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Government of Maharashtra No. TEM/2004(235/04) TE-1, Pharmacy Council of India (32-347/2012-PCI).
Permanently affiliated to Savitribai Phule Pune University, ID No. PU/PN/Pharmacy/200/2004
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Principal
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(M.S., M.N.A.M.S.) Chairman,
Business Council P.E. Society, Pune

CRITERIA III

Key Indicator 3.3 - Research Publication and Awards

3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

1. Summary of Number of Books/Book Chapters during last five Years

2. Summary of papers published in national/ international conference proceedings per teacher during last five years

SHASHIKANT NIVRUTTI DHOLE

Digitally signed by SHASHIKANT NIVRUTTI DHOLE
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Summary of Number of Books/Book Chapters during last five Years

Sr. No.	Name of the teacher	Title of thebook/chapters published	Title of the paper	Calendar Year of publication	ISBN number of the proceeding	Affiliating Institute at the time of publication	Name of the publisher
1	Dr. R. L. Mhetre, Dr. N. S. Kulkarni, Dr. S. N. Dhole	A textbook on NOVEL DRUG DELIVERY SYSTEMS	National	2022	978-93-92159-86-2	PES Modern college of Pharmacy (For Ladies), Moshi, Pune, Maharashtra India	Pritam Publisher
2	Dr. M.C.Upadhye	Practical Handbook of Herbal Drug Technology	National	2022	978-93-95475-90-7	PES Modern college of Pharmacy (For Ladies), Moshi, Pune, Maharashtra India	Pritam Publisher
3	Dr. M.C.Upadhye, Dr. S. N. Dhole	Ayurvedic Remedies for the Diseases of Microbial origin	National	2022	978-81-956220-6-1	PES Modern college of Pharmacy (For Ladies), Moshi, Pune, Maharashtra India	Academic Decipher Press, Mumbai
4	Dr. M.C.Upadhye, Dr. S. N. Dhole	Ayurvedic Remedies for Covid-19 and Mucormycosis.	National	2022	978-81-956220-4-7	PES Modern college of Pharmacy (For Ladies), Moshi, Pune, Maharashtra India	Academic Decipher Press, Mumbai
5	Dr. M.C.Upadhye	Antioxidant Potential of Phytoconstituents With Special Emphasis on Curcumin	International	2022	10.5772/intechopen. 103982,	PES Modern college of Pharmacy (For Ladies), Moshi, Pune, Maharashtra India	Intechopen.com Indexed in Web of Science,
6	Dr. S. N. Dhole	Recent Advances in Pharmaceutical Science Volume 5, 238-254	International	2022	ISBN: 978-81-952065-2-0	PES Modern college of Pharmacy (For Ladies), Moshi, Pune, Maharashtra India	Innovare Academic Sciences Pvt Ltd
7	Dr. M.C.Upadhye	Pharmacognosy And Phytochemistry II, Experimental Handbook	National	2021	978-93-92159-40-4	PES Modern college of Pharmacy (For Ladies), Moshi, Pune, Maharashtra India	Pritam Publisher

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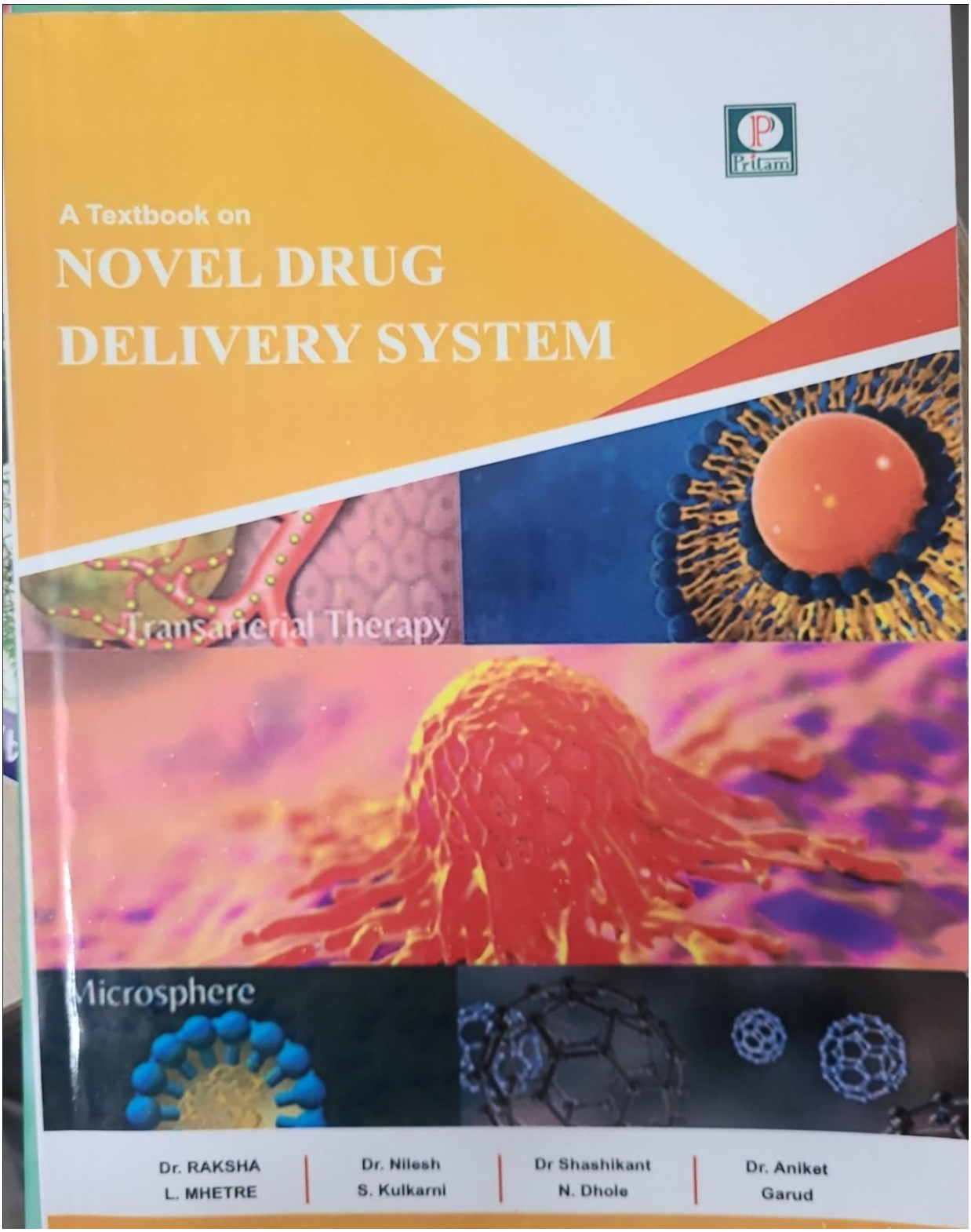

