Sl. No.	Name of the teacher	Title of the book/chapters published	National / International	Calendar Year of publication	Name of the publisher
1	Dr.Y.Madhusudan Rao	Advancess in Drug Delivery Sysytems Volume 5(EDITOR)	National	2021-2022	BSP Publisher
1	Mrs.T.Rajani	Cubosomes	National	2021-2022	BSP Publisher
2	Dr.Y.Shravan Kumar	Pelletization Techniques	National	2021-2022	BSP Publisher
3	Dr.Y.Shravan Kumar	Solid Dispersion	National	2021-2022	BSP Publisher
4	Dr.Y.Shravan Kumar	Chewing Gums as Drug Delivery	National	2021-2022	BSP Publisher
5	Dr.S.Pavani	Dental Inserts	National	2021-2022	BSP Publisher
6	Dr.Y.Shravan Kumar	Sublingual drug delivery systems	National	2021-2022	BSP Publisher
7	Dr.Pavani Sriram	Mucoadhesive Buccal Tablets Of Glibenclamide	International	2020-2021	Lambert Publisher
8	Dr.Y.Shravan Kumar	Taste masked Oral Disintegrating Tablets of Tolterodine Tartrate	International	2019-2020	Lambert Publisher
9	Dr. E. Venkateshwarulu	Evaluation of Pharamacological and Biological activities of Thiazole tagged Bastin Hydrazones	International	2019-2020	Lambert Publisher
10	Dr.Y.Madhusudan Rao	Advancess in Drug Delivery Sysytems Volume 4 (EDITOR)	National		BSP Publisher
11	Dr.Y.Madhusudan Rao	Expandable drug delivery System	National	2018-19	BSP Publisher
12	Dr.Y.Madhusudan Rao	Occular drug Delivery System	National	2018-19	BSP Publisher
13	Dr.Y.Madhusudan Rao	Optimization Techniques in product Development	National	2018-19	BSP Publisher
14	Dr.Y.Shravan Kumar	Lozenges	National	2018-19	BSP Publisher
15	Dr.Y.Shravan Kumar	Ungual Drug Delivery Systems	National	2017-18	BSP Publisher
16	Dr.Y.Shravan Kumar	Bioadhesive Buccal Tablets of Losartan Potassium	International	2017-2018	Lambert Publisher

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Advances in Drug Delivery
Volume –V

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Dental Inserts

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Dental Inserts

Insert means the dosage form to place or introduce into the body. The insert mainly used for dental cavity are called as dental insert.

The mouth is a naturally dirty field, besides its high content of microflora, its high moisture content (96%) and appropriate temperature (37 °C) increases the incidence of bacteria. (Dolan, Matulka, & Burdock, 2010). Development of bacteria is a concern for dentist as it is associated with failure of dental procedures especially dental implants. Anaerobic gram positive cocci, and anaerobic gram negative rods are amongst the most common strains involved in dental surgery infections. The use of prophylactic antibiotics to combat these strains becomes a general practice in dental implants and procedures. High dose of systemic antibiotics are used to achieve adequate concentrations in the blood to prevent the growth and dissemination of bacteria at the site of implant surgery. The adverse effects associated with the use of systemic antibiotics makes it unappealing, hence the local application of an antibiotic medicated implant will be advantageous. Main advantages of dental inserts are localized action, reduced frequency of administration, reduced side effects and sustained action. Some of the disadvantages of dental inserts are it requires technical person for the administration and drug loss through saliva.

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Cubosomes

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Introduction

Drug Delivery

Drug delivery refers to approaches, formulations, technologies, and systems for transporting a pharmaceutical compound in the body. It may involve scientific site-targeting within the body, or it might involve facilitating systemic pharmacokinetics concerned with both quantity and duration of drug presence. Drug delivery is often approached via a drug's chemical formulation, but it may also involve medical devices or drug-device combination products. Drug delivery is a concept heavily integrated with dosage form and route of administration.

Drug delivery technologies modify drug release profile, absorption, distribution and elimination for the benefit of improving product efficacy and safety, as well as patient convenience and compliance.

Novel Drug Delivery

Nanoparticles are of current interest because of an emerging understanding of their possible effects on human health and environmental sustainability, and owing to the increasing output of man-made nanoparticles into the environment. Nanoparticles are used in many different applications and created by many different processes. Their measurement and characterization pose interesting analytical challenges.

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Solid Dispersion

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Introduction

The oral of drug administration is the most common and preferred method of delivery due to convenience and easy of digestion. Form a patient's perspective, swallowing a dosage form is a comfortable and a familiar means of taking medication.

Although the oral route of administration is preferred, for many drugs it can be a problematic and inefficient mode of delivery for a number of reasons. Limited drug absorption resulting in poor bioavailability is paramount amongst the potential problems that can be encountered when delivering an active agent via oral route. Drug absorption form the gastrointestinal (GI) tract can be limited by a variety of factors with the most significant contributors being poor solubility and/or intestinal fluids before it can then permeate the membranes of the GI tract to reach systemic circulation. Therefore, a drug with poor membrane permeability will typically exhibit permeation rate limited absorption. Hence, two areas of pharmaceutical research that focus on improving the oral bioavailability of active agents include (1) enhancing solubility and dissolution rate of poorly water soluble and (2) enhancing permeability of poor permeable drugs. This article focus on the former, in particular, the use of solid dispersion technologies to improve the dissolution

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Chewing Gum as Drug Delivery

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Introduction

Medicated chewing gum is a solid, single-dosage preparation that has been to be chewed and not swallowed; chewing gum contains one or more active ingredients that are released by chewing. A medicated chewing gum is intended to be chewed for certain period of time, required to deliver the dose, after which the remaining mass is discarded.

During the chewing process the drug contained in the product is released from the mass into saliva and could be absorbed through the oral mucosa or swallowed reaching stomach for gastro-intestinal absorption.

Chewing gum can be used as a convenient modified release drug delivery system.

Medicated chewing gums are currently available for pain relief, smoking cessation, travel illness, freshening of breath, obesity. (Savaliya prathik *et al.*, 2011)

There are two absorption pathways which are possible to introduce the active ingredient into the systemic circulation giving rise to a systemic effect. Drug absorbed directly via the buccal membrane avoids metabolism in the GIT and the first-pass effect of the liver, it might

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Sublingual Drug Delivery

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Introduction

Oral administration is the most widely used route because of ease of ingestion, pain avoidance, and most importantly patient compliance. Solid oral delivery systems do not require sterile conditions and are therefore less expensive to manufacture. One important drawback of solid dosage forms is the difficulty in swallowing (dysphasia) or chewing in some patient's particularly pediatric and geriatric patients. The problem of swallowing is common phenomenon in geriatric patient due to fear of choking, hand tremors, dysphasia and in children's due to under developed muscular and nervous systems.

The unique environment of the oral cavity offers its potential as a site for drug delivery, because rich blood supply and direct access to systemic circulation, the oral mucosal route is suitable for drugs which are susceptible to acid hydrolysis in the stomach or which are extensively metabolized in the liver. The continuous secretion of saliva results in rapid removal of released drug and this may desire that the oral cavity be restricted to the delivery of drugs, which have a short systemic circulation. The mucin film, which exists on the surface of the oral mucosa may provide an opportunity to retain a drug delivery system in contact with the mucosa for prolonged periods, if it is designed to be

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Pelletization Techniques

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Introduction

In the past few eras, pharmaceutical invention and research on drug delivery has reformed astonishingly and even greater changes are anticipated in the forthcoming future to supplement desirable therapeutic intents with minimizing side effects. The key purpose of the drug therapy is to accomplish a curative and healing effect. For the motive, to improve and make advances in the delivery of pharmaceutical compound(s) and therapy, the area is being extensively researched and a marked growth have seen till date and development is still on going.

Drugs are being consumed to enrich health and expand life. To acquire the assumed therapeutic response and to be absorbed as well as transported to the site of action at the right time, an appropriate amount of the active drug is needed. The rate of input drug quantity can be regulated based on various drug delivery systems and routes of administration to maintain the effective level of essential concentration for as long as necessary.

Drug delivery is an approach of transporting a medicinal compound of required dose into the body to safely accomplish the desired therapeutic effect in animals/ humans. Drug delivery systems are the technologies that facilitate the ingestion of engineered therapeutic agent(s) into the

Bioadhesive Buccal Tablets of Losartan Potassium

The work presented in this book is useful for both Academia and Industry. The work reflects the potential use of natural gums in the formulation of Buccal tablets. The gums used in the formulation are Xanthum gum and Locust bean gum, which were proved as bioadhesive gums. By successful usage of these gums buccal tablets of Losartan Potassium were prepared and evaluated for bioadhesive properties, ex vivo permeation, in vitro dissolution and mechanical properties.

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TASTE MASKED ORAL DISINTEGRATING TABLETS OF TOLTERODINE TARTRATE

The work presented in the book is useful for both academia and industry. Tolterodine Tartrate Oral Disintegrating Tablets were prepared by direct compression method using superdisintegrants, evaluated their preformulation and tabletting properties.Taste evaluation studies revealed that the metallic taste of Tolterodine Tartrate was completely masked by using eudragit EPO. This work is supported by Management, Vaagdevi College of Pharmacy, Warangal, Andhra Pradesh, India.

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Natural products, isolated from medicinal plants, have an important role in the discovery of novel compounds for drug development, especially in developing countries. However, in human history medicinal plants may be consumed with little or no evidence of pharmacological properties. Isatin (1H-indole-2,3-dione) was discovered by Erdmann and Laurent in 1840 as a product of the oxidation of indigo with nitric and chromic acids. It is a synthetically versatile substrate used for the synthesis of a variety of heterocyclic compounds, such as indoles and quinolines, and as a raw material for drug synthesis. It is found in plants of the Isatis genus, Couroupita guianensis Aubl, Calanthe discolor Lindl and also secreted from the parotid gland of Bufo frogs.

Pharmacological & Biological Activities

Venkateshwarlu Eggadi
Umasankar Kulandaivelu
Venkateshwar Rao Jupally

Evaluation of Pharmacological and Biological Activities

Of Triazole Tagged Isatin Hydrazones

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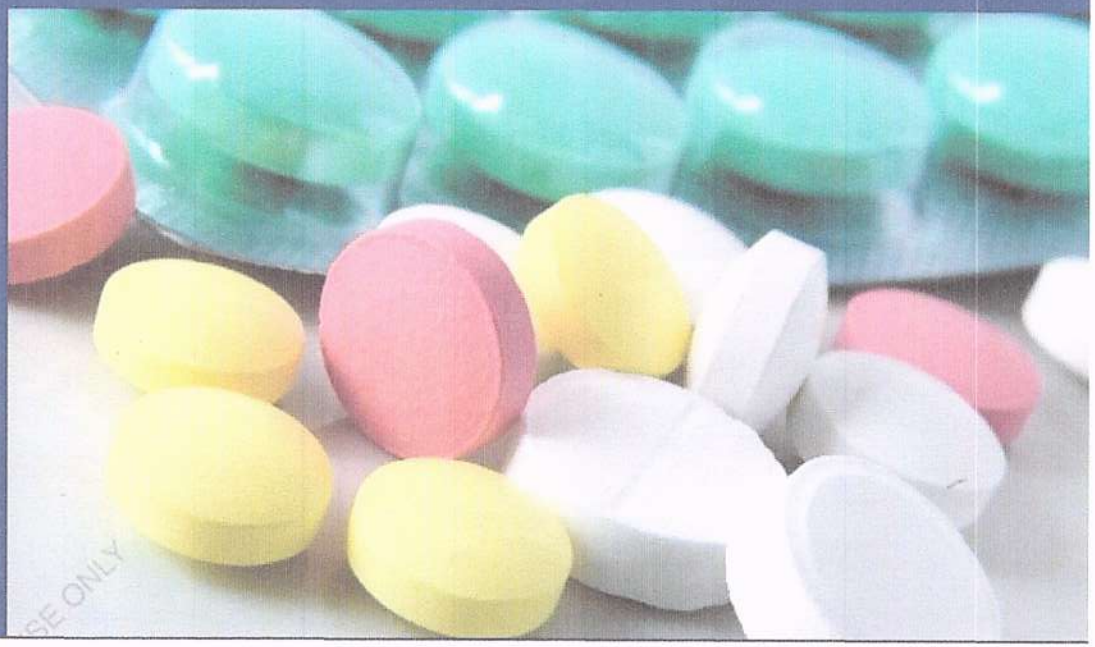
The work presented in this book is useful for preparation of Buccal tablets, in this three different grades of polymers were used and evaluated for in vitro dissolution, ex vivo permeation and bioadhesive properties. The present study concludes that buccal delivery of Glibenclamide tablets can be a good way to bypass the first pass metabolism and to prolong duration of action by reducing the frequency of dosing.



