National Conference

On

“RECENT INNOVATIONS IN PHARMACEUTICAL SCIENCES”

On 15th and 16th February 2019

Sponsored

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SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE

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MES's College of Pharmacy Sonai,

Tal-Newasa, Dist- Ahmednagar (Maharashtra)

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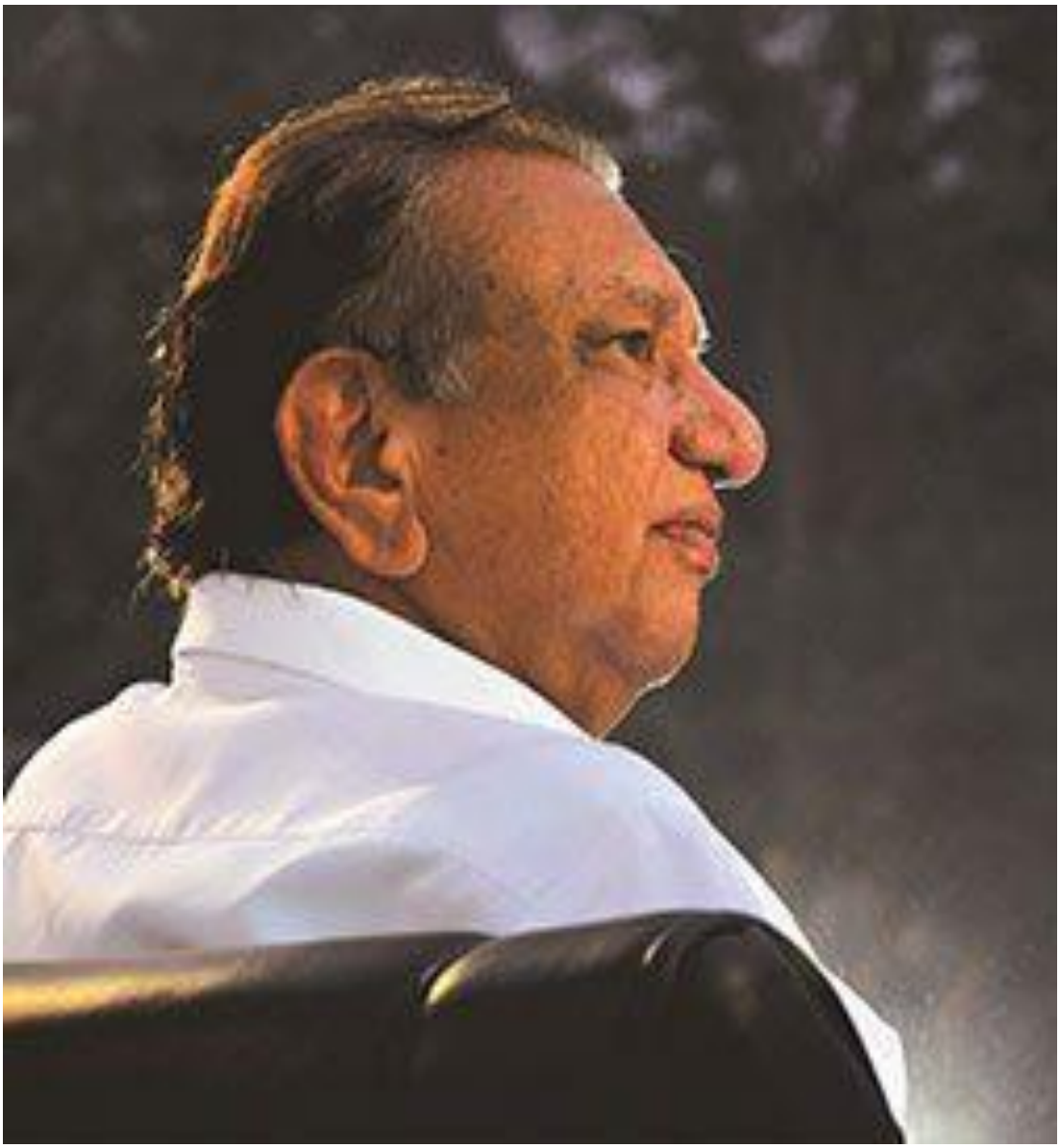
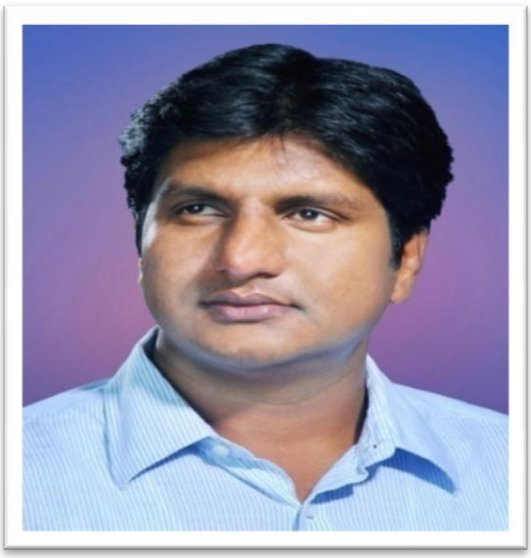
OUR INSPIRATION



Hon Shri. Yashwantraoji Gadakh Patil

(Founder, Mula Education Society, Sonai)

PRESIDENT MESSAGE



I am delighted to know that, M.E.S's College of Pharmacy, Sonai is organizing Savitribai Phule Pune University, Pune Sponsored national level seminar on "Recent Innovations In Pharmaceutical Sciences" on 15th and 16th February 2019.

The pharmaceutical world today is adopting new technologies and practices and pharmacy education in India needs to be relevant in the global context.

In order to endure rapid changes in technology, we need to merge pharmaceutical education with the developing trends. Thus, continuous research by teachers and students is an integral part of education system. I am sure that, discussion during the conference will be very successful and contribute to the betterment of society.

I extend warm and sincere wishes to all the participants and organizing committee.

Hon. Prashant Gadakh Patil

President, Mula Education Society, Sonai

SECRETARY MESSAGE

I am happy to know that, M.E.S's College of Pharmacy, Sonai is organizing Savitribai Phule Pune University, Pune Sponsored national level seminar on "Recent Innovations In Pharmaceutical Sciences" on 15th and 16th February 2019.

Modern medicines have significantly extended life expectancy of the people and we recognize the vital role that research plays in health care. The seminar serves as a platform for students, teachers and academicians. I hope that the deliberations during the seminar shall help in enhancing quality of research in pharmacy institutions.

I extend my warm greetings to the participants and organizing committee and wish the seminar every success.

Hon. Shri. U. M. Londhe

Secretary, Mula Education Society, Sonai

JOINT SECRETARY MESSAGE

It is indeed great matter of pride for us to welcome you all, to Savitribai Phule Pune University, Pune Sponsored national level seminar on “Recent Innovations In Pharmaceutical Sciences” on 15th and 16th February 2019.