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Textbook of

NOVEL DRUG DELIVERY SYSTEM

AS PER PCI SYLLABUS

For B. Pharm Fourth Year

Dr. Raksha L. Mhetre
Professor
Modern College of Pharmacy
(For Ladies),
Pune.

Dr. Nilesh S. Kulkarni
Associate Professor
PES, Modern college of Pharmacy
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Moshi , Pune.

Prof. Dr. Shashikant N. Dhole
Principal and Professor
PES, Modern college of Pharmacy
(For Ladies),
Moshi , Pune.

Dr. Aniket Garud
Assistant Professor
Rasiklal M Dhariwal Institute of
Pharmaceutical Education & Research.

PRITAM PUBLICATIONS

Textbook of Novel Drug Delivery System

Publisher
Kailas R. Patil
Pritam Publications
University Road, NH-06,
Near Jain Mandir, Dadawadi,
Jalgaon (M. S.), INDIA.
Mob. 9850222351

Edition - 2022

Type Settings -
Pritam Publications, Jalgaon.

Printer -
Shree Morya Offset, Dharangaon,
Dist. Jalgaon.
Price. 250/-
ISBN 978-93-92159-86-2

PCI Syllabus

BP 704T: NOVEL DRUG DELIVERY SYSTEMS (Theory) **45 Hours**

Scope:

This subject is designed to impart basic knowledge on the area of novel drug delivery systems.

Objectives: Upon completion of the course student shall be able

1. To understand various approaches for development of novel drug delivery systems.
2. To understand the criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation

Course content:

Unit-I **10 Hours**

Controlled drug delivery systems:

Introduction, terminology/definitions and rationale, advantages, disadvantages, selection of drug candidates. Approaches to design controlled release formulations based on diffusion, dissolution and ion exchange principles. Physicochemical and biological properties of drugs relevant to controlled release formulations

Polymers:

Introduction, classification, properties, advantages and application of polymers in formulation of controlled release drug delivery systems.

Unit-II **10 Hours**

Microencapsulation:

Definition, advantages and disadvantages, microspheres/microcapsules, microparticles, methods of microencapsulation, applications

Mucosal Drug Delivery system:

Introduction, Principles of bioadhesion / mucoadhesion, concepts, advantages and disadvantages, transmucosal permeability and formulation considerations of buccal delivery systems

Implantable Drug Delivery Systems:

Introduction, advantages and disadvantages, concept of implantsand osmotic pump

Unit-III **10 Hours**

Transdermal Drug Delivery Systems:

Introduction, Permeation through skin, factors affecting permeation, permeation enhancers, basic components of TDDS, formulation approaches

Gastroretentive drug delivery systems:

Introduction, advantages, disadvantages, approaches for GRDDS – Floating, high density systems, inflatable and gastroadhesive systems and their applications

Nasopulmonary drug delivery system:

Introduction to Nasal and Pulmonary routes of drug delivery, Formulation of Inhalers (dry powder and metered dose), nasal sprays, nebulizers

Unit-IV **08 Hours**

Targeted drug Delivery:

Concepts and approaches advantages and disadvantages, introduction to liposomes, niosomes, nanoparticles, monoclonal antibodies and their applications.

Unit-V **07 Hours**

Ocular Drug Delivery Systems:

Introduction, intra ocular barriers and methods to overcome –Preliminary study, ocular formulations and ocuserts.

