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One Day

NATIONAL CONFERENCE

On

"PHARMACEUTICALS: BENCH TO BEDSIDE- CHALLENGES, RECENT INITIATIVES AND FUTURE PERSPECTIVES"

26th May, 2019

Organized by

PRISAL PHARMACEUTICAL ROYAL INTERNATIONAL SOCIETY

Bhopal,(M.P.)

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NATIONAL PHARMA CONFERENCE 2019

ABSTRACT BOOK

26th May 2019

on

"Pharmaceuticals: Bench to Bedside- Challenges, Recent Initiatives and Future Perspectives"

Organized By

PRISAL PHARMACEUTICAL ROYAL INTERNATIONAL SOCIETY

In Collaboration with

BHABHA UNIVERSITY BHOPAL

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PRISAL is a registered under Indian Act 1882 which work for professionals not only belonging to the stream of Pharmacy but to all the other disciplines. It is an educational and Professional non-profit organization committed to promote excellence in Pharmacy education and research. The mission of PRISAL is to improve the Global health and is to provide a united voice for peoples with chronic diseases or disabilities and the advancement of Pharmacy practices and Pharmaceutical research and their implementation, encouraging the career development of pharmaceutical as well as allied field scientists and high quality research by providing an international platform for interactions amongst the researchers and scientists.

About Us: Faculty of Pharmacy

Faculty of Pharmacy was established with the vision to strive for excellence in pharmaceutical education, research and practice. The institutes under Faculty of Pharmacy are approved by AICTE, PCI and are constituent institute of Bhabha University, Bhopal. The objective of the faculty is to generate flock of highly creative professionals, who can contribute not only to the human resource development but also to nation building exercise. The faculty offers D. Pharm., B. Pharm., M. Pharm. and doctoral courses. The faculty distinguishes itself from other institutes due to its holistic approach and unique foresighted planning in providing technical and professional education. The mission of the faculty is to provide quality education that effectively integrates critical thinking, problem solving and leadership skills and equips the students with knowledge and skills in there chosen stream, inculcate values, identify hidden talents, provide opportunities to realize there full potential and thus shape them in to future leaders, entrepreneurs and above all good human beings.

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Bhabha University, Bhopal established by an act of Govt. of Madhya Pradesh, is approved by UGC under section 2(f) 1956 with the vision "*To Produce Job Creators and not Job Seekers*". The University is member of Association of Indian Universities and also member of Association of Universities of Asia and the Pacific. Itis spread over 107 acres of land, having green and secured campus. The University is running Courses from Graduate to Doctoral Level in Pharmacy, Engineering, , Agriculture, Management, Science, Commerce & Art . University has several MOU's with National & International Universities which are functional in the field of Academics (Students and Faculty Exchange) and Research (Joint Research Projects).

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May 23, 2019

MESSAGE

It is indeed a matter of pleasure that Pharmaceutical Royal International Society (PRISAL) in collaboration with Bhabha University, Bhopal, MP, is organizing a one day National National Conference-2019 on "Pharmaceuticals - Bench to Bedside Challenges, recent initiativeds and future perspectives" on 26th May 2019.

I am happy to note that this conference would bring together leading pharmacy professionals, researchers from academic and health care delivery in presenting their scientific advances and findings and also in exchanging their experiences and research results in the area of current challenges in pharmacy and future perspectives by the recent initiatives by drug discovery and other development process.

On this occasion, I convey my best wishes and greetings and wish the conference a grand success.

With best wishes.

(Dr. B Suresh)
President

Convener Message…….

Dear Colleagues,

"Arise, Awake and Stop not till the goal is reached"

On behalf of PRISAL- Pharmaceutical Royal International Society, I heartily welcome you all the students, faculties, speakers and delegates to this **PharmaConference** entitled **"Pharmaceutical :Bench to Bedside-Current Challenges,Recent Initiatives and Future Perspectives "** on 26thMay2019.

In the present scenario, to provide proper direction to researchers and scientists to create awareness about recent advances, challenges in the research and drug development and reaching it to the patient.The seminar will increase the awareness toward the current technologies for pharmaceuticals, current challenges in pharmaceuticals, research development and drug discovery.

The seminar is aimed to provide interactive forum for expressive exchange of information and to discuss the applications of Pharmaceutical molecule in healthcare amongst varied range of participants including eminent speakers, Industrialist, renowned scientist, young researchers and students. This seminar offers anexcellent opportunity for the participants to interact with eminent scientists and there would also be an oral and poster presentation.

Regards,

Ms. PritiTagde

Founder President

PRISAL-Pharmaceutical Royal International Society

Message

From the desk of The Dean (Pharmacy) BHABHA UNIVERSITY

Dear Guest Speakers, Chairpersons, Participants

On behalf of BHABHA UNIVERSITY, BHOPAL, I do welcome all of you in the occasion of National Pharma Conference on "Bench to Bedside –Challenges, Recent Initiatives and future perspective" organized by the society PRISAL in collaboration with BHABHA UNIVERSITY being held in the beautiful city of lakes , Bhopal.

We, faculty and staff of Pharmacy, Bhabha University are committed to fulfill dreams and aspirations of young students who are joining the university to become pharmacist. Faculty of Pharmacy was established with the vision to strive for excellence in pharmaceutical education, research and practice. The institutes under Faculty of Pharmacy are approved by AICTE, PCI and are constituent institute of Bhabha University, Bhopal. The objective of the faculty is to generate flock of highly creative professionals, who can contribute not only to the human resource development but also to nation building exercise. The faculty offers D. Pharm., B. Pharm., M. Pharm. and doctoral courses.

As a Dean of Pharmacy (Bhabha University) I'm very much aware about the importance of pharmacy as the pharmaceutical products play an important role in health care. Along with well trained and motivated health professionals, medicines are among the most effective ways to prevent, alleviate and cure diseases.

I have gone through the scientific program and could see its rich qualitative academic content. I envisage its great potential to discuss and learn the challenges, initiatives and future perspectives of pharmaceuticals. It is important to develop an attitude towards research and evidence building in every scientific sphere and this conference would be major step towards this goal in the field of pharmaceutical science.

I wish the conference a great success.

I am sure that the conference will be a live scientific extravaganza.

Dr. Saielsh Kumar Ghatuary
Professor and Dean (Pharmacy)
BHABHA UNIVERSITY

Message

Season's Greetings!!!

The foundation of Pharmaceutical Royal International Society (PRISAL) *reflects its activity through the its motives and the programmmes organized. National Pharma Conference 2019 organized in association with Bhabha University, Bhopal with the theme "Pharmaceuticals : Bench to Bedside – Challenges, Recent Initiatives and Future Prospectives" is another feather in their endeavors, which is being organized on 26th May, 2019. Scientific Conferences envisages how Scientists can play a leadership role in the country to promote and realize the vision of Healthy and developed India as well as stimulate discussions and thought processes centered around how the country and the profession respond to realize this vision.*

I hope that the participants and delegates from all walks of various Profession to deliberate various issues relating to Industry, regulatory, academia and community to evolve collective wisdom for formulating newer policies in the country in the relevant fields and for the betterment of mankind.

This Conference is organized with an objective "To advance and promote the cause of advances in the academic and research in Medical Sciences, Life Sciences, Pharmaceutical Sciences, Traditional Medicine and Biomedical Sciences in all their aspects so as to get the best of benefit out of it.

I am confident that the scientific programme would address the theme of the Conference in all aspects and will be of interest to professionals from the Industry, Regulatory, Academia, Research, Pharmacy Practice and Students to garner participation from all facets of the profession in large number.

I extend my best wishes to the organizers and hope that this Conference a huge success and help us to build a strong brand for the future.

(Dr. Asmita Gajbhiye)
Professor
Dept of Pharmaceutical Sciences
Dr. Harisingh Gour Vishwavidyalaya, Sagar

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ABSTRACT

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PHARMACEUTICAL CARE EVERY WHERE

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ABSTRACT :

Pharmacists are known as professionals for drugs. From Discovery to development, from manufacturing to dispensing the role of pharmacist is well established. It is also important to understand the drugs are not safe as it is believed by the common man. The common man knowingly or unknowingly indulges in practices of self-medication leading to harm his health. For this cause only, Drugs are in the custody of registered pharmacist, and dispenses the prescription medicines on receipt of a prescription. Recently Government of India has enacted pharmacy practice guidelines 2015, to promote safety of medicines in public health. The medicines are dangerous substances and can cause severe health hazards if used indiscriminately. To curb widespread abuse of drugs various rules and regulations are in enforcement. Drugs and Cosmetics Act 1940, Pharmacy Act 1955 are some of the important laws. Big challenge in public health is to educate the patient regarding how to use the medicine dispensed. Patient education and compliance of patient to therapy all depends upon how much the patient is informed by the pharmacist while dispensing the medicines. Unfortunately, neither the pharmacist nor the patient is serious about medication safety. Because of this patient counselling and pharmaceutical care are not popular in our country. On the other hand, in developed countries Pharmacy Practice is mandatory and pharmacist get paid for the services rendered. It is very essential that in our country also we have to start working towards establishing pharmacy practice and assume a responsible role of community pharmacy in India ,like in other developed countries.

ORGANIC HERBS ARE BENEFICIAL FOR COSMETICS AND HEALTH SUPPLEMENTS: FOR FUTURE PERSPECTIVE

Rakesh Punekar, Abhishek Kumar Sen

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ABSTRACT :

Nature is human mother. Body of human being is the microcosm of the whole universe. A herb is a plant or extract of plant in a pure form which including leaves, stem, roots, barks, berries, gums, flowers and seeds which are accomplished of healing, nourishing and rejuvenating elements. Cosmetics itself are not complete to take care of skin because it work only externally and so in this contest herbal health supplements which are administered internally to human body works as a natural detoxification.

Herbal cosmetic ingredients for external use which played a very major role are Aloevera (Aloe barbadendis), Neem, Sandalwood, Saffron, Turmeric, Sea buckthorn (Himalayan berry), Castor oil, Almond oil, Flaxseed oil are essential for herbal cosmetic preparation for external application which rejuvenate skin naturally.

Herbal health supplement ingredients for internal use are Stevia (Herbal sweetener), Noni (Natural detoxifier), Ashwagandha, Wheat grass, Spirulina, Moringa, Ashwagandha, Neem, Giloy, Amla, Aloevera, Flax seeds, Sea buckthorn, Tulsi are the key ingredients which are administered internally which enhance metabolism, boost the immune system, and purify the body through blood purification and detoxification of free radicals which cleanses the body internally thus make the external skin glow naturally.

Herbal cosmetics and health supplements have gained popularity among the population. Herbal cosmetics and health supplements have efficacy and acceptability due to routine use in daily life and prevent the adverse effects which are generally seen in synthetic products such as sunburn, harm the natural skin protection which may lead to skin cancer if used routinely.

POTENTIAL OF HERBAL NANOCARRIER FORMULATION FOR THE TREATMENT OF PSORIASIS

Shammy Jindal*[1,2], Rajendra Awasthi[1], Dhananjay Singare[3]& GT Kulkarni[1]

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Abstract

Psoriasis is an inflammatory skin disease affecting 2–3% of the world population. With increasing understanding of the progress of disease and its causes, bacterial infection is reported to be one of the potential reasons. In this regard, water extract of kalmegh has potential activity in the treatment of psoriasis. Despite many topical formulations of allopathic drugs, various drugs in practice, drug delivery issues like permeability in the prevailing infectious conditions and stability of the drug are yet the challenges not been covered so far from the formulation development perspective. For these issues, nanocarrier, on account of their carrier-specific properties, has been suggested as delivery tools to fulfill the expectations. In the present work, Naonocarrier containing herbal extract of kalmegh, were prepared and characterized for its varied traits such as size (536–748 nm), surface charge, morphology, percent skin permeation (53.7%), and retention (1.420 ± 0.5 mg/cm2). Confocal laser scanning microscope (CLSM) images revealed appreciable cell-uptake of fluorescent dye loaded nanocarrier. In vivo studies using the immiquimod induced mouse model, was used and showed significant anti psoriatic activity as compared to standard marketed formulation. Hence, the work suggests for the possibility of a better herbal nanocarrier formulation as a potential option in addressing the infectious challenges of psoriasis.

Keywords : Naonocarrier, immiquimod, kalmegh.

DEVELOPMENT AND EVALUATION OF MICROSPONGE BASED FLUCONAZOLE TOPICAL GEL

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ABSTRACT :

The present study deals with the design and optimization of Fluconazole microsponges loaded topical drug delivery system to facilitate the controlled release of active drug into the skin in order to reduce the systemic exposure and minimize local cutaneous reactions to active drugs by DoE method of QbD Approach. Fluconazole Microsponges were prepared by quasi emulsion solvent diffusion method using Ethyl cellulose as a polymer, polyvinyl alcohol, Dichloromethane as Internal phase volume and water as External phase volume. For the development of microsponges, Quality by Design approach was implemented. Based on risk assessment of critical quality attributes (CQAs), Optimization of Fluconazole loaded Microsponge was done by Application of surface response design. Independent variable of formulation was Drug: polymer Concentration (X1), Stirring time (X2). The selected dependent variables were % Drug Content (Y1), Entrapment Efficiency (Y2), %CDR (Y3). The optimized batch of Fluconazole loaded Microsponge was evaluated by particle size, surface electron morphology (SEM), Drug-excipients compatibility study using FTIR Spectrum and further loaded into subsequent topical gel. For the optimized formulation, microsponges drug content was 60-75mg and encapsulation efficiency was 60-70%. The in vitro drug release from the Microsponges in 8hrs was found to be 71.12%. The scanning electron micrographs of microsponges revealed perfect spherical shape of microsponges. FT-IR patterns of microsponges had shown compatibility with polymers. The values of micromeritics properties indicated good flow properties of these microsponges. Finally, we may conclude that Optimized Fluconazole Microsponges (1:1) loaded Gel were best formulation among the class of Ethyl Cellulose as a retarding polymer. It was demonstrated that the use of Quality by Design (QbD) principles, provide an effective means to achieve a greater understanding of process and formulation parameters for microsphere preparation. From the study it can be concluded that it is possible to design a topical polymeric microsponges formulation for antifungal drug Fluconazole, mainly for the treatment of onychomycosis and related nail infections where efficacy and patient compliance are of prime importance.

FORMULATION, EVALUATION AND INVITRO ANTHELMINTIC ACTIVITY OF HERBAL SUSPENSION OF *PASSIFLORA EDULIS*

VIDHYA C DINESH[1]*, SRUTHY.P.N[2], K.KRISHNAKUMAR[1], HAREESHBABU.E[1]

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2. Nehru College of Pharmacy,Pampady,Thiruvilwamala

ABSTRACT

There are many pharmacologically acting crude extract and phytochemical agents isolated from plant sources. Now days, even the many specialist doctors have turned their attention to ayurvedic, siddha, and unani system of treatment in western countries to avoid the untoward effect of certain synthetic drugs, though they are much more potent. This indicates that natural plants also have comparative therapeutic value with fewer side effects. Helminthic infections are among the most common infection in human beings affecting a large proportion of the world's population .With this preview we have planned to work on the plant called *Passiflora edulis* , belonging to the family Passifloraceae which are abundantly available and found to possess wide pharmacological actions. The leaves of plant were collected and dried in shade.In this study anthelmintic assay was performed on adult Indian prosthuma due to its anatomical and physiological resembles with the intestinal roundworm parasite been used widely for the initial evalution of anthelmintic compounds invitro. Albendazole was used as standard drug. . The lethal effect of albendazole was attributed to its inhibition of tubulin polymerization and blocking glucose uptake. 0.5% Sodium CMC was used as control.The ethanolic and aqueous extract of different concentrations (20, 50,100 mg/ml) of Passiflora edulis was tested against pheretima posthuma for Anthelmintic activity. Paralysing and death time were noted at each concentration. It was found that ethanolic extract at 100mg/ml took 39 minutes as death time but albendazole took 50minutes.

