

**9th INDO-CARIBBEAN INTERNATIONAL CONFERENCE ON
RECENT UPDATES AND GLOBAL
CHALLENGES IN
PHARMACEUTICAL SCIENCES
2021-22**

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SVP College of Pharmacy

2021-2022

1. Title : 9th INDO-CARIBBEAN INTERNATIONAL CONFERENCE ON
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NOVEL HERBAL DRUG DELIVERY SYSTEM

Qadari Syed, Lecturer, SVP College of Pharmacy

Abstract:

Novel drug delivery system is a new emerges in the drug delivery system that overcomes the limitations of the old drug delivery systems. Our country India has a rich culture of Ayurveda and is used since time immemorial to cure the diseases. The oral route is considered is the best route but it has limitation of being reducing the efficacy of the drug. If the novel drug delivery technology is applied in herbal medicine, it may help in increasing the efficacy and reducing the side effects of various herbal compounds and herbs. The novel formulations are reported to have remarkable advantages over conventional formulations of plant actives and extracts which include enhancement of solubility, bioavailability, protection from toxicity, enhancement of pharmacological activity, enhancement of stability, improved tissue macrophages distribution, sustained delivery, and protection from physical and chemical degradation. This is the basic idea behind incorporating novel method of drug delivery in herbal medicines. However, modern phytopharmaceutical research can solve the scientific needs (such as determination of pharmacokinetics, mechanism of action, site of action, accurate dose required etc.) of herbal medicines to be incorporated in novel drug delivery system, such as nanoparticles, microemulsions, matrix systems, solid dispersions, liposomes, solid lipid nanoparticles and so on

OCULAR DRUG DELIVERY SYSTEM: CURRENT SCENARIO

Panchal P.P, Associate Professor, SVP College of Pharmacy

Abstract:

Eye diseases are commonly encountered in day to day life, which are cured or prevented through the conventionally used dosage forms like eye drops, ointments. Delivery to the internal parts of the eye still remains troublesome due to the anatomical and protective structure of the eye. The newly developed particulate and vesicular systems like liposomes, pharmacosomes and discomes are useful in delivering the drug for a longer extent and helpful in reaching the systemic circulation. The most recent advancements of the ocular delivery systems provide the delivery of the genes and proteins to the internal structures which were once inaccessible and thus are of great importance in treating the diseases which are caused due to genetic mutation, failure in normal homeostasis, malignancy but also maintaining the physiological function of eye. The effective dose of medication administered ophthalmically may be altered by varying the strength, volume, or frequency of administration of the medication or the retention time of medication in contact with the surface of the eye. They improve ocular drug bioavailability by increasing ocular drug residence time, diminishes side effect due to systemic absorption.

NANO DRUG DELIVERY SYSTEM: THERAPEUTICS AND CHALLENGES

More H.M, Assistant Professor, SVP College of Pharmacy

Abstract:

The field of drug development experiences very low success rates with regards to drugs that enter the market. Nanotechnology received a lot of attention with the never-seen-before enthusiasm because of its future potential that can literally revolutionize each field in which it is being exploited. In drug delivery, nanotechnology is just beginning to make an impact, because materials reduced to nano scale can show different properties compared to what they exhibit on a macro scale. Drug delivery nano systems constitute a significant portion of nanomedicine. Many of the current “nano” drug delivery systems, however, are remnants of conventional drug delivery systems that happen to be in the nanometer range, such as liposomes, polymeric micelles, nanoparticles, dendrimers, and nanocrystals. Due to nano particles, modern chemistry has reached the point where it is possible to prepare small molecules to almost any structure, which are very useful in manufacturing variety of useful pharmaceuticals. Nanotechnology based drug delivery systems, have advanced quite significantly in the treatment of cancer, where a number of products are already in the market however, it is evident from this review that much work still needs to be conducted to fully exploit the potential of nanotechnology drug delivery systems for infectious diseases.

DRUG DESIGN AND DELIVERY - NANOMEDICINE NETWORK

Male D. N., Assistant Professor, SVP College of Pharmacy

Abstract:

Drug design, sometimes referred to as rational drug design or more simply rational design, is the inventive process of finding new medications based on the knowledge of a biological target. In the most basic sense, drug design involves the design of small molecules that are complementary in shape and charge to the biomolecular target with which they interact and therefore will bind to it. New generations of drugs often gain their great specificity and potency through complex molecular structures and this has fuelled much research into how to best create these complex bioactive molecules with the right structure and with as few by-products as possible. This can be, for example, by manipulating and engineering enzymes that can mimic those that naturally produce molecules within the body. Nanoscience and nanotechnology may play an important role in both understanding the mechanisms by which a drug works and in helping to target the drug to its intended site. As well as vectors such as viruses that can target a drug, or a gene, to a particular type of cell or tissue, novel nanomaterials such as dendrimers or nanosomes can be used to transport drugs to their target sites. This may be combined, for example in novel cancer therapies, with nanoparticles that may be used to activate or release the drug once it has reached its desired site, e.g. by a magnetic field or other external low-level energy sources like light or ultrasound.

FORMULATION AND EVALUATION OF FAST DISSOLVING ORAL FILM OF GLIMEPIRIDE

Mulik R.S, Associate Professor, SVP College of Pharmacy

Abstract:

Fast dissolving drug delivery systems such as mouth dissolving films (MDF) are novel dosage forms that disintegrate or dissolve within the oral cavity. These offer a convenient way of dosing medications, not only to special population groups with swallowing difficulties such as children and the elderly, but also to the general population. Mouth dissolving films of glimepiride were prepared by solvent casting method, which involved the deaeration of the solution, transfer of appropriate volume of solution into a mould, drying the casting solution, cutting the final dosage form into strips (size 2x3 cm) to contain the desired amount of drug (10mg), packaging and storage. The films were specifically designed for people with swallowing difficulties such as pediatric and geriatric populations. Several formulations were developed by varying polymer (hydroxypropyl methyl cellulose) and plasticizer (glycerol) concentrations. The films were evaluated for thickness, folding endurance, weight variation, disintegration time, dissolution time and drug content.