Intrauterine Drug Delivery Systems:

Introduction, advantages and disadvantages, development of intra uterine devices (IUDs) and applications.

About Authors

Dr. Raksha L. Mhetre

The author received M. Pharmacy degree from SNDT University, Mumbai and Ph.D from Savitribai Phule Pune University, Pune. She is currently working with Modern College of Pharmacy (for Ladies), Pune. Her interest includes research and development of novel drug delivery systems, crystal engineering and bioavailability enhancement. She has published 2 patents, 13 research articles and symposium papers. She is recipients of Ratan TATA, BAJAJ, and LILA Poonawalla Foundation scholarships. Dr. Mhetre is an active member of Lila Poonawalla foundation and fellow of APTI, PCI

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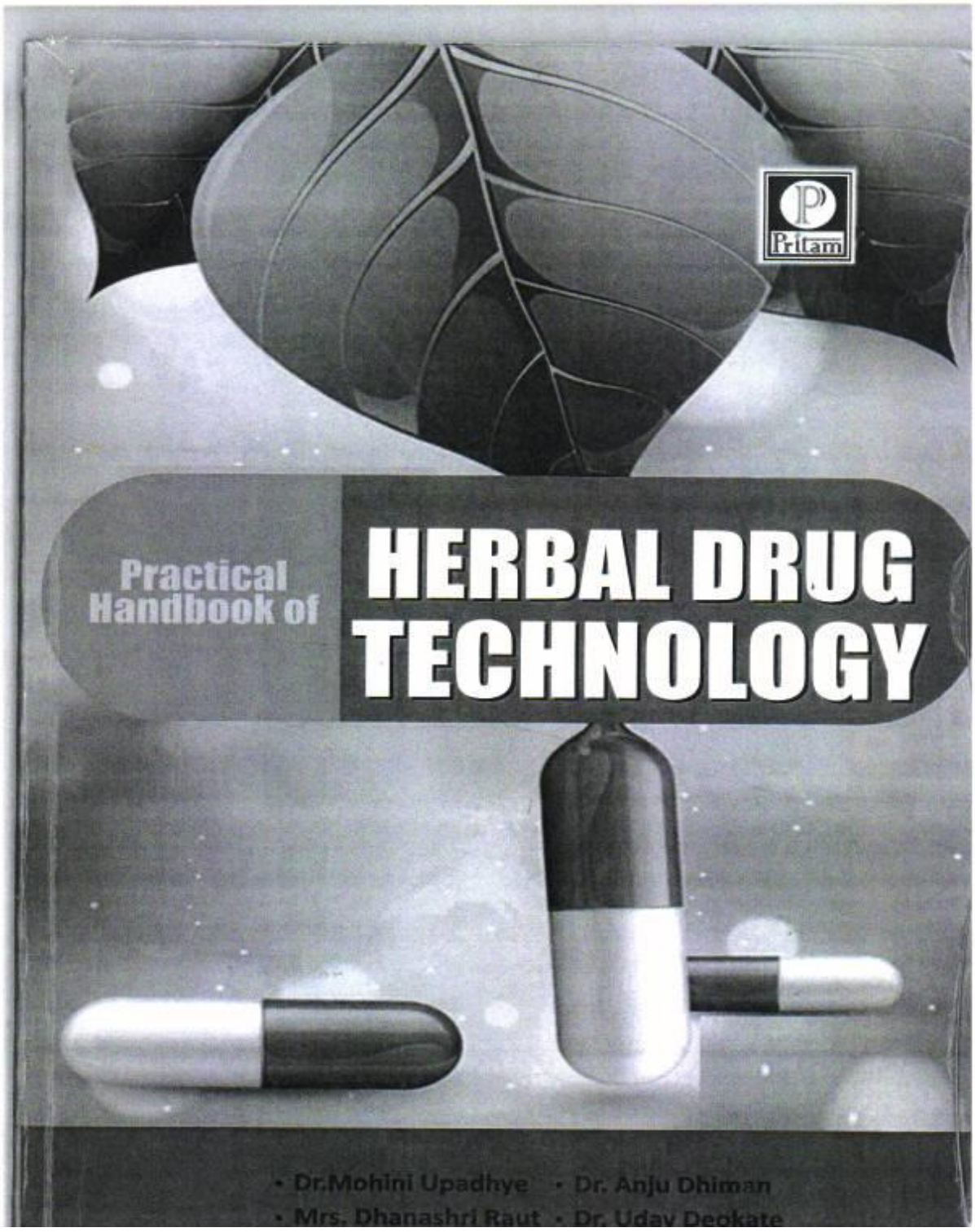
Pritam Publications
Publisher of Reference and Competitive Exam Books

ISBN 978-93-92159-86-2
9 789392 159862



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PRACTICAL HANDBOOK
OF
HERBAL DRUG TECHNOLOGY

As Per PCI Syllabus

Semester - VI

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Aurangabad.