5-FLUOROISATIN AND N-BENZYLATED-5-FLUOROISATIN FOR THEIR ANTI-INFLAMMATORY AND ANTI-OXIDANT POTENTIAL

Mahendra Pal, Ekta Verma and Asmita Gajbhiye

Department of Pharmaceutical Sciences, Dr. Harisingh Gour Vishwavidyalaya, Sagar (M.P.)

ABSTRACT :

Isatin or 1H-indole-2,3-dione, is an indole derivative containing keto group at position 2 and 3 of the ring. It is consists of pyrrole ring fused with benzene ring. Isatin and its derivatives are found in various natural substances. Isatin is an endogenous molecule which is present in humans. It is a metabolic derivative of adrenaline.

In the present work, we have synthesized N-alkylated-5-fluoroisatin compound from 5-fluroisatin as starting material and characterized it by IR and NMR spectroscopic methods. Then, we performed i*n-vitro* pharmacological evaluation to evaluate the compound for different pharmacological activities such as anti-inflammatory, anti-oxidant and cytotoxicity. The in-vitro activity was compared with standard drugs such as aspirin and ascorbic acid as well as with the starting material.

The synthesized compound i.e. N-alkylated-5-fluoroisatin was found to possess significant anti-inflammatory, anti-oxidant activity and low cytotoxicity. The IC_{50} value was found as 0.20 m mol as anti-inflammatory and 0.23 m mol as anti-oxidant. These IC_{50} values were found to very close when compared with standard drugs but higher than starting material.

The results imply that attachment of 4-chloro benzyl group at N position of 5-fluoroisatin lead to increase the anti-inflammatory and anti-oxidant activity. In future work, we would like to perform substitution with other groups and at different position of starting material to evaluate them for pharmacological activity and compare with respect to existing drugs.

Keywords: Fluoroisatin, antioxidant, anti-inflammatory and cytotoxicity.

SPECTROPHOTOMETRIC METHODS FOR SIMULTANEOUS ESTIMATION OF TELMISARTAN AND HYDROCHLOROTHIAZIDE IN A TABLET DOSAGE FORM

Sneha Kulkarni

Department of Pharmacy Barkatullah University Bhopal

ABSTRACT :

Telmisartan is an angiotensin receptor blocker agent and hydrochlorothiazide is diuretic agent. Simple, precise, rapid, and selective simultaneous equation and Q – analysis UV spectrophotometric methods have been developed for the simultaneous determination of telmisartan and hydrochlorothiazide for the combined tablet dosage forms. The methods involve application of simultaneous equation and Q-value analysis based on the measurement of absorptivity at 271, 295, and 295 nm which are λ_{max} oftelmisartan and hydrochlorothiazide and isoabsorptive point of both respectively. Linearity lis between 8-40 μg/ml for telmisartan and 5-25 μg/ml for hydrochlorothiazide by using 0.15 N NaOH as a solvent system.

KEYWORDS: Telmisartan, Hydrochlorothiazide, Simultaneous estimation, Q–value Analysis.

COMPARATIVE ANALYSIS AND STANDARDISATION OF MARKETED FORMULATION: TRIPHALA CHURNA

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Acropolis Institute of Pharmaceutical Education and Research, Indore

ABSTRACT :

From ancient days to recent civilization, human beings depend on nature for running their life smoothly from day to day. Ayurveda, a system of medicine is based on natural remedies; it is ancient and effective as well. Triphala churna is an important ayurvedic formulation in India since ancient time. In present scenario various pharmaceutical and ayurvedic companies are manufacturing triphala churna but lack of standardisation of formulation is major stumbling block. In order to improve purity, efficacy and safety of product effective standardisation is a necessity and it also expands conviction of patient towards Ayurveda. When any drug or formulation is going to enter human body it should be of quality and does not produce any untoward effect. Triphala churna consist of three crude drugs that are Amla (*Emblica officinalis*), Bahera (*Terminalia bellirica*) and Harad (*Terminalia chebula*). Triphala churna is widely used for various ailments like digestive disorders, immuno-modulation, improvement of eye sight, hair growth etc. Present research work deals with comparative analysis of marketed triphala churna. For the purpose three brands name as Dabur, Patanjali and Baidyanath were selected. For standardization of triphala churna WHO guidelines were followed, various parameters of quality control were performed with all three samples selected for analysis. Morphological, physical and phyto-chemical analysis performed to standardise the samples selected, it includes organoleptic evaluation, phytochemical identification, powder characteristic determination, ash value determination, moisture content, extractive value etc. As Triphala churna contains three drugs and all drugs are claimed to contain tannins, the quantity of tannin was also determined. The comparative analysis of selected formulations showed satisfactory results.

Keywords: Triphala churna, Ayurveda, Standardisation

TOWARDS THE SYNTHESIS OF A ALANINE RICH PENTAPEPTIDE FROM *STELLARIA DICHOTOMA* L.

Kumar S*[1], Khokra SL[1], Dahiya R[2] and Saharan R[3]

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[2]Laboratory of Peptide Research and Development, School of Pharmacy, The University of the West Indies, St. Augustine, Trinidad & Tobago, West Indies.

[3]MMCP, Maharishi Markandeshwar University, Mullana, Haryana.

ABSTRACT:

The present investigation reports the synthesis of a Alanine rich *N*-methylated cyclopeptide, Dichotomin E, previously isolated from the roots *Stellaria dichotoma* L. of accomplished through the coupling of N-methylated tetrapeptide and monopeptide fragments followed by cyclization of the linear pentapeptide unit. Structure elucidation of the newly synthesized cyclopolypeptide was performed by means of FT-IR, ^{1}H-NMR and fast atom bombardment mass spectrometry (FABMS) and screened for its antibacterial,anthelmintic and cytotoxic potential. According to the antimicrobial activity results, the newly synthesized *N*-Methylated cyclopeptide exhibited potent antibacterial activity against Gram-negative bacteria *Pseudomonas aeruginosa* andgram-positive bacteria *B.Subtilis* and antifungal activity against dermatophytes *Trichophyton mentagrophytes* and *Candida albicans* at a concentration of 10 µg/mL, in comparison to the reference drugs, ciprofloxacin and griseofulvin. In addition, cyclopolypeptide displayed suitable levels of cytotoxicity against *Dalton's lymphoma ascites* (DLA) and *Ehrlich's ascites carcinoma* (EAC) cell lines.

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INNOVATIVE PHARMACEUTICAL DEVELOPMENT BASED ON UNIQUE PROPERTIES OF NANOSCALE DELIVERY FORMULATION

Bharati Ashwini R.

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ABSTRACT :

The advent of nanotechnology has reignited interest in the field of pharmaceutical science for the development of nanomedicine. Nanomedicinal formulations are nanometer-sized carrier materials designed for increasing the drug tissue bioavailability, thereby improving the treatment of systemically applied chemotherapeutic drugs. It is a new approach to deliver the pharmaceuticals through different routes of administration with safer and more effective therapies compared to conventional methods. Even though nanomaterials have significant advantages due to their unique nanoscale properties, there are still significant challenges in the improvement and development of nanoformulations with composites and other materials. Highlighting on the nanotechnology, a new drug delivery system, clinical medicine and research, as well as in other varied sciences. Due to their unique size-dependent properties, lipid nanoparticles offer the possibility to develop new therapeutics. The ability to incorporate drugs into nanocarriers offers a new prototype in drug delivery that could be used for secondary and tertiary levels of drug targeting. Hence, solid lipid nanoparticles hold great promise for reaching the goal of controlled and site specific drug delivery and hence have attracted wide attention of researchers.The different types of nanocarriers which were based on solid lipid like solid lipid nanoparticles, nanostructured lipid carriers, lipid drug conjugates are discussed with their structural differences.

Key words: nanomedicine, nanocarriers, nanoformulations.

INVESTIGATION OF SOLANESOL IN COMBINED MODEL OF INTRACEREBRAL AND INTRAVENTRICULAR HEMORRHAGE USING AUTOLOGOUS BLOOD INJECTION IN RATS

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ABSTRACT:

Intracerebral hemorrhage (ICH) can be defined as any bleeding within the intracranial vault, including the brain parenchyma and surrounding meningeal spaces due to trauma, aneurysm and arteriovenous malformation. ICH being the least treatableform of cerebral stroke. With time, ICH is further associated with intraventricular hemorrhage (IVH), leads to condition likehydrocephalus, and the major cause of most of the hemorrhagic deaths. Due to cerebral hemorrhage or post brain hemorrhagic surgeries, most of the patients mainly suffer from impairment in memory, grip strength, posture and cognitive dysfunctions. However, pre-clinically a combined model of ICH associated IVH is not present. Moreover, autologous blood (ALB) injection in rat brain causes hemorrhage like condition which further interferes with the normal functioning of neuronal mitochondria such as CoQ10 insufficiency & dysregulation of ETC-complexes which further initiated neuropathological cascades like increases neuroinflammatory cytokines, oxidative stress, neurotransmitter imbalance. There is no particular drug treatment available in the prevention of post brain hemorrhagic behavioral and neurochemical dysfunctions, only approachable therapy used to provide symptomatic relief such as Donepezil (DNP), Memantine (MEM), Celecoxib (CLB), Pregabalin (PGB). Therefore, in current study, Solanesol as a coenzyme-Q10 (CoQ_{10}) precursor can restore the neuronal integrity as well as help in preventing the neurological deficits in post brain hemorrhagic conditions.

DEVELOPMENT AND VALIDATION OF NOVEL RP-UPLC METHOD FOR SIMULTANEOUS DETERMINATION OF ANTIHYPERTENSIVE DRUGS IN COMBINED PHARMACEUTICAL DOSAGE FORMS

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ABSTRACT :

A simple, rapid and precise Ultra Performance Liquid chromatography (UPLC) method for simultaneous determination of Propranolol Hydrochloride and Hydrochlorothiazide in combined pharmaceutical dosage forms has been developed and validated.

Method- The chromatographic separation was achieved using RP18 column and mobile phase of mixture of 0.05% TFA and Acetonitrile in isocratic mode and eluents are monitored at 220 nm using PDA detector. **Results**- By the method, Hydrochlorothiazide and Propranolol Hydrochloride were eluted with retention times of 0.71 min and 2.17 min, respectively.

The method was continued and validated accordance with ICH guidelines. Validation revealed that the method is rapid, accurate, precise, specific, reliable and reproducible. Calibration curve plot were linear over the concentration range 10-90µg/ml for Propranolol Hydrochloride and 10-90µg/ml for Hydrochlorothiazide. Limit of detection for Propranolol Hydrochloride and Hydrochlorothiazide were found to be 2.91µg/ml and 0.85µg/ml and limit of quantitation was 8.82 µg/ml for Propranolol Hydrochloride and 2.57µg/ml for Hydrochlorothiazide. **Conclusion**- The developed method was validated with respect to specificity, linearity, limit of detection and quantification, accuracy, precision, and robustness.

PLANT FOR LARGE SCALE PRODUCTION OF BIOTECHNOLOGY BASED DRUGS

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ABSTRACT :

Until recent times, pharmaceuticals used for treatment of diseases were based largely on production of relatively small molecules by chemical synthesis or microorganisms. During 1990s, biotechnology emerged as harbinger of new medicines. The advent of biotechnology has led to production of many newer 'biotechnology drugs' such as genetically engineered proteins and peptides, which include a wide variety of medicinal products such as hormones, enzymes, vaccines and monoclonal antibodies.

In the biotechnological method of production, the DNA encoding the desired protein is inserted into bacteria, fungi or mammalian cells and they synthesize the encoded protein, which is later harvested and purified. The production of proteins is a costly process as augmenting cell culture facilities requires large investments in buildings and equipment. Hence, biotechnologists are in search of cheaper alternatives to cell and microbial culture techniques for production of therapeutic peptides and proteins. Very recently, transgenic plant expression systems have been developed as alternative sources for production of these peptides and proteins, which are known as plant-made pharmaceuticals. The paper discusses advantages, risks, methodology, economy and regulatory aspects of use of plants for the production of biotechnology based pharmaceuticals on large scale as source of medicine.

COMBI MOLECULES: A NOVEL APPROACH TO DEVELOP POTENT ANTICANCER AGENTS WITH DUAL TARGETS

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ABSTRACT :

Cancer is a group of diseases caused by loss of cell cycle control. Cancer is associated with abnormal uncontrolled cell growth. It is an environmental disease related to lifestyle, environmental factors and less commonly genetic factors. Various remedies have been reported for the treatment of this disease, but the development of suitable therapeutic is still a major challenge. However, they have major drawbacks; their high cost and adverse effects and resistance. Thus, our target is to look for alternative ways to develop novel drug with fewer side effects , less cost and more effective by dual targeting.

With the current chemotherapy, lack of selectivity of chemotherapeutic agents against cancerous cells is a major problem. Receptor tyrosine kinases (RTKs) are high affinity cell surface receptors that bind polypeptide growth factors, cytokines and hormones. They acts as key regulators of normal cellular processes in addition to playing a imperative role in the development and progression of many types of cancer.The EGFR-TKIs acts by inhibition at the ATP binding pocket, stopping cell proliferation signaling in certain cancers represent a potential approach for design of anti proliferative drugs.

The altered protein expression and activity of receptor tyrosine kinase (TK) in cancer are implicated in the progression and poor prognosis.

By considering above mentioned facts and to evade from the drawbacks of current chemo agents, new EGFR-TK Inhibitors based Novel Combi Molecule can be planned to design and synthesize.

EXPLORING REASONS FOR MEDICATION NON-ADHERENCE IN HYPERTENSION PATIENTS

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ABSTRACT:

Hypertension is a major cardiovascular condition (especially among adults) resulting from high blood pressure, which if remain persistent, may lead to heart failure. Proper medical treatment and medical adherence are keys in controlling hypertension and thus reducing complications. Hypertension is the leading cause of mortality and the third largest cause of disability, in developing countries like India. It is estimated that almost one-half of patients drop out entirely from treatment within one year. This study investigated the primary factors associated with medical non-adherence among hypertensive patients. A quantitative study was carried out using a tertiary care hospital-based survey of hypertensive patients in New Delhi. A total of 173 patients with hypertension with a mean age of 62.38 ± 11.28 (32-79) years were included in the study. Of these 173 patients, 64.74% were male and nearly 89% were above 45 years of age. The average systolic and diastolic blood pressure readings (for considered sample pool) were 142.22 ± 26.94 and 84.14 ± 14.44, respectively. The average ejection fraction (EF) was 61.1 ± 5.13. It was found that only 69.36% patients were complaint to medication over follow ups, out of which 8.33% were in age group 30–45 years, 59.17% were in age group 46-70 years and 32.5% were above 70 years. Unsatisfactory medical adherence in the treatment of hypertension is mainly due to insufficient education to illness and low motivation towards treatment. Patients are not taking this condition as serious and leave their treatment with their own wish especially adults. The other factors include socio-economic status, literacy level and life style of hypertensive subjects. Among 173 subjects, 144 (83.24%) had basic and intermediate level of literacy proficiency. Moreover, 116 (67.05%) out of total 173 patients were having low- and middle-class socio-economic status. This study revealed that medication non-compliance was the major cause for uncontrolled blood pressure and associated risks. However, appropriate antihypertensive treatment can control high blood pressure.

