immunomodulation,hypolipidemic,antimicrobial, hepatoprotective, gastroprotective have also been studied. Chemical constituents of MI are always of an interest. The different chemical constituents of the plant, especially the polyphenolics, flavonoids, triterpenoids. Mangiferin a xanthone glycoside major bio-active constituent, isomangiferin, tannins & gallic acid derivatives. The bark is reported to contain protocatechic acid, catechin, mangiferin alanine, glycine, γ-aminobutyric acid, kinic acid, shikimic acid and the tetracyclic triterpenoids cycloart-24-en-3β,26diol, 3-ketodammar-24 (*E*)-en-20S,26-diol, C-24 epimers of cycloart-25 en 3β,24,27-triol and cycloartan-3β,24,27-triol.

PC-31

MICROWAVE ASSISTED SYNTHESIS OF AGNP USING AQUEOUS LEAVES EXTRACT OF *VINCA ROSEA* AND ITS THERAPEUTIC APPLICATION

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ABSTRACT

Green synthesis of silver nanoparticles was attempted with the help of aqueous *Vinca rosea* leaf extract The aim of the study was to combine the therapeutic activity of *Vinca rosea* and the deep tissue penentration cababilities of the silver nanoparticles. Various formulations have been tried among which nanoparticles can potentially outstand the existing. Nanoparticles due to their exceptional electronic, catalytic, optical, magnetic and other physical and chemical properties that are quite different from the bulk have magnetized researchers. This study focuses on the green synthesis of silver nanoparticles using aqueous extract of *Vinca rosea* leaves, its characterization, and evaluation of its antibacterial and anticancer activity. Silver nanoparticles (AgNPs) have proven benefits with unique properties like high antimicrobial activity and can be produced by distinctive methods namely, chemical synthesis, biological method and microwave-assisted rapid green synthesis. The chemical methods are extremely expensive and use toxic chemicals which may pose potential environmental and biological risks which can be rectified by microwave-assisted route. The microwave assisted route helps enhance the rate of synthesis, suppress the enzymatic action and to keep the process eco-friendly. The synthesized nanoparticles (<100 nm) were characterized by UV spectroscopy, FTIR, SEM and DLS. Positive antibacterial results were observed using agar well diffusion method subsequent to which its anticancer studies were carried out.

PC-32

DEVELOPMENT OF VALIDATED UV SPECTROPHOTOMETRIC METHOD FOR THE ESTIMATION OF FENOFIBRATE IN PURE AND FORMULATION

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ABSTRACT

A simple, sensitive and reproducible UV been developed for the quantitative determinate pharmaceutical dosage forms using MBTH reagent. The method is based on the measurement of absorbance of Fenofibrate in methanol (0.5% and 1% FeCl3 in 0.5% HCl) at 596 nm. Beer's law is obeyed over the linear range 25 µg /ml of Fenofibrate for the method with apparent molar absorptivity value of 1909.5905 L mol-1cm-1. The method was validated in accordance with the current ICH guidelines. The result demonstrated that the procedure is accurate precise and reproducible.

PC-33

DESIGN OF BIO-NANOGEL LOADED WITH CHLORPROMAZINE FOR NOSE TO BRAIN DELIVERY

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ABSTRACT

Brain targeting via nasal route is an impressive path to deliver API for eliciting its therapeutic action and minimizing the side effect of API Dose reduction and improved therapeutic Efficacy are the two major targets for accelerating the research on Anti psychotic drugs having low bioavailability and drugs which under goes first pass hepatic metabolism. To achieve these goals, the development of a novel method to fabricate Bio-nanogels with a high retardant, and stabilizing property were used. In this study a facile approach was described to formulate Bio-nanogels for nose to brain targeting. As chlorpromazine induces life threatening effects which include seizures, blood bysceaseas, neurolepic, maligant syndrome, so to overcome all these adverse effects the research was conducted. The bio material was isolated from the natural edible source by addition of optimized quantity of non-solvent and functional group were confirmed by I.R spectroscopy The isolated polymer was subjected for screening its retardability and mucoadhesivity by using a bionano carrier for formulating chlorpromazine (model drug) loaded nano gels. The formulated bio nano gels were targeted to the brain administered the dose from the nasal route. Ten formulations were prepared by the almond polymer and best formulation was FA1 (1:1) whose R^2 value was 0.9246 and mechanism of release was Anomalous Transport and FPG4(1:5) was the best formulations and R^2 value was 0.8840 and mechanism of release fickian diffusion. Since maximum amount of concentration was absorbed this indicates maximum amount of drug reached to the brain. The *in-vitro* release study which was conducted over a extended period of 30 hrs, showed the sustain release pattern of the drug so it can be concluded that this approach is feasible for targeting chlorpromazine to the brain and helps to reduce the dose level up to 10 folds.

PC-34

DESIGN AND EVALUATION OF NANOSIZED ZIDOVUDINE LOADED BIO-FLEXY FILMS FOR BRAIN TARGETING VIA TRANS SOFT PALATAL ROUTE

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ABSTRACT

The study aimed for Brain targeting of Nano sized Zidovudine loaded Bio-FlexyFilms via Trans-Soft Palatal route. Zidovudine (nucleoside reverse transcriptase inhibitor) having water solubility (20.1 mg/ml at 35ºC), Bioavailability (64%), Protein Binding (30-38%), Half-life (0.5-3 hours). Biopolymer isolated from *Glycyrrhiza glabra* powder because of its biodegradability, biocompatibility, non-irritant nature. Physicochemical Characterization, Acute toxicity study of biopolymer were carried out, found to be non-toxic, inert, excellent film forming, mucoadhesive,

mucoretentive properties. 10 Nano sized Bio-Flexy Films Formulations prepared byeconomic process by solvent casting technique using Drug to Polymer ratios of FG1 (1:1), FG2 (1:2), FG3 (1:3), FG4 (1:4), FG5 (1:5), FG6 (1:6), FG7 (1:7), FG8 (1:8), FG9 (1:9), FG10 (1:10)and five levels of Carbopol ; FC1 (1:1), FC2 (1:2), FC3 (1:3), FC4 (1:4), FC5 (1:5) and five levels for Sodium alginate; FS1 (1:1), FS2 (1:2), FS3 (1:3), FS4 (1:4), FS5 (1:5) and five levels of Eudragit RS 100; FE1 (1:1), FE2 (1:2), FE3 (1:3), FE4 (1:4), FE5 (1:5) as standard polymers. Evaluation parameter showed Weight uniformity (50.612±0.6012), Thickness (0.17±0.023 nm to 0.521±0.0644 nm). Folding endurance (170±10 to 260±10), pH (7.2).IR data revealed presence of Amide ($RCONH_2$), Alcohols (RCH_2OH, R_2CHOH), Nitro (NO), Sulfonic acid (S=O) and Alkyl Halide (R-Cl) groups. *In-Vitro* release, FG2 (1:2)(T50%:4.4 hrs,T80%:22 hrs), FG1 (1:1)(T50%: 4.4 hrs,T80%: 19 hrs)showed R^2 (0.9897) of First order and (0.9886) of Higuchi matrix selected as Best, stable Formulations. Trans Soft Palatal Route enriched of direct nerve supply (palatine nerve, trigeminal nerve, vagus nerve) to brain. When suitably formulated drug placed in soft palate, significant amount reached to brain via a neural pathway simultaneously also through nerve supply. This work scientifically proven by suitably Nanosized active pharmaceutical ingredient, significant action produced, reduced adverse action, controlled drug release for prolonged time.

PC-35

AEROSOL- PROCESSED POLYMERIC DRUG NANOPARTICLES FOR SUSTAINED AND TRIGGERED DRUG RELEASE

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ABSTRACT

Nanoparticles have been proposed to have a great potential in tissue targeting for cancer therapy, controlled release, carrier action for the delivery of peptides and increase in solubility of drug. Drug polymeric nanoparticles (50-100nm) consist of a drug or several drugs and, optionally, a stabilizing or functional biocompatible polymer. Recently introduced method to prepare drug-polymer nanoparticles in an aerosol flow reactor is a single-step gas-phase process that enables to produce, for example, spherical, amorphous, matrix- type drug-polymer nanospheres. The method allows the high loading of a drug and controlled release from the nanoparticles. The aim of this study is to explore the factors affecting nanoparticle formation and time-dependent and pH-triggered drug releases in aqueous solutions.

PC-36

EVALUATION OF MUCOADHESIVE THERMORESPONSIVE MICROGELS CONTAINING ANTIBIOTIC FOR THE TARGETED DELIVERY TO PERIODONTAL POCKETS

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ABSTRACT

Ornidazole is most efficacious drug especially in case of anaerobic infectious microbes residing into deep periodontal pockets. Mucoadhesive, thermoresponsive microgels of drug were prepared to target deep periodontal pockets and to obtain prolonged therapeutic effect. Thermoresponsive microgels were fabricated by combination of ionic gelation of chitosan and cold method with slight modifications. The polyvinyl alcohol and poloxamer 407 was used as temperature controlled polymers, and sodium tripolyphosphate as crosslinking agent. The drug-polymer interactions study was performed by Infrared spectroscopy and X-ray diffractometry which demonstrated compatibility between excipients. Further, gels were evaluated for viscosity, gelation time, gelation temperature, pH and the results were within limit. The fabricated formulations were characterized by SEM for particle size and morphology. The in-vitro drug release was studied in McIlvaine buffer pH 6.6 using dialysis membrane method. The gels controlled the drug release and prolonged it for 3 days. Conclusively, prepared thermoresponsive gels of chitosan are viable alternative to conventional gels for targeted

administration to pockets, providing prolonged residence to achieve effective management of anaerobic infections.

PC-37

EVALUATION OF STARCH-NEUSILIN UFL2 CONJUGATES AS NOVEL TABLET SUPERDISINTEGRANT

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ABSTRACT

The study entail development of Corn Starch-Neusilin UFL2 conjugates employing physical, chemical and microwave methods with an aim to use it as a tablet superdisintegrant. Conjugates prepared by different methods were found to possess good powder flow and tabletting properties. ATR-FTIR, X-ray Diffractometry, DSC techniques, Scanning Electron Microscopy were used to characterize the conjugates. The swelling and effective pore radius was found to be 95% and 29.14±0.22 mm respectively for conjugates prepared by microwave method which was better than the the conjugates prepared by chemical and physical method as well as the pure Corn Starch. Further compression models viz. Heckel and Kawakita were applied to carry out compression studies for the prepared Corn Starch-Neusilin UFL2 conjugates. The Heckel analysis indicated that the conjugates prepared by physical method showed the fastest onset of plastic deformation while the conjugates prepared by microwave method showed the slowest onset while the Kawakita analysis indicated that the conjugates prepared by microwave method exhibited the highest amount of total plastic deformation while conjugates prepared by physical method exhibited the lowest values. Fast disintegrating tablets of Domperidone were prepared using Corn Starch and Corn Starch-Neusilin UFL2 conjugates prepared by different methods as tablet superdisintegrants. Ratios 2.5, 5, 7.5 and 10% w/w were employed to study the effect of different concentrations. The formulated tablets were evaluated in terms of diameter, thickness, hardness, friability, tensile strength, tablet packing fraction, in vitro tablet disintegration, water absorption ratio, wetting time and in vitro dissolution studies. In vitro disintegration, water absorption ratio and wetting time were 22±3 sec, 128±0.05% and 14±1.40 sec respectively for the fast disintegrating tablets employing the conjugates prepared by microwave method. The study revealed that the Corn Starch-Neusilin UFL2 possess improved powder flow properties and could be a promising superdisintegrant for preparing fast disintegrating tablet.

PC-38

SYNTHESIS OF *OCIMUM TENUIFLORUM* COPPER NANOPARTICLES GEL BY GREEN SYNTHESIS METHOD AND EVALUATION OF THEIR ANTI-ACNE PROPERTIES AND ANTIOXIDANT.

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ABSTRACT

Ocimum tenuiflorum also known as Ocimum sanctum, holy basil, or tulasī, is an aromatic plant in the family *Lamiaceae* which is native to the Indian Subcontinent and widespread as a cultivated plant throughout the Southeast Asian tropics It is well known for its antibacterial and antioxidant Properties. The Preparation of Copper nanoparticles of *Ocimum tenuiflorum* is done with the Help of Green Microwave method. The Prepared nanoparticles were evaluated by UV-vis Spectrophotometer, SEM, DLS, AFM. This result confirms the formation of copper nanoparticles having the Particle Size Less than 200 nm. The Prepared nanoparticles Shows good antibacterial and antioxidant Property. The Prepared nanoparticles were dispersed in Carbopol Gel. The Prepared gel shows good anti-acne Property.

PC-39

NARINGENIN LOADED EUDRAGIT E100 NANOPARTICLES: OPTIMIZATION, STABILITY AND IN VIVO ANTICANCER EFFICACY IN COLORECTAL CANCER

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ABSTRACT

Colorectal cancer (CRC) is the third leading cause of mortality throughout the world. Naringenin (NG) is a natural bioflavonoid compounds present in citrus fruits, which exhibits a wide range of pharmacological activities including anticancer activity without any intrinsic toxicity. However, its prominent application in cancer is limited due to its poor bioavailability at the tumor sites. The aim of the present study was to develop and optimize naringenin loaded Eudragit E100 nanoparticles (NGENPs) using Taguchi orthogonal experimental design (TOED) to improve its anticancer efficacy in colorectal cancer. NGENPs were prepared by emulsification-diffusion-evaporation technique. TOED was employed to investigate the effect of independent factors on dependent variables such as mean particle size and percent entrapment efficiency. Further, optimized NGENPs were evaluated for morphological study by atomic force microscopy to ensure shape and size of polymeric nanoparticles. The optimized NGENPs were found to be stable for at least three months at room temperature. The *in vivo* anticancer study performed with optimized NGENPs showed significant increase in efficacy, compared to free NG, as observed by tumor volume, tumor weight, body weight and survival rate. All these results suggest that the anticancer efficacy of NG in CRC was significantly increased by forming NGENPs.

PC-40

MODIFIED LOCUST BEAN GUM AS A NATURAL CARRIER FOR SOLUBILITY IMPROVEMENT OF POORLY SOLUBLE DRUG LORATADINE

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ABSTRACT

The current research was aimed at the enhancement of the dissolution rate of poorly soluble drug loratadineusing modified locust bean gum as a carrier. The locust bean gum was subjected to heat for modified by heating at 80ºC on hot plate for 30-45min till the gum turn light brown in colour. Solid dispersions were prepared using modified solvent evaporation technique (in various drug: polymer ratios).Various solid dispersions were evaluated for equilibrium solubility studies, content uniformity, FTIR, DSC, XRD, *in vitro* drug release studies. Maximum equilibrium solubility was observed in the solid dispersions SD4 (in a drug: polymer ratio of 1:8). Maximum dissolution rate was observed in the solid dispersion batch SD4 (i.e. 70% within 15 min) with complete drug release with in 6h which was significantly higher than that of pure drug. Presence of almost all characteristic peaks of drug in FTIR of solid dispersions revealed the absence of drug-polymer interaction in the solid dispersions, which was further supported by XRD studies. Minor shifts in the endothermic peaks of the DSC thermograms of SD4indicated slight changes in drug crystallinity. Topological changes were seen in SEM images of SD4, suggesting change in surface characteristics of drug particles. Reduced particle size and decreased crystallinity of drug along with less viscosity and wetting ability of modified locust bean lead to enhanced dissolution characteristics.

PC-41

DESIGN OF BIO-ADHESIVE LAYERS LOADED WITH TERBINAFINE FOR TRANSUNGUAL DELIVERY

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ABSTRACT

A bio-penetrant from the roots of *Curcuma longa* was isolated to formulate bio-adhesive layer using terbinafine for treatment of onychomycosis. Terbinafine is a synthetic allylamine antifungal drug that undergoes first-pass metabolism following oral administration. Oral formulations of terbinafine require high doses for prolonged duration and relapse of fungal disease may occur. The bio penetrant was isolated from the natural edible source by addition of optimized quantity of non-solvent. Eight formulations were formulated of different ratios i.e. 1:1, 1:3, 1:6, and 1:8. Four using Curcuma longa bio penetrant and another four from Urea as synthetic penetrant using terbinafine as model drug and other co-processing agents. *In-vitro* results depicted LC2 (1:3) as the best formulation which was conducted over a period of 145 hrs having R^2 (0.9980), and the best fit model was zero order with release mechanism of Anomalous transport. The results concluded that the bio-penetrant enhances the penetration of drug. The target for accelerating the research on Anti fungal drugs having low penetratibility initiated this study and to achieve these goals, the novel method was developed to fabricate Bio-adhesive layers with a high penetratibility

PC-42

PREPARATION AND EVALUATION OF COPPER NANOPARTICLES GEL FOR DIABETIC FOOT

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ABSTRACT

Copper and its compounds are well known for its Antibacterial Properties. Copper nanoparticles also promote the process of wound healing and less toxicity. They are also more Economical to Manufacture then Silver nanoparticles and shows more stability then silver nanoparticles. The copper nanoparticles were prepared by Chemical Reduction method. The Prepared nanoparticles were evaluated for the Physical and Chemical Properties. UV-vis analysis, SEM, AFM, DLS, XRD, Evident the Formation of Copper nanoparticles having the size less than 200nm. The Prepared nanoparticles. Were dispersed in Carbopol Gel. The Prepared gel shows good antibacterial Property.

PC-43

NANO LIPID CARRIER (NLC) OF RIFABUTIN: DESIGN AND OPTIMISATION

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ABSTRACT

Rifabutin is an effective drug for the treatment of Tuberculosis. (NLC) is a biodegradable, biocompatible and non-immunogenic carrier in which drug can be encapsulated. Encapsulation of bioactive agent in the Nano Lipid Carrier prevents inactivation of drug, delivers the biologically active compound to the tissue and provides slow release of loaded drug into circulatory system thereby reducing its toxicity. (NLC) were prepared by Emulsification Solvent Evaporation Method in the present study and charged by charge inducing agent (Di Cetyl Phosphate). Drug entrapment efficiency was spectrophotometrically estimated. Formulated (NLC) were characterized by determining particle size, polydispersity index (PI), zeta potential, scanning electron microscopy and stability. In vitro drug release studies were performed and evaluated by using Koresmeyer Peppas equation, Higuchi kinetics and coefficient of regression. Results of present study indicates that the investigated system has potential to remain in the desired site for prolonged period and is capable of maintaining a constant drug concentration for a longer duration. Nano lipid Carrier containing Rifabutin can reduce drug dose, dose

frequency and toxicity which may result into improved patient compliances and effective treatment of the disease.

PC-44

INVESTIGATION ON BINDING PROPERTY OF *GREWIA ASIATICA* MUCILAGE IN CONVENTIONAL TABLET FORMULATIONS

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ABSTRACT

Present work was aimed to isolate the *Grewia asiatica* mucilage by cold maceration technique and to investigate its tablet binding property. Mucilage was evaluated for yield, cytoxicity, microbial load, purity, swelling and surface tension. Binding property of mucilage was studied at 0.25-1.0% concentrations in paracetamol tablets. Granules were evaluated for moisture content, flow properties, and percentage fines. The tablets were evaluated for hardness, friability, disintegration time, drug content, and *in vitro* dissolution. Further, the relationship between disintegration time and disintegration of tablet during dissolution study was determined based on Kitazawa equation. Yield of the mucilage was 15.89%w/w. The mucilage was non-toxic and microbial load was within the official limit. The granules had satisfactory moisture content and showed good flow properties. Percentage fines of granules and tablet friability were found to be decreased with an increase in mucilage concentration. The tablet hardness increased with increased binder concentration. Tablet disintegration time was less than 15 min. Percent drug release from all the formulations was more than 85% within 30 min. A linear Kitazawa plot was obtained. On the basis of results obtained, *Grewia asiatica* mucilage can be considered as safe and effective binder at 0.75 and 1.0% concentrations in conventional tablet formulations.

PC-45

PREPARATION OF COPPER NANOPARTICLES OF *AEGLE MARMELOS* BY GREEN SYNTHESIS AND EVALUATION OF ANTIBACTERIAL PROPERTY

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ABSTRACT

Aegle marmelos is also known as Bael is a tree native to India. The aqueous extract of the *Aegle marmelos* is added to 10-3 molar solution of copper nitrate. The preparation of copper nanoparticles was done by reduction of the metal salt of copper nitrate by the help of microwave green synthesis method. The prepared nanoparticles were evaluated by SEM, DLS, AFM and UV-Vis spectroscopy. The results confirmed the formation of copper nanoparticles having particle size less than 200nm. The prepared nanoparticles were evaluated for their antibacterial property.

PC-46

MICROWAVE ASSISTED SYNTHESIS OF CONJUGATES OF STARCH WITH METAL SILICATES: EVALUATION AS NOVEL TABLET SUPERDISINTEGRANT

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ABSTRACT

The present study involved the development of conjugate of corn starch with different silicates (Mg, Ca, Al) with an aim to use as tablet superdisintegrant. Conjugates of starch with different silicates were prepared and characterized by ATR-FTIR, X-ray Diffractometry and scanning electron microscopic techniques. Various powder evaluation tests viz. angle of repose, bulk density, tapped density, Hausner ratio, Carr's index, swelling index and effective pore radius were conducted on the samples. The prepared conjugates were found to possess good powder flow properties. The swelling and effective pore radius of all conjugates (SMgC, SAlC and SCaC) was found in range between 30-100% and 15.89-21.71 µm respectively. Different

concentrations of the prepared conjugates were used as superdisintegrants in the formulation of fast disintegrating tablets. The formulated tablets were evaluated in terms of diameter, thickness, hardness, friability, tensile strength, in vitro tablet disintegration, water absorption ratio, wetting time, in vitro dissolution studies and stability study. The effective pore radius and swelling of the conjugates were correlated with the in vitro disintegration, water absorption ratio and wetting time of the tablets. The wetting time, in vitro disintegration time of tablet were significantly reduced in tablets containing 5% starch-silicate conjugate. Due to porous network of the tablet, water uptake was increased which facilitated the process of tablet disintegration. From commercial point of view lowest concentration of superdisintegrant showing optimum tableting results should be recommended. Stability studies show no significant change in the performance and appearance of the formulation. It was concluded that silicated conjugates of starch could be used as superdisintegrants in pharmaceutical tablet formulations.

PC-47

DEVELOPMENT OF MOUTH DISSOLVING TABLETS OF ZOLMITRIPTAN USING TWO DIFFERENT TECHNIQUES

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ABSTRACT

In the present work, mouth dissolving tablets of Zolmitriptan were designed with a view to enhance patient compliance and bioavailability by two different methods, viz., sublimation and effervescent methods. Total four formulations using various subliming agents and different ratio of sodium bicarbonate: Citric acids were prepared. All prepared formulations were evaluated for physico-chemical parameters. The formulations exhibited good disintegration properties with total disintegration time in the range of 20 to 35 s. Comparative evaluation of two methods showed effervescent method is a better than sublimation method as its formulations rapidly disintegrate in oral cavity. *In vitro* cumulative percentage drug release for formulations prepared by effervescent method with 12:6 ratios of sodium bicarbonate: citric acid shows 95.05% while sublimation method using camphor shows 85.13% releases in 12 min. Kinetic studies indicated that all the formulations followed first order release with diffusion mechanism.

PC-48

A NOVEL BIOLIPID FROM OILS OF *SESAMUM INDICUM LINN.*

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ABSTRACT

The biolipid was isolated from oils of Sesamum indicum Linn. Non-saponifiable fraction of seed oil gave sterols, a lignans, sesamin and a nitrolactone, sesamolin. Sesamin, sesamolin and Seasamol are not found in any other vegetable oil. Sesamin is present in concentration of 0.5 – 1 %. Sesame oil is composed of the following fatty acids like Palmitic acids, Palmitoleic acid, Stearic acid, Oleic acid, Linoleic acid, Linolenic acid and Eicosenoic acid. The oil was procured and treated with solvents like Chloroform. The Chloroform fraction was retreated with Methanol and Water. The Methanolic extract was fractionated further to seperate the bio-lipid by centrifugation. The isolated lipid fraction was characterised for its solubility, IR etc. The carriability of lipid was screened by preparing solid-lipid microparticles by solvent evaporation method. The characters of microparticles were compared with standard as stearic acid. The IR spectra revealed possession of carbonyl, ester and ether linkages. It also displayed inbuilt carriability, which was confirmed and compared by Solid Lipid Microparticles of biolipid and Stearic Acid. The results concluded that isolated bio-lipid can serve as novel bio-lipid for formulating solid-lipid microparticles.

PC-49

OPTIMIZATION OF FORMULATION VARIABLES INVOLVED IN FABRICATION OF POLY- E - CAPROLACTONE ELECTROSPUN NANOFIBERS BY USING CENTRAL COMPOSITE DESIGN

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ABSTRACT

The long term antimicrobial therapy with high oral doses is necessary for the treatment of periodontal infections. In order to achieve high local bioactivity and low systemic side effects of antibiotics for the treatment of periodontitis, a localized controlled delivery system is needed. Therefore, novel biodegradable poly-ε-caprolactone based nanofibers have been developed by electrospining technique with a goal to achieve controlled release of Ciprofloxacin and Tinidazole for long-term treatment of periodontitis. The present study conclusively demonstrates the application of central composite design to assess the effect of various formulation variables such as polymer concentration, solvent composition and drug concentration on different properties of nanofibers such as in vitro release, entrapment efficiency and diameter. Response surface plots generated using the derived mathematical relationship can help in deciding the variables to obtain a nanofibers of desired property. By selecting appropriate levels of variables, nanofibers having narrow diameter and high entrapment efficiency can control the drug release for long term and can be obtained with minimum number of experimentation.

PC-50

SYNTHESIS OF *CITRUS LIMON* COPPER NANOPARTICLES BY GREEN SYNTHESIS METHOD AND EVALUATION OF THEIR ANTIBACTERIAL PROPERTIES AND ANTIOXIDANT

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ABSTRACT

Citrus limon is an evergreen tree native to Asia. The tree's ellipsoidal yellow fruit is used for culinary and non-culinary purposes throughout the world, primarily for its juice, though the pulp and rind (zest) are also used in cooking and baking. It is well known for its antibacterial and antioxidant Properties. The Preparation of Copper nanoparticles of *Citrus limon* is done with the Help of Green Microwave method. The Prepared nanoparticles were evaluated by UV-vis Spectrophotometer, SEM, DLS, AFM. This results confirms the formation of copper nanoparticles having the Particle Size Less than 100 nm. The Prepared nanoparticles Shows good antibacterial and antioxidant Property.

PC-51

FORMULATION AND EVALUATION OF CYCLOSPORINE LOADED BIONIOSOMAL GEL USING BIOPOLYMER (*BUCHANANIA LANZAN)* SEEDS AND STANDARD POLYMER

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ABSTRACT

The aim of the current research work was to formulate cyclosporine bioniosomal gel for transdermal delivery. Cyclosporine is a powerful immunosuppressant with a specific action on T-lymphocytes & it is used for treatment of transplant (kidney, liver, and heart) rejection, rheumatoid arthritis. Bioniosomal gel formulations of Cyclosporine were prepared by Film hydration technique and 100mg of cholesterol, 50mg of cetyl alcohol and 10ml of chcl3 used as stabilizer cum surfactant and *Buchanania Lanzan*(60mg, 80mg, 100mg, 120mg,200mg) using as a bio-emulsifier cum retardant and standard polymer Span 60(10mg,30m,100mg)used as a non-ionic surfactant, Na-cmc used as gelling agent. Biopolymer was isolated from seeds by non-solvent addition technique. The prepared Bioniosomal gel were evaluated for their physical appearance, average globule size, spreadibility, percent drug entrapment, penetration, content unifomity and In-vitro drug release studies. All prepared Bioniosomal gel showed acceptable

physical properties concerning color, homogeneity, and pH range. The results showed FB3 (60mg) and FS3 (100mg) are best formulations on the basis of stability &T_{80} (360min). The conclusion was drawn that *Buchanania lanzan* used as bio-stabilizer cum retardant for preparing drug cyclosporine bioniosomal gel used for transdermal drug delivery.

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PC-52

NOVEL DRUG DELIVERY VS CONVENTIONAL DRUG DELIVERY FOR ACNE.