Pavani Sriram
Chaitanya Pasunoori

Mucoadhesive Buccal Tablets of Glibenclamide

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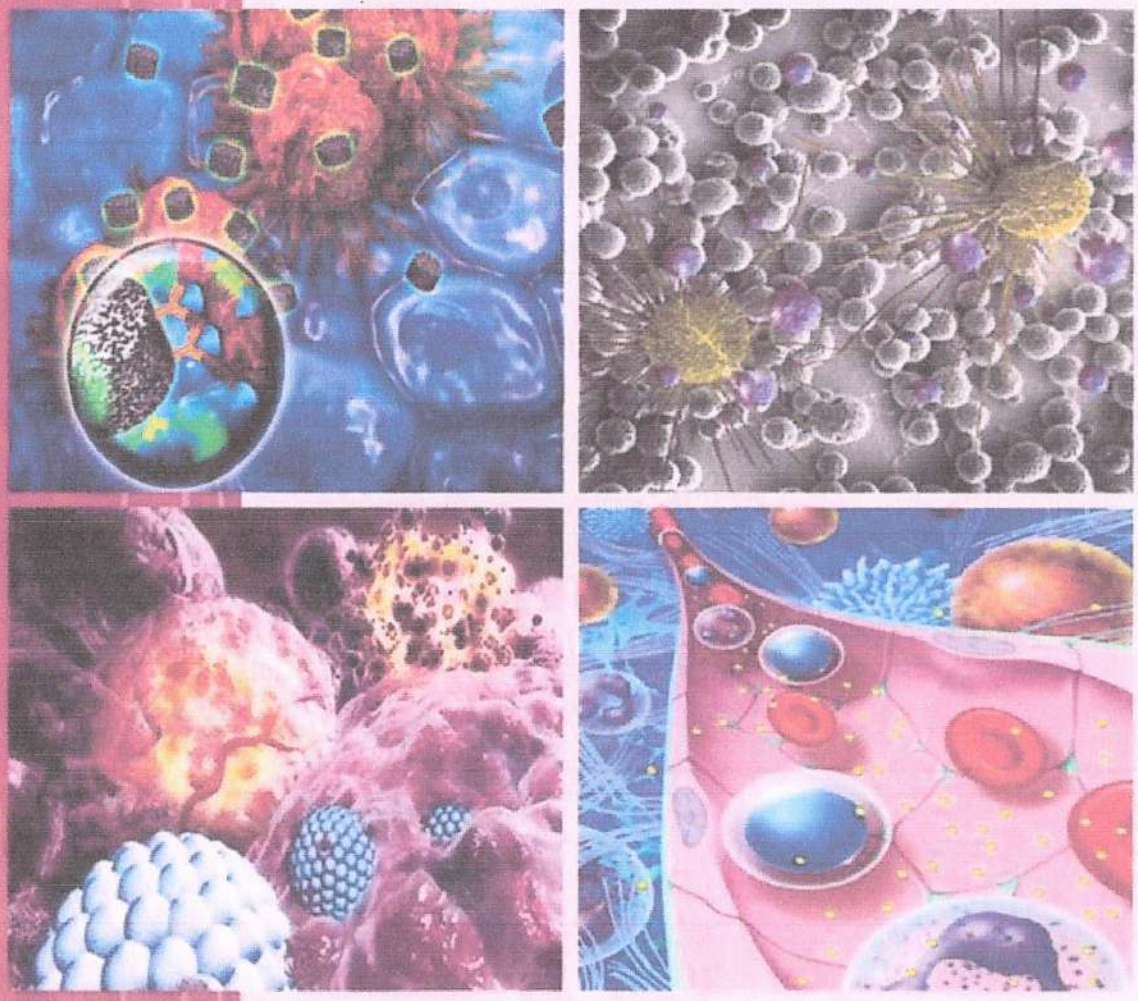

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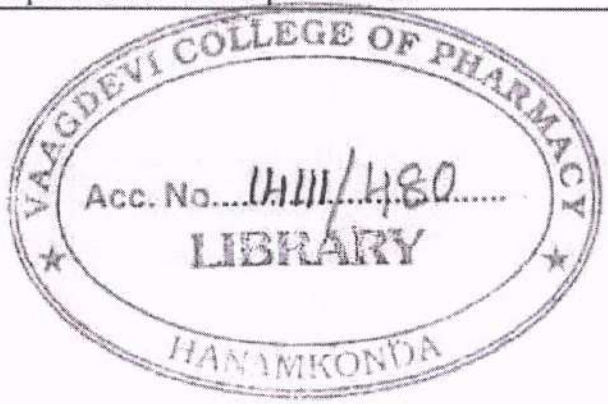

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PREFACE

Drug delivery is a broad term encompassing various means of achieving optimum drug reach to the target tissue, cell or the receptor. Several preformulation, formulation, biopharmaceutical targeting and pharmacokinetic principles are applied in drug delivery. The book series entitled, "Advances in Drug Delivery" incorporates latest information regarding various subjects of drug delivery.

These volumes are prepared keeping in view of research scholars, teachers, P.G. students in pharmacy institutions and R & D personnel working in Pharmaceutical industries and Research organizations. Case studies have been incorporated based on our experiences so that young scholars may be benefited.

This volume includes 10 chapters. As promised in volume - III of our Advances in Drug Delivery, we have incorporated 10 chapters comprising Iontophoretic drug delivery, self emulsifying drug delivery systems, Taste masking cellular drug delivery, Prodrug – An approach to drug delivery, Expandable drug delivery systems, Nanosuspensions, lozenges, ungual drug delivery and optimization techniques in product development. Many of these ten chapters are quite new and the authors have worked hard to present the knowledge in writing them. We are thankful to the authors for their excellent contribution. We have also started preparing for volume - V which is going to include chapters like Medicated chewing gums, quality by design, social dispersions, programmed drug delivery systems, Nasal drug delivery, Implants etc. These chapters are under preparation and we hope to release Volume - V by Dec 2018.

We encourage constructive criticism and will be glad to receive opinions from experts, readers and users of this book so that we can bring out the coming volumes in a better way. Comments may be sent by email to yamsani123@gmail.com or ymrao123@yahoo.com. We also invite experts to contact us if they wish to contribute a chapter in our forth coming volumes. If the chapters are suitable and interesting to our readers then we will accept.

Research and development in drug delivery is increasing at a rapid pace throughout the world. The need for increased efficiency of new therapies and reduction in future public health expenses will definitely

bolster this area of research and development. In order to meet this demand, many well known and efficiently applied drugs will be reformulated in new drug delivery systems that can be value-added for optimized therapeutic activity.

- Editors

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Dr. Ramesh Gannu is working as Deputy Manager, AET Laboratories, Hyderabad. He has completed B. Pharm, M. Pharm and Ph.D from Kakatiya University. He has 04 years of industry experience, has published 48 research and 03 review papers in international and national journals. He holds one European patent.

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4

Ocular Drug Delivery System

Shasidher Kumar[1] and Prof. Y. Madhusudan Rao[2]

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4.1 Introduction

Ocular drug delivery is an interesting and challenging to the Pharmaceutical scientist, because of the specific and critical pharmacokinetics that exists in the eye. The anatomy and physiology render this organ exquisitely impervious to foreign substances including drugs.

The eye is characterized by its complex structure and exhibits high resistance to foreign substances including drugs. The anterior and posterior segments of the eye, although in juxtaposition to each other and very different in their anatomical and physiological facets, function both independently and tandem upon the application of an ocular formulation. In clinical practice, the anterior segment of the eye (comprising of the cornea, conjunctiva, sclera and uvea) can be treated with topical eye drops, the most commonly used dosage form in ocular treatment. Unfortunately, the bioavailability of ocular drugs after topical instillation of eye drops is very poor due to the defensive mechanisms of the eye[1,2].

Blinking, baseline and reflex lacrimation rapidly remove foreign substances, including drugs, from the surface of the eye. Another surface of non productive drug removal from its systemic absorption either directly from the conjunctiva sac via the blood capillaries or through naso lacrimal drainage. Moreover, the anatomy, physiology and barrier function of the cornea compromise the rapid absorption of drugs. The

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Expandable Drug Delivery Systems

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[1,2]Vaagdevi Pharmacy College, Warangal.

[3]University College of Pharmaceutical Sciences, Kakatiya University, Warangal.

6.1 Introduction

Oral ingestion is the predominant and most preferable route for drug delivery. Importantly, it allows unassisted administration by the patient without the need for trained personnel (as this is the case with most parenterally administered dosage forms). Oral drug delivery systems (DDS) are divided into immediate release and modified release systems. Modified release systems offer several advantages over immediate release dosage forms, including the minimization of fluctuations in drug concentrations in the plasma and at the site of action over prolonged periods of time, resulting in optimized therapeutic efficiencies and reduced side effects, a reduction of the total dose administered (while providing similar therapeutic effects), and a reduction of the administration frequency, leading to improved patient compliance[1].

However, Modified release systems offer only limited advantage for drugs that have an absorption window in the upper small intestine [e.g., levodopa[2], furosemide[3] and riboflavin[4]]. The passage of the drugs through this region is rapid, thus limiting the extent of absorption at this site. In order to increase the bioavailability of this type of drug, the residence time of the controlled-release dosage forms in the upper gastrointestinal tract needs to be prolonged. Hence Absorption windows in the proximal gut can limit the bioavailability of orally administered

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Lozenges

Shravan Kumar. Y[1], Srikanth Parepalli[1,2] and Madhusudan Rao. Y[3*]

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[3]Director of Vaagdevi group of of Pharmacy Colleges, Warangal, Telangana, India.

8.1 Introduction

Lozenges, or troches, are experiencing a renewed popularity as a means of delivering many different drug products. They are used for patients who cannot swallow solid oral dosage forms as well as for medications designed to be released slowly to yield a constant level of drug in the oral cavity or to bathe the throat tissues in a solution of the drug. [Vikas Jain et al].

8.2 Advantages [Vikas Jain et al, Lieberman HA, Lachman L]

1. Being. easy to administer to pediatric and geriatric patients.
2. Having formulas that are easy to change and can be patient specific.
3. Keeping the drug in contact with the oral cavity for an extended period of time.
4. Can be given to those patients who have difficulty in swallowing.
5. Has a pleasant taste.
6. Easy to prepare, with minimum amount of equipment and time.
7. Do not require water intake for administration.
8. Technique is non invasive, as is the case with parenterals.

9

Ungual Drug Delivery

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Vaagdevi College of Pharmacy, Ramnagar, Warangal, Telangana State.

9.1 Introduction

9.1.1 Structure of Human Nail

A nail is a horn-like envelope covering the dorsal aspect of the terminal phalanges of fingers and toes in humans, most primates and a few other mammals. Nails are similar to claws, which are found on numerous other animals. In common usage, the word *nail* often refers to the nail plate only. Finger nails and toe nails are made of a tough protein called keratin, as are animal's hooves and horns. Along with hair they are an appendage of the skin.

The nail consists of the nail plate, the nail matrix and the nail bed below it and the grooves surrounding it.