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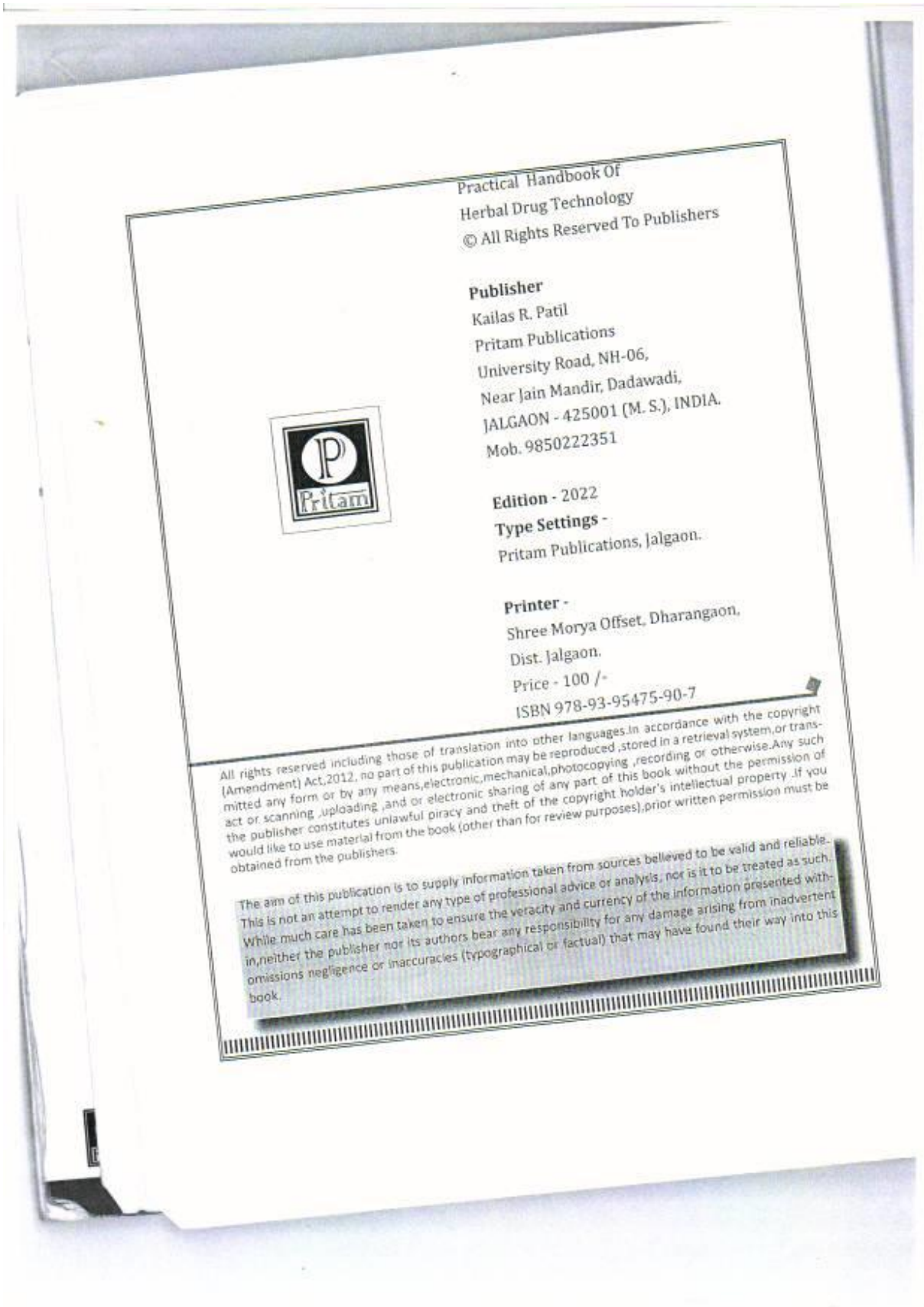

Practical Handbook Of
Herbal Drug Technology

Publisher
Kailas R. Patil
Pritam Publications
University Road, NH-06,
Near Jain Mandir, Dadawadi,
JALGAON - 425001 (M. S.), INDIA.
Mob. 9850222351

Edition - 2022
Type Settings -
Pritam Publications, Jalgaon.

Printer -
Shree Morya Offset, Dharangaon,
Dist. Jalgaon.
Price - 100 /-
ISBN 978-93-95475-90-7

About the book

We are glad to present the first edition of our book **"PRACTICAL HANDBOOK OF HERBAL DRUG TECHNOLOGY"** for B. Pharmacy students as per PCI Syllabus. The major dictum of this book is to provide updated knowledge on each practical in advanced manner. Concepts of crude drug extraction, evaluation and formulations are very complex and need to be simplified & well explained. Although many books are available in the field, it was thought that blend should be made of basic theories and current industrial standards so that students will come to know why they are performing specific practical and what is exact use and application of the same in the Pharma Industry. The book was written by referring the concept from renowned reference books, latest articles published in peer reviewed journals and from the own experiences of authors.

"PRACTICAL HANDBOOK OF HERBAL DRUG TECHNOLOGY" is a comprehensive compilation of practical's which covers all topics as per the syllabus. The data is presented considering the syllabus and number of practical's provided thus students will get exact concept of practical in crisp time. Every practical include application point which Contains probable and best use of the specific practical in the current Pharma Industry, to help the students for their future job profiles and interviews.