The objective of this seminar is to provide a forum to discuss the latest advances and the breathtaking developments and opportunities in the pharmaceutical field. A dynamic platform to many investigators to share their research experience and to promote advancement of knowledge. It is a good opportunity to the students and faculties to get a very comprehensive overview on Recent Innovations in Pharmaceutical sciences. Instead of on "Intellectual Property Rights: New Age Challenges”

I welcome all participants, experts to this seminar and look forward to interacting with you in person.

Dr. V. K. Deshmukh
Joint Secretary, Mula Education Society &
Principal M.E.S’s College of Pharmacy, Sonai

MESSAGE

It is indeed great matter of pride for us that M.E.S's College of Pharmacy, Sonai is organizing Savitribai Phule Pune University, Pune Sponsored national level seminar on "Recent Innovations In Pharmaceutical Sciences" on 15th and 16th February 2019.

This seminar aims to provide an excellent opportunity to students and teachers to explore the diverse research areas in pharmaceutical field.

Our team is striving hard to ensure that all participants have a valuable and enjoyable experience at this seminar. We anticipate an energizing seminar that guarantees great scientific debate and pleasant social collaborations.

We look forward to welcoming you to our institute.

Dr. R. B. Pandhare
Chairman, Scientific Services, Committee
Associate Professor & Head, Dept. of Pharmacology
M.E.S's College of Pharmacy, Sonai

MESSAGE

It is indeed great matter of pride for us that M.E.S's College of Pharmacy, Sonai is organizing Savitribai Phule Pune University, Pune Sponsored national level seminar on "Recent Innovations In Pharmaceutical Sciences" on 15th and 16th February 2019.

This seminar will provide a platform for researcher, scientists, technocrats, academicians and various categories of pharmacist to exchange their latest innovative ideas and research findings in pharmaceutical sciences.

Our team is striving hard to ensure that all participants have a valuable and enjoyable experience at this seminar. We anticipate an energizing seminar that guarantees great scientific debate and pleasant social collaborations.

We look forward to welcoming you to our institute.

Dr. A. R. Pawar
Coordinator, National Seminar
Associate Professor & Head, Dept. of Pharmaceutics
M.E.S's College of Pharmacy, Sonai

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FORMULATION OF LANSOPRAZOLE PELLETS EMPLOYING A NOVEL NATURALEXCIPIENT FOLLOWING EXTRUSION-SPHERONIZATION TECHNIQUE

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ABSTRACT:

In present study Lansoprazole pellets were prepared employing a novel natural excipient Carboxymethyl tamarind kernel powder (CMTKP) using Extrusion-Spheronization technique. Pellet formulation was optimized for formulation parameters (conc. Of MCC and CMTKP) and process parameters (speed and time in spheronization) using 3^2 factorial design. The pellets were evaluated for Yield, Bulk and Tapped density, Particle size, Hardness, Drug content, Disintegration time and Drug release. The optimized batch showed 93.53%; yield, 0.307 kg/cm^2; hardness, 2.15 mm; average particle size, 90.46%;drug content and 292 sec; disintegration time. % Drug release of optimized batch (2F7) and marketed formulation (LANZOL cap) was found to 82.33 % and 80.07 % respectively. Accelerated stability study indicated that optimized formulation was stable after 30 days.

KEYWORDS: Pelletization, Lansoprazole, Carboxymethyl tamarind kernel powder, Extrusion-Spheronization

NANOMEDICINE AS FUTURE OF MEDICINE

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ABSTRACT

Nanomedicine refers to highly specific interventions at the molecular level for curing the diseases or repairing damaged tissue. Nanomedicine work by injecting into body can be used to deliver medicine & find treat the diseases, repair damage cell using nanotechnology. To deliver medicine in dibetic rats kept stable blood sugar level for 10 days after injection. Using micro RNA from patients' blood plasma & nanotechnology medical professionals can determine if lungs cancer is present. Using nanotherm energy to overheat cancer cells helps to destroy cells. In clinical trials those with Glioblastoma survived a median of 13th month. In cell feedback nanomedicine can be used to test cell response drugs. The advantages of nanomedicine in the field of faster diagnosis, more precise treatments, repair the tissue deep within the body, target only disease organ without destroying healthy tissues.

APPLICATIONS AND USE OF MICRO EMULSIONS

Ganjpure U. N.*, Chloe S. B., Mr. Kale A. D., Mr. Kolhe S. D.
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ABSTRACT

During the past five decades since the discovery of microemulsions by Jack H. Shulman, there have been huge progresses made in applying microemulsion systems in a plethora of research and industrial processes. While it is beyond the scope of this paper to give a complete review of all significant developments and applications, it will attempt to highlight several recent developments in applications that might interest readers for whom this paper serves as an introduction to microemulsions. In that note, the relevance of this paper and the truncated scientific background on microemulsions are first discussed.

FORMULATION AND EVALUATION OF CUBOSOMES FOR OPTHALMIC DELIVERY OF NATAMYCIN

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ABSTRACT:
Cubosomes encapsulating natamycin were prepared by sonication method and evaluated for particle size, entrapment efficiency, *in vitro* antifungal activity, polarized light microscopy, sem, tem, *in vitro* drug release, *ex-vivo* corneal permeation study using goat cornea and its histological examination, ocular irritation studies. The cubosomes prepared a screening was done using box-behnken design software. Version 11. One batch is selected & the drug & its reletated substance was selected with response. The formulation obtained by screening was then optimized by 3^2 factorial design were optimized batch 158.2±2.94 nm in size, zeta potential -40 mv, pdi 0.328 and with drug entrapment efficiency of 99.85±2.69 %. The prepared formulation was characterized for surface morphology by sem analysis which revealed their smooth spherical to cubic surface & morphological examination of was carried out using transmission electron microscope. Natamycin cubosomal dispersion zone of inhibition is 19 mm and 18 mm in *candida albicans and aspergillus fumigatus* respectively. The cumulative percentage of natamycin from cubosomes permeated via cellophane membrane showed 74.38 % cumulative drug release, while natamycin solution showed release up to 84.29 % in 8 h in phosphate-buffered saline (pbs), and sustained release is obtained after 8 h in case of cubosomes. The animal studies also revealed that the cubosomes are non-irritant and have sustained antifungal activity. The *ex-vivo* corneal permeation showed 62.93 % cumulative drug permeation at the end of 5 hr. With apparent permeability coefficient, steady state flux (jss) and the steady state diffusion coefficient (d)was found to be 144.92x 10^{-2} cm h^{-1}, 36.23x 10^{-2} cm h^{-1} and 79.62x 10^{-2} cm h^{-1}, respectively. The histological examination showed no evidence for major structural damage relative to the normal structure.

Keyword: cubosomes, *candida albicans and aspergillus fumigatus,* TEM, SEM, etc.