9.1.2 Parts of the Nail

The matrix is sometimes called the *matrix unguis*, keratogenous membrane, nail matrix, or onychostroma. It is the tissue (or germinal matrix) which the nail protects. It is the part of the nail bed that is beneath the nail and contains nerves, lymph and blood vessels. The matrix is responsible for producing cells that become the nail plate. The width and thickness of the nail plate is determined by the size, length and thickness of the matrix, while the shape of the fingertip itself shows if the nail plate is flat, arched or hooked. The matrix will continue to grow as long as it receives nutrition and remains in a healthy condition. As new nail plate cells are made, they push older nail plate cells forward; and in this way older cells become

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Optimization Techniques in Product Development

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10.1 Introduction

The development of pharmaceutical formulation consists of use of critical components that affect the properties of formulations. Similarly, the process for the manufacturing of formulations or active pharmaceutical ingredients consists of numerous steps. The formulations include from conventional dosage forms (e.g., tablets, capsules, disperse systems or topical dosage forms) to novel drug delivery systems (e.g., liposomes, nanoparticles, Transdermal drug delivery systems). For the simplification of terminology henceforth, all the pharmaceutical products are referred as formulations. The development of such formulations invariably involves incorporation of diverse drugs, polymers, functional and non-functional excipients and processes. Over the past years the traditional approach was used for the optimization of variables, where the influence of variables on the attributes was studied by varying one factor at a time and keeping remaining factors constant. The approach is referred as One Variable at a Time (OVAT) or One Factor at a Time (OFAT). Second is using design of experiments (DoE) based on statistical designs.

Advances in Drug Delivery Volume IV

Advances in drug delivery is a very specialized area of pharmaceutics where in the principles and technologies applied in the formulation and development, are emerging and progressing.

Advances in Drug Delivery incorporates latest information regarding various subjects of drug delivery. Drug delivery is a broad term encompassing various means of achieving optimum drug reach to the target tissue, cell or the receptor. Several preformulation, formulation, biopharmaceutical, targeting and pharmacokinetic principles are applied in drug delivery.

Research and development in drug delivery is increasing at a rapid pace throughout the world. The need for increased efficiency of new therapies and reduction in future public health expenses will definitely bolster this area of research and development. In order to meet this demand, many well known and efficiently applied drugs will be reformulated in new drug delivery systems that can be value-added for optimized therapeutic activity. Further, several new molecules are being generated by medicinal chemists and their formulation is not any more empirical but it is now very systematic. The aim of book is to enlighten pharmaceutical scientists all around the world with latest information on the topics which are involved in cutting edge growth of pharma research and industry.

Highlights

- A chapter on hot melt extrusion is included
- Included a chapter on oral disintegrating tablets - a value addition product
- Caters to all those who aim to achieve higher objectives in drug delivery

About the Editors

Y. Madhusudan Rao, M Pharm, Ph D is currently working as senior Professor in University College of Pharmaceutical Sciences, Kakatiya University, Warangal. 26 candidates obtained their Ph D under his supervision and eight are currently working. He has published more than 150 research papers mostly in referred international journals and has got 5 national & 1 international patent and authored 3 books.

He is the Principal Investigator of several projects funded by UGC & AICTE. Currently he is a Member of Scientific Committee of Indian Pharmacopeial Commission.

He acted as a member expert in National Board of Accreditation (NBA) of AICTE and NAAC of UGC. He was the first Chief Coordinator of QIP and EFIP for teachers in pharmaceutical sciences organised by AICTE.

A. V. Jithan Ph D is currently working as Principal and Professor at Mother Teresa College of Pharmacy, Hyderabad. He is a recipient of several awards and medals in his entire academic career. He has authored a textbook for M.Pharm. students with the title: Oral Drug Delivery Technology published by PharmaMed Press, Hyderabad. He has guided number of M.Pharm students and currently guiding Ph.D. candidates. He has 50 peer reviewed publications. He is a recipient of SERC-Fast track grant from DST India.

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Title of the paper	Title of the proceedings of the conference	Name of the conference	National / International	Calendar Year of publication
Preparation and Charecterization, In Vivo and Ex Vivo permeation studies of novel self assembled Losartan Potassium loaded cubosomes factorial design using 32 factorial design	**Indian Pharmaceutical conference**	**Indian Pharmaceutical conference**	National	2022
Formulation and evaluation of ketaconazole bilayered nail patches to treat fungal infections	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of ornidazole sustained release dental inserts	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Design, synthesis and evaluation of novel paba linked piperazine derivatives targeting cholinestirase as anti alzheimer agents	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Insilico screening of C3 heterocyclic-substituted ciprofloxacin derivatives on enoyl acp reductase	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Synthesis of some novel derivatives of substituted benzothiazoles as diuretic agents	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
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Green Uv-spectrophotometric methods for simultaneous determination of paracetamol and flupirtine maleate in both bulk and formulation	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
A novel uv-spectrophotometric method simultaneous estimation of itraconazole and terbinafine using chemometric tools	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Neuroprotective effect of psidium guajava (guava) leaf extracts on cerebral ischemic reperfusion injury induced cognitive impairment in rats	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of self micro emulsifying drug delivery system (smedds) of efavirenz	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Design and evaluation of valacyclovir floating microspheres	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019

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Controlled release drug delivery system of dilitiazem hydrochloride	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Design and development of propranolol hydrochloride transdermal patches: in vitro and ex vivo characterization	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Development and evaluation of oral elementary osmotic pump tablets of losartan potassium	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of ambroxol medicated chewing gum	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of amoxicillin dental inserts	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of cetirizine oral disintegrating tablets with different superdisintegrating agents	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of cetirizine sublingual films	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of cetrizine lozenges	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
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Formulation and evaluation of glimepiride oral disintegrating tablet	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of hydrochlorthiazide oral disintegrating tablets	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of levodropropizine medicated chewing gums by various methods	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of mebendazole lozenges	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of self microemulsifying drug delivery system of candesartan cilexetil	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of theophylline lozenges	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and evaluation of riboflavin floating tablets	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
A review on cubosomal drug delivery	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Design, synthesis, characterization and evaluation of some novel ciprofloxacin schiff bases as antibacterial agents	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019

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Design,synthesis of aminothiozolyl ciprofloxacin analagoues as antibacterial agents	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Synthesis of novel thiosemicarbazide based piperazine derivatives as possible antimicrobial agents	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Design, synthesis and evaluation of indole schiff bases targeting serotonergic pathway as antidepressant agents	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Synthesis, characterization and evaluation of new thiazole derivatives as anthelmintic agent	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Synthesis, characterization and evaluation of antibacterial activity of pyrimidine-schiff bases and their amines	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Synthesis and evaluation of mannich bases as antibacterials by conventional and microwave methods	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
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Stability indicating rp-hplc method for estimation of itraconazole and terbinafine in bulk and tablet dosage forms	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Development of an eco-friendly uvspectrophotometric methods for the simultaneous determination of zidovudine and lamivudine in bulk and tablet formulation	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Development and validation of uv spectrophotometric methods for the simultaneous determination of losartan potassium and amlodipine besylate in bulk and tablet dosage form using green solvents	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019

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Novel strategies to treat cancer : a review	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Design and development of ciprofloxacin colon specific drug delivery system	Recent trends in Pharmaceutical Sciences and Research	Recent trends in Pharmaceutical Sciences and Research	National	2019
Formulation and Evaluation of lidocaine HCl loaded cubosome	A two day International Conference on Pharmacokinetics in Academics and Research	A two day International Conference on Pharmacokinetics in Academics and Research	National	2019
Enhancement of solubility and bioavailability of Clopidogrel by self-nanoemulsifying drug delivery system	International conference and b2B on Pharmaceutical research and development	International conference and b2B on Pharmaceutical research and development	International	2018
Formulationa and charecterization of Itraconazole Solid dispersion	Indo African conference	Indo African conference	International	2018

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Faculty Excellence Awards

S. No.	Faculty Name	Award	Award given by	Year
1	Dr. Challa Srinivas Reddy	Best teacher award	Telangana state Pharmacy council	2022
2	Dr. Challa Srinivas Reddy	Best promising institute	world education summit	2022
3	Dr.Y.Shravan Kumar	Best Researcher	Assciation of Pharmacy Professionals	2021
4	Dr.B.S. Sharvana bhava	Best Preceptor	IPC-PVPI, Ministry of health and Family Welfare	2021
5	Dr.E.Venkateshwarulu	Best Preceptor	IPC-PVPI, Ministry of health and Family Welfare	2020
6	Dr.Y.Shravan Kumar	Bentham Ambassador	Bentham Sciences	2020
7	Ms. V. Rashmitha	Kakatiya University 5th Rank	Kakatiya University	2020
8	Dr.K.Shirisha	Young Pharmacy Teacher	Assciation of Pharmacy Professionals	2020
9	Dr.Y.Shravan Kumar	Best Teacher	Assciation of Pharmacy Professionals	2019
10	Dr.K.Srinivas Reddy	Best Achiever	Assciation of Pharmacy Professionals	2019
11	Mrs. T.Rajani	Best Oral Poster	KL University	2019
12	Dr.K.Srinivas Reddy	Best Teacher	Telangana	2019

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			Private Teachers Association	
13	Dr.K.Srinivas Reddy	Indian Iconic Personality	Gloriuos organization for Accelerated to literacy	2019
14	Dr.Y.Shravan Kumar	Best teacher	Association of Pharmacy Professionals	2019
15	Mr.B.S. Sharvana bhava	Best Poster	Indian Associations of Colleges of Pharmacy	2019
16	Ms. V.Rashmitha	University 8th Rank	Kakatiya University	2018
17	Mrs. A. Aparna	Best scholar	Association of Pharmacy Professionals	2019

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SOUVENIR & ABSTRACTS

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WARANGAL - THE GLORY OF THE KAKATIYAS

Warangal is the second largest city in the state. The city's name derived from the Telugu word Orugallu- "oru" which means "one" and the word "gallu" meaning stone. The city is also known as EKASHILA NAGARAM. According to the history of Warangal, the Prola Raja of great Kakatiya dynasty built the beautiful city in 12th century. In its glorious days, Ekasila nagara was one of the most flourishing capital cities in southern India. The dwara toranas of the Kakatiya period are reminders of the glorious Kakatiyas of Warangal. The rule of the Kakatiyas inaugurated a new era in the history of the Telugu people in many respects, especially in evolving a unique identity for their languages as culture and the arts developed tremendously during that time.

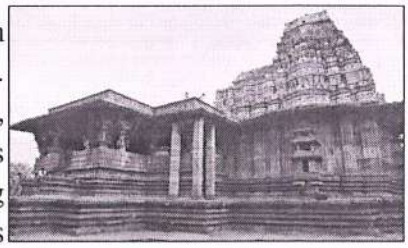
Today, Warangal is one of the two metropolitan cities in Telangana. Warangal is the second most populous city in the state, with other being state capital, Hyderabad. It is one of the eleven cities in the country to have been chosen for Heritage city development and Augumentation yojana scheme by the Government of India. It was also selected as SMART CITY in the "Fast-track competition".

HISTORICAL PLACES IN WARANGAL:

THE THOUSAND PILLAR TEMPLE

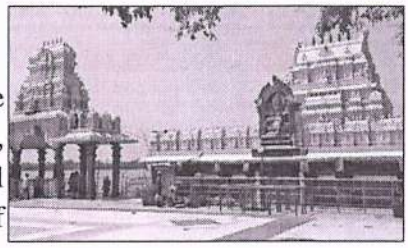
Considered to be the earliest of the most celebrated temples built by Kakatiya kings, the temple complex locally known as Veyisthambhalagudi (the Thousand Pillar Temple) is located in Hanamkonda. It is dedicated to LORD SHIVA. According to an inscription the complex was built by Rudradeva Raju during 1162-1163 CE. It was built in the fashion of trikuta as in most of the Kakatiya temples. It enshrines Rudreswara, Vasudeva and Surya. It comprises of a trikuta temple, a kalyanamantapa and a stepped well (Koneru).