PHARMACOLOGICAL AND NON-PHARMACOLOGICAL APPROACHES TO KEEP HEART HEALTHY: ENRICHING TRADITIONAL KNOWLEDGE WITH NEW INSIGHTS

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ABSTRACT :

According to Ayurveda water stored in a copper vessel has the ability to balance all the three doshas in your body, (vata, kapha and pitta) and it does so by positively charging the water and make heart healthy but the molecular signalling and its influence on Glycogen synthase kinase 3 beta (GSK3β) link with cardioprotection is debated. Metal nanoparticles have been widely applied in various fields of biomedical sciences because of exceptional theranostic applications. Copper are the most promising trace element having potent antioxidant, anti-inflammatory, anti-platelet activity and it may potentiate NO. Moreover, scientific literatures reveal the protective potential of copper to reduce the risk of recurrent ischemic stroke and cardiac injury. Intriguingly, copper is also a potential GSK- 3β inhibitor and inhibition of GSK- 3β is the key signalling for cardio protective pathway. We have investigated the pharmacological effect of copper nanoparticle against myocardial injury in different animal model (Diabetes induced myocardial injury; isoproterenol and coronary artery ligation -induced myocardial infarction). The low-dose CuNP significantly prevents MI through GSK-3β inhibition.

NATURAL PLANT BASED INGREDIENT FOR COSMETIC APPLICATIONS: A NEW ERA OF COSMECEUTICALS

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ABSTRACT :

Cosmeceuticals are the hybrid of the herbal drug or pharmaceutical and cosmetics where one or more bioactive ingredients are incorporated in the cosmetic base to improve or alter the function of the skin and hairs and not just for beautifying the skin. Novel ingredients from plant sources are in huge demand for cosmeceutical applications due to the growing consumer awareness about healthy products that are less harmful. As herbal drug represents numerous phytochemicals, the biological activity of such phytoconstituents decides its application in cosmeceuticals such as sun protection, anti-ageing, anti-wrinkle, skin whitening, color cosmetics, anti-acne, hair conditioning etc. These natural cosmeceutical products improve the functioning/texture of the skin by boosting collagen growth, by eradicating harmful effects of free radicals, maintaining keratin structure in good condition and making the skin healthier.

Herbal Cosmeceuticals have acclaimed its most fascinating position in skin care products across the globe. AsIndia has inherent potential of natural resources, cosmeceuticals market is the fastest growing sectors of natural personal care industry in India.ThoughHerbs like Aloe Vera, Turmeric, Neem, Manjishtha are already being used in Indian Herbal cosmeceuticals products, less number of patents are filed at the Indian patent bank than that observed in American and European patent bank. Thus there is much scope of herbal drug in the cosmeceuticals and it has much more potential to be patented in India.

Keywords: Cosmeceuticals**,** Herbal cosmetics, Antiaging, skin whitening, Color cosmetics, Hair care

THE EVALUATION OF ANALGESIC & ANTI-INFLAMMATORY ACTION OF *ALOE BARBADENSISMILLAR* EXTRACT IN ALBINO RAT

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ABSTRACT:

The aim of the present study was to evaluate analgesic and anti-inflammatory action of Aloe Barbadensis *Millar* extract in Albino Rat. This study provides information regarding identification of cincole related compound that have anti inflammatory activity through the specific inhibition of COX-2. Overall the cincole preparation use in this study was found to inhibit COX-2 approximately three-fold more than COX-1, and this property should contribute to the beneficial anti-inflammatory activity of Aloe barbadensis product. The result of the present study has shown that the food extract of the investigated plant exhibited very high anti-inflammatory activity, this activity may be linked with the presence of poly phenolic compound present in the extract main constitute of aloe barbadensis which are repeated to be anti-inflammatory, antiasthamatic, analgesic, anti-oxidant activity and this finding are in concordance with over results. Carrageenan induced has been commonly used as an experimental animal model for acute inflammation and is believed to be biphasic. The extract significantly inhibited paw edema induced by carrageenam in the 2^{nd} phase, this finding suggests a possible inhibition of cyclooxygenase synthesis by the extract and this effect is similar to that produced by non-steroidal anti-inflammatory drug.

Keywords: Aloe vera, Carrageenan, Paw edema, Inflammatory, Analgesic

AN OLD METHOD CAN BE USED TO FACE PRESENT PHARMACEUTICAL CHALLENGES TO GET FAST THERAPEUTIC EFFECT BY USING COTTON CANDY METHOD

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ABSTRACT :

Immediate release formulation has been utilized by the researchers to provide better pharmacological effect on the site of absorption and optimized the formulation pharmaceutically ,Since Tablet is considered as conventional as well as novel drug delivery system The Goal of this research Work is to formulate a oral tablet formulation by using cotton candy technique which is one of the better method for the release of the xenobiotics. various formulation has been prepared by using different concentrations of the key ingredients and finally optimized formulation was chosen on the basis of results revealed by the formulation after subjecting them in to different evaluation parameters .Formulation code which release the drug in the least time was rationally selected as the best formulation. These prepared tablets were subjected for weight variation evaluation ,thickness ,disintegration time ,weighting time and in-vitro drug release and the optimized formulation exhibited promising result of all the evaluation parameters ,It can be concluded that though their are many techniques of getting the immediate release of the xenobiotic components from the formulation but if we technically modified the formulation variable and methods then also same release profile can be obtained without changing the formulation holistically .

Key words –Xenobiotics ,Immediate release ,cotton candy method , release.

"EFFECT OF MICROTUBULE STABILIZER CABAZITAXEL IN INTRACEREBROVENTRICULAR INJECTION OF STREPTOZOTOCIN INDUCED ALZHEIMER'S DISEASE IN RATS"

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ABSTRACT :

Alzheimer's disease is acknowledged as progressive neurodegenerative disorder causing significant disruption of normal brain structure and function including degeneration begins in the medial temporal lobe, specifically in the entorhinal cortex and hippocampus manifested by cognitive and memory deterioration and characterized by accumulation of extracellular amyloid-β plaques and intracellular accumulation of NFT, destruction of cholinergic neurons in cerebral cortex and hippocampus, microgliosis and astrocytosis, oxidative stress, neuro-inflammation and excitotoxicity. Neuronal microtubule (MT) tau protein providing cytoskeleton to neuronal cell and plays a vital role including maintenance of cell shape, intracellular transport and cell division. Tau mediated MT destabilization resulting in axonopathy, additionally neurotransmitter deficit and ultimately causing Alzheimer's disease**.** Pre-clinically, streptozotocin stereotaxically mimics the behavioral and biochemical alterations similar to Alzheimer's associated with tau pathology resulting in MT assembly defects further proceeds neuropathological cascades. Clinically approved drugs such as Donepezil (DNP), Rivastigmine and Memantine (MEM) responsible for symptomatic treatment only, but there is no specific pharmacological intervention that directly interacts with the neuronal microtubule destabilization. Therefore, in current study we are focusing on involvement of anti-cancer agent microtubule stabilizer cabazitaxel in prevention of tauopathy particularly by targeting MT oriented cytoskeleton and promotes polymerization of tubulin protein.

Keywords :- Alzheimer's Disease, Streptozotocin, Tau phosphorylation, Microtubule, Microtubule stabilizer

DYEING COTTON CLOTH WITH EXTRACTED NATURAL DYES FROM THE SELECTED PLANTS

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ABSTRACT :

Natural dyes are colors derived from plants, invertebrates or minerals. Usually the natural dyes are vegetable dyes from plant sources e.g. Roots, berries, bark, leaves and wood. Nowadays, natural dyes from plants have been given much importance in recent years. Synthetic dyes are mostly having harmful effects and cause environmental pollution. Several synthetic colors have been banned due to the allergy-like symptoms such as rashes and also due to carcinogenicity. In this study extracts of different plants were considered i.e. *Curcuma longa, Punica granatum, Solanum lycopersicum, Lawsonia inermis, Beta vulgaris.*These extracts were dyed to the cotton fabrics. The creation of a bond between the coloring matter and fibre is called mordanting i.e. a pre-dyeing process that makes the fibre receptive to dye. A dye molecule attaches itself to mordant. Natural dyes require mordanting by certain metallic salts of aluminium, iron, chromium, copper and others for ensuring the reasonable fastness of the color to sunlight and washing. These mordants set the color onto the cotton fabric when we use natural dyes. Different mordants will give different hue color with the same dye. This preference of naturally derived colorants is due to their healthfulness and excellent performance. Natural dyes are nowadays used in cosmetic industry due to no side-effects, UV protection and anti-aging properties. Some of these dyes such as that extracted from *Curcuma longa*has got antiseptic property along with brightest natural yellow color. All the extracts were found to have the bioactive components, tannins, saponins and terpenoids. The natural dyeing can produce a wide range of colors even from the same plant source by applying different dyeing techniques, extraction methods and different solvents etc. The dyed cotton fabrics were observed with various different shades of color and also its durability and color fastening are tested.

Key words- Tannins, Saponins, Terpenoids, Mordant, Dye

A NEW PROMISE FROM NATURE; AN UPDATED REVIEW ON RESVERATROL – A MIRACLE DRUG

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ABSTRACT :

Resveratrol (RESV) is a type of natural phenol, a stillbenoid, which is chemically 3,5,4'-trihydroxy-trans-stilbene, found abundantly in grapes, red wine, purple grape juice, peanuts, and some berries. It is a fat-soluble compound that occurs in trans and cis configuration which can be synthesised from p-coumaroyl CoA and malonyl CoA. It is classified as a phytoalexin anti-fungicide conferring disease resistance in the plant kingdom. The study about Resveratrol begins with the research for revealing the phenomenon behind the French Paradox. By the last few years, scientists found the Resveratrol as an important inhibitor of cancer along with a large variety of biological activities such as antihypertensive, cardio protective, protection from deafness and blindness, cognitive enhancer, powerful anti oxidant, an anti inflammatory agent, anti viral agent, neuro protective agent etc. Due to this large variety of actions, the scientific world called it as a MIRACLE DRUG. This review work focusing mainly on various pharmacological aspects of Resveratrol such as Anti Aging potentials, Anti Cancer properties and so on. Various international conferences on Resveratrol were conducted and it enhances the expectation for the fast arrival of this miracle drug into our human lives.

NATURAL WEIGHT LOSS MANAGEMENT BY *GARCINIA CAMBOGIA*

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ABSTRACT :

Obesity increases health risks, including diabetes, cancer, cardiovascular disease, high blood pressure, and non-alcoholic fatty liver disease, to name a few. Therefore weight management helps us to stay healthy and free from above stated risks. Weight loss is achieved by adopting a lifestyle in which fewer calories are consumed than are expended, this is best achieved by monitoring calories eaten, physical exercise and use of supplements that decrease appetite. One such accessible supplement is of *Garcinia cambogia*, also known as Malabar tamarind is native to India and Southeast Asia and is exported around the world. The rind of its fruit is used to flavour fish curries and preserve food. The *Garcinia cambogia* fruit has been a focus for many people looking for natural ways to lose weight. The use of *Garcinia cambogia* and its extracts has been the subject of many health claims over the years, apart from weight loss it enhances athletic ability as well as lowers blood pressure. *Garcinia cambogia* contains an ingredient called hydroxycitric acid (HCA), which has been used to aid weight loss. The extract of HCA is available in powdered form or pill form and can be purchased online or in health stores. Certain products available in the market are Dweller garcinia green tea, Himalaya caplets, nature's velvet pure extract. It is also important to realize that there are some risks and interactions to be aware of when using *Garcinia cambogia*, for example potential risk of liver damage. *Garcinia cambogia* has been used for centuries. The fruit is safe to eat, and the supplements have helped many people lose weight. However, clinical evidence of its efficacy is mixed at this point.

Keywords :- obesity, weight management, *Garcinia cambogia*, hydroxycitric acid.

BIOLOGICAL POTENTIALS OF AN ELIXIR MOLECULE- ARYL TRIAZENE

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ABSTRACT :

The introduction of different nitrogen moieties in the chemical structure attains more interest and application as synthetic drugs for various ailments today. It encourages a medicinal chemistry researcher to synthesis newer compounds containing nitrogen atom. Compounds containing triazene chain are toxic to cells and are generally used as alkylating agents in anticancer treatment. In this study, different aryl triazene compounds were synthesised and determined for their different biological potentials. Anti-bacterial studies were performed by the use of different strains of bacteria such as *Enterococcus faecalis,Bacilluscereus* and anti-tubercular studies were done by using *Mycobacterium tuberculosis* ($H_{37}R_V$ stain) and *Mycobacterium lufu.* The anti-inflammatory activity was studied by inducing adjuvant arthritis (AA) by sub plantar injections on a group of white mongrel rats. *In-vitro* anti-leukemic studies were performed against K562 (human chronic myelogenous leukaemia) cell line and RAJI (human Burkitt lymphoma) cell lines at 10µM of test compounds. This research works helps to conclude that, Halogen substituted molecules are more potent than other substituted derivatives, especially in antibacterial and antileukemic studies. Increasing the length of triazene chain normally decreases the activity in the homologous series. Methyl substituted compounds are showing better activity than other alkyl substituted derivatives.

IN VITRO ANTICANCER ACTIVITY OF CHLOROFORM EXTRACT OF *CRATAEVA MAGNA* BUNCH HAM

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ABSTRACT :

Medicinal plants are the local heritage with global importance of any country. In India medicinal plants have made a good contribution to the development of ancient Indian 'Materia medica'. The plant *Crataeva magna* Bunch Ham of Capparidaceae is a leafy soft wooded tree. The bark of the tree is an important drug for curing kidney and urinary diseases. Also acts as contraceptive and oxytoxic. Anticancer is a condition in which an abnormal mass of tissue, the growth of which exceeds and is uncoordinated with that of normal tissue and persists in the same manner after cessation. Tumours are primarily classified into two groups, Benign and Malignant Tumours.The main categories of cancer includes Carcinoma, Sarcoma, Leukemia, Lymphoma, Breast cancer. The treatments include Chemotherapy, Radiation, Surgery. The plant was collected and authenticated and it was dried and made into coarse powder. And it was extracted with Chloroform. Then the crude extract was analysed for the phytochemicals. Then the pharmacological screening of the extract by *in vitro*Anticancer activity using the DLA cell lines. It can be observed from the results of phytochemical screening that the chloroform extract contains flavonoids, alkaloids, carbohydrates. This study reported that the chloroform extract shows significant anticancer activity due to the presence of flavonoid compounds.

IMPLICATION OF HYPHENATED TECHNIQUES IN DEGRADATION ANALYSIS OF DRUGS

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ABSTRACT :

Stability is defined as the capacity of a drug substance or a drug product to remain within the established specifications to maintain its identity, strength, quality, and purity throughout the shelf life. International Conference on Harmonization has prescribed various guidelines for performing the forced degradation analysis of drugs for the determination of stability of pharamaceuticals. The identification of impurities and/or degradants in pharmaceuticals is critically important for reasons of both product efficacy and patient safety. In terms of efficacy and patient safety, it is important to isolate and identify impurities and/or degradants to ensure that their presence will not evoke any form of adverse response, either pharmacologic or toxicologic, in a patient taking the medication. Hyphenated techniques are combination of chromatographic and spectrometric methods which are used for the analysis of drug substances and drug products. These techniques have found a major utility in the degradation profiling of drug substances and products. The power of combining separation technologies with spectroscopic techniques has been demonstrated over the years for both quantitative and qualitative analysis of unknown compounds. Hyphenated techniques are majorly utilized for the structural elucidation of degraded metabolites and impurity profiling. Some of the common techniques used in current scenario include LC/MS, GC/MS, LC-FTIR, LC-NMR, CE-MS etc. The present review includes the basic principles and significance of various hyphenated techniques in the structural elucidation of degradation products of drugs. Hyphenated chromatographic techniques commonly achieve separation by liquid chromatographic (LC) or gas chromatography (GC) with detection via photo diode array or mass spectrometer (MS). The structural information gained through photo diode array or more specialized detectors like evaporative light scattering detectors, fluorescent detectors are very limited whereas MS and NMR detection are valuable because of its high sensitivity, selectivity and accuracy.