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ABSTRACT

Maximum of the population suffers at some point in their lifetime from acne vulgaris. Acne vulgaris is a distressing condition related to the pilo sebaceous follicle and which is considered as an 'adolescent' disorder. Topical conventional systems are associated with various side effects. Novel drug carriers intended for use in skin diseases are often designed to increase the load ability of APIs and reduce side effect. Topical treatment of acne with active pharmaceutical ingredients (API) makes direct contact with the target site before entering the systemic circulation which reduces the systemic side effect of the parenteral or oral administration of drug. The objective of the present abstract is to discuss the conventional delivery systems available for acne, their drawbacks, and limitations. The advantages, disadvantages, and outcome of using various novel delivery systems like liposomes, niosomes, solid lipid nanoparticles, and so forth, are explained. Novel drug carriers intended for use in skin diseases are often designed to increase the load ability of APIs and reduce side effect. In dermatotherapy, research on new drug entities and drug delivery systems is focused on frequent diseases often difficult to treat, in particular acne and psoriasis.

PC-53

FORMULATION AND EVALUTION OF TRAMADOL LOADED TRANSDERMAL FILM USING GUAVA *(PSIDIUM GUAJAVA)* AS A BIO- FILM FORMER

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ABSTRACT

The current research work aimed to formulate and evaluate tramadol loaded transdermal film by using guava (*psidium guajava)* as bio- film forming agent. Tramadol, a centrally acting synthetic opoid analgesic used in acute musculoskeletal pain etc. The biopolymer from *psidium guajava* fruit pulp was isolated by addition of optimized quantity of acetone non solvent & recovered by filteration & used as bio- film forming agent & prepared tramadol loaded transdermal films. Transdermal films were prepared by film casting method using 10mg Tramadol and 5 films with guava (*psidium guajava*)(1%,2%,3%,4%,5%) using as bio-film former & 3 films with Sodium alginate (1%,2%,5%) using as standard film forming polymer. The results were compared on mentioned parameters like texture analysis, thickness of film, folding endurance, content uniformity & in-vitro drug release study. The experimental results revealed that the formulated transdermal films showed $T_{80\%}$ 420mins for FB4 (400mg) & for FS2 (200mg) with promising flexibility, uniformity & folding endurance were found to be the best formulation showing drug release profile in a controlled manner. The conclusion was drawn that guava (*psidium guajava)* used as bio-film forming agent for preparing tramadol loaded transdermal films.

PC-54

DEVELOPMENT OF POLYMER BASED FLOATING DRUG DELIVERY SYSTEM OF FAMOTIDINE

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ABSTRACT

Famotidine is histamine H_2 receptor antagonist. It is widely prescribed in active duodenal ulcers, gastric ulcers, gastro esophageal reflux disease and erosive esophagitis. Famotidine is having a short biological half-life of 2.5-3.5 hrs. The gastroretentive drug delivery system can be retained in the stomach and assist in improving the oral sustained delivery of drugs. The floating matrix drug delivery system of Famotidine was prepared by using sodium alginate, HPMC K15M, sodium bicarbonate and citric acid. The formulated formulations showed good buoyancy, in-vitro sustained release of Famotidine and good stability at room temperature for a period of month.

PC-55

SYNTHESIS AND EVALUATION OF THIOLATED SODIUM ALGINATE AS A MUCAODHESIVE POLYMER

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ABSTRACT

The purpose of the present study was to improve the mucoadhesive properties of alginate by the covalent attachment of cysteine thereby preparing thiolated alginate mediated by N,N, Dicyclohexylcarbodiimide (DCCI), L-cysteine hydrochloride monohydrate was covalently linked to the sodium alginate polymer and the synthesized thiomer was characterized by X-Ray Diffraction (XRD), Differential Scanning Calorimetry (DSC), Nuclear Magnetic Resonance (NMR), Fourier Transform Infra Red Spectroscopy (FTIR). The formulated tablets were evaluated for tablet parametric tests, ex vivo mucoadhesive strength, mucoadhesion time, force of adhesion, swelling studies, in vitro drug release studies and drug release kinetics. Mucoadhesive strength of tablets with different concentration of polymer was characterized using modified pan balance using goat's fresh stomach tissue. The concentration of the thiol group was determined by using ellman's reagent directly and was found to be 20.05 µg/ml polymers. The thiolated alginate demonstrated an increased viscosity i.e. 275 cps as compared to simple alginate viscosity in combination with the mucin i.e. 92 cps, it may be due to the formation of additional disulfide bonds between the mucus and the conjugate. Native alginate tablets F1, F2, F3, and F4 shows drug release ranging from 10 % to 20 % during first 2 h, and at the end of 10 h, the cumulative percent drug releases were found to be 55 % to 90 %, where as in case of thiolated alginate tablets formulation T1, T2, T3 and T4 were ranging from 3 % to 19 % during first 2 h. and at the end of 12 h, the cumulative percent drug releases were found to be 58 % to 96 %. The covalent attachment of cysteine to the polymer leads to a significant increase in the swelling behaviour of the polymer this improved water uptake of the conjugate should contribute to the mucoadhesiveness of the thiolated polymer.

PC-56

DESIGN AND EVALUATION OF A NOVEL TRANS-LABIAL BIO LIPSTRIP FOR THE DELIVERY OF ROSIGLITAZONE MALEATE

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ABSTRACT

The aim of this study was to design drug loaded bio lipstrip using novel bio-excipient isolated from the seeds of *Glycine max*. Rosiglitazone is an oral hypoglycemic agent which undergoes extensive first pass metabolism and having extremely short half life which make it a possible

candidate for delivery through lip skin. The biopolymer isolated by a simplified economical process and purified by hot dialysis method. Rosiglitazone loaded bio lip strip were formulated by film casting method using glycine max biopolymer as a strip former and dextrose as a flexicizer. The formulated strips were subjected to various evaluation parameters including thickness, folding endurance, swelling index, *In-vitro* diffusion and stability studies. Our results of *in–vitro* diffusion revealed that the Rosiglitazone release was extended over a period of 24 hours. Release kinetics of bio lip strips followed Higuchi model and the mechanism of the drug release was diffusion and anomalous type. The best formulation (GA2) was selected on the basis of various evaluated parameters, linearity of drug diffusion rate and used concentration of the biopolymer in the formulation. The designed bio lip strips are feasible for delivery of Rosiglitazone through Trans- labial route.

PC-57

FORMULATION AND EVALUATION OF SUSTAINED RELEASE MATRIX TABLET OF METFORMIN HYDROCHLORIDE

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ABSTRACT

Metformin hydrochloride is indicated for the treatment of type-2 diabetes mellitus. However, limitations of multiple dosing and risk of triggering gastrointestinal symptoms make its dose optimization difficult. Extended-release metformin matrix tablets were prepared by direct compression of drug and using hydrophilic Eudragit RSPO and RLPO alone or in combination with hydrophobic Ethyl cellulose polymer as rate controlling factor. When Eudragit RSPO and RLPO were used alone as the only retarding polymer, a sustained drug release pattern were not observed while, Inclusion of ethylcellulose in the matrix almost doubled (12 h) the time required for releasing the drug. The drug- excipient interaction study was done using Fourier transform Infrared Spectroscopy and the thermal analysis using differential scanning calorimetry revealed absence of interaction between drug and excipients. All the batches were evaluated for thickness, weight variation, hardness, and drug content uniformity. The *in vitro* drug dissolution study was carried out using USP dissolution test apparatus type II, paddle method and the release mechanisms were studied. Mean dissolution time is used to characterize drug release rate from a dosage form and indicates the drug release retarding efficiency of polymer.

PC-58

ANTIBIOTIC RESISTANCE: CONTROL STRATEGIES

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ABSTRACT

The choice of appropriate antimicrobial agents ought to seize into consideration not merely the interests of the individual patient, but additionally the ecological encounter of disparate drugs and their transport schedules. Picking of antibiotic-resistant organisms is a key aspect to remember. Bacterial populaces harboring determinants of antibiotic confrontation will be selected for by a scope of antibiotic concentrations that are able to suppress or sluggish the development of susceptible populations. These concentrations (selective concentrations) will be attained inside the human body in a sequence of compartments (selective compartments), whereas the possible discerning manipulation will be roughly proportional to the period of exposure of the bacteria to the drug (selective period). The period of the anticipated exposure of bacterial population to these concentrations of the drugs and the number of trials they experience are plausibly the most vital factors in forecasting the possible discerning attention of an antibiotic regimen. Such a risk scrutiny procedure could be utilized to counsel guidelines for minimizing the progress of antibiotic resistance.

PC-59

ANTIOXIDANT PROPERTY OF POLYHERBAL SILVER NANOPARTICLES FOR USE IN CREAMS AND LOTIONS

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ABSTRACT

Oxidative stress is the burden felt by an organism due to the presence of free radicals released in the body during the metabolic reactions occurring in the body to release energy for normal course of life. The antioxidants have a role of neutralising these free radicals which are proved to have adverse effects on the health of any individual. Free radicals or oxidative stress is the cause of chronic ailments such as heart disorders and many types of cancers. Cucumber (*Cucumis sativus*) and Neem (*Azadirachta indica*) are known for anti-inflammatory, rehydrating, cancer preventive, anti-diabetic, anti-cholesterolemic and anti-hypertensive properties is also known to have antioxidant properties. This experiment thus aims to prepare silver nanoparticles and evaluate its antioxidant properties, to be incorporated into creams and lotions. Silver nanoparticles were prepared by microwave - assisted green synthesis. The AgNPs were characterized by UV-visible (vis) spectrophotometer, particle size analyzer (DLS), scanning electron microscopy (SEM), Fourier transform infrared spectrometer (FTIR) analysis was carried out to determine the nature of the capping agents in each of these leaf extracts.

PC-60

DEVELOPMENT AND CHARACTERISATION OF AN ANTI-INFLAMMATORY NANOEMULSION WITH GUGGUL LIPID EXTRACT

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ABSTRACT

The aim of the present investigation was to develop a guggul lipid nanoemulsion for transdermal delivery in the treatment of rheumatoid arthritis. The incorporation of guggul lipid inside a nanoglobule should improve guggul stability and permeability. A nanoemulsion was prepared by the self-nanoemulsification method, using an oil phase of glyceryl monooleate, Cremophor RH40 and polyethylene glycol 400. Various parameters were considered in the evaluation of nanoemulsion included analysis of particle size, polydispersity index, zeta potential, physical stability and morphology. In addition, the physical performance of the nanoemulsion in Viscolam AT 100P gel was studied. A modified vertical diffusion cell and goat skin was used to study the in vitro permeation of guggul. The mean droplet diameter, polydispersity index and zeta potential of optimized nanoemulsion were 85.0± 1.5 nm, 0.18 ± 0.0 and -5.9 ± 0.3 mV, respectively. Furthermore, nanoemulsification significantly improved the permeation flux of drug from the hydrophilic matrix gel; the release kinetic of guggul changed from zero order to a Higuchi release profile. Overall, the developed nanoemulsion system not only improved guggul lipid permeability but also provide the potential dosage form for the management of rheumatoid arthritis.

PC-61

STUDY ON GELLING PROPERTY OF *GREWIA ASIATICA* MUCILAGE

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ABSTRACT

The mucilage from *Grewia asiatica* bark was isolated and studied for its gelling property. The mucilage showed good gelling behavior in 5.50, 5.75, 6.00, 6.25 and 6.50% concentrations. So, 10 formulations viz., B_1, B_2, B_3, B_4, B_5, BP_1, BP_2, BP_3, BP_4 and BP_5 with and without penetration

enhancers were prepared using 1% w/w diclofenac sodium as model drug. The batches were subjected to different evaluation tests like physical characterization, pH, spreadibility, skin irritation, gel retrogradation, drug content and *in vitro* diffusion. The *in vitro* diffusion of different formulations was compared with the *in vitro* release of the marketed formulation and studied for dissimilarity (f_1) and similarity (f_2). To assess the release mechanism, the formulations were treated with Korsmeyers-Peppas' model. All formulations were elegant when observed visually. The pH was ranges from 6.97 ± 0.05 to 7.36 ± 0.16 and spreadibility was acceptable for all formulations. All formulations were non irritant to the skin and gel retrogradation was nil. The drug content ranges from 80.67 ± 0.11 to 92.30 ± 0.25 %. All formulations followed anomalous transport mechanism of drug release. The formulation BP_3 showed 90% 0f drug release at 5.2 h which was similar to the release of marketed formulation. Also, formulation BP_3 showed less dissimilarity (1.26) and maximum similarity (93.16). Hence, formulation BP_3 was found ideal among all formulations.

PC-62

ADVANCEMENT IN CANCER THERAPY BY USING NANOFORMULATION OF CURCUMIN

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ABSTRACT

Natural compounds are emerging as effective agents for the treatment of malignant diseases. Curcumin, the active constituent of turmeric extract, has gained significant interest as a plant-based compound with anti-cancer properties. Curcumin is physiologically very well tolerated, with negligible systemic toxicity observed even after high oral doses administration. Despite curcumin's superior properties as an anti-cancer agent its applications are limited due to its low solubility and physico-chemical stability, rapid systemic clearance and low cellular uptake. The feasibility of nano-formulation in delivering curcumin and the limitations and challenges in designing and administrating the nano-sized curcumin particles are considered. Nanotechnology is a promising tool to enhance efficacy and delivery of drugs. In this context, formulation of curcumin as nano-sized particles could reduce the required therapeutic dosages and subsequently reduced its cell toxicity. These nanoparticles are capable to provide local delivery of curcumin targeted to specific areas and thereby preventing systemic clearance. In addition, using specific coating, better pharmacokinetic and internalization of nano-curcumin could be achieved. However, the potential toxicity of nano-carriers for curcumin delivery is an important issue, which should be taken into account in curcumin nano-formulation.

PC-63

DEVELOPMENT AND EVALUATION OF SOLANUM NIGRUM EXTRACT LOADED PLGA MICROSPHERES FOR ANTIULCER POTENTIAL

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ABSTRACT

The apex aspire of current swot up was to design & fabricate *Solanum nigrum* extract loaded PLGA sustained released microspheres to appraise antiulcer bustle in Acetyl Salicylic acid induced ulcer rat model. Solvent evaporation method was engaged to fabricate the *Solanum nigrum* extract loaded microspheres. Optical microscopy was employed for the investigation microspheres architecture and distribution. Formulations containing *Solanum nigrum* loaded PLGA sustained released microspheres administered orally to the animal model. *Solanum nigrum* loaded microspheres significantly decreased free-acidity, total-acidity, ulcer index and gastric volume and significantly increased the pH in Acetyl Salicylic acid model. The results of histopathology of stomach (after administration of formulation) presume the zenith potential of sustained released PLGA microspheres loaded *Solanum nigrum* extract opening the new eon for the better management of ulcer predicament .

PC-64

FORMULATION AND EVALUTION OF SIMVASTATIN LOADED TRANSDERMAL FLEXI FILM

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ABSTRACT

The aim of the present research work was to formulate Simvastatin loaded Transdermal film using polycaprolactone and sodium alginate as a film former. Simvastatin is used to lower cholesterol in the blood. It also used to lower the risk of stroke, heart attack, and other heart complications. The most common side effects of Simvastatin are Dizziness, Fainting, fast or irregular heartbeat. Simvastatin loaded Transdermal film were prepared by incorporating polycaprolactone and sodium alginate in equal proportions at a concentration of 1%, 2%, 3%, 4% and dissolve in 10ml acetone & water mixture(6:4), added 10mg of Simvastatin and stirred on magnetic stirrer and film was prepared by film casting method. The prepared films were subjected for various evaluation parameter like folding endurance, texture analysis, content uniformity, thickness and in-vitro release of film. The results were compared and FP3 was selected as a best formulation and showed significant folding endurance (160), good flexibility, promising uniformity and smooth texture with in-vitro release for t_{50} 240mins and t_{80} 420mins. Conclusion was drawn that transdermal flexible films can be prepared by using polycaprolactone and sodium alginate an combination as a film forming agents.

PC-65

FLOATING DRUG DELIVERY SYSTEM

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ABSTRACT

Floating drug delivery system provides innate delivery to specific portion like stomach and small intestine and it's additionally shows the greater bioavailability and improved therapeutic attention and comprehensive benefits to patients. The objective of our study is to amass the recent advancements and literatures considering the novel do form. Gastric emptying is a complicated procedure and makes in vivo performance of the drug delivery system uncertain. The floating drug delivery systems are functional way to avoid this variability alongside rise the retention period of the drug delivery system. Non-effervescent and effervescent are two types of floating drug delivery system and can be formulated in single or multiple unit dosage form. The technique used in the progress of floating drug delivery system by formulating non-effervescent and effervescent floating tablets based on buoyancy mechanism. By employing appropriate ways it is possible to deliver drugs that have narrow curative window.

PC-66

FORMULATION AND EVALUATION OF FELODIPINE EMULGEL BY USING STANDARD POLYMER (*SODIUM ALGINATE*)

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ABSTRACT

The aim of the present research work was to formulate and evaluate felodipine emulgel for transdermal drug delivery. The drug is use to control high blood pressure by calcium channel blocker (calcium antagonist).felodipine is showing side effect at oral administration swelling on face, legs, arms, hands, rapid weight gain and less commonly side effect is difficulty in breathing. The felodipine emulgel were prepared by using primary emulsion by incorporating 10 mg of felodipine drug in 10 ml oil sunflower oil and various amount Span 20 (0.5, 1, 1.5, 3) mg emulsifier was added and triturate for 2-3 minute and add 5 ml of distilled water was incorporated by continuous triturate for 5 minute to until get primary emulsion further incorporated in to sodium alginate polymer at various conc.(0.5, 1, 1.5, 6) % and continuous stir

on magnetic stir for 15 minute. The all formulation subjected for evaluation pH determination, spreadibilty, in vitro drug release, viscosity, globule size etc. The emulgel was found to be best formulation, FE4 show best formulation on their evaluation parameter significantly good spreadibilty, pH (6.9-7.2), and uniformly size and smooth texture globule size (24.5-27.6) µm. FE4 showed T_{80} within 180 minutes hence that was selected.

PC-67

DEVELOPMENT AND CHARACTERIZATION OF MUCOADHESIVE DELIVERY SYSTEM OF METRONIDAZOLE FOR THE TREATMENT OF PERIODONTITIS

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ABSTRACT

The aim of the present work was to develop sustained release mucoadhesive delivery system of metronidazole (antimicrobial agent) for maintaining its effective concentration in the gingival crevicular fluid for the treatment of periodontitis. For this, mucoadhesive films were prepared using HPMC E 15 and Eudragit RL 100 polymers with PEG-100 as a plasticizer by solvent casting method. The physicochemical interactions between metronidazole and polymers were investigated by Fourier transform infrared spectroscopy (FTIR). The developed systems were evaluated for various physico-chemical parameters like thickness, weight variation, folding endurance, tensile strength, swelling index, percent moisture absorption, surface pH, drug content, *in vitro* drug release etc. The drug content of the films was found to be more than 95%. The selected formulation, (HPMC and Eudragit RL 100) revealed a 78.4% of metronidazole release up to 6 hrs. The results of drug release studies were show a first burst release which is followed by a slow release for all the formulations. A stability study of optimized patch was done in simulated human saliva and both drug and films were stable in simulated human saliva. From the study it was concluded that the developed mucoadhesive delivery system would able to deliver the drug in a controlled manner over an extended period of time.

Key words: Mucoadhesive, films, metronidazole, Peiodontitis

PC-68

FORMULATION AND EVALUATION OF TOPICAL DICLOFENAC SODIUM GEL USING DIFFERENT GELLING AGENT

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ABSTRACT

The target of this discovers was to enhance the transdermal permeation of Diclofenac Sodium. Permeation studies were grasped out in-vitro employing Cellophane Membrane. Topical gel formulations of Diclofenac Sodium were coordinated by employing Carbopol 934, Sodium Carboxy Methyl Cellulose(NaCMC), Hydroxy Propyl Methyl Cellulose(HPMC), sodium alginate polymer as a gel-forming physical that will attenuate the gastrointestinal relater toxicities associated alongside oral administration. They were assessed for physicochemical properties such as homogeneity, grittiness, viscosity, pH, Spreadability, drug content, in vitro drug discharge, stability studies. The in-vitro drug discharge rate of gel was assessed employing Franz diffusion cell containing cellophane membrane alongside phosphate buffer pH 6.8 as the receptor medium. The examples kept were spectrophotometrically approximated at 256nm opposing their corresponding blank. Studies displayed that drug discharge was cut alongside rise in gelling agent compression because polymer compression increases, viscosity increases. Drug was absorbed from locale of request as long as it stays in higher compression gelling agent in resolution form. The gel arranging is brilliant in the percutaneous absorption of Diclofenac or its salts and provides good properties on use and superior health results of Diclofenac or its salts.

PC-69

FORMULATION AND EVALUATION OF SIMVASTATIN BIO-NANOPARTICLE LOADED TRANSDERMAL PATCH

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ABSTRACT

In this research work Simvastatin Bio-Nanoparticle loaded Transdermal Patches were formulated and evaluated using biopolymer isolated from *Musa balbisiana* pulp.Simvastatin, anti-hyperlipidemic, HMG-CoA reductase inhibitor. Skin used as site for drug administration for continuous drug infusion into systemic circulation. For penetration into skin nano-sized Simvastatin loaded patches were formulated by Solvent Evaporation method using different ratios of drug: isolated polymer (FA1 (1:2); FA2 (1:4); FA3 (1:6); FA4(1:8) and a standard polymers Sodium CMC (FF1(1:2); FF2 (1:6)). Prepared formulations were evaluated for various parameters. Thickness (0.32±0.015mm to 0.75±0.02mm), Moisture uptake (11.4±2.71 to 10.4±0.10), Folding Endurance (23±2 to 210±4.9), Swelling Index (85.1±0.36 to 131.9±0.31)*In-Vitro*release showedT50%of best formulation (243.24 min),T80% (564.79 min), *In-Vivo* drug study was also performed. FA4(1:8),FF2(1:6) considered Best Formulations. Based on *In-Vitro*study, a smart conclusion was drawn that isolated novel biopolymer can serve as promising filmformer*Musa balbisiana* for formulation of Simvastatin Bio-Nanoparticle loaded Transdermal Patches. This drug delivery provided sustained drug release into blood circulation and lower cholesterol level at extended time period of 24 hrs, nanosizing approach used to prepare patch offered efficiency of drug into skin and its release.

PC-70

KNOWLEDGE, PERCEPTION AND ATTITUDE TOWARDS DIRECT TO CONSUMER ADVERTISING

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ABSTRACT

Direct to consumer advertising is the process which is generally applied to the marketing of pharmaceutical products. The first DTCA for prescription drug appeared in Reader's Digest in 1981 in USA. The advertisements must be true and balance information about side-effects, contraindications and effectiveness of drugs. Proponents argue that it provides consumers with information about treatment options and might help to increase public awareness and treatment of serious diseases like diabetes, hypertension, depression, cardiovascular diseases etc.Till now the overall reaction towards DTCA for prescription drugs is mixed. The study proves that DTCA can be acceptable by the society if it shows positive response for better knowledge and awareness.

PC-71

ENHANCEMENT OF SOLUBILITY AND BIOAVAILABILITY OF LORNOXICAM BY USING β-CYCLODEXTRIN AND ITS DERIVATIVE COMPLEXES

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ABSTRACT

A successful attempt was made to formulate transdermal gel of Lornoxicam inclusion complexes using Carbopol 934P as a gelling agent. Utilization of cyclodextrins attracted the attention of many researchers for the enhancement of the dissolution rate. The complexation of lornoxicam with β- cyclodextrin (CD) was investigated by phase solubility. Phase solubility study was performed to determine stiochiometric proportion of lornoxicam and complexing agent β -cyclodextrin. Solid inclusion complexes of lornoxicam -βCD in 1:1 and 1:2 ratios were prepared by different methods, and the results were satisfactorily and complied with compendia. Gel were formulated employing lornoxicam alone and their β-CD complexes with an objective of

evaluating the feasibility of employing drug-β-CD complexes in the design of immediate release of drug from prepared formulations for obtaining complete drug release in 02 hr. All the prepared formulations were optimized and were evaluated for clarity, homogeneity, spreadability, extrudability, viscosity, pH, drug content and in-vitro diffusion test. The overall results indicated that formulation G6 was better and that it satisfies all the criteria as a transdermal gel system.

PC-72

FORMULATION AND EVALUATION OF ETHYLCELLULOSE MICROSPHERES OF ATENOLOL

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ABSTRACT

Microsphere offer vast advances in the pharmaceutical field. Microspheres are the small spherical particles with diameter in the micrometer range, typically1 µm to 1000 µm. The recent use allows targeting the delivery of such drugs which offers difficulties in their normal delivery. Now higher dose can be administered as microspheres thus limiting gastrointestinal side-effects and allowing a full course of antibiotics to be given in a single dose. In recent years, studies of microspheres have been increased so that it may be used in more diverse applications and it is evident that the range of its applications is vast and enormous. For biologists, microspheres have emerged as an exciting new platform in the investigation of cellular processes and bimolecular interactions. The future certainly looks bright for microspheres, particularly in the areas of proteomics, genomics and drug discovery. The ethylcellulose microspheres of atenolol were successfully prepared by solvent evaporation technique and confirmed that it is a best method for preparing atenolol loaded microspheres from its higher percentage yield. Higher percentage of loading was obtained by increasing the amount of atenolol with respect to polymer. We concluded that the microspheres of atenolol were found to have a higher percentage yield and encapsulation efficiency is respectively. Diffusion of the drug has also increased.

PC-73

DEVELOPMENT AND EVALUATION OF METHOTREXATE NANOEMULSION FOR TREATMENT OF PSORIASIS

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ABSTRACT

Psoriasis is an unrelieved provocative non contagious skin and joint disease that affects the immune system of human. The treatment is depends on the types of Psoriasis, its location, extant etc. Methotrexate (MTX) is highly effective in severe psoriasis and can be used for different types of psoriasis. But it may lead to serious side effects like liver damage and also requires patients monitoring during therapy. In the study, nanoemulsion was prepared by Ultrasonification method. Optimization of oil/water/surfactant and co-surfactant ratio was determined by using Pseudo-ternary phase diagrams. The ratio of SLS and n-butanol was selected to be 2:1 with the varying concentration of MTX 1%, 1.5% and 2%. Optimized formulation was characterized for globule size, pH, TEM and in-vitro drug release study. The globule size of the prepared nanoemulsion formulations was found to be in the range of 86.2nm to 102.5nm. The total drug concentration in different formulations was found to be in the range of 54.83% to 84.90%. In formulation containing 1.5% drug concentration the rate of drug release was found to be lesser comparatively to other formulations (1.0% and 2.0% drug concentration). It showed that satisfactory drug released was observed. The stability study of the formulation was evaluated at various accelerated conditions of temperature (4±1ºc, 25±1ºc and 40±1ºc). The formulation was found to be most stable in dark at room temperature.

PC-74

FORMULATION AND EVALUATION OF ASPIRIN DELAYED RELEASE TABLET

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ABSTRACT

The main goal of this work was to formulation progress of the Aspirin postponed discharge tablets and to comprehend the kinetics of drug discharge by requesting mathematical and model-dependent approaches. Six formulations of postponed discharge tablets were coordinated by the manage compression method and easy pan coating employing Drug coat N-100 and Hydroxypropyl methyl cellulose phthalate (HPMCP) as enteric coating polymers. The in vitro drug discharge was learned in pH 1.2 HCl and 6.8pH phosphate buffer employing USP closure Apparatus 2 at 100 rpm. These models were utilized to guesstimate the kinetics of drug release. The criteria for selecting the most appropriate ideal were established on the goodness of fit examination and lowest sum of squares residual. The difference in percent cumulative drug discharge of every single point was highest for the optimum batch.

PC-75

NOVASOME- A NEW TECHNOLOGY IN DRUG DELIVERY SYSTEM

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ABSTRACT

Pharmaceutical technology has developed various newer modes of novel drug delivery aspects. Modifications in the previously existing drug delivery methods have led to various newly innovated technologies serving as a safe and effective means of improvement over the existing ones. Novasome technology is one of the new innovations of liposomes which have solved many of the problems related to liposomal drug delivery system. Novasomes are the modified forms of liposomes or a variation of niosomes prepared from the mixture of monoester of polyoxyethylene fatty acids, cholesterol and free fatty acids at 74/22/4 ratio. It is a multi bilayered vesicle with a high capacity central core. They have the advantage of containing more active ingredient in a small volume. Both hydrophilic as well as hydrophobic products can be incorporated in the same formulation. Drugs showing interactions can be incorporated in between bilayers to prevent incompatibility. They contain channels (vacancies) that act as a pathway for travel of encapsulated components. Various studies showed that non phospholipid vesicles (novasome technology) proved to have more encapsulation efficiency and shows better targeting and sustained release of active ingredients.