RAMAPPA TEMPLE



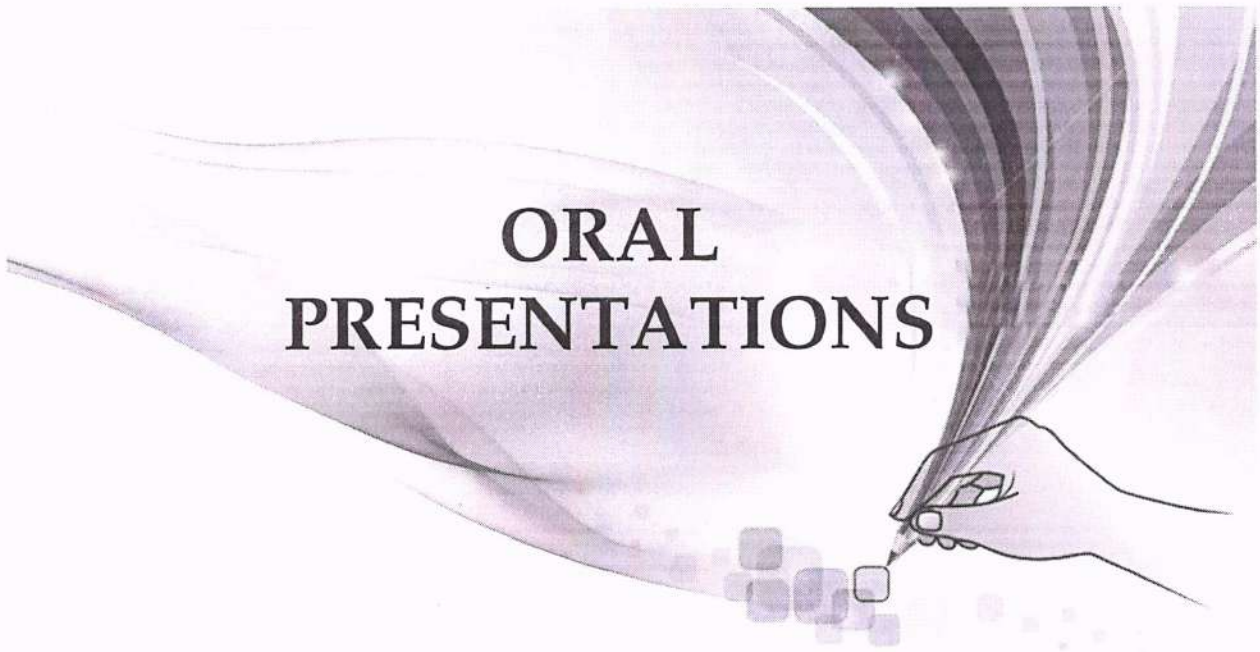
Situated at Palampet village about 65 kilometers from Hanamkonda, the magnificent temple is an archeological wonder. Considered the brightest gem in the galaxy of medieval Deccan temples, it is the most elaborate and striking example of the intricate carvings which brings out the dexterity of the Kakatiyan sculptors depicting legendary tales, dance forms and a variety of musical instruments. It is dedicated to LORD SHIVA. The temple is believed to have been constructed over a period of 40 years. It was built by General Recherla Rudra during the period of the Kakatiya ruler Ganapati Deva, 47 kms away from Warangal city.

BHADRAKALI TEMPLE



Bhadrakali temple is an eighth century old temple built by the Kakatiya Dynasty. It one of the oldest temples for Goddess Bhadrakali, situated on a hilltop between the two cities of Hanamkonda and Warangal and is one of the ten great manifestations of the supreme Goddess Kali of

ORAL PRESENTATIONS



separately with benzoylglycine by heating in acetic anhydride over freshly fused sodium nitrate. The product obtained in each of such a reaction was purified by recrystallization and characterized as 4-arylidene-2-phenyloxazolin -5-one. The later product was subjected to condensation reaction with ethylenediamines or *o*-phenylenediamine to get the respective derivatives which were then subjected to cyclization reaction to get compounds of interest.

Results : 5-Aylidino-7-phenyl-imidazoline (3,4-a)-2,3 -dihydroimidazole and 5-benzylidene-7-phenyl-imidazoline (3,4-a)-2,3 -dihydroimidazole were synthesized and characterized by spectral analysis.

Keywords : Imidazolines, benzaimidazoles.

OP-16: DESIGN, SYNTHESIS AND EVALUATION OF NOVEL PABA LINKED PIPERAZINE DERIVATIVES TARGETING CHOLINESTIRASE AS ANTI ALZHEIMER AGENTS

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Background: A number of heterocyclic derivatives containing nitrogen have been used as versatile scaffolds in drug development. Piperazine is one of the heterocyclic compounds with remarkable pharmacological activities. P-amino benzoic acid and piperazine derivatives were found to possess the biological activities like, anti-microbial, anti-depressant, anti-convulsant, anti-parkinson and as Anti-alzhimer and as anti-oxidant. Due to its potent and significant biological activities it has great pharmaceutical importance; hence, the synthesis of these compounds is of considerable interest.

Objective: To synthesize the substituted PABA linked piperazine derivatives and to recrystallize, characterize them by Rf, m.p, FTIR, 1H NMR data.

Methods: The molecular property prediction of all the synthesized compounds by using Lipinski's rule of 5, Molsoft, OSIRIS molecular property explorer, PASS, Docking softwares. All the compounds were synthesized by conventional method. The synthesized compounds were evaluated for their anti alzheimer's activity by using swiss albino rats.

Results: All the compounds showed good percentage yields, and obeyed the Lipinski's rule. They were non-toxic, drug like, more active and showed good binding affinities when compared with the standard drug (Donepezil). The compounds 5c was more potent and compound 5j was equipotent when compared to Donepezil.

Conclusion: The compounds 5c and 5j shows the good results in the molecular property prediction and biological evaluation.

Key words: Piperazine, Alzheimer's activity, swiss albino, Molecular Docking.

OP-19: SYNTHESIS, MOLECULAR PROPERTIES PREDICTIONS AND BIOLOGICAL ACTIVITY OF AZO DERIVATIVES

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Department of Pharmaceutical Chemistry, Sarojini Naiudu Vanitha Pharmacy Mahavidyalaya, Osmania University Hyderabad, Telangana state, India
E-mail: anushavenkat@yahoo.co.in

Background: Azo compounds are involved in a number of biological reactions. Molecular absorption, distribution, metabolism and excretion (ADME) play primary role in drug discovery and development. Objective: To Predict the molecular properties using Molsoft, Molinspiration, Osiries, Swiss ADME, PkCSM Soft ware's. To synthesize, purify and characterize the designed compounds by simple methodology. To evaluate their biological activity.

Methods: Molecular properties prediction using Molsoft, Molinspiration, Osiries, Swiss ADME, PkCSM Software's. Synthesized designed compounds and purified by recrystallization and chromatographic techniques and characterized by IR, NMR and Mass spectral analysis. Synthesized compounds were screened for antimicrobial activity and Antioxidant activity.

Results : All the compounds followed the Lipinski 'Rule of five' and showing good oral bioavailability. Compound 3(a), 3(b), (3e) showed good anti bacterial activity and compound 3c, 3d, 3f, 3g, 6a-b shown moderate activity. Antioxidant activity using DPPH method, IC50 values are less than the standard that is 3.41.

Conclusion: The success of azo colorant is due to the simplicity of their synthesis by diazotization and azo coupling. The compounds which are showing good oral bioavailability score were synthesized cheaply because the starting materials are readily available and inexpensive. Hence, the consideration on synthesized compounds is to screen for anti microbial activity against *Escherichia coli and Bacillus subtilis.* Compounds 3(a), 3(b), (3e) showed good anti bacterial activity, 3c, 3d, 3f, 3g, and 6a-b have shown moderate activity. Antioxidant activity values of all the compounds are less than the standard value.

OP-20: A FACILE SYNTHESIS, ANTIMICROBIAL ACTIVITY OF 1-(1H-BENZO[D] IMIDAZOL-2-YL)-6, 7-DIHYDRO-7-METHYLTHIAZOLO [5,4-D]PYRIMIDINE-2,5(1H,4H)-DITHIONE

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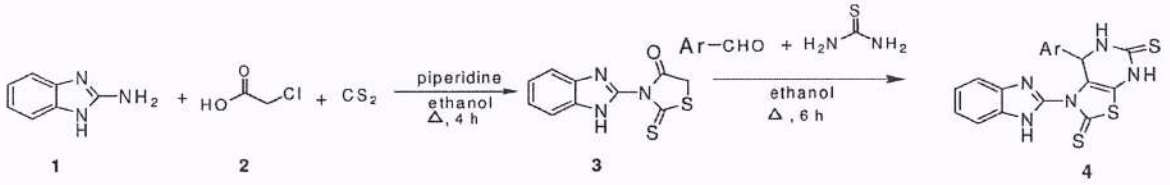
Background: Thiazolopyrimidines have become attractive targets in organic synthesis due to their significant biological activities[1]. Several research groups have contributed to the development of methods of synthesis of thiazolopyrimidines.

Objectives: Benzimidazole constitutes an important class of heterocyclic compounds possessing diverse pharmaceutical activities[2]. Therefore, due to wide range of therapeutic value of thiazolopyrimidines and benzimidazole, in the current investigation, the synthesis of benzimidazole substituted thiazolo- pyrimidines have been undertaken [3].

Method: The reaction of 2-aminobenzimidazole **1**, with chloroacetic acid, and carbondisulfide in the presence of piperidine in ethanol furnished the corresponding 3-(1*H*-benzo[*d*]imidazol-2-yl)-2-thioxothiazolidin-4-one 3 in

good yields. Cyclocondensation of 3-(1*H*-benzo[*d*]imidazol-2-yl)-2-thioxothiazolidin-4-one 3 with aromatic aldehydes and thiourea in ethanol furnished the corresponding 1-(1*H*-benzo[*d*]imidazol-2-yl)-6,7-dihydro-7-methylthiazolo[5,4-*d*]pyrimidine-2,5(1*H*,4*H*)-dithiones4.



1 2 3 4

In conclusion an efficient atom-economical and simple method for the preparation of library of 1-(1*H*-benzo[*d*]imidazol-2-yl)-6,7-dihydro-7-methylthiazolo[5,4-*d*]pyrimidine-2,5(1*H*,4*H*)-dithiones 4 has been described using readily available starting materials.

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OP-21: SYNTHESIS OF SOME NOVEL DERIVATIVES OF SUBSTITUTED BENZOTHIAZOLES AS DIURETIC AGENTS

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Background: A number of heterocyclic derivatives containing nitrogen have been used as versatile scaffolds in drug development. Benzothiazole is one of the heterocyclic compounds with remarkable pharmacological activities. Derivatives of benzothiazole were found to possess the biological activities like Anticonvulsant, Antimicrobial, Antiviral, Antihypertensive, Anticancer, Anti-inflammatory and as Diuretic. Due to its potent and significant biological activities it has great pharmaceutical importance; hence, synthesis of this compound is of considerable interest. **Objective:** To synthesize the 2-benzylideneamino-1,3-benzothiazloe-6-sulfonamide Schiff base derivatives and to recrystallize, characterize them by m.p, Rf, FTIR, 1H NMR, MASS data.

Methods: The molecular property prediction of all the synthesized compounds by using Lipinski's rule of 5, PASS, OSIRIS molecular property explorer, Molsoft, Docking softwares. All the compounds were synthesized by conventional method and were evaluated for diuretic activity by using male Wistar rats.

Results: All the compounds were found to obey the Lipinski's rule, non-toxic and drug like they were synthesized in good yields and showed the good binding affinities compared to the standard drug, Acetazolamide. The compounds IIIb and IIIe exhibited significant diuretic activity when compared with the standard drug (Acetazolamide).

Conclusion: The compounds IIIb and IIIe displayed good results in the molecular property prediction and biological evaluation.

Key words: Thiazoles, Diuretic activity, Schiff base, Molecular Docking.