Keywords: Hyphenated techniques, Degradation analysis, Impurity Profiling

EFFECT OF FORSKOLIN IN INTRACEREBROPEDUNCLE ETHIDIUM BROMIDE INDUCED EXPERIMENTAL MODEL OF MULTIPLE SCLEROSIS IN RATS

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ABSTRACT :

Multiple sclerosis (MS) is an idiopathic, immune mediated inflammatory disease of the CNS, resulting demyelination, axonal degenerations, oxidative stress, and microglial cell over activation mediated neurodegeneration and neurological disability. The mitochondrial dysfunctioning, demyelination, formation of plaque, oxidative stress and neuroinflammation, calcium ion imbalance and immunomodulation are considered as major hallmarks of neurodegeneration in MS. Introduction of ethidium bromide (EB) in intracerebropeduncle (ICP) region decreases myelination and oligodendrocytes precursor cells response episodes. Clinically proven drug therapy includes interferon, fingolimod and monoclonal antibodies that come with limited therapeutic involvement, whereas, donepezil, memantine and simvastatin are used as an approachable drug therapy to provide symptomatic relief in MS patients. Therefore, in current study, upregulation of cAMP/CREB through direct adenyl cyclase activator Forskolin (FSK) alone and in combination with approachable drug therapy can be a futuristic therapeutic approach to overcome the axonal degeneration in progression of MS.

Keywords: Demyelination, axonal degeneration, autoimmunity, mitochondrial dysfunctioning, neurodegeneration, immunomodulation, oligodendrocytes, Forskolin

FORMULATION AND IN-VITRO CHARACTERIZATION OF NIOSOME ENCAPSULATED BEXAROTENE TOPICAL GEL

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ABSTRACT :

Niosomes play an increasingly important role in drug delivery as they can reduce toxicity and modify pharmacokinetic and bio-availability. Topically applied niosomes can increase the residence time of drugs in the stratum corneum and epidermis, while reducing the systemic absorption of the drug. The present study aimed to investigate the delivery potential of Bexarotene containing topical niosomal gel for the treatment of cutaneous T-cell lymphoma disease. Niosomal formulations were prepared by thin film hydration method at various ratios of Span 60 and with constant ratio of cholesterol and drug. Six batches with Span 60, cholesterol and drug in micro molar ratios of 1:3:1, 1:4:1, 1:5:1, 1:6:1, 1:7:1 and 1:8:1 was prepared. The optimum percentage drug entrapment efficiency, Zeta Potential, Particle Size was found to be 72.16%, 35.19mv and 500nm. Prepared niosomes were further characterized for TEM (Transmission Electron Microscopy) which shows spherical unilamellar vesicles. The optimum batch of noisome was selected and incorporated into topical gel preparation. The niosomal gel was prepared by using carbopol 934 and carbopol 940 (1%w/w) as a gelling agent. Bexarotene gel show better in-vitro release in 24hrs diffusion study by using Franz diffusion cell. Niosomal gel holds a great potential of being utilized as novel, Nano sized drug delivery vehicle for transdermal Bexarotene delivery.

LIPOSOMES AS CARRIERS FOR ORAL DRUG DELIVERY

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ABSTRACT :

The oral route is most preferred route for the delivery of drugs and biologicals. The oral route accounts for more than 60% of marketed products and has several advantages like patient compliance, ease of self-medication, non-invasive, flexibility in dosage regimen and low production cost to manufacturer as oral formulation does not require sterilization; however, oral delivery is not a preferred route in terms of bioavailability. The use of nanoparticulate drug delivery system such as liposomes, solid lipid nanoparticles (SLNs), nanostructured lipid carriers (NLCs), lipid drug conjugates (LDCs), and lipid nanoemulsions is a major strategy for increasing oral Absorption and is well established over the past decade in enhancing the in vivo efficiency of many drugs both in pharmaceutical research and clinical settings.

Liposomes are promising nanoformulations for drug delivery that meet most requirements for an ideal nanocarrier. Liposomes are closed spherical vesicles consisting of a lipid bilayer that encapsulates an aqueous phase in which drugs can be stored. They are biocompatible carriers employed to improve oral bioavailability of drugs and in addition to the general advantages of nanocarriers for oral delivery, they offer benefits derived from their lipidic bilayer structure. Liposomes, can form new mixed-micelle structures in which the encapsulated drugs are transferred to the new vehicles, thereby increasing the solubility of poorly-soluble drugs. The present review highlights on the role of liposomes in improving oral absorption of drugs and an overview of the challenges and current approaches toward the oral delivery of liposomes.

Keywords: Liposomes, oral delivery, nanoparticulate drug delivery system, poorly-soluble drugs.

A COMPARATIVE STUDY OF DIFFERENT EXTRACT OF *ALLIUM SATIVUM* BULBS ON ALLOXAN INDUCED DIABETES MELLITUS

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ABSTRACT :

Objective: A comparative study of different extract of *Allium sativum* bulbs on alloxan induced diabetes mellitus.

Method: The study was done on Diabetic Wistar rats. Diabetes was induced by injecting single dose administration of alloxan (150mg/kg). 35 rats were divided into 7 groups, each containing 5 rats; non-diabetic group, diabetic group and *Allium sativum treated group*. Each extract was administrated orally at the dose of 100mg/kg to the diabetic rats for 14 days. Isoproterenol was administered subcutaneously at the dose of 5.25mg/kg and 8.5mg/kg on 12^{th} and 13^{th} days respectively. The fasting blood glucose levels and histopathological studies were performed.

Results: Administration of Ethanolic Allium sativum extarct (EASE), Chloroform Allium sativum extract (CASE), Aqueous Allium sativum extract (AqASE), Acetone Allium sativum extract (AASE) was found to decrease the levels of Fasting blood glucose (FBG). The administration of extract of Allium sativum was showed decreased necrotic lesions and perivascular edema as compared to diabetic control rats.

Conclusion: The present study concludes that administration of AqASE in rats attenuates the FBG significantly as compared to other extracts.

INFLAMMATORY BOWEL DISEASE: AN OVERVIEW OF IMMUNE MECHANISMS AND BIOLOGICAL TREATMENTS

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ABSTRACT :

Inflammatory bowel disease (IBD) is a term for two conditions (Crohn's disease and ulcerative colitis) that are characterized by idiopathic chronic inflammation of the gastrointestinal (GI) tract. Prolonged inflammation results in damage to the GI tract Both UC and CD are chronic inflammatory disorders of the gastrointestinal tract; in UC, inflammation occurs in the large intestine (colon) and the rectum and generally extends proximally in a continuous manner through the entire colon. Bloody diarrhea, presence of blood and mucus mixed with stool, accompanied by lower abdominal cramping, are the characteristic symptoms of the disease. Inflammation is present only in the innermost layer of the lining of the colon, While in CD, inflammatory condition may affect any part of the GI tract from mouth to anus, and most often it affects the portion of the small intestine before the large intestine/colon. Inflammation may reach through the multiple layers of the walls of the GI tract and it mainly causes abdominal pain, diarrhea, vomiting and weight loss. Although the basic etiology of Inflammatory bowel disease is unknown, so that there are various factors that may be contribute to the pathogenesis of this disease, such as dysregulation of immune system or commensal bacteria, oxidative stress and inflammatory mediators, ethnicity, smoking and others. These models represent a major source of information about biological systems and are clinically relevant to the IBD. Since there is less collective data available in one single article discussing about all these models, in this review describes the current conceptualization, evidence, progress and direction surrounding the association of environmental factors and other disease-related complication.

KEY WORDS - Inflammatory Bowel Disease, Crohn's Disease, Ulcerative Colitis

PHYTOCHEMICAL AND PHYSIOCHEMICAL INVESTIGATION OF *EMILIA SONCHIFOLIA* WITH ITS ANTIOXIDANT EVALUATION

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ABSTRACT :

Emilia sonchifolia (Asteraceae) is a traditionally used medicinal plant seen mostly in tropical and subtropical regions worldwide. Various plant parts were reported to have antioxidant, anticancer, wound healing, anti inflammatory activity, analgesic etc. Aim of this study mainly focused on the evaluation of phytochemical constituents and *in vitro* antioxidant activity of the ethanolic extracts of leaves and stems of Emilia *sonchifolia* by using DPPH radical scavenging assay. Methodology follows that the dried coarse powder material of the leaves and stems of *Emilia sonchifolia* were subjected to extraction by simple maceration with solvents of increasing polarity – n-hexane, chloroform, ethanol and water. Phytochemical screening of the plant extracts revealed the presence of carbohydrate, tannin, alkaloid, coumarin, saponin and phenol. *In vitro* antioxidant assay of the ethanolic extract of leaves of *sonchifolia* resulted in 91.17% inhibition at 500 µg/ml and ethanolic extract of stems of the plant resulted in 89.02% inhibition at 500 µg/ml.

EFFECT OF SOLANESOL IN INTRACEREBROVENTRICULAR PROPIONIC ACID INDUCED EXPERIMENTAL MODEL OF AUTISM

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ABSTRACT :

Autism is the category used within the newest edition of the diagnostic and statistical manual of neurodevelopmental disorders. Despite its absence from diagnostic criteria, differences in motor skills in individuals with Autism have been observed from the earliest descriptions of the disorder. Neuropathological hallmarks of autism associated with mitochondrial dysfunction, oxidative stress, neuro-inflammation, neuro-excitation, abnormal synapse formation, over expression of glial cells in specific brain regions like cerebellum, cerebral cortex, amygdala and hippocampus. Pre-clinically propionic acid (PPA) mimics autistic like behavioral and biochemical alterations in rats. Etiologic factors like environmental toxins, food, genes, bacterial infection, and viruses are the reason behind causing autism. Patients with autism are often reported to suffer from a variety of bowel dysfunctions and gastrointestinal disturbances. Current accessible clinical medications to ameliorate neurological complications for Autism is resperidone and aripiprazole approved by USFDA that come with a lot of adverse drug reactions therefore preventive measurement are essential for better therapeutic approach. Literature findings reveals that there are link between autism neuronal mitochondrial coenzyme-Q10 (CoQ10) and ETC-complexes dysfunctions are the keys pathogenic events for autism. Therefore, in current study, we explore the neuroprotective interventions of Solanesol (SNL) to overcome behavioral and biochemical alterations in experimental model of Autism.

Keywords: Autism, Propionic acid, coenzyme-Q10, ETC-complexes,

ANTIFUNGAL ACTIVITY OF HYDROALCOHLIC EXTRACT OF BIXA ORELLENA

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ABSTRACT :

In this study Hydroalcoholic extracts of *Bixa Orellena* was tested against *Candida Albicans* strain of Fungal. Seeds of *Bixa orellena* was collected from herbal garden of Acropolis Institute of Pharmaceutical Education and Research Indore and were identified according to their macroscopic and microscopic characters. Hydro alcoholic extract of seeds was prepared using soxhlet method which was further subjected for Phyochemical Screening and quantitative estimation of flavonoids, tannins and total phenolics was determined and its antifungal activity was evaluated using Potato Dextrose medium. Assay for in-vitro anti-fungal activity was also carried out and the Hydroalcoholic seed extract of *Bixa Orellana* showed considerable anti-fungal activity.

ALTERNATIVE TO ANIMAL STUDY: CURRENT STATUS & FUTURE PERSPECTIVE

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ABSTRACT :

Today in every discovery countless animals are blinded, cut open, poisoned, starved and drugged behind closed laboratory doors. In most of the studies inaccurate results are obtained. The use of alternative methods to animal testing are an integral part of 3`R concept (Refined, Reduced, Replaced) defined by Russell and Burch in 1959. The approaches include in silico methods, in-vitro methods of physiochemical analysis, biological methods using bacteria or isolated cells, reconstructed enzyme system and reconstructed tissues. Emerging "omic" methods used in integrated approach further help to reduce animal use, while stem cells offer promising approaches to toxicological and pathophysiologic studies, along with organoleptic culture and bio artificial organs. The best way to use these methods is to integrate them in tiered testing strategies (ITS), which would give an insight into minimum use of animals in scientific experiments, in which animal are only used as last resort butthere are other so many techniques developed which can reduces the use of animal in very small extend. E.g. synthetic membranes is used to demonstrate the effect of chemicals or topical treatments on skin, MRI is used to interrogate disease through human scans , EpiSkin and EpiDerm for irritation test.

Keywords: Toxicological,irritation ,omic

BIOLOGICAL POTENTIALS OF AN ELIXIR MOLECULE- ARYL TRIAZENE

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ABSTRACT :

The introduction of different nitrogen moieties in the chemical structure attains more interest and application as synthetic drugs for various ailments today. It encourages a medicinal chemistry researcher to synthesis newer compounds containing nitrogen atom. Compounds containing triazene chain are toxic to cells and are generally used as alkylating agents in anticancer treatment. In this study, different aryl triazene compounds were synthesised and determined for their different biological potentials. Anti-bacterial studies were performed by the use of different strains of bacteria such as *Enterococcus faecalis,Bacilluscereus* and anti-tubercular studies were done by using *Mycobacterium tuberculosis* ($H_{37}R_V$ stain) and *Mycobacterium lufu.* The anti-inflammatory activity was studied by inducing adjuvant arthritis (AA) by sub plantar injections on a group of white mongrel rats. *In-vitro* anti-leukemic studies were performed against K562 (human chronic myelogenous leukaemia) cell line and RAJI (human Burkitt lymphoma) cell lines at 10µM of test compounds. This research works helps to conclude that, Halogen substituted molecules are more potent than other substituted derivatives, especially in antibacterial and antileukemic studies. Increasing the length of triazene chain normally decreases the activity in the homologous series. Methyl substituted compounds are showing better activity than other alkyl substituted derivatives.

Keywords— Antifungal Activity, *Bixa orellena.Candida albicans*

EFFECT OF FORSKOLIN IN COMBINATION WITH SOLANESOL IN METHYL MERCURY INDUCED EXPERIMENTAL MODEL OF AMYOTROPHIC LATERAL SCLEROSIS IN RATS

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ABSTRACT :

Amyotrophic lateral sclerosis (ALS) is a fatal motor neuron disease (MND) characterized by death of upper and lower motor neurons (corticospinal tract) in motor cortex, basal ganglia, brain stem and spinal cord. The progressive degeneration of the motor neurons in ALS eventually leads to death in MND patients. The mitochondrial dysfunctioning, glutamate excitoxicity, oxidative stress and neuro-inflammation are considered as major pathological hallmark for neurodegeneration in ALS. Pre-clinically methyl mercury mimics the behavioral and neurochemical alterations in experimental rats. Clinically proven drug therapy includes riluzole; edravone that come with limited therapeutic involvement, whereas, baclofen, and citalopram are used as an approachable drug therapy to provide symptomatic relief in ALS patients. Therefore, in current study, up regulation of direct adenyl cyclase activator (AC/cAMP/PK_A/CREB activation) Forskolin (FSK) in combination with mitochondrial ETC-coenzyme-Q10 precursor Solanesol (SNL) can be a preventive therapeutic approach to overcome the neurodegeneration in progression of ALS.

Keyword: Amyotrophic lateral sclerosis, motor neuron diseases, mitochondrial dysfunctioning, glutamate excitotoxicity, Forskolin, Solanesol

FROM BENCH TO FDA TO BEDSIDE : US REGULATORY TRENDS FOR HYDROGEL NANOPARTICLES CARRIER AS NOVEL DRUG DELIVERY SYSTEM

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ABSTRACT :

The phrase "bench to beside" are commonly used for colon drug delivery systems, by utilizing as a model drug. NPs were prepared by using Poly-acrylamide-grafted- gum ghatti (PAAm-g-Gg),which is pH sensitive.PAAm-g-Gg was synthesized by free radical polymerization. How ever, there is an explanation transitional between bench and the beside involving governmental regulatory such as by the Food And Drug Administration(FDA) in the united states (U S)FT-IR and DSC studies of the prepared NPs indicated no chemical change of in the hydrogel NPs. The prepared hydrogel NPs showed mean diameters in the range of 237 ± 0.54 nm to 1058 ± 0.99 nm. The encapsulation efficiency of the drug was found to be 39.18% to 47.84%. The suitability of the polyacrylamide grafted gum ghatti hydrogel NPs for the release of Methotrexate was studied by in vitro release at pH 1.2 and 7.4. It was observed that, there was no significant amount of drug release in gastric pH and 97.28% of drug release at pH 7.4 for formulation F5 at the end of 12 hrs. Based on result formulation F5 was considered as the best formulation and further evaluated for stability studies and characterized for surface morphology using SEM.and the stability study data indicated no significant change in the drug content.

