Sponsored

First International Conference

"RECENT ADVANCES IN MOLECULAR MEDICINE AND TRANSLATIONAL RESEARCH"

24th and 25th February 2023

ABSTRACT BOOK

Organized by

Shivajirao Kadam Institute of Pharmaceutical Education and Research Indore (M.P.)

Education, Innovation and Research

Off Indore Bypass Road,
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MPCST and AERB Sponsored First International Conference

"Recent Advances in Molecular Medicine and Translational Research"

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About Institute

Shivajirao Kadam Institute of Pharmaceutical Education and Research has been established by Transnational Knowledge Society and promoted by Shivajirao Kadam Group of Institutions with the mission to set up the institute with academic excellence by imparting education through high-quality infrastructure and technologies in pharmaceutical sciences. The vision of our Institute is to become an eminent institute by providing excellent pharmaceutical education and research to improve healthcare needs of Community and Technological aspects of industries. The Institute provide professional environment and develop pharmacy professionals as responsible citizens of a society with ethical values. The Institute is committed to developed Skills to create innovation and bring the transformation among the young minds to become global leader in pharmaceuticals.

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About Conference

'SKICON', the 1st International conference on RECENT ADVANCE IN TRANSLATIONAL RESEARCH AND MOLECULAR MEDICINE will provide an open forum for the academicians, researchers, budding pharmacists, and professionals from pharmaceutical industry to enrich their knowledge in the area of drug discovery, development and regulatory requirements. It will help them to share their ideas and research work which may culminate with new concepts, innovations and novel strategies for various challenges in the pharmaceutical field. The conference features keynote addresses by internationally renowned speakers from various countries expertise in different disciplines of pharmaceutical field. The conference will also provide the opportunity to young budding researchers, scientists and industry professionals from various organisations to put forth their innovative ideas and research findings by panel discussions, deliberations and poster presentation. Impact – Expected Outcome- Academic / Social / Commercial this conference will provide a strong base and knowledge about the latest developments in drug discovery. It will be a platform to provide industry interaction, sharing of knowledge among academicians, researchers and industrialists. It will display the latest developments, research and projects in the pharmaceutical. The latest requirements of industry will be shared among all the academicians and researchers, which will lead to target the focus areas.

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Chairman BOG Message

In this modern era the concern for health of people in general is increasing at a tremendous rate. Newer disease is coming to surface everyday with no cure of them to add to the already existing area. The research horizons are broadening and we can no longer restrict ourselves to traditional way of working instead we required a coordinated approach from various facts of healthcare sectors including pharmaceutical industry, academicians & scientists of multidisplinary fields of science. The theme of the conference address by the pharmaceuticals as well as health care sectors in general in India and across the globe. In this context the conference shall provide much needed insight of Translational Research & Molecular Medicines. I appreciate Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore for organizing such an event that address multifaceted of Molecular Medicines & Research.

I wish this event is a huge success & Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore continue to achieve a greater success than ever.

Prof. Shivajirao Kadam
Chief Patron
Shivajirao Kadam Group of Institutions

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ChairmanSocietyMessage

Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore is organizing first "International Conference on SKICON 2023 with the theme "Recent Advances in Translational Research & Molecular Medicines". As population grows and ages, new areas of medicine need emerge. The diseases in the developing countries are growing increasingly similar to those of the developed world. Time has an alarming demand of many new drugs and medical discoveries for many health related issues. There is need to develop world class support and infrastructure both for production and research in the Indian Pharmaceutical Industry to become globally competitive. There is an urgent need of global exploration on the recent advances in emerging healthcare verticals of pharmaceuticals, biotechnology, pharmacology, medicinal chemistry clinical practice, consumer healthcare, medical devices, nutraceuticals and drug discovery. In that context, this type of conference will certainly facilitate good understanding of Translational Research & Molecular Medicines. I wish this event is a huge success & Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore process under changed perspectives and regulations for the scientist and researchers of common interest. I extend my compliments to Institute of Pharmacy for organizing such event that addresses international emerging aspects of drug development and convey my best wishes for the grand success of this international conference.

Dr. Rahul Kadam
Patron

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Advisor Message

Right from the ancient times in India, in Greece and in several other countries of the world, conferences and discussions have been in the centre stage of academics. The take-home values of conferences are boundless. The primary aim is their capacity to make individuals ask questions. They are thought-provoking, research stimulating and enlightening. Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore organization underlines these objectives. Intellectuals from India and abroad will be conglomerating in this event bringing their expertise and inventiveness before participants. It is this idea that has lead to the genesis of SKICON 2023 to facilitate everybody interested to grapple with the challenges of Pharmacy and related sciences. Questioning and answering are consequential dimensions of research and this conference adheres to these aspects. For ambitious newcomers learning to carve a niche in their chosen domain, this conference will certainly germinate ideas. The ability to advance research skills can be honed to perfection not only through study and lab work but also via exposure to specialists in the area What we genuinely need at the moment is not a perfunctory study of science but an in-depth analysis of theories and practices so that we can truly move ahead in the Pharmaceutical sciences. I am highly indebted to the ever-encouraging Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore, my hardworking faculties and my students for their co-operation in creating this opportunity. I hope this event will motivate and profit everybody.

Professor Dr. Piyush Trivedi
Advisor
Shivajirao Kadam Institute of Pharmaceutical Education and Research, Indore

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MPCST and AERB Sponsored First International Conference
"Recent Advances in Molecular Medicine and Translational Research"
24th and 25th February 2023
Organized by Shivajirao Kadam Institute of Pharmaceutical Education and Research, Indore (M.P.)

Principal Message

I am delighted to share that Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore, is organizing first "International Conference on SKICON 2023 with the theme "Recent Advances in Translational Research & Molecular Medicines" on 24th & 25th Feb 2023.The objective of this conference is to address patients to whom the benefits of research and innovations pharmaceutical sciences ultimately reach. I am happy to know that large number of eminent scientists & technologists from all over the world will be participating in conference & discuss their valuable research, innovations & experiences in various disciplines of pharmaceutical sciences will leads to the opportunities for fruitful collaboration for advancement in this area & to the young researchers to make presentations about their innovative ideas & learn experiences from their senior scientists. This will result in the creation of much needed specialized manpower in the area of Recent Advances in Translational Research & Molecular Medicines.

I wish whole programmed the great success.

Dr. Rizwan Khan
Professor and Principal
Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore, (MP)

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MPCST Message

Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore is organizing first "International Conference on SKICON 2023 with the theme "Recent Advances in Translational Research & Molecular Medicines". The conference aims to showcases the achievements in the area of pharmaceutical sciences & innovation therefore to engage the common person with science in a joyful manner. The government is providing all necessary support so that this conference can make a greater impact on the society. SKICON 2023 is an excellent platform for interaction amongst students, scientists, innovators, citizens, policy makers & industries including start ups. It showcases the scientific achievements of the country directly to the youth & experts. I am sure, the sessions planned in the conference will provide a interactive stage to communicate scientific developments & thoughts among people from different streams and walks of the society. I hope large numbers of participants from different fields will be benefited by this conference. I wish them all the success

Dr. Anil Kothari
DG, MPCST Bhopal

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Keynote Speaker Message

I am delighted to know that the Shivajiorao Kadam Institute of Pharmaceutical Education & Research Indore is organizing 1st international conference on "Recent Advances in Translational Research & Molecular Medicines" on 24th & 25th February 2023. This will be a futuristic & unforgettable experience, because the focus of the conference is the utilization of advanced materials & technologies in the field of pharmacy where interaction with experts, the scientific community in general & the industry is facilitated. It also continues to focus on cooperation, innovations & to accelerate the incorporation into research & molecular medicines. In addition this conference will add a great value because excellent workshop & poster presentations have been designed for the association & discussion of current & future research in the field of pharmaceutical sciences. I wish the conference would be able to deliberate on "Recent Advances in Translational Research & Molecular Medicines" of national & international relevance particularly in the era of pharmaceutical sciences. I am sure that this conference will provide an affable environment for the researchers & academicians to freely exchange the views & ideas with others. I convey my warm greetings & felicitations to the Institution & the participants & my best wishes for the success of the conference.

Dr. Amit K. Tiwari
Professor, Pharmacology & Cancer Biology
University of Toledo, Ohio, USA

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ORGANISES

1ST INTERNATIONAL CONFERENCE ON

"**Recent Advances in Translational Research and Molecular Medicine**"

24th -25th February 2023

Conference Schedule

First Day Friday, February 24, 2023	
08:00-09:00	Registration & Breakfast
09:00-10:00	Inaugural Function Address by Guest of Honour Shri Dr. Anil Kothari Address by Conference Preciding Shri Dr. Anil Kumar Mishra Address by Chief Guest Honourable Dr. Pushymitra Bhargav
10:00-10:15	Coffee Break
CHAIR	Dr. N.K. Jain
10:15-10:55	Topic: Molecular Radioligands for Precision Imaging and Therapy Dr. Anil K. Mishra Director DRDO, New Delhi
CHAIR	Dr. V.K. Dixit
10:55-11:45	Topic: Discovery of novel unconventional non-apoptotic cell death inducers Dr. Amit K. Tiwari Professor, Pharmacology and Cancer Biology University of Toledo, Ohio, USA

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CHAIR	Dr. Ajay Namdev
11:45-12:35	Dr. Jayaramapuram Professor, Pharmaceutics and Formulation Design Drug Discovery and Development Unit Auburn University, AL
12.35-01:25	Lunch Break
CHAIR	Dr. T.R. Saini
01:25-02:05	Topic: Modeling Zebrafish as a Research Tool: Scope and Practice Dr. Fredrick E. William Professor and Chair, Dept. of Pharmacology and Experimental The University of Toledo, Ohio, USA
CHAIR	Dr. S.K. Jain
02:05-02:30	Topic: Lactone formulation isolated from a Dominican medicinal plant with anti antrax activity Dr. David Terrero Professor The University of Dominic Republic, USA
02:30-03:10	Topic: Understanding and Tackling the & quot; Undruggable Territory & quot: in the Drug Discovery Arena (Virtual) Dr. Prabhat Arya Co-founder, Smagen and Stealth Mode Biotech, Hyderabad, India
03:10-03:20	Hi-Tea
03:00-05:30	Poster Presentation /Hands-on Training Workshop of HPLC & UV Spectrometer (Session Sponsored by Sphincotech)
05:30-06:30	Paper Presentation Foreign Delegates
05:30-07:30	Entertainment Followed by Dinner

Second Day Saturday, February 25, 2023

08:30-09:30	Breakfast
CHAIR	Dr. Neha Kawathekar
09:40-10:25	Topic: Overcoming Multidrug Resistance in Cancer Dr. Pia Vogel

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	Professor of Biological Sciences Director of Center of Drug Design and Discovery Southern Methodist University, Dallas, Texas, USA
CHAIR	Dr. NS Hari Narayan Moorthy
10:25-11:10	Topic: Insights into the lethal toxicity of synthetic cathinones from studies in larval zebrafish Dr. F. Scott Hall Associate Professor, Pharmacology and Experimental Therapeutics Director of Behavioral Genetics Research The University of Toledo, Ohio, USA
CHAIR	Dr. Rajesh Sharma
11:10-11:55	Topic: Topical eye drops for treating retinal diseases Dr. Ritu Chakravarti Assistant Professor Physiology & Pharmacology University of Toledo, USA
11:55-12:35	Dr. Sai Hanuman Boddu Professor of Pharmaceutics, College of Pharmacy and Health Sciences, Ajman University, Ajman, U.A.E.
12.35-01:25	Lunch Break
CHAIR	Dr. Tamanna Mehtani
01:45-02:25	Topic: Designing Natural Product like Analogues for Anticancer Drug Discovery: Insights from Nature Dr. C. Kartikeyan Assistant Professor Department of Pharmacy Indira Gandhi National Tribal University (M.P.)
02:25-03:05	Dr. Pravin Shende Professor, SVKM's NMIMS, Shobhaben Pratapbhai Patel School of Pharmacy and Technology Management Mumbai
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PHARMACEUTICS

IC-PCS 01

Nanoparticles Used for Molecular Delivery for Anti-Cancer Therapy

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ABSTRACT:

Functioning of certain molecules and genes leads to the growth in new research area for the delivery of drugs in the cancer treatment. Nanoparticles are the tiny particles at nanometric scale which have the potential to cross the blood brain barriers, which makes them extremely useful way to deliver drug directly to the brain and even to the other organs. Currently focuses on understanding the release of small molecules from nanoparticles and their delivery to the targeted tumor tissues or cells, also focusing on the unique biodistribution of the drug carrying nanoparticles. For the treatment to stop or prevent cancer there are some nanoparticles used to transfer small molecular anticancer agents. So would mainly focus on nanoparticles for molecular delivery in anticancer therapy.

Keywords: Molecular delivery, Anticancer therapy, Nanoparticles, Molecular medicines, Cancer treatment

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IC-PCS 02

A Review on Breast Cancer: Advanced approaches and its Implications.

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ABSTRACT:

Breast cancer remains a worldwide public health dilemma and is currently the most common tumour in the globe. Awareness of breast cancer, public attentiveness, and advancement in breast imaging has made a positive impact on recognition and screening of breast cancer. Breast cancer is life-threatening disease in females and the leading cause of mortality among women population. For the previous two decades, studies related to the breast cancer has guided to astonishing advancement in our understanding of the breast cancer, resulting in further proficient treatments. Amongst all the malignant diseases, breast cancer is considered as one of the leading cause of death in post menopausal women accounting for 23% of all cancer deaths. It is a global issue now, but still it is diagnosed in their advanced stages due to the negligence of women regarding the self inspection and clinical examination of the breast. This review addresses anatomy of the breast, risk factors, epidemiology of breast cancer, pathogenesis of breast cancer, stages of breast cancer, diagnostic investigations and treatment including chemotherapy, surgery, targeted therapies, hormone replacement therapy, radiation therapy, complementary therapies, gene therapy and stem-cell therapy etc, for breast cancer.

Keywords: Breast Cancer, Chemotherapy, Gene therapy, Stem-cell therapy .

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IC-PCS 03

Breast Cancer Treatment Using Molecular Medicines

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ABSTRACT:

Molecular medicine is a branch of medicine that researches how genes, proteins, and other cellular molecules function in order to discover new methods for diagnosis and treatment of diseases such as cancer. It also demonstrates how specific genes, molecules, and cellular processes may change in conditions like cancer. Breast cancer happens once some breast cells begin to grow abnormally. These cells divide faster than healthy cells and still gather, forming a lump or mass. There are several biomarker that are responsible for generation of breast cancer, such as HER2, BRAF, ER etc. however we have explained here HER2 and the way its overexpression or amplification plays a central role in pathogenesis of breast cancer. Many "targeted therapy" drugs i.e. Neratinib, lapatinib, Tucatinib, ado-trastuzumab, Fam-trastuzumab deruxtecan, **Margetuximab,** are used to treat HER2 positive breast cancer however Pertuzumab and Trastuzumab are the most commonly used drugs. Pertuzumab is a recombinant humanized monoclonal antibody that targets the extracellular dimerization domain (subdomain II) of the human epidermal growth factor receptor 2 protein (HER2). Trastuzumab is a highly purified recombinant DNA-derived humanized monoclonal immunoglobulin G1 kappa antibody that binds with high affinity in a very cell-based assay (Kd = five nM) and specificity to the extracellular domain of the HER2 receptor. We have also additionally mentioned their safety, efficacy, place in therapy and ongoing researches progresses for these medicines.

Keywords: Trastuzumab, Pertuzumab, Molecular medicine, Breast cancer, HER2

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IC-PCS 04

NUTRACEUTICALS: A REVIEW

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ABSTRACT:

Nutraceuticals have received considerable interest because of their presumed safety. The Present article focuses on the need for consuming appropriate diets, health issues surrounding failure to adhere to the known healthy eating models, development of new nutraceuticals/functional foods/food supplements with novel health benefits, elucidation mechanisms of action of these products, to define and understand the analytical, formulation and regulatory aspects of nutraceutical. This article may act as a tool to abreast with the recent developments in nutraceutical research.

Keywords: Nutraceutical, food supplements.

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IC-PCS 05

Doxorubicin Loaded Surface Modified Nanovesicles with Cell Penetrating Peptide for Cancer Therapy

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ABSTRACT:

Cancer refers to a category of diseases that can affect any area of the human body and is defined as malignant tumors or neoplasms. It is the leading cause of global mortality, according to the World Health Organization (WHO). Phosphatidylserine is exposed on the surface of cancer cells to prevent the organism's immunological reaction. It shields the tumor microenvironment from cytotoxic immune cells such as NK cells. As a result, cancer cells are no longer recognized by immune system threat. Exposed phosphatidylserine is targeted with anticancer peptides (ACPs) having the ability to interact with lipid bilayers and can penetrate membranes for intracellular targets. Tumor-specific liposomes' failure to effectively permeate tumors is their greatest obstacle to success. In this study, an anticancer drug-loaded liposome will be coated with the cell-penetrating peptide CR8 to create a system that targets carcinoma cells more effectively and efficiently. The use of cell-penetrating peptides (CPPs) is one promising approach to enhancing cytosolic drug delivery. Through physiological mechanisms like energy-dependent endocytosis and energy-independent direct penetration, CPPs can enhance the absorption of macromolecules. By preparing the liposomes cationic and surface modified with CPP then it will deliver their cargo inside the cancerous cell which would greatly enhance their anticancer efficacy.

Keywords: Cell-penetrating peptides; cancer cell-specific peptide CR8; liposome drug delivery system; anticancer peptide

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IC-PCS 06

Nanomedicine: A Promising way for the management of Alzheimer's disease

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ABSTRACT:

Alzheimer's disease (AD) is a non-recoverable progressive neurodegenerative disorder. After allthe scientific efforts, there are still many unmet criteria and loopholes in available treatment anddiagnostic strategies, limiting their efficacy. The poor drug efficacy is attributed to variousbiological hurdles, including the blood-brain barrier (BBB) and peripheral side effects as themost prominent ones and the lack of promising carriers to precisely deliver the drug to the brainby conserving its therapeutic potency. The increasing disease prevalence and unavailability ofeffective therapy calls for the development of a more innovative, convenient, and affordable wayto treat AD. In the field of nasal drug delivery, nose-to-brain delivery is among the mostfascinating applications, directly targeting the central nervous system, and bypassing the bloodbrain barrier. Its benefits include dose lowering and direct brain distribution of potent drugs,ultimately reducing systemic side effects. Recently, nasal administration of insulin showedpromising results in clinical trials for the treatment of Alzheimer's disease. In this approach,nanomedicine delivery based on particle engineering exploiting surface electrostatic charges,mucoadhesive polymers, or chemical moieties targeting the nasal epithelium will be evaluatedfor nose-to-brain delivery.

Keywords: Nanoparticles, Nose-to-brain delivery, Pharmaceutical Nanotechnology, Targeting,Neurodegenerative disorders, Alzheimer's disease.

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IC-PCS 07

Design and development of fast release solid dispersion mediated formulation ezetimibe employing vitamin-e TPGS as novel carrier biomaterial

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ABSTRACT:

Vitamin E D-α-Tocopheryl polyethylene glycol 1000 succinate (Vitamin E TPGS) has recently been explored as a novel molecular biomaterial to enhance solubility of poorly water-soluble drugs. Ezetimibe, an anti-hyperlipidemic agent, suffers from low water solubility (0.000707 mg/ml) and, being BCS class II drug, exhibits a slow rate of dissolution. The present study was aimed to develop a fast release tablet of ezetimibe using solid dispersion technique employing vitamin E TPGS as molecular biomaterial to increase dissolution rate to reduce the time required reaching systemic circulation. First, carrier material was selected on the basis of release study via preparing solid dispersion using the melting method. Afterward, fast-dissolving tablets were prepared using direct compression method and characterized for X-ray diffraction (XRD) technique and In-vitro release study. Successful formation of solid dispersion using vitamin E TPGS was confirmed using X-ray diffraction study by analyzing the change in physical state. In vitro release of ezetimibe from developed tablets was found significantly higher 10 fold enhancement as compared to prepared compressed tablet of pure ezetimibe. The outcome of this investigation Vitamin E TPGS used as a novel carrier to enhance the dissolution rate of ezetimibeusing solid dispersion technique for the improved and effective treatment of high blood cholesterol.

Keywords: Solid dispersion, X-ray diffraction, In-Vitro release, Vitamin E TPGS, Fast Release Tablets, Ezetimibe.

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IC-PCS 08

Formulation and evaluation of ceftriaxone sodium solid lipid nanoparticles

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ABSTRACT:

Because of their customizable surface features, nanocarriers are increasingly being used to improve drug delivery efficacy in healthcare. In this investigation, solid lipid nanoformulations were created utilizing Dynasan-®114 (Glyceryl Trimyristate), Witepsol-® E-85 (Glycerol Esters), Soy lecithin, Poloxomer 188, Tween 80, and the medication Ceftrioxane sodium. The improved formulation F-9 demonstrated a superior drug release profile and maximum entrapment efficiency (68.44%). The research on drug release kinetics revealed that the majority of formulations are governed by a zero-order model. Formulation F-9 has the highest regression coefficient value (R2=0. 9849) and is followed by a zero-order model of drug release. The particle size of the optimal nanoformulation was 376.4 nm and spherical in shape, with a positive surface charge of -31.1 mV and lipid ratio of 1:1 demonstrating higher entrapment efficiency and delayed release for 12 hours. The peaks of these components in the NPs spectrum indicate their existence on the NPs surface, as seen in the XRD diagram of optimized formulation F9. In other words, it demonstrates the successful development of the lipid matrix. These findings demonstrated that lipid expansion causes the structure of solid lipid nanoparticles to become more amorphous. The nanoformulation's antibacterial activity was tested against various gram-positive and gram-negative bacterial strains. The lowest inhibitory concentration of ceftriaxone-loaded solid lipid nanoparticles against S. aureus was discovered to be 2 g/mL. The study indicated above effectively investigated the potentials of Ceftrioxane sodium-loaded solid lipid nanoparticles for nasal delivery in the treatment of bacterial meningitis.

Keywords: Ceftriaxone sodium, Solid lipid nanoparticles, Antibacterial activity, Nanoformulation

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IC-PCS 9

Formulation and characterization of mouth dissolving film of Eugenol

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ABSTRACT:

Eugenol is an essential component of the dentist's kit due to its analgesic, local anaesthetic, anti bacterial and anti-inflammatory effects. It acts as a dental cement, filler, and restorative material in the form of a paste or mixture. This study reports the development and evaluation of mouth dissolving film for oral application that provides antimicrobial activity in oral cavity. As oral mucosa has rich vasculization and improved permeability to many drugs it provides an excellent site of drug absorption. Fast mouth dissolving oral film is used as a novel approach, as it dissolves quickly in mouth and directly reaches to the systemic circulation as it avoids first pass metabolism by liver. Films were evaluated for Appearance, Thickness, Folding Endurance, Surface pH, Disintegration time, Invitro drug release, Mucoadhesive strength, Tensile strength and Antibacterial activity.

Keywords: Mouth dissolving film, Mucoadhesive strength, Anti-microbial activity, In-vitro drug release, Tensile Strength.

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IC-PCS 10

Formulation and Development of Nanoparticulate System Containing Rutin from Leaves Extract of Aegle Marmelos for Effective Management of Diabetes

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ABSTRACT:

Management of diabetes with natural origin medication over synthetic products would help in decreased side effects. Current work aimed at the modified release of content from carrier system at predetermined rate and secondly, to decrease the use of synthetic drug on biological system. Successive solvent extraction of crude drug of Aegle Marmelos plant was done. Active constituent of leaves that is rutin was isolated and identified through HPTLC and FTIR. Nanoparticulate carrier system having advantages over conventional dosage forms which utilized to decrease the dosing frequency of Diabetic medications. SLN was selected as carrier system and fabricated by solvent diffusion method. Characterization and performance evaluation of particulate system loaded with herbal plant extract of the Aegle Marmelos leaves was done. TEM, In-vitro drug release profile, entrapment efficiency and particle size was determined. Solid lipid nanoparticles have enormous effect in loading high amount or loading dose concentration in body and also maintain the same over prolonged interlude of time. SLN was formulated and characterized for the particle size, shape and its distribution, percentage drug entrapment and In-vitro drug release profile along with the stability studies. In-vivo bio distribution studies on animals suggested the accumulation of formulations in the different organs. Solid lipid nanoparticles also show good stability as compared to other novel carrier systems like vesicular systems. Prolonged release of natural drug from carrier system, decrease the dosing frequency and also decrease the dose size. Better results than marketed synthetic anti-diabetic drugs.

Keyword: Particulate system, plant extract, Aegle Marmelos, diabetes mellitus, controlled release.

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IC-PCS 11

Development of User Friendly Face-mask Treated with Plant based Nanomaterials to Manage the Problems of Patient with Respiratory disorder: An overview of scientific evidence and understanding

Vandana Gupta[*1], Noopur Srivastava[2] and Megha Verma[3]

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ABSTRACT:

Corona virus disease 2019 (COVID-19) is an acute infection of the respiratory tract emerged in late 2019 which has been declared as pandemic in March 2020. Personal protective like face-mask has been mandatory to wear in order to limit viral transmission. The patient with respiratory disorders such as chronic obstructive pulmonary disease (COPD) and asthma were claimed to face lots of complications while wearing the mask such as physical distress, dizziness, perceived shortness of air, and headache. There has been information reported that masks do not allow you take in enough oxygen, or that they increase CO_2 levels. But it is very essential to wear the mask by the patient especially in such pandemic situation because the patient suffering from respiratory disorders is more prone to corona virus or SARS virus. Facemasks create a barrier between individuals limiting the aerosol spread of viruses. Thus, masking has become a standard against COVID-19. In most of the chronic respiratory disorders, the smooth muscle cells in the bronchi constrict, and the airways become inflamed and swollen. Breathing becomes difficult and masking in such condition further may cause shortness of breath. This study aims to

reviews about various medicinal plants which can be used to manage the chronic respiratory disorders. Moreover, coating of face-mask with nano-materials of such medicinal plants may reduce the complications of the patient while wearing natural nano-materials coated medicated mask. When herbal medicated nano-materials coated mask exposed to naso-pulmonary route, the medicated natural nano-materials are absorbed through the naso-pulmonary route and function as a means of providing treatment for a broad range of respiratory diseases including asthma. It is also known to strengthen the immune system. It is reported that, novel textiles for treating and preventing the asthma, made from organic cotton, coloring and coating with different natural colour derived from various medicinal plants. Currently existing face-masks such as surgical and close-fitting N95 are made from non-coated fibers and do not include any bioactive coating agent. Natural nano-material based medicated face-mask for treating and preventing the respiratory disorders can be easily wear by the patients suffering from chronic respiratory disorders in regular basis. This review focuses on bioactive compounds which are effective in chronic respiratory disorders extracted from the medicinal plants like Artemisia annua, Moringa oleifera, Achyranthes aspera, Tinospora Cordifolia etc and reported to formulate in nano formulations which can be bonded to cellulose or cellulose-containing materials, or finished articles of mask to produce natural nano-material coated face-mask in the management of respiratory complications.

Keywords: Respiratory disorders, nanomaterials, facemask, medicinal plants, chronic obstructive pulmonary disease.