OP-22: SYNTHESIS, BIOLOGICAL ACTIVITY AND MOLECULAR DOCKING STUDIES OF METAL COMPLEXES OF 4-PHENYL-2-(2-(PYRIDIN-4-YLMETHYLENE) HYDRAZINYL)THIAZOLE DERIVATIVES

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A novel Schiff base ligand (L_1) was prepared through condensation of 2-(pyridin-4-ylmethylene) hydrazinecarbothioamide and 2-Bromoacetophenone in the ratio of 1:1. A new series of Fe (III), Cu (II), Ni (II) and Zn (II) metal complexes of the Ligand, $Fe(III)L_2Cl_2$, $Cu(II)L_2Cl_2$, $Ni(II)L_2Cl_2$, $Zn(II)L_2Cl_2$ in the ratio of 2:1 were synthesized and characterized by elemental analysis, ^1H NMR, ^{13}C NMR, mass, UV-visible, FT-IR, and electron spin resonance spectroscopic studies. All the synthesized ligand and its Metal complexes were screened for their antimicrobial activity. The metal complexes showed pronounced activity against the tested bacterial strains compared to the ligand. In addition, metal complexes displayed good antioxidant activities. The complexes were also screened for their cytotoxic activity by MTT assay against MCF7 and Hela cell lines. They showed good to moderate activity against the cell lines. These values were correlated with the molecular docking studies.

Keywords: Cytotoxicity, microbial activity, molecular docking.

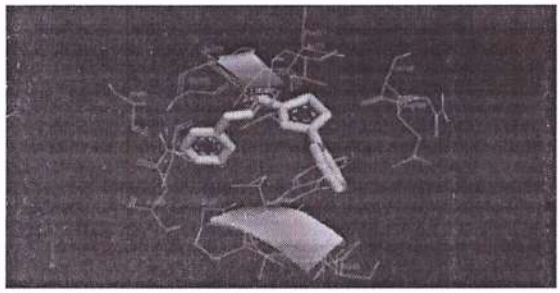

Fig: Binding poses and interaction 4-phenyl-2-(2-(pyridin-4-ylmethylene)hydrazinyl)thiazole ligand to binding site of MurB receptor (PDB id: 1 MBT).

OP-23: SYNTHESIS AND ANTI MICROBIAL ACTIVITY OF TETRAZOLOQUINOXALINE CONTAINING PYRAZOLEANALOGUES

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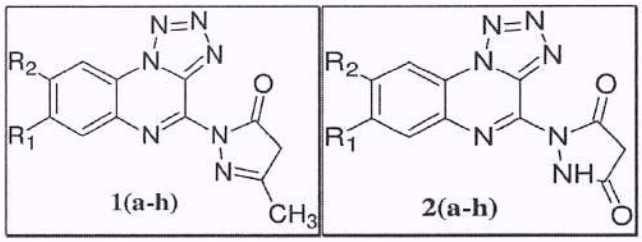
Pyrazoles have been the recent target of numerous methodologies, mostly due to their prevalence as scaffolds in synthesis of bioactive compounds and reactions in different media. Pyrazole and their derivatives are found to have profound biological activity. In the present work some novel substituted 5-methyl-2-(tetrazolo[1,5-*a*]quinoxalin-4-yl)-2,4-dihydro-3*H*-pyrazol-3-ones **1(a-h)** and substituted 1-(tetrazolo[1,5-a]quinoxalin-4-yl) pyrazolidin-3,5-diones**2(a-h)** have been synthesized. These derivatives are synthesized by treating 4-hydrazinyl tetrazolo[1,5-a]quinoxalines with ethylacetoacetate and diethyl malonate in acetic acid solution. All the synthesized compounds were characterized by IR, 1H-NMR and Elemental Analysis. All the newly synthesized derivatives were evaluated for anti-microbial activity on different micro-organisms *(E.coli, S. aureus,A.niger, C.albicans).* The investigation of anti-fungal and anti-bacterial screening data revealed that some of the newly synthesized compounds showed potent anti-bacterial activity against **1e** and **2e** against *E. Coli* (16 and 18 mm), *S. aureus*

(18, 17 mm), at 20µg/ml respectively. The compounds **1f, 1h, 1f** have shown significant zone of inhibition against both bacterial strains tested.



OP-24: SYNTHESIS OF IAA BY ENDOPHYTIC FUNGI ISOLATED FROM LITSEA GLUTINOSA, AN ETHNO MEDICINAL PLANT

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Endophytic fungi are the microorganisms that are present inside plant tissues for at least part of their life cycle without causing any disease symptoms in their host. Almost all plants are able to colonize endophytes. The choice of the plant to be used for exploring endophytes is important. Medicinal plants are reported to harbour endophytes, and have the capacity to produce various bioactive secondary metabolites in the form of natural products. In this study, 22 fungal endophytes were isolated from *Litsea glutinosa,* an ethno medicinal plant. Out of the 22 fungal isolates 8 were screened for their ability to synthesize IAA. Promotion of plant growth is the major contribution of fungal symbiosis, through the production of ammonia and phytoharmones, especially Indole Acetic Acid (IAA). In the present study, synthesis of IAA was estimated by the method suggested by Bentley (1977) and Ahmed (2005). *Trichoderma viride* followed by *Aspergillus terreus* and *Gliocladium solani* synthesized maximum amount of IAA. *Fusarium oxisporum, Verticillium dahliae, Curvularia sp* and *Aspergillus ochraceus* synthesized moderate amount of IAA respectively and *Penicillium citrinum* synthesized least amount of IAA. From the above findings, the fungal endophytes have the capacity to synthesize IAA, which is beneficiary for the host plants for its growth and development by enhancing the cell elongation, cell division and tissue differentiation.

OP-25: OLEANOLIC ACID CONTENT IN HAIRY ROOT CULTURE OF LANTANA CAMARA

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Back ground: *Lantana camara* is a weed flowering ornamental plant belonging to the family verbenaceae.Several compounds have been isolated from this plant especially triterpinoids.Oleanolic acid is a triterpenoid and present rich in roots of *Lantana camara.* Oleanolic acid showing number of pharmacological activities like anti tumer, analgesic activity etc.

Objectives: The main objective of this study to determine the effect of different media on accumulation of oleanolic acid in hairy root culture of *Lantana camara.*

Methods: *Lantana camara* hairy roots were induced by using *Agrobacterium rhizogenes* strain A4. Effect of different liquid media like Morishige and skoog (MS), gamborg (B5) with full and half strength (1/2 MS, 1/2 B5)

were investigated on hairy roots biomass production and accumulation of oleanolic acid content. *Lantana camara* plant also cultivated in field and 6 months field grown plants also investigated for oleanolic acid content.

Results: In different media the highest Biomass ofthe fresh weight and dry weight in the cultures grown in 1/2 MS medium. HPLC analysis also revealed that highest Oleanolic acid content in roots cultured in ½ MS medium under dark conditions. It was about tenfold higher compare to roots of field grown mother plants.

Conclusion: *Lantan camara* hairy roots were induced successfully and highest root biomass, oleanolic acid accumulation is observed in ½ MS medium.

Keywords: Hairy roots, oleanolic acid, Lantana camara, Agrobacterium rhizogenes.

OP-26: EVALUATION OF α-AMYLASE AND α-GLUCOSIDASE ENZYME INHIBITORY ACTIVITIES OF TRICHURIELLA MONSONIAE BENNET

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Background: One of the antidiabetic therapeutic strategies is inhibition of carbohydrate digesting enzymes such as α-amylase and α-glucosidase.

Objectives: To evaluate the α-amylase and α-glucosidase enzyme inhibitory activities of *Trichuriella monsoniae*

Methods: In the present study methanolic extract and its two fractions(ethyl acetate and n-butanol) of whole plant of Trichuriella monsoniae were evaluated for their effect on α- amylase and α-glucosidase enzymes using in vitro assays. Results: n-butanol fraction shown the prominent α-amylase and α-glucosidase enzyme inhibitory activities(IC_{50}4.09mg/ml and 3.30mg/ml respectively) than methanolic extract and its ethyl acetate fraction, and it was well comparable with the standard drug acarbose (for α-amylase IC_{50} 3.62mg/ml and for α-glucosidase IC_{50} 2.19mg/ml). Further, the total phenolic and flavonoid contents were estimated.

Conclusion: The results suggest that *Trichuriella monsoniae* with a great potential to control postprandial hyperglycemia might be a novel resource for the management of type2 diabetes.

KEYWORDS: Porcine pancreatic α- amylase, Yeast α- glucosidase, polyphenols, flavonoids.

OP-27: FORMULATION AND EVALUATION OF ANTI-ACNE CREAM USING *Solanum tuberosum*

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Acne is chronic inflammatory skin condition that causes spots and pimples on various parts of the body; they are of different types like white heads, black heads, cysts, nodules etc. Acne is caused by various factors like environmental conditions, hormonal changes, food habits, bacterial infections, and stress etc. It is said that potato consists of an ingredient called azleic acid which acts on skin to remove tan and to solve many of the skin problems such as acne. The project is aimed to formulate the potato and beet root dried powder in to cream, where beet root contains betaine which acts as an anti oxidant to prevent oxidation of potato powder due to polyphenol oxidase

enzyme. The anti-acne cream was prepared by using fusion method and the prepared cream was easily spreadable, shiny and was non irritant with a good consistency. The results stated that pH of the cream was within the limits and was suitable for application on skin. The cream was subjected to stability studies by storing at different temperature conditions such as room temperature, 4°C and 45°C. Results for three weeks were obtained stating no significant change in the appearance, odour, colour, pH and various parameters of the, thus it confirms the stability of the product. The antioxidant activity of beetroot was performed to know the concentration and activity of beetroot by H_2O_2 method and the concentration of that beetroot scavenging was used in the formulation. This prepared anti acne cream was suitable to treat acne and was easy to apply and wash off.

Keywords: Acne, Azleic acid, betaine, polyphenol oxidase, potato, beetroot.

OP- 28: *IN VITRO* ANTHELMINTIC ACTIVITY OF OPERCULINA TURPETHUM ON INDIAN EARTHWORM EISENIA FOETIDA

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Background: Helminth born diseases are related with pitiable management practices and improper control strategies. The medicinal plants contain various secondary metabolites which are responsible for their anthelmintic activity.

Objectives: To explore the anthelmintic potential of the plant against Indian adult earthworms *Eisenia foetida.*

Methods: In the present study the roots/rhizomes of *Operculina turpethum* was successively extracted with microwaves assisted extraction using petroleum ether, ethyl acetate, methanol, hydro alcoholic and aqueous solvents to get respective extracts (OTPE, OTEE, OTME, OTHE and OTAE). All the extracts were subjected to preliminary phytochemicals screening for the detection of various pytoconstiutents. The anthelmintic activity was analyzed using Indian adult earthworms *Eisenia foetida* using piperazine citrate (PCT) as a standard drug.

Result: All the extracts (except aqueous extract) lead to paralysis and death of the earthworm. The OTPE extract exhibits significant anthelmintic activity at 10 mg/ml concentration by causing paralysis and death of earthworms and found to be more potent than PCT suspension. At a dose of 10 mg/ml PT and DT time for OTPE was recorded as (9.38 ± 1.82) and (54.93 ± 1.78) respectively while for standard piperazine citrate it was recorded as (22.96 ± 1.12) and (65.09 ± 1.23).

Conclusion: The roots/rhizomes of *Operculina turpethum* possess significant anthelmintic activity against Indian adult earthworms Eisenia foetida. Keywords: Operculina turpethum, Eisenia foetida, Piperzine citrate, Helminths.

OP-29: COMPARATIVE STUDY ON CHEMICAL CONSTITUENTS, ANTIOXIDANT AND ANTI-INFLAMMATORY ACTIVITIES OF SELECTED SPECIES OF *OCIMUM*

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Background: The genus *Ocimum* (family: Lamiaceae) native to the tropical and warm temperate regions of all 6 inhabited continents, with the greatest number of species in Africa. It consists of about 150 species of which many of them are distributed in tropical countries. The present investigation includes two species namely *Ocimum basilicum* L. (Sabja), *Ocimum gratissimum* (Nimmatulsi) and two other subspecies from the species *Ocimum tenuiflorum* namely Krishna tulsi and Lakshmi tulsi. It is an important medicinal plant in which all the parts of it are used for treating different ailments and diseases. The medicinal properties of this plant include antioxidant, anti-inflammatory, antibacterial, anticarcinogenic, antidiabetic, anti-obese, etc.