FORMULATION AND DEVELOPMENT OF VANISHING CREAM CONTAINING AN EXTRACT OF TAGETES ERECTA L. FLOWER FOR ITS ANTIBACTERIAL ACTIVITY

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ABSTRACT

Tagetes ercta L. is commonly known as Marigold. It is common ornamental herbaceous plant use in many countries. The *Tagetes erecta* belongs to the family Asteracae. It is a small shrub used in traditional system of medicine for curing many diseases. The flowers are bright yellow color, brownish yellow or Orange. Phytochemical studies of flower have shown that it contains various chemical constituents such as thiophenes, flavonoids, carotenoids and triterpenoids. It is having main function as antibacterial agent. Antibacterial activity of topical formulation of extract of *Tagetes erecta* L. flower was evaluated using Agar well diffusion method using S.aureus and E. coli.The topical vanishing formulation is prepared and evaluated by different methods. The aim of this study was to evaluate the antibacterial activity of cream formulation of *Tagetes erecta* L. flower extract against two bacteria by agar well diffusion method. The result indicates that the flower formulation showed a broad spectrum antibacterial activity.

Keywords: Ornamental, Medicine, Phytochemical

DESIGN, DEVELOPMENT AND STANDARDISATION OF CHEWABLE TABLET FOR OSTEOARTHRITIS

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ABSTRACT:

Aim: Osteoarthritis is musculoskeletal disorder causes joint pain and stiffness in affected area. *Boswellia serrata* has proven potential anti-inflammatory activity to treat osteoarthritis. NSAID's which are commonly used for treatment of osteoarthritis are ulcerogenic when taken for long duration. *Boswellia serrata* has found to be safe for long term use. Patients who are not able to swallow tablet which having bitter taste and odour for that chewable tablet become an alternative option, so we developed chewable tablet of *Boswellia serrata* extract.

Material and Method: Chewable tablet containing *Boswellia serrata* extract (40%) (Pharmanza Herbal Pvt. Ltd.) formulated with suitable binder, disintegrants, fillers, sweetener, flavour and colour. Potato starch paste with water was used to prepared granules with wet granulation method. Prepared granules dried in oven and then lubrication performed with suitable lubricants.

Evaluation: Prepared chewable tablets subjected to voluntaries to check the taste, comfort for chewing. Chewable tablets have been found to be acceptable by voluntaries. Pre-compression and post-compression test parameters for chewable tablets were performed.

Results: Optimized batch were evaluated for pre-compression and post-compression parameters and all results found under limits. Selected optimised three batches give reproducible result.

Conclusion: Through in-vitro study on formulation of *Boswellia* chewable tablet, we have conclude that dosage form is accepted by voluntaries for its taste, flavour and ease of use.

Keywords: *Boswellia serrata*, Chewable tablets , Osteoarthritis

DEVELOPMENT AND EVALUATION OF NANOSTRUCTURE LIPID CARRIER (NLC) CONTAINING NORFLOXACIN FOR ORAL DELIVERY

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Abstract

Norfloxacin (NFX) is a widely used third generation quinolone synthetic antibiotic which has the characteristics of broad bacterium contradicting, small side-effects and cross-resistance with other drugs. The absolute bioavailability of NFX in humans and in laboratory animals is reported 40% post oral administration. Poor bioavailability may provide lower antimicrobial activity and give rise to the development of resistance by the microorganisms. Repeated dosage may result in higher incidence of adverse effect. To overcome these limitations, nanostructured lipid carriers (NLC) have been developed. NLCs were prepared by using high pressure homogenization method and central composite design was applied with concentration of solid lipid, liquid lipid and surfactant as independent variables while particle size and entrapment efficiency (EE) as dependent variables. In the present study, GMS was selected as the solid lipid matrix and Oleic acid as liquid lipid for encapsulation of norfloxacin. NLCs were further characterized for their mean particle size, loading parameters, and their morphology. The *in vitro* drug releases from the formulations were assessed in 1.2 pH and 6.8 pH phosphate buffer as dissolution media. Stability study of the optimized formulation (F1) was done and oral bioavailability studies were performed over the same formulations. Particle size and zeta potential of NFX-NLCs was found to be in the size range between 81.14 nm to 149.9 nm and -20.7 to -32.1 mV respectively. The entrapment efficiency (%) and loading efficiency (%), obtained for NFX-NLCs were good indicating that norfloxac in is well distributed within the lipidic core. The cumulative % drug release with respect to time was found to be 92.33% for the optimized batch. The microscopic study indicated smooth surface and uniform size distribution. The antimicrobial study showed good zone of inhibition because of prolong release of drug through formulation. From stability study of the lyophilized formulation it was found that the particle size and EE was not changed significantly. NLCs were found to be stable for the period of 3 months at 25 ± 2^{o}C and 60 ± 5% RH.

FORMULATION DEVELOPMENT AND OPTIMIZATION OF MUCOADHESIVE IN SITU GELLING SYSTEM FOR NASAL ADMINISTRATION OF PIRACETAM

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ABSTRACT

The present study was aimed towards formulating the nasal mucoadhesive*in situ* gels of Piracetam using temperature induced gelation using mucoadhesive polymer chitosan in different concentration. The *in situ* gels so prepared were characterized for its gelation properties, viscosity, gel strength, mucoadhesion, drug content, drug release rate and for its histopathological studies. From the above evaluation studies, formulation PLC2 from thermosensitive system was optimized and further subjected for stability studies carried out at 30± 2°C and 60 ± 5% RH for 90 days in order to know the influence of temperature and relative humidity on drug content and on drug release profile. These formulations did not show any remarkable damage to nasal mucosa so it seems to be safe for preclinical use. The formulation also retained the good stability at accelerated conditions over the period of 90 days. Owing to these properties it can be used as an effective delivery system for the nasal route. The drug release mechanism from the gel matrices was found to be anomalous and following the Higuchi equation. Formulated 19%Pluronic F-127 gel with 0.1% chitosan is a promising nasal drug delivery system for the antialzheimer drug piracetam, which would showed the effective gelation viscosity, gel strength and drug release properties along with good mucoadhesive strength and a permeation enhancing effect.

Keywords: Mucoadhesive drug delivery system, in situ gels, Piracetam, chitosan, Pluronic F-127

PHARMACIST IN PATIENT COUNCELLING

***Sule S. M., More G. R., Mohite P. B.**
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ABSTRACT:

Patient counseling is therefore an interaction between care provider and patient during which the patient is provided with information about health conditions, medications, dose, counseling about adverse effects etc. Patient counseling is an important component of Pharmaceutical care delivery which can provide the launching pad for increased recognition of role of pharmacist as drug driven care taker.

Keywords: Pharmacist, Counseling, Pharmacy Care.