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IC-PCS 12

Development of sustained release mucoadhesive micropsheres loaded vaginal tablet for vaginal candidiasis

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ABSTRACT:

The most common disease in the female vaginal tract is vaginal candidiasis caused by a microbe Candida Albican which is existing in an asymptomatic phase in the vaginal lumen and then transforms into a symptomatic phase, creating an imbalance in vaginal microflora. The conventional formulation for the treatment of this disease shows a lack of retention of dosage form in vaginal cavity due to the natural draining of vaginal fluid that leads to leakiness, and messiness and has a tendency to escape during normal routine work. The mucoadhesive delivery of antifungal drug in the treatment of vaginal candidiasis is an alternative to deliver drug for a longer time. In this research work, mucoadhesive microspheres of econazole nitrate were prepared by spray dried technique and compressed into a vaginal tablet which disintegrates rapidly into microspheres in the vaginal cavity and adheres to vaginal mucosa for a longer time. The formulation was optimized by using a three-factor, three-level, Box-Behnken design, and the effect on independent variables HPMC K 100M, Eudragit RSPO and Eudragit RLPO was studied. The microparticles were characterized in terms of particle size, drug loading, ex-vivo mucoadhesion study, in vitro-drug release study. The % mucoadhesion of optimized microsphere was found to be 70 % after 8 hours and in contact with vaginal fluid, tablet disintegrate rapidly into microsphere which adheres to the vaginal wall and consistently release drug up to 6 h.

Keywords: Mucoadhesive Microspheres, antifungal drug, vaginal candidiasis and spray dried technique.

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IC-PCS 13

Ophthalmic Preparations

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ABSTRACT:

These are the six main properties of ophthalmic preparations: Sterility, tonicity, Preservation , Particle Limitations , pH , Stability , and Eye comfort . The main reason of continuingly strong interest of scientists in these drug forms is the problem of a low bioavailability of medicinal substance after the application to the eyeball. It is caused by , amongst other reasons , the complicated anatomical structure of the eye , small absorptive surface and low transparency of the cornea , lipophilicity of corneal epithelium , metabolism , enzymolysis , bonding of thedrug with proteins contained in tear fluid , and defence mechanisms , that is , tear formation , blinking .Advancement of ophthalmic dosage forms: Various strategies for ocular drug delivery are considered ; from basic formulation techniques for improving availability of drugs ; viscosity enhancers and mucoadhesives aid drug retention and penetration enhancers promote drug transport into the eye.

1. Cyclodextrins : -Cyclodextrins are cyclic oligosacchar ides able to form inclusion complexes with active ingredients , thus increasing the solubility in water of hydrophobic compounds without changing their molecular structure.As carriers , they enable keeping hydrophobic drugs in solution and transport them to biomembranes surface . The most often used cyclodextrin in de veloping formsapplied over the eyeball is 2 - hydroxypropyl - beta - cyclodextrin.

2. In Situ Gels (or Sol - to - Gel Ophthalmic preparation) : - In situ gelling systems are polymeric formulations that are in sol forms before entering in the body, but change to gel forms under the physiological conditions . Pectin, xyloglucan, gellangum , chitosan and alginic acid are some of the natural polymers . Xyloglucan exhibits thermally reversible gelation with body temperature

and have been used for oral, ocular , rectal and peritoneal drug delivery. Ophthalmic in situ gels have been developed to prolong precorneal contact time of ocular drugs. Sodium alginate and hydroxypropyl methyl cellulose have beenused in the in situ gel formulation of diclofenac ophthalmic delivery.

3. Gene therapy:-In gene therapy replace bad gene with good gene to overcome blindness .Eye diseases-Cataract, glaucoma, eye strain, refractive error, birth blindness, dry eye syndrome, retinopathy .Symptoms- Floaters, Severe eye pain, Change in vision or sudden loss of vision ,Blurred vision ,Watery and red eyes and the foreign body inside the eye and trauma to the eye.

In treatment mainly drug use is - Dexamethasone, Moxifloxacine, Oligonucleotide, 2- hydroxy propyl - beta cyclodextrins, & Hydroxypropyl methyl cellulose

KeyWords: Cyclodextrin, ophthalmic preparation, lipophilicity

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IC-PCS 14

Preparation and optimization of mucoadhesive nicotine buccal film

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ABSTRACT:

Cigarette smoking is a major cause of morbidity and mortality, and it is linked to cancer, stroke, respiratory and cardiovascular disorders. Nicotine is the substance that underlies tobacco consumption and governs tobacco use habits. NRT is designed to lower smokers' desire/urge to smoke as well as reduce physiological and psychomotor withdrawal symptoms encountered during cessation efforts, improving the possibility of remaining abstinent. There is presently no NRT product that can imitate cigarette smoking's rapid onset of action and prolong the effect for an extended period, necessitating regular administration. The prepared buccal film was proven to be a feasible alternative due to its rapid onset and prolonged nicotine release. The present study aims at developing, optimizing, and evaluating the mucoadhesive nicotine buccal films made from the polymers Carbopol 934, Eudragit RLPO, and HPMC E15. Optimization was performed utilizing the Box - Behnken Design where polymers were independent variables and the swelling index, adhesion time, adhesion strength, and in - vitro drug release profile were response variables. It exhibited uniform thickness, drug content, swelling, adhesion time, and strength. The film had a burst release followed by a steady release of 76.552% over 360 minutes. The optimized film showed a 1.5-fold enhancement in buccal mucosal permeability as compared to a lozenge. As a result, the formulation was considered to be an excellent option for rapid onset and prolonged release.

Keywords: Nicotine, Mucoadhesive, Polymers

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IC-PCS 15

Design and development of butorphanol tartrate loaded polymeric microneedle patch

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ABSTRACT:

Post operative pain may be the acute or chronic. Butorphanol provide a safer alternative to μ-opioid receptor agonist, can be used in intense or sever pain management. Commercially it is available in the market in nasal spray, and in IV or IM parenteral formulation. Nasal formulation has only 60% to 70% bioavailability and required higher dose frequency as, it is given in every 2-3 hour, that can irritate mucosa. Similarly parenteral formulation required repeated use, which could be highly painful because of its invasive nature. Furthermore, oral administration is not available due to high first pass metabolism with bioavailability of 15% to 17 %. Transdermal administration in the form of microneedles would be an option for addressing some of the issues associated with parenteral and oral opioid analgesic delivery, such as variable and partial bioavailability due to substantial first-pass metabolism and adverse effects produced by high peak plasma level. Microneedles have various benefits over traditional parenteral, transdermal, and oral formulations, including painless administration, enhanced permeability of hydrophilic and higher molecular weight medicines with a lesser dosage, maximal therapeutic index, and reduced toxicity and other local adverse effects. In the current study, it was planned to develop a butorphanol tartrate-loaded microneedle patch to overcome the shortcomings of conventional formulations, and it is expected to provide enhanced permeability, better efficacy with fewer side effects,and higher patient compliance when compared to conventional formulations for the treatment of severe pain.

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IC-PCS 16

Fabrication and Evaluation of Etoposide loaded nanoparticles

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ABSTRACT:

Lung cancer, is a malignant disease characterized by the uncontrolled growth of abnormal cells in the lung tissue and is commonly treated with chemotherapy drugs like etoposide. Traditional available dosage form are not targeted in approach. Etoposide in targeted nanoparticle form can improve the drug's properties, such as bioavailability and sustained release rate, leading to more effective treatment of lung cancer. The current research focuses on developing polymeric PLGA nanoparticles containing etoposide to enhance its therapeutic activity in the long-term treatment of lung cancer and further evaluating the nanoparticles to validate its desired outcome.

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IC-PCS 17

Nanocarrier mediated dual targeting of glioblastoma

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ABSTRACT:

A significant concern that is still incurable is glioma. Glioblastoma multiforme (GBM), a grade IV glioma that makes up around 70% of all malignant gliomas, is the most frequent primary malignant brain tumour. The 5-year survival rate for these tumours is less than 5% due to their extreme aggressiveness. One of the primary characteristics of tumour tissues is angiogenesis, and GBM is one of the most heavily vascularized tumours. Targeted therapeutic delivery using a biodegradable polymeric system is a promising approach that has attracted a lot of interest. Even while most nanomedicines could make use of this function to treat peripheral tumours, the increased permeability and retention (EPR) effect was sadly hampered in GBM. Systems for active targeted delivery were helpful in the detection and treatment of gliomas. Because chemotherapeutic medications are distributed non-selectively across the entire brain, receptor-mediated brain targeting enhances drug accumulation in the brain but is insufficient for brain tumour targeting. A dual-targeting technique was proposed to transmit therapeutic agents across the BBB and simultaneously target brain tumours in order to address this issue.

Keywords: Glioblastoma multiforme, biodegradable polymeric system

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IC-PCS 18

Nanocarrier liposome based targeting of rheumatoid arthrits

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ABSTRACT:

About 1% of the world's population is affected by the chronic inflammatory disease rheumatoid arthritis (RA), which is also very morbid and significantly lethal. In order to minimise joint pain and inflammation, improve joint function, and stop joint damage and deformity, disease-modifying anti-rheumatic medications (DMARDs) are often used in combination with non-steroidal anti-inflammatory medicines (NSAIDs) and/or corticosteroids. Nanotechnology is the study and application of materials at the atomic, molecular, and supramolecular levels. In addition to improving the prospective therapeutic by lowering its toxicity and increasing its effectiveness, the development of nanomaterials for drug delivery may present new options for more targeted and precise molecular-level illness treatment. For the treatment of RA, liposomes have been thoroughly researched as drug delivery methods. Several key medications used to treat RA have low bioavailability, high clearance rates, and limited selectivity, necessitating high and frequent doses to achieve adequate therapeutic efficacy.

Keywords: Rheumatoid arthritis, Nanotechnology, liposomes

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IC-PCS 19

pH Sensitive Peptide Hydrogel Drug Delivery System For Cancer

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ABSTRACT:

Self-assembled peptide hydrogels have become popular as drug delivery vehicles because they can address issues with existing chemotherapeutic medicines, such as their poor selectivity, low solubility, and severe side effects. Drug delivery systems (DDSs) that respond to the microenvironment can deliver drugs more precisely, lessen their side effects, and increase their efficacies. Since the pH in sick tissues such as cancer, bacterial infection, and inflammation differs from a physiological pH of 7.4, pH-responsive DDSs have grown in popularity. These DDSs can use this variation to release encapsulated medications particularly to these diseased tissues. One of the biggest causes of death for people worldwide is cancer. Nanomaterials based on the tumour microenvironment (TME) have been suggested as a possible strategy to increase the effectiveness of cancer therapy throughout the past few decades. The formulations' pH-sensitive properties allow for changes in intramolecular or intermolecular pressures under the influence of external pH conditions, which triggers the release of payloads. The pH-responsive linkage bonds and pH-sensitive nanomaterials for medical applications, particularly for cancer therapy, are the main topics of this review.

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IC-PCS 20

Agomelatine loaded mesoporous silica nanoparticles incorporated in polymeric microparticles for controlled release of drug in the treatment of depression

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ABSTRACT:

Depression is a mental disorder characterized by sadness, loss of interest and hopelessness in the daily activities of life. Agomelatine a novel antidepressant administered orally to treat depression but its low bioavailability and poor dissolution affects their therapeutic activity .Here the mesoporous silica nanoparticles is used as a carrier to improve its properties with its unique characteristics. The current research work aims to formulate polymeric microparticles containing agomelatine loaded mesoporous silica nanoparticles to improve its bioavailability and controlled the release rate of drug which is beneficial in the long term treatment of depression.

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IC-PCS 21

Preparation and Evalution of Antifungal Powder.

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ABSTRACT:

Antifungal powder was formulated to give antifungal effect. The powder was prepared by using the API (clotrimazole), apart from that menthol, zinc oxide, boric acid and salicylic acid were utilized as a excipients. Talc powder was utilized as a base. The powder was prepared by homogeneous mixing of all the excipients. Only a single batch was developed. Powder was evaluated for different parameters like appearance, organoleptic properties, powder flow properties like (tapped density, bulk density, angle of repose, carr's index and Hausner's ratio), moisture content and hygroscopy. Powder ingredients showed significant results in evaluation parameters. Based on the results, it is suggested that the product is stable and it is safely stable at room temperature. The powder was prepared to treat the fungal infections like candidiasis, athlete's foot, jock itch, ringworm.

Keywords: Clotrimazole, Salicylic acid, Antifungal Powder

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IC-PCS 22

Medicated Chocolate Drug Delivery System: A Bliss for Pediatrics

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ABSTRACT:

Chocolate is a food made from cocoa beans, the dried and fermented seeds of the cocoa tree (Theobroma cocoa). Chocolate is well suited as a vehicle for delivering active agents. Chocolate base is made by combining cocoa powder with cocoa butter, lecithin and pharmaceutical grade sugar. The drug is incorporated into a prepared chocolate base, it is called Medicated chocolate. The drug is delivered using the chocolate is called Chocolate drug delivery system. Medicated chocolate are solid dosage forms that disintegrate rapidly in the oral cavity in few minutes, in the presence of saliva without any difficulty of swallowing, rapid disintegration provides a rapid absorption of drug which gives quick onset of action. Medicated chocolate has the benefit of bypassing the hepatic first pass metabolism, increases bioavailability. Medicated chocolate is more compatible for paediatric patients. It increases pediatric patients desire to consume the medication. Medicated chocolates are available in the market as Multivitamin chocolates, digestive drops chocolate, and cough & cold chocolates.

Keywords: Theobroma Cocoa, Chocolate formulation, Medicated chocolate, pediatric.

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IC-PCS 23

Evaluation of multipurpose herbal cream using turmeric powder and aloe-vera gel

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ABSTRACT:

The herbal cosmetics are now a day's widely used by the common peoples because of concept of fewer side effects and with a better safety and security profile. So all the evaluations parameters are perform is necessary. The aim of the present work was to evaluate multipurpose herbal cream by various parameters like; physical evaluation, irritancy test, washability test, pH test, phase separation, greasiness, homogeneity, spreadiability and viscocity. The cream was prepared by using the cream base i.e. sodium hydroxide, potassium hydroxide, glycerol, stearic acid, cetyl alcohol, isopropyl alcohol, distill water, rose water, aloe vera gel, turmeric powder, neem oil & tulsi oil. The various types of evaluation parameters are physical evaluation, irritancy test, washability test, pH test, phase separation, greasiness, homogeneity, spreadiability and viscocity was performed. The performed test showed satisfactory result. Result showed that the cream were non-irritant, stable and posses multipurpose activity.

Keywords: Aloe barbadensis (gel), Azadirachta indica (neem), Curcuma longa (turmeric), Ocimum tenuiflorum (tulsi), Multipurpose cream.

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IC-PCS 24

A New Arena of Cancer Treatment using Herbal Nanotechnology

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ABSTRACT:

Cancer is among the prominent causes of morbidity with continually rising patients around the world. The currently available cancer treatments involve the use of chemotherapeutics but they also cause severe damage to normal healthy tissues, paving the way for searching the new drug options. In India, herbal drugs are being exploited from the ancient era, which strongly approves their eminent potential with safety. Hence, the people are shifting from synthetic ones towards herbal drugs even for life threatening diseases. But the major problem that comes with herbal compounds is their limited aqueous solubility, degradation in acidic pH etc. The answer to this has been provided by nanotechnology, that not only allows modification of herbal drugs in smaller size but also helps in targeted drug delivery to cancer cells, reducing the approach of drugs to normal tissues thereby decreasing the toxicity. The present review summarizes various nanoparticles that have been explored for delivering the herbal drugs with some of the commercially available nano formulations for cancer treatment.

Keywords: Cancer, Herbal drugs, Nanotechnology, Targeted drug delivery.

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IC-PCS 25

Transdermal Drug Delivery of Natural Plant Extracts: A Review

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ABSTRACT:

Researchers are massively perceptible about the efficacy of natural plant metabolites for the use of human consumption as they are greatly important for healthy well being. Recent reported data have distinctly addressed that more than 70% of new formulated herbal drugs are showing poor water solubility, which become one of the primary factor that limits the absorption of drug after oral administration. The transdermal drug delivery systems have been made successfully for loading plant active metabolites by increasing their bioavailabilty, drug solubility, sustainability and gastrointestinal permeability. These advanced formulas are confirmed to have extraordinary benefits over conventional, and previously used systems in the case of solubility, bioavailability, toxicity, pharmacological activity, etc. Many studies and formulations are formed using transdermal drug delivery systems such as transdermal patch of piperine for the treatment of rheumatoid arthritis or the bioavailability of the poorly soluble curcumin is being increased by various methods incorporating with the transdermal patches. The use of Kojic acid in the transdermal patch formulation for the treatment of hyperpigmentation and skin lightening is also being very famous. The transdermal delivery has the massive importance for loading natural plant extracts and is promising for various applications.

Keywords: Bioavailabilty, plant active metabolites, kojic acid.

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IC-PCS 26

A Systematic Review on Aqueous Injection by Hydrotropy - A Promising Tool for Enhancement of Aqueous Solubility

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ABSTRACT:

Solubility is a crucial parameter which is desired for any dosage form to centralize themedicament and the pharmacological action to occur. The prominent challenge faced during thedrug discovery is the poor aqueous solubility of the drugs which eventually lead to lowdissolvability and low bioavailability of the medicament. In order to increase the solubility, various methods have been adapted. The review grabs the attention towards the concept ofhydrotropy, one of the solubilization techniques, in which, adding a second solute to the primaryone. It is superior with high efficiency, low side effects, high selectivity, and eco-friendly, easilyavailable and cost effective. It is one of the techniques that enhance the systemic bioavailabilityand solubility to many folds with the use of hydrotropes like urea, nicotinamide, sodiumbenzoate, sodium citrate, propylene glycol, glycerol, PEG (200-600), PEG (2000-6000). Thetechnique is favorable for the formulation of parentral dosage form for poorly water solubledrug, causing the problem of gastric irritation and dysphagia. Other than parentral it is useful fortopical and oral also. Moreover, this review comes up with future insights for drug delivery andhydrotropism.

Keywords: Hydrotropy, Solubility, Hydrotropes, Solubilization, Bioavailability.

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IC-PCS 27

Systematic Review on Nanosuspension and Its Advancement

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ABSTRACT:

The solubility is the preferential criteria for the medicament to show pharmacological action. A pharmaceutical suspension is a coarse dispersion of insoluble solid particle in a liquid medium. One of the best dose forms for people who cannot take solid dosage forms is this one. It contain solvents, buffering agent, preservative, antioxidants, wetting agent, anti-foaming agent, suspending agent and flavouring agent. Suspension dosage form incorporate effective distribution of lipophilic drug; Mask a bitter taste, avoid the use of Cosolvent and provide resistance to deterioration of drug due to hydrolysis, oxidation or microbial activity. In addition, nanosuspension is the novel and recent advancement in enhancing weakly water soluble drug solubility in the absence of any monolithic material suspended in dispersion. It not only increases a solubility but increases bioavailability as well. As a result of the significant improvement in bioavailability, the flexibility for surface modification and mucoadhesion for drug targeting have significantly expanded the scope of this novel formulation technology. Suspension solution allows for the absorption of relatively higher drug doses than solution dosage forms. The antisolvent precipitation method is used with a solvent methanol, suspending agent (HPMC and Methyl Cellulose) and Surfactant (Tween-80, and SLS). This review article defines the types, theories of suspension, preparation methods, characterization, and applications of the oral suspension.

Keywords: Nanosuspension, Bioavailability, Anti-solvent method, Suspending agent, Surfactants.

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Review on Emulgel – A Promising Formulation for Antifungal Drug

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ABSTRACT:

This review aims to demonstrate the effects and advantages of emulgel-containing antifungal medicines, as well as to suggest a technique for administering them. Because fungal infections are the most frequent global skin health concern, topical fungal medication is usually suggested due to its specific therapy and fewer adverse effects. Emulgel is one such topical medication delivery administration that combines emulsion and gel features and features a dual-release control system. Emulgel is a thermodynamically stable formulation with low interfacial tension derived from the combination of a surfactant and a co-surfactant. Emulgel gives improved stability, better loading capacity, improved penetrability, and controlled drug release with a short half-life. The main objective of emulgel is to administer hydrophobic drugs. through the skin so that through the skin, allowing a hydrophobic moiety to benefit from the special features of gels. Antifungal drugs are used to treat fungal infections such as acne and psoriasis. Many medications in the antibacterial, antiviral, and nonsteroidal anti-inflammatory categories are now being researched for topical delivery via emulgel formulation, and a few are already on the market. Because of the numerous dermatological benefits offered by the emulgel formulation, it is a benefit in the derma care and cosmetology fields, as well as in enhancing patient compliance. This review summarizes new advanced approaches used in topical carriers to enhance antifungal drug clinical outcomes. Other parameters include pH, rheology, particle size, zeta potential, drug content, skin irritation test, in-vitro and in-vivo tests, and other properties of the prepared formulation and evaluation.

Keywords: - Emulgel, Hydrophobic drug, Antifungal, Surfactant.

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IC-PCS 29

A Review on Current Approaches Used in Transdermal Drug Delivery System

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ABSTRACT:

The review focuses on different current approaches used in transdermal drug delivery system. Transdermal drug delivery is non invasive, safe and efficient delivery system since 1981. In TDDS pay-load deliveries across the skin barrier to the systemic circulation have been one of the most challenging delivery options hence, recent advances have been made to facilitate permeation of drug.Continous upgrade and improvements in approaches to deliver drug across the skin have been made like new approaches involves iontophoresis, electroporation, sonophoresis, magnetophoresis, dermal patches, nanocarriers, micro needles, etc. Recently liposomes, transferosomes and jet injections are new approaches in TDDS. These approaches have capability to control release of drug and escalate the bioavailability. All of these techniques are proven fortunate substitute to other dosage form like oral, parenteral, intravenous, intramuscular, hypodermal shots, and other invasive delivery modes as it delivers lipophillic, hydrophilic and amphiphilic drugs molecules. These TDDS techniques will help to reduce dose, escalate bioavailability, enhance therapeutic efficacy of drug and evade the problem of drug toxicity. This review summarizes about the physiochemical approaches used in transdermal drug delivery to enhance the permeation of drug across the skin and their advantages.

Keywords: - Transdermal drug delivery, non invasive, iontophoresis, sonophoresis.

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IC-PCS 30

A Review on Mouth Dissolving Tablets-A Potential Drug Delivery System

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ABSTRACT:

Fast dissolving tablet is one of the popular and widely excepted dosage form especially for pediatric patients, geriatric patient and few solid dosage form like capsule and tablet are fasting the problem like difficulty in swallowing (Dysphagia) resulting in many incidences of noncompliance and making the therapy in effective. Oral dosage form or oral route are most preferred route of administration for various drugs have limitation like first pass metabolism, Psychiatrics patient , Bedridden and uncooperative patient. FDT_s formulation are designed to dissolve in saliva remarkably faster, within a few second (less than 60 sec), and content superdisintegrants to enhance disintegration rate of tablet in an oral cavity. This review depicts various technology with add of superdisintegrants; enhance bioavability and solubility with fast onset of action then other oral and parenteral route of administration.

Keywords: Mouth dissolving, Super- Disintegrants, Dysphagia, Bioavailability.

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IC-PCS 31

Review on floating microsphere; as a sustained realase drug delivery system

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ABSTRACT:

The gastro retentive drug delivery system increases the gastroretentive time of a drug to increase efficacy, minimize adverse effects, and increase bioavailability by utilizing a drug reservoir system. In GRDDS floating microspheres are gaining attention due to their wide availability in targeting drugs in the stomach. Gastroretentive floating microspheres are low-density systems with sufficient buoyancy over gastric contents and remain in the stomach for prolonged periods. It is the recent advancement of floating microspheres for archiving sustained release formulations with short gastric retention times and low risks of dose dumping. This review aims to enhance the bioavailability, improve half-life, and increase absorption in the stomach to prevent form degradation under alkaline pH. So the formulation using a floating microsphere can be effectively designed to control delivery with improved therapeutic efficacy.

Keywords: Floating microspheres, GRDDS, Polymers.

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IC-PCS 32

Review on Intelligent Drug Delivery through Smart Polymers

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ABSTRACT:

Smart polymers also known as intelligent polymers or stimuli-responsive polymers have gained an interest in researchers due to its ability to deliver the drug at an appropriate time and site under a specific physiological condition. These polymers produces its action in response to the stimuli like temperature, pH, light, bio-responsive, electric field and many more. Stimuli-responsive polymers provide a drug delivery platform that may be used to liberate the drug at a regulated pace while remaining stable and physiologically active. It is feasible to modify polymer sensitivity to a particular stimulus within a certain range due to the adaptability of polymer sources and their combinatorial production. The development of extremely sensitive and effective systems and techniques through the use of non-toxic, biocompatible and biodegradable polymers is required for advancements in medical treatments for a wide range of disorders. Therefore, this review articles illustrates and focuses on the types of smart polymers, advantages and disadvantages, the technologies used, application in the medical field and future challenges for drug delivery system encompassing stimuli responsive polymers.

Keywords: Intelligent polymer, stimuli-responsive polymer, smart polymer, bio-responsive, biodegradable polymer

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IC-PCS 33

Design and development of proliposomes for safer oral drug delivery

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ABSTRACT:

Pain is the most prevalent disease symptom; it is a distressing psychological and sensoryexperience correlated with current or potential tissue damage. Whether the pain is fromarthritis, cancer treatments, fibromyalgia, or an old injury it needs to be cured. Nonsteroidalanti-inflammatory drugs (NSAIDs) are a class of pharmaceuticals that provide analgesic,antipyretic, and high-dose anti-inflammatory actions. Nonsteroidal anti-inflammatory drugs(NSAIDs) are frequently ingested by a substantial fraction of the population and are the secondleading cause of GI ulceration, affecting between 15 and 40% of people who regularly takeNSAIDs. The link between NSAID use and the occurrence of stomach bleeding and ulcerationhas been established, and it has been linked to life-threatening consequences such as ulcerperforation caused by oral administration. Here pro-liposomes are dry, free-flowing granularparticles that produce a dispersion of liposome when hydrated or come into exposure to bodyfluids that is in-vivo. They are the latest type of carrier-mediated drug delivery system andconsist of various benefits or advantages over conventional liposomes. In the present study, itis proposed to explore the feasibility of proliposomes as a drug carrier for diclofenac (NSAIDs) which would generate diclofenac sodium-bearing liposomes soon after they come in contactwith body fluid. In this process, part of the drug will remain in the unentrapped form also andthis fraction of free drug would be available for absorption from the intestine and provide a drug effect without or less producing git side effects.

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IC-PCS 34

Development and Evaluation of Lycopene Hydrogel Face Mask

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ABSTRACT:

In the current research, Lycopene Hydrogel face mask was developed and evaluated. The objective behind the research was to develop a hydrogel face mask which contains lycopene to prevent photo-oxidative damage of the skin and helps in wrinkles reduction.When it comes into contact with the skin and reaches the body temperature, it uniformly and quickly releases the active compounds, which possess skin whitening ,anti-oxidant, anti-inflammatory properties. Hydrogels are the topical formulations which can provide local action to the affected area or to the skin. Gels are semisolid systems consisting of dispersions of small or large molecules in an aqueous liquid vehicle rendered jelly like by the addition of a gelling agent. Lycopene is a magical constituent found in tomato and in other red fruits topically used for its skin discoloration and anti-ageing properties. Lycopene is an antioxidant works to stabilize the imbalance that free radicals cause in our skin cells. By supporting skin's collagen structure to fill in the gaps, lycopene may help lessen the appearance of fine lines and wrinkles. it can filter harmful UV light, boost collagen production, diminish fine lines, and promote brighter, smoother skin overall. Thus, the developed lycopene hydrogel face mask will provide benefits like anti-inflammatory, antioxidant, soothing, make skin feel instantly refreshed, and are exceptionally hydrating. It boosts skin radiance, nourishes your skin and improves uneven skin tone.