Objective: To comparatively evaluate the chemical constituents, antioxidant and anti-inflammatory activities of methanolic leaf extracts of selected *Ocimum* species.

Methods: Shade dried leaves of selected species were extracted with methanol then subjected for partial separation by TLC, and evaluated for antioxidant and anti-inflammatory activities by Total Flavonoid Content, Total Phenolic Content, DPPH, β-Carotene bleaching assay, H_2O_2 scavenging activity, Reducing power assay, Total Antioxidant Capacity, Superoxide Radical Scavenging activity, Effect on Protein denaturation, Membrane Stabilization method, anti-tryptic activity.

Results: In both the antioxidant and anti-inflammatory activities, it was found that increase in activity is with increase in concentration. The results obtained in all the assayswere significant.

Conclusion: Among the selected species *O. gratissimum* (Nimmatulsi) and *O. tenuiflorum* (Krishna tulsi) are the species showing good antioxidant and anti-inflammatory activity.

Keywords: *Ocimum,* Antioxidant, Free radical, DPPH, Anti-inflammatory, Membrane stabilization, Protein denaturation.

OP-30: FORMULATION AND EVALUATION OF HERBAL OINTMENT USING ASTRAGALUS MEMBRANACEUS.

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Astragalus has been used as an important component of herbal prescriptions to reduce swelling, drain pus and eradicate toxins for thousands of years. Several biological active ingredients have been obtained from *Astragalus membranaceus*, including polysaccharides, saponins, flavanoids, amino acids and trace elements. However, modern pharmacological investigations have demonstrated that the primary pharmacological ingredients of *Astragalus membranaceus* in wound healing are polysaccharides and saponins, which have effects on the improvement of immune function and the stimulation of cell physiology metabolism. Yang was the person who had reported that *Astragalus* polysaccharide (APS) has an effect on diabetic skin wounds. Therefore, APS is considered to be important in promoting wound healing. *Astragalus* has such powerful anti-inflammatory and anti-bacterial properties, it's a powerful and natural way to help heal your wounds and prevent or minimize scarring from the wounds. Ointment base is prepared using wool fat, white soft paraffin, cetosteryl alcohol, hard paraffin, having methyl paraben as preservative. The herbal

ointment was prepared by incorporating *Astragalus* extract into the ointment base. Formulation was evaluated for its physicochemical parameters like colour, odour, pH, spreadability, extrudability, consistency, diffusion study, solubility, wash ability. Thus it could become a media to use the medicinal properties of *Astragalus* effectively and easily as a simple dosage form.

Key words: Astragalus membranaceus, white soft paraffin, cetosteryl alcohol, hard paraffin, Astragalus polysaccharide.

OP-31: PHYTOCHEMICAL INVESTIGATION AND EVALUATION OF ANTI MICROBIAL ACTIVITY OF ETHANOLIC FRUIT EXTRACT OF PRICKLY PEAR

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Background: Synthetic drugs are potentially toxic and are not free from side effects on the host. Therefore an attempt has been made to study the antimicrobial activity of plants. As plants and plant-based drugs are less toxic and have acceptable side effects.

Objective: The present study is about phytochemical investigation and evaluation of anti-microbial activity of ethanolic fruit extract of prickly pear.

Methods: The ethanolic fruit extract was extracted by using Soxhlet apparatus. Phytochemical screening was carried out qualitatively by color reactions with different reagents. The antimicrobial activity of the fruit extract was determined by applying Agar Disc diffusion method.

Results: The Phytochemical screening revealed the presence of Flavonoids, Alkaloids, Glycosides, Terpenoids, Tannins, Saponins, Cardiac glycosides and Carbohydrates. Ethanol extract of Prickly pear showed antimicrobial activity against *Staphylococcus aureus, Escherichia coli and Lactobacillus. MIC values about Staphylococcus aureus, Escherichia coli, Lactobacillus* were 20, 40, and 40 mg/ml respectively.

Conclusion: This study can be basis for the further research to find out more detail information regarding the relationship between the antimicrobial activity and other quantitative phytochemical contents. Keywords: Antimicrobial, phytochemical screening, Minimum Inhibitory Concentration.

OP- 32: COMPARITIVE STUDY OF ANTI-INFLAMMATORY ACTIVITY OF GYMNEMA SYLVESTRE LEAVES AND STEM EXTRACT IN RATS

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Background: *Gymnema sylvestre* commonly known as "gurmar"and has been widely used in Ayurvedic traditional medicines. *Gymnema sylvestre* leaves has been extensively used in Ayurvedic traditional medicine and is bitter, acrid, anti-diabetic, anti-inflammatory, laxative, Diuretic, anti-microbial, anti-oxidant, obesity, digestive and liver tonic. It is mainly used for anti-diabetic activity.

Objective: This study was aimed at providing pharmacological basis for its use in anti inflammatory by using *Gymnema sylvestre* leaves and stem.

Methods: Shade dried leaves and stem of *Gymnema sylvestre* were extracted with methanol and evaluated for anti- inflammatory activity. It contains constituents like Tannins and saponins which are responsible for anti-inflammatory activity. The methanolic extract of *Gymnema sylvestre* leaves and stems was extracted using Soxhlation and it was investigated for anti-inflammatory activity in albino rats using Formaldehyde induced paw edema method at a dose 100, 300 and 500 mg/kg.

Results: The gymnema extract showed Anti-inflammatory activity by inhibiting Cox, using formaldehyde assay. The methanolic extract of concentration 500 mg/kg decreased the paw edema volume by 67.42% within 4 h after administration, while standard drug decreased the paw edema volume by 80.33%.

Conclusion: It is concluded that the methanolic extract of *Gymnema sylvestre* showed predominantly significant activity which is comparable to the standard drug Ibuprofen.

Key words: Anti-inflammatory, Formaldehyde, Methanolic extract, Gymnema sylvestre.

OP-33: ANTIHYPERGLYCEMIC AND HYPOLIPIDEMIC ACTIVITY OF LATEX POWDER OF EUPHORBIA CADUCIFOLIA IN EXPERIMENTAL DIABETES

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Background: India is considered as the diabetic capital of the world. The study of plants having antihyperglycemic and hypolipidemic activities may give a new approach in the treatment of diabetes mellitus.

Objective: The study was intended to evaluate the antihyperglycemic and hypolipidemic activity of latex powder of *Euphorbia caducifolia* in alloxan-induced diabetic albino rats.

Materials and Methods: Diabetes was induced in albino rats by administration of alloxan monohydrate (150 mg/kg, i.p.). Rats were divided into 5 groups of 6 animals each. First group served as non-diabetic control, second group as diabetic control, third group as standard and was treated with 120 mg/kg of Nopal powder orally. Group 4 and 5 received 100 and 200 mg/kg body weight of Euphorbia caducifolia powder. Blood samples were analyzed for blood glucose on day 0, 1, 7, 14 and lipid profile on day 14.

Results: The *Euphorbia caducifolia* powder showed signifi cant reduction ($P<0.01$) in blood glucose level and serum lipid profile levels with 200 mg/kg body weight in alloxan-induced diabetic rats as compared with the control.

Conclusion: It is concluded that *Euphorbia caducifolia* powder is effective in controlling blood glucose levels and in improving lipid profile in diabetic rats.

Key words: *Euphorbia caducifolia,* hypoglycemia, hypolipidemia, Alloxan

OP-34: EVALUATION OF ANTI-ASTHMATIC ACTIVITY OF DRIED FRUITS OF PIPER NIGRUM

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Piper nigrum is a most widely used and known plant all over the world and is being traditionally used for the curing and treatment of various ailments in the body. It is generally used for curing various topical infections. The claim for the utility of this plant in the treatment of asthma has not been scientifically evaluated hence this dissertation is emphasized to explore the effect of plant energy source against asthma and its anti-allergic reactions.The evaluation was carried out with the ethanolic extract of dried fruits of Piper nigrum on anti- asthma and anti-allergic properties.On preliminary phytochemical evaluation Ethanolic Extract of Piper nigrum (EEPN) showed presence of various phytochemical constituents like flavonoids, glycoside phenols, tannins, resins, proteins, alkaloids, carbohydrates and fixed oils. The EEPN at two dose levels 200 mg/kg/p.o and 400 mg/kg/p.o and salbutamol 1mg/kg/s.c was administered for 14 days to the rats and it was identified that there is the significant reduction in PCD in standard and test group animals as compared to control animals. The EEPN at two dose levels significantly decreased total leucocytes count and DLC as compared with that of the standard group animals. This suggests that the extract have potent Anti- Asthmatic and allergic activity. From the above observations of the study performed it may be concluded that *Piper nigrum* extract was significant anti asthmatic activity due to its phytoconstituents.

Key Words: *Piper nigrum*, Anti-asthmatic, Anti-allergic, Salbutamol, Ethanolic extract.

OP-35: ASSESSMENT OF RISK FACTORS FOR DRUG RELATED PROBLEMS IN AMBULATORY PATIENTS

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Introduction: Drug related problems refer to the problems associated with the drug use, comprising wide range of clinical situations/emergencies i.e., significant drug related morbidity/mortality. Assessment of risk factors of drug related problems specific to an area in evaluation is essential in order to prevent avoidable drug related problems & consequent economic burden attributed to additional health care through strategizing ways to sort out drug related problems resulting from identified risk factors.

Methodology: A total 148 cases, where a correlation between past medication history and current complaints that resulted in Hospitalization was established, were included in the 6 months prospective study done in departments of General medicine, Dermatology, Pediatrics and Gastroenterology in tertiary care teaching hospital.

Results and Discussion: In this study Non-adherence (50.94%) and ADR (38.36%) are predominant among the identified drug related problems. Lack of knowledge about disease, its complications and possible adverse reactions with self- medication was identified to be the highly involved risk factor. Higher incidence of DRPs was observed with antimicrobial, inflammatory and immune modulators, CVS and CNS drugs.

Conclusion: In this study Non-adherence to prescribed therapy is found to be the DRP causing hospitalization at higher incidence. The most commonly involved risk factors are Lack of knowledge about disease, need of adherence to the therapy as prescribed & outcomes of treatment provided. Highly involved type of drug, person include prescribed drugs &patient respectively, appropriate patient counseling about use of prescribed medication & regular follow up is significant on clinical pharmacist's part in association with other health care professionals.

Keywords: Drug related problems, hospitalization, past medical history, clinical pharmacist & non-adherence.

OP-36: RISK FACTORS FOR MULTI-DRUG RESISTANT ORGANISMS IN DIABETIC FOOT ULCER: IMPACT OF GLYCEMIC CONTROL ON WOUND HEALING

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Background: Diabetic foot Ulcer (DFU) is one of the most significant complication of Diabetes. MDRO are defined as microorganisms that are resistant to two or more classes of antimicrobial agents.Poor Glycemic control with DFU delays wound healing. The present study was an attempt to correlate the risk factors and their association with the development of MDRO in DFU and the impact of Glycemic control on wound healing in DFU.

Objectives: To study risk factors for MDRO in DFU; Impact of Glycemic control on wound healing in MDRO

Method: In 100 patients hospitalized with microbiological specimens taken on admission and determined using culture and sensitivity testing. Potential risk factors for MDRO-positive specimens were examined using univariate analyses, logistic regression for MDRO presence and wound healing time. Prospective follow-up data from patients used to evaluate the influence of MDRO infection& Glycemic control on time to healing.

Results: MDRO isolated in 75 of 100patients.Poor Glycemic control, previous hospitalization, amputation history, antibiotic use history, ulcer size, necrotic ulcer, recurrent ulcers, higher grade ulcer, polymicrobial culture were associated with MDRO foot ulcers ($p < 0.1$).MDRO has no impact on wound healing. Logistic regression analysis indicated higher Grade of ulcer, poor glycemic control significantly delayed wound healing.

Conclusion: The prevalence of MDRO is alarmingly high in diabetic infected patients. Higher grade ulcers & recurrent ulcers are more prone to acquire MDROs. Positive MDRO status is not associated with wound healing. Higher grade of ulcer & poor glycemic control delays healing of foot ulcer.