PC-76

CYP3A4 INHIBITOR FOR IMPROVED ORAL BIOAVAILABILITY OF FELODIPINE

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ABSTRACT

Felodipine a widely prescribed antihypertensive has low bioavailability (15%) attributed to its low solubility, first pass metabolism and active efflux in the small intestine. Felodipine is a CYP3A4 substrate. Clinical studies demonstrate that the oral bioavailability of P-glycoprotein (P-gp) and/or CYP3A4 substrates can be increased by simultaneous administration of P-gp and/or CYP3A4 inactivators. Quercetin is reported to inhibit P-gp and CYP3A4 in intestine. In the present investigation a formulation containing Quercetin and Felodipine was developed and the influence of Quercetin on absorption of Felodipine was studied. Felodipine was loaded on sugar globules and coated with Quercetin. Drug content and in vitro dissolution profile of the formulation was studied. The ex vivo permeation studies were carried out using Using Chamber and intestinal sac technique. The ex vivo studies from ussing chamber revealed threefold increase in the Papp value of Quercetin coated Felodipine beads as compared to that of Felodipine beads. The intestinal sac study showed one fold increase in the apparent

permeability coefficient(Papp) of Felodipine-Quercetin powder mixture when compared with the plain Felodipine. The study demonstrates that incorporation of flavonoid such as Quercetin in formulation of Felodipine, may be beneficial in improving drug oral bioavailability by acting as CYP3A4 inhibitor.

PC-77

NEED FOR GASTRORETENTIVE DOSAGE FORM

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ABSTRACT

Oral sustained released dosage forms (SRDFs) have been developed for the past three decades due to their considerable therapeutic advantages. However, this approach is not suitable for drugs, characterized by a narrow absorption window in the upper part of the gastrointestinal tract (GIT), i.e. stomach and small intestine due to relatively short transit time of the SRDFs in these anatomical segments. Thus, after only a short period (<6h), SRDF leaves the upper GIT and drug is released in nonabsorbing distal segments of GIT. This results in a short absorption phase accompanied by lesser bioavailability. It has been suggested that compounding narrow absorption window drugs in a unique pharmaceutical dosage form with gastroretentive properties would enable an extended absorption phase of these drugs. After oral administration, such a dosage form would be retained in stomach and release them in a sustained manner, so that the drug could be supplied continuously to its absorption sites in upper GIT. This mode of administration would achieve the known pharmacokinetic and pharmacodynamic advantages of SRDFs for these drugs. The need for gastroretentive dosage forms (GRDFs) has led to extensive efforts in both academia and industry towards the development of such drugs delivery system.

PC-78

FORMULATION AND EVALUATION OF LOSARTON POTASSIUM SUSTAINED RELEASE FLOATING TABLET

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ABSTRACT

In the present work, floating gastroretentive formulation of losartan potassium was formulated to sustained release of losartan potassium above its site of absorption. To modulate the release characteristics, HPMC (K4M),HPMC (K100M) and natural swelling agent Psyllum husk are used for single-unit floating matrix tablets by a direct compression technique. The floating approach was achieved by the use of Sodium bicarbonate and citric acid.The prepared floating tablets were evaluated for their floating behavior, swelling studies, *in-vitro* drug release studies and kinetic analysis of the release data. The optimize formulation shows floating lag time within 3 min. The effect of HPMC (K4M), HPMC(K100M) and swelling agent Psyllum husk on drug release was observed. shows drug release till losartan potassium 12 hrs due to gel forming property of HPMC (K4M),HPMC(K100M) and swelling capacity of Psyllum husk. Form the results, it can be conclude that the prepared gastroretentive tablet of losartan potassium shows desirable release profile, good floating and sustained effect in stomach. The Fourier Transform Infra Red Spectroscopy studies revealed that there is no molecular interaction which may have implications on drug release characteristics.

PC-79

EFFECT OF PH ON PARTICLE SIZE AND ENTRAPMENT EFFICIENCY OF MICROPARTICLES

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ABSTRACT

The aim of present study was to formulate microparticles (microspheres) of 'ibuprofen' to provide controlled release as well as to minimize local side effect associated with upper

gastrointestinal tract by modifying the release of drug. The lipid polymer, modifier and dispersant were used for the formulation of microspheres by melt dispersion method which is more beneficial than the solvent evaporation method because of total absence of organic solvents during the preparation process. The main objective of this research work was to study the effect of pH on the particle size, entrapment efficiency as well as evaluation characteristics of microspheres. Effect of different variables on evaluation parameters and in-vitro release of ibuprofen were also studied. The effect of pH showed maximum entrapment efficiency and size optimization at pH 3.5 as compare to other pH range. The microspheres form the lumps at low pH 1.2 to 3.0 and shows less entrapment efficiency at higher pH 5.0 to 6.5. The optimized batch of lipid microspheres was formulated with drug-lipid ratio (1:2), at pH 4.5 of aqueous medium and suitable modifier. The obtained results showed the highest entrapment efficiency (about 84.27%) of ibuprofen and drug loading (18.91%). Here from the result, it was observed that the pH of external phase affecting directly the entrapment efficiency, release and morphology of the microspheres.

PC-80

SOLUBILITY ENHANCEMENT OF TELMISARTAN BY SOLID DISPERSION TECHNIQUE

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ABSTRACT

The present study was carried out to overcome the problems associated with solubility, dissolution and oral bioavailability of a poorly water-soluble drug telmisartanbysolid dispersion technique using PVP K30 and PVP K90 as carriers. The drug and carriers were mixed in different ratios (1:1, 1:2 and 1:3) and solid dispersions were prepared bykneading and solvent evaporation method. The prepared solid dispersions were characterized for percentage practical yield, drug content, solubility, FTIR, Differential scanning calorimetry (DSC), Powder X-Ray diffraction (P-XRD) and *in-vitro* drug release studies. Saturation solubility study showed enhancement of solubility in solid dispersions but the increase in solubility was found to be 300 times more in case of PVP K30 as compared to PVP K90. The formulation F3 (Telmisartan: PVP K30 in 1:3) and F6 (Telmisartan: PVP K90 in 1:3) showed 90% and 87% of percent cumulative drug release, respectively. The DSC and P-XRD studies indicated the conversion of telmisartan from crystalline to amorphous form. In conclusion solid dispersions of telmisartan may aid in improving the bioavailability to a greater extent requiring less amount of the drug.

PC-81

FORMULATION AND EVALUATION OF MATRIX TABLETS FOR MEBENDAZOLE

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ABSTRACT

In the present study, an attempt was made to prepare and evaluate natural polymers based matrix tablets of Pectin, Xanthan gum and guar gum & their combination for colon targeted delivery of Mebendazole. The matrix tablets were prepared by wet granulation method. The weight and drug contents of all tablets were found to be uniform with low SD values. The hardness & friability were within specified range. The DSC & FTIR study indicated that the drug is stable in the formulations. The in-vitro drug release study was performed using dissolution rate test apparatus in gastric and intestinal fluids. The uncoated tablets failed to retard the drug release in the environment of stomach and small intestine, hence they are not suitable for colon targeted delivery of drug as maximum amount of drug was released in the physiological environment of stomach and small intestine within 5 hours. Whereas, tablets coated with Eudragit RS100 released small amount of drug within 5 hours and maximum amount of drug was targeted to colonic region. Therefore Eudragit RS100 was found very effective in targeting drug to colon. The M2 tablet which showed satisfactory release *in vitro* was tested for its integrity and transit *in vivo* in rabbits. The results of in vivo roentgenography showed that the

prepared tablet was intact up to 11 hours and transit was clearly seen. Drug release mechanism followed non-Fickian transport.

PC-82

PHARMACOVIGILANCE

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ABSTRACT

Pharmacovigilance is derived from 2 words, pharmacon (Greek for drug) and vigilare (Latin for to keep watch). Pharmacovigilance is heavily focused on adverse drug reactions (ADRs) which are defined as any response to a drug which is noxious and unintended including lack of efficacy. Information received from patient and health care provider via Pharmacovigilance agreement (PVAs) as well as medical literature plays a critical role in providing the data necessary for Pharmacovigilance to take place. Pharmacovigilance is concerned with identifying the hazards associated with pharmaceutical product and minimizing the risk of any harm that may come to the patient. On regulatory level-conditional approval and risk management plans; on a scientific level-transparency and increased patient involvement are the two important elements of Pharmacovigilance. Adverse drug reaction is a side effect occurring with a drug where a positive casual relationship between the event and drug is thought or has been proven to exist.

PC-83

A REVIEW ON NANOTECHNOLOGY BASED TARGET DRUG DELIVERY SYSTEM IN THE TREATMENT ON CANCER

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ABSTRACT:

Nanoparticles have been investigated as drug carriers, because they provide a great opportunity due to various advantageous features. Nanoparticles have been developed by incorporating imaging agents in drug carriers as all-in-one system, which makes it possible to diagnose and treat cancer. Target drug delivery system can help to solveone of the most challenging and longstanding problems in medicine, which ishow to eliminate cancer without harming normal body tissue. The treatment of cancer carried out active targeting of nanoparticles, binding of drugs to their tumoral targets or the presence of tumor associated macrophages.Recent technological improvements such as Photodynamic therapy (PDT) and Bio- imaging strategies include MRI, PET, single positron emission computed tomography has the potential to become integrated into the mainstream of cancer treatment. Nanocarrier-based therapeutic agents have been used to achieve longer circulation times, better stability and bioavailability over current therapeutics. It includes the advances and prospects in applicationsof nanotechnology for cancer prevention, detection and treatment.The overall objective of this investigation is to enhance our understanding in the design and development of therapeutic nanoparticles for treatment of cancers.

PC-84

FORMULATION AND EVALUATION OF FLOATING TABLETS OF RANITIDINE WITH NATURAL POLYMERS: A COMPARATIVE STUDY

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ABSTRACT

Solid dispersion controlled release is a single step approach to increase the solubility of drug and to sustained the drug release by using appropriate carrier system. Solid dispersion consist of at least two different components, generally a hydrophilic matrix and a hydrophobic drug. The drug can be dispersed molecularly, in amorphous particles or in crystalline particles. In the present study, an attempt was made to improve solubility and bioavailability by preparing solid dispersion of cefixime and sustained its release by melt method by using a combination of

hydrophilic polymer HPMC K4M and hydrophobic polymer stearic acid. Six formulations were prepared and saturation solubility studies, drug content studies and *in vitro* dissolution study were performed on them. Optimized formulation C4 was selected for FTIR, PX-RD, DSC. All the prepared solid dispersions have shown a uniform drug content, and increment in the solubility in water as compared to pure drug alone and corresponding physical mixtures. *In vitro* drug release for formulation C4 showed maximum drug release of 94.01% after 24hrs. All the formulations followed higuchi release and undergo non-fickian diffusion transport. From the PX-RD results, a considerable reduction in crystillinity of cefixime has been observed confirming that drug has been converted into amorphous form. DSC results showed that complex has been formed between drug and polymers as indicated by change in ΔH values. This also suggested that drug has been converted into amorphous form. Thus it can be concluded that sustained drug release can be achieved by formulating the cefixime in solid dispersion.

PC-85

DEVELOPMENT OF PRONIOSOMAL GEL AS A CARRIER SYSTEM FOR THE TRANSDERMAL DELIVERY OF DICLOFENAC SODIUM

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ABSTRACT

Formulation of a gel by using vesicular approach is a novel technique Diclofenac sodium, potent member of non-steroidal anti inflammatory drugs (NSAIDS) and widely used clinically, because of its strong analgesic and antipyretic effect has short half life (2hrs). When administered orally only 25-45% reaches to blood circulation. In order to bypass these limitations, gel formation has been proposed as topical application. Proniosomal gel of Diclofenac sodium was prepared by co-acervation phase separation method using Carbopol 934, Span-60, Soya lecithin, Cholesterol, non-ionic surfactant and drug in different weight ratios. The prepared Proniosomal gel was characterized for pH, size, shape, viscosity, entrapment efficacy, spreadability, extrudability, *in-vitro* drug release by Franz diffusion cell and exvivo studies. Proniosomes are proved to be the potential carriers for the delivery of lipophilic or amphiphilic drugs which are an approach to stabilize niosomal delivery system without affecting its properties and merits and proniosome derived niosomes are good or better than conventional niosomes. Proniosomal gel containing Diclofenac sodium show entrapment efficiency of 72.56 to 97.84%. and drug release of 97.21% observed at interval of 24h. Compare with marketed formulation prepared Proniosomal gel formulation showed better sustained release property and more drug penetration.

PC-86

DEVELOPMENT OF TOPICAL ORGANOGEL DRUG DELIVERY SYSTEM FOR ACYCLOVIR: A NOVEL APPROACH TO TREAT GENITAL HERPES

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ABSTRACT

Organogel is a non-crystalline, non-glassy, thermoplastic solid material composed of a liquid organic phase entrapped in a three-dimensionally cross-linked network. The present investigation aims at developing non ionic surfactant based organogel for the topical delivery of acyclovir using cold method. Organogel of acyclovir was formulated in order to provide local as well as systemic availability leading to improved bioavailability as well as dose reduction. Various batches were prepared by using isopropyl myristate/ n- octanol as an oil phase, Tween as surfactant, Span as cosurfactant, and water as an aqueous phase. Non ionic surfactant based organogel were evaluated for their physical appearance, pH, spreadability, viscosity, drug content and *in-vitro* permeation studies using Franz diffusion cells, skin retention studies, skin compatibility studies, histopathological examination and stability studies. Study showed that there was better compatibility of formulation and also skin pH matches with the pH range of formulated organogel. Skin compatibility study was conducted using rat's skin which showed

the absence of any allergic manifestations. The investigation of present study showed the satisfactory results for other evaluation parameters. Stability studies of formulated organogel proved that there was no significant change in physical stability, drug content, pH, viscosity.

PC-87

FORMULATION AND EVALUATION OF ORAL DISPERSIBLE TABLET USING HOT MELT EXTRUSION TECHNIQUE

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ABSTRACT

Oral dispersible tablets (ODTs) are recent advancement in Novel drug delivery system which aims to enhance safety and efficacy of drug molecule and provide better patient compliance.ODTs are solid unit dosage form, which disintegrates rapidly in mouth due to saliva and have no need of water. These dosage forms provide advantage particularly for pediatric and geriatric populations and to those having difficulty in swallowing conventional tablets and capsules. In present investigation Hot Melt Extrusion Technique is used in formulation of Oral Dispersible Tablet. Hot Melt Extrusion is a process that involves forcing a raw material or blend through die under set conditions like temperature, pressure, rate of mixing and feed rate. During this process, polymer or polymers are melted with API and formed into products of different size and shapes. It consists of following steps: Feeding through die, Mixing, grinding, reducing the particle size, venting and kneading, Flow through die, Extrusion from the die and further downstream processing. It is a continuous process and do not require solvents. It makes solid dispersionsto provide time controlled, modified, extended and targeted drug delivery so as to improve bioavailability as well as taste masking of bitter active pharmaceutical ingredients (API).

PC-88

FORMULATION AND EVALUATION OF MUCOADHESIVE *IN-SITU* GEL FOR NASAL DELIVERY

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ABSTRACT

Intranasal thermosensitive *in-situ* gel for Acyclovir was developed which prolongs the drug release by improving its bioavailability. *In-situ* gel is a dosage form in which medicament is present in solution form before administration in the body, but once administered, undergoes gelation. Intranasal *in-situ* gels were prepared by combination of lutrol 127 and lutrol 407(1:1) with mucoadhesive polymer (hydroxy propyl methyl cellulose and carbopol). Various formulations were prepared by using cold technique. The Formulations were evaluated for sol–gel transition temperature, *in-situ* drug release and mucociliary transit time. Mucoadhesive *in-situ* nasal gel was evaluated for their physical appearance, viscosity, drug content, pH, *in-situ* release studies using Franz diffusion cells, histopathological examination of treated rat nasal epithelium, mucocilliary transit time and stability studies. It was found that formulations had acceptable gelation temperature, nasal skin pH matches with the pH range of formulated mucoadhesive *in-situ* nasal gel and adequate *in-situ* release studies. The investigation of present study showed the satisfactory results for evaluation parameters of mucoadhesive *in-situ* nasal gel. Stability studies of formulated mucoadhesive *in-situ* nasal gel showed that there was no significant change in physical stability, drug content, pH, viscosity.

PC-89

FORMULATION AND EVALUATION OF BUCCAL PATCH LOADED WITH PANTOPRAZOLE

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ABSTRACT

The aim of this research work is to Formulate and Evaluate Drug loaded Buccal Patch of model drug Pantoprazole having Bioavailability: 77%, Half life: 2.8 hrs, Metabolism: cytochrome P450. Biopolymer isolated from *Moringa oleifera* seeds because of its biodegradability, biocompatibility, non-irritant nature. Pullulan Gum used as Standard Polymer. Five Nanosized Pantoprazole loaded Buccal Patches Formulations containing Drug to Polymer ratios of FM1 (10mg:450mg), FM2 (10mg:500mg), FM3 (10mg:550mg), FM4 (10mg:600mg); FM5 (10mg:700mg) were prepared by Solvent Casting method. Evaluation parameter showed % Yield of biopolymer (4.29-5.25%); Surface pH (6.57±0.37 to 6.78±0.62); Thickness (0.24±0.01 to 0.32±0.005mm); Folding Endurance (23±2 to 25.66±2.08); Drug Content (65-75%);drug release pattern was found to be FM3>FM1>FM2. Best Formulation was found to be FM3 (T50%: 168.90min; T80%: 432.38min. 2 Formulations of Buccal Patches prepared using Standard Polymer (FP1, FP2), among which best formulation was found to be FP1 (T50%: 444.67 min; T80%: 1207.18 min). Stability study revealed no significant change in physical appearance, drug content, *In-Vitro* Release of drug.

PC-90

FORMULATION AND EVALUATION OF TRANSDERMAL PATCHES OF LISINOPRIL

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ABSTRACT

The ability to maintain a delivery system at a particular location for an extended period of time has great appeal for both local as well as systemic drug delivery. Recently the transdermal patch has been increasingly used for administration of drug mainly because the drug is directly available to systemic circulation, avoidance of hepatic first pass metabolism and easy removal of film from the site. The main objective of this work was to develop a matrix type transdermal patch of Lisinopril with different ratios of hydrophilic (HPMC) and hydrophobic (ethyl cellulose) polymers and to study the effect of different proportions of polymers on the permeation profile of drug across the rat abdomen. A 3^2 factorial design was used to optimize the formulation. polyvinyl alcohol was used as backing membrane and di-butyl phthalate was used as plasticizer while dimethyl sulphoxide (DMSO) was used as permeation enhancer. The physicochemical compatibility of drug and polymers studied by infrared spectroscopy suggested absence of any incompatibility. The prepared patches were evaluated for physical appearance, thickness uniformity, weight uniformity, folding endurance, % moisture uptake, water vapor permeability, tensile strength, *in-vitro* drug release studies and *ex-vivo* permeation studies. The present study has demonstrated the potential of fabricated matrix films for prolonged release of Lisinopril.

PC-91

RECENT ADVANCES IN DRUG DELIVERY SYSTEM

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ABSTRACT

Drug delivery system (DDS) is a method or process of administering a drug to achieve a therapeutic effect in humans and animals. Over the past three decades, new approaches have been suggested for development of novel carriers for drug delivery. New drug delivery system include lipidic, proteic and polymeric technologies to provide new sustained release drug delivery with better body distribution and better drug protection from harsh external environment.These include Liposomes, microsponges,gels, Cyclodextrin , Nanoparticals etc. These new systems can overcome solubility problem, protect the drug from environment such

as photodegradation and pH changes. This review covers new carriers along with their advances in drug delivery.

PC-92

PREPARATION AND CHARACTERISATION OF NANOEMULSION BY MICROFLUIDISATION

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ABSTRACT

Nanoemulsion is prepared by Microfluidisation (high pressure homogenisation).Nanoemulsion is the approach to improve water solubility and ultimately bioavailability of lipophilic drugs Arteether (ART) , ART is an artemisinin derivative which is considered as valuable drug for; multiple drug resistant malaria. ART is a lipid soluble drug having poor bioavailability, development of a novel formulation which can increase its bioavailability and therapeutic efficacy is of great need. In the present study, various ART nanoemulsions through high pressure homogenization (HPH) by using Microfluidizer® were prepared and optimized in terms of pressure and number of cycles. Particle size and size distributions were chosen as quality parameters. The drug loading, particle size and zeta potential was found to be 81±2.2%, 186±10nm and -27±3 mV respectively. The developed formulation was also subjected for stability studies in terms of particle size and size distribution and has been found stable for more than 6 months.

PC-93

PREPARATION AND CHARACTERIZATION OF RIVASTIGMINE SOLID LIPID NANOPARTICLES

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ABSTRACT

The aim of the present work is to improve solubility and bioavailability of poorly soluble rivastigmine drug. Rivastigmine was taken as model antialzheimer drug was incorporated in Solid lipid Nanoparticles (SLNs) loaded cephalin and lecithin as lipids and Tween 80 as stabilizer with were prepared by a hot homogenization method. Characterization and evaluation studies such as particle size measurement, poly dispersity index, zeta potential, entrapment and loading capacity, stability studies, and *in-vitro* release studies were done to ensure the quality Solid lipid nanoparticles. Scanning electron microscopy showed the SLN particles were spherical shape in the size between 85 – 120 nm and the poly dispersity indexes were 0.148 to 0.227. The zeta potential was - 27.1±2.5 to −36.1±2.1 mV. The entrapment efficiency (%EE) and drug loading capacity (%DL) determined were 89.3 ± 3.4% to 92.3±7.2%. Drug loaded SLNs showed average diameters in the colloidal size range, and having good loading capacity and drug release. Stability evaluation showed a relatively long-term stability after storage at 5^0cand 30^0c for 12 weeks. In this formulation increase in concentration of lipid content has increased the entrapment efficiency of SLN. SLNs with small particle size, excellent physical stability, high entrapment efficiency, good loading capacity for alzheimer drug.

PC-94

A NOVEL METHOD FOR SYNTHESIS OF 5-AMINOSALICYLIC KGM CONJUGATE FOR COLON SPECIFIC DRUG DELIVERY

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ABSTRACT

The main objective of our research work is to target 5-ASA to colon region for the treatment of Colitis and Crohn's disease. The uniqueness of this research is delivering drug safely to colon region by synthesizing 5-aminosalicylic KGM conjugate. The 5-aminosalicylic KGM conjugate is

stable in gastric as well as intestinal media but once the dosage form enters the colon region, by the enzymatic action of β-glucosidase, breaks into active API, so that the drug elicit it's site specific therapeutic action. From this approach 5-ASA can be delivered to the colon region. So the combination of dual drugs can be used for the treatment of colitis, and crohn's disease. By this approach the dose reduction as well as adverse reaction of drugs can be minimized and better patient compliance and reduction in dose frequency can be achieved. The glycosidic bond was formed between 5-ASA and KGM.For bond formation 5-ASA (0.5 g) was dissolved in 30 ml NaOH solution (pH=12) at room temperature, then konjac glucomannan (0.5 g) was added into the solution under continuous stirring. The dispersion was mixed for 8 hours to allow maximum swelling of KGM. The mixture was heated to 60ºC and incubated for 24 hours. The monitoring of reaction was carried out by taking TLC at regular interval by using Toluene, Ethylacetoacetate and Formic acid in 5:4:1 respectively and the spots were detected by using iodine chamber. After reaction, the compounds were washed several times with double distilled water to remove the unreacted 5-ASA, KGM and other soluble agents. Then the compound was dried under 60ºC to constant weight. The percentage yield of compound was calculated and it was subjected to various physicochemical parameters. The 5-aminosalicylic KGM conjugate was confirmed by IR, NMR and Mass spectral studies. The derivative is further subjected for in vitro release in rat fecal matter. Further the compound was subjected for anti-inflammatory activity . Our research study result reveals it is having good colon specificity hence this method is feasible for preparing colon targeted delivery and this complex is used for treating various disease of colon such as colitis, and crohn's disease. The conclusion was drawn that this method is so patient compatible, beneficial and economic for targeting drug to colon region in effective manner.

PC-95

NEMUSULIDE LOADED NANOSTRUCTURED LIPIDS CARRIER (NLCs): FORMULATION, CHARACTERIZATION AND IN-VITRO ASSSESMENT

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ABSTRACT

The objective of the present study was to formulate Nemusulide loaded nanostructured lipidcarriers (NLCs) were prepared by the solvent diffusion method. A complete 2^3 factorial design was used for the evaluation of the prepared Nemusulide NLCs. It involves variables namely liquid lipid type (Miglyol 812 and oleic acid), liquid lipid concentration (10% and 25%) and drug concentration (5% and 10% with respect to total lipids) with evaluation parameters like particle size, entrapment efficiency (EE%) and the *in vitro* drug release after 10 h. The prepared NLCs were spherical in shape and size was below 1.2 µm. Miglyol 812 and 25% liquid lipid were found to significantly decrease the particle size and increase the EE% when compared to oleic acid and 10% liquid lipid. Increasing drug concentration increased significantly the particle size but did not affect the EE%. NLCs prepared using Miglyol 812, 10% liquid lipid, and 10% drug showed slower drug release when compared to those prepared using oleic acid, 25% liquid lipid, and 5% drug respectively. The incorporation of Nemusulide into NLCs greatly provides the sustained drug delivery system and it may also allow a reduction in dosage and a decrease in systemic toxicity.

PC-96

NEED FOR PHARMACOVIGILANCE AS COURSE COMPONENT OF PHARMACY CURRICULUM

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ABSTRACT

Pharmacovigilance also known as Drug Safety, is the pharmacological science relating to the collection, detection, assessment, monitoring, and prevention of adverse effects with pharmaceutical products. Pharmacovigilance is a discipline which is concerned with identifying, validating, quantifying, evaluating and minimizing the adverse effects of medicine there by

increasing the safety of drugs in use. It is a study of drug related adverse effect carried out by pharmaceutical industries to suggest warnings and recommendation for product withdrawal. Pharmacovigilance is a new discipline to the Pharma student of India which provides newer and better opportunities to aspirants across the country who wish to build their career in the field of pharmaceutical science. Pharmacovigilance is not only an academic necessity but also a need to ensure security of human beings. The Government also puts forward a supportive hand and takes immediate actions for the implementation of such a course/subject so that students become aware of the adverse effects of drugs which can be reduced by a discipline like pharmacovigilance. Thus for overall up gradation of pharmacy profession Pharmacovigilance should be included in the B. Pharm. Syllabus of all the universities.

PC-97

DEVELOPMENT AND OPTIMIZATION OF POLYELECTROLYTE MICRO PARTICLES

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ABSTRACT

Hollow poly electrolyte micro particles based on karaya gum (KG) and chitosan (CS) with opposite charges were fabricated by layer by layer assembly technique using calcium carbonate micro particles as sacrificial template. A hydrophilic hypoglycaemic agent Metformin HCl was chosen to investigate the loading and release properties of micro particles. These KG/CS micro particles have shown high loading capacity and they also showed sustained release behaviour. The release of Metformin. HCl has been slow down drastically after loading into KG/CS micro particles. The release of Metformin. Hcl was best described by using different mathematical models. Therefore these novel KG/CS micro particles are expected to find applications in drug delivery systems because of their properties like bio degradability, high loading and sustained release.

PC-98

FORMULATION AND EVALUATION OF CHRONOTHERAPEUTIC DRUG DELIVERY SYSTEM USING PORT TECHNIQUE

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ABSTRACT

Thepresent work deals with the study and development ofan oral dosage form devisedto release drug following a programmed lag time after administration. Chronopharmacology is science concerned with the variation in pharmacological action of various drug over a period of time of day. Chronotherapeutic or Pulsatile drug delivery system is a system where drug is released suddenly after a well defined lag time according to circadian rhythm of disease state and delivers drug at specific time as per the pathophysiological need of disease resulting in improved patient compliance and therapeutic efficacy. This system delivers drug in rapid and burst manner within a short period immediately after a programmable lag phase. In human body numbers of processes are occurring at regular interval throughout the day. Oscillations in the body which completes in 24 hours are termed as circadian rhythms. It is the main rhythm in the body which maintains all physiological, chemical, biological and behavior process and causes change in pathophysiology of certain disease state which worsens disease conditions.Many diseases that follow circadian pattern such as asthma, peptic ulcer, diabetes, hypertension, myocardial infarction, etc thus chronomodulated or pulsatile drug delivery system can be used for treatment of such conditions. In present investigation PORT (programmable oral release technology) system is used for formulation of chronotherapeutic drug delivery. This technique is capsule system based on osmosis. This include following parts: Soluble cap, Capsule body coated with semipermeable membrane which is divided into 2 compartments by a insoluble or hydrogel plug, Upper compartment contains immediate release dose, Lower compartment contains active therapeutic ingredient with osmotically active agent, When capsule comes in contact with aqueous medium, the cap dissolves and immediate release

dose is released, water diffuses across the semipermeable membrane osmotic pressure is generated due to presence of osmogent, the plug is removed leading to release of second dose. The time lag is controlled by thickness of semipermeable membrane and the plug.