Keywords: Hydrogel, Lycopene, Antioxidant Property, Anti Wrinkle, Hydrating, Skin Discoloration.

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IC-PCS 35

Compritol Solid Lipid Microparticles Gel Loaded with Herbal Extracts for Acne Treatment

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ABSTRACT:

Acne Vulgaris is an inflammation of sebaceous glands characterized by pustules and skin lesions. The usage of herbal cosmetics has been increased to many folds in personal care system and there is a great demand for the herbal cosmetics. The use of bioactive ingredients in cosmetics influence biological functions of skin and provide nutrients necessary for the healthy skin or hair.

The present research work deals with Development and evaluation of Topical formulations containing solid lipid micro particles loaded with Grapes (Vitis venifera) seed and Marigold (Calendula officinalis) flower extract, and essential oils of Sea buckthorn (Hippophae rhamnoides)seeds for treatment of acne vulgaris. Compritol (5.0% wt/wt) SLM dispersions were prepared by oil in water emulsification method, using different surfactant concentrations and Extract concentration. The SLM were characterized, in terms of surface morphology, particle size and stability. Solid lipid micro particle technology represents a promising new approach to lipophile drug delivery.

Herbal extract and oils were screened phyto chemically and TLC, HPLC were performed for Qualitative and Quantitative analysis of active constituents present. The formulation have been developed and evaluated, In vitro antibacterial activity was performed against Propionibacterium acnes (P. acnes), a causative organism for Acne vulgaris for the developed formulations using agar well diffusion method. The measured zones of inhibitions of the formulations were compared with standard marketed topical herbal preparation for acne. Formulation had shown significant activity on comparison with the standard marketed preparation

Keywords- Solid Lipid Micoparticles, Acne Vulgaris,herbal extract,Compritol

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IC-PCS 36

Formulation and characterization of Leflunomide and Resveratrol loaded nano-lipid carrier based in-situ hydrogel system for effective management of Rheumatoid Arthritis

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ABSTRACT:

Rheumatoid arthritis (RA) is a chronic systemic inflammatory autoimmune disorder. Disease-modifying antirheumatic drugs (DMARDs) include methotrexate, hydroxychloroquine, sulfasalazine, and, more recently, leflunomide. This therapies for the treatment of RA have various side effects. For this reason, in recent years, pharmaceutical and biomedical research has been focused on new site-specific therapeutic strategies. In this regard, nanotechnology offers numerous benefits which could improve drug efficacy and decrease adverse effects. Leflunomide is a synthetic isoxazole, a dihydroorotate dehydrogenase inhibitor, that inhibits de novo pyrimidine synthesis to regulate T lymphocyte progression through the cell cycle. Resveratrol is a polyphenol that shows anti-inflammatory and antioxidant activity in synoviocytes, and its immunomodulatory effects on T and B cells is of particular interest in rheumatic disorders.Combination of Resveratrol and conventional DMARD (Leflunomide) decreased the clinical markers i.e., TJC-28, SJC-28, reduced the in serum proinflammatory markers and cytokines, including the C-reactive protein (CRP), rheumatoid factor (RF), TNF-α, IL1-β, and IL-6. Leflunomide and Resveratrol loaded nanocarrier was developed and surface modified using the chondroitin sulphate (CS). CS modified carrier target the CD44 overexpressed macrophages. To provide sustained drug release in-situ hydrogel will be formulated. The surface modified drug loaded NLCs hydrogel system injected intra-articularly, where sol will convert to gel form in the presence of an stimuli such as temperature, pH etc. The recent study aims to develop an in-situ gel containing the CS-modified nanocarrier for the effective management of RA.

Keywords: Nano lipid carriers, in-situ hydrogel, Intra-articular delivery, Leflunomide, Rheumatoid arthritis

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IC-PCS 37

Development and evaluation of floating tablet of sacubitril and valsartan using natural polymer

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ABSTRACT:

The present studies discuss about the quality by design (QbD)-based development and evaluation of floating drug delivery system of Sacubitril and Valsartan for management of chronic heart failure with reduced ejection fraction by effervescent Systems (Gas- generating systems) to formulate a floating matrix tablet by direct compression method using natural polymer, gas generating agents and various grades of low-density polymers.. Gastro retentive systems can remain in the gastric region for several hours and hence significantly prolong the gastric residence time of drugs. Floating drug delivery systems (FDDS) have a bulk density less than gastric fluids and so remain buoyant in the stomach without affecting the gastric emptying rate for a prolonged period of time. While the system is floating on the gastric contents, the drug is released slowly at the desired rate from the system. After the release of a drug, the residual system is emptied from the stomach. To overcome the problem of conventional dosage forms Sacubitril and Valsartan effervescent floating tablets were developed in 20 different formulations (F1 to F20) by employing different grades of polymers and effervescent agent sodium bicarbonate. The addition of polymer like HPMC, guar gum, Benecel methyl cellulose, and Polyox and gas generating sodium bicarbonate along with citric acid was essential to achieve in-vitro buoyancy desirable drug release and excellent bioadhesive strength. The formulations were evaluated for various physical parameters, buoyancy studies, dissolution parameters and drug release mechanisms. F6 formulation showed good physical parameters and gave slow and maximum drug release of Sacubitril and Valsartan and showed maximum similarity with marketed product in dissolution profile. The formulation retained a longer period of time floated in 0.1N HCl and provided sustained release of the drug. Different kinetic models were applied to drug release data in order to evaluate release mechanisms and kinetics. Hence it may increase the therapeutic efficacy of the drug by increasing the bioavailability and patient compliance.

Keywords: Sacubitril, Valsartan, buoyancy studies, dissolution, natural polymer, gastric residence time

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IC-PCS 38

Triggered drug delivery for the treatment of Breast cancer

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ABSTRACT:

Breast cancer is the second most common cancer among women in the United States, making up approximately 30% of all cancers diagnosed in this population. The multiple biological and histological entities associated with it make it a more complex disease. Various surgical, radiological and chemotherapeutic approaches have been adopted over last few decades for the treatment of breast cancer. The numerous side effects associated with chemotherapeutic agents pay a major setback to the long term health of patients leading to development of targeted drug delivery systems. The aim of targeted drug delivery system is to enhance the therapeutic effect of the anticancer drug and reduces the toxic effect associated with drug. The targeted drug delivery system specifically targets the malignant cells without affecting neighboring healthy cells. The goal of this research project is to formulate and characterize triggered drug delivery system for the effective treatment of breast cancer. The objective of this project to is to formulate and characterize triggered drug delivery system for the effective management and treatment of breast cancer. For this a simple yet effective hypoxia-responsive liposome are prepared by integrating nitroimidazole derivative in the phospholipid bilayer. The liposomes' sensitivity to hypoxia is exceedingly strong, and they can release payload only in breast tumors cells that are hypoxic. In cell lines studies, the liposomes are anticipated to demonstrate improved therapeutic efficacy, highlighting their promising potential for use in clinical studies.

Keywords: Liposomes, Triggered drug delivery system, Breast cancer, Chemotherapeutic agents.

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IC-PCS 39

Study on ionic gelation method for preparation and development of hydrogel system for drug targeting"

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ABSTRACT:

The aim of present study is to overview on development and characterizations of polymerichydrogel system based on ionic gelation technique for colon targeting. Owing to their smallersize, prolonged retention time, and sustained drug release profile properties, these system werecurrently received an increasing amount of attention among scientist for possible drug targetingto desired site of actions. Recently, polymer nanoparticles have been widely investigated as acarrier for drug delivery. Among them, much attention has been paid to the nanoparticles madeof biodegradable polymers due to its better biocompatibility, biodegradability, and novel drugrelease behavior. The use of complexation phenomenon between oppositely chargedmacromolecules to prepare nanoparticles has attracted much attention because the said process isvery simple to prepare at laboratory scale. In addition, reversible physical cross-linking byelectrostatic interaction, instead of chemical cross-linking has been applied to avoid the possibletoxicity of reagents and other undesirable effects. Ionotropic gelation is based on the ability ofpolyions to get crosslinked in presence of counter ions to form hydrogels. Many biodegradableand biocompatible types polymers are reported for utilizing for preparation of hydrgels includingalginates, gellan gum, chitosan, carboxymethyl cellulose, guar gum, pectin etc. for theencapsulation of drug using ionotropic gelation technique. This hydrogel system were threedimensional, hydrophilic mesh networks capable of imbibing large amount of water or

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biologicalfluids into it and mimics biological tissues on other hand. Due to advancement in polymerchemistry, novel encapsulation techniques and genetic engineering, these hydrogel system isgaining much importance during last few decades. These are used for development of successfulmatrix based carrier systems for delivery of numerous drug candidates including biotechnologyderived proteins and peptides type drugs. This hydrogel beads are found to be biodegradable,biocompatible and eco friendlier type systems with novel characteristics. Hence it is concludedthat these novel hydrogel systems may be utilized for successful targeting of drug candidates tothe desired site of action for possible therapeutic benefits.

Keywords: Hydrogel system, ionic gelation method, polymers, pectin, guar gum, biocompatible,drug targeting.

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IC-PCS 40

CARBON NANOTUBES AS A PROMISING DRUG DELIVERY CARRIER

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ABSTRACT:

The major aim of developing nanocarrier drug delivery system is to enhance the therapeutic effect or reduce toxicity of therapeutically active materials. Carbon nanotube (CNTs) can be functionalized with certain functional groups in order to manipulate their physical or biological properties. CNTs act as carriers for a wide range of therapeutic molecules, their large surface area and possibility to manipulate their surfaces and physical dimensions have been exploited for use in the photothermal destruction of cancer cells. CNTs typically have diameters ranging from < 1nm upto 50nm. CNTs can be categorized by their structures, single-wall nanotubes, multiwall nanotubes, double wall nonotubes. CNTs has various advantages they are biocompatible, reduced toxicity, hydrophobic in nature and thus insoluble in water which limits their application in biomedical and medicinal chemistry. Nanotubes are widely used in anticancer, antibacterial, antiviral, antioxidant, si-RNA. Several types of anticancer drugs, such as paclitaxel and doxorubicin, 6-mercaptopurineare loaded on to CNTs and their treatment efficiency has been demonstrated in vivo and vitro. Overall, recent studies regarding CNTs have shown a very promising glimpse of what lies ahead in future of medicines.

Key words: Nanotubes, Carbon nanotubes, Drug delivery carriers.

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IC-PCS 41

A Review on "Chitosan Oligosaccharide as Effective Cross-Linking Agent for Ca-Alginate Microparticles"

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ABSTRACT:

The purpose of the research was to create Ca-alginate microparticles for oral naproxen delivery that were augmented with chitosan oligosaccharide (COS), with a focus on seeing if COS could enhance the stability of the microparticles in simulated intestinal fluid.Microparticles were created using the two-step technique, utilizing an air-jet apparatus and various concentrations of calcium chloride and COS in the gelling media.With a mean particle size of less than 350 µm, COS-treated microparticles were typically spherical in shape but somewhat distorted, showing surface roughness.Alginate and COS developed a polyelectrolyte complex (PEC), according to FT-IR and differential scanning calorimetry analyses. Studies on swelling and drug release showed that treating Ca-alginate-COS copolymers had a substantial impact on the pH sensitivity and stability of the microparticles.This impact was particularly noticeable in SIF, where the production of PEC allowed for the prolonged release of the medication that had been encapsulated and was reliant on the COS/alginate ratio.The particles grown in 1% (w/w) COS solution produced the best results since they had the slowest drug release in simulated intestinal fluid (SIF) of all the formulations tested.The results demonstrated thatCa-alginate-COS copolymers can be used as a viable substitute to enteric coated single unified dosage forms for the oral administration of naproxen. It was also concluded that COS may be employed as a powerful cross-linking agent to increase the stability of Ca-alginate microparticles in SIF.

Keywords: Ca-alginate; microparticles; COS; chitosan; naproxen

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IC-PCS 42

Dual targeting liposomes for brain tumor specific chemotherapy

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ABSTRACT:

The treatment of brain cancer is one of the most difficult challenges in oncology. The failure of chemotherapy is due to the inability of intravenously administered anticancer agents to reach the brain parenchyma. The present study aim to develop the dual-targeted liposomes bearing doxorubicin (DOX) in which drug (DOX) is conjugated with brain specific ligand i.e. low density lipoprotein (LDL). The surface of liposomes is modified using phenylalanine (PA) which facilitated the transport through L-Type amino acid transporters (LAT1) that are highly expressed on blood brain barrier as well as on many brain cancer cells. The developed liposomes were characterized for various parameters such as Fourier transform infrared spectroscopy, Nuclear magnetic resonance, Transmission electron microscopy, Particle size, Zeta potential, Entrapment efficiency and in vitro release studies. The particle size of the prepared liposomes was found to be below 200 nm, with a negative surface charge. In vitro cell line studies on C6 glioma cell lines demonstrated that cellular cytotoxicity of the liposomes was highly increased when coupled with PA. The results of the cytotoxicity and cellular uptake studies assessed that the PA coupled liposomes is potential carrier for brain tumor treatment.

Keywords: doxorubicin, low density lipoprotein, phenylalanine, L-Type amino acid transporters

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IC-PCS 43

Novel formulations of proton pump inhibhitor for peptic ulcer

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ABSTRACT:

The aim of this study is to get knowledge about different formulation of proton pump inhibhitordrugs for peptic ulcer.Mainly the proton pump inhibitors are acid labile which are degradedwhen get in contact with acidic pH of stomach environment. Hence there are many systemsare developed like microsphere, microbeads, enteric coated capsule, targeted drug delivery,sustained drug release system and enteric coated tablet etc. for targeted delivery of proton pumpinhibitors like Omperazole, Pantoprazole, Dexlansoprazole, Lansoprazole, Esomeprazole,Rabeprazole etc. for the treatment of peptic ulcer. About 10 % population of World is sufferingfrom peptic ulcer due to improper lifestyle & diet, not taking proper breakfast in morning,intakeof NSAIDS (asprin), consumption of alcohol and H. pylori bacterial infection . In peptic ulcerthe acidic pH of stomach increases so the acid labile drugs can't be delivered in conventionaldosage form. Hence we can use different systems for targeted delivery of acid labile drugs.Forexample sustained release enteric coated tablet of pantoprazole .The enteric coated tablets canbe formulated by wet granulation method , dry granulation and then coated by fluid bed dryerand air suspension coating method. By using these types of system the acid stabilitybioavailability can be enhanced and the drug degradation can be avoided.It is concluded fromthis study by using different type of targeted delivery system we can enhance bioavailability ,acid stability and half life of the drug in the treatment of peptic ulcer.

Keywords: Peptic Ulcer, Proton Pump Inhibitor, Novel Formulation, Enteric Coated Tablet

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IC-PCS 44

Pivotal role of 5-FU nanovesicular gel for the effective treatment of actinic keratosis: ex vivo-in vivo evaluation study

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ABSTRACT:

Introduction: 5-Fluorouracil (5-FU) is a potent chemotherapeutic agent frequently used in combination therapy for the treatment of diversified cancers. However, it possesses poor permeability and a short half-life. Aim & objective: For the first time, the synthesis of gallic acid-stearyl amine (GA-SA) conjugate combined with 5-Fluorouracil (5-FU) for the treatment of actinic keratosis in A431 epidermal carcinoma cells by the development of surface modified liposome gel for deeper skin penetration, higher retention in targeted site and reduction in systemic toxicity. Methods: Combination therapy of 5-FU and GA–SA were studied using A431 cancer cells and HaCaT normal cells. Totally 04 formulations were prepared by varying the soya lecithin and cholesterol viz. 9:1, 8:2, 7:3, 6:4. The 5-FU liposomal gel was prepared and viscosity, spreadability, ex-vivo skin permeation, the flux and skin deposition were determined and compared with marketed one. Results and Discussion: The results of cytotoxicity activity show that the optimized gel formulation possesses an anti-cell proliferation activity of 50 % better than plain 5-FU. The ability of the vesicle preparation to deposit skin was confirmed by confocal laser scanning microscopy. The gamma scintigraphy images noted that significant radioactivity was noted in the targeted area (skin) for the liposomal gel in comparison to marketed one, in accordance with our distribution studies. Conclusion: We have designed and synthesized a highly lipophilic molecule GA-SA conjugate and developed surface modified 5-FU liposome gel. The study exhibited enhanced and biocompatible potential for the treatment of actinic keratosis in comparison to marketed one by application on the mice model.

Key words: chemotherapeutic agent, cytotoxicity activity, scanning microscopy.

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IC-PCS 45

Investigation of Anti-Arthritic potential of Nano based Herbal film for transdermal delivery in Carrageenan induced Arthritic rats

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ABSTRACT:

Introduction: Herbal oils are generally administered topically to treat arthritic condition. Here a film preparation added with nanosized herbal oil has been focused for effective anti-arthritic potential. Hence the work was aimed to evaluate the anti-arthritic potential of nano based herbal film in carrageenan induced arthritic rats through transdermal delivery. Materials and methods: Solid lipid nanoparticle (SLN) of herbal oil containing boswellic acid was prepared by homogenization method. Then converted into a film by solvent evaporation technique using chitosan and polyvinyl alcohol as film formers. The optimized formulation (herbal solid lipid nanoparticle (HSLN) film) was characterized in-vitro for thin layer chromatography, ultraviolet spectroscopy, weight variation, thickness, moisture content, folding endurance and boswellic acid content. The HSLN film was subjected to in-vivo evaluation such as skin irritation and anti-arthritic effect using albino rats. Results and discussion: The herbal oil as SLN was successfully formulated into a film. They showed satisfactory uniformity in thickness, weight, moisture content and boswellic acid content. Skin irritation study exhibits no irritation based on the primary irritation index value of 0.57. Free radical scavenging activity of 39.2%, 43.7%, and 58.5% was obtained with increasing concentration of boswellic acid in the formulation. The anti-arthritic activity observed for the developed HSLN film was found to be comparable with the standard. Conclusion: The developed nano based herbal film was found to have effective anti-arthritic activity when administered trans dermally as evidenced from the in-vitro and in-vivo studies.

Keywords: Boswellic acid, Solid lipid nano particle, Chitosan, Polyvinyl alcohol, Ani-oxidant assay, Anti-inflammatory activity.

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IC-PCS 46

An overview on colon targeting of microbeads for management of inflammatory bowel disease.

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ABSTRACT:

The aim of the present study is to focus on colon targeting of microbeads for the treatment of Ulcerative colitis disease. Ulcerative Colitis is an inflammatory bowel disease that causes inflammation, severe bleeding and ulcers in our digestive tract. In case of avoiding for proper treatment then that may lead to life threatening complications on other hand. Ulcerative colitis causes by few reasons including immune system dysfunction, bacterial infection, genetical and poor diets etc. The treatment of ulcerative colitis can be provided with medications viz., aminosalicylates (sulfasalazine, mesalamine; corticosteroids (Prednisone), immunomodulators (6- mercaptopurine, azathioprine, methotrexate), biologics (infliximab, adalimumab, golimumab, vedolizumab), Janus Kinase inhibitors (tofacitinib) etc. The delivery of drug(s) to the upper gastrointestinal tract using traditional dosage form are reported to cause drug degradation, higher toxicity level, high dose requirement and higher side effects. In order to overcome from these drawbacks, microbeads are currently using and having higher demand for targeting to colonic region. Microbeads are spherical, free flowing multiparticulate matrix based carrier system containing drug that are using for controlled and sustained releases at desired target site. It can be prepared in laboratory using ionic gelation method, emulsion gelation method and/or polyelectrolyte complexation method. The bioavailability of drug loaded complexes is found higher than those conventional dosage forms. It is concluded that the novel polymeric microbeads were the promising matrix-based carrier system may be use for colon targeting for possible management of inflammatory bowel disease.

Keywords: inflammatory bowel disease, colon targeting, microbeads, multiparticulates, polymers

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IC-PCS 47

Preparation and characterization of Gemcitabine and Niclosamide loaded Thermosensitive liposome for the treatment of ovarian cancer.

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ABSTRACT:

Gemcitabine (GEM) is a nucleoside antimetaboliteand it targets specific stages of cell cycle. There have been many studies on the clinical efficacy of GEM in treating ovarian cancer.Niclosamide, previously used as an anthelmintic drug is currently being repurposed for its anticancer activity.The Wnt/β-catenin pathway is known to regulate cellular proliferation and plays a role in chemoresistance. Niclosamide, an FDA approved salicyclamide derivative used for the targets the Wnt/β-catenin pathway. Therefore, the objective of this study was to investigate Niclosamide as a potential therapeutic agent for ovarian cancer. Niclosamide is a brick like biopharmaceutical classification system (BCS) class II drug with poor aqueous solubility and dissolution consequently leading to low bioavailability.For increasing the bioavailability of Niclosamide they are incorporated in Liposome with high bioavailability drug such as Gemcitabine. I will make thermosensitive liposome which is formulate with the help of thermosensitive lipids such as DPPC: DSPE: PEG. Thermosensitive lipids (phosphatidylcholine, DPPC; dimyristoyl phosphatidylglycerol, DMPG) exhibit a gel to sol transition iteratively at temperature few degrees above the physiological temperature leading to burst release of liposomal contents. Many pathological areas such as human ovarian carcinoma show distinct hyperthermia (Folate receptors (FR-a) are frequently overexpressed (over 90 %) in ovarian carcinomas and found to be suitable for target specific delivery. These lipids have melting temperature about 40℃ and cancer cells have also temperature about 40℃, so with help of these lipids we can make thermosensitive liposome of Gemcitabine and Niclosamide for specific targeting at the ovarian cancer, we use hyaluronic acid as a ligand with this we can achieve specific targeting at the receptor which are present at the epithelial cells of the tumour. After the formulation of liposome, we perform characterization of liposome formulation in which I will determine all the evaluation parameters and then go for in vitro and in vivo study.

Keyword:- Gemcitabine (GEM), nucleoside, antimetabolite, salicyclamide, thermosensitive liposome.

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IC-PCS 48

Enhancement of skin penetration and antifungal activity of synthetic antifungal imidazole derivative by fabricating and optimizing a novel vesicular carrier gel for transdermal delivery

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ABSTRACT:

The aim of present study to prepare and evaluate miconazole nitrate transfersomal gel to enhance skin penetration and increase antifungal activity.The selected research work was divided into three phases. The first phase comprised of selection of drugs and excipients, Preformulation studies, preparation, optimization and in vitro characterization of selected carriers, nanovesiculartransfersome. Drugs selected were Miconazole Nitrate and nanovesicular carriers selected. In the second phase of work, preparation and characterization of transfersomal gel formulation containing selected novel carrier was carried out. In third phase, prepared delivery system was evaluated for in vitro studies to ensure the behavior of delivery system. Transfersomes are excellent drug carrier to permeate skin tissues. Embedding of transferosomalMiconazole Nitrate into gel improves permeation of the drug. Moreover, stability of transferosomal vesicles is improved when they are embedded into gel dosage form. Use of certain skin permeation enhancers with transferosomalMiconazole Nitrate gel is available and potentiates the permeation of the drug. This technique can serve as a potential tool for delivery of various topical drugs without altering the skin structure.

Keywords: Miconazole nitrate; Transfersomal gel; Antifungul; Preformulation; Preformulation.

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IC-PCS 49

Review on Formulation and Evaluation of Trandermal Patch of Celecoxib drug for the treatment rheumatoid arthritis

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ABSTRACT:

Transdermal drug delivery system (TDDS) was designed to sustain the release and improve the bioavailability of drug and patient compliance. The administration of drugs by transdermal route offers the advantage of being relatively painless. The appeal of using the skin as a portal of drug entry lies in case of access, its huge surface area, and systemic access through underlying circulatory and lymphatic networks and the noninvasive nature of drug delivery. Delivery of drugs through the skin for systemic effect, called transdermal delivery was first used in 1981, when Ciba-Geigy marketed Transderm V (present day marketed as Transderm Scop) to prevent the nausea and vomiting associated with motion sickness. Transdermal drug delivery offers controlled release of the drug into the patient, it enables a steady blood level profile, resulting in reduced systemic side effects and, sometimes, improved efficacy over other dosage forms. The main objective of transdermal drug delivery system is to deliver drugs into systemic circulation through skin at predetermined rate with minimal inter and intrapatient variation.

Keywords: Bioavailability, Transdermal, Delivery, Patches.

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IC-PCS 50

Mixed hydrotropic solubilisation- a novel technique to enhance the dissolution of febuxostat

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ABSTRACT:

The aim of this study was to improve the dissolution of water insoluble drug by mixed hydrotropic solid dispersion technology. The poor dissolution characteristic of water insoluble drugs is a major challenge for pharmaceutical professionals. Mixed hydrotropic solid dispersion (HSD) technology contains the blends of hydrotropic agents, gives synergistic effect on solubility of poorly aqueous soluble drug. This technique restrict the use of large amount of individual hydrotropic agent, thus minimize the toxic effects of individual hydrotropic agent arising due to their high concentration. HSDs were prepared by using hydrotropic blend of 15% sodium benzoate, 10% Niacinamide and 5% sodium citrate by solvent evaporation method. Hydrotropic agents previously evaluated for their compatibility with drug by FT-IR study. Prepared solid dispersions were evaluated by XRD and dissolution studies, compared with the pure febuxostat power and physical mixture of drug and hydrotropic agent. The crystalline nature of drug has decreased in the solid dispersion. Decrease in crystalinity of drug and hydrotrope may contribute to enhancement of dissolution of drug. The highest dissolution rate (99.830.057) was obtained for 1 : 8 HSD**.** The result of chemical stability indicated that the residual amount of drug present after storage for 30 days interval at different temperature and relative humidity was within 97- 98%, which showed good chemical stability at variable temperature. This study demonstrated that mixed-solvency may be an alternative approach for poorly soluble drugsto improves their solubility and oral bioavailability.

Keywords: Febuxostat, Solvent evaporation, Mixed hydrotropic solid dispersion, Sodium benzoate, Sodium citrate, Niacinamide

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IC-PCS 51

Formulation of tolnaftate emulgel for topical delivery

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ABSTRACT:

Nanoemulsion gelling system is an ideal drug delivery system for most of the drugs with objective of maximizing efficacy while minimizing toxicity. Nanoemulsion system comprises the mixture of nanoranges of two immiscible liquids (water and oil) to form a homogeneous system by adding suitable surfactant/co-surfactants with appropriate HLB value. This thermodynamically stable system ranges from 10-100 nm. The study include topical nano emulgel will formulate by adding natural oils, gelling agents, stabilized surfactants with addition of co-surfactants, in aqueous phase to the optimized characteristics both of nano emulsions and gels and maintaining of skin pH. Current study is to expand nano emulgel of tolnaftate as anti-fungal drug. The drug delivery system provides better-permeable delivery of effective moeighty via topical route in controlled and localized manner.

Keywords: Nano-Emulsion, Drug delivery system, Nano-emulgel.