Key words- Nanoparticles,FDA,NovelDrug Delivery System , Hydrogel.

PRESENT AND EMERGING PHARMACOTHERAPIES FOR NON-ALCOHOLIC STEATOHEPATITIS

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ABSTRACT :

The hallmark of non-alcoholic fatty liver disease (NAFLD) is excessive fatty accumulation in the hepatocytes, which may be an isolated event or accompanied by evidence of inflammation and cell injury with or without fibrosis (non-alcoholic steatohepatitis, NASH). NASH, the more aggressive form of NAFLD leads to cirrhosis and hepatocellular carcinoma. It was seen that NASH will overtake hepatitis C virus infection as the leading cause of liver transplantation in the US in the coming decade, and there are no current FDA-approved therapies for this disease so there is urgent need to find appropriate therapeutic targets. Most important cause of this disease is diet and other life-style modifications have always been difficult to maintain and this approach alone has not slowed the rising tide of the disease. Traditional therapies such as vitamin E and pioglitazone has a significant effect on steatosis and inflammation, they have had no effect on fibrosis, which is the strongest indicator of mortality in this condition. However, the understanding of the pathogenesis and progression of NASH has evolved and several promising novel therapies to target and possibly reverse fibrosis are being evaluated, making the future outlook of NASH therapy more optimistic.

Keywords: Nonalcoholic fatty liver disease (NAFLD), Nonalcoholic steatohepatitis (NASH), ROS (reactive oxygen species), Peroxisome proliferator-activator receptor (PPAR) agonists, Farnesoid X receptor (FXR)

BENEFICIAL EFFECTS OF HERBAL DRUGS IN MODERN MEDICINE FOR THE MANAGEMENT OF OBESITY

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ABSTRACT:

Obesity is a growing common global health problem, and it is known to be linked several major diseases. Allopathic medicines have many drawbacks, including effects on irreversible damage to the liver and kidneys and also have the potential for drug abuse and dependency. The safety of these medications requires improvement. Herbal medicinal products overcome these drawbacks. Herbal medicine has been used for treatment of disease for more than 1000 years, and its efficacy has been proven. Many studies have confirmed that herbal medicine is effective in the treatment of obesity, but the mechanisms of action these herbal drugs are not clear. This article includes the possible effects and mechanisms of herbal medicine on treatments of obesity that have been reported in the past decade.

Keywords: herbal medicine, mechanism, obesity, anti-obesity medications etc

GREEN TECHNOLOGY: A NOVEL AND POTENTIAL APPROACH FOR NANODRUG DELIVERY SYSTEM FOR PLANT EXTRACTS.

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ABSTRACT :

Due to their extraordinary physicochemical properties, metallic nanoparticles (NPs) have been effectively applied in numerous fields, including health care, synthetic biology, and cellular transportation. Amongst various nanoparticles, AgNPs have received particular attention due to their unique morphologies, stability, and controlled geometry . AgNPs have been largely used in various electronic and sensing devices, coating materials, data packing, and molecular switches . Apart from this, they have also been applied in the diagnosis and treatments of various diseases . Particularly, AgNPs possess excellent antimicrobial activities against several microorganisms which are known to be responsible for several infectious diseases.

There are two approaches for their preparation firstly, physical approaches which frequently entail highly expensive instruments, high temperature and pressure, and high energy consumption and secondly the chemical approaches include condensation, sol gel technique and reduction, and other biochemical approaches. The chemical approach mainly involves the concepts of wet chemistry to prepare AgNPs via the reduction/decomposition of metal salts in solutions using numerous chemical reducing agents. However, the chemical methods often require costly metal salts and toxic or hazardous solvents and reductants like sodium borohydride, hydrazine, etc. In addition, different types of stabilizers are also required to prevent the aggregation of particles or to make them physiologically compatible.

To avoid these issues third approach , the concepts of green technology /chemistry have gained immense popularity; these are mainly concerned with replacing chemical products and improving or developing processes and technologies to reduce or even eliminate substances that are harmful to health and the environment . Green chemistry has the most profound implications on the wet chemical synthesis of inorganic NPs . It promotes reactions without hazardous solvents, reducing agents, and stabilizers . Several green methods have been applied so far for the preparation of AgNPs including electrochemical reduction, microwave and sonochemical preparation, or synthesis from supercritical liquids

Key Words: Nanoparticles, Green technology, Physical approach, Chemical approach

ELOQUENT WOUND HEALING ACTIVITY BY *GALINSOGA PARVIFLORA* LEAVES EXTRACT

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ABSTRACT :

Wound healing is achieved through four coordinated and protruding episodes. In under damaged skin, epidermis and dermis form a protective barrier against external environment. When barrier is broken, a regulated sequence of biochemical events is set into motion to repair the damage. This process is divided into predictable phases likewise Haemostasis, Inflammatory, Proliferative and Remodelling. The complex process can be disrupted by local or systemic risk factors, resulting in delayed healing and progression to chronic wound. The physician plays a significant role in handling such situations. Strategies for effective wound healing include optimising local wound care. Ethanolic extract of leaves of *Galensoga parviflora* were evaluated for wound healing activity. The ethanolic extract of 10% w/w ointment exhibit equivalent wound healing activity as povidine iodide. Extract in the form of ointment is applied topically on excision; incision models in mice showed marked healing process as evidenced by increased rate of wound closure time. Histological analysis of tissue after 14-21 days from extract treated group showed increased, well organised bands of collagen, macrophage, fibroblast, blood vessels compared to control, which expresses eloquent wound healing activity by *Galinsoga parviflora* leaves extract.

KEYWORDS: Remodelling, Haemostasis,Elouent

FORMULATION, CHARACTERIZATION AND EVALUATION OF HERBAL SHAMPOO

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ABSTRACT:

A Shampoo may be described as a cosmetic preparation meant for the washing of hair and scalp, packaged in a form convenient for use. Herbal cosmetics are in rising demand in the world market and they have lesser or no side-effects. The main aim of this work is to develop and characterize herbal shampoo from natural ingredients and to minimize the side-effects caused due to synthetic ingredients which contains paraben as the controversial ingredient. Usually natural botanicals may be used in their crude form or they may be extracted, purified or derivatized to render them more suitable for use in cosmetics. A wide range of active principles of various plant including vitamins, hormones, phytohormones, bioflavanoids, enzymes, tannic acids, fruit acids, amino acids, sugars, glycosides, essential oils and dye stuffs are being considered useful in cosmetic formulations. Many home remedies used for washing and conditioning hair contain a foaming saponin or a volatile oil. Therefore, consumers are always in search for herbal cosmetics to avoid allergic reactions and any sort of side-effects. The primary function of this shampoo is to clean the hair of accumulated sebum, scalp debris and residues of hair-grooming preparations. Along with this the other functions of this shampoo include lubrication, conditioning, medication and promotes hair growth. The herbal shampoo was evaluated and certain parameters such as colour, pH, irritation test were reported.

Key words: Hormones, Phytohormones, Bioflavanoids, Tannic acid, Saponin.

PLANT ASSOCIATED MICROBIAL TECHNIQUES IN AGRICULTURE INDUSTRY

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ABSTRACT :

Agricultural microbiology is the branch of microbiology which deals with plant-associated microbes. Microorganisms like bacteria, actinomycetes, fungi, viruses and other microbial technologies help to inhibit crops from diseases and pests also increases soil fertility and crop productivity. Plants and microbes have symbiotic relationships which can be used for in larger extent for food production necessary to feed the expanding human populace, as well as safer farming techniques for reducing ecological disruption. The entire emerging agricultural biological techniques accompaniment the integrated systems approach that is very crucial in recent crops breeding, agriculture style, biotechnology as well as agronomic practices to improve crop yields. These recent symbiotic relationship between plant and microbes technological has revealed microbial diversity at larger proportion of microorganisms that are not discovered, and their ecological roles are unidentified. Microbial selection must be attentive and intelligent design of test assays are the major steps in developing new technologies for efficient consumption of microorganisms for sustainable agriculture as well as crop production.

Keywords- Microorganisms, agriculture, soil fertility, crops, symbiotic, ecological etc.

FORMULATION AND EVALUATION OF MICROSPONGE BASED HYDROQUINONE TOPICAL GEL

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ABSTRACT :

Microsponge technology has been introduced in topical drug products to facilitate the controlled release of active drug into the skin in order to reduce systemic exposure and minimize local cutaneous reactions to active drugs. The present study deals with the design and optimization of Hydroquinone microsponges loaded topical drug delivery system to facilitate the controlled release of active drug into the skin in order to reduce the systemic exposure and minimize local cutaneous reactions to active drugs by DoE method of QbD Approach. Hydroquinone Microsponges were prepared by quasi emulsion solvent diffusion method using Ethyl cellulose as a polymer, PEG 400, Ethanol as Internal phase volume and water as External phase volume. For the development of microsponges, Quality by Design approach was implemented. Based on risk assessment of critical quality attributes (CQAs), Optimization of Hydroquinone loaded Microsponge was done by Application of surface response design. Independent variable of formulation was Drug: polymer Concentration (X1), Stirring time (X2). The selected dependent variables were % Drug Content (Y1), Entrapment Efficiency (Y2), %CDR (Y3). The optimized batch of Hydroquinone loaded Microsponge was evaluated by particle size, surface electron morphology (SEM), Drug-excipients compatibility study using FTIR Spectrum and further loaded into subsequent topical gel. For the optimized formulation, microsponges drug content was 62-80mg and encapsulation efficiency was 62-81%. The in vitro drug release from the Microsponges in 8hrs was found to be 88.03%. The scanning electron micrographs of microsponges revealed perfect spherical shape of microsponges. FT-IR patterns of microsponges had shown compatibility with polymers. The values of micromeritics properties indicated good flow properties of these microsponges. Finally, we may conclude that Optimized Hydroquinone Microsponges (1:1) loaded Gel were best formulation among the class of Ethyl Cellulose as a retarding polymer. From the study it can be concluded that it is possible to design a topical polymeric microsponges formulation for hyperpigmentation drug Hydroquinone mainly for the treatment of melasma and pigmentation where efficacy and patient compliance are of prime importance.

RECENT TENOR OF DRUG DELIVERY AND DISEASE MANAGEMENT IN THE CURRENT PERSPECTIVE

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ABSTRACT :

Over the past few decades, the concept of personalized medicine has proved to play an important role in the healthcare sector. Personalized medicine transforms the current dosage forms according to the needs of the patient. Based on this latest survey we are now able to bring out the best treatment options for a particular individual leading to better therapeutic outcomes and decreased adverse effects. It also has the potential to identify the disease at an earlier stage. It links the diseased condition of a person to the basic genetic and molecular profile causing better understanding of the condition of the patient and to pick out better treatment options. This review is focusing on the past, present, and future panorama of personalized medicine and how the personalized-medicine approaches are used as customized drug delivery system as well as the regulatory aspects towards it. Personalized medicine has the potential to modify the way we recognize and manage our health problems in our day today life and has already proven to have a huge impact on patient care and on clinical research.

KEYWORDS: Personalized, Regulatory & Healthcare sector

NEUROPROTECTIVE POTENTIAL OF SMO-SHH AGONISTS IN INTRACEREBROVENTRICULAR PROPIONIC ACID INDUCE EXPERIMENTAL MODEL OF AUTISM

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ABSTRACT:

Autism is a neurodevelopment disorder which is characterized by impaired social interaction and communication. In autism, developmental milestones like socializing, problem solving, language and physical health are severely altered. Autistic patient shows repetitive behavioral patterns, restricted interests, hyperactivity, memory cognitive dysfunctions. The major brain parts involve in Autism are cerebellum, cerebral cortex, amygdale and hippocampus which are responsible for memory and cognition. Autism is highly *misdiagnosed* disorder and till now there are no specific diagnostic biomarkers for its prevalence in children. In India 1 in 125 children (age 3-6 years) and 1 in 88 children (age 6-9 years) are diagnosed with autism only on behavioral patterns. Current drug therapy included anti-psychotic drug Aripiprazole which was approved by FDA in year 2009, but there in most of cases increase appetite, weight gain, gastric irritation, insomnia, upper respiratory tract infections are common. Till date, there is no specific animal model to evaluate pharmacological intervention of novel drug targets. Therefore, we establish and validate an animal model for Autism in intracerebroventricular injection of propionic acid and confirm the neuroprotective potential of Smo-Shh agonists and measure the behavioural biochemical and histopathological parameters in autistic animal and compared the effectiveness with control drugs to reduce the adverse drug.

Keywords: Autism, Smo-Shh pathway, propionic acid

FORMULATION AND EVALUATION OF ORAL DISSOLVING FILM OF ATORVASTATIN CALCIUM

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ABSTRACT :

The aim of this work is to develop and evaluate the Oral Dissolving Film of Atorvastatin Calcium. This work investigated the possibility of developing Atorvastatin calcium rapid dissolving film allowing increase in bioavailability and decreases the hyperlipidemia effect in patients in less time enhances the patient compliance. In this SSG(Sodium starch glycolate), Crospovidone as superdisintegrants were used in different concentrations with HPMC E5 , HPMC E50 as a film forming polymers for the formulation of oral disintegrating thin films of Atorvastatin calcium by the solvent casting method which is simple and cost effective. The prepared films were subjected to different evaluation parameter i.e film thickness, folding endurance, surface pH , content uniformity, in-vitro disintegration time and in-vitro dissolution studies. Film prepared with HPMC E5 had shown fast disintegration as compare to other polymer and crospovidone as superdisintegrant showed quick disintegration than films containing sodium starch glycolate. Increase in polymer concentration resulted in increased disintegration time. The FTIR spectroscopy used to study drug polymer interaction revealed that there was no incompatibility observed between the drug and excipients used in the formulation. The surface pH range of all the selected formulations were found to be around neutral pH i.e 6.7±0.05 to 7.0±0.1, there will not be any kind of irritation to the mucosal of oral cavity. The results indicate that the best release among formulations containing crospovidone was R12 i.e. 97.27% at the end of 150 sec. These findings suggest that the fast dissolving oral film containing Atorvastatin calcium considered being potentially useful for the treatment of hyperlipidaemia where quick onset of action is desirable.

COMPARATIVE STUDY OF ORODISPERSIBLE TABLETS MADE FROM DERIVATIVES OF*CASSIA FISTULA* GUM WITH CROSSCARMELLOSE SODIUM

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ABSTRACT :

Objective: To develop Propranolol Hydrochloride as Orodispersible tablets (ODTs) using Calcium Carboxymethyl *Cassia fistula* gum which also posses antihyperlipidemic activity and compared with most widely used semi synthetic superdisintegrant like Crosscarmellose Sodium.

Methods: ODTs of Propranolol Hydrochloride were prepared by direct compression method using Calcium Carboxymethyl *Cassia fistula* gum (CaCOG) in the concentration range of 3-15% with microcrystalline cellulose as a directly compressible superdisintegrants and compared with most renowned semi synthetic superdisintegrant like Crosscarmellose Sodium. Evaluation of ODTs was done for various Pre and Post Compression Parameters.