We hope that this book would be a handy nutshell for all the students as well as professors who are teaching the subject of **Herbal Drug Technology**. Authors will be grateful to all the professor & students to provide us their valuable suggestions for improvement of book quality in future.

- Authors

About the Author

Dr. Mohini Upadhye

Dr. Mohini Upadhye is presently heading department of Pharmacognosy at PES's Modern College of Pharmacy (For Ladies), Moshi, Pune. She has more than 16 years of experience in academic field. Till date she has more than 36 peer reviewed scientific publications in national and international journals to her credit. She has also contributed a chapter in the book entitled Herbal medicines by Bentham Sciences and recently published one patent in the area of herbal drug research.

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ISBN 978-93-95475-90-7

9 789395 475907

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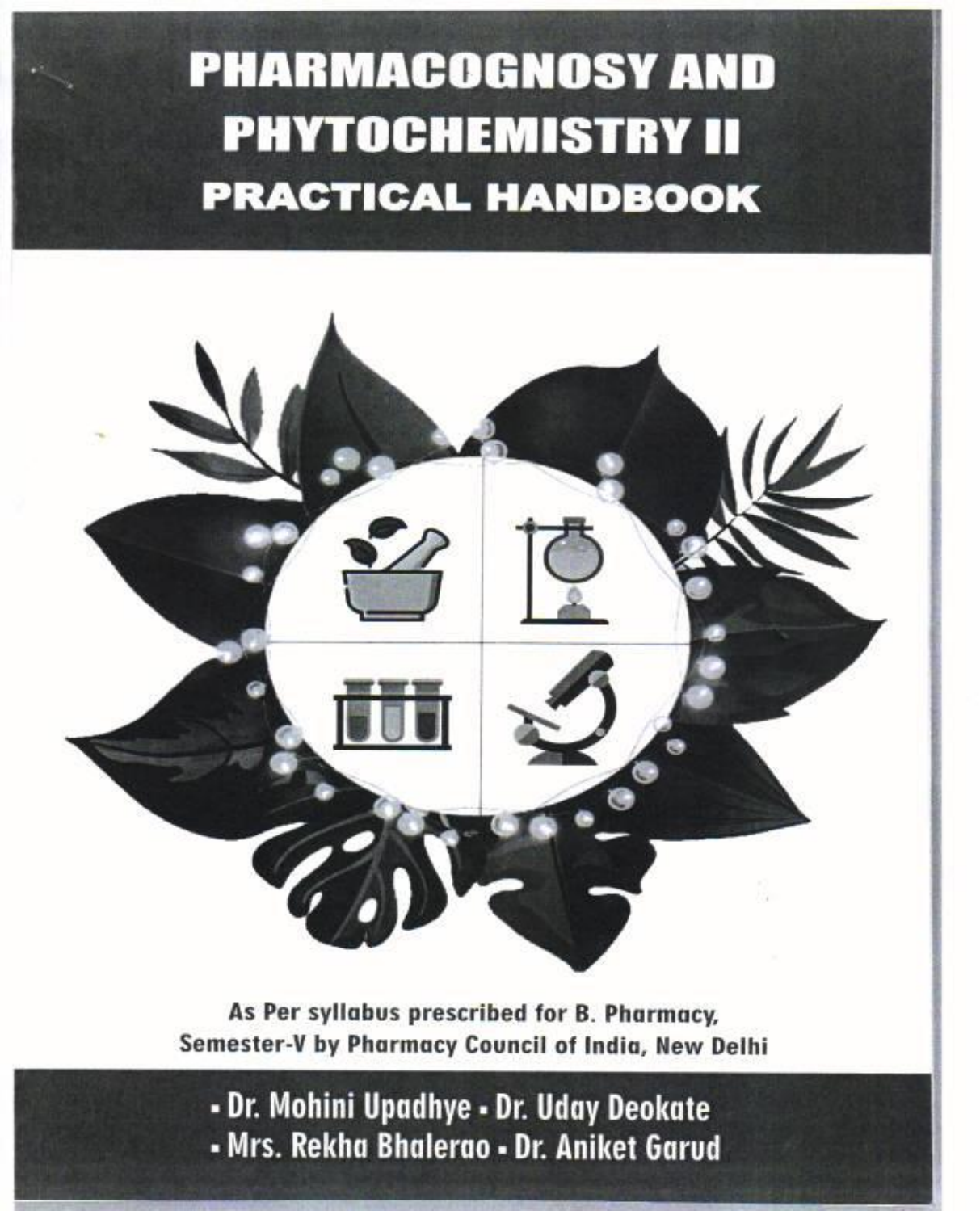

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PHARMACOGNOSY AND PHYTOCHEMISTRY II

PRACTICAL HANDBOOK

(For Semester-V as per PCI Syllabus)