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IC-PCS 52

Fabrication and evaluation of nanoparticulate system for cyclo-oxygenase enzyme inhibitory drug aceclofenac bysolvent evaporation technique

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ABSTRACT:

Nanoparticles have applications in the formulation of poorly water soluble drugs to improve their bioavailability. Preparation and evaluation aceclofenac-loaded nanoparticles by solventevaporation method to enhance solubility and bioavailability were the primary aim of the presentinvestigation. Nanoparticles of aceclofenac, a BCS class II drug were prepared by solventevaporation technique and characterized using Fourier transform infrared spectroscopy, particlesize & zeta potential, scanning electron microscopy and drug release studies in vitro. Data fromthe Fourier-transform infrared spectroscopy showed no interaction between drug and thepolymers. Scanning electron microscopy images indicated that nanoparticles were spherical inshape. Water solubility of drug-loaded nanoparticles was increased as compared to the pure drugand showed improved dissolution profile, which indicated that nanoprecipitation, was simple andprecise. This laboratory scale method as well as this approach could be employed for solubilityand bioavailability improvement of aceclofenac.

Keywords: Nanoparticles, Aceclofenac, Solvent evaporation method, Scanning electron microscopy.

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IC-PCS 53

Formulation Design and Evaluation of Nasal toxicity study: Lamotrigine encapsulated intra-nasal nanoliposome formulation for Huntington's disease (HD)

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ABSTRACT:

The purpose of this study was to develop lamotrigine nanoliposomes (LTG-NLs) for the treatment in chorea. The formulation was prepared using thin film dehydration– rehydration method using the phospholipon 90 G, cholesterol and tween 80 as main ingredients. The nanoliposomes were optimized by plucket burman design (PBD) and response surface methodology (RSM) optimization techniques. The optimized LTGNLopt was further characterized for surface morphology, in-vitro release, stability study, confocal laser scanning microscopic (CLSM) study and naso toxicity study. The results showed that LTGNLopt shown nano size with high entrapment and drug release. The ex-vivo permeation study and confocal laser microscopy study confirmed the enhancement in permeation across the goat nasal mucosa. From the study, it was concluded that the independent variables used to optimize the NLs shown significant effect on the dependent variables and consider effective lipid carrier system for intranasal delivery.

Keywords: lamotrigine nanoliposomes (LTG-NLs), plucket burman design (PBD), nano liposomes.

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IC-PCS 54

Usnic acid and graphene nano-ointment for amr – superbugs

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ABSTRACT:

Antibiotic resistance of pathogenic bacteria is a serious problem in human and animal medicine and requires the development of new therapeutic and antibacterial strategies. Several plant compounds, such as Usnic acid, have potential as a new class of antimicrobial agents because they are effective against a variety of gram-positive and gram-negative bacteria, especially target cell membranes.This compound exhibits synergistic activity with the materials like graphene having same antimicrobial activity. Because of its poor solubility in water, the use of Usnic acid is limited to oral formulation, topical formulation, and cosmetic preparations. Nanoparticle based formulations have been gaining importance due to their targeted delivery, increased skin permeability and control release for the treatment of skin infections. In the present work the drug Usnic acid (lichen metabolite) reported for their many pharmacological activities was conjugated with versatile carrier graphene. The nano- ointment of grapheme conjugate with Usnic acid was prepared with water soluble base and was subjected for anti-fungal activity by using fungal strain Candida albicans. Usnic acid nanoparticles were prepared through Nano-precipitation technique and optimized formulation was evaluated for dissolution and in vivo anti-fungal activity. In vitro dissolution profile has shown controlled release because of the hindrance from the ointment base however in vivo anti-fungal results has drastically shown remarkable potential as an anti-microbial agent. This significant anti-fungal property shows synergistic response of both the drug and carrier which is the unique tool to eradicate antibiotic resistance This compound exhibits synergistic activity with the materials like graphene having same antimicrobial activity. Because of its poor

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solubility in water, the use of Usnic acid is limited to oral formulation, topical formulation, and cosmetic preparations.Nanoparticle based formulations have been gaining importance due to their targeted delivery, increased skin permeability and control release for the treatment of skin infections. In the present work the drug Usnic acid (lichen metabolite) reported for their many pharmacological activities was conjugated with versatile carrier graphene. The nano- ointment of grapheme conjugate with Usnic acid was prepared with water soluble base and was subjected for anti-fungal activity by using fungal strain Candida albicans. Usnic acid nanoparticles were prepared through Nano-precipitation technique and optimized formulation was evaluated for dissolution and in vivo anti-fungal activity. In vitro dissolution profile has shown controlled release because of the hindrance from the ointment base however in vivo anti-fungal results has drastically shown remarkable potential as an anti-microbial agent.This significant anti-fungal property show synergistic response of both the drug and carrier which is the unique tool to eradicate antibiotic resistance.

Keywords: Nano-precipitation technique, Usnic acid (lichen metabolite), antimicrobial activity.

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IC-PCS-55

3D Printed Capsaicin-loaded Rod-shaped Implants for treating Obesity

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ABSTRACT:

The purpose of this study is to develop an injectable 3D printed implant for the treatment of diet-induced obesity, which is a serious global health problem. Current FDA-approved drugs for weight loss have severe side effects and bariatric surgery is expensive with increased risk of complications. Capsaicin, the main ingredient in chili peppers, has shown potential for weight loss in both animal and human studies, but oral administration has very low absorption and side effects. 3D printing allows for personalized implant design and prolonged drug release.

3D printed rod-shaped implants with capsaicin as the active ingredient were created using thermoplastic extrusion technology. Different capsaicin to PCL ratios were used and parameters such as printing temperature and speed were optimized. The implants were evaluated for drug content, uniformity, surface morphology and miscibility with the drug-polymer. Release profiles were studied in PBS at 37°C and measured using RP-HPLC.

The 3D printed capsaicin implants showed high drug loading with uniform distribution (100±5%) and a smooth surface without defects. The DSC results indicated the presence of amorphous drug even after 3 months of stability study. In vitro release studies showed sustained release (~70%) of capsaicin for over 2 months with no significant effect of infill density. All drug-loaded implants showed sustained release for over 2 months, regardless of the drug loading.

In summary, rod-shaped implants were made using thermoplastic extrusion-based 3D printing technology, which has the potential for personalizing implants for individual patients. The 3D printing technology is simple and can easily be transferred to a clinical setting for on-demand implant production to treat obesity and hyperlipidemia.

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IC-PCS-56

FOAM-BASED FLOATING SYSTEM: AN APPROACH FOR DEVELOPMENT OF ORAL PROLONGED RELEASE DRUG DELIVERY SYSTEM

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Abstract

Some of the best technologies for oral drug delivery include gastro-retentive systems. These mostly entered the picture because to their efficient local action in the GI region, particularly for the medications with a narrow window of absorption. The variety of techniques have developed in recent decades that demonstrate various processes for keeping the drug in the GI region for an extended period of time while increasing bioavailability. The gaseous dispersion of either liquid or solid foam is known as foam. These multiphase systems mostly consist of liquid or solid lamellae that partition gases. The drug's surface can be significantly increased when foam carriers are used, effectively enhancing the solubility of the drug's active ingredient. To modify the release, a significant amount of the drug material can be placed into the foam carrier's pores. Additionally, foam carriers have a low density that enables them to stay in the upper gastrointestinal tract for a longer period of time, resulting in a prolonged release of the therapeutic component. In this situation, liquid foams produced on-site or solid carriers having a high gas concentration in their structure are utilised. To achieve the system with the intended activity, the appropriate technology must be chosen for the task at hand using the appropriate mechanism of action. The article discusses the distinct benefits and characteristics of foams that make them valuable in contemporary prolonged release drug delivery systems.

Keywords: Foam, gastro retentive, prolonged release drug delivery system.

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PHARMACEUTICAL CHEMISTRY

IC-PCH-01

Design and development of some quinazoline derivatives as multi-targeting agents in AD therapy.

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ABSTRACT

An efficient and promising paradigm for treating complicated neurodegenerative malady like Alzheimer's disease is the multitarget-directed technique (AD). Here, a series of quinazoline analogues (**AV-1-21**) that exhibit moderate to good inhibitory effects were designed, synthesized and evaluated as multi-targeted directed ligand against acetylcholinesterase (AChE) and β-secretase-1 (BACE-1). Among them, compound **AV-1, AV-2,** and **AV-3** demonstrated balanced and significant inhibition against both the targets and demonstrated strong brain permeability in the PAMPA-BBB assay. The compound **AV-2** significantly displaces propidium iodide from the peripheral anionic site (PAS) of AChE, and was non-toxic to SH-SY5Y neuroblastoma cell lines up to the highest tested concentration of 80 μM. In the meantime, compound **AV-2** prevented Aβ aggregation caused by AChE and by self-induction in the thioflavin T assay, which was further confirmed by morphological analysis of Aβ aggregates using atomic force microscopy (AFM). Additionally, in the Y-maze studies, the compound **AV-2** reduced the cognitive impairment caused by scopolamine. The consensual binding interactions of lead compound with PAS-AChE and the aspartate dyad of BACE-1 were confirmed by in silico molecular docking and dynamics simulation investigations.

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IC-PCH-02

Design, Synthesis and Biological Activity of New Substituted Pyrimidine Derivative as α-Glucosidase Inhibitory Activity.

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ABSTRACT-

Diabetes mellitus is a common, chronic disease mainly characterized by the body's lack of ability to control blood sugar resulted into chronic hyperglycemia. Carbohydrate digestive enzymes, found in the brush border of the intestine, play the catalyzing role in breaking down the long-chain polysaccharides into absorbable monosaccharide units. Among these enzymes, αglucosidase inhibitors preventing the carbohydrate digestion and glucose release in bloodstream efficiently control T2DM. Several pyrimidine derivatives have been synthesized and widely screened for their biological activities. benzimidazole and pyrimidine moieties have received much attention in developing new therapeutic agents. more potent, less toxic α-glucosidase inhibitors is highly demanding. Over recent decade, various heterocyclic-based compounds possessing α-glucosidase inhibitory activities have been found. Although there are several reports concerning α-glucosidase inhibitors having pyrimidine skeletons separately, compounds bearing of these heterocycles, pyrimidine, in particular, as anti-diabetic agents have not been proposed yet. Therefore, design and synthesis of these targeted compounds which are anticipated to possess potent α-glucosidase inhibitory activity could be an interesting challenge in medicinal chemistry.

MATERIAL AND METHODS –The Work Station is raster systems in which a computer with a full operating system and manage facility is integrated with graphical display. All the computational studies were Performed on a HP running on Core-i5 processor (1)CS Chem Office

2008125 (2)VALSTAT126. Database of 32 compounds were used for building QSAR models. Selection of compounds: -pyrimidine scaffold was selected for present study. The ten Derivatives were selected.

SYNTHESIS OF COMPOUNDS- with Ethyl acetoacetate and different aldehyde and Thiourea in methyl alcohol and hydrochloric acid were taken and reflux. After refluxing precipitate was filtered and washed. The fine crystals of Ethyl 6-methyl-2-thioxo-1, 2, 3, 4-tetrahydropyrimidine-5-carboxylate were obtained in good yield.

Molecular Docking Study: All the 10 alpha glucosidase inhibition were subjected to molecular docking using the MOLEGRO Virtual Docker 6.0.

RESULTS AND DISCUSSION-

MOLECULAR DOCKING -10 compounds were selected of pyrimidine ring derivative on the basis of literature review And docked against α-glucosidase enzyme and co-crytallized with (PDB code:3A4A) the co-Crystallized ligand was also validated. The mol dock score and the amino acid interactions are Reported.

CONCLUSION- the novel pyrimidine derivatives 1- 10 synthesized in this study are mostly active inhibitors of the α-glucosidase enzyme. The better activity of compounds 2 and 10 suggests that the presence of 3-chloro and 4-ethoxy group is important for the α-glucosidase enzyme inhibitory activity of the derivatives. Compound 2 with m-chloro benzaldehyde substitution recorded the highest inhibition among the tested compounds. The enzyme kinetic study also revealed that the most active compound 2 competitively inhibits the α-glucosidase enzyme. Furthermore, the docking study also demonstrated that the most active compounds 2, 6, 7 and 8 have various interactions with the residues in the receptors active site. The interactions that played a major role in the binding include hydrogen bonds, p-anion interactions and hydrophobic interaction

Keywords- Pyrimidine Derivative as α-Glucosidase Inhibitory Activity, of 3-chloro and 4-ethoxy group, hydrophobic interaction

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IC-PCH-03

Chiral Orchestration: A Tool for Fishing Out Tripeptide-Based Mechanoresponsive Supergelators Possessing Anti-Inflammatory and Antimicrobial Properties

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ABSTRACT-

Inflammation based therapeutics is one of the most challenging affairs

Introduction: Deciphering the promising strategy for evolution of microbial infection and. Development of peptide-based smart supergelators with innate antimicrobial and antiinflammatory activities is an appealing way out.

Materials and Methods: In this work, the hydrogelators Boc-δ-Ava-(X)-Phe-(Y)-Phe-OH (I: X = Y = L; II: X = L; Y = D; III: X = D; Y = L; IV: X = Y = D, Ava: δ-amino valeric acid) were designed by strategic chiral tuning to investigate the effect of alternation of configuration(s) of Phe residues in governing the fashion of self-aggregation and macroscopic properties of peptides.

Results and Discussion: All molecules formed mechanoresponsive hydrogels under physiological conditions with a nanofibrillar network. Spectroscopic experiments confirmed the conformation of hydrogelators as supramolecular β-sheets formed through the self-association of S-shaped constructs stabilized by noncovalent interactions. This work demonstrates a rational approach towards regulating mechanical integrity of hydrogels through systematic inclusion of D-amino acids. Hydrogelators possessed antimicrobial activity against both Gram-positive

bacteria (Staphylococcus aureus and Streptococcus mutans) and Gram-negative bacteria (Escherichia coli and Klebsiella pneumonia) while retaining their biocompatibility towards mammalian cells (as revealed by MTT, hemolysis and lipid peroxidation assays). These scaffolds also exhibited antiinflammatory activities, as observed through in vitro MMP2/MMP9 inhibition studies and in vivo animal models, namely, the rat pouch model for acute inflammation.

Conclusion: We anticipate that the discovery of these materials with multifunctional capabilities holds future promise as preferential therapeutics for the treatment of bacterial infections and associated inflammations arising alone or as side effects of biomaterial implants.

Keywords- Inflammation, Hydrogelators, mechanoresponsive and self-healing properties

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IC-PCH-04

A Review on Molecular Docking

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ABSTRACT:-

The field of computer aided drug design and discovery (CADDD) is a rapidly growing area that has seen many successes in the last few years. Many giant pharmaceutical companies, in addition to academia, adopt CADDD ford rug lead discovery. The explosion of structural informatics, genomics and proteomic plays a major role in leading the efforts towards modern era drug discovery and development. Enormous research from last two decades has been pursued to study various docking algorithms and predicting the active site of the molecule. Various docking programs were developed to visualize the3D structure of the molecule and docking score can also be analyzed with the aid of different computational methods. Molecular Docking is a structure-based virtual screening (SBVS) that is used to place the computer-generated three-dimensional Structures of small molecules into a target structure in a variety of positions, conformations and orientations. Protein-ligand docking is a new concept with a variety of applications. It acts as a vivacious explore domain because of its significance to structure-based drug design (SBDD), Lead Optimization, Evaluation of Biochemical pathways, in De Novo drug design. In this Review whole description on Molecular Docking are mentioned here. Through Molecular Docking the Binding mode and affinity of the complex so formed is estimated and thus helps in the Molecular Recognition Process docking towards discovery of new drug leads

.**Keyword-** Molecular Docking, Protein-ligand docking, Molecular Recognition, structure-based virtual screening (SBVS)

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IC-PCH-05

Substituent Orchestration in Di-Methyl Quinoxaline Derivatives: A Tool for fishing out appropriate Kinase Inhibitors aspotential therapeutics for Alzheimer's Disease

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ABSTRACT-

Untangling the most selective kinase inhibitors via pharmacological intervention remains oneof the challenging affairs to date. Inaccordance to this drift, herein we describe the design and synthesis ofa set of new heterocyclic analogues consisting of 6,7 dimethyl Quinoxaline, appended to a connector,employing Schiff base strategy (Compounds **I** – **IX**). The compounds were characterised by variousspectroscopic techniques and the kinase inhibition assay were performed on few prime members of theCMGC family namely the GSK3β , DYRK1A and CLK1 receptors respectively, that have been known tobe directly involved in hyperphosphorylation of Tau. Interestingly the biological evaluation resultsrevealed that Compounds **IV & V**, with bromo/chloro functionalities in the aromatic core wereadvantaged of being highly selective towards the target GSK3 over others. To strengthen our analysis,we adopted molecular modelling studies, where compounds **IV /V** were redocked in the same grid 4AFJ,as that of the reference ligand, 5-Aryl-4-Carboxamide-1,3-Oxazole. Surprisingly, our investigation underpinned that for both the compounds **IV/V,** a primary H-bonding existed between the designedmolecules (**IV/V)** and Val 135 residue in the receptor GSK3β, inline with the reference ligandWe attribute this interaction to instigate potency in the compounds. Indeed, the other non-covalent interaction,
between the derivative's aromatic nucleus and Arg 141/Thr 138 in the receptor GSK3β, might have beenresponsible for enhancing the selectivity in the targets. Overall, we feel that the present work depicts alogical demonstration towards fine tuning the efficacy of the inhibitors through systematic adjustment ofelectron density at appropriate positions in the aromatic ring be it the main quinoxaline or the other aromatic nucleus. Thus, this pathway offers a convenient strategy for the development of efficienttherapeutics for diversified neurodegenerative diseases like that of Alzheimer's disease.

Keywords - Alzheimer's disease, quinoxaline, hyperphosphorylation, neurodegenerative diseases

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IC-PCH-06

Design synthesis and biological evaluation of some 1,3,4-oxadiazol-2-thiol derivatives as Potential MTDL for Alzheimer's disease management.

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ABSTRACT:-

Our present work demonstrated the successful design and synthesis of 27 compounds (6a-j, and7a-q) with a multitargeted directed approach. All the compounds were tested initially for their invitro inhibitory potential against hAChE, hBChE, hBACE-1 and Amyloid-β aggregation. Compounds 7d and 7f from the series have demonstrated cholinesterase inhibitory profile comparable to donepezil and rivastigmine. While, both compounds have shown BACE-1 inhibitory profile better than donepezil. Compounds 5d and 5f have also shown Aβ aggregation inhibition potential through thioflavin T assay, AFM, SEM and confocal microscopic studies. A propidium iodide assay of compounds 7d and 7f showed 54 and 61 % PI displacement. Further, compounds 7d and 7f demonstrated non-neuro-toxic nature of the compounds comparable to donepezil against differentiated SH-SY5Y cell lines. In vivo behavioral activity of both the compounds 7d and 7f were also demonstrated significant restoration of learning and memory behaviors in scopolamine and ICV-induced Amyloid-β AD models. The Ex vivo studies have shown significant decrease of AChE, MDA, GSH and NO levels and no sign of neuronal damage or any abnormalities in hippocampus and cortex region of the brain. The qRT-PCR analysis suggested reduction of proinflammatory markers while, western blot analysis suggested significant reduction in APP, Aβ, tau, and BACE-1levels. The Molecular dockings and MD simulation studies of 100 ns also corroborated our in vitro and in vivo findings.

Keywords- synthesis,Evaluation, pro in flammatory, to donepezil and rivastigmine

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IC-PCH-07

3D PRINTING TECHNOLOGY AND ITS FUTURE

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ABSTRACT –

3DP Three-Dimensional printing is a unique prototyping technology. Also known as additive manufacturing is a rapid prototyping process that construct solid product with various geometrics by successive layers of material by the use of Computer Aided Design (CAD). 3D printing can successfully address the issues relating to the drug delivery of poorly Water – soluble drugs, peptides, potent drug and release of multi – drug etc. the benefit of 3DP lies in the production of small batches of medicines each with tailored dosages, shape, Size.

Keywords- Three-Dimensional printing, prototyping process, small batches of medicines

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IC-PCH-08

Fluorescent carbon dot-mediated enhanced delivery of doxorubicin via glucose receptors.

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ABSTRACT-

Cancer is one of the most serious health concerns of the twenty-first century and WHO estimates that by 2040, there will be 16.3 million cancer-related deaths, with over 30.2 million new cases per year. Doxorubicin is a kind of chemotherapy medication which is used to treat cancer, however its lack of selectivity for malignant cells limits its effectiveness. Carbon Dots are nanoscale carbon structures with a diameter around 10 nm. They are widely used in biomedical research due to their diverse optical and chemical properties and favourable attributes such as biocompatibility, low cost, environmental friendliness, abundance of functional groups for conjugation.

Keyword- Cancer, . Doxorubicin , nanoscale, malignant cells

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IC-PCH-09

Design, synthesis and evaluation of schiff base derivatives of isatin as antibacterial agents

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ABSRACT -

A novel series of Schiff bases derivatives of isatin has been designed, synthesized, and evaluated for antibacterial activity against Staphylococcus aureus and Escherichia coli. The binding mode of the designed compounds was investigated in the active site of enzyme peptide deformylase of E. coli and S. aureus respectively. Eighteen compounds were designed based on a literature review and docked against peptide deformylase catalytic cavity. All new compounds were tested for in vitro antibacterial activity against a variety of Gram +ve and Gram -ve bacterial strains, such as S. aureus and E. coli, using the broth dilution method standard using actinonin as references. The compound-14 and 5 showed the highest mol dock score in the docking study as well as good in vitro antibacterial activity (MIC) against S. aureus and E. coli at 50 µg/ml than standard drug quercetin. The minimum inhibitory concentration (MIC) determination revealed that the molecules were more active against Gram +ve bacteria than Gram -ve bacteria. The compounds demonstrated promising antibacterial properties, with MICs ranging from 25 to 50 µg/ml.

Keywords: Staphylococcus aureus, Escherichia coli, antibacterial activity, deformylase catalytic

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IC-PCH-10

Novel Molecular Hybrids of 5,6-Diphenyl-1,2,4-triazine-3-thiol&1,3,4-Oxadiazole as Anti-Inflammatory Agents with Dual COX-2/5-LOX Inhibition

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ABSTRACT:

Dual inhibition of the COX-2/5-LOX enzymes renders substantial advantages in treatinginflammation associated with various diseases, including asthma, arthritis, cancer, etc. Novel molecular hybrids of 5,6-diphenyl-1,2,4-triazine-3-thiol &1,3,4-oxadiazolederivatives were designed,synthesized, and screened for inhibitory potential against COX-2/5-LOX enzyme and werefound to have moderate to excellent inhibitory potential against both the targets. Compounds6k have exhibited COX-2 inhibition (IC_{50} = 0.33 ± 0.02 μM) and 5-LOX inhibition (IC_{50} =4.90 ± 0.22 μM) and was better than the standard celecoxib (IC_{50}= 1.81± 0.13 μM) for COX-2and zileuton (IC_{50}= 15.04 ± 0.18μM) for 5-LOX respectively. Further investigation on theselected derivatives (6c and 6k) in rat paw edema models revealed significant anti-inflammatory efficacy. Compound 6k has also shown negligible ulcerogenic liability whencompared to indomethacin. Moreover, in-vivo biochemical analysis established theantioxidant properties of both compounds. Noteworthy, identified compounds 6c and 6k wereobserved devoid of cardiotoxicity post-myocardial infarction in rats. The molecular dockingand dynamics simulation of the most active derivative 6k affirmed their consentient bindinginteractions with COX-2 specific ravine and cleft of 5-LOX.

Keywords: ulcerogenic, indomethacin. Inflammation, cardiotoxicity, post-myocardial infarction

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IC-PCH-11

Designing of Indole Sulphonamide Derivatives as Potential α-Glucosidase Enzyme Inhibitors

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ABSTRACT:

INTRODUCTION: Diabetes is the increasing global health issue especially Type 2 diabetes, affecting 90-95 % of diabetic population. Pharmaceutical community takes keen interest in α-glucosidase inhibitors that possess catalytic potency to decrease blood glucose level. keeping in view the biological importance of indole and sulphonamide scaffold we plan to design indole bearing sulphonamide hybrid and perform in-silico studies.

MATERIAL AND METHODS: We selected series containing 16 indole bearing sulphonamide scaffolds from the reported literature. 2D structures were drawn using ChemDraw ultra 8.0 and converted into 3D structures in Chem3D ultra-8.0. Energy minimisation was done using MM2 and MOPAC computations (RMS gradient-0.0001). Sketched structures were subsequently used for the calculation of molecular descriptors. QSAR was performed on VALSTAT.PDB (3W37) Sugar beet α-glucosidase with acarbose was downloaded from RCSB PDB.Molecular docking studies was performed on Molegro Virtual Docker 6.0.

RESULT AND DISCUSSION: The generated QSAR models revealed that thermodynamic (MR), electronic (HOMO) and steric (PMIZ) descriptors have good correlation to the α-glucosidase inhibitors activity. Compound 12 showed the highest MolDock score (-120.475) and H-bond interactions with active site residues (Arg 552, Asp 357, Trp 432, Trp 565).

CONCLUSION: QSAR model showed that MR and HOMO contributes negatively and PMIZ positively to the inhibitory activity. Methoxy groups at meta position favours the antidiabetic activity on the basis of MolDock score and hydrogen bond interaction with amino acids.

Keywords: Indole, Sulphonamide, α-glucosidase, Type 2 Diabetes.

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IC-PCH-12

Molecular docking studies of some thiosemicarbazone derivatives as antimalarial agents

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ABSTRACT:

Malaria still threatens global health seriously.While the current discoveries of antimalarials are almost focussed on single mode of action inhibitors, multi targeting anti-malarial agents are highly desired to overcome the increasingly serious drug resistance.In the present study, a set of twenty-four thiosemicarbazone derivatives were subjected to molecular docked on P.falciparum Lactate Dehydrogenase enzyme (PDB code: 1CET, resolution 2.05 Å) and Falcipain-2, a Cysteine protease (PDB code: 3BPF, resolution 2.9Å) using Autodock1.5.7. Molecular docking studies revealed that the most active compounds TC-1,TC-4,TC-7,TC-10,TC-16,TC-19,TC-22,TC-24 docked well within the binding sites of P. falciparum Lactate Dehydrogenase drug target having binding energies ranging from -8.06 to -6.04 kcal/mol. Hydrogen bond interactions were observed with Gly99 and Phe52, while π-π interactions were seen with Ile54 and Ala98. Docking ligands on cysteine protease falcipain- 2 enzyme displayed hydrogen bond interaction with the residues Gly83, His174, Cys42 with binding energies ranging from -7.03 to -5.79 kcal/ mol. For all the designed compounds, the binding energies of molecular interaction into the active site of enzymes were found to be better than co-crystallized ligand, chloroquine (-6.00 kcal/mol) & N-[N-[1-Hydroxy carboxy ethyl-Carbonyl]Leucylamino-Butyl]-Guanidine, E64(-5.79 kcal/mol) respectively.

Keywords: Thiosemicarbazone, Molecular Docking, Chloroquine, P.falciparum Lactate Dehydrogenase, Cysteine protease falcipain-2, Antimalarials.

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IC-PCH-13

Drug targets for resistant malaria: Historic to future perspectives

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ABSTRACT:

Malaria remains one of the most eminent and menacing tropical diseases. Emergence of drug-resistant Plasmodium falciparum strains has led to a situation of haste in the development of new antimalarial drug discovery. In light of this situation, new drug targets are the prime need for development of potent antimalarial agents. The present review is aimed to highlight and provide useful information on recent treatment approaches for drug resistant malaria. This review also provides pictorial presentation on various drug targets viz. Digestive food vacuoles, Apicoplast, Mitochondria, Targeting Plasma Membrane, Cytosol etc., which might be useful for generating promising antimalarial drugs against resistance strains in future.