PC-99

FORMULATION DEVELOPMENT AND CHARACTERIZATION OF ORAL SOLUBLE FILM OF MODEL DRUG

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ABSTRACT

The present study was undertaken to develop and characterize 'Oral soluble film 'of model drug to provide a convenient means of administration to patients suffering from erectile dysfunctioning. The Model drug Phosphodiestrase inhibitor (PDE5) was selected which is responsible for degradation of C-GMP in corpus carvenosum located around penis. The inhibition of phosphodiestrase (PDE5) by model drug enhances erectile function by increasing amount of C-GMP. After extensive research work it was found that oral soluble film prepared by solvent casting method in which solvent system used was water/ ethanol in ratio of 80:20 as dispersion containing 20% Model Drug, 20% HPMC (polymer), 55% propylene glycol (plasticizer), 2% LHPC (disintegrant), 4% polaxamer 188 (surfactant) and 5% sucralose (sweetener) gave promising results. Formulated films have shown satisfactorily results for various physico-chemical parameters. *In vitro* Disintegration time was within 60s and *In vitro* drug release study showed 100% release of drug within 3mins. Thus one may conclude that oral soluble film of model drug has potential for consideration as drug delivery system for erectile dysfunction. The optimized formulation was found to be stable during stability testing. Thus, OSF of model drug is likely to become one of the choices for erectile dysfunction.

PC-100

DEVELOPMENT OF HERBAL MULTIPURPOSE FORMULATION: DRUG OBTAINED FROM FRESH ALGAE

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ABSTRACT

The formulation and development of herbal multipurpose drug obtained from fresh algae like Spirulina collected from water-fall, dried to get concentrated fine powder which act as multipurpose drug that can be utilise as FOOD OF FUTURE, due to its amazing ability to synthesized quality control. Food with most powerful source of nutrition, Spirulina provides proteins, iron, vitamins, minerals and most essential micro nutrients for the treatment of anticancer, malnutrition, detoxification etc. prepared by trituration using doubling up method with additives like wheat powder as a diluent, dextrose as a sweetening agent and khus as a flavouring agent.

PC-101

TANSDERMAL PATCH: A REVIEW

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ABSTRACT

Transdermal Patch is a medicated adhesive patch that is placed on the skin to deliver a specific dose of medication through skin and into blood stream. They often promote healing of an injured area of the body. These patches are one of the best systems of delivering drug. These are the best solution for persons who have problem in swallowing the pills. They are very simple in use and provide a control release of medicament to the patient. The first commercially available prescription patch was approved by U.S. Food & Drug Administration in December 1979, Scopolamine for motion sickness. The patches consists of component like liner, drug adhesive, membrane, backing, permeation enhancers, matrix filler, preservative, stabilizer etc. These patches

are of following types as single layer in drug adhesive, multilayer in drug adhesive, reservoir, matrix, vapour patch. Few examples of Tansdermal patch are nicotine patch (helpful to stop smoking), dicofenac (Pain relief), fentanyl patch (Treat chronic or severe pain), estrogen Patch (to treat menopausal), nitroglycerin (treatment of angina), emsam (antidepressant).

PC-102

STUDY THE EFFECT OF POLYMER CONCENTRATION ON PERFORMANCE OF GASTRORETENTIVE MICROBEADS OF DICLOFENAC SODIUM

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ABSTRACT

Microbeads are the substances which range in the size of microns (0.1-100µ). In this work effect of polymer concentration on the performance of the beads was observed. Ionic entrapment method was used for the preparation of beads.The drug used was Diclofenac Sodium. This NSAID has the half life of 1-2 hours with analgesic properties. Floating drug delivery systems enhance the residence time of the beads in the stomach, hence increasing their absorption in the stomach. The polymer used here is sodium alginate. Sodium Alginate is obtained from sea weeds and is a natural polysaccharide product. Alginic acid is a linear copolymer with homopolymeric blocks of (1-4)-linked β-D-Mannuronate and its C-5 epimer α-L Guluronate residues covalently linked together. It forms gel in presence of Calcium and is a thickener and stabilizer.The concentration of Calcium Chloride and Sodium Alginate were optimized for different formulations .Six formulations (f1,f2,f3,f4,f5,f6) were prepared using calcium chloride solution. Various evaluation parameters such as particle size, drug loading, floating lag time, dissolution studies and percentage efficiency were carried out.

PC-103

FABRICATION OF ASPASOMES CONTAINING SKIN WHITENING AGENT

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ABSTRACT

Aspasomes are Ascorbyl Palmitate vesicles with biological activity and have been explored as a bilayer vesicle forming material. It form vesicles (aspasomes) in combination with cholesterol and a negatively charged lipid (dicetyl phosphate). Ascorbyl Palmitate is capable to suppress pigmentation of the skin and decomposition of melanin. It can be used to whitening the skin. The aim of this study was to formulate aspasomes for Quercetin, which exhibits poor permeability through skin. The aspasomes were formulated using ascorbyl palmitate, Span 40 and cholesterol. The formulated aspasomes were spherical as evident from SEM and showed size uniformity. The drug content of aspasomes was about 91% with pH in the range of 6-7. Particle size was in range of 300-500nm. The drug entrapped could be sustained for about 20 hours and exhibited first order release. No skin irritation was observed upon application to the back of albino mice. The skin whitening effect was also found to be within acceptable range.

PC-104

SOLID DISPERSION A NOVEL TECHNIQUE FOR SOLUBILITY ENHANCEMENT

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ABSTRACT

The enhancement of the oral bioavailability is currently one of the greatest challenges in the development of poorly water soluble drug. To increase the dissolution and hence the bioavailability, it is important to increase the solubility of the poorly water soluble drug. One of the possible ways to overcome this limitation is the use of solid dispersion technology. Solid dispersion techniques have attracted considerable interest of improving the dissolution rate of

highly lipophilic drugs thereby improving their bioavailability by reducing drug particle size, improving wettability and forming amorphous particles. The term solid dispersion refers to a group of solid products consisting of at least two different components, generally a hydrophilic inert carrier or matrix and a hydrophobic drug. This article reports different types of solid dispersion, various solubility enhancement approaches which includes fusion (melting), solvent evaporation, lyophilization (freeze drying), melt agglomeration process, extruding method, spray drying technology, use of surfactant, electro static spinning method and super critical fluid technology. The aim of present work is to improve the solubility and dissolution rate of a poorly soluble drug.

PC-105

NASAL INSULIN DELIVERY ROUTE USING THIOLATED MICROSPHERES

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ABSTRACT

The aim of the present study was to investigate the potential of developed thiolated microspheres for insulin delivery through nasal route. In the present study, cysteine was immobilized on carbopol using EDAC. A total of 269.93mmol free thiol groups per gram polymer were determined. The prepared non-thiolated and thiolated microspheres were studied for particle shape, size, drug content, swellability, mucoadhesion andin vitro insulin release. The thiolated microspheres exhibited higher mucoadhesion due to formation of covalent bonds via disulfide bridges with the mucus gel layer. Drug permeation through goat nasal mucosa of non-thiolated and thiolated microspheres were found as 52.62±2.4% and 78.85±3.1% in 6h, respectively. Thiolated microspheres bearing insulin showed better reduction in blood glucose level (BGL) in comparison to nonthiolated microspheres as 31.23±2.12% and 75.25±0.93% blood glucose of initial BGL were observed at 6h after nasal delivery of thiolated and nonthiolated microspheres in streptozotocin-induced diabetic rabbit.

PC-106

FORMULATION OF FAST DISSOLVING TABLETS OF AN ANTIHYPERTENSIVE AGENT

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ABSTRACT

The purpose of the present work is to formulate fast dissolving tablets of an antihypertensive agent. Fast dissolving tablets are gaining prominence as new drug, delivery system.These dosage forms dissolve or disintegrate in the oral cavitywithina matter of seconds without the need of water or chewing. These are useful for paediatric, geriatric and also dysphagia patients, leading to improved patient compliance. Nonetheless, oral dosing remains the preferred mode of administration for many types of medication due to its simplicity, versatility, convenience, and patient acceptability. In recent years, fast dissolving drug formulations have been developed to overcome problems related to swallowing difficulties. When such tablets are placed in the oral cavity, saliva quicklypenetrates into the pores to cause rapid tablet disintegration.Fast dissolving tablets of an antihypertensive agentis aimed to achieve rapid dissolution rate, improve efficacy by minimizing the disintegration time and facilitate faster onset of action.

PC-107

FORMULATION AND EVALUATION OF SOME HERBAL PREPARATIONS FOR THE TREATMENT OF ECZEMA

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ABSTRACT

Eczema is a chronic skin condition in which the skin becomes itchy, spotted, splintered and dry. The classic herbal medicine proved to be more beneficial in overall total care of the patients with eczema. Advantages of incorporating the herbal medicine in the treatment of eczematic

patients include ease of administration, patient compliance and economy. An additional benefit of holistic treatment with the herbal medicine is the simultaneous improvement of seemingly unrelated medical conditions during the treatment of dermatologic patient. An attempt was made to formulate a polyherbal ointment using, *Andrographis paniculata* (Kalmegh), *Azadirachta indica* (Neem), *Ocimum sanctum* (Tulsi), *Pongamia pinnata* (Karanj), *Tinospora cordifolia* (Guduchi), *Allium sativum* (Garlic), *Psoralea corylifolia* (Bughuchi) and to evaluate for its physical parameters and ex-vivo activity. In the present study polyherbal ointment were prepared by fusion method using oil in water emulsion base. The various physical parameters pH, homogenicity, loss of drying, spreadability, extrudability, viscocity, diffusion study and stability studies were determined. The formulation was compared with the marketed product for its antibacterial activity and found to possess significant action. The product may be exploited commercially.

PC-108

HIGHLIGHTING THE POTENTIAL VEGETARIAN ALTERNATIVES TO GELATIN

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ABSTRACT

Gelatin, used widely in the Pharmaceutical and Food industries, is sourced from animal hooves, bones, cartilages, and other parts of abattoir meat left overs. To date food technologists haven't been able to synthesize gelatin in a lab or find a vegetable equivalent having properties similar to gelatin. This opens new avenues towards the search of vegetarian prospectives in response to the animal derived gelatin. One of the most common vegetarian alternatives to gelatin is agar agar. Production of this flavorless thickening agent involves cooking and pressing seaweed, typically until it reaches a powdered or flaked form. Powdered agar agar is a 1-to-1 replacement for gelatin. Another common vegetarian alternative to gelatin is carrageenan. Commercial preparations of this gelling agent involve washing, boiling and filtering out the solid components of Irish moss seaweed. Vegetable gums like guar gum and xantham gum also serves as substitutes to gelatin. Pectin, produced by boiling, filtering and dehydrating fruits and fruit peels is yet another substituting agent. Using a rice starch that mimics the cooking functionality of gelatin closely and a soy-based alternative, for instance, NuSoy Gel, a gelatin alternative which was created entirely out of soy isoflavones and contains 100% of your vitamin C recommended daily allowance are some other alternatives to gelatin. Thus the palatability of the vegetarians could be enhanced by using the above mentioned agents, although matching up to the unique properties of gelatin is still questionable.

PC-109

ENHANCEMENT OF TABLETTING PROPERTIES OF MELOXICAM BY CRYSTALLO CO-AGGLOMERATION TECHNIQUE

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ABSTRACT

Crystallo-co-agglomeration is a novel particle size enlargement technique in which two or more drugs or drugs with excipient can be agglomerated using a bridging liquid. Meloxicam is a preferential COX-2 inhibitor with minimum side effect and long $t_{1/2}$ but meloxicam has delayed onset of action (8 h), poor solubility and poor flow property. So, formulation of crystallo-co-agglomerates of meloxicam with super disintegrant and hydrophilic polymer may enhance solubility and reduce onset of action. Particle size enlargement increases flow properties of meloxicam and overcome the problem of compression of meloxicam. In this research work F1 to F9 formulations were prepared using different super disintegrants and hydrophilic polymers in different concentration. Acetone: DCM: Water was used as solvent system for preparation of crystallo-co-agglomerates.F6 formulation containing crosspovidone and PEG-6000 shows best

flow properties and solubility with faster dissolution. The agglomerates were characterized for interaction, size, drug release, drug loading, solubility and disintegration using FTIR, DSC, XRD and SEM and were found spherical, enlarged and crystalline in nature with higher water solubility and fast onset of action. The study also reveals that agglomeration does not cause any chemical changes to meloxicam and does not affect stability of drug.

PC-110

NOVEL POLYPHYTO CAPSULES FOR THE MANAGEMENT OF DYSLIPIDEMIA

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ABSTRACT

Polyphyto combination was prepared based on ideal tree concept using different parts of plants; in appropriate proportions as they are present in a tree. Standardization parameters like organoleptic properties, physiochemical parameters, preformulation studies, phytochemical screening, fluorescence analysis and microscopic analysis was performed according to the standard methods Acute toxicity was performed according to OECD guidelines, using 2000mg/ kg BW as a limit dose. Antihyperlipidemic activity of the aqueous extract of polyphyto composition (50mg/kg, p.o.) was determined in Triton X-100 induced (100mg/kg) hyperlipidemic albino wistar rats and compared against Simvastatin (10mg/kg ,p.o,) as a standard .On 21st day serum lipid levels were estimated by using respective diagnostic kits. Results are expressed as mean ± SD and subjected to One Way Analysis of Variance (ANOVA) followed by Dunnett's test and values $P<0.01$ were considered to be significant. Antioxidant activity was determined by using hydrogen peroxide scavenging activity method. HPTLC analysis of the polyphyto combination was performed using quercetin as a marker compound. Cytotoxicity studies were performed by MTT assay on Vero monkey normal kidney epithelial cell lines. Finally polyphyto capsules were developed with the help of co-processing aids like MCC, DCP, talc, Mg stearate. Polyphyto capsules at the dose of 50mg/kg, lowered total cholesterol (TC), triglycerides (TG), very low density lipoproteins cholesterol (VLDL-C), low density lipoproteins cholesterol (LDL-C) levels with simultaneous increase in high density lipoproteins cholesterol (HDL-C) levels ($P<0.01$). HPTLC analysis of the polyphyto combination showed the presence of quercetin which was also confirmed by showing significant antioxidant activity as compared to ascorbic acid .Phytochemical analysis also revealed the presence of flavanoids. Cell viability studies showed IC50 value of > 200, indicating safety profile of the polyphyto capsules.

PC-111

FORMULATION AND EVALUATION OF HERBAL GEL FOR WOUND HEALING

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ABSTRACT

Since the market of herbal drugs is globally increasing due to safe drug delivery with no or fewer side effects compared to synthetic drugs. It was thought worthwhile to formulate and evaluate the herbal gel for wound healing. The selected herbs Curcumin and honey bosses significant antibacterial, anti-inflammatory, antioxidant and various other medicinal activities which are complementary for wound healing. Various formulations with different concentration of Carbopol, Curcumin and Honey were prepared and optimized. The insoluble nature of curcumin is best suited for the formulation as well as for the topical application to penetrate through the skin. Different parameters like pH,viscosity,spreadability,drug content, antimicrobial activity studied for transdermal gel formulation. Carbopol was found to be suitable candidate as it gives better consistency,viscosity, spreadability, pH and homogeneity and in-vitro drug diffusion. Carbopol concentration was optimized by trial and error method.Triethanolamine was taken as a neutralizer so to maintain the pH and it also enhances the stability and penetration property of the gel.Honey was added to the formulation to give

additive effect along with curcumin. It was found that formulated herbal gel is safe and effective in the treatment of wounds. The product may be exploited commercially.

PC-112

PREPARATION AND CHARACTERIZATION OF SUSTAINED RELEASE MATRIX TABLET

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ABSTRACT

The purpose of the present work is to formulate sustained release matrix tablets. Oral drug delivery is the most widely utilized route of administration among all the routes. Oral route is considered most natural, uncomplicated, convenient and safe due to its ease of administration, patient acceptance and cost effective manufacturing process. Sustained release systems include any drug delivery system that achieves slow release of drug over an extended period of time Matrix tablets are considered to be the commercially feasible sustained action dosage form that involve the least processing variables, utilized the conventional facilities and accommodate large doses of drug. Sustained release matrix tablet is formulated mainly by wet granulation and direct compression method. The matrices used may be of hydrophilic, hydrophobic or biodegradable types. sustained release matrix tablets aimed to achieve to reduce the dosing frequency , to improve patient compliance The various physical parameters flow properties, thickness, hardness, weight variation, friability, *in vitro* release studies.

PC-113

DEVELOPMENT OF SOLID LIPID NANOPARTICLES FOR THE DRUG THIOCHOLCHICOSIDE

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ABSTRACT

Lipids and lipid nanoparticles are extensively employed to increase the drug absorption in the gastrointestinal tract (GIT) as lipids usually enhance drug absorption. Nanoparticles have smaller particles size of 10 to 1000nm and offer large surface area and the capability of changing their surface properties due their colloidal properties have numerous advantages compared to other delivery systems. Thiocolchicoside is a muscle relaxant with anti-inflammatory and analgesic and acts a competitive $GABA_A$ and glycin receptor antagonist and over nicotinic acetylcholine receptor to a much lesser extent has bioavailability 20% and half life of 5-6 hours. The aim of the study was to formulate nanoparticles for the drug thiocolchicoside using solvent evaporation technique, for increasing bioavailability and permeability of the drug. The preformulation and formulation were done statistically using Box-Behnken design. Factors evaluated in this study were the amount of PVA (X_1), concentration of lipid (X_2), and stirring speed (X_3) as a independent variable, where as dependent variable were entrapment efficiency (EE%) (Y_1), particle size (Y_2). The formulated nanoparticles exhibited good entrapment upto 85% and average particle size of about 542nm. The in-vitro release studies were carried out and the drug release was found to sustain for 24 hours. On intra-peretoneal administration of the formulation to Wurstar rats, significant anti-inflammatory activity was seen as compared with standard marketed formulation.

PC-114

FORMULATION AND EVALUATION OF FLOATING MULTI-LAYERED COATED TABLETS

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ABSTRACT

The study dealt with formulation of floating multi-layer coated tablets. The system consists of a drug containing core tablet coated with a protective layer. Glipizide is weak acid, practically

insoluble in water and acidic environment, thus its inclusion complex using cyclodextrin and derivatives were prepared for solubility enhancement. Out of three inclusion complexes of Glipizide formed 1:1 M conc. with β-CD (K1C), Hydroxypropyl-β-CD (K2C) and Methyl-β-CD (K3C) as confirmed by phase solubility analysis. The core tablet containing individual inclusion complex were prepared using rotary tablet machine by direct compression method. The core tablets were evaluated for hardness, friability, weight variation and drug content. The core tablet were coated using multiple coats, by first coat of HPMC E 15LV, second coat was of hydrophilic polymer and gas generating agent and the last coat was of Eudragit RL 30D. The coated tablets were studied for *in vitro* release study and stability study. On the three batches (K1C, K2C and K3C) of coated tablets effects of different percent weight gain of coating solution were studied among that the batch K3C showed less floating lag time (6 min), higher total floating time (upto 12 hrs) and maximum drug release (86.11 %). The time to float for the system decreased with increasing % weight gain of effervescent layer and lag time increased with increasing level of polymeric coating. SEM photomicrograph shows formation of pores on the tablets surface which indicates that the drug was released by both dissolution and diffusion mechanism. Results of stability study showed that the batch K3C was stable for period of 3 month at 40^0C/ 75% RH.

PC-115

IN SITU GELLING SYSTEMS FOR 'SMART' DRUG DELIVERY

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ABSTRACT

In situ gel systems refer to a class of novel delivery vehicles, composed of natural, semisynthetic or synthetic polymers, which present the unique property of sol-gel conversion on receipt of biological stimulus. The formation of gels depends on factors like temperature modulation, pH change, presence of ions and ultra violet irradiation, electrical sensitivity, enzyme sensitive from which the drug gets released in a sustained and controlled manner. Routes of administration are oral, ocular, rectal, vaginal, injectable and intraperitoneal. The advent of in situ gel systems has inaugurated a new transom for 'smart' ocular delivery. By virtue of possessing stimuli-responsive phase transition properties, these systems can easily be administered into the eye, similar to normal eye drops. Their unique gelling properties endow them with special features, such as prolonged retention at the site of administration, followed by sustained drug release. Various natural and synthetic polymers are used for formulation development of in situ forming drug delivery systems. Sustained and prolonged release of the drug, good stability and biocompatibility characteristics make the in situ gel dosage forms very reliable. The in situ gel forming polymeric formulations offer several advantages like sustained and prolonged action in comparison to conventional drug delivery systems and good patient compliance, good stability and biocompatibility characteristics make the in situ gel dosage forms very reliable. Thus they have a very bright future aspect.

PC-116

DEVELOPMENT AND EVALUATION OF TRANSDERMAL DRUG DELIVERY SYSTEM OF CARBIDOPA

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ABSTRACT

Transdermal delivery of drugs through the skin to the systemic circulation provides a convenient route of administration for a variety of clinical indications and is useful to provide drug released at a controlled rate. The present research work is intended towards formulation of transdermal patches for the drug carbidopa using poly vinyl pyrrolidone, ethyl cellulose, hydroxy propyl methyl cellulose, and polyethylene glycol-400. Carbidopa was selected for the formulation of transdermal drug delivery system because the bioavailability of drug is low that is 58% of metabolite is inactive. The formulated patches were evaluated for thickness, drug content, percentage moisture content, percentage moisture uptake and other such parameters

and the results were appreciable. No drug-excipient incompatibility was seen. *In vitro* studies were carried out in phosphate buffer saline pH 7.4 and phosphate buffer saline pH 6.8. The drug release was found to be sustained for 12 hours. No skin irritations occurred on application to rabbit. The drug retention time increased significantly as observed by the *in vivo* data.

PC-117

DEVELOPMENT OF SUSTAINED RELEASE FORMULATION BY PREPARING OIL BEADS OF AMLODIPINE: AN ANTIHYPERTENSIVE DRUG

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ABSTRACT

The importance of Sustained drug release formulation are increasing & developing day by day. The main aim of preparing sustained release formulation is intended to modify and improve the drug performance by increasing the duration of drug action, decreasing the frequency of dosing, decreasing the required dose employed & providing uniform drug delivery. Hence, in the present investigation the popular calcium channel blocker antihypertensive drug Amlodipine is taken into consideration for the development of its sustained release formulation. Here, oil beads of Amlodipine are being prepared as sustained release formulation. The beads are prepared using different oils, polymers and cross linking agents by emulsification-gelation technique. After preparation of the beads, the various evaluation parameters viz; particle size, percentage yield, floating time, swelling index, percentage drug entrapment, *in*-vitro drug release etc. are studied. From the results of the present investigation it was observed that the prepared Amlodipine oil beads show successive sustained release property as well as fulfills other evaluation parameters. Hence, from the findings of the present study it can be concluded that the selected materials and sustained release property offering very promising area in the field of research .This field is wide open for the researchers to work on this material on designing of novel drug delivery devices.

PC-118

PREACTIVATED THIOLATED CHITOSAN AS A MUCOADHESIVE POLYMER FOR CONTROLLED RELEASE OF CAPTOPRIL

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ABSTRACT

The aim of the present study was to synthesize chitosan thioglycolic acid conjugate by covalent attachment of thiol moieties to the cationic polymer, mediated by 1-ethyl-3-(3-dimethylamino propyl) carbodiimide. The immobilized thiol groups were preactivated by disulfide bond formation with 2-mercaptonicotinic acid. Preactivated thiolated chitosan was synthesized to attain polymeric excipient with improved mucoadhesive properties to assure a prolonged retention time of model drug Captopril at the absorption site, thereby achieving an increased uptake and improved oral bioavailability of the drug. Conjugation of chitosan was confirmed by fourier transform infrared spectroscopy, differential scanning calorimetric analysis and XRD. Synthesis of conjugate was confirmed by –SH stretch in the Fourier-transform infrared spectra at 2571 cm^{-1}. Preactivated thiolated chitosan with the thiol groups of 29.50 µmol/g displayed a 3.0-fold stronger mucoadhesive property compared to that of the unmodified chitosan at pH 1.2. Further, the captopril tablets containing preactivated thiolated chitosan conjugate released the drug following Korsmeyers–Peppas indicating a rate controlled release which follow diffusion mechanism by non-fickian or anomalous transport. In conclusion, preactivated thiolated chitosan conjugate seems to be promising mucoadhesive excipients for drug delivery systems.

PC-119

FORMULATION AND EVALUATION OF OCULAR INSERT OF PARAZOSIN HCL

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ABSTRACT

The purpose of the present work is to design polymeric ocular drug delivery system of prazosin to overcome the disadvantages associated with the conventional ophthalmic dosage forms (eye drops and suspensions), to achieve long duration of action and to improve ocular bioavailability. Prazosin is an antihypertensive drug used in treatment of ocular infections. It is effective against trachoma and conjunctivitis. Drug reservoir and rate controlling membrane were prepared using different hydrophilic polymers respectively with Poly ethylene glycol-400 as the plasticizer. FTIR spectral studies were performed to confirm the interaction of drug and polymers in formulation. The ocular insert were evaluated for their physical & chemical properties, mechanical properties and *in-vitro* release characteristics. The formulated inserts (F1-F4) were evaluated for number of evaluation parameter like thickness determination, weight uniformity, folding endurance, drug content uniformity, % moisture absorption, % moisture loss, % swelling index and in vitro drug release. *In-vitro* release for all formulation shown in simulated tear fluid and all formulation data lies in the range from 76.56% to 89.87%. The first two F1 and F2 formulation drug: HPMC K4M: PVA combination show drug release 84.24%, 78.9%, respectively and for formulation F3& F4 drug: HPMC K4M: PVA combination show drug release 85.68%, 76.56%. The increase amount of polymer retarded the release of prazosin, F4 (PVA: Eudragit S100) showed minimum and slower release. The best *In-vitro* release studies showed that 80.08% of the drug was released at the end of 6th hr. from (PVA: Eudragit L-100) formulation which indicates increase contact time and prolonged release in presence of Eudragit L-100. F4 was the optimized formulation because it shows all the favorable condition. This formulation contains 2% PVA and 4% Eudragit L-100 (carboxylic and esters group present in the ratio 1:1) in comparison with Eudragit S-100 having (carboxylic and esters group present in the ratio 1:2). Eudragit L-100 exhibit favorable condition such as no toxicity, positive charge and controlled release profile this make them suitable for ophthalmic preparation.

PC-120

INFLUENCE OF NANOTECHNOLOGY IN COSMETICS

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ABSTRACT

Nanotechnology is a field of applied science and technology which aims to develop devices and dosage forms in the range of 1 to 100 nm. It is the science of manipulating atoms and molecules in the nanoscale - 80,000 times smaller than the width of a human hair. The applications of nanotechnology for treatment, diagnosis, monitoring, and control of biological systems have recently been referred to as nanomedicine. The nanocarriers have been made of safe materials, including synthetic biodegradable polymers, lipids, and polysaccharides. The use of nanotechnology has stretched across various streams of science, from electronics to medicine and has now found applications in the field of cosmetics by taking the name of nanocosmetics. This widespread influence of nanotechnology in the cosmetic industries is due to the enhanced properties attained by the particles at the nano level including color, transparency, solubility etc. The different types of nanomaterials employed in cosmetics include nanosomes, liposomes, fullerenes, solid lipid nanoparticles etc. Recently, concerns over the safety of such nanocosmetics are raised and have forced the cosmetic industries to limit the use of nanotechnology in cosmetics and for enforcing laws to undergo a full-fledged safety assessment before they enter into the market. I would like to lay emphasis on the types of nanomaterials used in cosmetics by the various cosmetic brands, the potential risks caused by them both to human life and also to the environment.