A REVIEW ON MUCOADHESIVE BUCCAL GELS

Mode S.V, Associate Professor, SVP College of Pharmacy

Abstract:

The buccal region of the oral cavity is an attractive target for administration of drug of choice, particularly in overcoming deficiencies associated with the latter mode of administration. The development of mucoadhesive system that allows increased retention time on mucosa is necessary. For this reason the development of mucoadhesive preparation for buccal administration becomes important and mucoadhesive gels are easily dispersed through the oral mucosa. Gels prepared with mucoadhesive polymers such as natural and synthetic polymers constitute a promising option. An accurate selection and combination of the materials allow the design of pharmaceutical forms suitable for different purposes, by simply modifying the formulation composition. The selective polymers displaying mucoadhesive properties that are capable of –H bond formation, processes, swelling over water load properties and sufficient flexibility for intangle ment with mucous. The formulation according to few inventions cover the mouth cavity by being gelled at body temperature by means of using polymers being liquid at room temperature and gelling at body temperature when it sprayed into the mouth, which can be adhered into the oral cavity by means of mucoadhesive polymers. Gels of mucoadhesive polymers resulted in preparations with desirable rheological features as well as texture (firmness and adhesiveness) and mucoadhesive properties, which could benefit the therapeutic efficacy, by increasing the residence time and easiness for topical application for the buccal mucosa. Additionally, the developed preparations exhibited sustained drug release as intended for these systems. This review provides the brief knowledge about the mucoadhesive gels by discussing briefly the structural features of mucosa, mechanism of mucoadhesion, various theories of mucoadhesive buccal dosage forms, permeation enhancers, and the various evaluation method along with the literature survey of the buccal mucoadhesive drug delivery.

GASTRORETENTIVE DRUG DELIVERY SYSTEM

Agrawal J.G, Assistant Professor, SVP College of Pharmacy

Abstract:

The purpose of writing this review on gastroretentive drug delivery systems was to compile the recent literature with special focus on various gastroretentive approaches that have recently become leading methodologies in the field of site-specific orally administered controlled released drug delivery. A controlled drug delivery system with prolonged residence time in the stomach is of particular interest for drugs that i) are locally active in the stomach, ii) have an absorption window in the stomach or in the upper small intestine, iii) are unstable in the intestinal or colonic environment, or iv) exhibit low solubility at high pH values controlled release drug delivery. The purpose of this paper is to briefly describe the gastro retentive drug delivery (GRDD), factors related to GRDD, its advantages disadvantages, and emphasis is given over its significance over conventional form of drug deliveries

CHRONOTHERAPEUTIC DRUG DELIVERY SYSTEM

Deshmukh P.S, Lecturer, SVP College of Pharmacy

Abstract:

Recent advances in chrono-pharmacological and requirement of an appropriate technology to deliver the drug at specific time and site led to the development of novel type of drug delivery systems as “chronotherapeutic or Pulsatile drug delivery systems”. Rationale behind designing these drug delivery systems is to release the drug at desired time which results into improved therapeutic efficacy and patient-compliance. These systems are meant for treatment of those diseases that are caused due to circadian changes in body like asthma, peptic ulcer, cardiovascular diseases, arthritis and when zero order drug release is not desired. These drug delivery systems are designed to release the drug within a short period of time, immediately after a predetermined lag time. The current poster focuses on the various types of chronotherapeutic drug delivery systems and recent advances.

SOLUBILITY ENHANCEMENT OF POORLY WATER SOLUBLE DRUG CEFPODOXIME PROXETIL

Khillare V.S, Lecturer, SVP College of Pharmacy

Abstract:

The aim of this present study was to enhance the solubility and bioavailability of cefpodoxime proxetil (CP) through Complexation with 2 hydroxyl- β -Cyclodextrin (HP- β -CD). Cefpodoxime proxetil is a poorly water soluble antibiotic drug. Cefpodoxime proxetil is a hydrophobic molecule that is practically insoluble in aqueous media and exhibits slow intrinsic dissolution rate. It has slow erratic and complete oral administration. Cefpodoxime proxetil (CP) is belonging to BCS class 1V with poor solubility and poor permeability. So it is difficult to formulate this type of dosage form because they show maximum side effects and also have low therapeutic index. So, solid dispersion is one of the most widely used techniques to enhancement the solubility and dissolution of poorly water soluble drugs. Various different technologies are available for the preparation of solid dispersions like melting method, solvent method, and freeze-drying method, spray drying, melt extrusion method, Lyophilisation technique etc. In the Preformulation studies, cefpodoxime proxetil was characterised by various physiochemical properties such as UV, FTIR Study, Melting point, Partition coefficient calibration curves and solubility profile. The drug was formulated as solid dispersion with β -Cyclodextrin as a carrier. Different ratios of solid dispersion were prepared 1:1, 1:3, 1:5 by kneading techniques. It was concluded that the solubility of cefpodoxime proxetil drug was increase by using solid dispersion method.

NANOPARTICLES: FUNDAMENTAL AND PROSPECTIVES

Raut M.D, Lecturer, SVP College of Pharmacy

Abstract:

This review explores the recent therapeutic work on drug delivery using nanoparticles as carrier for small and large molecules. As compare to direct delivery of drug, delivery through a carrier increase the efficacy of a drug as well as decrease the side effects by enhancing permeability and retention effect. Nanoparticles are solid colloidal particles in size from 10nm1000nm. They consist a macromolecular particle which entrapped, dissolved or encapsulate pharmacologically active agent and release in a control manner to achieve site specific action at optimum rate and dose regimen. They also alter and improve pharmacokinetic and pharmacodynamic properties of less efficacious drugs. The main approach in designing nanoparticles are to control particle size, surface properties and release pattern. Current review reveals the method of preparation, characterization and application of several nanoparticles drug delivery system.

PHARMACOVIGILANCE: NEED AND PRESENT SCENARIO

Tagalpallewar P.P, Associate Professor, SVP College of Pharmacy

Abstract:

Pharmacovigilance is an important and integral part of clinical research. Pharmacovigilance defined by the World Health Organization as: The science and activities relating to the detection, assessment, understanding and prevention of adverse effects, or any other drug related problem plays a key role in ensuring that patients receive safe drugs. Safety and efficacy are the two major concerns about any drug. The pharmacovigilance has been known to play an important role in rational use of drugs, by providing information about the adverse effects possessed by the drug in general population. Our knowledge of a drug's adverse reaction can be increased by various means, including spontaneous reporting, intensive monitoring and database studies. The present review presents in brief about the relevance, need, functioning, role and importance of pharmacovigilance.