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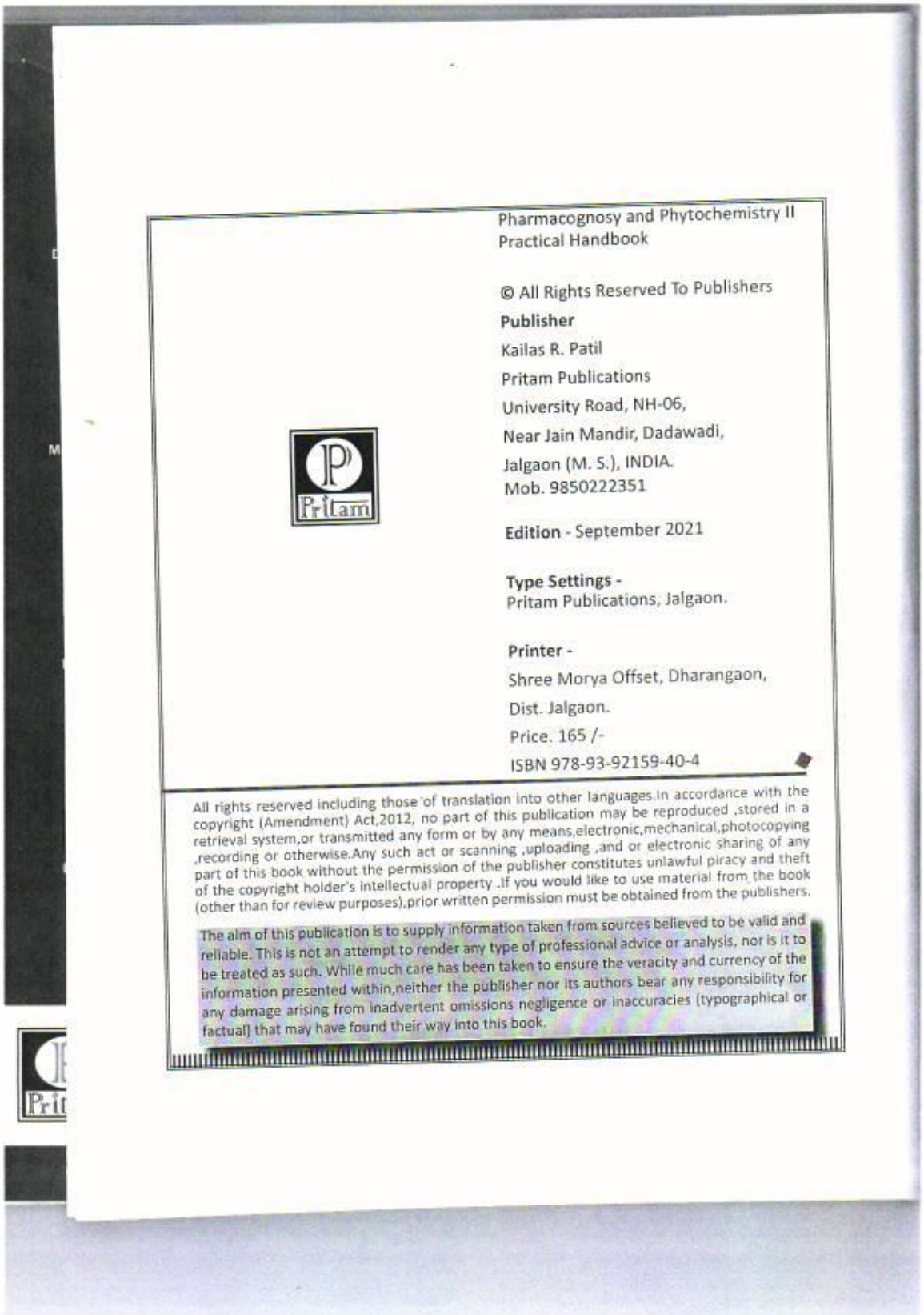

Pharmacognosy and Phytochemistry II
Practical Handbook

Publisher
Kailas R. Patil
Pritam Publications
University Road, NH-06,
Near Jain Mandir, Dadawadi,
Jalgaon (M. S.), INDIA.
Mob. 9850222351

Edition - September 2021

Type Settings -
Pritam Publications, Jalgaon.

Printer -
Shree Morya Offset, Dharangaon,
Dist. Jalgaon.
Price. 165 /-
ISBN 978-93-92159-40-4