PC-121

ZINC OXIDE NANOPARTICLES: SYNTHESIS AND BIOMEDICAL APPLICATIONS – A REVIEW

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ABSTRACT

In the recent years nanomedicine has emerged as an area having novel approaches for the treatment of uncurable and threatning kind of human diseases. Different biologicalmaterials such as lipids, phospholipids, lactic acid, dextran and chitosan or synthetic polymerssuch as Eudragit®RSPO, Eudragit L100, Eudragit RS and Poly lactide glycolic acid or other materials such as carbon, silica, metal oxides and noble metals such as gold and silverhave been investigated to develop the nanoparticles.A metal oxide, Zinc oxide (ZnO), is widely used in the development of nanoparticles due to its low toxicity, biocompatibility and biodegradability. In this review the author compiled data about the history, synthesis of ZnO nanoparticles, toxicity aspects and various biomedical applications. Variety of new techniques such as the sonochemical method, oxidation process, sol–gel synthesis, polymerization method, precipitation, solvothermal andhydrothermal methods, laser ablation and sol–gel-combustion has been studied and further optimized to develop ZnO nanoparticles. As far as such nanoparticles are concerned, ZnO is recognised as safe for nutrients by USFDA. ZnO nanoparticles have been widely investigated as promising material in skin protection cosmetics, as anti-bacterial, as cholesterol biosensor, anti-diabetic, in cancer therapy and as a carrier for drug as well as bioactivesdelivery. ZnO nanoparticles can be a promising platform for therapy and delivery of drug in biomedical science.

PC-122

FORMULATION AND EVALUATION OF ATENOLOL LIQUID CRYSTAL

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ABSTRACT

Liquid crystals are the substances that flow like liquid but have some structural characteristics of crystalline solid. These are applicable in drug delivery systems generally to enhance solubility and stability of drug. Thus the purpose of the present research work was to formulate and evaluate atenolol liquid crystals to improve solubility, stability and thereby enhancing bioavailability of the drug. Tween 80 has been screened as surfactant and oleic acid, Glyceryl monostearate and cetostearyl alcohol was used as oil phase. To determine the appropriate composition of oil, surfactant and distilled water, ternary phase diagram was constructed. The formation of liquid crystals was confirmed observing under optical and polarized light microscope. The ability of liquid crystal to deliver Atenolol through the skin was evaluated using egg membrane. From the permeation studies, it is revealed that formulation with Tween 80 and cetostearyl alcohol showed maximum drug release. Thus formulated liquid crystal was optimized for incorporation of poorly water soluble drug.

PC-123

FORMULATION AND EVALUATION OF FAST DISINTIGRENT AMBROXOL HYDROCHLORIDE (HCL) TABLET USING NATURAL SUERDISINTEGRANT

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ABSTRACT

Researchers throughout the world are focusing intensively on the methods for the development of new drug delivery systems to enhance patient's compliance. The oral route however still remained as the best administration route of therapeutic agents for its ease of ingestion, pain avoidance and versatility. Hence, fast dissolving tablets become an emerging trend in the

pharmaceutical industry. Fast dissolving tablets are ideal for all types of people, including for people who have swallowing difficulties, paediatric, geriatric, and bedridden patients. It is also for active patients who are busy, travelling and may not have access to water. The therapeutic activity of these formulations is obtained through a typical manner like disintegration followed by dissolution. Hence disintegration has major role for facilitating drug activity. In recent years, several newer agents have been developed known as superdisintegrants. Diverse categories of superdisintegrants such as synthetic, semi-synthetic, natural, co-processed blends, multifunctional superdisintegrants. This type of tablets disintegrates quickly once introduced into the mouth in the absence of additional water for easy administration of active pharmaceutical ingredients.

PC-124

REVIEW OF NOVEL TREATMENT METHOD FOR AORTIC ROOT DILATION

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ABSTRACT

The aim of this paper is to elucidate a novel and simple method for the surgical treatment of Aortic root dilation which bypasses the various limitation of the current treatment regimen. The aortic root dilation is almost completely asymptomatic. Found often on routine imaging studies such as chest radiograph, MR Imaging, echocardiography, or chest computed tomography. The dilated aortic root could be associated with underlying aortic valve abnormalities like those seen with bicuspid aortic valve. It may also be a result of connective tissue disorders like the Marfan syndrome. It is imperative that the dilated aortic root be observed carefully over time with serial imaging studies and that timely resection of the aneurysm be carried out before catastrophic complications such as aortic dissection, aortic rupture, or congestive heart failure from aortic insufficiency occur. The current treatment methods are very complicated life threatening and expensive. Also the future medication given to such patients for maintenance poses various long term complications.

PC-125

PREPARATION AND EVALUATION OF SUSTAINED RELEASE MATRIX TABLETS OF ACEBROPHYLLINE

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ABSTRACT

In the current study sustained release matrix tablets of Acebrophylline (200mg) were prepared by wet granulation technique using hydrophilic polymers such as HPMC K 100M with Sodium CMC of various concentrations in order to examine their influence on tablet properties on drug release profile. The drug's approach involves different points of attack in obstructive airway disease. The tablets were evaluated for preformulation studies like angle of repose, bulk density, compressibility index and physical characteristics like hardness, weight variation, friability and drug content. In-vitro release of drug was performed in 0.1 N HCl for 2 hours and remaining hours with pH6.8. All the physical characters of the fabricated tablet were within acceptable limits. It was clear from the dissolution profile of acebrophylline from matrix tablets prepared using different polymers were indicated an increase in the polymer ratio retarded the drug release to a greater extent. As a concluding remark, F7 acebrophylline were found to be the best selected formulation based on the in vitro release studies.

PC-126

MICROSPONGES: A NOVEL STRATEGY FOR DRUG DELIVERY SYSTEM

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ABSTRACT

Microsponges are polymeric delivery systems composed of porous microspheres. They are tiny sponge-like spherical particles with a large porous surface. Moreover, they may enhance

stability, reduce side effects and modify drug release favorably. Microsponge technology has many favorable characteristics, which make it a versatile drug delivery vehicle. Microsponge Systems are based on microscopic, polymer-based microspheres that can suspend or entrap a wide variety of substances, and can then be incorporated into a formulated product such as a gel, cream, liquid or powder. The outer surface is typically porous, allowing a sustained flow of substances out of the sphere. Microsponges are porous, polymeric microspheres that are used mostly for topical use and have recently been used for oral administration. Microsponges are designed to deliver a pharmaceutical active ingredient efficiently at the minimum dose and also to enhance stability, reduce side effects, and modify drug release.

PC-127

DEVELOPMENT AND EVALUATION OF EMTRICITABINE LOADED BIO-FILMS FOR TRANS-NABHI DELIVERY

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ABSTRACT

Delivery of active pharmaceutical ingredients through trans-navel provides a significant drug therapeutic action. Navel is an important acupressure point. Navel is composed of thinnest skin in comparison of other body skin. The periphery of navel is abundant in blood vessels and nerve supply so it can serve as a potential absorbing site. Additionally reduction of dose and drug related side effects due to bypassing first pass metabolism and improved patient compliance can be achieved. The current aim of the research work is to deliver emtricitabine as model drug through the trans-navel route by formulating bio-films loaded with emtricitabine to meet the above mentioned challenge. Ex-vivo permeation study of emtricitabine through umbilical cord was carried out and permeation flux at steady state was calculated. Biomaterial from *Dioscorea belophylla* was isolated by simple economic process and investigated for various physicochemical properties, in-vitro and ex-vivo bioadhesive properties. IR study was carried out for the characterization of the bio polymer.Emtricitabine loaded biofilms were prepared by casting method in 1:1(DBE1), 1:2(DBE2), 1:4(DBE4) and 1:6 (DBE6) of drug and polymer ratio. One emtricitabine loaded standard film was also formulated using Polycap-6500. A 24 hours in-vitro drug release study is carried out for all above formulations. Ex-vivo permeation study has shown excellent permeation of emtricitabine through umbilical cord skin. Formulation DBE4 has shown the best drug release profile. For the best formulation the drug release kinetics was found to be Higuchi Matrix with R^2 value of 0.9277. Value of diffusion coefficient for this emtricitabine loaded bio-film was 0.4527 which indicates that mechanism of drug release was Fickian Diffusion (Higuchi Matrix). Hence it can be concluded that the natural bio polymer has an inbuilt film forming ability and it can release the drug efficiently and umbilicus is a potential route of drug delivery.

PC-128

NEW ADVANCES IN NANO-MEDICINE

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ABSTRACT

Nanomedicine is the process of diagnosing, treating, and preventing disease and traumatic injury, of relieving pain, and of preserving and improving human health, using molecular tools and molecular knowledge of the human body. nanomedicine can address many important medical problems by using nanoscaled structured materials and simple nanodevices that can be manufactured today, including the interaction of nanostructured materials with biological systems. One of the most promising applications of nanotechnology is in the field of medicine. Indeed, a whole new field of "nanomedicine" is emerging. Nanomedicine has been defined as the monitoring, repair, construction and control of human biological systems at the molecular level using engineered nanodevices and nanostructures. It can also be regarded as another implementation of nanotechnology in the field of medical science and diagnostics. Applications

of nanotechnologies in medicine are especially promising, and areas such as disease diagnosis, drug delivery targeted at specific sites in the body and molecular imaging are being intensively investigated and some products are undergoing clinical trials.

PC-129

FORMULATION AND EVALUATION OF HERBAL ANTIMICROBIAL DEODORANT STICK

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ABSTRACT

Deodorants are chemicals that prevent or reduce axillary malodor, which results from bacterial breakdown of perspiration from eccrine and apocrine sweat glands. The sweaty odor is caused by the interaction between a variety of substances including low-molecular-weight fatty acids (i.e caproic, caprylic, isovaleric, butyric), lactates, urea and ammonia, cholesterol, and other steroid compounds. Odor control can be achieved by various means - basic hygiene (washing with soap and water) is the most important but also by antimicrobial agents, antiperspirant, fragrances or any combination of these. Here deodorant sticks were prepared with herbal antimicrobial agent and the sticks were characterized for pH, softening point, disintegration time, colour loss, stability upon 2 weeks storage and anti microbial test. The physicochemical properties remain unchanged after 2 weeks storage. The result of anti microbial activity shows that all the formulations have antibacterial activity towards all tested phytopathogenic bacteria.

PC-130

FORMULATION AND EVALUATION OF SOLID DISPERSION OF TERBINAFINE HCL

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ABSTRACT

Terbinafine hydrochloride is a synthetic antifungal drug. It is slightly soluble in water (3mg/ml) and having high permeability through stomach. This results in poor bioavailability after oral administration. Therefore solid dispersion of terbinafine HCl with polyethylene glycol - 6000 (PEG 6000) and mannitol were prepared with a view to increase its water solubility. In this study solid dispersion of the drug were prepared by melting method and the drug was taken with carrier in the proportions of (1:1, 1:2 and 1:3). The rate of dissolution of terbinafine HCl was increased with the proportion of (1:3) (Drug: PEG 6000) when compared to the other formulations. In order to predict and correlate the release behavior of the drug from the polymer matrix the dissolution data were fitted in to a suitable model to describe the drug release behavior from polymeric system. The surface morphology of the prepared solid dispersion and drug alone were examined by SEM analysis. The SEM result shows that in the case of solid dispersion of terbinafine HCl, particles were in almost amorphous form, which indicates a reduction in particle size.

PC-131

FORMULATION AND EVALUATION OF LIQUID SOAP CONTAINING HERBAL ANTIMICROBIAL AGENT

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ABSTRACT

Hand washing for hand hygiene is the art of cleaning the hands with or without the use of water or another liquid, or with the use of soap, for the purpose of removing soil, dirt, and/or microorganisms. The main medical purpose of washing hands is to cleanse the hands from pathogens (including bacteria or viruses) and chemicals which can cause personal harm or disease. This is especially important for people who handle food or work in the medical field, but it is also an important practice for the general public. In response to this concern, we formulated the antibacterial Liquid soap. Experiment was performed by selecting the herbs

which were reported to have antibacterial activity. They are *Ocimum sanctum* and *Eugena caryophyllus*. Formulated liquid soaps were evaluated for physical parameters like colour, fragrance and chemical parameters like pH, % Free alkali, Test for chlorides, Foam height, Foam retention, Alcohol insoluble matter, Microbial count etc. and the obtained results were in the acceptable limits except foam height and foam retention as we are not using SLS.

PC-132

DEVLOPMENT OF MEDICATED KAJAL

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ABSTRACT

The objective of the present work is to develop medicated kajal containing moxifloxacin, for the bacterial keratitis. It would be helpful in tearing many ocular infections might be innovative technique to treat bacterial infections and provides aesthetic appeal to eyes. The formulation was developed to deliver the drug by ophthalmic means, medicated kajal was prepared by simple heat and mixing method. The pH of the formulation was kept at 7.2. It was found that prepared formulation shows the drug content of 83 ± 0.8%.The release kinetics of the formulation shows maximum release of drug in 10 hours. The release kinetic of drug was fitted into different models like zero order, first order, higuchi's model, hixon crowell's model and krosmeyer peppas model. The higuchi model was found to have value of R^2 close to 0.999. The formulation was found stable as indicated by stabilities studies. The product may be exploited commercially.

PC-133

DEVELOPMENT AND *IN VITRO* EVALUATION OF METOCLOPROMIDE MICROSPHERES

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ABSTRACT

The aim of this study was to prepare and evaluate floating microspheres of Metoclopramide for the prolongation of gastric residence time. The microspheres were prepared by emulsion solvent diffusion-evaporation method using ethyl cellulose and HPMC polymers. A full factorial design was applied to optimize the formulation. Preliminary studies revealed that the concentration of polymer and stirring speed significantly affected the characteristics of floating microspheres. The optimum batch of microsphere exhibited smooth surfaces with good flow and packing properties, prolonged sustained drug release, remained buoyant for more than 10 hrs, buoyancy (89.57 %). *In vitro* dissolution test showed 97.52 % release in 24 hours. Scanning electron microscopy confirmed the hollow structure with particle size in the order of 190µm. The studies revealed that increase in concentration of hydrophilic polymer (HPMC) increased the drug release from the floating microspheres. The results of 3^2 full factorial design revealed that the concentration of ethyl cellulose (A) and stirring speed (B) significantly affected drug entrapment efficiency, % yield, buoyancy and particle size of microspheres.

PC-134

PHARMACOECONOMICS: CURRENT AND FUTURE PERSPECTIVES IN HEALTH CARE

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ABSTRACT

Pharmacoeconomics and related outcome research training is becoming an indispensable module of pharmacy education, especially in the light of increasing healthcare costs and availability of limited resources. This investigational study examines and measures the inputs and outcomes of drug therapy and pharmaceutically associated health care interventions. The pharmaceutical industry is entering into an era of much more intensive change, which is likely to bring improvement in career prospects and career interest for pharmacoeconomists globally. Pharmacy curriculum must be designed to produce pharmacists who have the skills to provide drug information, education and care to patients, manage the pharmacy, and promote public health which covers the concept of pharmacoeconomics and medical informatics. Currently, several methods are available to educate individuals in the vistas of pharmacoeconomics. These include short courses, workshops, internships, undergraduate courses, fellowships and graduate degree programs. In addition, several other options are also accessible which provide and promote quality education in pharmacoeconomics and outcomes research. Escalating healthcare costs have created an environment where healthcare providers must allocate scarce resources in a justifiable manner. This makes pharmacoeconomics and outcomes research very critical in the current times for all healthcare providers. In conclusion, it is very necessary to take initiatives and make ensure that pharmacy students and other healthcare professionals get essential training in order to utilize the concepts of pharmacoeconomics in an efficient manner.

POSTER PRESENTATIONS
PHARMACOLOGY [PH]
[ABSTRACTS]

PH-01

UNDERSTANDING THE FACTS OF AUTISM

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ABSTRACT

Autism (sometimes called "classical autism") is the most common condition in a group of developmental disorders known as the autism spectrum disorders (ASDs). Approximately 67 million people are affected by autism around the world. An increasing prevalence of this neurodevelopmental disorder shows the importance of diagnosis and treatment of the disease. Autism is an early-onset neurodevelopmental disorder characterized by difficulties in social interaction and communication, and repetitive or restricted interests and behaviors. Autism is characterized by impaired social interaction, problems with verbal and nonverbal communication, and unusual, repetitive, or severely limited activities and interests. A great deal of research and funding has been devoted to understanding the cause of autism. Scientific studies presently are focusing on identifying neurotransmitter abnormalities, metabolic, genetic and environmental factors, involvement of the immune system, and structural and functional changes in the brain. Autism in its very broad spectrum of severity is known to have many different etiologies. In the last few years, significant progresses have been made in comprehending the causes of autism, and their multiple impacts on the developing brain. The primary goals of treatment are optimizing the quality of life and minimizing the impairment due to the core symptoms of autism. Autism is a complex disorder that is heterogeneous in nature, with varying degrees of severity and for which no specific biological marker has been identified. The increasing prevalence of autism is raising public-health concerns.

PH-02

RECENT PRESCRIPTION ANALYSIS AND PATIENT COUNSELING IN ARTHRITIS

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ABSTRACT

Arthritis is an autoimmune disorder that causes inflammation of joints. The most common form, osteoarthritis is a result of trauma to the joint, infection of the joint. Other arthritis forms are rheumatoid arthritis, psoriatic arthritis and related autoimmune diseases. The major complaint by subject who has arthritis is joint pain. The main aim of this project was to know and scrutinize that which drug is being used more in Arthritis. For the purpose of Analysis, 105 prescriptions were collected from orthopedic department of different hospitals and private clinics in Delhi, Noida and Ghaziabad. This analysis was based on the drugs name not on the brand name of the medicine. After the analysis of the arthritis prescriptions it was found that Sulfasalazine (15.42%), Methotrexate (11.42%), Diacerine (40%), Tramadol (20.95%), Naproxen (21.27%), Aceclofenac (42.55%), Paracetamol (57.44%), Glucosamine (51.06%) were prescribed. The use of Glucocorticoids, such as prednisone, further increases the risk of bone loss, especially in postmenopausal women. During pregnancy some medications, particularly high-dose steroids, may increase the risk of having a smaller than normal infant and may increase the risk of premature rupture of the membranes. Women who take Methotrexate should stop it at least one month before trying to conceive. It is advised to consume an adequate amount of calcium and vitamin D_3 either in the diet or by taking supplements.

PH-03

ROLE OF LACTOFERRIN IN INHIBITION OF LUNG CANCER GROWTH BY SUPPRESSION OF BOTH INFLAMMATION AND EXPRESSION OF VASCULAR ENDOTHELIAL GROWTH FACTOR

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ABSTRACT

Lactoferrin (LF), a single chain of glycoprotein with 2 iron-binding sites, has a wide range of biological functions, like antimicrobial, antiviral, anticancer and improvement of immunomodulatory activities. Additionally, it plays a major role in physiologic bacterial defense mechanism within the respiratory tract. Chemopreventive and cell growth inhibitory activities of LF has been demonstrated in esophageal, lung, colon, bladder, mammary, stomach, and tongue cancers. LF significantly decreased proliferation of cancer cells by decreasing the expression of VEGF mRNA and VEGF protein, which regulates angiogenesis in a dose dependent manner. Treatment with LF decreased levels of proinflammatory cytokines, such as tumor necrosis factor-α and antiinflammatory cytokines, such as, IL-4, IL-6, and IL-10, resulting in limited inflammation, which then restricted growth of the lung cancer. The anticancer activities of LF are exerted because of high affinity of binding towards iron, even at low pH. The iron could accelerate oxidation, thus disrupting nucleic acid structure. Other potential mechanisms of anticancer activity include induction of programmed cell death and regulation of cell cycle protein expression. Studies revealed that LF is an inhibitor of angiogenesis and blocks lung cell inflammation; as such, it has considerable potential for therapeutic use in the treatment of lung cancer.

PH-04

PROTECTIVE EFFECT OF CAPSAICIN AGAINST METHYL METHANESULPHONATE INDUCED TOXICITY IN THE THIRD INSTAR LARVAE OF TRANSGENIC *DROSOPHILA MELANOGASTER (HSP70-LACZ)BG*^{9}

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ABSTRACT

Capsaicin (trans-8-methyl-N-vanillyl-6-nonenamide) is the main component in hot peppers including red chilli peppers, jalapenos and habaneros belonging to the genus *Capsicum*. Capsaicin has potent antioxidant property that interferes with free radical activities. In the present study we studied the possible protective and therapeutic effect of capsaicin against methyl methanesulphonate (MMS) induced toxicity in third instar larvae of transgenic *Drosophila melanogaster (hsp70-lacZ)Bg*^{9}. Method: The third instar larvae of transgenic *Drosophila melanogaster (hsp70-lacZ)Bg*^{9} were allowed to feed on the diet having different concentrations of MMS and capsaicin separately and in combination. Results:The exposure of third instar larvae to the diet having MMS alone showed significant *hsp70* expression as well as tissue, DNA and oxidative damage. The exposure of the third instar larvae to the diet having MMS along with capsaicin showed a dose dependent significant decrease in the toxic effects for 24 as well as 48 hrs of exposure. Conclusion: The results obtained from the study suggests that capsaicin has a protective effect against the damage induced by methyl methanesulphonate in the third instar larvae of transgenic *Drosophila melanogaster (hsp70-lacZ)Bg*^{9}.

PH-05

A PROSPECTIVE STUDY OF PRESCRIPTION PRACTICE OF INOTROPIC DRUGS IN CRITICAL CARE UNIT IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Cardiovascular disease is the leading cause of deaths worldwide. In 2008, 30% of all global death was attributed to cardiovascular diseases. An inotrope is an agent that alters the force or energy of muscular contractions and therefore given for the treatment of cardiovascular diseases. Primary objective of this study was to investigate the prescribing pattern, usage and the most prevalent inotropic drugs used in Intensive care unit of a tertiary care hospital. This was a prospective observational study undertaken from November 2013 to June 2014, conducted on 101 hospitalized cardiovascular patients. The result showed that males were more prone to cardiac diseases, aged above 62 years & the most prevalent inotrope was nor epinephrine which is most effective positive inotrope given for immediate and better control in most of the cardiac disease in the hospital. The study exhibited a significant increase in utilization of monotherapy and two combination therapies (nor epinephrine + epinephrine) & decrease in the utilization of combination of three and four therapies at a time. The study also shows that these Patients who were suffering from different Cardiac/Heart diseases and so they were treated with inotropes, were mostly having their Blood Pressure low and were suffering from Hypotension. The study also highlighted that the most commonly diagnosed diseases were CAD, TVD, Sepsis, ACS, cardiogenic shock, ASD which were mostly treated by the positive Inotropes. Future researches can be done by including more no. of patients from various metro cities to validate the data.

PH-06

RECENT PRESCRIBING PATTERN ANALYSIS & PATIENT COUNSELING IN DIFFERENT TYPES OF FEVER

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ABSTRACT

Fever is an abnormal state characterized by increased production of heat, accelerated heart action, pulse and systemic debility with weakness, loss of appetite and thirst". Fever occurs when an area in brain called hypothalamus shifts the set point of body temperature upward. Factors such as menstrual cycle or heavy exercise also affect body temperature. This project includes statistical analysis of drugs prescribed in different types of fever. This project includes the analysis of drugs that has been currently and mostly used by physician. For this 100 prescriptions were collected from dispensary, various hospitals, and clinics. After the analysis of the prescription given to the patient it was found that paracetamol (30%) in normal fever, chloroquine (29%) in malaria fever, Gammaglobulin (55%) in measels, paracetamol(50%) in rheumatoid fever, Paracetamol(48%) in Influenza, Aspirin (50%) in Hepatitis fever, Ciprofloxacin(27%) in typhoid fever. NSAIDs are generally not recommended for people with kidney disease, heart failure, or cirrhosis and for people who take diuretics. Some patients who are allergic to aspirin may be able to take selective NSAIDs safely, although this should be discussed in advance with a healthcare provider. Because of the wide availability and frequency of use of NSAIDs, it is important to be aware of their proper use, dose, and potential side effects.

PH-07

EVALUATION OF BEHAVIOURAL AND ANTIOXIDANT ENZYMES ACTIVITIES IN RAT BRAIN: AGE AND GENDER BASED ANALYSIS

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ABSTRACT

Antioxidants are free radical scavengers which provide protection against free radicals that causes various pathological conditions such as ischemia, inflammation and aging process. There are some enzymatic and some non enzymatic antioxidants present in the body which provide protection against oxidative damages caused by reactive oxygen species. Some enzymes which provide protection against oxidative stress produced by imbalance between free radicals and ability of body to counteract or detoxify their harmful effects through neutralization by antioxidant are Glutathione, Glutathione Reductase and Glutathione peroxidase. Lipopolysaccharide was given through ICV route in SD rats for observing the variation in Rota rod activity and antioxidant activity of enzymes in various parts of rat brain for age and gender based analysis. The brain parts used for study are frontal cortex, hippocampus, mid brain, straitum and hypothalamus. In rotarod activity male and treated group showed impaired motor coordination significantly ($p< 0.01$ and $p<0.001$) on comparing with respected control individuals whereas female group was less impaired than male. In case of Glutathione activity significant decrease i.e. $p<0.01$ and $p<0.001$ was observed in treated groups as compared to control and decrease in activity of male aged groups was found as compared to female. In Glutathione Reductase and Glutathione Peroxidase activity decreased in age dependent manner when young animals were compared with adult and aged for both genders. In case of aged based analysis $p<0.001$ significant decrease observed in males.

PH-08

CURRENT STATUS AND FUTURE PERSPECTIVES OF ORPHAN DRUGS

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ABSTRACT

Rare diseases are an important public health issue and a challenge to medical care**.** These are used to describe diseases that are neglected by doctors (Fabry's disease, alveolar echinococcosis, variant renal cancer). Due to their relatively low prevalence, rare diseases as a whole have traditionally been neglected by large parts of the scientific, medical and political communities. The epidemiological magnitude of rare diseases (7000) is possibly reflected by the number of orphan drug designations (528) but not by their approvals (44), and even less so by their availability on the market (only 26 in the Italian market). This is not only due to scientific or medical difficulties in tackling rare diseases, but rather lies in their inherent lack of attraction for pharmaceutical companies, which are more interested in developing drugs for common disorders that affect millions than in treating a handful of patients. Besides, the alliance between industry and society to treat rare diseases with proper legislation of orphan drug might be an important step towards improving situation in the field of rare diseases.

PH-09

ANTI-HEPATOPROTECTIVE ACTVITY OF *CLERODENDRUM PHLOMIDIS* IN RATS

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ABSTRACT

In this study the ethanolic extract of *Clerodendrum phlomoidis* was given CCL_4 (intramuscularly) intoxicated rats in which the Hepatotoxicity induced by the administration of Carbon tetra chloride for 7 days. Biochemical parameters were assessed the protective effect of *Clerodendrum phlomidis* extract to observe the results when compared with normal rats. The

results showed increased activity of SGOT, SGPT and ALP in CCL_4induced rats compared with control rats. Ethanolic extract of *Clerodendrum phlomidis* significantly decreased the level of SGOT, SGPT and ALP in rats. The present study the decreased content of GSH in CCL_4 intoxicated rat compared to control rats. After administration of ethanolic extract of *Clerodendrum phlomidis* significantly increased in the level of GSH in CCL_4 intoxicated rats.

PH-10

PROTECTIVE EFFECT OF TANGERITIN AGAINST CYCLOPHOSPHAMIDE INDUCED TOXICITY IN THE THIRD INSTAR LARVAE OF TRANSGENIC *DROSOPHILA MELANOGASTER (HSP70-LACZ)BG*^{9}

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ABSTRACT

The present study was conducted to evaluate the possible protective role of tangeritin on cyclophosphamide induced toxicity in the third instar larvae of transgenic *Drosophila melanogaster (hsp70-lacZ)Bg*^{9}. Cyclophosphamide (CP) is used widely as a chemotherapeutic agent to treat various forms of leukemia, tumors, rheumatoid arthritis and Wegner's granulomatosis. The study of the anticancer drugs is of major significance due to the possibility that they may cause toxicity in normal cells. Tangeritin is a flavone found in tangerine and other citrus peels. Method: The third instar larvae of transgenic *Drosophila melanogaster (hsp70-lacZ)Bg*^{9} were allowed to feed on the diet having different concentrations of CP and tangeritin separately and in combination. Results: The exposure of third instar larvae to the diet having CP alone showed significant *hsp70* expression as well as tissue, DNA and oxidative damage. The exposure of the third instar larvae to the diet having CP along with tangeritin showed a dose dependent significant decrease in the toxic effects for 24 as well as 48 hrs of exposure. Conclusion: The results obtained from the study suggests that tangeritin has a protective effect against the damage induced by cyclophosphamide in the third instar larvae of transgenic *Drosophila melanogaster (hsp70-lacZ)Bg*^{9}.