MICROSPONGE DRUG DELIVERY SYSTEM FOR TOPICAL DELIVERY

Ranware M.A, Assistant Professor, SVP College of Pharmacy

Abstract:

Microsponge Delivery System (MDS) is a unique technology for the controlled release of topical agents and consist of macro porous beads, typically 10-25 microns in a diameter, loaded with active agent. Microsponges are porous, polymeric microspheres that are mostly used for prolonged topical administration. Microsponges are designed to deliver a pharmaceutically active ingredient efficiently at minimum dose and also to enhance stability, reduce side effects, and modify drug release profiles. When applied to the skin, the microsponge releases its active ingredient on a time mode and also in response to other stimuli (rubbing, pH, etc.). MDS technology is being used currently in cosmetics, over-the-counter (OTC) skin care, sunscreens and prescription products. Conventional preparations have some disadvantages like unpleasant odour, greasiness and skin irritation. These problems are overcome by microsponge delivery system. Microsponge based drug delivery system produces controlled released action. It also produces site specific and target organ action produced. Microsponge (MDS) mainly developed in topical drug delivery as well as oral controlled delivery system. It also used in cosmetic formulations.

TECHNIQUES USED TO ENHANCE BIOAVAILABILITY OF POORLY WATER SOLUBLE DRUGS

Dafade P.O, Assistant Professor, SVP College of Pharmacy

Abstract:

Solubility of drugs molecules remains one of the most challenging aspects in formulation development. Many water soluble drugs are present in the BCS class II category, which are characterized by low solubility and high permeability. By increasing the dissolution rate, the solubility of drug can be easily enhanced. As oral route is one of the most desirable and preferred method for drug administration, thus solubility of drug is a major challenge in formulation designing. About 40% of the orally administered drugs are having solubility problems. Thus, because of these solubility problems, the bioavailability of drugs also gets affected. Various solubility enhancement techniques are available for increasing the solubility as well as permeability of drugs like Micronization, Salt formation Complexation, Co-solvent addition, conservation and Solid dispersion. The purpose of this review we concentrated on improvement of the solubility of poorly water soluble drugs by preparing various methods.

MICROENCAPSULATION-A PROMISING OF NOVEL APPROACH IN DRUG DELIVERY SYSTEM: REVIEW

Guhade.N.D, Assistant Professor, SVP College of Pharmacy

Abstract:

Microencapsulation is the process of surrounding or enveloping one substance within another substance on a very small scale, yielding capsules ranging from less than one micron to several hundred microns in size. The encapsulation efficiency of the microparticles or microsphere or microcapsule depends upon different factors like concentration of the polymer, solubility of polymer in solvent, rate of solvent removal, solubility of organic solvent in water etc. Microparticles offer various significant advantages as drug delivery systems, including: (i) an effective protection of the encapsulated active agent against (e.g. enzymatic) degradation, (ii) the possibility to accurately control the release rate of the incorporated drug over periods of hours to months, (iii) an easy administration and (iv) Desired, pre-programmed drug release profiles can be provided which match the therapeutic needs of the patient. This article is a review of microencapsulation and materials involved in it, morphology of microcapsules, microencapsulation technologies, purposes of microencapsulation, and benefits of microencapsulation, release mechanisms, and application and their use in a wide variety of industrial, engineering, pharmaceutical, biotechnology and research applications.

LEUKEMIA: AN OVERVIEW

Wathore S.A, Assistant Professor, SVP College of Pharmacy

Abstract:

Leukemia is type of cancer that develop in bone marrow. It is caused due the production of large number of WBCs. In 2000, approximately 256,000 children and adults around the world develop a form of leukemia, and 209000 died from it. In 2010, globally approximately 281,500 peoples died due to leukemia. Leukemia, lymphoma and myeloma are expected to cause the death of an estimated 58,300 people in us in 2017. Leukemia patients have extremely low count of healthy blood cells and platelets. Symptoms of leukemiaare osteoposis (thinning of bones), low blood cell counts, infection, graft versus host disease, kidney stones, mouth ulcers, diarrhoea , temporary hair loss, rashes, nausea and vomiting , fatigue. Different types of natural plants and drugs available for treatment of leukemia arevincristine sulfate, thioguanine, hyperCVAD, arsenic trioxide, clafen, withania simnifera, madhukaparni, carrot, ginger, turmeric, etc.

NANOTECHNOLOGY IN PHARMACEUTICALS

Dr. Vidhi Jain, Professor, SVP College of Pharmacy

Abstract:

Pharmaceutical nanotechnology offers new tools, opportunities and scope, which are expected to have a great impact on many areas in disease diagnostics and therapeutics. It has emerged as a discipline having enormous potential as carrier for spatial and temporal delivery of bioactives and diagnostics and provides smart materials for tissue engineering. It is now well established as specialized area for drug delivery, diagnostics, prognostic and treatment of diseases through its nanoengineered tools. Few nanotechnology based products and delivery systems are already in market. It provides opportunities to improve materials, medical devices and help to develop new technologies where existing and more conventional technologies may be reaching their limits. It raises new hope to pharmaceutical industries by providing new cutting age patentable technologies in view of revenue loss caused due to off-patent drugs. Scientific societies, industries and governments all over world are looking with great anticipation and contributing their best to clutch the potential of this technology. This technology has the potential to make significant contributions to disease detection, diagnosis, therapy, and prevention. It could have a profound influence on disease prevention efforts because it offers innovative tools for understanding the cell as well as the differences between normal and abnormal cells. It could provide insights into the molecular basis of disease. However going towards bottom size increases the unknown health risk. However, some suggested initiative must be taken in order to exploit the advantage of this very fascinating and ever growing potential technology. Some of these are (i) identifying, defining and characterizing model nanomaterials, (ii) developing toxicity testing protocol, (iii) detecting and monitoring exposure level, (iv) assessing the impact of environment, and (v) developing the biocompatible hybrid system. We still lack sufficient data and guidelines regarding safe use of these nanotechnology based devices and materials. There are several confounding unresolved issues, which warrant the application in its full bloom. It is still in infancy. Some concerning issues like safety, toxicity hazards, bioethical issues, physiological and pharmaceutical challenges get to be resolved by the scientists.