PREPARATION AND EVALUATION OF POLY HERBAL FACE MASK

Kale D. B., Jangale S. K., Kadu O. D., Jadhav V. S.
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ABSTRACT:

The main objective of the work is to formulate and evaluate poly herbal face mask for cosmetic purposes. Banana, Orange peel, Amla, Tomato and Papaya were purchased from the local market dried and powdered. Coconut Shell Charcoal was prepared, powdered, sieved through sieve no 40. All ingredients were mixed geometrically and packed in an air tight container for further use. The powder was evaluated and formulated into poly herbal face mask by addition of water. The powder had shown passable flow property which is suitable for a face mask. Particle size of the powder was found to be 25-30µm. Antimicrobial evaluation was performed with two organisms Staphylococcus aureus and Staphylococcus epidermidis. Poly herbal face masks are used to stimulate blood circulation, rejuvenates the muscles and help to maintain the elasticity of the skin and remove dirt and excessive oil from skin pores. The advantages of poly herbal cosmetics arenon-toxic in nature and reduce the allergic reactions. Thus the investigation clearly concluded that the face mask have good properties to human skin.

Key words: Polyherbal face mask, Staphylococcus aureus Staphylococcus epidermidis

APPLICATIONS AND USE OF MICRO EMULSIONS

Ganjpure U. N.*, Chloe S. B., Mr. Kale A. D., Mr. Kolhe S. D.
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Abstract
During the past five decades since the discovery of microemulsions by Jack H. Shulman, there have been huge progresses made in applying microemulsion systems in a plethora of research and industrial processes. While it is beyond the scope of this paper to give a complete review of all significant developments and applications, it will attempt to highlight several recent developments in applications that might interest readers for whom this paper serves as an introduction to microemulsions. In that note, the relevance of this paper and the truncated scientific background on microemulsions are first discussed.

INFLUENCE OF NANOTECHNOLOGY ON HERBAL DRUGS

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ABSTRACT:

Herbal medicines have been widely used all over the world since ancient times and have been recognized by physicians and patients for their better therapeutic value as they have fewer adverse effects as compared with modern medicines. Phytotherapeutics need a scientific approach to deliver the components in a sustained manner to increase patient compliance and to avoid repeated administration. This can be achieved by designing novel drug delivery systems (NDDS) for herbal constituents. NDDSs not only reduce the repeated administration to overcome non-compliance, but also help to increase the therapeutic value by reducing toxicity and increasing the bioavailability. One such novel approach is nanotechnology. Nano-sized drug delivery systems of herbal drugs have a potential future for enhancing the activity and overcoming problems associated with plant medicines. Hence, integration of the nanocarriers as a NDDS in the traditional medicine system is essential to conflict more chronic diseases like asthma, diabetes, cancer, and others.

Keywords: Herbal drugs, nanotechnology approach, assure safety, patient compliance.

FORMULATION AND EVALUATION FLOATING TABLET OF FAMOTIDINE

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ABSTRACT:

It was possible to prepare gastro-retentive floating tablets of Famotidine by direct compression method and by using HPMC K 15 M and HPMC K100 M together. Optimized batch has shown satisfactory results with short buoyancy lag time, long total buoyancy time and controlled drug release up to 12 hrs. The drug – polymer ratio, viscosity grades of HPMC and gas generating agent were found to influence the release of drug and floating characteristics from the prepared floating tablets of Famotidine. Overall, the present formulation showed potential to deliver drug for site specific absorption.

Keywords: Floating tablet, Famotidine

NANOSUSPENSION: AN OVERVIEW

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ABSTRACT:

Nanotechnology has emerged as a tremendous field in the medicine. Nano refers to particles size range of 1-1000nm. Nano-suspensions are part of nanotechnology. Nanosuspensions contain submicron colloidal dispersion of pharmaceutical active ingredient particles in a liquid phase stabilized by surfactants. Nanosuspension technology is a unique andeconomical approach to overcome poor bioavailability that is related with the delivery of hydrophobic drugs, including those that are poorly soluble in aqueous media. Nanosuspensions are important carriers to develop novel drug formulations. Few techniques such as precipitation methods, milling methods and homogenization methods are developed to produce nanosuspension (NS) and have been successfully employed inlarge-scale production. They are administered by Parenteral, oral, ocular and pulmonary routes. Now their application also extended to site specific delivery. Nanosuspensions are prepared by using wet mill, high pressure homogenizer, emulsion-solvent evaporation, melt emulsification method and super critical fluid techniques. Nanosuspension technology can be used to improve the stability as well as bioavailability of poorly soluble drug. Nanosuspensions are also use in various dosage forms. The unique features of nanosuspensions have enabled their use in various dosage forms, including specialized delivery systems such as mucoadhesive hydrogels. Rapid strides have been made in the delivery of nanosuspensions by parenteral, oral, ocular and pulmonary routes. Currently, efforts are being directed to extending their applications in site-specific drug delivery.

E-PHARMACY AND INNOVATION

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ABSTRACT-

Buying medicines online is the latest trend amongst the Indian patients and consumers. E-pharmacies business is growing very fast in India although its mechanism of regulation is not decided yet. E-pharmacy is electronic pharmacy. E-pharmacy is not only the buying and selling of drug on online websites or on application, it means that the use of technology in pharmacy for better future. Such as electronic patient record , Electronic connection with health care providers and patient, Electronic prescribing to avoid error dispensing of drug, total record of drug may be maintained by computer programmes,

E-pharmacies come under the purview of the Drugs and Cosmetics Act, 1940 and the Information Technology Act, 2000. But current Drugs and Cosmetics Act, 1940 doesn't distinguish between online and offline pharmacies. It seems e-pharmacies may not abide by these regulations and bypass them. Regulatory authorities finds it difficult to control, monitor and track sell of drugs via internet as there is lack of clear guidelines in India regarding the same. E-pharmacy may be proved as dangerous trend in future if not regulated properly.

We can use new innovation of computer technology in Pharmacy field for make it more convenient and efficient for better future.

Keywords: e-pharmacy, Innovation

RECENT ADVANCES IN NATURAL EXCIPIENT USED IN DOSAGE FORM DESIGN

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ABSTRACT:

Polysaccharide rich gums and mucilages are produced by different natural sources such as plants, animals and microbial organisms to fulfil structural and physiological functions. Their diverse structural compositions with a broad range of physicochemical properties make them useful for inclusion in dosage forms for different purposes such as to improve manufacturing processes and/or to facilitate drug delivery. A number of natural gums and mucilages have been investigated for inclusion in pharmaceutical formulations for a variety of reasons. The search for new excipients continues to be an active topic in dosage form design and drug delivery research. The aim of this review article is to give an overview of the chemical nature of natural gums and mucilages and to discuss their applications in the formulation of pharmaceutical dosage forms. Special emphasis will be placed on the use of gums and mucilages in novel drug delivery systems, such as modified release dosage forms and delivery systems that target specific sites of delivery.