Keywords: Anti-malarial, Drug resistance, Plasmodium falciparum, Drug targets.

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IC-PCH-14

Artificial Intelligence approaches in prediction of diabetes

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ABSTRACT-

The economic burden of Type 2 Diabetes (T2D) on society has increased over time. Early prediction of diabetes and pre-diabetes can reduce treatment cost and improve intervention. The development of (pre)diabetes is associated with various health conditions that can be monitored by routine health checkups.This study aimed to develop machine learning-based model for predicting (pre)diabetes. Our frameworks were based on 22,722 patient samples collected from 2013 to 2020 in general hospital in Korea. The disease progression was divided into three categories based on fasting blood glucose: normal, pre-diabetes, and T2D. The risk factors at each stage were identified and compared. Based on the area under the curve, the support vector machine appeared to have optimal performance. At the normal and pre-diabetes stages, fasting blood glucose and HbA1c are prevalent risk features for the suggested models.

Keywords – diabetes, machine, blood glucose

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IC-PCH-15

Molecular docking studiesof novelbenzothiazole and pyrimidine derivatives for lanosterol 14-alpha demethylase inhibitor

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ABSTRACT-

The objective of the present study is to design benzothiazoleand pyrimidine derivatives asdemethylase inhibitors to assess their binding modes in the active site oflanosterol 14-alpha demethylase of Saccharomyces cerevisiae. Thirty benzothiazole derivatives and twenty pyrimidine derivatives were designed on the basis of previously reported structure activity relationship.The designed derivatives were docked in the active site of enzyme lanosterol 14-alpha demethylase (PDB Code -5EQB). The compound 25 (N-(benzo[d]thiazol-4-yl) acetamide) showed the highest mol dock score -88.41 and showed the hydrogen bond interactions with active site residues such as Try126, Ser382. Whereas from the pyrimidine derivatives the compound 16 (2-amino-6-(trifluoromethyl)-7-methoxy-1,8-naphthyridine-3-carboxamide) displayed the highest mol dock score -104.9 and showed the hydrogen bond interaction with active site residues such as His 381, Ser 382.This study gave an insight for the development of some, active and safer lanosterol 14-alpha demethylase inhibitors.

Keywords: benzothiazole, Saccharomyces cerevisiae, lanosterol 14-alpha demethylase.

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IC-PCH-16

Type 2 Diabetes Mellitus: A Review of Current Trends

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ABSTRACT-

Diabetes has been increasing steadily all over the world. As a result of this trend, it is fast becoming an epidemic in some countries of the world with the number of people affected expected to double in the next decade due to increase in ageing population, thereby adding to the already existing burden for healthcare providers, especially in poorly developed countries. This review is based on a search of Medline, the Cochrane Database of Systemic Reviews, and citation lists of relevant publications. Subject heading and key words used include type 2 diabetes mellitus, prevalence, current diagnosis, and current treatment. Only articles in English were included. Screening and diagnosis is still based on World Health Organization (WHO) and American Diabetes Association (ADA) criteria which include both clinical and laboratory parameters. No cure has yet been found for the disease; however, treatment modalities include lifestyle modifications, treatment of obesity, oral hypoglycemic agents, and insulin sensitizers like metformin, a biguanide that reduces insulin resistance, is still the recommended first line medication especially for obese patients. Other effective medications include nonsulfonylurea secretagogues, thiazolidinediones, alpha glucosidase inhibitors, and insulin. Recent research into the pathophysiology of type 2 DM has led to the introduction of new medications like glucagon-like peptide 1 analogoues: dipeptidyl peptidase-IV inhibitors, inhibitors of the sodium-glucose cotransporter 2 and 11ß-hydroxysteroid dehydrogenase 1, insulin-releasing glucokinase activators and pancreatic-G-protein-coupled fatty-acid-receptor agonists, glucagon-receptor antagonists, metabolic inhibitors of hepatic glucose output and quick-release bromocriptine. Inhaled insulin was licensed for use in 2006 but has been withdrawn from the market because of low patronage.

Keywords: Type 2 diabetes mellitus; Diagnosis; Management;

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IC-PCH-17

In Silico ADMET and Molecular Docking Analysis of 2, 4-Di Tert Butyl Phenol isolated from Coccinia grandis (L.) Voigt

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ABSTRACT

Compound 2, 4 di tertiary butyl phenol was isolated from Coccinia grandis (L.) Voigt n-butanol extract by column chromatography technique. Flexible docking of 2, 4 di tertiary butyl phenol was performed with A chain of human pancreatic alpha amylase receptor (PDB: 5EMY) that exhibited a good docking score of -−81.48 Kcal mol^{-1} and indicating a high affinity of the compound to the receptor via hydrogen bonds, electrostatic interactions and hydrophobic interactions. Hydrogen bond interaction was found between hydroxyl group of compound 2, 4 di tertiary butyl phenol and Asp 402 residue of PDB:5EMY receptor whereas two groups of tertiary methyl moiety shown steric interactions with Threonine 11, Aspartate 402, and Glycine 334. In vitro alpha-amylase inhibition of 2, 4 di tert butyl phenol demonstrated remarkable inhibition of 82.96 % at low concentration (1000 µg/ml) similar to standard acarbose (88.02% at 1000 µg/ml). Moreover, in silico ADME analysis of the compound exhibited 95.48 % gastrointestinal absorption, skin permeability (-3.87 cm/s), better metabolism and 0.984 log ml min^{-1} kg^{-1} of total clearance of the compound and 0.55 of bioavailability. This compound also follows Lipinski rule of 5. In silico toxicity predicted Non-carcinogenicity, Non-mutagenicity, Non-hepatotoxicity but skin irritations. Antidiabetic potential of 2, 4 di tertiary butyl phenol may be attributed through inhibition of human pancreatic alpha amylase enzyme. Further exploration of deep insights in mechanism of action as an antidiabetic is important with lesser side effects.

Keywords: 2, 4 di tertiary butyl phenol, Coccinia grandis (L.) Voigt, alpha amylase enzyme, antidiabetic

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IC-PCH-18

Designing, Synthesis and BiologicalEvaluation of some QuinoloneAnalogues as Antimalarial Agents

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ABSTRACT:

This work involved the development, manufacturing, and physiological assessment of a few quinolone analogues as antimalarial agents. The majority of antimalarial drugs fall within the quinoline class, which affects heme metabolism to exert its effects. The recent rise of chloroquine-resistant Plasmodium falciparum strains and the failure of the malaria immunisation programme have fueled the search for new medications to combat this long-standing and pervasive illness. Quinoline and its related derivatives belong to a family of heterocycles that has seen more use in the creation of effective antimalarial drugs than any other nucleus.To create analogues with strong antimalarial activities against both resistant and susceptible strains of Plasmodium sp., as well as minimal possible negative side effects, several chemical modifications of quinoline have been investigated. This paper mainly highlights some of the most recent chemical alterations made in order to create effective quinoline-based antimalarial medicines. To find a new antimalarial drug with potential chemotherapeutic characteristics, the suggested study may be useful. It may also improve patient compliance with the discovered drugs' unique mechanisms of action, lower costs, and reduced toxicity when utilised in clinical trials for the control and eradication of malaria. In India and many other nations, malaria is a serious public health issue that causes significant morbidity, death, and financial loss.In addition to preventive measures, early diagnosis and thorough treatment are crucial strategies used to keep the condition under control. The anticipated lifespan of practically all antimalarial medications and drug combinations is constrained by the ongoing emergence and propagation of particular drug resistance to presently used antimalarials.

Keywords: Quinolone Analogues,Designing, Synthesis, Antimalarial agents, Antiprotozoal medications

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IC-PCH-19

Synthesis, Docking studies and Antioxidant activity of some thiazole Schiff base derivatives

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ABSTRACT-

Antioxidants are known to diminish the harmful effects of reactive oxygen species. The reactive oxygen species are involved in various oxidative stress conditions associated with inflammation, cancer, diabetes etc. Antioxidants act as direct scavengers of free radicals and reactive oxygen species, and they may indirectly metabolize free radicals or their intermediates into harmless products. Thiazole Schiff base exhibit a wide array of pharmacological activities, viz. antibacterial, anti-diabetic, anti-cancer, anti-viral, antifungal etc.The present work focused on synthesis of thiazole Schiff base derivatives as antioxidant agents.The synthesisis a two-step reaction where benzaldehyde and thiosemicarbazide reacted to form benzaldehyde thiosemicarbazones and then condensation of benzaldehyde thiosemicarbazones with 3-chloro acetyl acetone resulted in the formation of thiazole Schiff base derivatives**.** The structure of synthesized compounds was confirmed by FT-IR, ^{1}H NMR, ^{13}C NMR and Mass spectral analysis data. The in vitro antioxidant activities were determined usingDPPH scavenging activity, ABTS[2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)]assay, Ferric Reducing Antioxidant Power Assay and Hydrogen peroxide (H_2O_2) scavenging assay. In ABTS assay, Ferric Reducing Antioxidant Power Assay and H_2O_2scavenging assay, compound TSB_S14with 3,4-dihydroxy substitutionwas found to be the most potent when compared with standard kojic acid and gallic acid while DPPH scavenging activity shown compound TSB_S7 with 3-bromo substitutionto be the most potent when compared with standard kojic acid and gallic acid.Molecular docking studies were performed on tyrosinase enzyme (PDB ID 5I38, resolution 2.6 Å, co-crystallized ligand**,kojic acid) using Molegro Virtual Docker 6.0.**The synthesised compounds docked well into the active site of enzyme and exhibited hydrogen-bond interactions withAla 44, Lys 47, Tyr 267.

Keywords – Antioxidants, synthesized, Benzaldehyde and thiosemicarbazide, Inflammation

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IC-PCH-20

Review on pyrazoline as anti-malarial agent

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ABSTRACT:

In nations where the disease is widespread, malaria poses a serious risk to public health and a substantial economic burden. Malaria is often treated with artemisinin-combination therapy (ACT). However, the Plasmodium parasite's significant medication resistance and decreased ACT effectiveness make to covalently combine two or more active pharmacophores that may act on several targets. The compounds of pyrazole and pyrazoline are thought to be pharmacologically essential active heterocyclic scaffolds that have practically all pharmacological actions.This review article detailed current developments in synthetic pyrazole and pyrazoline derivatives' antimalarial activity. Since pyranopyrazoles have a wide variety of therapeutic uses, the hybridization of 4-aminoquinoline with pyrano[2,3-c]pyrazoles would boost the antimalarial activity of pyrano[2,3c]pyrazole-aminoquinoline hybrids. Recently, a cascade approach for conjugating 4-aminoquinolines and pyrano[2,3c]pyrazole derivatives as molecular hybrids 7 for antimalarial medicines was successfully developed. These compounds showed high in vitro antimalarial activity against CQ-resistant P. falciparum.

Keywords:-Pyrazoles, pyrazolines, malaria, antimalarial, potency, Plasmodium falciparum

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IC-PCH-21

Review on pyranocoumarins and its biological importance

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ABSTRACT-

Due to their extensive variety of use in the areas of drug design, photochemistry, agrochemicals, dyes, and other chemical processes, heterocycles hold a prominent position in chemistry. One of the most promising heterocycles among them all is the pyranocoumarin scaffold, which has been found in both natural and synthetic sources. It has been demonstrated to have a range of biological effects, including those that are inflammatory, anti-HIV, antitubercular, anti-HBV, anti-dyslipidemic, antiplatelet, anti-inflammatory, antioxidant, and antibacterial. The goal of this review is to highlight significant pyranocoumarin analogues with a range of biological activity.

Pyrano- and dipyranocoumarins are classes of chemical compounds that occur naturally and have a variety of fascinating biological properties. Pyranocoumarins and dipyranocoumarins have anti-HIV, anti-cancer, anti-inflammatory, neuroprotective, antidiabetic, antibacterial, and antifungal properties. Khellactones and calanolides in particular typically exhibit significant and targeted anti-HIV action. As anticancer, neuroprotective, antidiabetic, antibacterial, and antifungal medicines, decursin and decursinol derivatives are highly effective.

Many fused coumarins, including pyranocoumarins, furocoumarins, and pyrrolocoumarins, have been isolated from natural sources and exhibit biological activity. Numerous biological actions, including antibacterial, antifungal, cytotoxic, antiproliferative, anti-inflammatory, analgesic, antimalarial, and antidiabetic, are displayed by fused pyridocoumarins

Keywords- pyranocoumarin, antimalarial, antidiabetic, , decursin and decursinol

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IC-PCH-22

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ABSRACT-

Introduction :- Protein aggregation is a serious concern for the formulation scientists and a rational approach towards its understanding is always highly beneficial for developing stable protein formulations and or protein bioprocessing strategies. Many proteins have been found to possess aggregation tendencies where the attractive interaction are considered to be triggered by patches of the protein molecule that may or may not involve the active site of the protein molecule itself. Here we explore the possibility of using light scattering technology as an analytical tool for understanding structural features of a protein that might be responsible for initiating aggregation interaction.

Methods and Material:-

- Aggregation parameters were determined using DLS and SLS experiments for BSA as a model protein.
- MD simulation strategies were used to determine average structures of the protein molecule under different experimental conditions.
- Structural descriptors were calculated for the average BSA structures to correlate the same with the experimental data.

Result:- Protein interaction parameters as obtained through light scattering experiments like K_m (interaction parameter between the solute particles as obtained through Dynamic Light Scattering Platform) in particular was found to possess good correlation with specific descriptors for Bovine Serum Albumin that subsequently helped in developing an aggregation model for the protein. Such information can help identify aggregation prone zones within a protein to rationally design protein engineering and /or formulation strategies for prolonged shelf-life of such products.

Conclusion:- Light Scattering experiments can be combined with MD simulation strategies to shed deeper insights in protein aggregation.

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IC-PCH-23

Development and validation of simultaneous uv spectrophotometric method for estimation of ornidazole and gatifloxacin sesquihydrate

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ABSTRACT -

Objective:

Ornidazole and Gatifloxacin are effective anti-bacterial drugs, when used in combination it will have a better effect and can be used for management of skin infections in form of topical formulation. But estimation of these drugs in such conditions is another important part. The aim of this research was to develop and validate a spectrophotometric technique for measuring these two drugs simultaneously in hydrogel formulation.

Material and method:

Polycarbophil was used as gelling agent and estimation of both the drugs in combined semisolid dosage form was carried out with generation of simultaneous equation after getting absorptivity of both drugs on their respective wavelength and at wavelength of each other too, on UV spectrophotometer.

Result and discussion:

The λmax for ornidazole and gatifloxacin was found to be 319nm and 287.5 nm respectively and linearity of both the drugs was in range of 4 to 20 µg/ml with correlation coefficient of 0.9992 and 0.9995, respectively. An estimated percentage recovery during accuracy study for ornidazole was found to be in range of 98.95 to 100.73 while for Gatifloxacin it was observed in range of 98.52 to 100.17. Precision results were also obtained within limits as per ICH guidelines. Sensitivity of proposed method was established by calculating LOD and LOQ. LOD was found to be 1.12 µg/ml and 0.99 µg/ml and LOQ were found to be 3.38µg/ml and 2.99 µg/ml, respectively for ornidazole and Gatifloxacin.

Conclusion:

It can be concluded that, present method can be used for quick and regular simultaneous measurement of ornidazole and gatifloxacin in combined semisolid dosage form.

Keywords: Ornidazole; gatifloxacin; simultaneous estimation; accuracy, LOD&LOQ, UV spectrophotometry.

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IC-PCH-24

Development and validation of reverse phase high performance liquid chromatography method for quantitative estimation of Edoxaban using PDA detector

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ABSTRACT:

Introduction: Edoxaban is an orally active, highly selective, direct reversible inhibitor of the serine protease factor Xa, and by increasing clotting reduces the risk of thrombus formation. The aim of the present study was to develop a sensitive and accurate liquid chromatographic method for the quantification of edoxaban.

Material and Methods: Quantification of analyte was achieved by utilizing Shimadzu shim-pack C_{18}(250 mm × 4.6 mm, 5µm) column on Shimadzu liquid chromatography system equipped with LC-20 AD solvent delivery system, SPD-20A photo diode array detector and 20 µl loop volume in a Rheodyne injector. The mobile phase composition was acetonitrile: water in the ratio of (55:45, v/v) with a flow rate of 1ml/min. Detection was achieved using photo diode array set at 291nm.

Results: Retention time of edoxaban was found 3.779 min with a total run time of 10 min. The calibration curve was found to be linear over the concentration range of 25-50µg/ml. The LOD and LOQ were found to be 2.4 µg/ml and 8.0 µg/ml, respectively.

Conclusion: The developed method was validated and the results of validation were within the prescribed limits as per International Conference on Harmonisation (ICH) guidelines.

Keywords: anticoagulant, chromatography, quantification, guideline

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IC-PCH-25

A Systematic Review on Antibacterial activities of Benzimidazoles

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ABSTRACT:

Antibacterial resistance is a great concern and requires global action. A critical question is whether enough new antibacterial drugs are being discovered and developed. Antibacterial resistance threatens the ability to successfully treat infectious diseases. In the present scenario imidazole core, basic moiety present in benzimidazole scaffolds possess a wide variety of biological activities like anti-bacterial, anti-viral, anti-diabetic, anticancer anti-oxidant, anti-parasitic activities. Benzimidazole is the heterocyclic compound formed from the fusion of benzene and imidazole ring containing nitrogen, oxygen, sulphur remains a main focus on medicinal research due to their synthetic feasibility. The current review was aimed to highlight and summarizes the chemistry of different derivatives of substituted benzimidazole core present as a anti-bacterial agents, which might be useful in future to synthesize some potent antibacterial agents.

Keywords: Antibacterial, Drug resistance, Benzimidazole

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IC-PCH 26

Synthesis of PLGA-PEG-HA graft copolymer for targeted delivery of chemotherapeutics

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ABSTRACT:

Breast cancer is one of the most common cancer affecting women worldwide. The controlled release of drugs to the specific site of the disease using receptor mediated Nano carrier vehicle increases therapeutic efficiency of the drugs. Receptor based targeting approach for drug delivery of chemotherapeutic agents shows great potential in recent years. CD 44 is a cell surface adhesion receptor that is highly expressed in breast cancer cells and regulates metastasis. A well known legend of CD 44 receptor is hyaluronic acid and hyaluronan. As cell surface receptor CD 44 readily interact with extracellular ligands play a vital role in angiogenesis, leukocytes function and tumor development which setup CD 44 as an excellent target for chemotherapy treatment. In this research article grafting of hyaluronic acid with PEGylated PLGA Copolymer has been demonstrated and also illuminated the role of hyaluronic acid in targeted cancer therapy, interaction of hyaluronic acid with CD 44 over expressed neoplastic cells.

Keywords: CD 44, Hyaluronic acid, Targeted drug delivery, Ligand, Nano carriers.

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IC-PCH 27

In search of bioinspired hydrogels from amphiphilic peptides: a template for nanoparticle stabilization for the sustained release ofAnticancer drugs

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ABSTRACT:

Introduction: The development of potent stimuli-responsive hydrogels has rapidly expanded in the last decades due to their diversified applications in the field of biomedicines.

Materials and Methods: In this work, we aimed at modulating a series of amphiphilic peptide analogues with the general formula Me-(CH_2)14- CO-NH-CH(X)-COOH, where X = CH_2Ph in Hydrogelators I (L-Phe) and II (D-Phe) and X = CH_2Ph(OH) in Hydrogelator III (L-Tyr), which displayed an excellent propensity to immobilize water at room temperature with a minimum gelation concentration of 0.04%/0.05%/0.02% w/v for Hydrogelators I–III, respectively, regardless of their configuration at the C-terminal centre.

Results and Discussion: To validate this threshold concentration difference, we performed computational analysis that demonstrated the ability of the side-chains of Hydrogelators I and III to remain highly planar with the methylene units of the amphiphile and aromatic rings, promoting favourable correspondence through van der Waals forces and pi–pi stacking. Consequently Hydrogelators I and III self-assembled in an ordered organisation superior to Hydrogelator II. Furthermore, the spectroscopic and microscopic experiments revealed that the Hydrogelators manifested a b-sheet conformation and Nano fibrous morphology at the

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supramolecular level. As observed visually and additionally confirmed by differential scanning calorimetry (DSC) and rheological measurements, the hydrogels exhibited thermo-reversibility, Injectability and high mechanical strength. Importantly, these biomaterials were also found to be resistant towards proteolytic degradation and non-cytotoxic in the cell line HEK 293 using a dose-dependent cell viability assay.

Conclusion: To date, the development of a structured approach for the release of drugs in a predictable manner from an optimised formulation, using peptide-based hydrogel nanoparticles as a delivery system remains in its infancy. We believe that the reported injectable, biocompatible, amphiphilic peptide-based hydrogels hold future promise as a potential tool to transport drugs to a targeted site at a greater concentration, thus relieving the patient from surgical injury and simultaneously aiding in a faster recovery.

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IC-PCH 28

In silico study of FDA approved drug for the treatment of diabetes

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Abstract:

Diabetes is one of the most widespread endocrine disorders affecting approximately 6% of the world's population. The number of diabetic patients will reach 615 million in 2040. The aim of this article is to repurpose the FDA approved drug for the management of the diabetes and its complications. This is in-silico docking study of the drugs with the In-vitro evaluation. In this Study FDA Approved Compounds were chosen for the Molecular Docking Studies. Aldose reductase enzyme was Selected from Protein data bank and docked with aldose reductase enzyme (PDB ID- 1PWM) by using molegro virtual docker version 6.0. In-vitro evaluation was performed by using NADPH as a substrate and IC50 value was calculated. The result indicated that MolDock score values were observed -205.729 (Ketoconazole), -201.139, (Domperidone), against aldose reductase enzyme. The result showed that Ketoconazole and Domperidone to be most active against Aldose reductase with better binding affinity then the standard drug. It is concluded that Ketoconazole and Domperidone are source of lead ARI molecules that give better result to cure and prevention of diabetic complications.

Keywords: Molecular docking, diabetes, aldose reducates enzyme, Inhibitory Assay

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IC-PCH 29

A review on Computer aided drug design

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ABSTRACT:

Drug discovery is an enormous & tedious process which encompasses various tools and techniques to produce dignitary drug candidates. The rational use of drug design was the initial method of drug design in which the therapeutic activity of the drug is being checked against the target receptor. The target protein receptor's structure was elucidated primitively by X ray and NMR Techniques which could not yield better results. Modern and fast method of structure elucidation of protein as well as the binding of drugs with the receptors is performed using CADD. The obligation of Screening of thousands of small drug candidates in the databases makes the screening of drug candidates a gradual process which is hastened by techniques like virtual screening processes many drug molecules but also eliminates the ineligible drug targets parallely. The two known drug design techniques the structure based and the ligand based laid the foundation of CADD which includes many subtools for the discovery of novel drug candidate. The cost and time of many pharmaceutical companies in the drug discovery process have been reduced by the embarkment of CADD.

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IC-PCH 30

Computational studies, Synthesis and Evaluation of 2-Mercapto Benzimidazole Hybrid Chalcone scaffolds as Antimicrobial Agents

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ABSTRACT:

The infectious diseases caused by microbes are responsible for the 26% of annual deaths around the world. The most recent studies revealed that 2-mercapto benzimidazole and chalcones are found to exhibit a wide spectrum of biological activities, such as antimicrobial, antiinflammatory, anticonvulsant, antituberculosis, anticancer, and antihyperlipdmic activities. In the present study some new 2-mercapto benzimidazole hybrid chalcones have been docked & synthesized for antimicrobial activity. The structures of these compounds were supported by their IR, NMR and Mass spectral data. The compounds will be evaluated for their antimicrobial activity. Thus, development and modification of these analogues may lead to generation of new highly potent antimicrobial agent in future which can eradicate issues of resistance developed against the existing antimicrobials.

Keywords – Antimicrobial agents, Docking, Chalcones.

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IC-PCH 31

Structure based drug designing of some antiviral agents for treatment of dengue

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ABSTRACT :-

Dengue infection (DENV) presents a significant threat to global World health with more than 500,000 hospitalizations and 25,000 deaths annually. Currently, there is no clinically approved antidengue drug to treat DENV virus. This review compares the potency of antivirals targeting DENV multifunctional enzymes, repurposed drugs and clinically approved antiviral drugs by using different drug design approach. None of the current DENV antidengue candidates possess potency similar to the approved antiviral drugs which indicates that more efforts and resources must be invested before an effective DENV drug materializes.This is focused on structure-based pharmacophore design and screening and absorption, distribution, metabolism, excretion, and toxicity (ADMET) analysis.The development of antidengue drug that targeting dengue's host enzyme can be more effective and efficient treatment than the viral enzyme.With the aim to help drug discovery against dengue virus (DENV), a fragment-based drug design was used to determine ligands targeting. The antidengue activity using in silico fragment-based drug design can generate drug candidates with high binding affinity.Biovia software are used for Molecular docking of the identified drug target and collected plant active components .Molecular interaction analysis was also provides more information about component antidengue activity. The DENV plaque assay can be performed using different cell lines , ATP levels of metabolically active cells protected by the presence of antidengue compounds are measured by bioluminescence. At a presence time the most universal and quantitative cell culture method for infectivity assay of dengue virus assay is cell based . This article provide a detailed overview on dengue virus infections, varied clinical manifestations, diagnosis, laboratory tests and cell based assay used for calculating IC50 value of some drugs .Screening are carried out using fragment based drug design, structure based drug design and Biovia software.

Keywords:- DENV,Fragment-based Drug Design,Structure based drug design, Biovia software, Cell based assay.

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IC-PCH 32

Molecular medicine research in cancer

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ABSTRACT:

This review represent the stimulating area of anticancer drug by molecular medicine research. Which are presently used to cure various type of cancer and used in clinical trials and in practice with illustrative case example and to discuss future directions toward ' personalized ' tumors response assessment. Recent advances in molecular medicine have elucidated the different molecular mechanism of cancer development and progression, which are specific to certain type of cancer. Currently, our ability to understand human disease at the molecular level is limited by the lack of molecular tools especially for disease such as cancer. Cancer is the one of the main cause of death for the treatment of cancer various method are applied. But these therapies were not secured to cure cancer completely in some cases and also costly and maximum population can not efforts such treatment. In recent years, cancer is leading cause of death worldwide. Accounting for nearly 10 million death in 2020 on nearly one in six death. The most common cancers are breast, lung, colon, rectum and prostate cancer.