3D Printing in Pharmaceutical and Medical Applications

Dr.Rajendra Choksey, Professor, SVP College of Pharmacy

Abstract:

Growing demand for customized pharmaceuticals and medical devices makes the impact of additive manufacturing increased rapidly in recent years. The 3D printing has become one of the most revolutionary and powerful tool serving as a technology of precise manufacturing of individually developed dosage forms, tissue engineering and disease modeling

Artificial intelligence and machine learning in drug discovery and develop.

Dr.Shivendra Kumar Dwivedi, Professor, SVP College of Pharmacy

Abstract:

The current rise of artificial intelligence and machine learning has been significant. It has reduced the human workload improved quality of life significantly. This article describes the use of artificial intelligence and machine learning to augment drug discovery and development to make them more efficient and accurate. In this study, a systematic evaluation of studies was carried out; these were selected based on prior knowledge of the authors and a keyword search in publicly available databases which were filtered based on related context, abstract, methodology, and full text.

Bioavailability and Bioequivalence in Drug Development

Dr.Manmeet Singh Saluja, Professor, SVP College of Pharmacy

Abstract:

Bioavailability is referred to as the extent and rate to which the active drug ingredient or active moiety from the drug product is absorbed and becomes available at the site of drug action. The relative bioavailability in terms of the rate and extent of drug absorption is considered predictive of clinical outcomes.

Community pharmacist and their role in modern healthcare system in india

Dipawalee Dattarao Kadam, Lecturer, SVP College of Pharmacy

Abstract:

Pharmacist are integral part of our modern healthcare system .they extended their knowledge and skills in prescription processing ,dispensing medicines, monitoring drug interaction and drug therapy ,nutritional and patient conseling ,rational use of drug and auxiliary service. Community pharmacist are the qualified personals who are involved in dispensing prescription correctly and insure safe and judicious use of medicines by the community.

This increase in the use of wide range of new and analogue products in medicine requires special knowledge with regard to their application and management/risk. Community pharmacist have progressively undertaken the ancillary task of ensuring the quality of product and supply.

PRESSURIZED PACKAGING

Sayali Premsing Rathod, Assistant Professor, SVP College of Pharmacy

Abstract:

A system depends on the power of a compressed gas or liquefied gas to expel the contents from the container.

1942-Insecticidal Aerosals

1950 –Topical Aerosals

1965 –Respiratory tract(Epinephrine)Aerosals

Pharmaceutical aerosols is obtained as active ingredients which dissolves, suspended or emulsified in a propellant or a mixture of solvent ,intended for oral or tropical administration in to the eye , nose , ear , rectum and vagina. Aerosals concept originated in 1923 when Eric Rothium of Oslo ,Norway ,develop a wax spray for skis and other products using butane and vinyl chloride has propallents and brass containers fitted with needle valves.

MICRONEEDLES: A NOVEL TECHNOLOGY FOR TRANSDERMAL DRUG DELIVERY SYSTEM

Shende Smita Govardhan, Assistant Professor, SVP College of Pharmacy

Abstract:

Microneedles are minimally invasive devices long enough to penetrate skin barrier and short enough to avoid dermal nerve stimulation. Therefore, the principal benefit of Microneedles is the pain-free delivery of both small and large molecular weight active pharmaceutical ingredients. It is a novel drug delivery technology that can offer promising advantages as an alternative to classical needle injections and other routes of administration. Many therapeutic agents are unable to reach the systemic circulation, due to the barrier properties of stratum corneum (SC) of the skin. Only drugs with very specific physicochemical properties (molecular weight < 500 Da, adequate lipophilicity, and low melting point) can be successfully administered transdermally. Transdermal delivery of hydrophilic drugs and macromolecular agents is problematic, which could be possible through by-pass or reversible disruption of SC molecular architecture. Microneedles by-pass the SC and create transient aqueous transport pathways and enhance the transdermal permeability of macromolecular agents and hydrophilic drugs. Microneedles have tremendous potential to yield real benefits to patients like: (i) Less pain (ii) Simple medication administration possibly by patients themselves, which enhances patient comfort and compliance (iii) Enhanced drug efficacy, resulting in reduced drug usage, and (iv) Enhanced treatment safety, simplicity, and cost effectiveness.

AN OVERVIEW ON: MYOCARDIAL ISCHEMIA AND REPERFUSION INJURY

Umesh T.jadhao, Associate Professor, SVP College of Pharmacy

Abstract:

Cardiovascular diseases (CVD) cover a wide array of disorders, diseases of the cardiac muscle and of the vascular system. Prominent causes of CVD mortality and morbidity are ischemic heart disease (IHD), Stroke and Congestive heart failure (CHF). Myocardial ischemia results from severe impairment of coronary blood supply and produced a spectrum of clinical syndrome like myocardial infarction (MI), angina pectoris and sudden cardiac death. Myocardial ischemia results in cessation of oxidative phosphorylation, causing decrease in ATP, decrease in level of glutathione, phosphocreatine and ion distribution also altered. Thrombolysis, percutaneous transluminal coronary angioplasty and coronary bypass surgery are the general treatment strategies of cardiovascular disorders. All of these treatment strategies can cause a myocardial ischemia reperfusion (MI/R) injury, which is known to occur on the restoration of coronary blood flow after a period of myocardial infarction. MI/R is a combine entity with diverse components. Reperfusion often aggravates cardiac dysfunction via increase in the generation of reactive oxygen species (ROS), calcium overloading, and the loss of membrane phospholipids. In this review, we have discussed the various mechanisms and implications of ischemic reperfusion injury.