PH-11

HEPATPPROTECTIVE ACTIVITY OF *WITHANIA SOMNIFERA* AGAINST $ALCL_3$-INDUCED HEPATOTOXICITY IN RATS FOR PHARMACEUTICAL PREPRATION

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ABSTRACT

Withania somnifera (Ashwagandha) is described as a hepatoprotective in Ayurveda, the Indian system of medicine. However, there are no scientific reports in the modern literature regarding its usefulness as a hepatoprotective agent against aluminum induced hepatotoxicity. The present study was carried out to evaluate the hepatoprotective activity of Hydro-alcoholic root extract of *Withania somnifera* in aluminum-induced hepatotoxicity in rats. Material and methods: A total of twenty four male albino rats were taken and divided into four groups (N=6). First control group was treated with normal saline, second group was treated with 20 mg/kg body weight of $AlCl_3$, third group was treated with 250mg Ursodeoxycholic acid (UDC) with $AlCl_3$ and fourth group was treated with both $AlCl_3$and 200mg *Withania somnifera*. Results: The results demonstrated that increased serum glutamate oxaloacetate transminase (SGOT), serum glutamate pyruvate transminase (SGPT), alkaline phosphatase (ALP), lactate dehyrogenase (LDH) activities along with thiobarbituric acid reactive substances (TBARS), total bilirubin (TB) and liver weight. Moreover, total protein (TP), albumin and reduced glutathione levels were significantly decreased in aluminum treated rats when compared with respective controls. However, *Withania somnifera* administration with Aluminum showed reversal changes near to control. Protection offered by UDC (standard reference drug) seemed relatively greater. Conclusion: The finding suggests that *Withania somnifera* protects against aluminum induced oxidative liver injury in rats.

PH-12

POTENTIAL ROLE OF ADAPTOGENS IN STRESS: A REVIEW

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ABSTRACT

Herbal medicines are also very good in boosting the immune system. In herbal medicine, stress-fighting herbs are called "adaptogens," because they help the body adapt to imbalances and challenges due to stress caused from extrinsic (external) and intrinsic (internal) sources. The role of an adaptogen is to provide the body with the resources to regulate over-activity or under-activity and to return it to normal function and balance. By strengthening the body, adaptogens support the immune system in resisting disease and illness. Adaptogens assist in restoring and harmonizing all body systems. Adaptogens are such herbal agents, which help the body to overcome the excess stress even in chronic cases. The drugs of plant origin are gaining increasing popularity and are being investigated for remedies of a number of disorders including CNS related disorders. The continuous oral administration of tranquilizers may lead to cortical synchrony, relaxation of skeletal muscles and drowsiness, the use of adaptogenic plants have been suggested in the traditional system of medicines for the cure of stress, anxiety and depression. Withania somnifera, Panax ginseng, Nepeta cataria are among such plants which have long tradition of use in the treatment of nervous disorders,

PH-13

ANXIETY: A REVIEW

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ABSTRACT

Anxiety referred as worry or angst is defined as a psychological state described by emotional, somatic, behavioral and cognitive components. It is regarded as a displeasing feeling of concern and fear. Anxiety is regarded as a standard reaction to the stressor. Anxiety disorders are among the most frequent mental disorders encountered in clinical practice. These represent a heterogeneous group of disorders, probably with no single unifying etiology. It can be characterized by a maladaptive or excessive response to stress primarily involving the neurotransmitters nor epinephrine, serotonin, and gamma-aminobutyric acid (GABA). In contrast with depression, genetic factors play a modest role. Environment, particularly early in life, is thought to be more important. Biochemical and Neuroimazing studies indicate that the modulation of normal and pathologic anxiety states is associated with multiple regions of the brain and abnormal function in several neurotransmitter systems, including norepinephrine (NE), γ–aminobutyric acid (GABA), and serotonin (5-HT). Anxiety disorders are the most prevalent of psychiatric disorders, yet less than 30% of individuals who suffer from anxiety disorders seek treatment. People with anxiety disorders can benefit from a variety of treatments and services. Benzodiazepine, non benzodiazepine, buspirone, Antidepressent and plant like *Salvia officinalis, Aloe barbedensise Mimusops elengi, Gelsemium sempervirens are* used for treatment in Anxiety.

PH-14

TOXIC POTENTIAL OF ERYTHROMYCIN IN THE THIRD INSTAR LARVAE OF TRANSGENIC *DROSOPHILA MELANOGASTER (HSP70-LACZ)BG[9]*

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ABSTRACT

The toxic potential of erythromycin in the third instar larvae of transgenic *Drosophila melanogaster (hsp70-lacZ)Bg[9]* was studied. Erythromycin at final concentration of 5, 10, 20, 40, 60 and 80 µg/ml was mixed in the diet and the larvae were allowed to feed on it for 6, 12, 24

and 48 hrs. The *hsp70* expression, trypan blue exclusion test, *in situ* histochemical β-galactosidase activity, lipid peroxidation, total protein content, apoptotic index and comet assay were taken as parameters. The larvae exposed to 40, 60 and 80 µg/ml for 24 and 48 hrs showed a dose and duration dependent significant increase in the activity of β-galactosidase and lipid peroxidation but decrease in the total protein content as compared to unexposed larvae. The larvae exposed to 40, 60 and 80 µg/ml of erythromycin for 24 and 48 hrs showed a dose and duration dependent increase in the tissue damage, apoptosis and the DNA tail length (Comet assay). The result suggests that the erythromycin is toxic at 40, 60 and 80 µg/ml of doses for the third instar larvae of transgenic *Drosophila melanogaster (hsp70-lacZ)Bg*[9]. Erythromycin at 5, 10 and 20 µg/ml was not toxic for any duration of exposure.

PH-15

IDENTIFYING NEEDS WITH BARRIERS TO DIABETES KNOWLEDGE IN PATIENTS WITH TYPE2DIABETES MELLITUS BY USING PHARMACEUTICAL CARE PROGRAM

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ABSTRACT

To evaluate the needs, awareness and barriers to diabetes education for self management and to ease the initiation of an education programme promoting self care among diabetics and their families through by using pharmaceutical care program. This observational study was conducted among Type-2 diabetes mellitus attending outpatient in the Outpatient Medicine Department at SBHGMC teaching hospital in dhule (MS) interviews were conducted on 35 patient.(15 men; 20women) to identify main themes and priority issues. In this study Participants displayed great deal of variation with respect to level of knowledge and motivation for education. Most thought that diabetes was caused by stress. Family was supposed to be a source of positive support. Relative ease of adherence to pharmacological regimens as compared to diet and exercise was reported. Participants expressed disturbance at chronicity of disease and fear of developing certain specific complications and inheritance by their children. Barriers to enhancing knowledge included No necessitate for further information, from pharmaceutical care program. The studies conclude that Knowledge, beliefs and fears about diabetes, family influence and accessibility of healthcare, affects management behaviours and learning. through by using pharmaceutical care program Understanding needs and expectations of people with diabetes is essential in initiating and improving the outcomes of through by using pharmaceutical care program.

PH-16

NOVEL METHODS FOR BRAIN TARGETING OF DRUGS

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ABSTRACT

The brain is very complicated as well as fragile organ and Nature has been played a very efficient role to protect it. The brain is protected from many toxic substances and various chemicals by the presence of two barriers namely blood brain barrier (BBB) and blood cerebrospinal fluid barrier (BCSFB). Various routes of drug targeting to the brain now become an important tool in the pharmaceutical field because of many complicated disease of the brain like Alzheimer, Huntington disease, epilepsy etc. Some novel methods for brain targeting of drugs are:1)brain targeting by nanoparticles 2) Drug Transport to Brain with Targeted liposomes 3)Craniotomy .Nanoparticle drug carriers consist of solid biodegradable particles in size ranging from 10 to 1000 nm (50–300 nm generally). They cannot freely diffuse through the blood-brain barrier. Antibody-conjugated liposomes or immuneliposomes are particulate drug carriers that can be used to direct encapsulated drug molecules to diseased tissues or organs. Craniotomy-administer the drug after drilling a hole in the head, a process called craniotomy. With this approach, the small- or large molecule drug may be administered either by intra cerebroventricular (ICV) or intra cerebral (IC) injection.

PH-17

DNA DAMAGE IN BUCCAL EPITHELIAL CELLS OF PAN MASALA AND GUTKHA CHEWERS

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ABSTRACT

Gutkha and pan masala are very common among all age groups in India as well as abroad due to their easy availability. The chewing of these items is one of the most potent causes of oral cancer. In the present study the effect of pan masala and gutkha was studied on DNA damage by using comet assay in the buccal epithelial cells with regard to the duration of keeping the chewables (gutkha and panmasala) in mouth, duration of addiction and the number of pouches consumed per day. The results of the present study showed that the DNA damage in the epithelial cells is higher in gutkha users and pan masala chewers compared to controls. The extent of DNA damage also depends on duration of the chewables kept in mouth, duration of addiction and the number of pouches consumed per day.

PH-18

STUDY OF POLYPHYTO OIL FOR THE TREATMENT OF LEARNING AND MEMORY ENHANCING PROPERTIES AFTER TRANSCRANIAL APPLICATION ON RAT

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ABSTARCT

The present study objective is to find out the effectiveness of the polyphyto oil preparation applied transcranially screening for its learning and memory activity. Trans Cranial Routes was stated that the passage of an oil solubilized drug moiety across the skin of the scalp, including appendages of the skin such as sebaceous glands, walls of the hair follicles and sweat glands, through the cranial bones along with the diploe, the cranial bone sutures, and the meninges and specifically through the emissary veins into the brain. The transcranially applied test drugs FMTc compose of *Asparagus racemosus* (20%) *Phyllanthus emblica* (10%), *Lactuca sativa* (35%), *Curcuma longa* (35%) at a dose of (10 mg/ kg body weight) studied against standard drug *Bacopa monnieri (50 mg/kg p.o and TCR)* having potential effect to improving memory, evaluate it using three different animal model like Elevated plus maze (EPM), Morris water maze (MWM) and Pole Climbing apparatus (PCA) for the effect of nootropic action. It was concluded that the nootropic polyphyto oil preparation FMTc having promising significant ($p<0.001$) effect for enhancing learning and memory properties can be use for memory loss or dementia and prophylactically can be use to prevent neurodegeneration.

PH-19

FORMULATION AND EVALUTION OF MICROSPHERES OF SPIRONOLACTONE BY USING ETHYL CELLULOSE AS CONTROLLED RELEASE DOSAGE FORM

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ABSTRACT

Controlled drug delivery system received tremendous attention and the significant research interest in the long term maintenance of drug levels coincides with the increased medical and public acceptance of such systems. The primary objective of zero-order release is to up-hold constant drug concentration in blood for a prolonged period of time. Administration of drugs in the form of microspheres, usually improves the treatment by providing the localization of the

active substance at the site of action and by prolonging release of drug. Spironolactone is an effective antihypertensive and diuretic drug but the convential dosage form of drug have very short half life only 1-2 hrs due to this it quickly eliminated from blood circulation. Thus, development of controlled release dosage forms would clearly be advantageous. The present study has been a satisfactory attempt to formulate a microparticulate system of a diuretic drug spironolactone with a view of controlled delivery of the drug.

PH-20

ANTIBODY-DRUG CONJUGATE: A NEW ERA IN THE TREATMENT OF CANCER

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ABSTRACT

A number of antibiotics have been used for the treatment of cancer but they show limited efficacy. Antibody drug conjugates are highly potent biopharmaceutical drugs that have been designed as targeted therapy for cancer treatment. They are prepared by linking antibody to cytotoxic drug by peptide linkers. This combination brings together the benefit of cancer killing ability to cytotoxic drugs, selective binding capability to specific tumor antigens of antibodies and ensures sensitive discrimination between healthy and diseased tissue. The peptide linkers are highly stable in serum and they have shown to improve the antitumor effect. The antibody tracks tumor markers in the body and get attached to tumor cell. The antigen antibody reaction triggers a signal in the tumor cells leading to absorption or internalization of the antibody together with the cytotoxic drug, the drug is released thus killing the cancer. By doing this side effect of the drug is lowered and it gives a wider therapeutic window. Till date only three received market approval and more than thirty are in clinical trials. Improvement of therapeutic index and selection of appropriate clinical settings are the challenges that need to be met so that these molecules can bring highest clinical benefit.

PH-21

PROTECTIVE EFFECT OF CURCUMIN AGAINST N-NITROSODIETHYLAMINE (NDEA) INDUCED HEPATOTOXICITY IN ALBINO RATS

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ABSTRACT

In the present study the effect of curcumin was studied against the hepatotoxicity induced by N-nitrosodiethylamine (NDEA). The male rats were exposed to NDEA (0.1 mg/ml) dissolved in drinking water separately and along with 5, 10, 20 mg/ml of curcumin for 21 days. The activity of serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), alkaline phosphatase (ALP) and lactate dehydrogenase (LDH) were measured in blood serum. Lipid peroxidation, glutathione reductase (GSH), protein carbonyl content, glutathione-s-transferase (GST) activity and micronucleus frequency were estimated in the rat hepatocytes. The results of the study reveals that the treatment of NDEA along with curcumin showed a dose dependent significant decrease in the levels of blood serum enzymes i.e., SGOT, SGPT, ALP and LDH ($p<0.05$). Histological sections of the liver also revealed a protective effect of curcumin. A significant dose dependent reduction in lipid peroxidation, GST activity, protein carbonyl content and increase in the GSH content was observed in rats exposed to NDEA (0.1 mg/ml) along with curcumin ($p<0.05$). Thus the present study supports the role of curcumin as an antigenotoxic as well as hepatoprotective agent.

PH-22

PHARMACOLOGICAL EVALUATION OF LOPERAMIDE WITH RESPECT TO WEIGHT AS AN HEPATOCELLULARCARCINOMA

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ABSTRACT

Cancer is a disease in which there is uncontrolled multiplication and spread within the bodys own cell. The effect of loperamide on the weight of rats was observed in this study. Loperamide, an anti-diarrhoeal drug, is a peripheral opiate agonist. Some other opiate agonists have been shown to promote cell apoptosis. In this research, we studied the cytotoxic activities of loperamide and its anticancer effect in-vivo for hepatocellularcarcinoma. The animals were acclimatized for one week and the treatment was followed for six weeks. The animals were divided into 4 groups with 5 animals each. First group (Group I) was kept normal and was given food and water regularly. Second group (Group II) was treated with DENA given i.p (dose 160mg/kg). Third group (Group III) was administered DENA followed by treatment with drug. Fourth group (Group IV) was administered drug only. The activity was performed successfully.

PH-23

MAGGOT DEBRIDEMENT THERAPY: SYSTEMATIC REVIEW ON MAGGOTS'S POTENTIAL TO TREAT NON-HEALING WOUNDS

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ABSTRACT

Wounds if not treat, create a serious medical complication. If the wound is infected with an Antibiotic-Resistant bacterial strain such as Oxacillin Resistant Staphylococcus aureus(ORSA), Methicillin – Resistant Staphylococcus aureus(MRSA),then it become sometime impossible to treat the wound and it could further cause life threatening conditions.Wound can also be due to various medical conditions such as Pressure Sores in Patients who are immobilized because of various injuries such as sedation, long term spinal cord injury. This review aims to introduce the recent advancement and use in few countries as well as future prospect in Maggot Debridement Therapy (MDT). MDT also known as Larval Therapy, Biodebridement Therapy as well. It is a type of biosurgery with the use of larvae obtained from some strains of Green bottle fly and black bottle fly.It involves the intentional introduction of disinfected maggots into non-healing wounds for the purpose of selectively cleaned out only the necrotic tissue within a wound. In Jan 2004,USFDA granted permission for the production and marketing of Maggots.Recently this therapy is widely used by British National Health Service, European Union and Canada.

PH-24

AREVIEW ON PULMONARY ARTERIAL HYPERTENSION (PAH)

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ABSTRACT

Pulmonary arterial hypertension (PAH) consists of a group of heterogeneous but distinct disorders characterized by complex proliferation of the pulmonary vascular endothelium and progressive pulmonary vascular remodeling that leads to right ventricular failure and death. The current treatment paradigm for PAH targets the mediators of the three main biologic pathways that are critical for its pathogenesis and progression: endothelin receptor antagonists inhibit the up regulated endothelin pathway by blocking the biologic activity of endothelin-1; phosphodiesterase-5 inhibitors prevent breakdown and increase the endogenous availability of cyclic guano sine monophosphate, which signals the vasorelaxing effects of the down regulated mediator nitric oxide; and prostacyclin derivatives provide an exogenous supply of the deficient

mediator prostacyclin. These novel therapeutic targets include soluble guanylyl cyclase, phosphodiesterase, tetrahydrobiopterin, 5-hydroxytryptamine (5HT) receptor 2B, vasoactive intestinal peptide, receptor tyrosine kinases, adrenomedullin, rho kinase, elastases, endogenous steroids, endothelial progenitor cells, immune cells, bone morphogenetic protein and its receptors, potassium channels, metabolic pathways, and nuclear factor of activated T cells.

PH-25

PHARMACOLOGICAL EVALUATION OF VITAMIN K AND CALCIUM WITH RESPECT TO WEIGHT AS AN ANTI –CANCER DRUG IN CHEMICALLY INDUCED HEPATOCELLULARCARCINOMA.

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ABSTRACT

Cancer is a disease in which there is uncontrolled multiplication and spread within the body's own cells. The effect of vitamin K and calcium on the weight of rats was observed in this study. Vitamin k has shown to inhibit growth of HCC cells in vitro. Both carboxylation and growth inhibition are vitamin k dose dependent and calcium modulates killing of cancer cells by CTL and NK cells. Several Steps of the actual killing process are calcium dependent. This study is based on the possibilities that vitamin K and calcium may have anticancer effect in vivo for hepatocellularcarcinoma. Female wistar rats were used for inducing cancer chemically with DENA. The animal were acclimatized for one week and the treatment was followed for eight weeks. The animal were Divided into 4 group with 5 animal each. First group (Group 1) was kept normal and was given food and water regularly. Second group (Group 2) was treated with DENA given i.p (dose-160 mg/kg). Third group (Group 3) was administered DENA followed by treatment with drug. Fourth group (Group 4) was administered drug only.

PH-26

STUDY OF DRUG USE IN TERTIARY CARE CORPORATE HOSPITAL WITH SPECIAL FOCUS ON COMPLETENESS OF PRESCRIPTIONS IN INPATIENT DEPARTEMENT

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ABSTRACT

Drug use evaluation (DUE) is a quality improvement activity which uses an ongoing cyclical process to improve quality use of medicines (QUM) and health outcomes. It involves monitoring and reviewing drug use, evaluating and comparing it with best practice guidelines, and using multifaceted interventions to improve drug use and overall patient care. In order to promote rational drug usage standard policies on use of drugs must be set, and this can be done only after the current prescription practices have been audited. The prescriptions were analyzed based on the objectives of the study in order to promote rational use of drugs in a population. This was an observational study undertaken in a tertiary care hospital, New Delhi, for a period of 8 months. Data for only first encounter prescriptions collected from the patients' admitted in the IPD of the hospital. The collected data were analysed and conclude that there was a significant improvement in the formats of the prescriptions in terms of the quality of the completeness and the rational use of antibiotics. Serial prescription audits and an active feedback definitely improve the prescription behaviours in the therapeutic decision making. But discontinuing the prescription audits begins to reverse the improvement in the prescription behaviours. The study confirms that quality of prescriptions, both in terms of layout and the content of the drugs prescribed was inadequate and it should be rectified so that a proper and more effective drug system could be developed.

PH-27

UNDERSTANDING THE CONCEPTS OF PARKINSON DISEASE

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ABSTRACT

Parkinson's disease (PD) is the second most common neurodegenerative disorder after Alzheimer's disease and is an important cause of chronic disability. Numerous important advances have been made in our understanding of the aetiopathogenesis, pathology and clinical phenomenology of this disease, and these have underpinned advances in symptomatic treatment and the prospect that these might be extended into interventions that will slow progression. The disorder is characterized by resting tremor, bradykinesia, rigidity, postural instability, and pathologically by alpha-synuclein-positive Lewy bodies. For most, the etiology is unknown and it is likely due to a multifactorial interaction of genes and the environment. In a minority, a clear environmental, toxic, or genetic etiology is determined. Numerous important advances have been made in our understanding of the aetiopathogenesis, pathology and clinical phenomenology of this disease, and these have underpinned advances in symptomatic treatment and the prospect that these might be extended into interventions that will slow progression. It is notable that the continuing characterisation of the downstream biochemical consequences of the genetic causes of PD serves only to reinforce this notion. Progress in the management of PD has continued, particularly in timing of drug initiation and the sequence and combinations in which drugs are used to improve long-term outcome and reduce drug-induced complications.

PH-28

REVIEW ON MULTIPLE SCLEROSIS A PROGRESSIVE DEMYELINATED DISORDER

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ABSTRACT

Multiple sclerosis (MS) is a chronic autoimmune, inflammatory neurological disorder of the central nervous system (CNS). The myelinated axons in the CNS, destroying the myelin and the axons to varying degrees. The course of MS is highly varied and unpredictable. In most patients, the disease is characterized initially by episodes of reversible neurological deficits, which is often followed by progressive neurological deterioration over time. From 200,000 to 350,000 patients in the U.S. have MS and 50% of patients will need help walking within 15 years after the onset of the disease. Twice as many women are affected as men, and persons of Northern European descent appear to be at highest risk for MS.The disease is diagnosed on the basis of clinical findings and supporting evidence from ancillary tests, such as magnetic resonance imaging (MRI) of the brain and examination of the cerebrospinal fluid (CSF). MS typically presents in adults 20 to 45 years of age; occasionally, it presents in childhood or late middle age. The cause is unknown, but it appears to involve a combination of genetic susceptibility and a nongenetic trigger, such as a virus, metabolism, or environmental factors, that together result in a self-sustaining autoimmune disorder that leads to recurrent immune attacks on the CNS. The goals of therapy with disease-modifying agents in patients with MS include shortening the duration of acute exacerbations, decreasing their frequency, and providing symptomatic relief. No curative, FDA-approved therapies for MS are currently available. Symptomatic treatments are aimed at maintaining function and improving quality of life. It is common practice to treat acute relapses of MS with a short course (typically 3 to 5 days) of a corticosteroid that has a rapid onset of action and that produces few adverse drug effects (AEs), such as intravenous (IV) methylprednisolone or dexamethasone.Brief courses of corticosteroids (e.g., oral prednisone 60 to 100 mg once daily, tapered over a period of 2 to 3 weeks, or IV methylprednisolone 500 to 1,000 mg once daily for 3 to 5 days) are also used to treat acute exacerbations and to shorten the duration of MS attacks.

PH-29

STANDARDS OF COMMUNITY PHARMACY PRACTICE

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ABSTRACT

Community pharmacy practice includes all services offered by a pharmacist to society through pharmacy where patients receive drugs. Community pharmacy is still in primitive stage in India and is confined to so called 'Medical Store'. Standard of a profession largely depends on the performance of persons practicing it. The objective of this study was to assess the overall performance of community pharmacy and thereby identify shortcomings so that need to improve may be appreciated and realized. Data was collected through a pre-drafted, structured and undisguised questionnaire and objective of the study was made known to respondents. Investigators personally visited 100 community pharmacies scattered in Panipat city of Haryana and responses were recorded after observations and discussions with pharmacists present there. The study concludes that majority of pharmacies (40%) are named 'Medical Hall' while only 4% are named 'Pharmacy'. About 66% pharmacists counsel the patients on 'How to take the medicine' and 'duration of therapy' for medicines sought by them. Very few pharmacists (8%) consult physicians if prescribed brand is not available. It is surprising to note that none of the pharmacists was wearing apron in pharmacy. From this study we could realize ground realities of the pharmacy practice.

PH-30

ADVACEMENTIN THE TREATMENT OF RHEUMATOID ARTHRITIS (RA): A REVIEW

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ABSTRACT

Rheumatoid arthritis (RA) is a complex disease, resulting in localized erosion to the joint and its accessory structure. The past decade has brought important advances in the understanding of rheumatoid arthritis and its management and treatment. New classification criteria for rheumatoid arthritis, better definitions of treatment outcome and remission, and the introduction of biologic response-modifying drugs designed to inhibit the inflammatory process have greatly altered the approach to managing this disease. More aggressive management of rheumatoid arthritis early after diagnosis and throughout the course of the disease has resulted in improvement in patient functioning and quality of life, reduction in comorbid conditions and enhanced survival. Importantly, the growing understanding of the prolonged periodprior to the first onset of symptoms of RA suggests that these environmental and genetic factorsare likely acting to drive the development of RA-related autoimmunity long before the appearanceof the first joint symptoms and clinical findings that are characteristic of RA. The present investigation concluded that the above study was used for understanding of the pathogenesis of RA, and ultimate perhaps develop preventive measures for this disease.

PH-31

EVALUATION OF ANTI ARTHRITIC ACTIVITY OF PERGULARIA DAEMIA IN FREUND'S ADJUVANT INDUCED ARTHRITIC RAT MODEL

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ABSTRACT

The plants *Pergularia daemia* used for the treatment of inflammation, in the folk medicine of different cultures, triterpenes are the most widely diffused and active compounds. The *Pergularia daemia* plant extract showed positive test for Carbohydrates, Glycosides, Alkaloids, Phytosterol, Saponin, Fixed oils and Fats, Flavanoids, and Coumarins. Several studies reported isolation and characterization of various constituents from *Pergularia daemia. Pergularia daemia* has anthelmentic, emetic, thermogenic, expectorant, antipyretic and laxative action. Leaves juice is given in catarrahal affections, asthma, and infantile diarrhoea. Saponins, as well

as triterpenes, have been investigated for numerous biological activities such as anti-inflammatory, antimalarial, and anti-HIV. Investigations have been carried out using rats as experimental models, to assess the anti arthritic potential of *Pergularia daemia* by using Freund's adjuvant induced arthritic rat model. Results obtained demonstrate that *Pergularia daemia* can significantly and dose-dependently inhibit carrageenan-induced rat paw oedema. The responses were statistically significant when they were compared with the control.

PH-32

EBOLA: ACHALLENGE FOR PHARMACIST TO PROVIDE QUALITY SERVICES

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ABSTRACT

Ebola is an infectious and generally fatal disease marked by fever and severe internal bleeding spread through contact with infected body fluids by a filovirus (Ebola virus) whose normal host species is unknown. This hemorrhagic fever mushroomed from an outbreak into an epidemic in Liberia, Guinea and Sierra Leone, and there have been scattered cases in Nigeria, Mali, Spain, Germany and U.S. It has left more than 6300 people dead worldwide. If nothing is done, a person with Ebola typically infects about 2 more people, so tracking people who have been in contact with an infected person and isolating them the moment they develop symptoms that begin with fatigue, fever and headache (people become infectious only after symptoms begin) is the only way to stop it. Pharmacist can play an important role in prevention and management of this disease. Pharmacist being the most accessible health care professional can initiate awareness campaign quite like pulse polio campaign that includes using hoardings, radio and television shots, and text messaging and house to house calls. Its treatment mainly includes supportive therapy. Here again pharmacist can guide nurse on drug usage and administration. If pharmacist is able to play this role effectively, image and status of pharmacist will improve in the eyes of general public.

PH-33

ADVERSE DRUG REACTIONS AND DRUG SAFETY

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ABSTRACT

An adverse drug reaction (ADRs) remains a common clinical problem since they can mimic many disease and cause significant morbidity and mortality. Judicious prescribing is important to minimize their occurrence. Most of them remain unpredictable. Spontaneous reporting continues to play an important role in pharmacovigilance. Clinical trials and routine regulatory oversight, often fail to uncover important adverse effect for widely marketed products. There has to be a comprehensive and systematic approach to monitoring, collecting, analyzing and reporting data on ADRS. This will include increased pressure on pharmaceutical companies to conduct post marketing studies. Such an active\proactive approach, while maintaining focus on ADR detection, could also aim to extend knowledge of safety, such that emerging changes in risk benefit during a drug's marketed life are effectively communicated to clinicians and patients. Drug safety monitoring and its regulations are now undergoing an overhaul and it is hoped that vigilance, public safety and trust will improve as a result. Emphasizing, safety will require not only a change in culture, but an entirely new structure in which safety becomes better integrated in the life cycle of a drug, from animal studies, through premarketing clinical trial, to everyday patient use.