Result: The formulated tablets were evaluated for various Physical Parameters like weight variation, friability, hardness and results complied within limits. Apart from all formulations ODT3 containing Calcium Carboxymethyl *Cassia fistula* gum (CaCOG) produced least disintegration time of 32 seconds with high drug release of 92.4% at the end of 30 min. The present study unlock that Calcium Carboxymethyl *Cassia fistula* gum [CaCOG (9% w/w)] as a natural superdisintegrant sustain better disintegrant property than most widely used semi synthetic superdisintegrant Crosscarmellose Sodium in the development of ODTs.

Conclusion: The result reveled that Calcium Carboxymethyl *Cassia fistula* gum (CaCOG) pose good superdistegrant property and showed potential antihypertensive activity with Propranolol Hydrochloride.

EFFECT OF NRF2/HO-1 MODULATOR IN MERCURY INDUCED EXPERIMENTAL MODEL OF AMYOTROPHIC LATERAL SCLEROSIS IN RATS

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ABSTRACT:

Amyotrophic lateral sclerosis (ALS) is a progressive neurodegenerative disease (MND) that affect the upper and lower motor neuron (corticospinal tract) in motor cortex, basal ganglia, brain stem and spinal cord. Sign and symptoms experienced by patient in between 50 to 60 years of age included impaired motor movement, difficulty in speaking and swallowing, grip loss, respiratory failure, muscle atrophy, spasticity and sometimes associated with memory and cognitive impairments. After diagnosis median survival is 2 to 5 years and 5 to 10 % beyond 10 years of age. Currently, there are no specific diagnostic biomarkers identified for ALS. The multifunctional regulator nuclear factor erythroid 2-realed factor (Nrf2/HO-1) is considered not only as a cytoprotective factor regulating the expression of gene coding for anti-oxidant, anti-inflammatory and detoxifying protein, but also a powerful modulator of species longevity. However, neurological dysfunctions are the main pathological hallmark for the progression of ALS in centrally as well in peripherally nervous system. Therefore, we hypothesized that Nrf2/HO-1 modulation will show preventive effect in mercury induced experimental model of amyotropic lateral sclerosis in rats.

Keywords: Amyotrophic lateral sclerosis, effect of Nrf2/HO-1, dysfunction associated with disease.

EFFECT OF JAK/STAT-PPARΓ RECEPTOR MODULATOR IN INTRACEREBRAL PENDUNCLE ETHIDIUM BROMIDE INDUCED EXPERIMENTAL MODEL OF MULTIPLE SCLEROSIS IN RATS.

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ABSTRACT:

Multiple sclerosis is an idiopathic and autoimmune associated motor neuron disorder that attacks myelinated neurons in specific brain regions of age group 20-40 years, where females are more prone to multiple sclerosis. In the pathogenesis of multiple sclerosis myeloid cells and pathogenic T helper cell are involved. Various cytokines used JAK/STAT pathway for signaling and in development, regulation and termination of immune response. Thus in the pathology of neuroinflammatory disease, dysregulation of the JAK/STAT pathway has a major factor. Many cytokines like IL-6, IL-12, IL-23, INF-γ are involved in multiple sclerosis and uses the JAK/STAT pathway to generate biological responses.Thus in the implications of multiple sclerosis and autoimmune inflammation of brain can be overcome by targeting the JAK/STAT.

Keywords: multiple sclerosis, JAK/STAT Pathway, T helper cell, myeloid cell.

FORMULATION, CHARACTERIZATION AND OPTIMIZATION OF GASTRORETENTIVE HYDROGEL TABLET CONTAINING CEFIXIME TRIHYDRATE

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ABSTRACT :

In present study focused has been made to formulate gastroretentive drug delivery system (GRDDS) of drug having narrow absorption window or having good absorption at proximal part of gastrointestinal tract (GIT) to deliver at stomach site and to improve the bioavailbility of drug. Gastroretentive hydrogel tablet of Cefixime trihydrate were prepared by direct compression technique by using carbopol 940 and chitosan with different concentration. Cefixime is a very poorly water soluble drug after its oral administration; so that it is slowly and incompletely absorbed from the gastrointestinal tract, which resulting into the poor bioavailability i.e., 40-50%. Hydrogel were characterized with respect to various parameters such as swelling ratio, mechanical strength, *in vitro* drug release etc. The drug release from Combination of carbopol 940 and chitosan based hydrogel showed for prolonged period of time. A 3^2 full factorial design was used to optimize the tablet of cefixime trihydrate by selecting amount of carbopol 940 and chitosan as independent variables and effects were observerd on drug release and swelling index. The antimicrobial activity against S. aureus and E. coli was determined. The optimized batch gave desired results at 16hr as time for 85% drug release and % swelling index as 93% achieved. Stability studies showed no change in physical appearance and insignificant difference in drug release and swelling index.

CARBON NANOTUBES IN TUMOR-TARGETED DRUG DELIVERY SYSTEMS FOR ANTICANCER ACTIVITY.

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ABSTRACT :

Graphite is made up of layers of carbon atoms arranged in a hexagonal lattice, like chicken wire (see the term nanotube is normally used to refer to the carbon nanotube, which is extremely thin (their diameter is about 10,000 times smaller than a human hair), hollow cylinders made of carbon atoms. CNTs are potentially promising needle-like carriers of small drug molecules as well as macromolecules such as gene and protein. It is shown here that the strong optical absorbance of single-walled carbon nanotubes (SWNTs) in this special spectral window, an intrinsic property of SWNTs, can be used for optical stimulation of nanotubes inside living cells to afford multifunctional nanotube biological transporters.The use of carbon nanotubes (CNTs) in cancer therapy and drug delivery. CNTs can be functionalized so that certain molecules are attached to their surfaces via covalent or noncovalent bonding. The needle-like shape of the CNTs enables them to perforate cellular membranes and transport the carried therapeutic molecules to the cellular components. CNTs have been primarily employed in cancer treatment, a few studies have focused on the treatment and diagnosis of the central nervous system diseases using CNTs. Here, we review the progress in the study on the application of carbon nanotubes as target carriers in drug delivery to cancer involving CNTs-based tumor-targeted drug delivery systems (DDS).

Keywords: Carbon nanotubes, cancer therapy, Drug Delivery System.

PREPARATION, CHARACTERIZATION OF LIPOSOMAL BASED LIPOGEL OF BEXAROTENE

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ABSTRACT :

The present study is envisaged to develop and characterization of liposomal formulation for effective topical delivery of Bexarotene for the treatment of cutaneous-T- cell lymphoma(CTCL). CTCL is a class of non-Hodgkin lymphoma, which is a type of cancer of the immune system. The molecules having a molecular weight greater than 500 Da are considered to be ineffective in the treatment of skin diseases due to their low skin permeation. And our drug molecule is suitable candidate for topical drug delivery. Bexarotene encapsulated liposomes were prepared using mechanical dispersion method in strength of 1% w/w similar to the strength of marketed topical formulation. To formulate liposome preparations various types of phospholipids in various concentrations, cholestrol and drug were used. For the preparation of topical gel we used carbopol 934 and carbopol 940 in various concentrations from 0.5 to 2% respectively. Vesicle size of liposomal formulations was found to be in the range of 182.4±2.4 to 995.4±9.3nm.The entrappement efficiency of liposomal formulations were in the range of 61.1±1.9 to 89.9±1.9.The optimized liposomal formulation was further incorporated in gel base to form liposomal gel formulation. Various characterization of lipogel was performed for evaluation of lipogel.The parameters were pH, extrudability, viscosity and drug content. The best liposomal gel was LIPO-G5 on the basis of suitable viscosity.

EFFECT OF DUAL C-JNK/P38MAPK INHIBITOR MERCURY INDUCED EXPERIMENTAL MODEL OF AMYOTROPHIC LATERAL SCLEROSIS (ALS) IN RATS.

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ABSTRACT:

Amyotrophic lateral sclerosis (ALS)also known as Motor neurone disease (MND) or Lou Gehrig's disease, is a specific disease that causes the death of neurons controlling voluntary muscles which is characterized by death of upper and lower motor neuron (corticospinal tract) in motor cortex, basal ganglia, brain stem and spinal cord.The mammalian family of mitogen-activated protein kinases (MAPKs) includes extracellular signal-regulated kinase (ERK), p38, and c-Jun NH(2)-terminal kinase (JNK), with each MAPK signalling pathway consisting of at least three components, a MAPK kinase kinase (MAP3K), a MAPK kinase (MAP2K), and a MAPK. The MAPK pathways are activated by diverse extracellular and intracellular stimuli including peptide growth factors, cytokines, hormones, and various cellular stressors such as oxidative stress and endoplasmic reticulum stress. These signalling pathways regulate a variety of cellular activities including proliferation, differentiation, survival, and death. Deviation from the strict control of MAPK signalling pathways has been implicated in the development of many human diseases including Alzheimer's disease (AD), Parkinson's disease (PD), amyotrophic lateral sclerosis (ALS) and various types of cancers.Hence we can hypothesize that C-JNK/P38MAPK inhibitor can be used to prevention of mercury induced ALS in rats.

Keywords: ALS (Amyotrophic lateral sclerosis), Endoplasmic reticulum stress, C-JNK/P38 MAPK inhibitor, Motor neuron disease, Lou Gehrig ’s disease.

SELF-MICROEMULSIFYING MEDICATION CONVEYANCE FRAMEWORKS: AN ALLURING PROCEDURE FOR UPGRADED THERAPEUTIC PROFILE

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ABSTRACT

Simplicity and effortless methodology made oral delivery of the drug molecules are the most liked in dosage form designing. Poor oral bioavailability is articulated with most of late dynamic fixings as a result of disintegration rate restricted assimilation. Inability to accomplish proposed restorative impact of the poor water dissolvable medications by this course prompted improvement of novel medication conveyance frameworks which will satisfy helpful necessities with least portion. Albeit numerous definition approaches like strong scatterings, complexation, pH alteration, and cocrystals exist, lipid based conveyance frameworks finding expanded machine with the obvious increment in retention of medication. Among lipid based plans, self-microemulsifying definitions (bead size < 100 nm) are apparent to improve the oral bioavailability of hydrophobic medications principally because of their productivity in encouraging solubilization and in displaying the hydrophobic medication in solubilized structure whereby disintegration procedure can be evaded. Different parts that are utilized to define these measurements shapes like surfactants and lipids add to the general improvement in oral bioavailability by means of advancing the lymphatic transport; in this way hepatic first pass digestion can be surmounted. The present paper gives thorough data on the detailing plan and portrayal of SMEDDS alongside the likely instruments by which the bioavailability can be improved with SMEDDS.

HERBS FOR THE MANAGEMENT OF OBESITY

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ABSTRACT :

Obesity, a complex interplay between environmental and genetic factors and is associated with significant morbidity and mortality. Usage of herbs for the management of obesity in the recent times is attracting attention. Dietary fat is associated with well-known diseases like diabetes, hypertension and cardiovascular diseases. Certain long-term medications like use of insulin, sulfonylureas, thiazolidinediones, a typical antipsycotics, antidepressant, steroids, some anticonvulsants and some forms of hormonal contraception may also cause weight gain or changes in body composition. Weight management means lifestyle modification, behavioral therapy, pharmacotherapy and surgery. So, herbal drugs are a promising route to treat obesity as it is a disease. Many herbal plants like seeds of Pumpkin , Withania somnifera, Zingiber officinale, Dioscoreanipponica, Maludomestica, has constituents that are used to treat obesity.

Keywords:- Obesity, Dietery factors,Weight management & hormonal contraception

EVALUATION OF HEPATOPROTECTIVE POTENTIAL OF PTEROSPERMUM *ACERIFOLIUM* IN DRUG INDUCED OXIDATIVE STRESS

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ABSTRACT :

The hydroalcoholic extract of *Pterospermum acerifolium* were investigated for antioxidant and hepatoprotective potential for drug induced hepatotoxicity and oxidative stress condition. The stable 1, 1-diphenyl-2-picryl hydrazyl radical (DPPH) was used for determination of free radical-scavenging activity and the effect on enzymes involved in oxidative stress were analyzed by SOD, GSH, LPO and Catalase. The experiment were performed on toxicity induced liver. The liver was homogenized into ice cold acid buffer and the supernatant was used for evaluation. It was observed that extract showed good line of fit for % inhibition in concentration range of 10-50mcg/ml with R^2=0.99. The level of SOD, GSH and CAT was significantly less ($P<0.05$) as compared to vehicle treated group which was sign of oxidative stress in liver due to drug induced toxic metabolites. The LPO level was also found to significantly high ($P<0.05$) as compared to vehicle treated group. The results of present study showed that *Pterospermum acerifolium*extract possess significant hepatoprotective potential.

GLIPIZIDE MUCOADHESIVE MICROSPHERES OF POLIGLUSAM COATED FOR THE EFFECTIVE TREATMENT OF TYPE 2 DIABETES MELLITUS

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ABSTRACT :

Type 2 diabetes mellitus could be a heterogeneous malady of polygenic beginning and includes both inadequateaffrontdischarge and fringeaffront resistance. Thinks about have appeared that post-meal hyperglycemic spikes are associated with increased cardiovascular mortality in type 2 diabetes. Over the past decade, a major interest in control of postprandial glucose excursion has emerged and a plethora of new medications that specifically target postprandial hyperglycemia were discovered. In spite of the accessibility of modernspecialists for treatment of type 2 diabetes mellitus, verbal sulfonylureas stay a foundation of treatment, since they are moderatelyreasonable and are well endured. Glipizide is a potent, rapid-acting with short duration of action and well tolerated second-generation sulfonylurea effective in reducing postprandial glucose levels. Since, the site of absorption of glipizide is from stomach thus dosage forms that are retained in stomach by mucoadhesion; would increase absorption, improve drug efficiency and decrease dose requirements. Poliglusam Microsphere carrier systems having strong mucoadhesive properties and easily biodegradable could be an attractive strategy to formulate. The purpose of this research work is to formulate Poliglusam coated mucoadhesive microspheres of glipizide and systematically evaluate its *in vitro* characteristics and *in vivo* performance for sustained glucose lowering effect and improvement in diabetic condition as compared to immediate release of glipizide.

INVESTIGATION OF SIRT-1 ACTIVATOR IN INTRACEREBROPEDUNCLE ETHIDIUM BROMIDE INDUCED EXPERIMENTAL MODEL OF MULTIPLE SCLEROSIS IN RATS.

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ABSTRACT:

Multiple sclerosis is an idiopathic, immune mediated process and also called upper motor neuron disorder in which demyelination in neurons occurs in specific regions of brain (i.e. cerebrum, cerebellum, brain stem, spinal cord and optic nerves). In most of the cases 20-40age group peoples are more prone especially females.It's a globally well-known disease but in India, approximately 2.5lakh peoples are suffering from multiple sclerosis according to MSSI. The main causes of Multiple sclerosis are bacteria (borelia buradoferri), viruses (Episten barr virus, human herpes virus), genetic disorder (6p21,human leucocyte antigen), chemicals exposure(ethidium bromide, pesticides, paints). The sign & symptoms observed in multiple sclerosis patients are memory and cognitive dysfunctions, posture imbalance, vertigo, impaired speech, fatigue.There is limited target based approach for the prevention of pathological hallmark of multiple sclerosis. SIRT-1 is implicated in pathogenesis of neurodegenerative disease. In this we have validate &established an animal model by using ethidium bromide toxin for multiple sclerosis and in that model we hypothesize that SIRT-1 activator, and determine the involvement of SIRT-1 pathway in multiple sclerosis.

Keywords: multiple sclerosis, ethidium bromide, Demyelination, SIRT-1activator.