NEW THERAPEUTIC OPTIONS IN MANAGEMENT OF ALZHEIMER'S DISEASE

Kauthekar V.R, Lecturer, SVP College of Pharmacy

Abstract:

Alzheimer's disease (AD) is the most prevalent cause of dementia worldwide with multifactorial etiology and complex pathophysiology. The three main popular theories that define different aspects of Alzheimer's disease are cholinergic, amyloid and tau hypothesis. The various target-based pharmacological treatment in clinical practice or under development are discussed below. 1) Cholinergic hypothesis: Anti-cholinergic drug (donepezil) 2) Amyloid hypothesis: a) Decreasing production of A β (MK-8931), b) Promoting clearance of A β {Passive immunization (bapineuzumab) and active immunization(ACC-011)}, 3) Tau-based therapy {Targeting tau phosphorylation (Lithium), Microtubule stabilization (paclitaxel), Tau aggregation inhibitors (TRx0237) 4) Oxidative stress {Exogenous antioxidants (selenium), Facilitating endogenous antioxidant (tertbutylhydroquinone)}, 5) Receptors {muscarinic, nicotinic acetylcholine receptors, sigma receptors (Lecozotan-HT1A antagonist)}. 6) Enzymes(α -secretase, β -secretase, gamma-secretase, caspases, cyclooxygenase, 3-hydroxy3-methylglutaryl-coenzyme A reductase, phosphodiesterases, protein kinase C. 7) Multitarget-directed ligands(Ladostigil). A lot of compound are effective preclinically but in clinical trial results are not promising. This indicates to develop better preclinical models of AD that could be correlated with disease progression of AD in humans. Additionally we need to optimize dosing, symptomatic parameters and biomarkers in clinical trials so that effective drugs can be launched for treatment of AD.

PATHOPHYSIOLOGY OF GOUT

Lokhande S.S, AssistantS Professor, SVP College of Pharmacy

Abstract:

Gout is a metabolic disease in which increased level of uric acid in the blood start depositing within joints and tissues. The major cause of gout is the ineffective metabolism of a nucleic acid in the body called purine. The normal metabolism of purine result in an endproduct called uric acid, which is then excreted by the kidneys. In gout, however, metabolic problems cause uric acid to be overproduced and/or under-excreted. In about 90% of cases, gout is due to the under-excretion of uric acid from the kidneys. Gout is a very complex disorder and also very less explored one. No recent advancement on this topic has been seen in recent times. This review will explore pathophysiological parameters and indicates towards the future perspectives for research.

**Synthesis, Characterization and Anti Inflammatory activity of some novel
5-((6-(methylthio) benzo[d]oxazol-2-yl)methyl)-3-((4-
substitutedpiperazin-1-yl)methyl)-1,3,4-oxadiazole-2(3H)-thione
derivatives**

Qadari Syed, Lecturer, SVP College of Pharmacy

Abstract:

The design, synthesis, spectral and biological activities of some new benzo[d]oxazole derivatives are studied in this work. The acid hydrazides 2-(6-(methylthio)-benzo[d]oxazol-2-yl) acetohydrazide (II) was subjected to cyclization with carbon disulphide under basic conditions to yield 5-((6-(methylthio)-benzo[d]oxazol-2-yl) methyl)-1,3,4-oxadiazole-2(3H)-thione (III) which on aminomethylation with formaldehyde and substituted 1-phenylpiperazine afforded a series of Mannich bases (P1-P15). Purity of the compounds has been confirmed by TLC. The structures of these newly synthesized compounds were established on the basis of their IR, ¹H-NMR, and Mass spectral data. All the title compounds have been screened for their anti-inflammatory activity. It's worth noting that title compounds (P1-P15) were shown to have anti-inflammatory efficacy as compared to the normal medication, diclofenac at 10 mg/kg p.o, in a carrageenin-induced paw oedema test in rats. The tested compounds showed anti-inflammatory activity ranging from 26.23 % (P7) to 75.63 % (P13) whereas standard drug diclofenac sodium showed 73.66 % inhibition after 3h. The highest activity (78.71 %) was found for the Mannich base, P13.

Design, Synthesis And Biological Evaluation Of 5-[2(3)-Dialkylamino Alkoxy] Indole 2,3-Diones As New Antihistamine Agents

Panchal P.P, Associate Professor, SVP College of Pharmacy

Abstract:

In the present work, some new 5-[2(3)-dialkylamino alkoxy] Indole 2, 3-diones were prepared from 5-hydroxy isatin. A mixture of 5-hydroxy isatin, dialkylamino alkylhalide in alcoholic potassium hydroxide was stirred at room temperature for 6 hours to get the 5-[2(3)-dialkylamino alkoxy] Indole 2,3-diones. The structures of the products were characterized by IR, NMR, MASS Spectral studies. All the compounds were evaluated for Antihistaminic activity by Histamine chamber method.

Synthesis And In Vivo Anti-Inflammatory Activity Of A Novel Series Of Benzoxazole Derivatives

More H.M, Assistant Professor, SVP College of Pharmacy

Abstract:

Novel series of benzoxazole derivatives were prepared by the condensation of methyl-2-(2-aminothiazol-5-ylamino) benzo[d]oxazole-5-carboxylate with various aromatic aldehydes. The structures of the synthesized compounds were VI1-VI15 assigned on the basis of elemental analysis, IR, ¹H NMR and mass spectroscopy. These compounds were also screened for anti-inflammatory activity. The recorded percentage of inhibition showed a significant anti-inflammatory activity when compared to the reference anti-inflammatory drug diclofenac sodium.

SYNTHESIS AND ANTIBACTERIAL EVALUATION OF NOVEL AZAINDOLE DERIVATIVES

Male D. N., Assistant Professor, SVP College of Pharmacy

Abstract:

Azaindoles are an important class of nitrogen containing heterocyclics and were identified as the most active and potent classes of compounds with wide range of biological and pharmacological activities. They were extensively used as pharmaceuticals. Although the number of drugs are available in the market even though the search for new molecules is ever demanding. In present work various Azaindoles were synthesized and characterized using physical and spectral data. Finally, the Azaindole derivatives were screened for their In vitro antibacterial activity. Some of the molecules exhibited very good potency when compared with respective standards. The approach is very challenging and was found difficult to get a molecule with potency. Even though, the present molecules were provided novel leads against gram +ve and gram -ve bacteria.

DRUG FOOD INTERACTIONS AND ROLE OF PHARMACIST

Mulik R.S, Associate Professor, SVP College of Pharmacy

Abstract:

Interaction between foods and drugs can have profound influence on the success of drug treatment and on the side effect profiles of many drugs. The clinical significance of drug-food interactions can be variable. The effect of drug on a person may be different than expected because that drug interacts with another drug, food, beverages, dietary supplements the person is consuming (drug-nutrient/food interaction) or another disease the person has. Clinically significant drug interactions, which pose potential harm to the patient may result from changes in pharmaceutical, pharmacodynamic properties. Some interactions may be taken as beneficial effect by increasing drug efficacy or diminishing potential side effects. Pharmacists in every practice setting need to be vigilant in monitoring for potential drug food interactions and advising patient regarding food or beverages to avoid while taking certain medications. It is imperative for pharmacist to keep up date on potential drug food interactions of medications, especially today new drugs, so that they may counsel properly to the patients.