This review will be provided current status of cancer drug and helpful to make strategy in the search of novel anticancer molecular medicine in future

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IC-PCH 33

1, 3, 4-Oxadiazole: An Emerging Scaffold to Inhibits the Thymidine Phosphorylase as an Anticancer Agent

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ABSTRACT:

The thymidine phosphorylase (TP) also referred as "platelet-derived endothelial cell growth factor" is crucial to the pyrimidine salvage pathway. The TP reversibly transforms thymidine into thymine and 2-deoxy-D-ribose-1-phosphate (dRib-1-P), which further degraded to 2-Deoxy-d-ribose (2DDR), which has both angiogenic and chemotactic activity. In several types of human cancer such as breast and colorectal malignancies, TP is abundantly expressed in response to biological disturbances like hypoxia, acidosis, chemotherapy, and radiation therapy. The TP overexpression is highly associated with angiogenic factors such as vascular endothelial growth factor (VEGF), interleukins (ILs), matrix metalloproteases (MMPs), etc., which accelerate tumorigenesis, invasion, metastasis, immune response evasion, and resistant to apoptosis. Hence, TP is recognized as a key target for the development of new anticancer drugs. Heterocycles are the primary structural element of most chemotherapeutics. Even 75% of nitrogen containing heterocyclic compound are contributing to pharmaceutical world. To create the bioactive molecule, medicinal chemists are concentrating on nitrogen-containing heterocyclic compounds such as pyrrole, pyrrolidine, pyridine, imidazole, pyrimidines, pyrazole, indole, quinoline, oxadiazole, benzimidazole, etc. The Oxadiazole motif stands out among them all due to its enormous significance in medicinal chemistry. The main thrust area of this review is to explore the significant role of the 1,3,4-oxadiazole as a TP inhibitor for their chemotherapeutic effects. Further, to detailed the synthesis, SAR, and mechanism of TP inhibition by 1,3,4-oxadiazole derivatives.

Keywords: Thymidine phosphorylase, heterocyclic compound, oxadiazole, anticancer activity, TP inhibitor

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IC-PCH 34

A review on "Synthesis, Biological Evaluation of Ibuprofen-Antioxidant Mutual Prodrugs as gastroprotective NSAIDs"

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ABSTRACT:

Prodrug strategies incorporate less active or inert bio-reversible variants of active drug molecules, as well as enzymatic conversion and chemical biotransformation. The development of prodrugs has made it possible to successfully combat the drawbacks of already-available medications. The mutual prodrug approach is indeed step ahead since it increases activity while minimizing negative effects. In this study, it is accomplished by creating and testing ibuprofen ester derivatives as mutual prodrugs with phenolic and alcoholic chemicals that are found in nature. Synthesis was carried out through esterification using DCC, over techniques like converting acid to acid chloride and then to esters. Promoieties like as thymol, menthol, and eugenol were chosen in order to provide a synergistic effect since they are natural analgesics with historical therapeutic uses. According to their t1/2 values, all of the prodrugs are discovered to be extremely stable at acidic pH but hydrolyses at neutral and alkaline pH. These mutual prodrugs also possess high lipophilicity than ibuprofen. The higher anti-inflammatory action of synthetic prodrug derivatives may be due to a synergistic interaction between ibuprofen and natural analgesics. Compared to ibuprofen, the synthesised prodrugs caused less GI irritation, proving that the acidic group was well masked. Therefore, the mutual prodrug strategy offers a chance in medicinal chemistry to enhance the therapeutic and clinical efficiency of a drug that has certain unfavourable qualities that limit its clinical utility. This study will help spark ideas for creating mutual prodrugs of NSAIDs and antioxidants,that are less harmful while still being beneficial to society.

Keywords: Ibuprofen; prodrugs; esterification; NSAIDs; antioxidants

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IC-PCH 35

Esterification Approaches towards the Bioavailability Enhancement of Curcumin

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ABSTRACT:

Curcuma longa has been used as a spice since ancient times as a Ayurvedic and Chinese medicine in which curcuminoids constitute a prominent ingredient. Curcuminthe main curcuminoid in turmeric, is responsible for the remarkable qualities of Curcuma longa. The fundamental limitations of curcumin are its low bioavailability and water solubility, which directly affect tissue distribution. Through structural modification and protection of the 98ydroxyl group found in the structure of curcumin, many prodrugs have been designed to overcome this problem.Such protections can be made by esterification with other molecules. These curcumin ester conjugates may be helpful in addressing curcumin-related difficulties, and it may soon be possible to employ them to treat a wide range of diseases.

Keywords: curcuminoid, curcumin.

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IC-PCH 36

AXL kinase inhibitors: Molecular modelling perspective

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ABSTRACT:

Deviant expressions of the tyrosine kinase AXL receptor are strongly correlated with a plethora of malignancies. Henceforth, the topic of targeting AXL is beginning to gain prominence due to mounting evidence of the protein's substantial connection to poor prognosis and treatment resistance. This year marked a milestone in clinical testing for AXL as an anti-carcinogenic target, with the start of the first AXL-branded inhibitor study. It is critical to emphasize that AXL is a primary and secondary target in various kinase inhibitors that have been approved or are on the verge of being approved while interpreting the present benefits and future potential effects of AXL suppression in the clinical setting. Several research arenas across the globe resolutely affirm the crucial significance of AXL receptors in the case study of several pathophysiology's including AML, prostate cancer, and breast cancer. This review endeavours to delve deeply into the biological, chemical and structural features of AXL kinase; primary AXL inhibitors that target the enzyme (either purposefully or unintentionally); and the prospects and barriers for turning AXL inhibitors into a feasible treatment alternative. Furthermore, we analyse the co-crystal structure of AXL, which remains extensively unexplored, as well as the mutations of AXL that may be valuable in the development of novel inhibitors in the upcoming future and take a comprehensive look at the medicinal chemistry of AXL inhibitors of recent years.

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IC-PCH 37

Potential HDAC inhibitors used to overcome drug resistance in prostate cancer

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ABSTRACT:

Epigenetic mechanisms play an important role in the development and persistence of cancer, and histone deacetylase (HDAC) inhibitors are promising anticancer drugs targeting epigenetic modes. Approved HDAC inhibitors have shown promising results on the one hand and severe drawbacks on the other hand. Hence, ways to break the drug resistance mechanisms of existing HDAC inhibitors as well as the design of new promising HDAC inhibitors which can overcome the disadvantages of the classic HDAC inhibitors are of great importance. In this work, HDAC inhibitors with the potential to become a mainstay for the treatment of some particular type of drug resistance in prostate cancer in the future as well as suitable combination treatments of HDAC inhibitors with other anticancer drugs leading to considerable synergistic effects in treated drug resistance in prostate cancer are discussed.

Keywords: Histone deacetylases, HDAC inhibitors, prostate cancer, drug resistance.

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IC-PCH 38

Dihydropyrimidine Scaffold Having Cardiovascular Activity

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ABSTRACT:

Across the world leading causes of death are mostly related to cardiovascular disease representing 32% of all global deaths as per WHO. In present days the new and effective molecule containing dihydropyrimidine moiety is studied show antihypertensive and anti-anginal properties showing Calcium channel blocking action and alfa adrenergic receptor blocking action. All though many biological active heterocyclic compounds consist of dihydropyrimidine showing many biological actions. In present new hypertensive agents having dihydropyrimidine scaffolds are explored.

Keywords-Hypertension, Dihydropyrimidine, Cardiovascular activity

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IC-PCH 39

QSAR analysis and ADMET study on 5-substituted pyrazoles for their COX-II inhibitory activity

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ABSTRACT:

Quantitative structure activity relationship (QSAR) analysis was performed on 5-substituted pyrazolesfor their cyclooxygenase (COX)-II inhibitory activity (Anti-inflammatory) using VlifeQSARPro software. Principalcomponent regression analysis(PCR) was performed to obtain QSAR models which were further validated for statisticalimpact. Most significant model has squared correlation coefficient (r2), cross validated correlation coefficient (q2) and predictive correlation coefficient (pred_r2) 0.63, 0.56 and 0.80 respectively. The QSAR model indicates that the descriptors T_C_F_4 and T_2_O_2 contributing each 50.00% to COX II inhibitory activity.ADMET properties were calculated using software ADMETSAR 2.0 in order to predict their pharmacokinetic and toxicity properties. Compounds showed good absorption and bioavailability. They are non-carcinogenic but showing hepatotoxicity, respiratory and nephrotoxicity. For toxicity endpoints, the value "+" means Positive/Toxic while "-" means Negative/Nontoxic. This study may be useful in search of potent and relatively safe compounds

Keywords: COX II inhibitors, QSAR,Pyrazoles, PCR, ADMET.

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IC-PCH-40

A review on "Promising Targets in Anti-cancer Drug Development"

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ABSTRACT:

One of the top causes of death worldwide, cancer is a complex disease that is simultaneously influenced by a combination of genetic, epigenetic, and environmental variables.The acquisition of multidrug resistance and relapse pose the biggest challenge in the development of anticancer drugs. Traditional cancer treatments directly affect the DNA of the cell, but modern anticancer medications use molecularly focused therapy, such as focusing on proteins that have abnormal expression in cancer cells. Conventional methods for completely eliminating the cancer cells were found to be ineffective. Although targeted chemotherapy has been beneficial in treating some cancers, its efficacy has frequently been constrained by drug resistance and adverse effects on healthy tissues and cells. For the successful treatment of cancer, numerous promising therapeutic targets have been discovered in recent years.Several of these prospective anticancer targets are discussed in the current review article, including kinases (Tyrosine kinases, Cyclin dependent kinases), tubulin, cancer stem cells (Notch pathway, Hedgehog pathway, Wnt system), monoclonal antibodies, and vascular targeting drugs. The process of developing effective anti-cancer medications may be facilitated by multi-acting agents that simultaneously target various cancer cell signalling pathways.Cancer cells create a variety of intricate defence mechanisms to counteract the cytotoxicity caused by the medicine. Therapeutic combinations that target multiple signalling pathways may prevent secondary resistance and boost drug efficacy.

Keywords: Anticancer; tubulin inhibitor; kinases, cancer stem cells; multi-drug resistance; multi-targeting agents.

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IC-PCH-41

2, 4-Thiazolidinedione as an Emerging Scaffold To Target Insulin Resistant Type-2 Diabetes Mellitus

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ABSTRACT:-

We all know that the derivatives of thiazolidinedione are generallyuse as antidiabetic agents though some derivatives show anti-microbial and anti-cancer property also, it increases the insulin sensitivity of target tissues in insulin resistant diabetes mellitus or non-insulin-dependent diabetes mellitus. Here a number of thiazolidine2,4-dione derivatives were synthesized and their structural elucidation was done on the basis of IR, NMR, MASSand different elemental analysis, which contain carboxylic ester at N-3 position and their anti-diabetic activity was evaluated in biological model previously. There is a conflict that the synthesized derivatives as well as their correlating carboxylic acid also showed remarkable advancement on post-prandial hyperglycaemia in Wistar rats but they have poor agonistic activity at PPAR-γ receptor. The animal study of the synthesized compounds were checked by an expression plasmid with luciferase gene activation and from the series of molecules we choose 4 compounds due to their superior biological activity in sucrose loaded model(SLM). Here we perform docking study on this 4 molecules and choose the most effective one which can be comparable with previously US-FDA approved drug(Rosiglitazone, Pioglitazone) of this thiazolidinedione nucleus.

Keywords:- PPAR-γ,Diabetes,Thiazolidine-2,4-diones, Anti-hyperglycaemic.

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IC-PCH-42

A Review On: Synthesis, Characterization and Biological Evaluation of Imidazole Derived Mannich Base As Potential Cytotoxic Agents

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ABSTRACT:

Mannich bases are the products of Mannich reactions which involve interaction between ketone or compound having active hydrogen atom, non enolizable aldehyde and primary or secondary amine or ammonia in presence of acid. Mannich bases are widely studied as they possess important activities such as antibacterial, antidiabetic, antioxidant, anti-inflammatory, anticancer and analgesics. This review summarizes the published data on the design, synthesis, characterization, anti-proliferative action, and cytotoxic activity of imidazole derived Mannich bases. The synthesized compounds were selected for analysis against HepG2 cell line based on LD50 and IC50 values obtained in brine shrimp cytotoxicity and biocompatibility assay, respectively. Some of the compounds have shown their maximum response at72 hours. It will give a scopefor further research in these areas to design and develop novel bioactive compounds and to establish a rational quantitative structure activity relationship.

Keywords: Mannich base, imidazole, cytotoxic agent, HepG2 cell line.

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IC-PCH-43

QSAR analysis on thiovalylpyrrolidines for their dipeptidyl peptidase-IV inhibitory activity

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ABSTRACT:

Quantitative structure activity relationship (QSAR) analysis was performed on thiovalylpyrrolidines for their dipeptidyl peptidase-IV inhibitory activity (DPP-IV inhibitors) using V life QSAR Pro software. Partial least square (PLS) linear regression analysis was performed to obtain QSAR models which were further validated for statistical significance. Most significant model has squared correlation coefficient (r2), cross validated correlation coefficient (q2) and predictive correlation coefficient (pred_r2) 0.84, 0.72 and 0.80 respectively. The QSAR model indicates that the descriptors SssScount, Sulfur Count and T_3_C_7 contributing (positively) 26.08%, 27.11% and 9.44% respectively to DPP IV activity. Descriptors T_N_O_6 and +ve Potential Surface Area contributing (inversely) 19.86% and 17.51% respectively.

ADMET properties were calculated using software ADMETSAR 2.0 in order to predict their pharmacokinetic and toxicity properties. Compounds showed good absorption and bioavailability. They are non-carcinogenic but showing hepatotoxicity. For toxicity endpoints, the value "+" means Positive/Toxic while "-" means Negative/Nontoxic. This study may be useful in search of potent and relatively safe compounds.

Keywords: DPP-IV inhibitors, QSAR, Thiovalylpyrrolidines, PLSR, ADMET Properties.

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IC-PCH-44

Design and development of novel anticancer 3-(2-oxo-2-phenylethylidene) indolin-2- one analogs, against prostate and colorectal cancer

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ABSTRACT:

Background: Colorectal cancer and prostate cancer are leading cause of cancer associated death in men worldwide. There are ongoing efforts to identify the novel molecules to manage advanced and metastatic form of these cancer. Modifications in the 1H-indole-2,3-dione ring has resulted in effective and clinically approved tyrosine kinase inhibitors such as sunitinib and nintedanib. We rationalized and synthesized a novel series of 3-(2-oxo-2-phenylethylidene) indolin-2-ones incorporating pharmacophoric elements of isatins and chalcones, 3(**a-p**) and evaluated them for anticancerefficacy in human prostate cancer cells (PC3 and DU145) and CRC cell lines (HCT116).

Results: We identified lead molecules **3j** and **3o**, with less than 5 micromolar potency against prostate cancer and CRC lines respectively with selectivity index being > 18 folds in cancer cells

compared to non-cancerous line, MDCK. Mechanistically, **3j** and **3o** produced morphological changes in cancer cells which included nuclear condensation, cell shrinkage, blebbing and apoptotic bodies formation which are the hallmarks of apoptosis. We found that lead compounds induced apoptosis by i) producing cell cycle arrest at G1 and G2/S stage ii) activated intrinsic apoptosis as shown by activation of caspase-9 and the executioner caspases 3; iii) produced nuclear fragmentation; and iv) increased the level of reactive oxygen species.

Conclusion: Overall, our result suggests **3j** and **3o** may represent a suitable lead for developing novel compound to treat prostate and colorectal cancer.

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IC-PCH-45

Design, synthesis & evaluation of novel N-(pyrimidin-2-yl)-1,3,4-oxadiazole hybrids to treat cognitive dysfunctions

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ABSTRACT

Novel hybrids bearing a 2-aminopyrimidine (2-AP) moiety linked to substituted 1,3,4-oxadiazoles were designed, synthesized and biologically evaluated. Among the developed compounds, 28 noncompetitively inhibited human acetylcholinesterase (hAChE; pIC50 = 6.52) and showed potential in vitro antioxidant activity when evaluated using the Ellman's and DPPH assays, respectively. Compound 28 competitively displaced propidium iodide (PI) from the peripheral anionic site (PAS) of hAChE (17.6%) and showed high blood-brain barrier (BBB) permeability, as observed in the PAMPA-BBB assay. Additionally, compound 28 inhibited hAChE-induced Aβ aggregation in a concentration-dependent manner according to the thioflavin T assay. The behavioral studies of compound 28 in mice showed a significant reversal of scopolamine-induced amnesia, as observed in Y-maze test. Furthermore, compound 28 exhibited significant AChE inhibition in the brain in ex vivo studies. An evaluation of oxidative stress biomarkers revealed the antioxidant potential of 28. Moreover, in silico molecular docking and dynamics simulation studies were used as a computational tool to evaluate the interactions of compound 28 with the active site residues of hAChE.

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IC-PCH-46

Validation of Stability Indicating by RP-HPLC Method for Simultaneous Estimations of Drugs for Benign prostatic Hyperplasia in Their Dosage Form

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ABSTRACT

A new Reverse Phase high performance liquid chromatographic method (RP-HPLC method) was validated for estimations of Silodosin and Dutasteride. In RP-HPLC method, good resolution and separation of drug was achieved. In this method, mobile phase used were Methanol and ortho-phosphoric acid (0.1%) in the ratio of 70:30. The drugs were found to be linear in a concentration of 20-100 µg/ml and 1.5-6.25 µg/ml Silodosin and Dutasteride respectively. The method was validated for Accuracy, Precision, Linearity, LOD and LOQ. The % RSD for all the parameters was less than 2%. The assay of marketed formulation was also carried out and the % purity of drug was found to be 97.78% and 99.74% respectively for Silodosin and Dutasteride. The proposed method was robust, accurate and precise. Therefore proposed method can be used for routine analysis of Silodosin and Dutasteride in bulk and formulations.

PHARMACOGNOSY

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IC-PCG-01

Formulation and Evaluation of herbal Bio Pesticide as an effective and safe tool towards Green Pharmacy

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ABSTRACT:

Bio pesticides are the product of natural origin that has pesticidal activity to protect the crops, vegetable and fruit trees from numerous pests. A bio pesticide helps in protection of organic farming by preventing the attack of pest to maintain the agro ecosystem involving biodiversity, biological cycles and soil biological activity. The formulation of bio pesticide was prepared by incorporating the methanolic extract of nux vomica seeds, karanj seeds, Neem seeds and cow urine in the ratio of 10:10:10:20. The bio pesticide was tested on young adult aphides found on vegetable crops grown in winter and autumn. Aphides are 1-3 mm soft bodied insect that can be green, grey and black. The formulated product was evaluated on aphides by disc method on the time interval of 24 hr, 48 hr and 72 hr cycle. The percentage of mortality depends upon the concentration of bio pesticides used. The results revealed that the percentage of mortality was found 90±0.2%, 94±0.2% and 98±0.2% on the concentration of bio pesticides 150ppm, 300ppm and 500 ppm respectively with respect to 24 hr time interval. Thus the formulated bio pesticide showed concentration and time of exposure dependent mortality. Therefore, the results strongly support the use of herbal bio pesticide that is cost effective, environmentally friendly and harmless to both human beings and environment.

Key words: Organic Farming, Bio pesticide, agro ecosystem, eco friendly.

IC-PCG-02

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General overview of medicinal plants

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ABSTRACT:

Medicinal plants have been playing an essential role in the development of human culture. As a source of medicine, Medicinal plants have always been at forefront virtually all cultures of civilizations. Medicinal plants are regarded as rich resources of traditional medicines and from these plants many of the modern medicines are produced. For thousands of years medicinal plants have been used to treat health disorders, to add flavor and conserve food and to prevent diseases epidemics. The secondary metabolites produced by the plants are usually responsible for the biological characteristics of plant species used throughout the world. The microbial growth in diverse situations is controlled by plant derived products. In this review we gave general overview of the medicinal plants.

Keywords: Medicinal plant, Secondary metabolites, Drus

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Antioxidant and antidiabetic effect of capparis Spinosa linn. In streptozotocin induced diabetic rats

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ABSTRACT:

Objective: Herbal drugs are usually considered to be safe, more effective and less toxic as compared to synthetic derivatives. Hence, the present study was aimed to investigate the potentially new source of antioxidant and antidiabetic activity from the aqueous and ethanolic extracts of CapparisspinosaLinn. seeds in Streptozotocin induced diabetic rats. Materials and Methods:To induce diabetes, streptozotocin was administered through single intraperitoneal injection of 55 mg/kg in 0.1 M citrate buffer. Capparisspinosaextracts were administered at doses of 100mg/kg and 200mg/kg body weight for 21 days. The biochemical parameters like blood glucose, liver glycogen and change in body weight were studied. Liver tissue were homogenized in ice cold saline buffer and used to investigate the level of lipid peroxidation product, thiobarbituric acid reactive substance, enzymatic antioxidants, superoxide dismutase and catalase as well as non-enzymatic antioxidants- reduced glutathione. All the results were compared with standard antidiabetic drug glibenclamide. Results: The results reveal that diabetic rats had considerably reduced body weight than normal rats at 14 th and 21 st day. Significant decrease in blood glucose and liver glycogen was observed in the rats treated with the extracts (P<0.05). Similarly, both the extracts showed a concentration dependent improvement in the levels of superoxide dismutase, catalase and reduced glutathione along with decrease in the thiobarbituric acid reactive substance levels (P<0.05).

Conclusion: These results suggest the antidiabetic and antioxidant potential of CapparisspinosaLinn. instreptozotocin induced diabetic rats.

Keywords: Diabetes Mellitus, Caper,Capparisspinosa, lipid peroxidation

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In Vitro Investigation of Anti-Urolithiatic Potential from Different Types of Hydroalcoholic Plant Extracts

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ABSTRACT:

Kidney stones or urolithiasis is a worldwide medical challenge to the urinary system.Pentacyclic triterpenoids occur in nature as the main constituents of several plants and arereported to have an excellent protective effect against kidney stones. The current in vitroinvestigation aims to compare the effects of hydroalcoholic extracts of the bark of Madhukalongifolia (Sapotaceae) and leaves of Catharanthus roseus (Apocynaceae) and Salviaofficinalis (Lamiaceae) on calcium oxalate kidney stones. The anti-urolithiatic impact of plantextracts (Sample 1, 2 and 3) respectively were assessed in the current study utilising thenucleation and aggregation method at increasing concentrations (100, 250, 500, 750 and 1000µg/ml). Triterpenoid was detected in all of the extracts after the preliminary phytochemicalscreening, which indicated its presence. Calcium chloride and sodium oxalate caused thecrystallisation of calcium oxalate. The results of the nucleation and aggregation assay fromall samples are significant as compared to the control. In nucleation assays sample 1 showedsignificant results as compared to samples 2 and 3. Sample 1 showed maximum percentage inhibition of 77.42% at 1000 µg/ml concentration and its 50% inhibitory concentration wascalculated as 54.49 µg/ml. In aggregation assay among three samples, sample 2 showed significant results. Percentage inhibition of sample 2 was 80.87% at 1000 µg/ml and its 50%inhibitory concentration was calculated as 57.90 µg/ml. As a result, the current study supportsthe finding of the most effective hydroalcoholic extract derived from the above-mentionedplants against anti-urolithiatic efficacy, providing a pathway for further isolating the leadbioactive compounds responsible for anti-urolithiatic effect.

Keywords: Anti-urolithiatic activity, Crystallisation, Nucleation assay, Aggregation assay.

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Evaluation of Phytochemical and Anticoagulant Potential of Phyllanthus Acidus (Euphorbiaceae).

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ABSTRACT:

Introduction: There are numerous anticoagulants in plant sources; they can potentially stop the coagulation cascade in various ways. Phyllanthus Acidus belongings to the Euphorbiaceae family is a deciduous tree that possesses various pharmacological activities, one of which is anticoagulants. They are important in the treatment of cardiovascular diseases, thromboembolism, and homeostasis. Material and Methods: Plant Phyllanthus Acidus leaves were collected and processed powered. Crude power was used for Ultrasonic Assisted Extraction (UAE) with different solvents- pet. ether, chloroform, methanol, water, and extracts were stored in an airtight container till further use. Clotlysis activity at different graded concentrations was evaluated after phytochemical analysis of the plant extracts. An anticoagulant in-vitro activity of methanolic and water extract was used for the evaluation of the APTT and PT test. To scrutinize the anticoagulant potential of the plant extract, two animal models will be used- i) Tail Amputation and ii) Cutical bleeding model. Result and Discussion: The clotlysis, APTT, and PT potential of Phylanthus Acidus were evaluated in different concentrations, and higher concentrations exhibited the most potent results in comparison to the negative control.

Conclusion: This study shows the potency of natural anticoagulants in reducing the risk associated with synthetic molecules in anticoagulant therapy. These agents prove advantageous in the treatment of long-term therapy such asstroke or ischemia, other cardiovascular diseases, thromboembolism, and homeostasis.

Keywords: Anticoagulant, Phylanthus Acidus, Clotlysis, APTT, PTs

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Herbal Drugs-Nanocarriers for Cancer Treatment

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ABSTRACT:

Introduction- Cancer is one of the deadliest diseases that adversely impacts the large population of the world. Due to cancer, estimated 8.2 million people died globally in 2012, and is expected to reach 13 million in 2030. The major challenges of conventional cancer therapy are the failure of most chemotherapeutic agents to accumulate selectively in tumour cells and their severe systemic side effects. So, alternative therapeutic modalities and new effective anticancer drugs are highly sought for. Thus, the demand for herbal drugs rises exponentially as they are generally considered to be safe, and devoid of critical toxic effects of the therapeutic dose when compared to their synthetic counterparts. Advances in nanomedicines are revolutionising the healthcare sector. Nanocarriers have gained much attention for their excellent and efficient drug delivery systems to improve specific tissue/ organ/ cell targeting. Development of herbal-based nanocarriers likepolymeric, nanoparticles, nanoemulsions, nanocapsules, dendrimers, liposomes, and micellesis reported to be more effective in treatment and management of cancer. Loading of herbalcompounds within these nano drug delivery systems changes their pharmacokinetics profileand increases their bioavailability,therapeutic efficacy and stability with minimal systemictoxic effects.List of herbal drugs used in cancer treatment -A stack of scientific documents reflects a huge number of potent plant-based anticancer drugssuch as curcumin (CUR), podophyllotoxin, camptothecin (CPT), vincristine, vinblastine,paclitaxel (PTX) (Taxol),capsaicin, the CPT derivatives, topotecan, irinotecan, etoposide etc.that have been integrated into the modern practice of cancer treatment.Results - Nanotechnology opened a pioneer field in cancer therapy by modifying significant properties of drugs and their carriers. Nanotechnology utilizes various nanostructures to transportanti-cancer agents to the site of action.

Keywords: cancer, nanocarriers, targeting drug delivery, herb-based drug, anti-cancer drug.

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Herbal "Ethosomes" for cancer cure

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ABSTRACT:

NDDS is also beneficial in comparison to conventional methods for cancer treatment. It hasmodified the herbal drugs to increase their therapeutic value, reduce toxicity, achieve sustainedand controlled release, improve solubility, bioavailability and increase patient compliance.Thepurpose of this review is to outline of herbal ethosomes for delivery of herbal drugs for cancertreatment & chemotherapy. Herbal ethosomes are noninvasive delivery carriers that enablesdrugs to reach the deep skin layers & systemic circulations.Ethosomal systems are sophisticated & they are used by simplicity in their applications,safety & efficacy in cancer treatment.Ethosomes are soft,malleable vesicles for enhanced delivery of phytoactive agents at targeted area of cancer. Ethosomal carrier opens various challenges & opportunities for the research of novel improved therapies in cancer. Herbal ethosomes like containing curcumin, is a potent anti-cancer drug. Different formulations of ethosomes using lecithin, cholesterol and ethanol were prepared using different doses of Mangifera indica herbal leaf extracts used in cancer treatment.