PH-34

COOKING OIL FOR DIABETICS

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ABSTRACT

We have many options and varieties in using our cooking oils. Ghee is made from butter and butter from milk. It can be solid at room temperature. Refined oils are generally mixture of different oils derived from seeds from which the impurities from the oil are removed and the smoke point enhanced. As oils contain fats and a diabetic must take fats in less amount as they increase the blood glucose level, cause insulin resistance and raise blood cholesterol, a risk factor for heart disease. Diabetics must eat proper fats by choosing the right oil. Mono-saturated oil helps to lower total bad cholesterol, Poly-cholesterol oils also reduces bad cholesterol but they may also lower good cholesterol. It's also helpful to know the type of oil to use for each type of cooking because each oil has its own smoke point, that's where the oil reaches a certain temperature and releases cancer-causing carcinogens. When this happens, it's best to avoid it. Oils rich in 6 omega and 3 omega are recommended for healthy cells in the ratio 4:3. Oils which have omega6 higher than omega3 are not advised like Rice brain, Coconut, Sunflower etc.

PH-35

ROLE OF DIET IN PREVENTION OF CANCER

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ABSTRACT

Cancer is a serious health problem characterized by uncontrolled proliferation of cells that have transformed from the normal cells of body and affecting people of all ages around the world. According to the recent report by WHO, there are more than 10 million new cases and around 6 million deaths attributed to cancer per year globally. Today the high incidence of cancer is mainly attributed to unhealthy lifestyle, increasing urbanization, particularly cigarette smoking, adopting western modern diet rich in high fat and low fiber content. It is reported that average 35% of human cancer mortality is attributable to diet. Considering this, diet is considered as potential alternative source if safer chemicals which possess cancer preventive properties. The NCI (National cancer institute) also has identified about 35 plant-based foods which possess cancer preventive properties. These includes aloe, soybean, ginger, green tea, tomatoes, carrot, cloves, turmeric, coriander etc. In present study cancer preventive dietary phytoconstituents have been summarized. Conclusion: Irradiation & chemotherapy are the two most popular treatments of cancer but with lot of side effects. The dietary supplements easily provide a suitable alternative being cost effective, easily avaibility & therapeutic effectiveness.

PH-36

CURRENT STRATERGY IN THE TREATMENT OF EPILEPSY: A REVIEW

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ABSTRACT

Epilepsy is the fourth most common neurological disorder and affects people of all ages. It is a distinctive feeling or perception experienced by someone that occurs before they have a seizure. The seizure can occur anywhere from a few seconds to few minutes after the aura. Epilepsy is a chronic disorder the hallmark of which is recurrent unprovoked seizures. Sometimes EEG testing, clinical history, family history is used among a group of people to test epilepsy. Pharmacodynamics interactions between antiepileptic drugs may also be clinically important in the treatment. Immunotreat option for treatment of epilepsy includes therapies such as corticosteroids immunoglobulin, plasmapheresis or steroid sparing drugs such as azathioprine. The majority of epileptic seizures are controlled by medication, particularly anticonvulsant drugs. Various antiepileptic drugs are used for the management of Canine idiopathic epilepsy. A

variety of Ayurvedic medicines for epilepsy available in the Indian market include; Asvagandhadyarishta, Bali Tail, Brahmi ghruta. The adjunctive ketogenic diet treatment of refractory epilepsy mainly occurs in adults. This review discussed the main foundations of the cited guidelines and some recent large studies on the behalf of survey. Some of the final conclusions are that clinical experience's is always an important factor to consider, even in the face of solid evidence to achieve the best possible management of any particular patient.

PH-37

REVIEW ON EBOLA VIRUS

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ASBTRACT

Ebola virus is a filamentous virus. Zaire ebolavirus, also known as EBOV, is responsible for the ongoing Ebola hemorrhagic fever outbreak. Over 15,000 cases and nearly 5,500 deaths have been reported till 21 November 2014. The lack of incentives for treatments of such intermittently occurring diseases, rather than the inability of pharmaceutical industries, has been pointed out to be the reason for non-existence of efficacious treatments for the disease. The fact that the outbreak has occurred in West Africa and that these regions possess threadbare socio-economic framework, highlights the relationship of weak economic and political systems with the ongoing epidemic. Ebola, being a zoonotic disease, has afflicted humans owing to greater reliance of people on animal products, predominantly meat, and repeated visits to forests and mines for wood and minerals. Drugs that have shown positive effects (ZMapp) against Ebola virus in laboratories and on animal subjects are waiting for their use in Ebola patients – this long wait has resulted from rigorous requirements of safety and efficacy testing in human subjects. Despite advances in genome sequencing the current Ebola outbreak has reinforced the notion that research in therapeutics, especially for viral and bacterial infections, has a long way to go. In conclusion, a consensual effort on the part of local and international health bodies, pharmaceutical industries, and public health experts may, hopefully, end the current outbreak soon.

PH-38

BRIDGING THE GAP BETWEEN INDUSTRY AND ACADEMICS

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ABSTRACT

There is mushrooming increase in the number of Pharmacy colleges. During last two decades number of B. Pharm. colleges has gone up to 400 and the output is around 8000 Graduates. This has contributed to the deterioration in the standards of Pharmacy education in India. It is shocking to see that most of the universities still teach subjects which are no longer useful to pharmacy graduates once they complete their education. On the other hand subjects which have become necessary to meet the demands of industry find no place in curriculum. As a result pharmacy graduates have become unemployable and unuseful to industry unless given proper training. There is a growing need to incorporate the current requirements of pharmaceutical industries in the standard curriculum of pharmacy colleges to prepare the students with the latest developments to serve the industries. In the light of deteriorating standards in pharmacy education which in turn is not matching the ever changing requirements of the pharmaceutical industry, it has become necessary to bring quality in each and every activity of the pharmacy institution. Hence it has become imperative that the Pharmacy colleges adopt some measures to improve their status so that they can sustain their existence.

PH-39

WOUND HEALING ACTIVITY OF GRANDIFLORENIC ACID ISOLATED FROM *WEDELIA TRILOBATA* (L.) LEAVES

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ABSTRACT

The ethyl acetate fraction from ethanolic extract of *W. trilobata* leaves displayed antibacterial and fibroblast stimulatory activities thereby suggesting potential wound healing properties. The ethyl acetate fraction was further subjected to bioassay guided fractionation which afforded isolation of grandiflorenic acid (GA). The GA was evaluated for wound healing using *in vivo* excision, incision and dead space wound models in experimental rats. The wound healing contracting ability of animals treated with GA 0.5% and 1.0% topically was found to be significantly higher ($p < 0.05$) on day 12 and 15 as compared to the control . The epithelialization period (complete healing) was also found to be 22.3 ± 1.2 and 20.3 ± 0.9 days in case of animals treated with GA topically, 0.5% and 1.0% respectively. GA 1.0% topical, significantly increased ($p<0.05$) the tensile strength on 10th post wounding day (501 ± 3.4 g respectively when compared to control (245.5 ± 2.9 g). The groups treated with GA 1.0% w/w topical, significantly increased weight of granuloma by 67.4 ± 0.9 mg/100g, respectively compared to control 30.1 ± 0.9 mg/100g. Topical application of GA (0.5 & 1%) exhibited high rate of wound contraction, decrease in period of epithelialization, high tensile strength in excision, incision and dead space wound model using experimental rats.The present study provides scientific evidence that the topical application of GA promoted wound healing.

PH-40

CARDIAC HYPERTROPHY: A REVIEW ON PATHOGENESIS AND RODENT MODELS

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ABSTRACT

Cardiac hypertrophy has been considered as an important risk factor for cardiac morbidity and mortality whose prevalence has increased during the last few decades. Cardiac hypertrophy, a disease associated with the myocardium, is characterized by thickening of ventricle wall of heart and consequent reduction in the contracting ability of heart to pump the blood. Cardiac hypertrophy has been divided into two types, i.e. physiological and pathological hypertrophy. The exercise-induced increase in the ability of pumping blood leads to thickening of ventricle wall, referred to as physiological hypertrophy. On the other hand, reduced ability of pumping blood as a result of hypertension and volume overload on heart denotes pathological hypertrophy. Numerous mediators have been found to be involved in the pathogenesis of cardiac hypertrophy that include mitogen-activated protein kinase (MAPK), protein kinase C (PKC), insulin-like growth factor-I (IGF-I), phosphatidylinositol 3-kinase (PI3K)-AKT/PKB, calcinurin-nuclear factor of activated T cells (NFAT) and Angiotensin-II (Ang-II) . The present review article highlights the signaling mechanisms involved cardiac hypertrophy and experimental genetically manipulated animal models provide valuable experimental tools for elucidating the molecular and functional mechanisms responsible for the development of cardiac hypertrophy and the transition from the state of compensated hypertrophy to dilation and failure.

PH-41

EFFECT OF CYSTATHIONINE-BETA-SYNTHASE INHIBITOR ON CHEMICAL-INDUCED PEPTIC ULCERS IN MICE

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ABSTRACT

Effect of cystathionine–beta-synthase inhibitor on chemical-induced peptic ulcers was evaluated. Acute ulcers were induced in Swiss mice by following an acute ulcerogenic regimen

for the first day i.e. cystamine- HCL (150 mg/ 100g). After 48 h animals were sacrificed and gastric fluid was collected. Duodenum was isolated and rinsed with saline and examined by simple microscope to assess the ulcer formation, then tissue was kept in 10% of formalin solution for further examination by histopathology. The effect of CBS inhibitoro-carboxy methyl hydroxylamine hemichloride was seen by administering at a dose of 2mg/kg, 20 mg/kg and 100 mg/kg as, low, medium and high dose respectively.Cysteamine administration resulted in proper development of ulcer with an average ulcer index of 20 mg/kg was found to be 4.56±0.37 which is significant with respect to control group. CBS at a dose of 20 mg/kg significantly increased the incidence of ulcer formation, which was corroborated by histopathology studies and other estimations.The present study confirmed the notion that inhibition of H_2S production by administration of H_2S synthesis blocker excarbated the cystamine induced ulcer in mice.

PH-42

THE THERAPEUTIC EFFECTIVENESS OF CLOZAPINE ON SYMPTOMS OFEXPERIMENTAL SCHIZOPHRENIAIN COMPARISON WITH HALOPERIDOL

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ABSTRACT

Schizophrenia is a chronic disease of global importance.It has a lifetime prevalence of 0.7%, including positive, negative symptoms and cognitive dysfunction. A number of research studies have shown that the new generation of neuroleptics medications can effectively contribute in treating symptoms of schizophrenia compared with first generation drugs. Our experimental study in rats shows therapeutic comparison between first generation neuroleptic (haloperidol) and third generation neuroleptic (clozapine). Physiological parameters including locomotor activity (actophotometer) and motor coordination (rota rod apparatus) and biochemical parameters TBARS and creatine kinase level in brain were assessed. Clozapine attenuated the symptoms of schizophrenia more effectively than haloperidol moreover haloperidol in high doses tend to induce catalepsy in animals. In conclusion, clozapine is a better neuroleptic than haloperidol.

PH-43

A STUDY OF DRUG UTILIZATION PATTERN IN PATIENTS WITH CHRONIC KIDNEY DISEASE UNDERGOING MAINTAINANCE DIALYSIS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Introduction: Patients with chronic kidney disease (CKD) on dialysis are known to take a large number and variety of medications, with potential for development of significant medication related problems. These patients have multiple co-morbidities and complications too. Despite the huge no of patients with stage II-V CKD, little is known about the global drug utilization pattern in individuals with declined kidney function. There is no clear picture of the overall medications profile and burden in these patients. Hence, this study was planned to evaluate the current utilization pattern of drugs in patients of CKD undergoing dialysis in a tertiary care hospital. Methods; This prospective, observational study was conducted in the Department of Nephrology, S.C.B. Medical College & Hospital, Cuttack from august to november 2014.Demographic, clinical & medication details were collected from patients' case sheet and tabulated in a predesigned case study form. Data on utilization of different classes as well as individual drugs were analyzed in a descriptive manner using percentage calculation. Adherence level is assesded by Morisky Medication taking adherence scale(MMAS-4) AND (MMAS-8) scale. Results: A total no of 50 cases were included in this study. Average no of drugs used per patient was 10±2.38. Most commonly used drugs were vitamins and minerals (100%), haematinics (100%), anticoagulants (100%), Potassium chloride (90%), diuretics and

antihypertensives (100%), followed by phosphate binders (70%) and erythropoietin (66%),blood transfusion(24%),antibiotics(90% approx),lipid lowering agents(63%),proton pump inhibitors andcytoprotectives(100%),febuxostat(42%),motility agents(38%),phenytoin(36%), antidepressants(20%approx),iv 25% dextrose(100%) Conclusion: This study provides an overview of drug utilization pattern in CKD patients undergoing dialysis and identifies a wide variety of drug classes including phosphate binders in this population. Inspite of several limitations like inadequate sample size, study duration etc, this study provides an insight into the problems associated with the use of drugs in CKD pts and high risk of drug-drug interactions and adverse drug reactions.It provides few informations regarding utilization pattern of different drugs CKD pts in a hospital setting & suggests possible improvement in medicine practices as well as nutrition advice in pts suffering from CKD.

PH-44

IN SILICO STUDIES ON P53 TARGET WITH PRODIGIOSIN

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ABSTRACT

This study has aims to analyze the p53-binding site of mortalin using molecular docking and to screen drug-like compounds that have potential as inhibitors of p53-mortalin interaction using virtual screening. Mortalin was over expressed in tumor cells and bind to p53 protein. This interaction was suggested to promote sequestration of p53 in the cytoplasm, thereby inhibiting its nuclear activity. The p53 is a tumor suppressor that is essential for the prevention of cancer development and loss of p53 function is one of the early events in immortalization of human cells. Therefore, abrogation p53-mortalin interaction using small molecule is guaranteed stop cancer cell grow. However study interaction of p53-mortalin, and its inhibition using small molecule is still challenging because specific site of mortalin that bind to p53, vice versa, is still debatable. The result showed that the Pharmacokinetics of prodiginine is the drug-likeness parameters were found in their acceptable ranges suggesting prodiginine a good inhibitor of p53 mortalin complex for cancer drug using virtual screening.

PH-45

AMELIORATION OF BEHAVIORAL, BIOCHEMICAL, AND NEUROPHYSIOLOGICAL DEFICITS BY NEBIVOLOL ON STZ INDUCED DIABETIC PERIPHERAL NEUROPATHY IN RATS

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ABSTRACT

Introduction: Diabetic peripheral neuropathy (DPN) is the most prevalent and intractable complication that is affecting at least 50% of patients with diabetes mellitus. Oxidative stress, decrease NCV (nerve conduction velocity), reduction in plasma NO (nitric oxide) level etc. appears to be the most important pathogenic factor in underlying diabetic complications including neuropathy. Objectives: The present study is aim to evaluate the neuroprotective effects of oral administration of nebivolol (NEB), at three doses levels in STZ (streptozotocin) induced diabetic rats. Materials and Method: Diabetes was induced in male wistar rats by single intraperitoneal injection of STZ (55mg/kg). Blood samples were collected from the tail vein 72 h after STZ administration. Rats with fasting blood glucose values more than 250 mg/dl were considered diabetic. Diabetic animals were divided into four group i.e. Diabetic neuropathy (DN) control (received normal saline), STZ + NEB (1mg/kg/day p.o.), STZ + NEB (2mg/kg/day p.o.) and STZ + NEB (3mg/kg/day p.o.). After 8 weeks behavioral studies (thermal hyperalgesia, grip strength assays and rota-rod performance assessment) were performed. Biochemical studies were also performed using blood serum. Nerve Conduction velocity was measured by using power lab data acquisition system. Antioxidant enzymes (GSH, SOD & Catalase) were estimated in sciatic nerve homogenate. *In vitro* antioxidant and AGE (advance glycation endproduct) inhibitory activity were also performed. Results: Diabetic neuropathy rats had

higher fasting blood glucose, total protein levels when compared to normal control rats. Moreover sciatic nerve tissue SOD, GSH and catalase were significantly decreased with increase in lipid peroxidation levels. Nebivolol treatment as preventive treatment restored all the altered biological parameters. NCV studies also support neuroprotective effect of nebivolol. Conclusions: Nebivolol shows beneficial effect on sciatic nerve protection and antioxidant status as compare to diabetic rats and thus can be a promising agent for prevention of diabetic neuropathy.

PH-46

EVALUATION OF ANTI-DIARRHOEAL POTENTIAL OF BARK EXTRACT OF *THESPESIA POPULNEA*

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ABSTRACT

The present study was performed to substantiate the traditional claim of antidiarrhoeal activity of stem bark extract of *Thespesia populnea* in rats. The effect of ethanolic extract of stem bark of *Thespesia populnea* on castor oil induced diarrhoea, gastrointestinal motility test using charcoal meal method were examined. The extract was initially assayed for its affect in castor oil induced diarrhoea at different doses (100, 200 and 400 mg/kg, p.o.) in which significant activity ($p<0.05$) was observed at a dose level of 200 mg/kg. Hence, this dose level was then used in other models. The extract was found to inhibit peristaltic movement in charcoal meal test and intestinal fluid secretion in castor oil induced enteropooling, confirming its antidiarrhoeal activity, which might be due to its high glycoside content. The results provide evidence that the ethanolic extract of *Thespesia populnea* stem bark possess potent anti-diarrheal activity.

PH-47

ANTIASTHMATIC ACTIVITY OF HYDROALCOHOLIC EXTRACT OF *ATROCARPUS HETEROPHYLLUS* LINN. LEAVES

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ABSTRACT

The aim of study was to evaluate the scientific basis for the traditional use of *Atrocarpus heterophyllus* leaves. In the present study 50% hydroalcoholic extract of *A. heterophyllus* leave was evaluated for anti asthmatic activity using histamine and acetylcholine induced bronchospasm. In this three groups were used, first group was control group treated with normal saline, second group was standard group treated with meparamine (8mg/kg) and third group treated with single dose level of 300mg/kg of hydroalcoholic extract of *A. heterophyllus*. Statistical analysis was done by ANOVA using Dunett's as post hoc test. The result of present investigation showed that the hydroalcoholic extract of *A. heterophyllus* significantly ($P<0.01$) reduced the bronchospasm induced by histamine and acetylcholine. This study concludes that antiasthmatic activity of 50% hydroalcoholic extract of *A. heterophyllus* could be used as antiasthmatic due to its antihistaminic and anticholinergic property.

PC-48

ESTABLISHMENT OF REGENERATIVE CALLUS, CELL SUSPENSION SYSTEM OF *STEVIA REBAUDIANA* BERTONI FOR THE PRODUCTION OF STEVIOSIDE *IN VITRO*

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ABSTRACT

Stevia rebaudiana Bertoni, also known as sweet leaf or sugar leaf is a non-caloric natural sweetener substitute to sugar. In the present work, attempt was made to develop an effective HPLC assay method for determination of stevioside in the callus, cell cultures and leaves and cell suspension culture systems for large scale culturing plant cells for extraction. The optimization

of suspension culture, callus cultured on MS basal liquid media supplemented with 2, 4-D, BAP and ascorbic acid along with various concentrations of macro salts in different sucrose concentration, showed different growth responses. Among them media supplemented with NH_4NO_3 showed highest growth of the cell. Likewise, the media supplemented with NH_4NO_3 with 4.5% sucrose showed the highest cell growth response at 20th day. For the enhancement of the optimal cell growth 100 µm methyl jasmonate was added, which showed the highest cell growth as well as stevioside content in 20th days at 4.5% sucrose concentration. Similarly RAPD analysis offered a rapid and reliable method for the estimation of variability between different *Stevia* cultivars which aid in improvement of the *Stevia* genotypes. HPLC analyses for the estimation of the stevioside were carried out using C18 column using water and acetonitrile (65: 35). The highest (40.0 mg/g) steviol glycosides was in leaf of the Russian population as compared with Indian population (21.2 mg/g) in the month of January, followed by the callus(2.997 mg/g) and (0.325 mg/g) in suspension culture. The maximum stevioside content was recorded in the media supplemented with 4.5% sucrose. The highest biomass yield (0.73gm/l) was observed of callus on 8th week. The maximum stevioside content was 2.997mg/g indicating the supportive role of biomass and stevioside content in the callus.

PH-49

INVESTIGATION OF *NELUMBO- NUCIFERA* SEEDS EXTRACT FOR ANTIPARKINSON ACTIVITY

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ABSTRACT

Methanolic seed extract partitioned with chloroform from *Nelumbo nucifera* was investigated for its antioxidant and anticataleptic effects in the haloperidol-induced catalepsy rat model of the disease by measuring various behavioral and biochemical parameters. Catalepsy was induced by administration of haloperidol (1 mg/kg, *ip*) in male albino rats. A significant reduction in the cataleptic scores were observed in all the drug-treated groups as compared to the haloperidol-treated group; with maximum reduction observed in the *Nelumbo nucifera* (200 and 400 mg/kg body weight) administered group. To estimate biochemical parameters: the generation of thiobarbituric acid reactive substances (TBARS); catalase; and superoxide dismutase (SOD), in the brain were assessed. Haloperidol administration increased generation of TBARS, which were restored to near normal level with the *Nelumbo nucifera* treatment. Catalase and SOD levels were also increased to normal levels, having been reduced significantly by haloperidol administration. Our findings of behavioral studies and biochemical estimations showed that *Nelumbo nucifera* reversed the haloperidol-induced catalepsy in rats. We concluded that the antioxidant potential has contributed to the reduction in the oxidative stress and catalepsy induced by haloperidol administration.

PC-50

ROLE OF RASAGILINE, A MAO-B INHIBITOR, IN STREPTOZOTOCIN INDUCED DIABETIC NEPHROPATHY"

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ABSTRACT

Introduction: Diabetic nephropathy is a chronic microvascular complication of diabetes mellitus which affects the kidneys and is one of the common reasons for End Stage Renal Disease leading to mortality and morbidity. Hyperglycemia induces oxidative stress and leads to activation of multiple biochemical pathways which are a major source of kidney damage. Thus, prevention and treatment of diabetic nephropathy can reduce the incidence of end stage renal disease, death and ultimately the economic burden.Currently treatments available for diabetic nephropathy are limited so more investigations are needed to improve the conditions of the patients. The present study involves investigation of the effect of MAO-B inhibitor in diabetic nephropathic animals. Methods: Male Wistar rats, weighing 200-250 g were divided into nine

groups. Diabetes was induced by administering streptozotocin (65 mg/kg, i.p) 15 min after nicotinamide (110 mg/kg, i.p) injection. Rasagiline (0.25 mg/kg, 5mg/kg, 1.0mg/kg, i.p) and Rasagiline (0.25 mg/kg, 5mg/kg, 1.0mg/kg, i.p) in combination with glimepiride (10mg/kg, i.p) was administered daily for 4 week in diabetic rats respectively. Serum glucose, body weight, serum urea and serum creatinine were measured. Malondialdehyde measurement and histopathology of kidney was carried out at the end of the study. Results: After 28 days of treatment with rasagiline (0.5mg/kg, 1.0mg/kg, i.p), significantly reduce in serum urea, serum creatinine, and lipid peroxidation was observed. No significant effect were observed on serum glucose level and body weight as compared to diabetic control. Rasagiline (0.5mg/kg, 1.0mg/kg, i.p) in combination with glimepiride (10mg/kg, i.p) showed significant reduction in serum glucose, serum urea, serum creatinine, and lipid peroxidation. Improvement in body weight was also observed in STZ induced diabetic rats as compared to diabetic control. The histopathological reports showed that the combination of Rasagiline and glimepiride improves the kidney damage as compare to diabetic group. Discussion:The findings of the present study strongly suggest that oxidative stress plays a key role in the pathogenesis of diabetic nephropathy and Rasagiline suppresses free radical formation as suggested by decrease in lipid peroxidation. Further, the histopathology of kidney indicates that Rasagiline is a good nephroprotective and could be used as a therapeutic treatment in diabetic nephropathy when given in combination with glimepiride. These nephroprotective effects of Rasagiline may be due to induction of proteins interfering with the apoptotic pathway, and reduction renal gluconeogenesis by prevention of dopamine degradation. Conclusion:On the basis of result and discussion we can conclude that rasagiline shows promise as a nephroprotective agent in STZ induced experimental diabetic nephropathy in rats.

POSTER PRESENTATIONS
PHARMACEUTICAL CHEMISTRY [PCH]
[ABSTRACTS]

PCH-01

CYTOTOXICITY ACTIVITY BY BRINE SHRIMP LETHALITY ASSAY AND GENOTOXICITY ACTIVITY BY *ALIUM CEPA* ASSAY OF 2-[[(3-PHENYL/SUBSTITUTED PHENYL-[4-{(4-(PHENYL/ SUBSTITUTED PHENYL) ETHYLIDINE-2-PHENYL-1,3-IMIDAZOL-5-ONE}](-4H-1,2,4-TRIAZOL-5-YL)SULFANYL]-N-HYDROXYACETAMIDE DERIVATIVES

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ABSTRACT

Cytotoxicity study of 2-[[(3-Phenyl/substituted phenyl-[4-{(4-(phenyl/substituted phenyl) ethylidine-2-Phenyl-1,3-Imidazol-5-One}](-4H-1,2,4-triazol-5-yl)sulfanyl]-N-hydroxyacetamide derivatives (FP1-FP12) by brine shrimp lethality assay using cyclophosphamide as reference standard. After 24H incubation of Brine Shrimp exposure, percent mortality and corrected mortality was calculated. LC50 value was calculated using probit analysis. F7, F8, F9 showed IC50 value as 3.78 µg/ml, 3.16 µg/ml, 1.42 µg/ml respectively; whereas standard with IC50 value of 0.68 µg/ml. Genotoxicity study was performed using *Alium Cepa* root and calculates the percent chromosome aberrant and identifies the stickiness, chromosomal bridge and C-mitosis value. Genotoxicity study result reveal that F3 and F4 showed the better result and most of the molecule arrest the cell cycle at metaphase. So F7, F8, F9 showed better cytotoxic activity and F3, F4 showed better genotoxic activity.

PCH-02

CHALLENGES ASSOCIATED WITH THE QUALITY OF NUTRACEUTICALS

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ABSTRACT

Majority of community is attracted and prefers cure as well as disease prevention by taking nutritional value added supplements containing herbal medicines instead of allopathic drugs which usually provides temporary relief and also may have little side effect as well. By taking this in consideration it is essential for nutraceutical manufactures to focus on efficacy as well as quality of product to earn the confidence of society. While talking about quality of herbal drugs it starts from source of raw material, it's drying, storage, preservation, composition, processing and packaging which hold the chances of contamination and even adulteration which could be overcome by testing several specification testing like Identification, potency, known impurity, contamination which are given in monographs in official books or can be generated in house. By using such herbal contents in nutraceuticals it holds the challenges like efficacy, dose variation, even distribution, stability etc. Since the proper manufacturing and testing for quality of nutraceuticals it is important to involve some hi-tech sophisticated instrumentation in analysis of such formulation. It's also important to develop several analytical methods for such formulation and support the market by providing good quality nutraceuticals. Personal training and involvement of qualified workers in development of finished goods is also basic requirement to enhance the quality of nutraceuticals. Present article include the discussion regarding the issues as well as judgment associated enhancement of quality of nutraceuticals.

PCH-03

SYNTHESIS, CHARACTERIZATION AND TOXICITY STUDIES OF FLUORESCENT BIONANOCOMPOSITES OF POLY (LACTIC ACID) AND TIO_2 NANOPARTICLES

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ABSTRACT

Biopolymers such as poly(lactic acid) have attracted great attention in both in academics and industries due to its unique properties, such as renewability, biodegradability, biocompatibility

etc.[1] Titanium dioxide (TiO_2) is common polymer filler, which at nanoscale has found wide applications as gas sensor, catalyst, photo catalyst, pigment, photovoltaic material and as biomedical material.[2] Nanocomposites of PLA and TiO_2 NPs have been reported to have a wide range of applications owing to their enhanced physical, thermal, mechanical, and processing characteristics.[3,4] In the present work we present synthesis of PLA/TiO_2 nanocomposite by in-situ polymerization of lactic acid in presence of TiO_2 NPs. TiO_2 nanoparticles and PLA/TiO_2 nanocomposites were characterized by many different analytical techniques such as FT-IR, AFM, DLS, XRD, TGA, TEM, ^1H, and ^{13}C NMR. Fluorescent properties of polymeric nanocomposites were explored by fluorescence spectrophotometer and a strong emission band at 450 nm was observed. Toxic properties of the nanocomposite were investigated using MTT assay. Our findings indicate that modifying TiO_2 NPs with PLA reduces their toxicity and the nanocomposite can find applications as biomedical and eco-friendly material.