Stoneman Syndrome (Or) Fibrodysplasia Ossificans Progressiva

Mode S.V, Associate Professor, SVP College of Pharmacy

Abstract:

Fibrodysplasia Ossificans Progressiva (FOP), or the Stoneman Syndrome, is a rare condition wherein the body's connective tissues slowly turns into bones. It affects 1 in 2 million people and is caused by a gene mutation. The condition usually starts from the shoulders and neck, making its way down to the legs.

Nearly 90% of patients with fibrodysplasia ossificans progressiva are misdiagnosed and mismanaged and thus undergo unnecessarily interventions. So far, the number of reported existing cases worldwide is about 700. Clinical examination, radiological evaluation, and genetic analysis for mutation of the ACVR1 gene are considered confirmatory tools for early diagnosis of the disease. Association of fibrodysplasia ossificans progressiva with heterotopic ossification is well documented; however, postsurgical exaggerated response has never been reported previously, to the best of our knowledge.

ROSEMARY OIL IS AS EFFECTIVE AS MINOXIDIL FOR ANDROGENETIC ALOPECIA

Agrawal J.G, Assistant Professor, SVP College of Pharmacy

Abstract:

Rosmarinus officinalis L. is a medicinal plant with diverse activities including enhancement microcapillary perfusion. The present study aimed to investigate the clinical efficacy of rosemary oil in the treatment of androgenetic alopecia (AGA) and compare its effects with minoxidil 2%. Patients with AGA were randomly assigned to rosemary oil (n = 50) or minoxidil 2% (n = 50) for a period of 6 months. After a baseline visit, patients returned to the clinic for efficacy and safety evaluations every 3 months. A standardized professional microphotographic assessment of each volunteer was taken at the initial interview and after 3 and 6 months of the trial. No significant change was observed in the mean hair count at the 3-month endpoint, neither in the rosemary nor in the minoxidil group ($P > .05$). In contrast, both groups experienced a significant increase in hair count at the 6-month endpoint compared with the baseline and 3-month endpoint ($P < 0.05$). No significant difference was found between the study groups regarding hair count either at month 3 or month 6 ($> .05$). The frequencies of dry hair, greasy hair, and dandruff were not found to be significantly different from baseline at either month 3 or month 6 trial in the groups ($P > 0.05$)

The minoxidil 2%. Patients with AGA were randomly assigned to rosemary oil (n = 50) or minoxidil 2% (n = 50) for a period of 6 months. After a baseline visit, patients returned to the clinic for efficacy and safety evaluations every 3 months. A standardized professional microphotographic assessment of each volunteer was taken at the initial interview and after 3 and 6 months of the trial. No significant change was observed in the mean hair count at the 3-month endpoint, neither in the rosemary nor in the minoxidil group ($P > .05$). In contrast, both groups experienced a significant increase in hair count at the 6-month endpoint compared with the baseline and 3-month endpoint ($P < .05$). No significant difference was found between the study groups regarding hair count either at month 3 or month 6 ($> .05$). The frequencies of dry hair, greasy hair, and dandruff were not found to be significantly different from baseline at either month 3 or month 6 trial in the groups ($P > .05$). The frequency of scalp itching at the 3- and 6-month trial points was significantly higher compared with baseline in both groups ($P < .05$). Scalp itching, however, was more frequent in the minoxidil group at both assessed endpoints ($P < .05$). The findings of the present trial provided evidence with respect to the efficacy of rosemary oil in the treatment of AGA.

IMPLICATIONS FOR 3D PRINTING IN MEDICAL SCIENCES AND PHARMA

Deshmukh P.S, Lecturer, SVP College of Pharmacy

Abstract:

In recent years, additive manufacturing has seen a tremendous growth in impact because to the growing need for customised pharmaceuticals and medical equipment. These days, 3D printing is one of the most potent and innovative tools available for tissue engineering, illness modelling, and the exact manufacture of custom dosage forms.

THE USE OF MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE IN MEDICATION DEVELOPMENT.

Khillare V.S, Lecturer, SVP College of Pharmacy

Abstract:

Machine learning and artificial intelligence have advanced significantly in recent years. It has greatly raised quality of life while decreasing human burden. In order to improve the efficiency and accuracy of drug research and development, artificial intelligence and machine learning are used in this article. This research conducted a systematic review of papers, which were chosen based on the authors' existing knowledge and a keyword search in publically accessible databases. The results were filtered according to relevant context, abstract, methodology, and full text.

THE DEVELOPMENT OF THE BIOLOGICAL AVAILABILITY AND BIOEQUIVALENCY IN PHARMACEUTICALS

Raut M.D, Lecturer, SVP College of Pharmacy

Abstract:

The degree and pace at which the active ingredient or active moiety from the drug product is absorbed and made available at the site of drug action is known as bioavailability. Clinical results are thought to be predicted by the relative bioavailability in terms of the pace and amount of medication absorption.

SOCIAL RESPONSIBILITY PHARMACIES AND THEIR SIGNIFICANCE IN INDIA'S CONTEMPORARY HEALTHCARE SYSTEM

Tagalpallewar P.P, Associate Professor, SVP College of Pharmacy

Abstract:

A vital component of the contemporary healthcare system is the chemist. They expanded their expertise and abilities to include processing prescriptions, distributing medications, keeping an eye on drug interactions and drug therapy, patient and nutritional counselling, and rational drug usage and auxiliary services. Community chemists are trained individuals who ensure that prescriptions are accurately filled and that the public uses medications in a safe and responsible manner.

A greater variety of new and analogue goods are being used in medicine, which calls for specialised expertise regarding their application, risk management, and management. Assuring the quality of the product and supply is an auxiliary responsibility that community chemists have gradually taken on.

COMPELLED SYSTEMS

Ranware M.A, Assistant Professor, SVP College of Pharmacy

Abstract:

For a system to remove its contents from a container, compressed or liquefied gas power is required.

1942: The Insecticidal Aircraft

1950 - Aerosals Topical

1965: Aerosals of the respiratory tract (epinephrine)

Pharmaceutical aerosols are made up of active substances that dissolve, suspend, or emulsify in a propellant or solvent mixture and are meant to be administered orally or topically to the rectum, vagina, nose, ears, and eyes. The concept of Aerosals began in 1923 when Eric Rothium of Oslo, Norway, created a wax spray with propallents and brass canisters equipped with needle valves using butane and vinyl chloride for use on skis and other objects.