Keywords: anti-cancer; ethosomes, chemotherapy, curcumin,lecithin, cholestrol, Mangiferaindica

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Isolation and Extraction Neuropharmacological Potential of Nardostachys Jatamansi & Coriandrum Sativum

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ABSTRACT:

The present research is focused on anxiety depression and cure of disease bymedicinal plants active extracts. Self-administration of herbal medicines is among the most popular of the alternative therapies that also include massage therapy, megavitamins, and homeopathy. Plants have long been used to treat central nervous system (CNS) disorders. Folk medicines have particular values. Coriander is used in the disorders of digestive, respiratory and urinary systems, as it has diaphoretic and diuretic effects. Similarly, Jatamansi is used for metabolic disorders & it also have various effects.Pharmacological studies have demonstrated the following actions: Hypoglycemic, anti-inflammatory, hypolipidemic, antimutagenic, antihypertensive, antioxidant, anxiolytic, antimicrobial, post-coital antifertility, sedative, diuretic, carminative, antispasmodic and relaxant. Methanolic extract of nardostachys jatamansi & coriandrum sativum on anxiety, depression, rota rod performance andpentobarbital-induced sleep time were evaluated. Anxiety & Depression affects 1/8th of the whole population of the sector and has grown to be a completely vital region of research interest in psychopharmacology during this decade. Neuropharmacology is a very broad region of science that encompasses many aspects of the nervous system from single neuron manipulation to entire areas of the brain, spinal cord, and peripheral nerves. To better understand the basis behind drug development, one must first understand how neurons communicate with one another. The present investigation shows the results that the morphological studies of plant extract & active compound present in extract have significant effect during animal studies for neuropharmacological disorders.

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Saffron and ADHD: An overview of biological evidence.

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ABSTRACT:

In the current study, the effects of saffron on patients suffering from ADHD was reviewed. The objective behind the review was to study and summarize currently available biological evidences on the use of saffron extracts in the treatment of ADHD.Attention-deficit/hyperactivity disorder is among the most common neurobehavioral disorders in children and adolescents. ADHD is often associated with co-occurring disorders includingpsychiatric problems such as oppositional defiant disorder (ODD), conduct disorder, mood and anxiety disorders, and cigarette and substance use disorders.ADHD symptoms typically encompass hyperactivity, inattention, and impulsivity. ADHD affects an estimated 4% to 12% of school-aged children worldwide with survey and epidemiologically derived data showing that 4 to 5% of college aged students and adults have ADHD.Saffron is a spice extracted from saffron crocus (crocus sativus) that has traditionally been used as an additive and food colorant worldwide, but also used in natural remedy for several diseases for its anti-inflammatory and antioxidant properties. Accordingly, saffron has been used to treat chronic diseases such as rheumatoid arthritis, inflammatory bowel diseases, Alzheimer's, and several cancers. Saffron extract is a natural stimulant that has been proven safe and effective for treating a variety of mental disorders.Saffron has several psychoactive propertiesand acts on NDMA and GABA receptorsfacilitating dopamine, serotonin, and noradrenaline secretion. Both dopamine and noradrenaline are the core neurotransmitters associated with ADHD. Thus, it can be concluded thatsaffron can be a potential candidate in the treatment of ADHD.

Keywords: ADHD, Children, Saffron, Natural Stimulant, Psychoactive Properties.

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A Review on Traditional uses and Nutraceutical properties of Miraculous organ "Deer Antler"

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ABSTRACT:

In the current study, the traditional uses and nutraceutical benefits of Miraculous mammalian organ "Deer Antler" was reviewed. The objective behind the review is to highlight the benefits of deer antler velvet for medicinal and nutraceutical purpose. Deer antler velvet is a Miraculous organ that has been used by many people as a natural aphrodisiac to promote fertility and enhance sexual performance. The antlers are capable of stem cell based organ genesis, annual casting and regeneration. It balances hormone levels, grafts stronger bones & ligaments, augments cardiovascular performance and treats developmental problems in the brain. It have ability to boost strength and alleviate fatigue, improve strength, endurance, athletic performance, and repair injured muscles and tissues. Antlers are made of chemical components consisting of sugars, fatty acids, amino acids, and nucleotides as essential molecules. It contains 396 bioactive natural components such as mineral trace elements, collagen, amino acid and lipids including growth factor IGF- 1 and 2. Both in vitro and in vivo pharmacological studies have demonstrated that deer antler base possess immunomodulatory, anti-cancer, anti-fatigue, anti-osteoporosis, anti-inflammatory, analgesic, anti-bacterial, anti-viral, anti-stress, anti-oxidant, hypoglycemic, hematopoietic modulatory activities. The review highlights information about traditional uses and nutraceutical properties of the antler of deer.

Keywords: Deer antler, Nutraceutical, Essential molecules, Boost Strength, Stem Cells.

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Stop ageing with the gift of nature – a review on anti-ageing herbs

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ABSTRACT:

The largest integumentary system organ is the skin. Humans' perceptions of their overall health and well-being are strongly influenced by their skin's appearance and health. Skin is essential for immunity because it protects the body from pathogens, keeps the electrolyte and water balance in check, and controls body temperature. The protective layer that serves as an infection barrier on the surface of the body is called the epidermis. Wrinkles develop as a result of the thinning of this epidermal layer, loosening of the collagen, and loss of elastic fibre. Genetics, cellular metabolism, hormones, and metabolic processes are intrinsic variables that contribute to ageing, as can extrinsic factors including sun exposure, smoking, nutrition, and pollution. People today choose natural remedies over cosmetic procedures like plastic surgery or laser therapy not only to seem younger but also to prevent complications. Herbs provide the nutrients needed for healthy skin as well as aid in the biological functioning of the skin. Numerous compounds found in herbs, such as polyphenols, terpenoids, and carotenoids, have anti-aging properties. Several herbs, such as Aloe, Cucumber, Ginseng, Honey, Wheat, Liquorice, Arjuna, and Jatamansi, have anti-aging properties.

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Quality assessment of different brands of marketed arishta formulations – a comparative study

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ABSTRACT:

INTRODUCTION: Ayurveda is a form of traditional medicine that is used around the world. They are in great demand in almost all health problems due to their effectiveness, safety and minor side effects. With the increased use, there are also the reports of undesirable side effects due to the long-term usage of these medicines without adequate advice. Despite the popularity of traditional medicines, scientific research on safety and efficacy is limited. Therefore, there is an urgent need to establish the identity, purity and quality assurance of herbal medicines in order to have complete efficacy and safety of herbal products. The present work comparatively evaluates the quality and consistency of two popular marketed Arishta formulations with the objective to highlight the variations that may be present in them.

METHODS: Three different and popular brands of marketed formulations of Ashokarishta and Ashwagandharishta were assessed comparatively for their organoleptic, physicochemical, pharmaceutical and phytochemical properties as per the methods prescribed in Pharmacopoeias.

RESULTS AND DISCUSSION: The data analysis revealed that all the parameters of three brands of Ashokarishta and Ashwagandharishta had approximately similar values with a significant variation in pH, Total Solid contentand Total Alcohol content values and were quite compatible with the standard values mentioned in the Pharmacopoeias.

CONCLUSION: The present investigation reveals that there is a need to standardize the complete manufacturing procedure and to make more stringent quality control regulations to reduce variation among different preparations and to optimize the final product according to the standards, which would otherwise affect the therapeutic efficacy of the product.

KEYWORDS: Quality Evaluation; Ashwagandharishta; Ashokarishta; Pharmaceutical Analysis; Physico-Chemical Analysis; Phytochemical Analysis; Heavy Metal Analysis.

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Evaluation of effects of flaxseed oil blends on omega-6 to omega-3 ratio of various tissues in an animal model

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Abstract

Introduction: High omega-6 to omega-3 fatty acid ratio (FA) is associated with development and progression of non-communicable diseases. 6: 3 ratio can be lowered through modulation of FA composition of diet especially edible oils. Here we have evaluated effect of omega-3 (alpha linolenic acid, ALA) rich flaxseed oil (FSO) blends on 6: 3 ratio of various tissues using animal model.

Material and Methods: FSO was blended with palm olein (PO+FSO) or coconut oil (CO+FSO) in 80:20 v/v. Adult male wistar rats were divided in five groups (n=6); Group 1 control group (no treatment), Group 2 PO alone, Group 3 PO+FSO blend, Group 4 CO alone and Group 5 CO+FSO blend. Study protocol was approved by IAEC. Individual oil/blend was administered 1 ml/rat p.o. for three months. At the end of the study RBCs, liver, heart, adipose tissue and brain were harvested. Total lipids were extracted from the tissues and subjected for gas chromatography for FA analysis.

Result and Discussion: Here, we found that in FSO blends treated animals, omega-3 FA levels were significantly improved with lowering of omega-6 FA leading to improved 6: 3 ratio in liver and heart tissue as compared to control. While adipose tissue showed highest ALA incorporation among all tissues. RBCs had higher levels of long chain omega-3 FA derived from ALA. There was no significant change in the brain FA profile.

Conclusion: Omega-3 FA resourcing in the form flaxseed edible oil blends might be useful to tackle non-communicable diseases by lowering 6: 3 ratio.

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Isolation of phytochemical constituents from Nyctanthesarbortristis L. and evaluation of their anticancerand antioxidant properties via in vitro and in silico approaches

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ABSTRACT:

Nyctanthes arbortristis Linn. (Oleaceae) is a valuable medicinal plant that has been used for a variety of purposes since antiquity. Various parts of this plant have been employed as traditional and indigenous medicines.The carotenoid compound contained in Nyctanthesarbortristis L. leaves and seeds were extracted, identified and characterized. Characterization of isolated carotenoid was done by UV, IR, 1H & 13C NMR, COSY and MS. The isolated constituent of Nyctanthesarbortristis L, were assessed for their anticancer activity against A549 and MDA MB 231 cell lines. The best activity was displayed against MDA MB 231 by the nyctanthin, with an IC50 of 9.924 µg/ml. Molecular docking analysis revealed that compound has better docking efficiency and forms hydrophobic interactions with five amino acids (3QX3, 1BJT, 1ERE and 1P93). The results suggests that the compounds are active as potential inhibitors of glucocorticoid receptor. The constituents were also evaluated for their antioxidant activities using DPPH, and hydrogen peroxide scavenging activity. The seeds hydroalcoholic extract inhibited the DPPH radical and hydrogen peroxide scavanging by 91.05 and 62%, respectively, suggesting the potential of the extract as an antioxidant. Whereas the Nyctanthin has 90.75% and 57.64% scavanging activity in DPPH and Hydrogen peroxide scavanging assay respectively. The result showed that Nyctanthin active components from Nyctanthisarbortristis L. has good antioxidant activity and the plant has the potential as a natural antioxidant.

Keywords: Nyctanthesarbortristis L., Parijat, Isolation, Identification, Antioxidant, Molecular docking and Anticancer

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"Phytochemical studies and pharmacological evaluation of ethanolic leaf extracts of Pongamia pinnata for antidiabetic activities"

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ABSTRACT:

The focus of present work was to investigate the antidiabetic activity of ethanolic extract of Pongamia pinnata in alloxan-induced diabetic animals and its effects were compared with reference glibenclamide (GL) respectively. Diabetes mellitus (DM) is a metabolic disorder, characterized by absolute or relative deficiency in insulin secretion or insulin action. The marketed oral allopathic hypoglycemic drugs used commercially may have significant adverse effects. But those herbal drugs are considered to be lesser toxic or free from adverse side effects in comparison to modern commercial medicines. During studies, those adult albino rats were used in the experiment for hypoglycemic activity in OGTT and normoglycemic rats, and antidiabetic activity in alloxan induced rats. Preliminary phytochemical testing revealed that ethanolic extracts of leaves showed positive response to alkaloids, saponins, triterpenes and flavonoids. Further, the phenolic content of EP was found to be 26.1±0.5 mg in quercetin equivalent/ 1g extract. Results revealed in the present experiment that the routine post-treatment for 21 days with the extracts showed potential hypoglycemic activity in OGTT and normoglycemic rats and antidiabetic activity in alloxanized rats. In conclusion, ethanolic extract of Pongamia pinnata possesses potential antidiabetic activity which need further examination for isolation and fractionation of bioactive compounds.

Keywords: Phytochemical screening, Pongamia pinnata, diabetes, hyperglycemia, ethanolic extract and albino rats.

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A Review on chemoprotective herbal plants and plant derived products against cancer

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ABSTRACT:

Cancer is a disease which is second worst cause of death worldwide. In cancer disease Some of the body cells grow uncontrollably and spread to other parts of the body. Cancer is caused by genetic changes. The main type of cancers are Carcinomas, Sarcomas, Leukaemia and Lymphomas. Although medical sciences have been developed many advancements for the treatment and control of cancer but during chemotherapy number of undesired side effects sometimes occur. But, there are many herbal plants and plant derived products which are used for the treatment and prevention of cancer can reduce some of these adverse side effects of chemotherapy. Approximately 60% of drugs currently used for treatment of cancer are isolated from natural products. These Includes Vinca Alkaloids, Taxus Diterpene, Camptotheca Alkaloids And Podophyllum Lignans Etc.Many Studies Have been focused on the chemoprotective properties of the plants like Abrusprecatorius, Albizzia lebbeck, Asparagus racemosus, Withaniasomnifera, Picrorrhizakurroa, Nigella sativa etc. This review will focus on medicinal plants and plant- derived chemical compounds that have potentiality for anticancer property and are used in anticancer therapies.

Keywords: Cancer, Anticancer medicine, herbal medicine, medicinal plants, plant derived products

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A review on biological activity of soymida febrifuga (roxb) juss (malieaceae)

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ABSTRACT

For thousands of years medicinal plants are used to treat illness and diseases. The interest of people towards herbal or traditional medicine increases day by day because it cure or treat diseases with less side effects. Traditional medicine gained economic importance because of their use in pharmaceutical, cosmetics ,perfumery ,and food industries .The indigenous medicine plant Soymida febrifuga Adr.Juss found in dry deciduous forest, have high medicinal value. This has been explained for its Balya and Rasayana Karma which shows the action at the level of Twark and Mamsa dhatu ans Varnya karma is attributrd to Mamsarohini in Dhanvantri and nighantu. In Soymida febrifuga Adr.Juss various metabolites protein ,carbohydrate, lipid , glycosides, alkaloids , tannins, flavonoids, volatile oils of different phytoconstituents are found in one or more parts of these plant such as root, bark, stem, heart wood, leaves, flower, fruits and seeds which are responsible for various types of biological activity like anticancer, antioxidant, anti-inflammatory, antimalarial, antidiabetic, antiallergic, antibacterial. To get information about their biological activity and to get knowledge about the dose and action relationship it is necessary to isolate and identify active constituents from the extract. To explore traditional medicines and to investigate their (Soymida febrifuga)scientific applications which are traditionally used as a medicine. These review gives an idea about Soymida febrifuga Adr.Juss its pharmacognosy , phytochemistry as well as biological activity.

KEY WORDS- Soymida Febrifuga Adr,Juss , Pharmacognosy , Phytochemical screening , Biological activity.

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"Studies on in-vitro antifilarial activities of Ricinus communis L. leaves extract on the motility of S. digitata parasite"

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ABSTRACT:

As per current W.H.O. reports, filariasis diseases is considered endemic as an estimated 120 million people in tropical and subtropical areas of the world are caused by threadlike worms called Wuchereria bancrofti, Brugia malayi and Onchocerca volvulus. Mass drug administration of diethylcarbamazine (DEC) and ivermectin were the most widely employed allopathic drug in the treatment of the disease for decades but unfortunately not succeed in serving its purpose till dated. The DEC is consisting of numerous side effects, lack of patients' compliance, failure of achieving targeted coverage and very lesser effect on the adult macroflariae. Recently some phyto-chemicals extracted from indigenous plants are identified & reported globally had shown multiple beneficial effects in combating the diseases and its related complications. The purpose of the present study was to conduct phytochemical studies of medicinal leaf extracts obtained from Ricinus communis L. leaves for their possible potency against the said disease. The dried chopped leaves were subjected to soxhletion for methanolic and aqueous extracts during the studies. The bio-assay guided fractions obtained after column chromatography was subjected to in-vitro screenings against adult bovine filarial S. digitata parasite for worm motility and nerve muscle preparation assay. Thereby, after incubated for 24 and 48 h respectively at the certain dose concentration confirmed for irreversible-paralysis of both male and female worms was found to be significant ($p<0.05$) effects. The present studies shown to have significant antifilarial activities that may be used for potential management of the lymphatic disease.

Keywords: Wuchereria bancrofti, Lymphatic filariasis, Ricinus communis L., methanolic and aqueous extracts, in-vitro screening.

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Phytonanoceuticals: An innovative Step in Herbal Therapeutics

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ABSTRACT:

Introduction: Since ancient time, herbal remedies and natural products are being used to cure the diseases. Unlike widely used allopathic system, the herbal remedies have thousands of constituents that all work simultaneously against the diseases. The activity of herbal medicines depends on overall function of a variety of active components, as all the constituents provide synergistic action and thus enhance the therapeutic value. Each active constituent plays an important role and they are all related to each other. However, most of the herbal origin drugs possess insoluble character leading to lower bioavailability and increased systemic clearance requiring repeated administration or higher dose, which makes the drug as a poor candidate for therapeutic use.

Materials and Methods: FTIR, UV Spectroscopy, X-ray spectroscopy and powder X-ray diffraction

Nanoparticles synthesized by green method do not produce toxic bi-products and are environmentally compatible.

Result and Discussion: In phyto-formulation research, developing nano dosage forms has large number of advantages for herbal drugs, including enhancement of solubility and bioavailability, protection from toxicity, enhancement of pharmacological activity, enhancement of stability, improving tissue macrophages distribution, sustained delivery, protection from physical and chemical degradation, etc. various techniques are involved in preparing nanoherbal extract such as nanoparticles, nanocapsules, liposomes, phytosomes, nanoemulsion, microspheres, tranferosomes and ethosomes.

Conclusion: These techniques give the robust strength to herbal products against physical, chemical & environmental degradation, which in turn increase the safety & pharmacological activity of drugs.

Keywords: nanoherbal, nanoparticles, liposomes

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MOLECULAR MARKER BASED STANDARDIZATION OF NOTHAPODYTES FOETIDA

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ABSTRACT:

Dealing with medicinal plants, one encounters many issues like authentication and correct botanical identification, wide range of diversity within and among plants, intentional and unintentional adulteration. There is urgent need to correlate genotype and chemotype, and correlation between Ayurvedic and traditional identification with taxonomic identification. As the herbal drugs are on high demand, need for better standardized plant formulations is increasing. Recently, there has been considerable interest in India to map the populations of Nothapodytes, chemically characterize populations and to identify populations/individuals with high CPT (Camptothecin) yields.

Inter Simple Sequence Repeats (ISSR) markers are highly polymorphic and are useful in studies on genetic diversity, phylogeny, gene tagging, genome mapping, etc. Sequences amplified by ISSR-PCR can be used for DNA fingerprinting. ISSR markers are used in genetic analysis of various medicinal and non medicinal plants.

Aim of our study is to access genetic diversity of Nothapodytes varieties and to correlate the camptothecin content. Our results will help in quality control of formulation containing Nothapodytes and for future breeding program of Nothapodytes.

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The plant material was collected and authenticated for its identification and quality evaluation. The protocols for isolation of DNA and PCR reaction were optimized for checkingqualityand quantityof DNA samples. ISSR marker was used to study genetic relationship among four Nothapodytes varieties collected from Maharashtra. ISSR primers were initially screened and the primers that gave clear and reproducible bands were further used in the study. Results showed that AG repeats occurs frequently in Nothapodytes genome, as is abundant in other plants.

ISSR marker used in this study showed high genetic diversity among collected Nothapodytes species. A total of 60 loci were obtained using 10 primers, of which 57 were polymorphic. The number of amplified loci by the primer varied from 4 to 9. The % polymorphism varies from 50 to high as 100%.

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A Review on Anti-inflammatory activity of Jatropha gossypifolia (Euphorbiaceae)

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ABSTRACT:

Jatropha gossypiifolia L. (Euphorbiaceae) is a medicinal plant that is extensively used in conventional medicine as an anti-inflammatory treatment. The topical application of this plant's leaves and/or aerial parts as In many nations, it is normal practise to use medications that are anti-inflammatory, analgesic, wound-healing, and anti-infective for various skin conditions. Folk medicine of use of baths or dressings with this plant species. The aim of the study is to assess the topical anti-inflammatory potential made from an aqueous extract of j.gossypiifolia leaves.

Keywords: Jatropha gossypiifolia, ear edema, topical anti-inflammatory activity, herbal gel, antioxidant activity,Euphorbiaceae

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The power of terminalia chebula, uses, bioactive chemicals, and pharmacological activity

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ABSTRACT:

Terminalia chebula, commonly known as Haritaki, is a deciduous tree native to South Asia and Southeast Asia. The tree is widely cultivated for its fruit, which has been used in traditional medicine for thousands of years. Various chemical constituent have been isolated from the plant extract are chebulinic acid, chebulin, ellagic acid, gallic acid, arjunenin, arjunglucoside I, luteolin, terflavin A, terchebin, ethyl gallate, punicalagin. The dried fruit of Terminalia chebula has been used as a digestive aid, to treat various digestive disorders, and as a natural laxative. It is also used as an anti-inflammatory, antimicrobial, and antipyretic agent. In addition, the fruit is believed to have potent antioxidant properties and has been used to treat a range of conditions, including respiratory infections, skin diseases, and joint pain, hepatoprotective, renoprotective, antidiabetic, anticancer, wound healing, antibacterial, antifungal. Terminalia chebula has also been used in Ayurvedic medicine for its ability to improve cognitive function and memory. Overall, the fruit of Terminalia chebula is considered to be a valuable herbal remedy with a wide range of medicinal properties. The aim of this reviewthe available scientific information regardinguses, bioactive chemical constituents, and pharmacological activities of T. chebula.

Keywords: Terminalia chebula, antioxidant, herbal drugs.

PHARMACOLOGY

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Molecular pathogenesis of Grave's Disease

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ABSTRACT:

Auto-immune disorders are conditions when the immune system of our body attacks own body-system. Usually, our immune system can recognize & differentiate own body cells and foreign cells. Grave's Disease is a prominent example of autoimmune disorder. It is a medical condition where hyperthyroidism, or over production of thyroid hormone, more than a certain limit, is caused. Causes of Auto-immune disorder is unknown mostly. However, Genetics and Family pedigree plays a prominent role in it. As grave's disorder is auto-immune in nature, certain antibodies are generated in the thyroid gland, called auto-antibodies, which binds with the receptor (TSHR) in the gland, where TSH attaches to produce T4 and T3 hormones in overdose. This will produce a negative feedback to the brain for stopping the production of TRH and as a result of it the TSH. But due to the pertaining of auto-antibodies, there is no effect on the over-production of the hormones, which leads to malfunction in the body. There are thyroid stimulating hormone like receptor all over our body, specifically eyes and legs. The auto-antibodies bind to it to secrete overdose of hormones, causing- opthalmopathy and dermopathy. Propylthiouracil (PTU) is a very common drug used in the treatment of Grave's disease.

Keywords- Auto-immune disorder, foreign cells, grave's disease, hyperthyroidism, antibodies, TSHR, opthalmopathy,

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A Review on Cell Signaling Pathways in COVID-19

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ABSTRACT:
COVID-19, a novel coronavirus that cause severe acute respiratory syndrome (SARS-CoV-2), is currently regarded as the most serious viral disease. During corona infection, viruses bind to host protein and engage a variety of cellular pathways for their own purposes. Cell signaling is important for the regulation of cellular function. SARS-CoV-2 infection alters multiple signal transduction pathways that are critical for cell survival. The virus causes a severe and prolonged period of hypercytokinemia with misemploying of these signaling cascades. Hyperactivation of the host immune system after infection with SARS-CoV-2 is the main cause of death in COVID-19 patients. Thus, to develop effective approaches, it is necessary to first understand the problems associated with the infection and the underlying different cellular pathways involved in host cell signaling function or dysfunction. Here, we aim to discuss different host cell signalling pathways in COVID-19, which might be helpful to develop targeted therapies that can potentially save human lives in future.

Keywords: Coronavirus, Host-pathogen interactions, Signaling pathways.

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Molecular Pathogenesis of MODY

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ABSTRACT :

The most common type of monogenic diabetes is maturity-onset diabetes of the young (MODY), a clinically and genetically heterogeneous group of endocrine disorders that affect 1–5% of all patients with diabetes mellitus. MODY is characterized by autosomal dominant inheritance but de novo mutations have been reported. Clinical features of MODY include young-onset hyperglycemia, evidence of residual pancreatic function, and lack of beta cell autoimmunity or insulin resistance. Glucose-lowering medications are the main treatment options for MODY. The growing recognition of the clinical and public health significance of MODY by clinicians, researchers, and governments may lead to improved screening and diagnostic practices.

Key words :MODY , inheritance, autoimmunity, screening, monogenic

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Artificial Intelligence on Fight with Cancer

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ABSTRACT:

The application of Al in cancer practice includes providing clinical decision support for cancer diagnosis and screening, processing medical data for cancer detection or characterization of patient prognosis, and optimizing care delivery and clinical operations optimizing care delivery and clinical operations by increasing system capacity and allocating resources.

Doctors and scientists have developed an artificial intelligence tool that can accurately predict how likely tumors are to grow back in cancer patients after they have undergone treatment.

Keywords: Artificial Intelligence, Clinical Decision, Diagnosis, Patient, Prognosis, tumor

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Review on Natural Antimicrobial agents: A Safe Approach to combat microbial resistance

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ABSTRACT:

Due to the increasing prevalence of life threatening bacterial, fungal and viral infections and the ability of these human pathogens to develop resistance to current treatment strategies, there is a great need to find and develop new compounds to combat the resistance. These molecules must have low toxicity, specific activity and high bioavailability. The most suitable compounds for this task are usually derived from natural sources (animal, plant or microbial).This review article provides the general information regarding most promising natural compounds to combat microbial resistance. This includes plant extracts, essential oils and various groups of plant compounds like terpenoids, alkaloids, flavanoids with antimicrobial and antiviral activity.

Keywords: Natural molecules, anti-microbials, antifungal, antiviral.

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IC-PCL-06

Role of Molecular Biology in Cancer Treatment

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ABSTRACT:

Cancer is a genetic disease and mainly arises due to a number of reasons include activation of onco-genes, malfunction of tumor suppressor genes or mutagenesis due to external factors.

Oncogenes are deregulated form of normal proto-oncogenes required for cell division, differentiation and regulation. The conversion of proto-oncogene to oncogene is caused due to translocation, rearrangement of chromosomes or mutation in gene due to addition, deletion, duplication or viral infection. These oncogenes are targeted by drugs or RNAi system to prevent proliferation of cancerous cells. There have been developed different techniques of molecular biology used to diagnose and treat cancer, including retroviral therapy, silencing of oncogenes and mutations in tumor suppressor genes.

Conclusion:

Among all the techniques used, RNAi, zinc finger nucleases and CRISPR hold a brighter future towards creating a Cancer Free World.

Keywords: Cancer, Oncogenes, mutagenesis, proto-oncogenes, Viral infection, tumor, CRISPR

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IC-PCL-07

Anti-inflammatory effect of active metabolites of phragmitis karka in carrageenan-induced paw edema inrats

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ABSTRACT

Phragmites karka spreads naturally and can be propagated by division and by seed. A procedure has been developed for the large scale micropropagation of Phragmites karka from axillary buds, with buds from the lower and middle stem giving best results. Plants represent one of the important sources of lead compounds, with up to 40% of modern drugs being derived from plant materials. Empirical knowledge based on the ethnomedical benefits of plants, coupled with bioassay-guided fractionation and isolation, has the potential to identify novel antivirals that could be used against influenza. Currently, her band plant resources are relatively unlimited with respect to the search for functional phytochemicals but these resources are dwindling rapidly due to deforestation and advancement s of industrialization .Even though a number of studies have been performed using purified plant chemicals, very few studies have addressed the antiviral activities of crude plant extracts.