Keywords: DFU, MDRO, Glycemic control, wound healing.

OP-41: ANTICATARACT ACTIVITY OF ETHANOLIC EXTRACT OF HELIOTROPIUM LEAVES ON GALACTOSE INDUCED CATARACT IN RATS

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Background: Anticataract activity of ethanolic leaf extract of *Heliotropium indicum* on galactose Induced cataract in rat was studied. Galactose was used to induce cataract in rats.

Method: The animals were divided into four groups of six animals each. Group I served as vehicle control received distilled water. Group II received 30% galactose diet served as cataract control and GroupIII and IV received 200mg/kg of ethanolic extract of *Heliotropium indicum* and Vitamin E 50mg/kg respectively along with galactose diet .All the above groups were treated for 40 days. On 41 days lenses were removed from the eyes of all the animals to assess the intensity of cataract by estimating glutathione, lens soluble protein, and the lens water content.

Results: The results showed that, in the group *Heliotropium indicum* and vitaminE treated animals treated animals there were significant increase in the lens glutathione, soluble protein and water content as compared to galactose control.

Conclusion: From the above results it was concluded the Heliotropium indicum leaf extract possessed protective action against galactose induced cataract in rats.

Keywords: Heliotropium indicum, Anticataract activity, Galactose, Vitamin E

OP-42: ARE HEALTHCARE WORKERS' MOBILE PHONES A POTENTIAL SOURCE OF NOSOCOMIAL INFECTIONS? REVIEW OF THE LITERATURE

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Mobile communication devices help accelerate in-hospital flow of medical information, information sharing and querying, and contribute to communications in the event of emergencies through their application and access to wireless media technology. Healthcare-associated infections remain a leading and high-cost problem of global health systems despite improvements in modern therapies. The objective of this article was to review different studies on the relationship between mobile phones (MPs) and bacterial cross contamination and report common findings. Thirty-nine studies published between 2005 and 2013 were reviewed. Of these, 19 (48.7%) identified coagulase-negative staphylococci (CoNS), and 26 (66.7%) identified *Staphylococcus aureus*; frequency of growth varied. The use of MPs by healthcare workers increases the risk of repetitive cyclic contamination between the hands and face (e.g., nose, ears, and lips), and differences in personal hygiene and behaviors can further contribute to the risks. MPs are rarely cleaned after handling. They may transmit microorganisms, including multiple resistant strains, after contact with patients, and can be a source of bacterial cross-contamination. To prevent bacterial contamination of MPs, hand-washing guidelines must be followed and technical standards for prevention strategies should be developed.

Key words: healthcare workers; mobile phones; bacteria; nosocomial infection; contamination.

Results: There was significantly increased oxidative stress and cholinesterase activity with cognitive decline in the hippocampus in rats of BCCAO group as compared to normal group ($p<0.05$). The animals treated with Donepezil, HEF and EF of PG prevented the biochemical changes significantly ($p<0.001$) and there was significant improvement in cognitive parameters compared to BCCAO group. Whereas HF and EAF fractions of PG were shown poor significant improvement in cognitive and biochemical parameters.

Conclusions: BCCAO led to hippocampal oxidative stress with corresponding cognitive decline. Memory improving effect and antioxidant property of PG HEF and EF markedly improves in a dose dependent manner, which may be responsible for the prophylaxis and treatment of global cerebral ischemia.

Keywords: Antioxidant, bilateral common carotid artery occlusion, cognitive impairment, oxidative stress, *Psidium guajava.*

OP-59: FORMULATION AND EVALUATION OF SELF MICRO EMULSIFYING DRUG DELIVERY SYSTEM (SMEDDS) OF EFAVIRENZ

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Background: Efavirenz is a Non-nucleoside reverse transcriptase inhibitor (NNRTI) which has poor aqueous solubility of 4-9µg/mL. Currently a number of technologies are available to deal with the poor solubility and bioavailability of insoluble drugs. One of the promising techniques is Self Micro Emulsifying Drug Delivery Systems (SMEDDS). Self Micro Emulsifying Drug Delivery System has gained more attention due to enhanced oral bio availability enabling reduction in dose, more consistent temporal profiles of drug absorption of adsorption, selective targeting of drug toward specific absorption window in GIT.

Objective: To improve the oral bioavailability of efavirenz by formulating in to Self Micro Emulsifying Drug Delivery System.

Methods: The SMEDDS Micro emulsifying region was identified by contracting ternary phase diagram of selected oils, surfactant and co surfactant using water titration method. The Optimized SMEDDS prepared using combination of Eucalyptus Oil, Tween 40and PEG 600. The Prepared Liquid SMEDDS were evaluated Particle size, Zeta potential, Percent transmittance and Drug content, self emulsification time. The optimized Liquid SMEDDS were converted in to Solid SMEDDS by adsorbing on to a Solid carrier b Cyclo dextrin. The solid SMEDDS evaluated flow properties and drug release studies.

Results: The results proved that prepared Solid SMEDDS have good flow properties and improved drug release profile (97.3± 1.96%).

Conclusion: Form the entire study it was concluded that there was an increase in both solubility and dissolution rate of Efavirenz. The significant increase in solubility and dissolution were observed in formation F4.9.

Keywords: Efavirenz, S-SMEDDS, L-SMEDDS, Solubility

OP-60: DESIGN AND EVALUATION OF VALACYCLOVIR FLOATING MICROSPHERES

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The aim of this study was to prepare floating microspheres by Emulsion solvent diffusion method. Valacyclovir HCl, having short biological half life of 30 minutes and its rapid elimination from the body, is ideally suited to be delivered through floating multiunit dosage form. Biocompatible polymers, Eudragit S100 and Ethyl cellulose were used along with drug in different proportions. The prepared six formulations (F1-F6) were characterized for their micromeritic properties, particle size, percentage yield, morphology, buoyancy studies, drug encapsulation efficiency, and In-vitro drug release studies. The formulated microspheres were free flowing. The optical microscopic studies revealed that the particles were of the size range of 95.03-152.48 µm. SEM studies indicated that the microspheres were porous and almost spherical in shape., In-vitro drug release studies indicated that F4 formulation prepared by using Ethyl cellulose showed more drug release when compared to other formulations. The data obtained in this study thus suggests that a microparticulate floating dosage form of Valacyclovir HCl can be successfully designed to give prolonged release of drug and hence improved bioavailability.

Key words: Gastro retentive system, Valacyclovir HCl, Eudragit S100, Ethyl Cellulose, Floating microspheres, Emulsion Solvent Diffusion Method.

OP-61: FORMULATION AND EVALUATION OF TASTE MASKED ORAL DISINTEGRATING TABLETS OF TOLTERODINE TARTRATE BY -CYCLODEXTRIN

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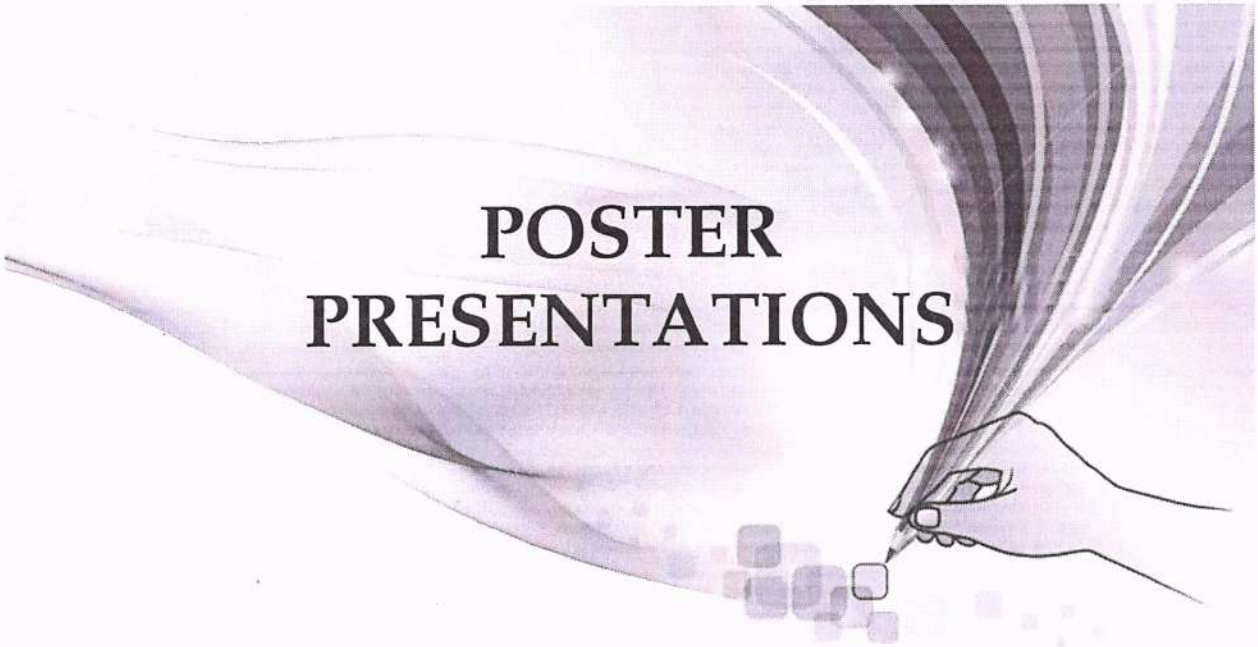
Tolterodine tartrate is competitive muscarinic antagonist used in the treatment of overactive bladder with symptoms of urinary frequency. In the present work, oral disintegrating tablets are formulated using Tolterodine tartrate and super disintegrants like crosspovidone, croscarmellose sodium and sodium starch glycolate individually and in combinations and the study aimed to mask the metallic taste of Tolterodine tartrate by complexing with β-cyclodextrin in three different ratios 1:1, 1:2, 1:3 and they are formulated by using optimized formula(F 14) and evaluated for *In Vitro* disintegration time, taste evaluation studies and *In Vivo* disintegration time. The formulated tablets were evaluated for various physio-chemical properties. Results demonstrated that F14 gave less disintegration time of 16.42±0.60 seconds and 1:3 ratio of Drug-polymer complex ODT's completely masked the metallic taste of drug.

Keywords: Oral disintegrating tablets, Tolterodine tartrate, ?-cyclodextrin, taste masking.



POSTER PRESENTATIONS

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PP-1: CONTROLLED RELEASE DRUG DELIVERY SYSTEM OF DILITIAZEM HYDROCHLORIDE

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Background: A Controlled drug delivery system delivers drug locally or systemically at predetermined rate for a specified period of time. Hydrophillic matrix systems are among most commonly used means for orally controlled drug delivery systems as they can reproduce a desirable drug profile and are cost effective. Diltiazem, sold under the trade name Cardizem among others, is a calcium channel blocker used to treat high blood pressure, angina, and certain heart arrhythmias. It may also be used in hyperthyroidism.

Objective: The aim of the present study was to prepare and characterize controlled release matrix tablets of Dilitiazem Hydrochloride using various hydrophilic and hydrophobic polymers in different proportions.

Method: Dilitiazem hydrochloride matrix tablets were prepared by direct compression method. For the preparation HPMC k-100 and Eudragit L-100 polymers used. The evaluation studies weight variation, hardness, thickness, in vivo studies are included.

Results: The evaluation studies for prepared dosage forms are weight variation-447mg, Hardness of tablet-5.1kg/cm2, Thickness of tablet-5.5mm, Percentage of drug release-99%, F3 Followed zero order-0.8860 and mechanism involved was korsemayes-0.8964, Higuchi-0.9219.

Conclusion: The results generated in this study best release profile F3 kinetics of drug release were function of polymer type, grade and concentration. Further studies require conform the results with in vivo experiments.

Keywords: Controlled drug delivery system, Calcium channel blocker, HPMC k-100, Eudragit L-100.

PP-2: DESIGN AND DEVELOPMENT OF PROPRANOLOL HYDROCHLORIDE TRANSDERMAL PATCHES: *IN VITRO* AND *EX VIVO* CHARACTERIZATION

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Background: Propranolol is a racemic mixture of 2 enantiomers where the S(-)-enantiomer has approximately 100 times the binding affinity for beta adrenergic receptors. Propranolol is used to treat a number of conditions but most commonly is used for hypertension.