EXPULSIONS AND LIMITATION CLASSIFICATION

Dafade P.O, Assistant Professor, SVP College of Pharmacy

Abstract:

Pharmaceutical suspensions are liquid dosage forms in which the drug has a minimum solubility in a suspending medium (suspending vehicle) and contains finely split insoluble components (the suspensoid) dispersed fairly consistently throughout. This dose form is intended to provide insoluble or poorly soluble medications in a liquid form. It is also the best dose form for medications that lose their stability over time in an aqueous media. The most common form of delivery for these medications is dry powder, which must be reconstituted while being dispensed. Without referring to the solid material's particle size, the term "suspension" technically refers to the dispersion of a solid material (the dispersed phase) in a liquid (the continuous phase). Nonetheless, the solid material's particle size can have an impact on the suspensions' physicochemical behaviour. Because of this, a "coarse dispersion" with bigger particles is typically distinguished from a colloid or colloidal suspension with a particle size range of up to around 1 micron. Sadly, pharmaceutical suspensions, which typically contain solid particles between 0.1 and 10 micrometres in size, cross the boundary between colloidal and coarse dispersions. Unless the particle size is within the colloidal range, suspensions lack optical clarity and seem hazy.

BUCCAL DRUG DELIVERY SYSTEM MUCO ADHESIVE

Guhade.N.D, Assistant Professor, SVP College of Pharmacy

Abstract:

Pharmaceutical innovation now establishes the benefits of mucoadhesive drug delivery systems over oral control release in terms of obtaining local, systematic drug distribution in the gastrointestinal tract over an extended length of time at a predefined rate. The significant presystemic metabolism of the oral drug delivery system, which breaks down in an acidic environment and results in poor drug absorption, is one of its drawbacks. Parental drug delivery systems, however, have significant costs, need less patient compliance and oversight, and may outperform oral drug administration systems in certain aspects. The buccal drug delivery mechanism allows for easy, painless administration of medication, quick enzymatic action, less hepatic metabolism, and direct passage of the medication into the systemic circulation. overly high bioavailability. An overview of the buccal dose form, the mucoadhesion mechanism, and the in-vitro and in-vivo mucoadhesion testing methods are provided in this review article.

DESICCATED SKIN

Wathore S.A, Assistant Professor, SVP College of Pharmacy

Abstract:

A prevalent dermatosis that affects people of different ages, skin types, and body parts is dry skin, also known as xerosis. It is brought on by both endogenous (such as medication, hormone changes, and organ disorders) and exogenous (such as climate, environment, and lifestyle) factors and is linked to both thickening and thinning of the skin. Ten to fifteen percent water is necessary for skin to stay supple and healthy. This water is either "dynamic" or "static," meaning it is bound. Skin humidity is controlled by the hydrophobic molecules that predominate in intercellular components. Emollients are extremely useful therapeutic adjuncts for the therapy of all conditions involving dry skin. They improve the skin's barrier function and aid to prevent scaling by increasing the skin's water content and restoring damaged intercorneocyte lipid structures.

PHARMACISTS' PART IN PREVENTING DISEASES

Dr. Vidhi Jain, Professor, SVP College of Pharmacy

Abstract:

This billboard explains the chemist's role in preventing illness. This editorial emphasises the involvement of chemists in the COVID-19 Pandemic, given the widespread lockdowns and the front-line roles played by pharmacy professionals at the national level. In the midst of the epidemic, chemists around the world are helping patients by seeing them and easing their strain on medical facilities like hospitals and general practitioners' offices. This includes giving TRIAGE service.

PREPARATION OF PHARMACEUTICAL EMULSIONS

Dr.Rajendra Choksey, Professor, SVP College of Pharmacy

Abstract:

A biphasic liquid dose type is called an emulsion. An emulsion is a combination of two or more liquids that are not ordinarily soluble in one another; nonetheless, with the use of emulsifying chemicals, one liquid is dispersed as droplets into the other liquid. Therefore, an emulsion has two stages. There are two phases: the scattered phase and the continuous phase. The idea is that there is a dispersed phase (liquid) that spreads throughout the other phase (continuous phase). The Trituration Method (Dry Gum, Wet Gum), Forbes Bottle Method, Auxiliary Method, Nascent Method, or In Situ Soup Method, and Beaker Method are used to make emulsions.

THE WORLD'S FIRST INTRA-NASAL VACCINE, COVID-19

Dr. Shivendra Kumar Dwivedi, Professor, SVP College of Pharmacy

Abstract:

China and India have authorised the use of two covid-19 vaccinations that do not require needles and are administered orally or through the nose. China's vaccine, which was released on September 4th, is inhaled via the nose and mouth as an aerosolized mist, whereas India's vaccine is delivered as drops, having been announced two days later. The liquid vaccine is converted into an aerosol spray that is breathed using a device known as a nebulizer. The vaccine from India, created by Hyderabad-based Bharath Biotech, is authorised as a two-dose primary immunisation rather than a booster. This vaccine has been designated as BBV154. The thin mucous membranes lining the mouth, nose, and lungs are the target of these mucosal vaccinations. Mucosal vaccinations have the potential to prevent even mild episodes of disease and prevent transmission to other individuals by inducing an immune response where SARS-CoV-2 first enters the body. This is something that injectable COVID-19 vaccines have not been able to accomplish. The vaccine considerably increased blood serum antibody levels when administered as a booster compared to an injection-based boost. It reduces edoema and congestion by constricting the blood vessels around the nose.

Create, Prepare, and Assess Nefidipine Tablets' Chronomodulated Pulsatile Drug Delivery System in Vitro Using Polymers

Dr. Manmeet Singh Saluja, Professor, SVP College of Pharmacy

Abstract:

The goal of this study was to develop a novel time-dependent pulsed release system that includes a "Tablet-in-Capsule" for the controlled release of nefidipine, which is used to treat hypertension. The direct compression approach was utilised to create the core tablets, together with appropriate superdisintegrant agents. To coat the core tablet, various polymers that depended on pH were utilised. The study's findings demonstrated that the coating level had a significant impact on the lag time before medication release. The dissolving data showed that in order to create an ideal formulation, the amount of coating and the ratio of polymers are crucial. Paddle speed was shown to have no effect on the optimised formulation's in vitro release. After a month, the stability assessment of the optimised formulation shows no discernible change in the release profile.