Keywords Phragmites karka, Phragmites mauritianus, Karka, Active metabolites.

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IC-PCL-08

A Comparative study on Neuro-protective Effect of Quercetin and Etoricoxib against TMT Induced Neurodegeneration in Rat Model

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ABSTRACT:

Neuronal cell death affects the central nervous system causing the progressive decline in nervous system functions. Quercetin is a well-known flavonoid having pharmacological applications like anti-inflammatory, hepato-protective, anti-viral, anti-bacterial, anti-cancer, neuro-protective and anti-obesity activities. Etoricoxib a nonsteroidal anti-inflammatory drug and is a selective COX 2 inhibitor.The present study aimed to investigate the neuro-protective effect of Quercetin an Etoricoxib against trimethyltin (TMT) induced neurodegeneration in rats. Neurodegeneration was induced by intraperitoneal administration of TMT (6 mg/kg, single dose). Quercetin (30 mg/kg) was introduced along with TMT in one of the prophylactic groups and Etoricoxib (10 mg/kg) was introduced in another group through intraperitoneal administration. Biochemical assessment was done and In vivo data was collected for the assessment of behavioral changes in rats. Histological studies were employed to analyze the extent of neuronal damage and neuro-protective effects of drugs on learning and memory functions.Behavioral, biochemical and histological changes showed a significant neuronal cell death in TMT induced neurodegeneration in rat model. Quercetin and Etoricxib administration remarkably reduced the neuronal damage in prophylactic groups. Interestingly, Quercitin showed the sign of memory enhancement in comparison to control and disease control and Etoricoxib treated groups.The present study proved the neuro-protective effect of Quercetin and Etoricoxib against TMT induced neurodegeneration in rats. However, the results also showed the memory enhancement property of Quercetin. This might help to provide a new insight for clinical intervention of natural versus synthetic anti-inflammatory drugs in neurodegenerative disorders.

Keywords: Neuroinflammation, Neuroprotection, Alzheimer disease, Quercitin, Etoricoxib, Trimethyltin (TMT)

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IC-PCL-09

Advanced treatment of Skin Cancer

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ABSTRACT:

Skin cancer is the uncontrolled growth of abnormal skin cells — most often caused by ultraviolet radiation from sunshine or tanning beds— causes skin cells to multiply rapidly and form malignant tumors. Skin cancer can also occurs when errors (mutations) occur in the DNA of skin cell .Plasma medicine is a multidisciplinary field of research which is combining plasma physics and chemistry with biology and clinical medicine to launch a new cancer treatment modality. It mainly relies on utilizing low temperature plasmas in atmospheric pressure to generate and instill a cocktail of reactive species to selectively target malignant cells for inhibition the cell proliferation and tumor progression. Following a summarized review of primary in vitro and in vivo studies on the antitumor effects of low temperature plasmas, this article briefly outlines the plasma sources which have been developed for cancer therapeutic purposes. Intracellular mechanisms of action and significant pathways behind the anticancer effects of plasma and selectivity toward cancer cells are comprehensively discussed. A thorough understanding of involved mechanisms helps investigators to explicate many disputes including optimal plasma parameters to control the reactive species combination and concentration, transferring plasma to the tumors located in deep, and determining the optimal dose of plasma for specific outcomes in clinical translation. As a novel strategy for cancer therapy in clinical trials, designing low temperature plasma sources which meet the technical requirements of medical devices still needs to improve in efficacy and safety.

Keywords: cancer treatment; radiation therapy; in vitro and in vivo studies; apoptosis; plasma oncology

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IC-PCL-10

A Review on Diagnosis and Management of Dysmenorrhea

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Abstract:

Dysmenorrhea is the presence of painful cramps of uterine origin that occurs during menstruation. It is known to be the most common cause of pelvic pain and menstrual disorder. It may be either primary or secondary. Primary Dysmenorrhea is a spasmodic cramping in the lower abdomen occurring just before or during menstruation whereas Secondary Dysmenorrhea is a painful mensuration pain associated with an identifiable disease such as endometriosis, adenomyosis, uterine fibroids, or infection. History begins in the 20s or 30s after relatively painless menstrual cycles in the past. Studies that may indicated to elucidate the cause of dysmenorrhea include Transvaginal Ultrasonography & Magnetic Resonance Imaging (MRI). Endometriosis is the most common cause of dysmenorrhea, many medical and gynaecological texts ascribed the source of dysmenorrhea to emotional or psychological problems which includes physical examination findings such as enlarge, tender, boggy uterus. Symptoms & Signs associated with dysmenorrhea includes Headache, breast, various body pains, vomiting, constipation and increased urination, mood disturbance such as anxiety, depression, and irritability. Management & Treatment of dysmenorrhea is aimed at providing symptomatic relief as well as inhibiting the underlying processes causing symptoms which includes the administration of NSAIDs, hormonal contraceptives and or use of non- pharmacological aids. Topical heat pad on your abdomen or lower back, exercise, lying on the back & supporting knees with the pillow, gently massaging the abdomen may be beneficial in patients who have dysmenorrhea. Diagnosis is based on the patient's history, symptoms, and physical

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examinations. Inflammatory, Spasmodic, Obstructive, Membranous, Ovarian are different types of diagnosis used.

Conclusion: Dysmenorrhea is a health problem that affects the daily activities and quality of life of many women's therefore establishing the accurate prevalence of dysmenorrhea which is compromised due to the variety of diagnostic criteria and to design, implement & evaluate the impact of a health education program aimed at the community & families to inform them about the most effective methods of self-care & pain relief.

Keywords: Dysmenorrhea, Meantruation, anti-inflammatory action, Combined oral Contraceptives

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IC-PCL-11

Trasferrin receptor mediated targeting if siRNA for tumor

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ABSTRACT

Malignant melanoma (MM) is a significant issue for public health. Effective treatment for MM is still a goal that has not been achieved, as the majority of conventional medicines do not adequately balance the competing goals of specificity, efficacy, and toxicity. Therapy for MM may be more effective and perhaps harmless if abnormal signalling pathways in MM cells are modified. It is critically desirable to develop efficient, systemic treatments for MM. It is crucial to create a reliable, secure, and effective siRNA delivery method that can go through the blood-brain barrier (BBB) and target glioma cells. The hypoxia-inducible factor-1 (HIF-1) was a desirable therapeutic molecular target in multiple myeloma (MM), and the transferrin receptor (TfR) was a good surface marker for gene therapy targeting in MM. One of the most significant developments in biology over the past ten years has been the discovery of RNA interference (RNAi), which includes micro RNA (miRNA) and small-interfering RNA (siRNA) mediated gene silence. Today, siRNA is frequently employed as a potent method for inhibiting post-transcriptional gene expression and studying genes. More importantly, the prospective uses for siRNA have sparked a lot of interest in using it as a treatment for cancer and other disorders. A carefully crafted siRNA can cause the breakdown of mRNA translation by binding the target gene (mRNA) in a sequence-specific way.

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IC-PCL-12

Designing of Multifunctional LigandsAgainst Alzheimer's Disease Using Recent FDA Approved Drugs: An In-silico approach

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ABSTRACT:

The traditional approaches to drug design have been abandoned for the past ten years and are now out of date. The field of drug development has immensely benefited from newer approaches, and the majority of FDA-approved drugs are designed and developed using diversified computational tools and techniques. New chemical entities (NCEs) such as small molecules and antibody-drug conjugates have a strong profound affinity for biological targets which furnishes deep insights into the structure-specific drug for the prospective drug designing. In this study, we have screened twenty-seven recently approved FDA drugs on the basis of their structural and molecular properties against multiple targets of Alzheimer's disease using theoretical and computational approaches. Primarily, the bioactivity score and molecular and pharmacokinetic properties were calculated using freely available software programs, viz., Molinspiration and Osiris Property Explorer. The SwissTargetPrediction tool was used for the prediction of protein targets. The results of quantum chemical calculation studies using Gaussian16 reflected higher stability for the drug complexes due to the larger HOMO-LUMO gap. A high global electrophilicity indicates shows good electrophilic behavior and high reactivity of the drugs. These drugs also displayed non-mutagenic, non-tumorigenic, non-irritant, and non-effective reproductive behavior. In addition, ten different targets have been selected for the study, and PDB IDs (1UDU, 2ZJM, 3IG7, 4PTC, 2Z5X, 7F61, 1MMB, 7XMS, 4EY7, 4TPK) for them have been retrieved from Protein Data Bank. All the molecules were docked subsequently to each target using Glide module and the docking score was analyzed. Out of 27 docked molecules, Eflapegrastim displayed an excellent docking score (-12 kcal/mol) for the selected targets. The free binding energy of the molecules was calculated using MM-GBSA module. Further, the results of the molecular dynamics studies substantiated the stability of docked complexes.

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IC-PCL-13

Advances and Applications of Radiopharmaceuticals in Healthcare:

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ABSTRACT:

In the past few years, Radioisotopes are found to exhibit various therapeutic effects and can be used as pharmaceutical drugs. Such formulations orpreparations are collectively referred to as RADIOPHARMACEUTICALS. Radiopharmaceuticals which are also referred to as medicinal radio compounds are such formulations which consists of certain radioisotopes. These radioisotopes are of major clinical importance for the purpose of diagnosis and therapy. These radioisotopes can be formulated and can be used indiagnostic, therapeutic and imaging purposes. These medications using radiation can diagnose the proper functioning of specific organs. The procedures involved for diagnostic purpose using radioisotopes are now being conducted routinely as they provide us with valuable information regarding various disorders.

Keywords: Formulations, Diagnosis, Treatment, Therapy

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IC-PCL-14

Nuclear cardiology: a review on the concept and challenges of SPECT and PET techniques

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ABSTRACT:

Nuclear cardiology is an important branch of nuclear medicine, which uses non-invasive techniques to assess myocardial blood flow, evaluate the pumping function of the heart as well as visualize the size and location of heart attack. Nuclear cardiology has played a pivotal role in establishing the diagnosis of heart disease extent and the prediction of outcomes in the setting of coronary artery disease. Techniques involved are Myocardial Perfusion Imaging, Single Photon Emission Computed Tomography and Positron Emission Tomography. Among which IMPI is most widely used. Myocardial Single Photon Emission Computed Tomography (SPECT) with thallium-201 or technetium-99m labelled tracers offer valuable data regarding ventricular function, myocardial perfusion, viability and intraventricular synchronism whereas, Positron Emission Tomography gives accurate evaluation of these and provide high image quality and has ability of quantitative analysis. Tracer technique will continue to be in use. However radiation exposure of patients remains serious challenge. Cost, product availability, reimbursement and patient referral patterns will be important factors defining the future use of PET. The current challenges of this exciting field of nuclear medicine will become opportunities if more collaborative efforts are devoted.

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IC-PCL-15

Big data approaches and informatics in health care: A review

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ABSTRACT:

The term big data given by computer scientists for the management and analysis of health caresystem is the most evolving technology nowadays. Big data is providing a platform to various organizations to implement their resources into information and knowledge as well as to generate, store, and analyze big data with an objective to improve the services they offer. The various sources for big data in health care industry include hospital records, medical records of patients, results of medical examinations, and medical devices. The big data in healthcare organizations understand the analytics capabilities and potential benefits and support them in drafting more effective data-driven analytics strategies.The benefits driven by big data analytics in terms of information technology (IT) infrastructure, operational, organizational, managerial and strategic areas give potential benefits in healthcare organizations as well. In handling each step of big data there are various challenges which can be handled only by using high-performance computing solutions for big data analysis. By taking vigorous steps to convert this potential into better services and financial advantages, healthcare providers are required to be fully equipped with appropriate infrastructure to systematically generate and analyze big data. Modern healthcare organizations can possibly revolutionize the medical therapies and personalized medicine, with a strong integration of biomedical and healthcare data.

Keywords: Big data, Health care, Computing, Information technology, Analytics

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IC-PCL-16

An Comprehensive Insight on Neurodegenerative Disorder

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ABSTRACT:

In the current study, the neurodegenerative disorder occurs in human due to hormonal imbalance is reviewed. The objective behind this review was to highlight the information about the neurodegenerative disease and their causes. Neurodegenerative diseases are also called as degenerative nerve diseases. It can be described as a disease in which cells of central nervous system stop working or die. Neurodegenerative disorder encompasses a number of diseases that primarily affect neurons in the human and is the second most common cause of death. Neurons are the building blocks of the nervous system. Normally, neurons do not reproduce or replace themselves, so the body cannot replace them with other neurons when they are damaged. It may be genetic or be caused by a tumor or stroke. Hormonal imbalance in human body is also the major cause of neurodegenerative disorder. Some other causes include alcoholism, toxins, chemicals, and viruses. This disease usually got worse over time and is incurable and debilitating. It affects many of our body's activities, such as balance, movement, talking, breathing, and heart function. It is a serious and life-threatening disease. The most common neurodegenerative diseases are - Alzheimer's disease, Amyotrophic lateral sclerosis, Friedreich ataxia, Huntington's disease and Parkinson's disease. Alzheimer's disease (AD) is the most common form of dementia among older people. Amyotrophic lateral sclerosis (ALS) weakens muscles and impacts physical function. Ataxia is a group of disorder that affects co-ordination, balance and speech and begins at the age of 5-15. Huntington's disease (HD) is an inherited condition in which nerve cells in the brain break down over time. It typically starts in a person's 30s or 40s. Parkinson's disease (PD) is a type of movement disorder and caused due to deficiency of dopamine. The medications and therapy can reduce the symptoms of this disease but it can't be cured. Thus, it can be concluded that Neurodegenerative disroder represent a great healthcare problem worldwide and are becoming prevalent because of the increasing aged population. Although the future studies are necessary to find the proper treatment of this incurable disease.

Keywords: Neurons, Alzheimer's disease, Huntington's disease, Parkinson's disease, Dopamine.

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IC-PCL-17

A review on the drug addiction and drug abuse

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ABSTRACT:

The drug addiction and drug abuse are serious worldwide health problem affecting adolescents and the leading cause of death. According to the world health organization (who), the use of psychoactive substances around the world is estimated at 2 billion alcohol users, 1.3 billion smokers, and as of 2015, 255 million illicit drug users. It affects both males and females and it is the major source of crimes in youth and health related problems in many communities. It harms unborn babies and destroys families. The most common use of drug in India is alcohol, followed by cannabis, opiates, tobacco/nicotine, caffeine, inhalants, opioids. Sedatives, anti-anxiety and hypnotics, psychostimulants like cocaine, amphetamine, methamphetamine and hallucinogens. When a psychological active drug intake to the body, it induces an intoxicating effect.

The economic burden, disturbed family environment, violence, and psychological problems are other consequences of drug abuse in the family. This paper highlights the cause of drug abuse and drug addiction with the risk factor related to it and therefore measure the ways to prevent it.

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IC-PCL-18

"A comprehensive guide to understanding cerebral ischemia and its possible role to cure by melatonin receptors"

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ABSTRACT:

Cerebral ischemia is substantial lessening in cerebral blood flow (CBF) foremost to neurological and operational brain mutilation that possibly will be mortal. The flow of cerebral ischemia in the main as of hemorrhage or thrombus, embolism. This primes to, energy failure, excitotoxicity, acidosis, intensification intracellular calcium level, oxidative stress, mitochondrial failure, inflammation, apoptosis, and to end with neurodegeneration. Clinical symptoms focal neurological sing and symptoms like paralysis, sensory loss, language disorder, reflex changes, confusion vertigo and dysarthria. Cerebral Stroke being foremost leading sources of disability in addition to fatality world-wide.Melatonin (N-acetyl 5-methoxytryptamine), secreted by pineal gland, acting on MT1/MT2 receptors, shown neuroprotection in several CNS disease models. Melatonin is reported to inhibit Matrix metalloproteinase (MMP-2 & 9) and furthermore Neuroprotective effects of melatonin on brain injury, down regulation of oxidative stress & inflammation up regulation of endogenous neurogenesis. This results in the preservation of Blood Brain Barrier (BBB) integrity and enhances endogenous neurogenesis by up-regulating neurodevelopmental gene/protein expression. Targeting of the melatonin receptor may show beneficial effects in decreasing the progression of cerebral stroke.

Keyword; neurological, excitotoxicity, hemorrhage, oxidative stress.

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IC-PCL-19

Adverse drug reactions in tuberculosis patients due to directly observed treatment strategy therapy: Experience at Department of respiratory medicine, SAIMS Hospital, Indore (mp)

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Abstract

The Adverse Drug Reactions (ADRs) to the drugs used is one of the major reasons for the patient default for treatment. A general knowledge of the various ADRs and their management is essential for the effective management of Tuberculosis. This study was planned for detection, assessment, classification and causality analysis of ADRs to Anti-tubercular drugs used in DOTS therapy in SAIMS Hospital, Indore (mp). Information of the ADRs is data based collected from DOTS center .As the study based on existence of different ADRs with numerous drugs involving distinguished mechanism of action due to consumption of these drugs in combination therapy. From beginning till end study we observed some side effects. Due to short duration of study we found 60% patients reported anorexia along with nausea and vomiting and gastritis. Anorexia is strong feeling of nausea and vomiting leads to health detoriation by compromising the immunity and can probably lead major side effects like hepatitis. Although benefits outright side effects .But inspite of proven safety of given regimen; Anorexia deserve concern as this side effect could possibly lead to compromised immunity perhaps by increasing the rate of nausea & vomiting and decreasing the rate of food intake which can lead to overall weak body system and immunity as well.

Keywords: Adverse Drug Reactions (ADRs), Antitubercular drugs, DOTS therapy.

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IC-PCL-20

A Review on ulcerative colitis and its management

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ABSTRACT:

Ulcerative colitis (UC) is a chronic inflammatory bowel disease of unknown aetiology affecting the colon and rectum. Multiple factors, such as genetic background, environmental and luminal factors, and mucosal immune deregulation, have been suggested to contribute to UC pathogenesis. UC has evolved into a global burden given its high incidence in developed countries and the substantial increase in incidence in developing countries. An improved understanding of the mechanisms underlying UC has led to the emergence of new treatments. Since the early 2000s, anti-tumour necrosis factor (TNF) treatment has significantly improved treatment outcomes. Despite advances in treatment, only approximately 40% of patients achieve clinical remission at the end of a year, prompting the exploration of new treatment modalities.

Key Words: Ulcerative colitis, anti-tumour necrosis factor.

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IC-PCL-21

Noval Strategies Regarding Hypertension Management

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ABSTRACT:

A major risk factor for cardiovascular disease is hypertension. A third of persons who have hypertension are currently undiagnosed, and of those who are, around half do not use antihypertensive drugs. The World Health Organization (WHO) estimates that high blood pressure kills at least nine million people year around the world, either directly or indirectly. The leading global contributor to cardiovascular disease and early death is hypertension. Global mean blood pressure (BP) has either remained steady or significantly dropped during the past forty years as a result of the widespread usage of antihypertensive drugs.

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IC-PCL-22

Mitochondrial mediated Alzheimer's disease model of Drosophila melanogaster

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ABSTRACT:

Neurodegenerative Disease, Alzheimer's disease affects more than 24 million people worldwide. Every year approximately 7.7 million new cases of dementia are reported. Alzheimer's disease damage the cholinergic neurons in both the cortical and hippocampus region. It is anage-related disease. it is characterized by the extracellular aggregation of β-Amyloid plaques and intracellular tangles of tau protein. Extracellular aggregation of β-Amyloid and intracellular formation of tau tangles plays a major role in Neuroinflammation, oxidative stress, and Excitotoxicity. Drosophila is an important genetic model used in different fields of biology, and currently, it is used as an alternate model of Alzheimer's disease. The human genes which are expressed in Alzheimer's disease like APP, Presenilin, and tau also conserved in drosophila. This review aims to show the Alzheimer's disease-causing genes of humans also expressed in the drosophila model and therapeutic agents used to delay Alzheimer's disease progression.

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IC-PCL-23

Cardioprotective effect Fulvic Acid: rescues of diabetes-induced cardiac malfunction and oxidative stress.

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ABSTRACT:

Introduction-Diabetes Mellitus expected to continue as a major health problem owing to its serious complications, like CAD, end-stage renal disease, associated cardiomypathies, blindness in the adults ,gangrene of of extremities,. FA is a component of humus and had claimed to have strong antioxidant property .The present study explored the effect of Fulvic acid (FA) in cardiac oxidative stress and cardiac dysfunction in streptozotocin –nicotinamide induced hyperglycemia in wistar albino rats.

Material and Methods- Diabetes was induced in separate groups of 6 months older wistar albino rats using streptozotocin and nicotinamide injection. Treatment groups received Fulvic acid (100, 200 and 300 mg/kg body weight/day; P.O for 6 weeks**.** After completion of experimental period various physical, hemodynamic, electrocardiographic, biochemical, histological parameters were investigated

Result and Discussion-The treatment with FA significantly reduced hyperlipidemia associated with hyperglycemia as it restored level of LDL , TG, VLDL Total cholesterol etc. reflecting its potent lipid-lowering effects. Restoration of cardiac damage by FA indicated by reduction in the level of serum cardiac markers viz. LDH.CK-MB, SGOT and trop-T in serum. FA also decreased tissue lipid peroxidation and improved level of tissue antioxidants Viz. CAT, GSH, SOD. FA significantly decreased infarct size (TTC staining) and reduced severe inflammatory changes, myocytolysis and intramuscular edematous changes (in histopathological studies)associates with cardiomyopathic injury as compared to diabetic control group. The FA treatment have reverted ECG changes associated with Diabetes cardiomyopathy.

Conclusion-These results suggest that a treatment of FA might be a potential agent for preventing the risk of cardiovascular complications and may reducing the mortality rate among diabetic patients.

Keywords: Diabetes, cardiovascular complications, oxidative stress, cardioprotective, Fulvic acid.

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IC-PCL-24

Mitochondrial fission inhibitors induce non-apoptotic cell death in triple-negative breast cancer

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ABSTRACT:
Metastatic triple-negative breast cancer is one of the most aggressive subtypes of breast cancer with a poor prognosis. Taxanes and/or anthracyclines are currently used in neoadjuvant chemotherapy against TNBC. While initially effective, these drugs have been associated with drug resistance, tumor relapse, side effects, and a
high rate of metastasis development. Targeting dysregulated mitochondrial dynamics, which is now linked to tumor initiation, progression, and metastasis in TNBC, is an effective therapeutic approach. TNBC is known to exhibit an increase in mitochondrial fission factors such as dynamin-related protein 1 (Drp1), which affect mitochondrial energetics and alter metabolism. As a viable therapeutic strategy for metastatic TNBC (mTNBC), we have designed and developed small molecule inhibitors that specifically target Drp1.
We recently discovered a novel class of structurally constrained thienopyridine (TPH) probes, particularly TPH104c, that showed higher binding affinity to Drp1 in silico than Mdivi-1, a weak inhibitor of Drp1. TPH104c binds to Drp1 with high affinity, based on surface plasmon resonance studies. Mechanistic studies using Western blotting and immunofluorescence analysis confirmed that TPH104c significantly reduced Drp1 levels at serine 616 in MDAMB-231 and BT-20 TNBC cells. The inhibition of Drp1 by TPH104c resulted in a non-apoptotic form of cell death that was previously unreported. Rather than shrinking in size, or forming apoptotic blebs, TPH104c treated TNBC cells grew enlarged, rounded, and swollen. These cells eventually lost their proliferative ability and were significantly less confluent than control cells. Additionally, when cells treated with TPH104c were incubated with pan-caspase inhibitors, neither the mitochondrial membrane potential nor caspases were activated. Further research is in progress to understand how Drp1 inhibition induces non-apoptotic cell death, which will further serve in optimizing a lead compound for the development of mTNBC-targeted anticancer agents.

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On-Chip assay reveals anti-cancer efficacy of TPH104c on Triple-Negative Breast Cancer

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ABSTRACT:
Breast cancer (BC) is one of the leading causes of cancer deaths in women each year, more than 90% die due to metastasis. Metastasis occurs more frequently in highly aggressive triple-negative breast cancer (TNBC), accounting for one-fourth of all breast cancer deaths. Emerging evidence suggests that chemotherapy can elicit pro-metastasis effects in TNBC patients and undermine its own efficacy. Most chemotherapeutics work by inducing cancer cell apoptosis which has been shown to be a critical factor in causing the release of proinflammatory cytokines and chemokines (known as the "cytokine storm") and thus activate endothelial cells (EC), leading to increased mBC cell intravasation and extravasation. Models necessary to understand TNBC metastatic process, are currently limited and are urgently needed to develop therapeutic interventions necessary for the prevention of TNBC metastasis. We hypothesized that the necroptosis-inducing chemotherapeutic, TPH104c, will be safer for ECs than Paclitaxel while maintaining similar cytotoxicity to cancer cells when utilized in microfluidic based platform. It was also hypothesized that apoptosis-inducing chemotherapeutics such as Paclitaxel would upregulate TNBCs intravasation and metastasis by damaging the structural integrity of the EC barrier.

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High throughput microfluidic assays for studying triple negative breast cancer metastases.

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ABSTRACT:

About half a million women die of breast cancer (BC) each year, with about 90% dying due to metastases. Preventing metastasis progression by more effective treatment is critical to patient survival. To date, drug efficacy testing has mainly focused on the growth status of the primary tumor. Since most cancer mortality is due to metastasis, it is vital to assess the metastasis potential and drug response of different tumors. This could create new opportunities to target metastasis therapeutically and implement cancer precision medicine. Thus, in this study, we established a high-throughput "metastasis-on-chip" microfluidic platform, featuring co-cultured human endothelial cells (ECs), (human umbilical vein endothelial cells, HUVEC) and human triple-negative breast cancer (TNBC) cell line SUM159-PTX. This setup is designed to recapitulate the critical steps of metastasis, tumor cell intravasation, extravasation and tumor angiogenesis, in a one assay platform.

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BLAST and PHYLOGENETIC ANALYSIS of protein sequence of *Malassezia restricta* a pathogen involved in Dandruff and Seborrheic Dematitis.

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Abstract:- Malassezia species is one of the most abundant species of human skin micro biota is found to be associated with skin disorders such as seborrheic dermatitis and Dandruff.despite the importance of Malassezia in common skin disease, little is known at the molecular level. A BLAST P was carried out of selected genes of malassezia species. M.restricta was found to share similarity with plant pathogen Ustilago mayids and distant human pathogen Candida albicans. A Culstal W analysis was also carried out to find the convergent and divergent traits of Malassezia species. A random sampling method and a questionnaire was applied to about 243 subjects out of which 152 were females and remaining 91 were males. Out of these 15.9% reported excessive scalp flaking. The prevalence of dandruff was found to decrease with age, more prevalence was found in the age group 25-34 years. Scalp pruritus was found to be more severe in patients with dandruff then with patients without dandruff. All kinds of antidandruff products and home remedies were found to be least effective among the subjects. The data was collected from beauty salons of Indore division and hair clinics. Scientist needs to devise a method of treatment for this increasing problem of dandruff and scalp pruritus among the human population.

keywords:- Malassezia,Ustilago,Candida albicans,CLUSTAL W,BLAST,Dandruff,scalp puritus.

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