Keywords: Drug delivery systems, gum, modified release dosage forms, mucilage, pharmaceutical excipients.

USE OF ONLINE PRESCRIPTION SERVICES

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ABSTRACT

To learn about attitude held by older adults towards online prescription services explore the factors impacting their use the study aims to generate recommendations rooted in their both design user behavior that may encourage older adults to adopt this or similar services.

DESIGN, SYNTHESIS AND BIOLOGICAL EVALUATION FOR ANTICANCER ACTIVITIES OF THIAZOLE SUBSTITUTED OF PHENOTHIAZINE DERIVATIVES

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ABSTRACT:

The synthesis of new series of 2-amino, 4-phenylthiazole substituted 10H-phenothiazine derivatives. The phenothiazine derivatives are from the 2-chloro benzoic acid and anilines as starting material. The synthesized compounds were tested for their preliminary tests, physical constants, TLC, IR, 1H-NMR Spectra and CHN analysis confirmed the structures of the final compounds. The phenothiazine derivatives are evaluated for anticancer activity by the onion root tip assay, potato disc assay and Trypan Blue Assay. The cyclophosphamide use as a standard drug.

Keyword: Anticancer activity, Onion root tip assay, Potato disc assay, Trypan blue assay.

SYNTHESIS AND BIOLOGICAL EVALUATION OF ISO INDOLINE 1,3 -DIONE DERIVATIVES

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ABSTRACT

A series of phthalimide derivatives were synthesized and evaluated for their analgesic and invitro anti-inflammatory activity. The target compounds were obtained by condensation of N-hydroxymethylphthalimide with the substituted triazole. The structures of the synthesized derivatives were confirmed by means of IR, 1H-NMR spectral data. The analgesic activity was determined by acetic acid induced writhings in mice and Invitro anti-inflammatory activity was evaluated using thermally induced protein denaturation technique. The results revealed the importance of the combination of triazole and phthalimide moieties as a promising analgesic and anti-inflammatory candidate.

Keywords- Pthalimide, analgesic and anti-inflammatory activity

DESIGN SYNTHESIS AND EVALUATION OF ANTI-DEPRESSANT ACTIVITY OF SOME NEW DERIVATIVES OF PHENOTHIAZINE

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ABSTRACT

This study was aimed at the synthesis of fused Phenothiazine derivatives containing heterocyclic moiety. The synthesized compounds were tested for their preliminary tests, physical constants, TLC, IR, ^{1}H-NMR Spectra and CHN analysis confirmed the structures of the final compounds. Antidepressant activity of all the synthesized compounds was evaluated by despair swim test by using *Sprague Dawley Rats*. Standard drug Imipramine was used as the control. In the despair swim test, all the synthesized derivatives showed antidepressant activity. Among them four Compounds (A_1, A_8, $B_1$and B_8) showed significant antidepressant activity comparing with control drug imipramine. These results are useful for the further investigation in the future.

Keywords: Antidepressant activities, Despair swim test, Phenothiazine and *Sprague Dawley Rats.*

DEVELOPMENT AND VALIDATION OF A STABILITY INDICATING UV SPECTROPHOTOMETRIC METHOD FOR THE ESTIMATION OF DICLOXACILLIN SODIUM IN BULK DRUGS

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ABSTRACT

A simple and precise stability-indicating UV Spectrophotometric method has been developed and validated for quantitative analysis of Dicloxacillin Sodium in the bulk drugs. Separation of the drug from its degradation products was achieved by uv spectrophotometric method using distilled water and scanned between 200 to 400 nm. The maximum absorbance was found to be at 273.60 nm and found to be linear over the range 100-500 µg/ml with good correlation coefficient (r^2) 0.999.The limits of detection and quantification were 6.9623 and 21.0980 µg/ml, respectively. Forced degradation studies were carried out on Dicloxacillin Sodium by subjecting it to stress conditions [hydrolysis (acid, base), oxidation, photolysis, and thermal degradation] and the degraded samples were further analyzed by using this method. Major degradation was observed in alkaline, thermal and oxidative conditions. Dicloxacillin Sodium was quite stable under the other stress conditions investigated. Thus the method proved to be stability indicating. The proposed method was found to be economical, selective and sensitive for the desirable range.

Keywords: Dicloxacillin Sodium; forced degradation; Stability Indicating; Uv spectrophotometry; Validation.

GREEN CHEMISTRY APPROACH FOR THE SYNTHESIS OF NOVEL TETRAZOLE DERIVATIVES

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ABSTRACT

In this context new 2-Substituted-4-(5-phenyl-1*H*-tetrazol-1-yl)-2,3,5a,9a-tetrahydro-1*H*-1,5-benzodiazepine derivatives were synthesized by conventional as well as microwave method. Benzonitrile and sodium azide in presence of ammonium chloride and DMF produces 5-phenyltetrazole; this on reaction with acetic anhydride forms 5-phenyl 1-acetyl tetrazole which reacted with different aromatic aldehydes in presence of alkaline medium, to yield corresponding chalcones. Chalcones on further reaction with o-phenylenediamine yield 2-Substituted-4-(5-phenyl-1*H*-tetrazol-1-yl)-2,3,5a,9a-tetrahydro-1*H*-1,5-benzodiazepine (4a-4j). The structures of newly synthesized compounds were characterized by physical and spectral characteristics by FT-IR and 1H NMR spectrozed compound were evaluated for their anti-Fungal activity by MIC (Broth dilution Mscopy. All synthesiethod) against *A. niger* and *C. Albicans*. All synthesized compounds shows moderate to good antifungal activity in which compound (4g) shows more MIC at 120 µg/ml.

Key Words - Chalcones; Tetrazole; Anti-Fungal activity, MIC.

METHOD DEVELOPMENT AND VALIDATION OF IRBESARTAN BY RP-HPLC METHOD

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ABSTRACT

This Study includes development of RP-HPLC method for estimation of Irbesartan by using mobile phase Water: Methanol (80:20),PH 2.6 having retention time 3.2 min. The developed method was validated as per ICH guidelines in terms of Specificity, Accuracy, Linearity, LOD, LOQ, and Ruggedness & Robustness. The Inter-day and Intra- day precision results were good enough to indicate that the proposed method was reproducible. The Assay experiment showed that the contents of Irbesartan estimated in tablet dosage were free from interference of excipients, which indicate that developed method was specific. Recovery of standard drugs added was found be 97.2-99.9% for Irbesartan indicating that the proposed method was accurate. A good linear relationship was observed for Standard Drug of Irbesartan and Tablet Sample of Irbesartan in the concentration ranges of 60 – 100 ug/ml. The correlation coefficient for Irbesartan was found to be 0.998 ug/ml. After performing Analysis by Different analysts; it was found that the RP-HPLC method for determination of Irbesartan was found rugged. % RSD for Robustness was well within the limits ensuring that the proposed Method was robust. The LOD was 0.710 ug/ml and LOQ was found to be 0.116 ug/ml for Standard drug Irbesertan. This demonstrated that the developed RP-HPLC method was simple, linear, robust, and rugged, could be conveniently adopted for the routine quality control analysis of Irbesartan from its pharmaceutical dosage form and Bulk drug.