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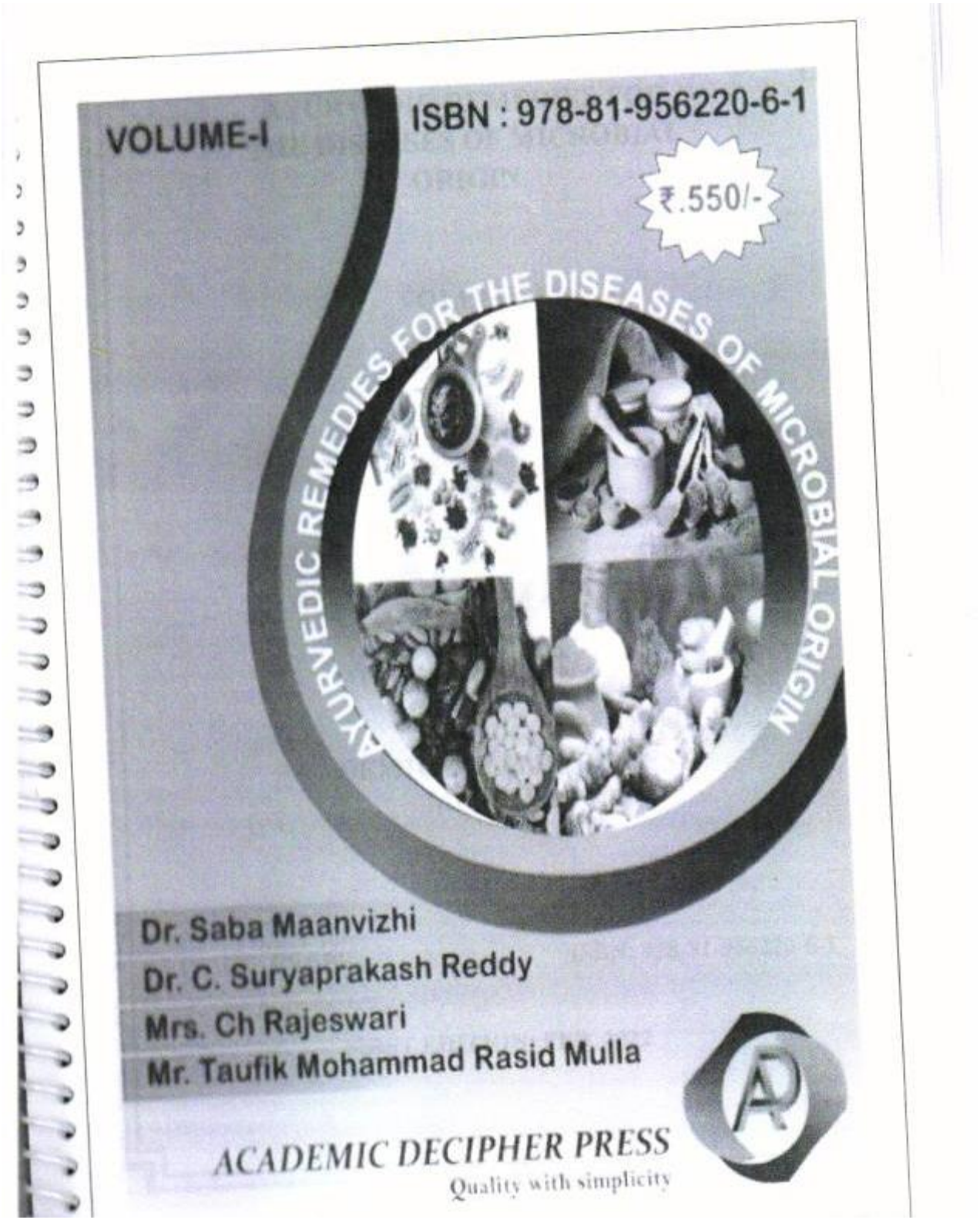
Near Jain Temple, Dadawadi, NH-6, Jalgaon-425001 (M. S.), INDIA
Mobile No. 9890222351
Website: www.pritampublication.com Email: pritamjalgaon@rediffmail.com

ISBN 978-93-92159-40-4
9 789392 159404



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AYURVEDIC REMEDIES FOR THE DISEASES OF MICROBIAL ORIGIN

VOLUME-I

ACADEMIC DECIPHER PRESS, MUMBAI

PRICE: RS.550/- **ISBN: 978-81-956220-6-1**

FIRST EDITION: FEB 2022

AYURVEDIC REMEDIES FOR THE DISEASES OF MICROBIAL ORIGIN, VOLUME-I

Published by
Academic Decipher Press, Mumbai
Website:https://academicdecipher.in/
WhatsApp No.:7400253569
Email: admin@academicdecipher.in,
academicdecipher.in@gmail.com

Edition: Feb 2022

Price: Rs.550/-

ISBN: 978-81-956220-6-1

Exclusively marketed & distributed by Academic Decipher Press, Mumbai.
For sale in India and abroad.

AYURVEDIC REMEDIES FOR THE DISEASES OF MICROBIAL ORIGIN, VOLUME-I

ACADEMIC DECIPHER MUMBAI

CONTENT

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AYURVEDIC REMEDIES FOR CHICKENPOX

Ms. Mohini Upadhay *, Dr. Shashikant Dhole, Ms. Snehal Shinde,
Ms. Snehal Kumbhar, Ms. Shivani Zarkar
PES's Modern College of Pharmacy (For Ladies), Moshi,
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mohiniketh@rediffmail.com, +919766493303

ABSTRACT -

Chickenpox is uncertainly an unpleasant disease has acquired beyond the early childhood stage and it can be lethal. Chickenpox is easily recognized and the treatment is in simplified way. The drug "Acyclovir" is most common in young children but it is not routinely used under the age group below 14's.The chickenpox is dangerous in the conditions like pregnancy, age group above 50's and the one who is immunosuppressed. The country like "United Kingdom" doesn't offer the routine vaccination drive but it is given in many other countries. In the recent era, ayurvedic remedies have got a vital role in the treatment of chickenpox. The herbs like Nimba, Haridra, Yashtimadhu, Guduchi has acquired it is effectiveness in the treatment of chickenpox more over the "Allopathic Treatment".