Objective: Design and develop matrix type transdermal patches of Propranolol Hydrochloride which is an anti-hypertensive drug.

Methods: These matrix type transdermal patches were prepared by "Solvent Casting Technique" using drug, HPMC E15 and Eudragit L 100 in the ratio of 1:6, 1:6.5, 1:7, 1:7.5, 1:8, 1:8.5, 1:9, 1:9.5. All formulations carried 20%v/w of PEG-600 as plasticizer. The prepared patches were characterized for various physicochemical parameters like weight, thickness, folding endurance, drug content, percent moisture content, percent moisture absorption, *In vitro* drug release and *Ex vivo* permeation.

Results: Among this 1:9 ratio was found to be an optimized formulation and patches were prepared by using permeation enhancers (lemon grass oil, Eucalyptus oil, and clove oil). The cumulative amount of drug

release in 12hrs for F7 formulation showed maximum and used for that formulation skin permeation on Goat abdominal skin. FTIR studies showed no interaction between drug, polymer and other excipients.

Conclusion: The drug permeation kinetics followed "First order" and "zero order" profile with diffusion mechanism.

Keywords: Solvent casting, dispersion method, diffusion, HPMC E15, Eudragit L100, FTIR.

PP-3: DESIGN, OPTIMIZATION, PREPARATION AND EVALUATION OF DISPERSION GRANULES OF VALSARTAN AND FORMULATION INTO TABLETS

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Background: Valsartan (VAL) is a potent and specific competitive antagonist of the angiotensin-II AT1-receptor. It is used orally for the treatment of hypertension and has a low bioavailability. The formulation of solid dispersions by incorporating drugs into hydrophilic carriers has frequently been reported to increase the dissolution rate of poorly water-soluble drugs, often leading to improved drug bioavailability.

Objective: The objective of the present work undertaken was to enhance the solubility and dissolution rate of valsartan a poorly water soluble antihypertensive, by preparation of solid dispersion granules which would additionally allow easy compression into tablets.

Methods: The dispersion granules were prepared using a hot melt granulation technique which involved preparation of a homogenous dispersion of valsartan in gelucire-50/13 melt, followed by its adsorption on to the surface of aeroperl-300pharma, an inert adsorbent. The formulation was further characterized by FTIR, DSC, XRD and SEM analysis.

Results: An appropriate statistical model was arrived at and a significantly enhanced dissolution rate and flow properties were exhibited with the optimized formulation. FTIR spectrum revealed some drug excipient interactions. DSC and XRD data indicated the retention of amorphous form of valsartan. SEM confirmed the homogeneity and surface adsorption of the gelucire50/13 melt on aeroperl-300pharma leading to enhanced surface area and thus dissolution rate. The in-vitro dissolution rate of these tablets was significantly better in comparison with marketed formulation.

Conclusion: In conclusion the statistical model enabled us to understand the effects of formulation variables on the dispersion granules of valsartan.

Keywords: Valsartan, dissolution, solubility dispersion granules, aeroperal.

Conclusion: Metronidazole mini-tablets Eudragit coated formulations can be promising system for the treatment of amoebiasis.

Keywords: Metronidazole, Eudragit S-100 and Eudragit L-100, Pectinase.

PP-15: FORMULATION AND EVALUATION OF GLIMEPIRIDE ORAL DISINTEGRATING TABLET

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Background: An orally disintegrating tablet (or)orally dissolving tablet (ODT) are the dosage form which differ from traditional tablets where they are designed to be dissolved on tongue rather than swallowed whole. It is used as an alternative dosage form for patients who experience dysphagia .Glimepiride is an orally active hypoglycaemic substance belonging to the sulphonyl urea group which is used for the treatment of diabetes by helping to control blood sugar levels(glucose).

Objective : The main objective of the research was to prepare fast disintegrating tablet of glimepiride using different super disintegrants as cross caramellose, sodium starch glycolate, cross providone.

Methods: Glimepiride oral disintegrating tablet were prepared by direct compression method using different concentrations of sodium starch glycolate, cross caramellose, cross providone super disintegrants used. The evaluation studies are included weight variation, thickness, hardness, wetting time, disintegration, dissolution and *in vivo* taste masking studies.

Results: The evaluation studies for prepared dosage form F4 Hardness of tablet 3.1kg/cm2, Thickness of tablet 2.3mm, Wetting time of tablet 12.8sec, Disintegration time of tablet 21 sec, Percentage of drug release 97%.

Conclusion: Among all the formulations F4 shows better drug release, wetting time and disintegration time. In this study it can be concluded that prepared optimized fast disintegrating tablets of glimepiride are the better option to treat diabetes.

Keywords: orally disintegrating tablet, hypoglycaemic substance, Superdisintegrants.

PP-16: FORMULATION AND EVALUATION OF HYDROCHLORTHIAZIDE ORAL DISINTEGRATING TABLETS

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Background: In the present work, oral disintegrating tablets of Hydrochlorthiazide were developed with a view to enhance the patient compliance and provide quick onset of action. Hydrochlorthiazide is the diuretic of the benzothiadiazine group and has proved very important in the management of mild to moderate hypertension. It inhibits sodium reabsorption in the distal convuluted tubules causing increased excretion of sodium and water as well as potassium and hydrogen ions. It is bitter taste and poorly solubility in water.

Objective: The main objective study was to formulate taste masked oral disintegrating tablets of Hydrochlorthiazide by using inclusion complex beta cyclodextrin to achieve a better dissolution rate and further improving the bioavailability of the drug.

thorvum.(Swartz) showed maximum antibacterial activity against *Staphylococcus aureus* and *Pseudomonas aeruginosa* and was also effective against other bacterial strains as compared to ethanol and aqueous extracts of leaves and fruits. The methanol leaf extract of *Solanum thorvum.*(Swartz) exhibited significant inhibition (71%) and (66%) against *Aspergillus fumigatus* and *Aspergillus flavus* respectively.

Conclusions: The methanol extract of the *Solanum thorvum.*(Swartz) leaves and fruits effective against selected bacterial and fungal strains. Its phytochemical contents have broad antimicrobial properties and the plant might be a novel source of antimicrobial drug.

Keywords: Methanol, ethanol, Antimicrobial, *Phytochemicals Solanum thorvum*

PP- 61: STUDIES ON PHYTOCHEMICAL ANALYSIS AND EVALUATION OF LEAF AND ROOT PARTS OF *ALOE VERA* (L.) BURM.F A MEDICINAL SHRUB FOR *IN VITRO* ANTIOXIDANT ACTIVITIES

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Back ground: *Aloe vera,* sometimes described as a "wonder plant," is a short-stemmed shrub. Aloe is a genus that contains more than 500 species of flowering succulent plants.

Objectives: To analyze qualitative and quantitative phytochemical and evaluate *in vitro* antioxidant properties of various alcoholic and aqueous extracts of leaf and root parts of *Aloe vera.*

Methods: Preliminary phytochemical analysis for alkaloids, cardiac glycosides, flavonoids, glycosides, phenols, resins, saponins, steroids, tannins, terpenoids and triterpenoids and quantitative phytochemical analysis for alkaloids, total phenolics, total flavonoids, tannins, saponins, and ascorbic acid were made by following standard procedures. *In vitro,* antioxidant properties were evaluated by assessing DPPHo, NOo and ABTSo+, radical scavenging abilities and assaying the reducing power, β-carotene, and antihemolytic activities by adapting standard methods.

Results: The quantitative phytochemical analysis of this species exhibited the presence of alkaloids, total phenolics, total flavonoids, tannins, saponins and ascorbic acid in considerable quantity. The in vitro antioxidant activity of the species

Conclusions: *Aloe vera* demonstrated that both the leaf and root parts have prominent antioxidant properties. From this study, it can be concluded that the species is effective in scavenging free radicals and has the potential to be a powerful antioxidant.

Keywords: *Aloe vera,* antioxidant, radical scavenging, in vitro

PP- 62: *IN VIVO* EVALUATION OF ANTI-INFLAMMATORY ACTIVITY OF TRIGONELLA FOENUM-GRAECUM L. SEEDS

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Background: *Trigonella foenum-graecum* (L), is an annual herb belonging to the family Papilionaceae and is commonly known as fenugreek. The green leaves and seeds of the plant are widely used as spice in food preparations and as ingredient in traditional medicine for various ailments.

Objective: The aim of the present work is to evaluate and compare the anti-inflammatory activity of different extracts of fenugreek seeds.

Material and methods: Fenugreek seeds were purchased from the local market and authenticated by botanist. The dried seeds were powdered and used for extraction. Pet ether and ethanol seed extract was prepared by hot percolation method using Soxhlet apparatus. The anti-inflammatory activity of pet ether and ethanol extracts was screened on healthy, adult albino rats of Wistar strain against carrageenan induced paw edema. Extracts at 2 doses 100mg/ kg body weight and 300mg/kg body weight were administered by oral route. Animals were observed individually after dosing at least once during the first 30 minutes, upto 4 hours and compared with standard group treated with Diclofenac sodium and control group.

Results and Conclusion: Pet Ether and ethanolic extracts of seeds have shown anti-inflammatory activity. Ethanolic extract of seed at a doses 100mg/kg and 300 mg/kg shown 83% reduced paw volume at 3rd hr. Ether extract of seed at 4th hour at a dose of 100mg/kg shown 83% activity and at a dose of 300mg/kg at 3rd hour shown 66.6% activity. These findings suggest that plant has much scope to work further to find out phyto constituents responsible for the anti-inflammatory activity.

Keywords: *Trigonella foenum-graecum,* Anti inflammatory activity, Carrageenan

PP-63: STUDIES ON ISOLATION AND IDENTIFICATION OF ASPERGILLUS SPECIES PRODUCING CITRININ TOXIN IN PEPPER (*CAPSICUM* SPP) FROM SELECTED MARKETS IN WARANGAL DISTRICT

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Back Ground: Isolation and identification of fungi causing decay in pepper fruits from three markets in Warangal District Telangana state, namely Kazipet, Warangal and Hanamkonda, High level and Wadata was carried out. Samples were collected in polythene envelopes and taken to the laboratory of Pigle Govt. Degree and P.G. College Warangal.

Objectives: The objective of study was to investigate the distribution of fungi with the incidence and toxigenicity of Citrinin -producing *Aspergillus* species infecting species.

Methods: For fungal isolation and Identification. They were surfaced sterilized in 5% NaOCl solution for 1 minute, rinsed in several changes of sterile distilled water and plated on Potato Dextrose Agar in Petri

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Certificate

POSTER

It is our pleasure to certify that,

RAJANI THOUTREDDY presented a Poster in Scientific Session entitled **"PREPARATION, CHARACTERIZATION, IN VIVO AND EX VIVO PERMEATION STUDIES OF NOVEL SELF ASSEMBLED LOSARTAN POTASSIUM LOADED CUBOSOMES USING 32 FACTORIAL DESIGN"** in the 72nd Indian Pharmaceutical Congress held at Department of Pharmaceutical Sciences, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur during January 20-22, 2023.

Dr. V. G. Somani	Mr. Atul Mandlekar	Prof. Milind Umekar	Prof. Prakash Itankar	Prof. Roop K. Khar	Prof. Dadasaheb M. Kokare
President, IPCA	Chairman,LOC	Organising Secretary,LOC	Organising Secretary,LOC	Convener, IPCA-SSC	Chairman, Scientific Committee, LOC

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19th Sept. 2018

Certificate of Presentation

This is to certify that Dr./Mr./Mrs./Ms. T. RAJANI has presented poster/~~e-poster~~ entitled FORMULATION AND CHARACTERIZATION OF ITRACONAZOLE SOLID DISPERSION in scientific session of 15th Indo- African Conference held at **Vaagdevi Pharmacy Colleges,** Bollikunta, Warangal, Telangana organized by APP Tamilnadu State Branch in collaboration with APP Ethiopian International Branch on the 19th day of September 2018.

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