Keywords-Irbesartan, RP-HPLC, Recovery, analysis.

SYNTHESIS AND BIOLOGICAL EVALUATION OF PYRIDIN-2(1H)-ONE DERIVATIVES

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ABSTRACT:

In the present study a series of novel 6-(4-nitrophenyl)-4-substituted-3-(1H-tetrazol-5-yl)pyridin-2(1H)-one derivatives(3a-3j) were synthesized by the reaction of 6-(4-nitrophenyl)-2-oxo-4-substituted-1,2-dihydropyridine-3-carbonitrile(2a-2j) with DMF, sodium azide and ammonium chloride were refluxed for 7hrs.The synthesized compounds have been confirmed initially by primary physiochemical properties like M.P., TLC, qualitative tests, solubility, etc. and then by FT-IR, 1H-NMR and Mass spectral data.New compound were screened for anti-microbial evaluation. The results revealed that many of the synthesized 6-(4-nitrophenyl)-4-substituted-3-(1H-tetrazol-5-yl) pyridin-2(1H)-one derivatives has good anti-microbial activity.

Keywords: Chalcones, Tetrazole, Pyridin-2(1H)-one, Anti-microbial activity.

ULTRASOUND-ASSISTED SYNTHESIS AND BIOLOGICAL EVALUATION OF TETRAZOLE DERIVATIVES

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ABSTRACT:

In the present study a series of novel 6-(4-nitrophenyl)-4-substituted-3-(1H-tetrazol-5-yl)pyridin-2(1H)-one derivatives(3a-3j) by conventional, microwave and ultrasound assisted synthesis method. Advantages of the ultrasound effect were observed and high yields of the products were obtained after 20–30 min sonication. Characterization and structural elucidation of the products was realized based on chemical, analytical and spectral analyses. The results clearly demonstrated a high efficiency of the ultrasonic systems was achieved in the chemical processes. New compound were screened for anti-microbial evaluation. The results revealed that many of the synthesized 6-(4-nitrophenyl)-4-substituted-3-(1H-tetrazol-5-yl)pyridin-2(1H)-one derivatives has good anti-microbial activity.

Keywords: Chalcones, Tetrazole, Pyridin-2(1H)-one, Anti-microbial activity.

AN OVERVIEW ON SUPRAMOLECULAR CHEMISTRY

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ABSTRACT

The term supramolecular was introduced by Karl Lother Wolf in 1937 which describe hydrogen bonded acetic acid dimers. The supramolecule also describe in complex of biomolecule such as peptide and oligonucleotide. Supramolecular chemistry uses non-covalent interactions to coax molecules into forming ordered assemblies. The construction of ordered materials with these reversible bonds has led to dramatic innovations in organic electronics, polymer science and biomaterials. The use of these principles led to an increasing understanding of protein structure and other biological processes. Eventually, chemists were able to take these concepts and apply them to synthetic systems. Supramolecular chemistry has found many applications such as materials technology can be readily accessed using bottom-up synthesis as they are composed of small molecules requiring fewer steps to synthesize. A major application of supramolecular chemistry is the design and understanding of catalysts and catalysis Supramolecular chemistry has been used to demonstrate computation functions on a molecular scale. In many cases, photonic or chemical signals have been used in these components, but electrical interfacing of these units has also been shown by supramolecular signal transduction devices.

RECENT ADVANCES ON THE GREEN SYNTHESIS AND ANTIOXIDANT ACTIVITIES OF PYRAZOLES

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Abstract:

Pyrazoles have a representative history in medicinal chemistry. These nucleuses, molecules of synthetic origin, constitute a group of nitrogen heterocyclic compounds. Available literature particularly shows a variety of pyrazoles with antioxidant effect. In this connection, this review describes the advances on the green synthesis of pyrazoles with antioxidant activity.

Key words:- Nucleases , synthetic

NOVEL ANTI-CATARACT POTENTIAL OF DIOSGENIN

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ABSTRACT:

Cataract is an opacification of the lense of eye causes of cataract formation are aging , generation of free radicals, diabetes, protein denaturation by oxidative stress or any inducer ,etc. Antioxidants and antioxidant enzymes, antidenaturing agents protect the eyes by reducing free radical damage and eye lenses by inhibiting protein denaturation .The present study evaluated the in vitro anticataract and antidenaturing activities of Diosgenin against glucose-induced cataractogenesis using goat lenses and heat induced egg albumin denaturation . Transparent isolated goat lenses were incubated in artificial aqueous humor and divided into five experimental groups .The Diosgenin at a dose of 20µg/ml was incubated simultaneously with glucose (55mM)and glucose (5.5mM) for a period of 72 h. ascorbic acid (20µg/ml)was used as the standard drug. At the end of the incubation lens opacity was measured by photographic evaluation. Anti denaturing activity was evaluated by taking different concentration of Diosgenin (10p.p.m - 500p.p.m) with egg albumin and subjected for protein denaturation by using heat for 15 mins . Standard drug used was Diclofenac sodium . At the end protein denaturation was analysed by taking absorbance at 440 nm and 660 nm rsp . The Diosgenin showed significant inhibition of cataractogensis of eye lenses by Diosgenin at conc. 20 p.p.m and also thermally induced protein denaturation inhibited by Diosgenin at conc 500 p.p.m . The present supports Diosgenin as an antidenaturing and anticataract agent .

Key Words: Cataract, Ascorbic Acid, Diosgenin, Antioxidant, Antidenaturation.

PROPHYLACTIC ROLE OF BRYOPHYLLUM PINNATUM AGAINST SODIUM OXALATE (NAOX) INDUCED UROLITHIASIS IN RATS

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ABSTRACT

Objective: The present study was intended to investigate anti-urolithiatic effect of *Bryophyllum pinnatum* hydroalcoholic extract (BPHE*)* against sodium oxalate (NaOx) induced urolithiasis in rats.

Materials and Methods: Animals were grouped as Vehicle Group (received vehicle gum acacia 2% w/v 1 ml/kg/p.o.), Control Group (Sodium oxalate 70 mg/kg,i.p.), Positive control Group (500 mg/kg, p.o. Cystone suspended in gum acacia 2% + Sodium oxalate 70 mg/kg). BPHE lower Group (100 mg/kg, p.o. suspended in gum acacia 2% + Sodium oxalate 70 mg/kg), BPHE higher Group (200 mg/kg, p.o. suspended in gum acacia 2% + Sodium oxalate 70 mg/kg),

Result: Repeated administration of hydro alcoholic extracts of leaves of *Bryophyllum pinnatum at* the doses of 100 and 200 mg/kg significantly ($P< 0.01$) reduced serum creatinine, urea, uric acid, and electrolytes such as serum sodium, potassium, chloride and calcium levels in comparison with the sodium oxalate treated animals when compared with standard drug cystone.