AFFECTORS ON PHARMACEUTICAL PRODUCTS'

MICROBIALSPOILAGE

Dipawalee Dattarao Kadam, Lecturer, SVP College of Pharmacy

Abstract:

The kind and degree of microbial deterioration are significantly influenced by the physical and chemical state of a pharmaceutical formulation. A certain set of microbes may be more likely to degrade a product due to a particular combination of conditions within it. The physicochemical properties and toxicity of pharmacological preparations may alter if microorganisms contaminate medicinal products. The active substances and excipients included in the dosage forms are all prone to microbial contamination and spoiling. To prevent microbiological contamination during the formulation of medicinal products, strict controls must be implemented. The microbiological deterioration of medicinal goods is influenced by numerous factors. This includes water and nutritious components. Other elements influencing the microbial deterioration of pharmaceutical items include temperature, surface tension, oxidation-reduction balance, oxygen availability, osmotic pressure, and relative humidity. PH, Redox potential, components of protection, and inoculum size.

IMPROVEMENT OF A DECENT WATER SOLVABLE DRUGGY USING WATER SOLVABLE CARRIERS

Sayali Premsing Rathod, Assistant Professor, SVP College of Pharmacy

Abstract:

Using a solid dispersion technique, the role of many water-soluble carriers was investigated for improving the solubility of famotidine, a weakly soluble medication. For this, carriers such as sorbitol, mannitol, and urea were employed. A clear decrease of drug crystallinity in the formulation was found during the solid dispersions' characterization using FTIR and DSC methods, which helped to explain the increase in dissolving rate. In various degrees, all of the produced solid dispersions demonstrated improved solubility as compared to the pure medication. In comparison to sorbitol and mannitol, urea demonstrated a greater improvement in solubility among the carriers utilised.

Lyophilized solid lipid nanoparticles of raloxifene hydrochloride provide improved intestinal absorption and bioavailability.

Shende Smita Govardhan, Assistant Professor, SVP College of Pharmacy

Abstract:

Because raloxifene hydrochloride (RXH) has a low bioavailability (less than 2%), the oral medication currently in use is less effective. Thus, an effort was undertaken to explore the potential of triglyceride-based solid lipid nanoparticles (SLNs) for enhanced oral delivery of RXH (trimyristin, tripalmitin, and tristearin). Particle size, zeta potential, and percentage of entrapment were assessed in the created SLN formulations, and the optimal formulation underwent lyophilization. Research on solid state characterization reveals how RXH changes from its natural crystalline structure to an amorphous or molecular state. Additionally, rat intestinal in situ perfusion studies demonstrate the potential of SLN for improved raloxifene HCl across GI barrier penetration. In order to arrive at the findings, in vivo pharmacokinetic Rats were used in the study to evaluate RXH's bioavailability from SLN formulation in comparison to drug suspension. Overall, SLN formulations have a twofold increase in bioavailability, which suggests better oral administration of RXH.

The development of the formulation and in vitro assessment of Escitalopram Instant Release Tablets

Umesh T.jadhao, Associate Professor, SVP College of Pharmacy

Abstract:

This study aims to formulate Escitalopram instant release tablets, considerably improve their bioavailability, and minimise their negative effects. The bulk density, tapped density, Hausner's ratio, Carr's index, and angle of repose of the precompression blends of escitalopram were all measured and recorded. All of the batches' precompression blends show good to fair flowability and compressibility. Sodium-starch glycolate, PEG 6000, and croscarmellose sodium were among the polymers used to make the immediate release tablets, which were then crushed into the desired shape. Several quality control metrics were assessed for the prepared tablets. Every test on the tablets was successful. Out of all the formulations, the F7 formulation with the medication and the croscarmellose sodium showed promising results. After 45 minutes, that is 98.12%. Therefore, it was clear from the dissolution data that the F7 formulation is the superior formulation. by carrying out additional research, such as invitro experiments.

FORMULATION AND EVALUATION OF ESOMEPRAZOLE'S RFT FORMING TABLET

Kauthekar V.R, Lecturer, SVP College of Pharmacy

Abstract:

The purpose of the current study was to create Esomeprazole¹ "RAFT" creation utilising calcium carbonate, talc, magnesium stearate, sodium bicarbonate, sodium alginate, and HPMC in order to provide Esomeprazole orally. The investigation's findings suggest that the direct compression approach can be used to produce Esomeprazole tablets with success. Sodium alginate precipitates and forms a gel when coupled with acid, as the Invitro³ release tests showed. When gastric acid reacts with bicarbonate containing alginate, carbon dioxide is released and becomes trapped in the gel precipitate, creating a "RAFT." In contrast, an alginate formulation that doesn't produce gas causes the stomach to produce a "RAFT." Because it allows for the greatest possible medication release, this is seen as enhances formulation. A gastro-retentive drug delivery system (GRDDS) is a medication that can be retained in the stomach. Its purpose is to extend the duration of the dosage form's gastric residence time following oral administration. To improve the drug's bioavailability, esomeprazole demonstrates both a raft formation nature and a gastro-retentive function.

EXTREME PERFORMANCE A POSSIBLE TOOL FOR PHARMACEUTICAL SEPARATIONS IS LIQUID CHROMATOGRAPHY.

Lokhande S.S, AssistantS Professor, SVP College of Pharmacy

Abstract:

Significant technological advancements have been made in particle size performance, system optimisation, data processing, detector design, and control for ultra performance liquid chromatography (UPLC) systems. The individual successes in each field, when combined, have produced a step-function advancement in chromatographic performance. This novel analytical separation science technique increases the speed, sensitivity, and resolution of HPLC while utilising its practical principles. The pharmaceutical companies are currently looking for innovative techniques to shorten the time and expense of drug analysis. In this trend, analytical laboratories are not an exception. More analyses can be carried out in less time thanks to ultra high performance liquid chromatography (UPLC), which has improved resolution, assay sensitivity, and high sample throughput. in a shorter amount of time and offers a more economical benefit than HPLC analysis. Thus, the traditional assay was converted and enhanced for the UPLC apparatus.