PCH-04

DESIGN, SYNTHESIS AND EVALUATION OF SUBSTITUTED POLYPHOSPHAZENES CONJUGATES FOR THE TREATMENT OF DRUG-RESISTANT MALARIA

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ABSTRACT

Malaria is one of the most life threatening parasitic diseases. The most serious infections the are caused by the Plasmodium species namely *P. falciparum.* The emergence of drug resistant strains of *Plasmodium falciparum* against the existing antimalarial drugs has increased the need for the development of new antimalarial therapeutic agents or alternative treatment approaches for resistant malaria. In the present research work, various polymer drug conjugates using Primaquine and Dihydroartemisinin as combined antimalarial therapeutic agents with substituted polyphosphazenes have been designed and synthesized. The polymer-drug conjugates were characterized by IR, ^1H-NMR, ^{31}P-NMR and their molecular weights were determined by Gel Permeation Chromatography. The thermal properties of the conjugates were studies by DSC and TGA. The conjugates were then formulated into nanoparticle formulations and characterized by Zeta Sizer and their morphology was studied by TEM (Transmission Electron Microscopy) imaging. Both antimalarial drugs exhibited biphasic drug release behavior, initially burst release followed by sustained release from nanoparticles formulations. The antimalarial efficacy of the nanoparticles formulations was tested using *P. berghei* infected swiss albino mice at different doses. The combination therapy exhibited 100 percent antimalarial efficacy at lower doses in comparison to standard drugs combination thereby prolonging the survival period of the treated animals. The study provides an alternative combination regimen found to be effective in treatment of resistant malaria.

PCH-05

PHYTOCHEMICAL SCREENING AND ANTI-INFLAMMATORY ACTIVITY OF ETHANOLIC EXTRACT OF LEAVES OF *MADHUCA INDICA* J. F. GMEL

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ABSTRACT

The ethanolic extract of leaves of madhuca indica was subjected to preliminary phytochemical screening and the results indicate the presence of alkaloids, proteins, and carbohydrates. The anti-inflammatory activity of the ethanolic extract of *madhuca indica* was investigated in wistar rats using the carrageenan-induced rat paw oedema, cotton pellet granuloma and formalin

induced oedema methods. The extract was administered orally at doses of 150 and 300 mg/kg. In the carrageenan method, the paw oedema was significantly reduced by both doses of the extract administered, with the 300 mg/kg dose producing the highest oedema inhibition (78.2%). In the cotton pellet method, granuloma weight was significantly reduced from 16 ± 0.1 to 10.0 ± 0.1 mg while in the formaldehyde induced arthritis, the extract inhibited the oedema during the 10-day period. In conclusion, this study has established the anti-inflammatory activity of *M. indica* and thus justifies the traditional uses of the plant in the treatment of wounds and inflammation.

PCH-06

HPLC METHOD DEVELOPMENT AND VALIDATION OF RIZATRIPTAN IN GUINEA PIG PLASMA

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ABSTRACT

A simple, sensitive and rapid high performance liquid chromatographic method was developed and validated for Rizatriptan from rabbit plasma. Materials & Methods: Chromatographic separation and detection was carried out on a Hibar C_{18} (250 x 4.6 mm, 5µ) coloum using 10 mM di-potassium hydrogen orthophosphate buffer (pH 3.2) and methanol in the ratio of 80:20 with a flow rate of 1.0 ml/min at 231 nm. Retention times of drug and IS were found out to be 7.8 min and 5.4 min respectively. The method was linear in the concentration range of 12.50-250.90 ng/ml. The regression coefficient value was found to be 0.992. The proposed method was validated by performing linearity, recovery, specificity, robustness, LOD/LOQ and interday / intraday precision. The LOD and LOQ values were found to be 4.14 and 12.42 ng/ml. Zolmitriptan was used as internal standard.

POSTER PRESENTATIONS
PHARMACOGNOSY [PG]
[ABSTRACTS]

PG-01

AN OVERVIEW OF PHYTOPHARMACOLOGY OF *FICUS RELIGIOSA*

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ABSTRACT

Ficus religiosa (Family- Moraceae) which is commonly known as Peepal tree is abundantly distributed throughout the plains of India upto 170 m altitude. The stem bark of the plant contains phenols, tannins, steroids, alkaloids and flavonoids; β-sitosteryl-D-glucoside, vitaminK, n-octacosanol, methyl oleanolate, lanosterol, stigmasterol. Leaves and fruits contain carbohydrate, protein, lipid, calcium, sodium, potassium, and phosphorus. Aqueous and ethanolic extracts of the leaves showed antibacterial effect against *Staphylococcus aureus, Salmonella paratyphi, Shigella dysenteriae, S. typhimurium, Pseudomonas aeruginosa, Bacillus subtillis, S. aureus, Escherichia coli, S. typhi*. The aqueous extract of the plant reduces oxidative stress in experimentally induced type 2 diabetic rats. Aqueous extract modulated the superoxide dismutase activity in the diabetic rats dose dependently and also decreased catalase activity. The effect of hydroalcoholic extract of the leaves on experimentally induced wounds in rats using different wound models results in dose-dependent wound-healing activity in excision wound, incision wound and burn wound. *Ficus religiosa* has emerged as a good source of traditional medicine for the treatment of asthma, diabetes, diarrhoea, epilepsy, gastric problems, inflammatory disorders, infectious disorders and sexual disorders. Although many of the experimental studies have authenticated its traditional medicinal uses, but employed uncharacterized crude extracts. Hence, there is a need of phytochemical standardization and bioactivity-guided identification of bioactive metabolites.

PG-02

ANTIDIABETIC HERBS

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ABSTRACT

Diabetes is a chronic disorder of metabolism of carbohydrate, protein, and fats due to deficiency of insulin secretion and varying degree of insulin resistance. Diabetes is not completely curable, but can be controlled to a greater extent by the application of some natural herbs which are scientifically validated i.e. *Alium sativum, Gymnema sylvestre, Momordica charantia, Ocimum sanctum, Panax quinquifolius, Trigonella foenum, Silybum marianum, Tinospora cardiofolia.* These natural herbs initiate release of insulin, stimulate the effects on glucose utilization and antioxidant enzyme, stimulate synthesis and insulin secretion, inhibit renal glucose absorption, protection of reduction and regeneration of beta cells, increases insulin secretion and reduction of insulin binding on insulin receptor and possess insulin like activity with glycogenolytic effect. Currently beside insulin most widely medication for diabetes are accompanied by side effects such as severe hypoglycemia, lactic acidosis, abdominal discomfort, which can be overcome by introducing medicinal plants for treatment of diabetes. Herbal drugs research continues to bring a safer and more effective compound with all desired parameters of a drug that could replace the synthetic medicine.

PG-03

PHYTOCHEMICAL INVESTIGATION AND ANTI-INFLAMMATORY POTENTIAL OF *INDIGOFERA OBLONGIFOLIA* FORSK ROOT EXTRACT

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ABSTRACT

Anti-inflammatory activity of *Indigofera oblongifolia* Forsk root extracts (Methanolic) was studied in Wistar rats using the carrageenan induced left hind paw edema. The methanolic extracts 250 mg/kg and 500 mg/kg body weight shows significant anti-inflammatory activity. *Indigofera oblongifolia* Forsk methanolic extracts of reduced the edema induced by carrageenan

by 32.19 % and 40.97 % respectively on oral administration of 250 mg/kg and 500 mg/kg body weight as compared to the untreated control group. Diclofenac sodium at 10 mg/kg body weight inhibited the edema volume by 39.02 %. The results indicated that the methanolic extract 500 mg/kg body weight shows more significant ($p<0.05$) anti-inflammatory activity when compared with the standard and untreated control.

PG-04

DEVELOPMENT AND STANDARDIZATION OF AN EFFECTIVE ANTIDIABETIC POLYPHYTO MIXTURE

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ABSTRACT

The current aim of our research work is to formulate suitable Polyphyto mixture having effective of antidiabetic activity and to evaluate its physicochemical parameters for formulated polyphytomixture. Diabetes mellitus is a disorder of metabolism, resulting from defect in insulin secretion, insulin action or both. Diabetes is characterized by hyperglycemia, polydipsia, polyuria, polyphagia etc.Polyphyto mixture was formulated by method of geometrical mixing using various phyto combination in various proportions. Formulation (FD5)- consist of Withania sominifera(r,5%), Tamarindus Indica(se,10%), Astragalus gummifer(gum,10%),Azadiracta Indica(b,25%), Momordica Charantia(fr,25%),Murraya Koenigii(L,25%).The second formulation (FD6) consist of Murraya Koenigii(L,5%), Zingiber officinalis(Rh,5%), Musa paradisiacal(st,5%), Piper betle(L,10%), Astragalus gummifer(gum,10%), Mangnifera Indica(B,14%), Terminalia arjuna(B,15%), Plantago ovate(H,15%), Paspalam Scrobiculatum(Se,20%). The formulations were screened for its color, odor, taste, texture, bulk density, tap density, carr's consolidation index, loss on drying, total ash value, acid insoluble ash value, pH, extractive value, fluorescence analysis and phytochemical screening. The experimental results revealed that the Polyphyto mixture showed the following:- 1.The physical characteristics were –yellowish green to buff brown color, odor-characteristics, tasteless, texture-fine(#100), bulk density:0.416-0.625 w/cc, tap density:0.487-0.769 w/cc, Carr's Consolidation Index:14.57-18.72%, loss on drying: 8.86 ± 0.41 to 10.13 ± 0.35, total ash : 9± 0.3 to 10.86± 0.15, acid insoluble ash value: 2.5± 0.2 to 3.07± 0.01,pH value: 7.14±0.08 to 7.48 ±0.06, water soluble extractive value: 11.4±0.07 to 17.3±0.09, alcohol extractive value: 13±0.09 to 14.2±0.07, chloroform extractive value:2.3±0.09 to 3.7±0.04,Pet.ether extractive value: 1.71± 0.08 to 2.1±0.13, fluorescence green. The phytochemical analysis shows the presence of alkaloid, carbohydrates, flavanoids, and volatile oils.

PG-05

STANDARDIZATION OF HERBAL DRUGS: A REVIEW

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ABSTRACT

Standardization means adjusting the herbal drug preparation to a defined content of the active constituent. It refers to the process of delivering a product with a specified minimum level of one or more plant constituents. Authenticity, purity and quality are the three main attributes of standardisation. It is the process where we can make sure about the quality of the product; broadly it covers the qualitative and quantitative part of analysis. Qualitative analysis is mainly the identification of the components present in a particular compound, where as the quantitative analysis is the estimation of the components, which are, present in that particular product. The world health organization (WHO) has published guidelines to ensure the reliability and repeatability of research on herbal medicines. According to which the some of the

parameters are Foreign organic matter, Ash value, Extractive value, pH, Moisture content, Swelling index, Haemolytic index, Foaming index, Test for microbial contamination, Heavy metal analysis etc.

PG-06

ANTIMICROBIAL ACTIVITIES OF ENDOPHYTIC FUNGI EXTRACTS FROM *CELASTRUS PANICULATUS*

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ABSTRACT

Celastrus paniculatus Willd (Celastraceae) is a rich source of alkaloids and triterpenoids; which is mainly used as aphrodisiac, brain tonic and is effective in leprosy, leucoderma , paralysis. Total ten Endophytic fungi were isolated by incubating the plant material (Leaf Explant) on Potato Dextrose Agar supplemented with Streptomycin (250 mg/l) at 27± 2° C. The isolated fungal strains were identified by studying their morphological and microscopical characters. The fungi were fermented and extracted with Ethyl Acetate and Acetone; and screened for Antimicrobial Activity. Different bioactivities were found to be present in different taxa. Total ten strains of endophytic fungi were tested for antimicrobial activity out of which 7 strains showed antimicrobial spectra while remaining strains were inactive.

PG-07

PHYTOCOSTITUENT SCREENING AND ANALGESIC ACTIVITY OF A*CHYRANTHUS ASPERA* LINN.

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ABSTRACT

Aim of present study was to investigate the analgesic activity of the leaves extracts of *Achyranthus aspera* linn. The leaves of drug is converted in uniform particle size and extracted by using Petroleum ether (60-80° c), Benzene, Chloroform, Ethyl acetate, n-Butanol, and Ethanol solvents. Then TLC and column chromatography is performing for isolation of active principle. This active principle is further carryout analgesic activity by Writhing test method with the help of Aspirin (150 mg/kg) as standard drug. In Writhing Test Method the Ethanol extract showed good significant decrease in abdominal writhes as compared to standard group, where as n-Butanol extract, Ethyl acetate extract, Chloroform extract, Benzene extract, showed significant decrease in abdominal writhes, However, Pet-ether extract and Benzene extract failed to decrease in abdominal writhes when compared to standard group.

PG-08

HERBAL COSMETICS: BETTER AND SAFE APPROACH

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ABSTRACT

The concept of beauty and cosmetics is as ancient as mankind and civilization. Herbal cosmetics are the preparations containing phytochemicals from a variety of botanical sources possessing desirable physiological effects such as skin healing, smoothening, appearance, enhancing and conditioning properties. Herbal cosmetics can be characterized under major categories: For skin care (Aloevera, Olive oil, Turmeric, Lavender, Lemongrass, Sandalwood, etc), For hair growth and care (Henna, Amla, Bhringraj, Neem, etc), Shampoos, soaps, powders and perfumery (Bergamot oil, Common Ivy, Coconut oil, Eucalyptus, etc), Miscellaneous products (Brahmi leaf, Ginko, etc). The bioactive ingredients from botanicals include vitamins, antioxidants, essential oil, dyes, tannins, carotenoids, flavonoids, terpenoids, alkaloids, proteins, etc that will impart characteristics such as UV protection by free radicals scavenging properties, metal chelating properties, anti-inflammatory ,emollient, healing, anti-acne, and hydrating properties etc. Herbal cosmetics possess good activity and comparatively lesser side effects then the synthetic

drugs. Herbal cosmetic has been growing at an average rate of about 15% for the last few years and industries are now focusing on the growing segments with a vast scope of manifold expansion in the coming years.

PG-09

PHYTOCHEMICAL STANDARIDATION OF CASSIA ALATA LINN.

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ABSTRACT

Cassia alata Linn. (Family; Leguminosae). Leaves of *Cassia alata Linn* are used to cure ringworm a fungal skin infection. They are also recommended as antibacterial, antiparasitic, antipyretic, anti-inflammatory, antineoplastic, etc. Generally leaves are marketed in dehydrated form for preparation of variety of products like, herbal tea, extracts, tinctures, herbal soaps and shampoos. To ensure the authenticity and quality of leaves of Cassia alata Linn. the pharmacognostic study is of utmost importance. In present work, for first time the pharmacopoeial standards are laid down for the said drug. Along with unique morphological features, the drug anatomically shows glandular trichomes and papillose lower epidermis. In microscopic study of powdered drug, epidermal cells with circular outlines of papillae become diagnostic characteristic. Along with these identifying characters, physicochemical constants are also of help in detection of drug impurities. Thus all these quality standards will prove to be useful in assessment of marketed crude drug. In addition to this, the phytochemical analysis exhibits presence of major secondary metabolites which can act as the indicators of bioactivity of the drug.

PG-10

PRELIMINARY SCREENING OF *STYLOSANTHES FRUTICOSA* LINN.

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ABSTRACT

Stylosanthes Fruticosa Linn. (*Fabaceae*) is a copiously branching woody herb or ascending shrub, and traditionally it has been used for diabetes, antihelmenthiasis and various other disorders. Since there is no other data regarding this plant our efforts were devoted to study the morphological, microscopical (transverse section and powder microscopy), fluorescence analysis, proximate analysis and preliminary phytochemical profile of *Stylosanthes Fruticosa* Linn.were studied and documented as per the standard procedures available in the World Health Organization Geneva.

PG-11

HIGHER ECONOMICAL VALUES OF MORINGA *OLEIFERA* LAM.

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ABSTRACT

Since the dawn of civilization, in addition to food crops, man cultivated herbs for his medicinal needs. The knowledge of drugs has accumulated over thousands of years as a result of man's inquisitive nature, so that today we possess many effective means of ensuring health-care. *Moringa Oleifera Lam.* grown and used in many countries around the world is a multiuse tree with medicinal, nutritional and socio-economic values. In Senegal and Benin, *Moringa Oleifera Lam.* is dispensed as powder at health facilities to treat moderate malnutrition in children. It established the medicinal uses of *Moringa Oleifera Lam.* by local communities. The plant kindom represent a rich storehouse of traditional medicines, foak medicines and organic compound that may lead to development of novel agent for various treatment. *Moringa Oleifera Lam.* commonly known by regional name such as horse radish tree, sajiwan, kelor murungai kaai, saijhan and sajna, is a natural as well as cultivated variety of the genus Moringa belonging to the family Moringaceae. It is multiuse tree known as natural medicine cabinet.

PG-12

CANNABINOIDS AS POTENTIAL ANTICANCER DRUG

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ABSTRACT

Cannabinoids - the active components of *Cannabis sativa* (Indian hemp) and their derivatives - exert palliative effects in cancer patients by preventing nausea, vomiting and pain and by stimulating appetite. In addition, these compounds have been shown to inhibit the growth of tumour cells in culture and animal models by modulating key cell-signalling pathways. Cannabinoids are usually well tolerated, and do not produce the generalized toxic effects of conventional chemotherapies. Delta(9)-Tetrahydrocannabinol (THC) exhibits antitumor effects on various cancer cell types, but its use in chemotherapy is limited by its psychotropic activity. Certain investigations shows that antitumor activities of other plant cannabinoids, i.e., cannabidiol, cannabigerol, cannabichromene, cannabidiol acid and THC acid the results obtained clearly indicate that, of the five natural compounds tested, cannabidiol is the most potent inhibitor of cancer cell growth (IC(50) between 6.0 and 10.6 micro M), with significantly lower potency in noncancer cells. The cannabidiol-rich extract was equipotent to cannabidiol, whereas cannabigerol and cannabichromene followed in the rank of potency. Since then, several cannabinoids have been shown to exert anti-proliferative, and proapoptotic effects in various cancer types (lung, glioma, thyroid, lymphoma, skin, pancreas, uterus, breast, prostate and colorectal carcinoma).

PG-13

PRELIMINARY PHYTOCHEMICAL EVALUATION AND PHARMACOGNOSTIC OF *TEPHROSIA PURPUREA* LINN. ROOT

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ABSTRACT

Tephrosia purpurea Linn. (Fabaceae) is a highly branched, herbaceous perennial herb reputed as tonic, diuretic, laxative, useful in cough, troubles in traditional texts. The present study was carried out to investigate morphological, microscopically, physicochemical and phytochemical screening of *Tephrosia purpurea* root found from different region of Maharashtra. Morphological study shows that roots were cylindrical, tapering, has characteristic odour, brownish yellow in colour and a complex bitter taste. Ash value, extractive value, foreign organic matter and moisture content were determined for quality standard of drugs. The microscopy of powder shows phloem fibers, concentric starch grains, pitted xylem vessels. The powdered drug was defatted with petroleum ether and successively extract with different polarity solvent. Phytochemical investigation shows the presence of glycosides, phytosterols, Saponins and flavonoids. Most of the morphological characters comply with the data available except in number of leaflets and size of leaf but root characters are almost similar.

PG-14

EFFECT OF VARIOUS GRADES OF HPMC IN SUSTAINED RELEASE MATRIX TABLET WITH CYCLOCEL

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ABSTRACT

The matrix tablet preparation appears to be most attractive approach for achieving better drug product effectiveness, reliability and safety.The increased risk of cardiovascular diseases advised to take the long term treatment of cardiovascular medicaments like anti-anginals, anti-hypertensives, etc. Hence a calcium channel blocker, Diltiazem HCl has found its applicability in

such diseases by preparing the sustain release matrix tablet. The drug was physically and chemically analyzed. In this work different batches of tablets were prepared by taking various viscosity grades of hypromellose, i.e. K4M, K15M and K100M. All the batches were evaluated for the various test i.e. Weight variation, Content Uniformity, In-vitroRelease Profile Study, Drug Release Kinetic Studies as per I.P./B.P./U.S.P. The results revealed that formulations with the drug –polymer ratio 1.0:0.5 (F1, F4 and F7) showed higher drug release rates in the range of 94.74 to 90.72% when compared 1.0:1.0 ratio (F2, F5 and F8) which showed a drug release rates from 93.69 to 88.92% and those of 1.0:1.5 ratio (F3, F6 and F9) which have displayed drug release rates in the range of 92.64 to 86.62 %over a period of 12 hours. From this work it can be concluded that various grade of hypromellose when combined with the hydrophilic natural gums shows the synergistic effects and hence can be utilized as matrix forming agent to prolong the release of DTZ.

PG-15

ANTIMICROBIAL ACTIVITY OF *PHOENIX LOUREIRII* LEAF EXTRACTS

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ABSTRACT

Phoenix loureirii is commonly known as 'chittetha' and the plant leaves are used for household purpose. Preliminary chemical studies of the plant reveal the presence of glycosides, tannins & flavonoids. In the present study we have evaluated the antimicrobial activity of *Phoenix loureirii* leaf extract on *Salmonella typhi, Proteous vulgaris, E.colli, Staphyllococus, Bacillus & Streptococcus.* Both the aqueous and ethanolic extracts showed good activity against all the microorganisms used. The extracts at dose 500mg/ml showed potent activity against *Salmonella typhi, E.colli and Staphyllococus. Ethanolic* extract was found to be more potent when compared with aqueous extracts.

PG-16

PHYTOSOME : STARK ABSORPTION OF PHYTOCONSTITUENTS

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Phytosome is a herbal formulation which contain the bioactive phytoconstituents. In word 'phytosome' there are two terms 'phyto' and 'some', in which, phyto suggest that plant whereas some suggest that cell like. Phytosomes also can be known as herbosomes. A phytosome is just an aristocratic shaped by a reaction between stichiometric amount of phytoconstituents (Flavanoids, Tannins, Terpenoids etc.) and soy phospholipids (phosphatidylcholine) in an aprotic solvent. Phosphatidylcholine could be a bifunctional compound, in which choline moiety (hydrophilic) bound with herbal constituents and phosphatidyl moiety (lipophilic) envelop the choline bound material which results in micro arena, which have adherence ability to cross the lipid rich biomembranes. So, phytosomes possess the number of rewards over conventional herbal extract for systemic absorption of phytoconstituents. Phytosomes can be prepared by various methods includes solvent evaporation, salting out and lyophilization techniques. After formulation of phytosomes, they can be characterized for their visualization, zeta potential, drug content, by spectroscopic techniques to evaluate their stability. Biological studies can also be executed after successful spectroscopic evaluation. Further, phytosomes can also be incorporated into suitable dosage forms. Phytosomes have widely spread applications over the conventional herbal extract which will offer the wonderful impact for coming days.

PG-17

INVESTIGATIONS INTO THE IMMUNOMODULATORY ACTIVITY OF *ROUREA MINOR*

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ABSTRACT

In the present study immunomodulatory potential of whole plant ethanolic extract of *Rourea minor* was investigated (EERM). *Rourea minor* has been used for the treatment of several disorders. The objective of the present study was to investigate the immunomodulatory activity of *Rourea minor* on cellular and humoral immunity. The immunomodulatory activity was evaluated by oral administration of the ethanolic extract of *Rourea minor* whole plant (EERM), at the doses of 100 and 300 mg/kg in rats, using various in vivo models including delayed type hypersensitivity (DTH) reaction, Humoral antibody titer, carbon clearance test and haematological cell profile. It was found that EERM at 300mg/kg was more effective and inhibited delayed type hypersensitivity induced by sheep red blood cells and significantly increased the phagocyctic index reactions this effect was comparable to standard drug levamisol. It also produced a significant increase in sheep erythrocyte specific haemagglutination antibody titre. The TLC, lymphocyte and neutrophil count also increased significantly. EERM showed a dose dependant potentiation of delayed type hypersensitivity reactions, augmented macrophagic activity and was found to significantly enhance the production of circulating antibody titre. However the effect was best observed at 300mg/kg of EERM. These results clearly indicate strong immunomodulatory potential of whole plant extract of *Rourea minor.*

PG-18

KNOW THE *EBOLA* EPIDEMIC

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ABSTRACT

Ebola one of the world's deadliest viruses that has claimed nearly 5,200 lives first reported in 1976 in Nazara,Sudan and Yambuku. The international committee on taxonomy of virus identifies *Ebola* virus as species *Zaire ebola* virus which is included to the genus *Ebola* virus, family *Filoviradae* and order *Mononigavirale*. The name *ebola* virus is derived from Ebola River that was at first thought to be inclosed to the proximity area in Democratic Republic of Congo previously called Zaire where 1976 *Zaire ebola* virus outbreak occurred. There are five strains of EBOLA- *bundibugyo*,*zaire, sudan*,*reston* and tai forest. The first case in India has zaire strain. It spreads by direct contact with blood or bodily fluids of the infected person. The duration from infection to onset of symptoms is from 2 to 21 days. Initially the patient experiences fever, inflammation in throat, abdominal pain, massive internal bleeding, brain damage and virus attacks every tissue organ of body except skeletal muscles and bones. It can be difficult to distinguished EVD(Ebola virus disease) from other infectious diseases such as malaria, typhoid fever, meningitis. Ebola virus infection confirmation includes ELISA, Antigen-capture detection test, serum neutralization test, RT-PCR, electron microscopy, virus isolation by cell culture. There is no proven treatment available for EVD but two potential vaccines are undergoing human safety testing. Supportive care-rehydration with oral or intravenous fluids-and treatment of specific symptoms, improves survival.

PG-19

PHARMACOGNOSTIC AND PHYSICO-CHEMICAL STUDIES ON STEM OF *SYZYGIUM ZEYLANICUM* (L.)

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ABSTRACT

Syzygium zeylanicum syn. Syzygium lineare (Family-Myrtaceae), is also known as Poochapazham or Kaatuvazhana (Malayalam). It is a widespread evergreen large shrub. The present investigation deals with the qualitative and quantitative microscopic evaluation of the stem material and establishment of its quality parameters, including physicochemical and phytochemical evaluation. In the microscopic studies, the stem was found to be dorsiventral and the chief characters of transverse section includes single plano convex and collateral vascular bundle, which consists of several short 3 celled xylem rows and a thin layer of phloem on the lower end and mesophyll consists of 2 layer of thin, vertically oblong, compact palisade cells and lower part of 5 or 6 much lobed spongy parenchyma. . Chief characters of powder include thick, wavy epidermal cells, the cells being much lobed; stomata appear in deep pits and calcium oxalate crystals seen scattered in surface view of the lamina. Stem constants were analysed. Physicochemical parameters such as moisture content, chlorophyll estimation, ash values and extractive values were evaluated. Phytochemical screening revealed the presence of many therapeutically important classes of phytoconstituents such as alkaloids, flavonoids, phenolics, glycosides, sterols, terpenoids, saponins and carbohydrates. Such a study would serve as a useful tool in standardization of the stem material, isolation of medicinally important phytoconstituents, performing pharmacological investigations and ensuring quality formulations in the future. It would also help in distinguishing the plant material of Syzygium zeylanicum.

PG-20

EVALUATION OF ANTIULCER ACTIVITY OF ETHANOLIC EXTRACT OF *ROTULA AQUATICA*

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ABSTRACT

Rotula aquatic is recommended in ayurveda and folkflore medicine for the management of gastric ulcers. Therefore , the purpose of study was to investigate the anti ulcer effect of whole plant extract of *Rotula aquatic* on ethanol induce, aspirin induce, stress induce gastric ulcer models in rats. Ethanolic extract (100 and 200 mg/kg) were tested orally in ethanol induce ulcer model. The ethanolic extract (200 mg/kg) showed better ulcer protection in ethanol induce ulcer, hence effective dose of ethanolic extract (200 mg/kg) was further investigate in remaining models. The ethanolic extract at the dose of (200 mg/kg) significantly inhibited the gastric lesions induced by different ulcer models. The phytochemical test revealed the presence of antiulcer phytochemical constituents like glycosides, saponins, flavonoids, tannins, terpenoids in ethanolic extract. These result suggested that ethanolioc extract of whole plant of *Rotula aquatic* is effective against all the three experimentally induced acute gastric ulcers.

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