Conclusion: From the above findings study shows that the extracts of leaves of *Bryophyllum pinnatum* could be beneficial against sodium oxalate induced urolithiasis.

Keywords: *Bryophyllum pinnatum*, urolithiasis, sodium oxalate.

INFLUENCE OF NANOTECHNOLOGY ON HERBAL DRUGS.

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ABSTRACT:

Herbal medicines have been widely used all over the world since ancient times and have been recognized by physicians and patients for their better therapeutic value as they have fewer adverse effects as compared with modern medicines. Phytotherapeutics need a scientific approach to deliver the components in a sustained manner to increase patient compliance and to avoid repeated administration. This can be achieved by designing novel drug delivery systems (NDDS) for herbal constituents. NDDSs not only reduce the repeated administration to overcome non-compliance, but also help to increase the therapeutic value by reducing toxicity and increasing the bioavailability. One such novel approach is nanotechnology. Nano-sized drug delivery systems of herbal drugs have a potential future for enhancing the activity and overcoming problems associated with plant medicines. Hence, integration of the nanocarriers as a NDDS in the traditional medicine system is essential to conflict more chronic diseases like asthma, diabetes, cancer, and others.

Keywords: Herbal drugs, nanotechnology approach, assure safety, patient compliance.

FORMULATION AND EVALUATION OF HERBAL ANTHELMINTIC AND ANTICAVITY LOLLIPOPS

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ABSTRACT:

Helminthiasis and dental carries is prevalent globally, but is more common in developing countries with poorer personal and environmental hygiene, which is the major cause of undernourishment, anemia, eosinophilia and pneumonia. The development of taste masking for bitter-tasting drugs administered orally for children has always been a formidable challenge for formulation scientists.Most of the existing anthelmintic produce side effects such as abdominal pain, loss of appetite, nausea, vomiting, headache and diarrhea. One of the problems with anthelmintic is that many of them have been used for a long time and over the time parasites have developed drug resistance. The present study was done with the aim to formulate an anthelmintic preparation and to evaluate anthelmintic activity of formulation containing traditionally user herbs viz., *Plumbago zeylanica* (leaves), *Hyoscyamus niger* (roots) and *Abultion indicum* (leaves) using adult earthworm Pheritima posthuma. The aqueous and ethanolic extract of the crude drug of different concentration were tested which involve determination of paralysis time and time to kill the worms.

Keywords-Anticavity, anthalmentics, lollipops.

STUDY OF ANTI-DEPRESSANT AND ANTIOXIDANT ACTIVITY OF TINOSPORA CORDIFOLIA, EMBLICA OFFICINALIS AND TRIBULUS TERRESTRIS IN SWISS ALBINO MICE.

Autade K. A.

ABSTRACT

Depression is most common disorder of mood. It is widely accepted that a neurochemical imbalance (NA,5HT) underlie the pathophysiology of mood disorders. The present study was planned to evaluate the anti-depressant and anxiolytic activity of ayurvedic formulation comprising three herbs Guduchi (Tinospora cordifolia Miers), Aamalaki (Emblica officinalis Garten) and Gokshura (Tribulus terrestris Linn). Swiss albino mice were divided into four groups of six animals each, comprising of both male and female in each group. Group I received water served as normal control (WC), group II received vehicle and served as vehicle control (VC), group III received ayurvedic formulation and group IV received standard drug diazepam (2 mg/kg) for anxiolytic study in elevated plus maze and standard antidepressant imipramine (5 mg/kg) for anti-depressant activity in behavior despair test. Ayurvedic formulation is found to be having antidepressant and anxiolytic activity in experimental animals. Thus, this formulation can be used in prevention and treatment of depression and anxiety.

Keywords: Aamalaki (Emblica officinalis Garten); Anti-depressant; Gokshura (Tribulus terrestris Linn); Guduchi (Tinospora cordifolia Miers); Rasayana Ghana; anxiolytic

METHODS FOR EVALUATION OF IN VITRO ANTIMICROBIAL ACTIVITY

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ABSTRACT:

Antimicrobial susceptibility testing can be used for drug discovery, epidemiology and prediction of therapeutic outcome. In this review, we focused on the use of antimicrobial testing methods for the in vitro investigation of extracts and pure drugs as potential antimicrobial agents.

Keywords; Antimicrobial Activity, Broth dilution, MIC method.

FORMULATION AND EVALUATION OF HAIR TONIC FROM COW URINE

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ABSTRACT:

Alopecia is a dermatological disorder with psychosocial implications on patients with hair loss. This invention relates to hair treatment compositions for Alopecia containing Cow urine distillate and sprouted meethi ,claims of hair growth promotion.Hair formulation were studied and showed excellent hair growth activity with standard [2 % minoxidil ethanolic solution] in wister albino rats. Hair growth initiation time was significantly reduced to half on treatment with the hair tonic, as compared to control animals. The time required for complete hair growth was also significantly reduced. Quantitative analysis of hair growth after treatment with oil exhibited greater number of hair follicles in anagenic phase which were higher as compared to control [. The result of treatment with hair tonic was better than the positive control minoxidil 2 % treatment. It holds the promise of potent herbal alternative for minoxidil and perfect herbal treatment for Alopecia.

Key Words- Alopecia, Cow Urine, Hair Growth.

FORMULATION OF GYMNEMA SYLVESTRE MIX INCORPORATED FOODS FOR DIABETES MELLITUS

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ABSTRACT:

Diabetes is defined as a group of metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion and insulin action. In every fifth person who suffered from diabetes in the world today is an Indian. Out of the total number of persons suffering from diabetes in the world, which is around 150 million, roughly 35 million are Indians. The environmental factors that may lead to the development of diabetes mellitus include lack of physical activity, drugs and toxic agents, obesity, viral infection. Phytochemicals identified from traditional medicinal plants are presenting an opportunity for the development of new type of therapeutics for diabetes. Gymnema sylvestre supplementation appears to improve glycemic control in patients with type 2 diabetes. Reducing postprandial blood glucose significantly caused a decrease of HbA1C, therefore reducing the complication from diabetes. Hence this study was designed to prepare value added products based on south Indian recipes with the incorporation of Gymnema sylvestre helps to prevent the Diabetes mellitus.