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

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ABSTRACT :

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

UBIQUITY AND CHALLENGES OF HYPERTENSIVE HEART DISEASE AND ITS MANAGEMENT

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ABSTRACT:

Hypertension, more precisely systemic arterial hypertension, almost 40% adult population affected worldwide and it is not a disease in itself rather it is an important risk factor for serious cardiovascular disorders including myocardial infarction, stroke, heart failure, and peripheral artery disease. Though numerous drugs acting via different mechanism of action are available in the market as conventional formulations for the treatment of hypertension but they face substantial challenges regarding their bioavailability, dosing and associated adverse effects which greatly limit their therapeutic efficacies. Hypertension indeed a major public health problem High blood pressure usually does not cause symptoms. Long-term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral vascular disease, vision loss, chronic kidney disease, and dementia. Through this work we focus on the Current guideline-based treatment of hypertension involves with little diagnostic testing. A more personalized approach to the treatment of hypertension might be of use. Several methods of personalized management have been proposed. The purpose of this review is to discuss the rationale for personalized therapy in hypertension, barriers to its development and implementation, some influential examples of proposed personalization measures, and a view of future efforts. Recent advances in the treatment of hypertension have been in our appreciation of the probable involvement of the kidney in all forms of hypertensive disease, in our improved understanding of the basic underlying mechanisms in some forms of the disease, and in the clarification of mechanisms of action of some of the most useful drugs Which permits us to diagnose more accurately and to administer therapy more rationally.

KEYWORDS:- Hypertension, Cardiovascular disorder, Bioavailability

FORMULATION OPTIMIZATION AND EVALUATION OF CAPSULE BASED MULTIPARTICULARE DOSAGE FORM FOR HYPERTENSION

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ABSTRACT :

Blood pressure pursues circadian rhythms projecting its highest values during early morning and lowest during night. The aim of the present investigation was to design a novel programmable capsule system containing delayed release microspheres of losartan potassium that could benefit from the known circadian rhythms of the disease thus providing maximum drug concentration during most vulnerable period and prevent early morning pathologies. The microspheres were prepared with Eudragit RS100 by optimization technique through application of Design Expert® software. The optimized microsphere formulation was filled in capsule shell and these shells were coated with 10 % w/v Eudragit L100 in Isopropyl alcohol:water as solvent system, to provide the necessary delay in emptying of capsule content. The whole capsular system was evaluated by various characteristic formulation parameters. Validation of optimization model andstatistical interpretation of results was done using Analysis of Variance (ANOVA). The results indicated that the optimized formulation showed an extended release of drug from microspheres after a lag time of 2 hrs. Comparison of Pharmacokinetic parameters including C_{max}, T_{max}, K_{eli}, AUC0-t and AUC0-∞ from plasma concentration time profile of both marketed and optimized formulation demonstrated a longer time to reach a peak concentration, greater C_{max} and AUC_{0-t} and $AUC_{0-\infty}$ for optimized formulation and it appeared to have more consistent overall performance. Conclusively, the chronotherapeutic multiparticulate system of losartan potassium was successfully developed to be dosed at bed time for effective management of the disease with once a day therapy.

A CRITICAL REVIEW ON CHEMISTRY AND PHARMACOLOGY OF NEWLY APPROVED ANTIDIABETIC DRUGS

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ABSTRACT :

Anti-diabetic drugs and their selection depend on the nature of the diabetes, age and situation of the person, as well as other factors. Diabetes mellitus type 1 is a disease caused by the lack of insulin. Diabetes mellitus type 2 is a disease of insulin resistance by cells. The present review summarizes the chemistry and pharmacological aspects of newly approved Segluromet™ (Ertugliflozin and metformin hydrochloride) tablet for oral use. metformin hydrochloride, a member of the biguanide class.Metformin decreases hepatic glucose production, decreases intestinal absorption of glucose, and improves insulin sensitivity by increasing peripheral glucose uptake and utilization. Ertugliflozin L-pyroglutamic acid, a SGLT2 inhibitor, SGLT2 is the predominant transporter responsible for reabsorption of glucose from the glomerular filtrate back into the circulation. Inhibiting SGLT2, Ertugliflozin reduces renal reabsorption of filtered glucose and lowers the renal threshold for glucose, and thereby increases urinary glucose excretion.Ertugliflozin was developed under the collaboration of Merck and Pfizer. It was approved US-FDA as monotherapy and in combination with metformin hydrochloride or Sitagliptin in Dec 2017 .Combine Chemistry includes Ertugliflozin L-pyroglutamic acid is an white to off-white powder that is soluble in ethyl alcohol and acetone, slightly soluble in ethyl acetate and acetonitrile and very slightly soluble in water with Molecular formula $C_{27}H_{32}ClNO_{10}$ molecular weight of 566g/mol .The pKa of Ertugliflozin 11.98. and Metformin hydrochloride is a white to off-white crystalline compound with a molecular formula of $C_4H_{11}N_5$•HCl and a molecular weight of 165.63 g/mol. Metformin hydrochloride is freely soluble in water and is practically insoluble in acetone, ether and chloroform. The pKa of metformin is 12.4.

Keywords: Ertugliflozin, Metformin HCl, SGLT2 inhibitors, biguanide, Segluromet™

A REVIEW ON THE BENZIMIDAZOLE SCAFFOLD FOR VAST BIOLOGICAL ACTIVITIES

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ABSTRACT :

Benzimidazoles are the fused heterocyclic ring systems, which are structurally related to indole and are ligands for various receptors such as serotonin receptors, histamine receptors, bradykinin receptors, and dopamine receptors and also being as an isostere of purine nucleosides and an important scaffold in various biologically active molecules. Benzimidazoles is generally synthesized by the condensation reaction of 1,2-phenylenediamine with carboxaldehydes, carboxylic acids, or their derivatives such as, chlorides, nitriles, and orthoesters, under strong acidic conditions at higher temperatures. In the drug discovery process, the substitution in benzimidazole nucleus is a momentous step. It is a valuable compound for the synthesis of a wide range of biologically active compounds such as anti-cancer, anti-helmintic, anti-microbial, anti-fungal, anti-tubercular, anti-allergic, anti-oxidant, anti-urease and lipase inhibition. This review presents the best of our knowledge for the synthesis of benzimidazole and also various benzimidazole derivatives with different pharmacological activities.

Keywords: Benzimidazole, Synthesis, Biological activity

INNOVATIVE PHARMACEUTICAL DEVELOPMENT BASED ON UNIQUE PROPERTIES OF NANOSCALE DELIVERY FORMULATION

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ABSTRACT :

The advent of nanotechnology has reignited interest in the field of pharmaceutical science for the development of nanomedicine. Nanomedicinal formulations are nanometer-sized carrier materials designed for increasing the drug tissue bioavailability, thereby improving the treatment of systemically applied chemotherapeutic drugs. It is a new approach to deliver the pharmaceuticals through different routes of administration with safer and more effective therapies compared to conventional methods. Even though nanomaterials have significant advantages due to their unique nanoscale properties, there are still significant challenges in the improvement and development of nanoformulations with composites and other materials. Highlighting on the nanotechnology, a new drug delivery system, clinical medicine and research, as well as in other varied sciences. Due to their unique size-dependent properties, lipid nanoparticles offer the possibility to develop new therapeutics. The ability to incorporate drugs into nanocarriers offers a new prototype in drug delivery that could be used for secondary and tertiary levels of drug targeting. Hence, solid lipid nanoparticles hold great promise for reaching the goal of controlled and site specific drug delivery and hence have attracted wide attention of researchers.The different types of nanocarriers which were based on solid lipid like solid lipid nanoparticles, nanostructured lipid carriers, lipid drug conjugates are discussed with their structural differences.

Key words: nanomedicine, nanocarriers, nanoformulations.

MANAGEMENT OF CANCER BY IMMUNOTHERAPY: A NOVEL APPROACH

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ABSTRACT :

Immunotherapy of cancer has developed into an established treatment option. At first, the development of monoclonal antibodies - targeting over expressed cell surface molecules on tumour cells - resulted in improved survival when combined with standard chemotherapy or radiotherapy. T cell immunotherapy has impacted on survival of certain cancer types.In renal cell cancer and non-small cell lung cancer, immune checkpoint inhibitors, such as cytotoxic T lymphocyte–associated antigen-4 (anti-CTLA4) and blockade of programmed death receptor-1-PD-ligand 1 (PD1-PD-L1) interaction, represent a completely new treatment paradigm, lowering the threshold for an anticancer immune response and breaking self-tolerance.Adoptive T cell transfer using tumour-infiltrating lymphocytes or genetically modified T cells are under development. Immunotherapy of cancer made a breakthrough when immune checkpoint inhibitor demonstrated an improvement in overall survival (OS) in pretreated metastatic melanoma patients, and was approved for cancer disease.

Keywords: immunotherapy, cancer, tumour

NANOROBOTICS: A BLESSING FOR DIABETICS

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ABSTRACT:

Nanorobotics is the emerging entities providing a great loss to victims so created for the humans hence providing a better life to the humans. They are benefitting various fields trend by trend. Likewise they are also nowadays supporting to fire out all the so called barriers to human life by the appropriate actions on those barriers. Diabetes also being a threat to humans life is becoming a curse as it has limited the ambitions, liking and also the desire of the humans as the diabetic patients have to work out a lot on their health, becoming very much worried and sometimes a little mistake causes a big damage i.e. of life. Nanorobotics if desirably used in the curing of this problem may play a remarkable role in this also. If the nanorobotics binded with unreactive ligands then injected to the humans body they may work as the messenger for any increase in the blood-sugar level and if connected to any device may work as an equipped vehicle for the messaging transfer and thus can protect the lives of many and provide many more a better way of living without being so much tensed about the metabolic victims to the humans. This is the starting and furtherly it may also support various other diseased and victimry disorders of body.

Keywords - Nanorobotics, Diabetics, Glucose.

EFFECT OF ERK/MAPK INHIBITOR IN INTRACEREBROVENTRICULAR PROPIONIC ACID INDUCED EXPERIMENTAL MODEL OF AUTISM

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ABSTRACT:

Autism is a neurodevelopment disorder characterized by impaired social interaction and communication, repetitive behavioral patterns, restricted interests, hyperactivity, sensory-motor disturbances, memory-cognitive dysfunctions and sometimes self injury associated with major brain part like cerebellum, cerebral cortex, amygdale and hippocampus where mitochondrial dysfunction is a major pathological hallmark for progression of Autism. Autism is highly misdiagnosed disorder and there are no specific diagnostic biomarkers for its prevalence in children. In India 10 million children (01 in 85 kids) diagnosed with autism only on behavioural patterns. Current approved drug therapy included anti-psychotic (Risperidone and Aripiprazole) but there in most of cases weight gain, gastric irritation, insomnia, allergy reactions are common. The current available drug therapy is focus to provide symptomatic relief in individual patients. Therefore we establish and validate the inhibition of ERK/MAPK pathway in autistic animal induced by the propionic acid, and we confirm the activity of our drug by measuring the biochemical, behavioral parameter and compare our drug with standard drug for increasing action and decreasing the adverse effects.

Keywords: Autism, ERK/MAPK pathway

TOXICOLOGICAL HAZARDS OF NANOMEDICINE: A BIG THREAT THAT HASN'T BEEN PUT INTO LIGHT

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ABSTRACT :

Nanotechnology and novel drug delivery have been commenced with innovative ideas and approaches resulting in successive upgrading of medicinal values. Current nano material research is focused on the medical applications of nanotechnology, whereas side effects associated with nanotechnology use, especially the environmental impacts, are not taken into consideration during the engineering process. Nano medical users and developers are faced with the challenge of balancing the medical and societal benefits and risks associated with nano technology. And, it has also affected the development of the field's sync-racy. The adequacy of available tools, such as physiologically-based pharmacokinetic modeling or predictive structure-activity relationships, in assessing the toxicity and risk associated with specific nano materials is unknown. Successful development of future nano medical devices and pharmaceuticals thus requires a consolidated information base to select the optimal nano material in a given situation—understanding the toxicology and potential side effects associated with candidate materials for medical applications, understanding product life cycle, and communicating effectively with personnel, stakeholders, and regulators. This can be achieved through an innovative combination of toxicology, risk assessment modeling, and tools developed in the field of multi criteria decision analysis (MCDA). With the help of analysis a big undesired problem may be prevented to take place and adversely affected.

Keywords: Nanotechnology, pharmaceuticals, toxicology

HERBAL THERAPY FOR CUT AND WOUND: A NEW ERA OF SOLUTION

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ABSTRACT:

There are different types of cut and wounds which range from mild to potentially fatal. India has a rich tradition of plant-based acquaintance on healthcare. Herbs for treating cuts, scratches, and abrasions include those that help fight infectious microbes, decrease inflammation, soothe the pain, and help the wound to heal.A large number of plants/plant extracts/decoctions or pastes are equally used by tribals and folklore traditions in India for treatment of cuts, wounds, and burns. Therapeutic treatment of wound includes administration of drugs either locally (topical) or systemically (oral or parenteral) in an attempt to aid wound repair. Wounds are the result of injuries to the skin that disrupt the other soft tissue. Certain herbal remedies may offer relief from symptoms and help wounds heal faster. Herbs are generally available as dried extracts (pills, capsules, or tablets), teas, or tinctures (alcohol extraction, unless otherwise noted).Recent scientific evidences and clinical trials conducted using traditional herbal medicine in wound therapy holds good promise in the future.

Keywords: wound management, traditional plan, wound-healing.

INVESTIGATION OF IGF-1/GLP-1 RECEPTOR ACTIVATOR IN INTRACEREBRAL HEMORRHAGE USING AUTOLOGOUS BLOOD INJECTION IN RATS

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ABSTRACT:

Brain hemorrhage is a bleeding disorder of brain with the release of blood from broken vessels either inside or outside the brain. ICH can be spontaneous, traumatic or non traumatic associated with the vascular anomly (aneurysm/angioma) due to hypertension, traumatic injury, contusion, abrasion, hematoma formation, excoriation and incision which frequently occurs in basal ganglia, pons, thalamus, cerebellum and white mater. In elders it is caused by cerebral amyloid angiopathy and in young mainly caused by arteriovenous malformation. ICH may also be caused due to hematological disorders, leukemia, thrombocytopenia, hemophilia, liver disease. Animal models used are basically collagenase injection model and blood injection model in rats. Complications of the post ICH may involve neuro complications such as rebleeding, hydrocephalous, vasospasm, depression, anxiety, coma followed by behavioral dysfunctions like memory/cognitive, postural imbalance, psychosis etc. We used an amino acid which has been extracted and purified from fenugreek *Trigonella foenumgraecum* seeds, which is known for its traditional medicinal properties. The neuro complications can be further treated by activation of the drug to the IGF-1/GLP-1 receptor. There are limited target based drug interventions to prevent the root cause of cellular and molecular pathological hallmark of ICH thus the current available drug therapy is designed to provide symptomatic relief in individual patient, therefore we designed the current neuroprotective stratigies of extracted drug on IGF-1/GLP-1 receptor by incorporating the discussed animals models.

Keywords: Brain hemorrhage, ICH, IGF-1/GLP-1, autologous blood injection, aneurysm, angioma, arteriovenous malformation

CURRENT TRENDS IN ANALYTICAL INSTRUMENTS: A SCENARIO

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ABSTRACT:

The modern pharmaceutical analysis is emerging beyond the combination techniques, high output technologies, chemometrics & nanotechnology. These are highly employed for drug discovery. By the completion of the human genome project, more emphasis has been laid on genomics. Combination techniques for the drug discovery of genomics are successfully done with gas chromatography. Chemometrics is currently being applied for processing computer-aided drug discovery especially for the treatment of cancer. Enzymes, antibiotics, & receptors with molecular imprints are recognised through nanotechnology which is also widely used. Nowadays, gene therapy is used a much for lipoprotien lipase deficiency. Capillary electrochromatography is also in much interest for sampling biota in biopsy for capillary liquid separation. Automated technologies like allowing high throughput tesing, improved the accuracy of monitoring blood coagulation. Mass spectrometry is widely used for the analysis of stabilizers of plastic materials. Thus, advanced instrument are widely used in each and every field of treatment of desease which are operated by analytical instruments.