FORMULATION AND EVALUATION OF POLYHERBAL FORMULATION IN STREPTOZOTOCIN INDUCED DIABETIC RATS

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ABSTRACT

Momordica charantia, Eugenia jambolana, Trigonella foenum-graecum, Phyllanthus emblica, Ocimum sanctum, Aegle marmelos, Curcuma longa, Mentha spicata, are well-known plants available throughout India and they are commonly used for the treatment of various diseases including diabetes mellitus. The antidiabetic activity of the individual plant parts is well known, but the synergistic or combined effects are unclear, therefore the aim of the present study is to formulate a polyherbal formulation and evaluate its antidiabetic potential in animals. The quality of the finished product was evaluated as per the WHO guidelines for the quality control of herbal materials. The quality testing parameters of the polyherbal formulation were within the limits. The acute toxicity studies of the polyherbal formulation did not show any toxic symptoms in doses up to 2000 mg/kg over 14 days.

Keywords: Polyherbal formulation, Antidiabetic, Antihyperlipidaemic, Streptozotocin.

Pharmaceutics- **A1-A18**

Pharmaceutical chemistry and analysis – B-19-B-28

Pharmacology & Pharmacognosy – C-29-C37

DESIGN, DEVELOPMENT AND STANDARDIZATION OF IMMEDIATE RELEASE TABLET OF IRBESARTAN WITH DISSOLUTION ENHANCED APPROACH

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ABSTRACT:

The objective of the present work was to formulate immediate release tablet of Irbrsartan with the view to enhance the dissolution rate of Irbesartan. It is an angiotensin 2 receptor blocker used in treatment of hypertension.

To enhance dissolution solid dispersion of Irbesartan was prepared with PEG4000 & PEG6000 by kneading and solvent evaporation method and further evaluated for drug and excipient compatibility by FT-IR, physical appearance, percent practical yield, percent drug content solubility and dissolution.

Solid dispersion further compressed with Plantago ovata mucilage (2-10%w/w) as natural superdisintegrant and microcrystalline cellulose was used as diluent, mannitol as filler, talc as diluent and aerosil. The blend were need to evaluate for precompression parameters such as Angle of repose, bulk density, Hausners ratio, Compressibility index and post compression parameters such as, General appearance, weight variation test, Thickness, hardness, friability test disintegration test, assay in vitro dissolution study.

Key words: Immediate release tablet, Irbesartan, Solid dispersionetc.

ENHANCEMENT OF AQUEOUS SOLUBILITY AND ORAL BIOAVAILABILITY OF CLASS II DRUG BY DRY EMULSION

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ABSTRACT

Liquid emulsions have distinct advantages over the other oral dosage forms by improving the oral bioavailability and by reducing the side effects, but the number of emulsion formulations currently in use are few compared with other oral dosage forms due to lack of physicochemical and compliance problems. To overcome these problems dry emulsions were prepared. Dry emulsions are often ready by spray drying, evaporation and rotary evaporation. The aim of the present investigation is to improve the dissolution characteristics and oral bioavailability of poorly water soluble drug Olmesartan medoxomil with the help of dry emulsion. Olmesartan medoxomil may be a poorly soluble drug helpful within the treatment of high blood pressure, absorption window of drug is stomach and upper part of small intestine. Dry emulsion was ready by victimisation purgative during which drug is very soluble, poloxamer188 as water soluble carrier and aerosil 200 as an adsorbent. The preferred oil was castor oil, olive oil, soybean oil and isopropyl myristate and polymers were PEG400, Eudragit EPO and Poloxamer 188. Dry emulsion was prepared by spray drying. Dry emulsion was evaluated for drug content, percentage moisture content, aqueous solubility, dissolution study and in-vivo bioavailability study. In vitro drug release of dry emulsion was studied by using USP type II paddle dissolution apparatus. The solubility of the drug was increased with surfactant and polymer at 1:1 ratio. Probable mechanisms of improved solubility were characterized by particle size determination, Differential Scanning Calorimetry (DSC), Powder X-ray Diffractometry (PXRD) and Scanning Electron Microscopy (SEM). This study revealed that solid dry emulsion technique was proved to be promising and useful for improvement of solubility, dissolution rate and oral bioavailability of Olmesartan medoxomil.

Keywords: Dry Emulsion, Lab Spray Dryer, Olmesartan medoxomil, Castor oil, Poloxamer 188, Bioavailability.

FORMULATION AND EVALUATION OF HERBAL EYE MASCARA

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ABSTRACT:

Mascara is a cosmetic preparation commonly used to enhance the eyelashes. It may darken, thicken, lengthen, and/or define the eyelashes. The present investigation was made to formulate herbal mascara using aloe as a natural polymer. Due to side effect of available synthesis polymer natural sources was used. Different batches of herbal mascaras were prepared by o/w emulsion method and evaluated.

Key-words: Mascara, Gum rosin, Formulation, Evaluation

SEPERATION OF MIXTURE BASED ON DENSITY

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ABSTRACT

A *separation process* is a method that converts a mixture or solution of chemical substances into two or more distinct product mixtures. At least one of results of the separation is enriched in one or more of the source mixture's constituents. In some cases, a separation may fully divide the mixture into pure constituents. Separations exploit differences in chemical properties or physical properties (such as size, shape, mass, density, or chemical affinity) between the constituents of a mixture. A process for separating mixtures of solids of different density uses a separating liquid and a device for implementing the process. The process is especially suitable for the analysis and technical preparation of waste plastics, glass and electrical scrap. In this method separate solid sample mixture on the basis of densities of solid.

Keywords: separation process, density, size etc.

PRECISION MEDICINES

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ABSTRACT

Precision medicine is an approach that integrates clinical and molecular information to understand the biological basis of disease. This information can be obtained by converting DNA into data through a process called genome sequencing. Researchers can use this data to identify specific gene abnormalities, or biomarkers, to understand which types of patients a drug will be most effective for, and who is likely to experience severe side-effects. This can aid in the development of new targeted therapies and the repurposing of existing drugs. Targeted therapies are tailored to the genetic makeup of individual patients so genomic testing is required to ascertain the most effective therapy before it is administered. This understanding of the relationship between a drug and an individual's genes enables doctors to administer the right drug for the right patient at the right dose, first time – leading to better outcomes and reduced adverse effects.

Keywords: Precision medicine, genome sequencing.

USE OF COMPUTER IN DRUG DESIGN AND DRUG DISCOVERY: A REVIEW

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ABSTRACT

Drug design through computer, resent very effective technique in modern arena. now a day computer added drug design (CADD) technology are used in nanotechnology, molecular biology, biochemistry etc. The main benefit of the CADD is cost effective in research and development of drug. There are wide ranges of software are used in ADD. Gird computing window based general PBPK /PD modeling software, PKUDDS for structure based drug design , APIS, JAVA , perl and python CADD as well as software CADD visualization homology Molecular dynamic, energy minimization molecular docking QSAR etc. Computer aided drug design is applicable in cancer disease, transportation of drug to specific site in body, data collection and storage of organic and biologically

Keywords: CADD, JAVA, Drug discovery