Keywords: chemometrics, combination techniques, chromatography, analysis

FORMULATION AND EVALUATION OF HERBAL MOSQUITO CANDLE

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ABSTRACT :

Background and Objective: Oil extracts of traditional plants are safe and non-toxic alternative to synthetic chemicals against mosquito-borne diseases. The present investigation was aimed to evaluate the mosquito repellent activity of *Eucalyptus* oil (leaves) and *Ocimum tenuiflorum* oil(leaves) in plant natural form of herbal formulation.

Materials and Methods: The plant materials (*Eucalyptus* oil [leaves] and *O. tenuiflorum* [leaves]) were collected and subjected to cold maceration for 7 days using castor oil as solvent. The obtained extracts were formulated into repellent candle. This formulation was evaluated for repellent activity using standard method under proper laboratory conditions.

Results: The candle formulation gave protection against mosquito bites without any allergic reaction to the test person.

Conclusion: Use of unique formulation methods and natural products, with mosquito repellent activity may help in reducing the harmful effects of synthetic mosquito repellents on human health.

KEY WORDS: Formulation, Oils, Mosquito repellent, Candle

DEVELOPMENT OF ECO-FRIENDLY HERBAL MOSQUITO REPELLENT CANDLE AND ITS EVALUATION

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ABSTRACT :

Background and Objective: Herbaloils are considered comparatively safer and better alternative to synthetic derivatives against mosquito- borne diseases. Present work was done with an aim to develop an herbal preparation (candle) and evaluate the mosquito repellent activity of *Azadirachta indica* oil (seeds) and *Mentha piperita* oil(leaves).

Materials and Methods: The plant materials (*A.indica* oil [seeds] and *M. piperita* [leaves]) were collected and subjected to cold maceration for 7 days using castor oil as solvent. The obtained extracts were formulated into repellent candle. The candle was evaluated for repellent activity using standard method under proper laboratory conditions.

Results: The candle formulation gave protection against mosquito bites without any allergic reaction to the test person.

Conclusion: Use of unique formulation methods and natural products, with mosquito repellent activity may help in reducing the harmful effects of synthetic mosquito repellents on human health.

KEY WORDS: Formulation, Oils, Mosquito repellent, Candle

FORMULATION AND EVALUATION OF HERBAL LIPSTICK

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ABSTRACT :

Lipstick is a cornerstone of everyone's beauty routine and an essential to every beauty bag. It's one of the few products that can finish a look, or be a look all on its own. Lipstick is a cosmetic product containing pigments, oils, waxes, and emollients that apply colour, texture, and protection to the lips. Many colours and types of lipstick exist. Some lipsticks are also lip balms, to add colour and hydration.

The present study was done to formulate lipstick containing herbal ingredients which are also non-toxic as compared to synthetic agents. Formulated herbal lipsticks were also evaluated. From the present investigation it was found that that the F-4 having promising results.

Keywords: Cosmetics, Herbs, Herbal lipstick, Formulation, Evaluation, Non-toxic.

PROSPECTS FOR COMBINING T-CELL TARGETED & CONVENTIONAL CANCER THERAPY WITH IMMUNOTHERAPY

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ABSTRACT :

There has been significant progress in utilizing our immune system against cancer, mainly by checkpoint blockade and T cell-mediated therapies. The field of cancer immunotherapy is growing rapidly but durable clinical benefits occur only in a small subset of responding patients. Cancer creates a suppressive metabolic microenvironment, which contributes to ineffective immune function. Metabolism is a common cellular feature, and has significant progress in role of metabolic changes of the tumor microenvironment (TEM) in immune cells. We are highlight the importance of metabolism on the function of tumor-associated immune cells and will address the role of key metabolic determinants that might be targets of therapeutic intervention for improvement of tumor immunotherapies and mechanisms of protective tumour immunity has several therapeutic strategies most notably the 'immune checkpoint' antibodies that reverse the negative regulators of T cell function targeted and immune-based therapies. Additional insights into the effects of targeted therapies, along with conventional chemotherapy and radiation therapy, on the induction of immunity will help to advance the design of combination strategies that increase the rate of complete and durable clinical response in patients and that might be targets of therapeutic intervention for improvement of cancer.

BIOMEDCIAL WASTE MANAGEMENT: A MATTER OF MANATE

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ABSTRACT :

The management of biomedical waste is of great importance due to its potential environmental hazards and public health risks. In the past, biomedical waste was often mixed with municipal solid waste and disposed of in residential waste landfills or improper treatment facilities (e.g. inadequately controlled incinerators) in India. In recent years, many efforts have been made by environmental regulatory agencies and waste generators to better manage the waste from healthcare facilities. Biomedical waste incineration is one such updated and upcoming technique which is identified as the most effective disposal method but other methods such as sanitary pits and chemical disinfections are also in practice. It is important to point out that there is a great potential to emit air toxic pollutants from such incinerators if improperly operated and managed, because medical waste typically contains a variety of plastic materials such as polyvinyl chloride (PVC). Waste minimization and recycling, control of toxic air emissions at medical waste incinerators, and alternative treatment methods to incineration are regarded to be the major challenges in the future. Safe and effective management of waste is not only a legal necessity but also a social responsibility. Lack of concern, motivation, awareness and cost factor are some problems faced in the proper waste management. Effective communication strategy is imperative keeping in view the low awareness level among different category of staff in the health care establishments regarding biochemical waste management.

Keywords: Biomedical waste; incinerator; pollution; municipal waste; safety guidelines

Formulation and evaluation of herbal cream containing hydroalcoholic extract of *Ipomea cairica* Linn. for the treatment of gynecological disorders

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Abstract

Gynecological disorders are disease and disorders related to women's. According to NICHD i.e., National institute of Child Health and Human development there are five types of major gynecological disorders associated with females, these include: Vulvodynia,Vaginitis, Pelvic floor disorders, Pelvic pain and Menstrual disorders. *Ipomea cairica* Linn. commonly known as railway creeper belongs to family Convulvulaceae is traditionally used to treat the gynecological disorders. It is medicinally important plant grown wildly in India and its various parts (root, leaves, stem) is useful in the treatment of fungal and microbial infection by tribal's of India. The tribal women used the plant for the treatment of gynecological disorders. Therefore, the present plant was selected to formulate herbal cream using hydroalcoholic extract of leaves of *Ipomea cairica* Linn. The hydroalcoholic extract of leaves was formulated using excipient to form herbal cream. Seven different batches viz., F1 to F7 was prepared and evaluated for physical appearance, pH, solubility, spreadibility, drug content etc.

Key-words: *Ipomea cairica* gynecological disorders, cream, leaves, formulation.

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Novel Approaches of Herbal formulation

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Abstract

Now a day use of herbal medicine is increase globally because herbal medicine cures the diseases due to their potential with no or very less side effects while allopathic drugs give more side effect. Herbal medicines are difficulties in identification, processing, standardizing, extracting of herbal drugs, it rarely attracts scientists towards the development of novel delivery systems for herbal drugs. The reduced efficacy of herbal drugs is due to the traditional and out of date approach of administration to patients. To minimize these problems various novel drug delivery systems (NDDS) such as ethosomes, phytosomes, ethosomes, transfersomes, herbal transdermal patches, nanoparticles and biphasic emulsions are used nowadays. Novel approach of delivering herbal drugs will increase the solubility, bioavailability, efficacy and safety of herbal medicines along with the increased stability of the drug product. These techniques also provide improved patient compliance, sustained release and targeted action of herbal extracts. Globally in recent years more attention is given to the research on medicinal plants. This review summarizes the information of various novel techniques used for improving safety and efficacy of phytomedicines, type of active ingredients, biological activity and application of novel formulation of herbal drugs to achieve better therapeutic response.

Keyword: Herbal medicine, novel drug delivery systems , phytosomes, bioavailability, targeted action

Ethosome: A Novel Approaches for Herbal Drug Delivery System

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Abstract

World's population is currently using herbal formulation to treat disease because herbs have excellence advantage as compared to allopathy medicine system; there are its widespread acceptability, cheap and fewer side effects. People also have more faith on herab products due to fewer side effects and traditional but the main disadvantage of herbal dug is the poor solubility. Herbal drug cannot totally cross biological barrier that is cell membrane of our body this type of problems in Ayurveda preparation can be solved by using novel technology like ethosome, niosome, microencapsulation and nanosuspension etc. formulation. Ethosome are phospholipid-based elastic nanovesicles containing a high content of ethanol.

Keywords: Herbs, Allopathic, Side effects, Solubility, Ayurveda, Ethosomes.

Formulation and Evaluation of Polyherbal Ethosomal Gel Containing Plant Extracts

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Abstract

Solanum xanthocarpum and *Alpinia officinarum* herbs are highly used by the rural and tribal people in curing various disorders. The aim of the current investigation is to formulation and evaluation of polyherbal ethosomal novel vesicular carrier bearing extract. Ethosome become an area of research interest in herbal formulation because of its enhance skin permeation and improve entrapment efficiency. *S. xanthocarpum and A. officinarum* loaded ethosomal carriers were prepared, optimized and characterized for microscopy, vesicular size, entrapment efficiency, stability and in-vitro release study. The entrapment efficiency of formulation containing *S. xanthocarpum* ethanolic extract FA8 was found to be highest (72.32%) while FA3 formulation showed least entrapment efficiency (59.27 %). The entrapment efficiency of formulation containing *A. officinarum extract* was observed to be highest for FB8 formulation (71.62%) and least for FB3 (56.35%). It has been observed the formulation containing phospholipid (3 gm) with ethanol has maximum entrapment efficiency. Percentage drug release of ethosomal gel FE containing both plants *S. xanthocarpum and A. officinarum* extract were observed to be 20.43% at 30 min. and 75.09% at 120 min at 206 nm.

In-vivo anti-inflammatory study reviled that percentage inhibition of edema by ethosomal gel containing both extract was observed to be - 33.13% at 1 hr. and 49.03% at 4 hr. and it was concluded from the present work that polyherbal ethosomal gel containing extract *solanum xanthocarpum* and *A. officinarum* extract herbs can use as a alternative medicine in treatment of inflammation disease.

Keywords: *solanum xanthocarpum*, *Alpinia officinarum* extract, ethosomal gel, entrapment efficiency, inflammation.

Distinctive Effect of Carbon Nanotubes as a Targeted Nanotechnology for Cancer therapy and Drug Delivery

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ABSTRACT

Nanotechnology is one of the most promising fields to generate new medical applications. Carbon nanotubes (CNTs) were discovered in 1991 and have recently become popular as building blocks for the new drug carrier system for small and large therapeutic molecules as well as for bio-imaging and bio-sensing. Current cancer treatments and diseases of the central nervous system are limited, partly due to the difficulties of drug insolubility, poor distribution of drugs among cells, lack of drug selectivity and the inability of drugs to cross cellular barriers. Among them, due to exclusive physicochemical architecture and properties, CNTs have shown great attentionfor easy cellular uptake, high drug loading, thermal ablation and many others, render them useful for cancer therapy.In recent years CNTs have been intensively explored for biological and biomedical applications. Cancer is one of the most challenging diseases of modern times because its therapy involves distinguishing normal healthy cells from affected cells. Their distinctive surface area, stiffness, strength and resilience have led to much excitement in the field of pharmacy. The foremost aim of developing the delivery of Nano carrier is to enhance the therapeutic outcome or reduce toxicity of medicinally active ingredients. This comprehensive review summarizes the recent advances regarding the use of CNTs as target carriers in drug delivery systems for cancer therapies. This review will discuss the therapeutic applications of CNTs with a major focus on their cancer treatment applications.

Key words: Carbon Nanotubes, CNTs, Nano technology, Cancer, Cellular uptake,thermal ablation, bio-imaging and bio-sensing.

An Extended Release Multi-particulate Drug Delivery System for Oral use

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ABSTRACT

Therapeutic research and development are increasingly focusing on delivery systems which enhance desirable objectives while minimizing side effects.Nowadays Dose dumping is a major problem of single particulate dosage forms. So there is a need of extended release Multi-particulate drug delivery systems (MDDS). Production of pellet offers flexibility in dosage form design and development with an active ingredient are administered in the form of capsule. MDDS are mostly used for oral route, which consist of multiplicity of small discrete units and each exhibit different characteristics. It based on subunits such as granules, beads, micro spheres, pellets, spheroids and Minitab, which shows various benefits over monolithic devices. This present review outlines the transient account of all important manufacturing and evaluation technique for MDDS. The manufacturing techniques have been deliberated.MDDS consist of multiplicity of small discrete units that exhibit different characteristicsand is based on subunits such as granules, beads, microspheres, pellets, spheroids andMinitab.The pharmaceutical scientists have achieved a great success in developing most therapeutic systems with suitable natural polymer. The current study focuses on the advantages, limitations, types and pharmaceutical application of MDDS.

Evaluation of Physicochemical Properties of Glacial Acetic Acid Mediated Solvent Free One Pot Synthesis of malonylurea and Its Chloroacetylated Derivatives

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ABSTRACT

Barbiturates or malonylureas are an important class of heterocyclic scaffold because they possess a wide range of therapeutic and pharmacological properties. Barbiturates and its derivatives include a wide range of pharmacological activities such as anticonvulsant, antianxiety, analgesic, sedative, antidepressive and hypnotic agents. In 1864 Adolf von Bayer developed malonylurea. Barbiturates are basically a closed-chain ureic compound, whose nucleus is malonylurea. Malonyurea is a combination of urea and malonic acid, an acid derivative taken from apples. A series of compounds of malonylurea and its chloroacetylated derivatives have been synthesized and its physicochemical parameters were evaluated in order to determine the potency of the compounds for good CNS activity. This solvent-free reaction mediated by glacial acetic acid was found to be very efficient with high yield. The structures were confirmed on the basis of TLC, IR and 1HNMR and CHN elemental studies. The log P values of two of the compounds shows that compounds have the potential to be CNS active and all other parameters like nonvalue, non-value, n-violations, and number of rotatable bonds also lies in the ranges that are required for blood-brain barrier penetration. This synthesis provides a new hope that the free chloro group in this structure can be utilized for further substitution of various heterocyclic rings which possess potent CNS activity.

Keywords: Malonylureas, Chloroacetylation, Malonic acid, Glacial acetic acid

Evaluation of antidiabetic and antihyperlipidemic activity of *Abelmoschus esculentus* (L.) in diabetic rats.

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Abstract

The present investigation was aimed to study the antidiabetic and antihyperlipidemic potential of *Abelmoschus esculentus* Leaf extract (AELE) in streptozotocin (STZ)-induced diabetic rats.Acute toxicity of AELP was studied in rats at 2000 mg/kg dose and diabetes was induced in rats by administration of STZ (60 mg/kg, i.p.). After 14 days of blood glucose stabilization, diabetic rats received AELE, and glibenclamide up to 28 days. The blood samples were collected on day 28 to estimate the biochemical parameter and lipid profile estimation in EDTA blood vial.In acute toxicity study, AELE did not show any toxicity or death up to a dose of 2000 mg/kg. Therefore, to assess the antidiabetic action, Administration of AELE at one by tenth and one by fifth dose ofAELE in diabetic rats showed significant ($P < 0.001$) reduction in blood glucose level and increase in body weight than diabetic control rats. A significant ($P < 0.001$) increased level of Hb, TP, and decreased level of SGPT were observed after the treatment. Also, elevated lipid profile levels returned to near normal in diabetic rats after the administration of AELE compared to diabetic control rats.

Keyword: acute toxicity, antidiabetic, Hb, SGPT etc.