INTRODUCTION

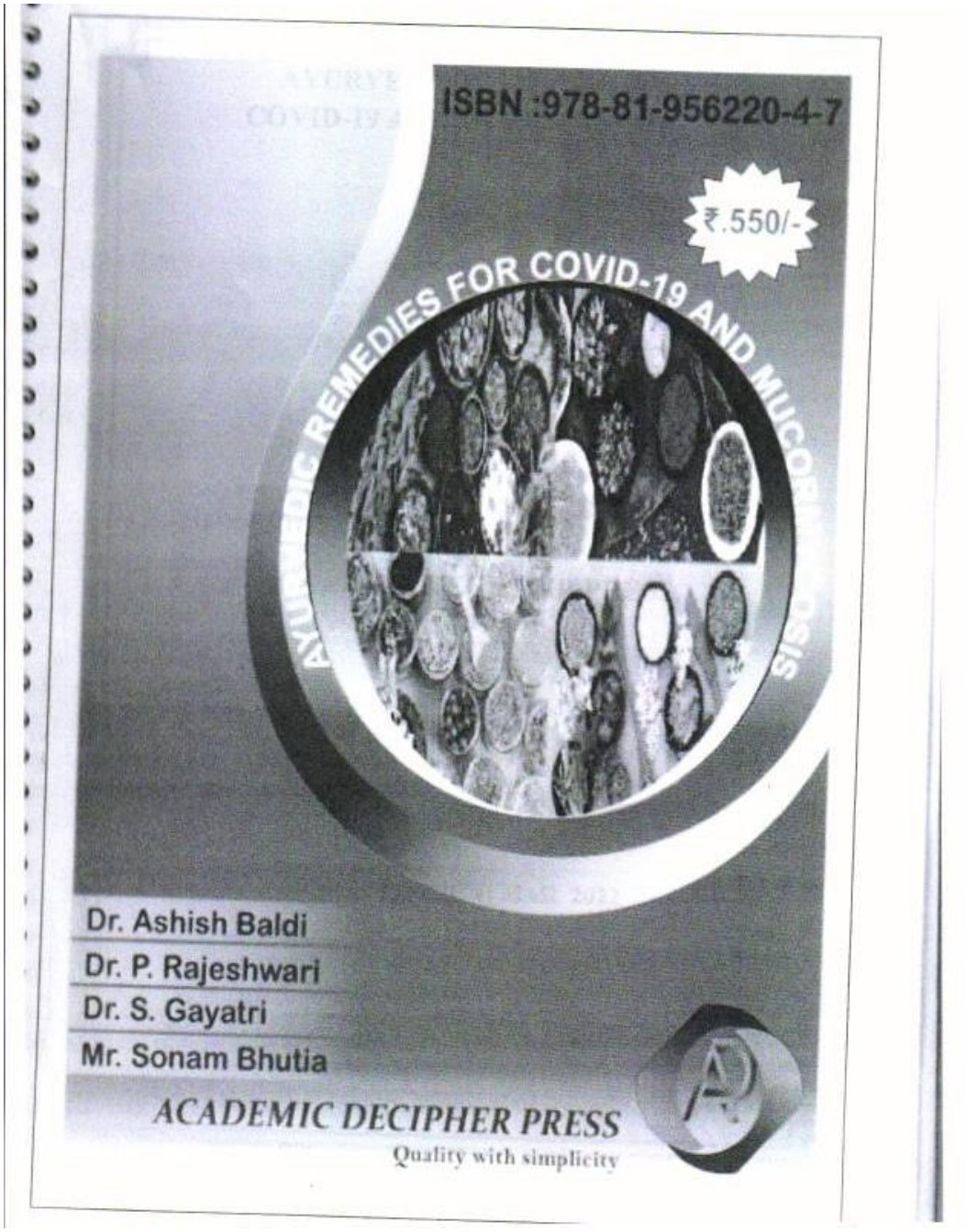
Definition-

Chickenpox is caused by Varicella-Zoster virus. Another name for chickenpox is "Varicella Pox". A person who is not vaccinated during the childhood stage can acquire chickenpox disease. Though, it is a highly contagious disease but generally a non- serious and self-limiting infection. It is highly serious in the case of babies, adults and people who are immunosuppressed.

Chickenpox affects more commonly children between the age group of 5-10 years old. Chickenpox which is characterized by small and large, reddish- yellow colored blisters which start appearing after 3 - 7 days, it will give out a pus-like discharge and will become scaly and dry. It will first start appearing on the chest, back and face. It will then spread to the rest of the body part causing between 250-500 itchy blisters. (1)

In ayurveda "Chickenpox" is known by the name of "Laghu Masurika". The term *masurika* comes from the word *masoor* (red lentils) and it is used in reference to the multiple red-colored boils that appear on the body during this illness.

Consuming excessively salty, bitter or sour foods; the foods which are incompatible with each other (e.g., fish with milk); contaminated green leafy vegetables and green peas. Habits like excessive eating are considered to be the causative factors for chickenpox.



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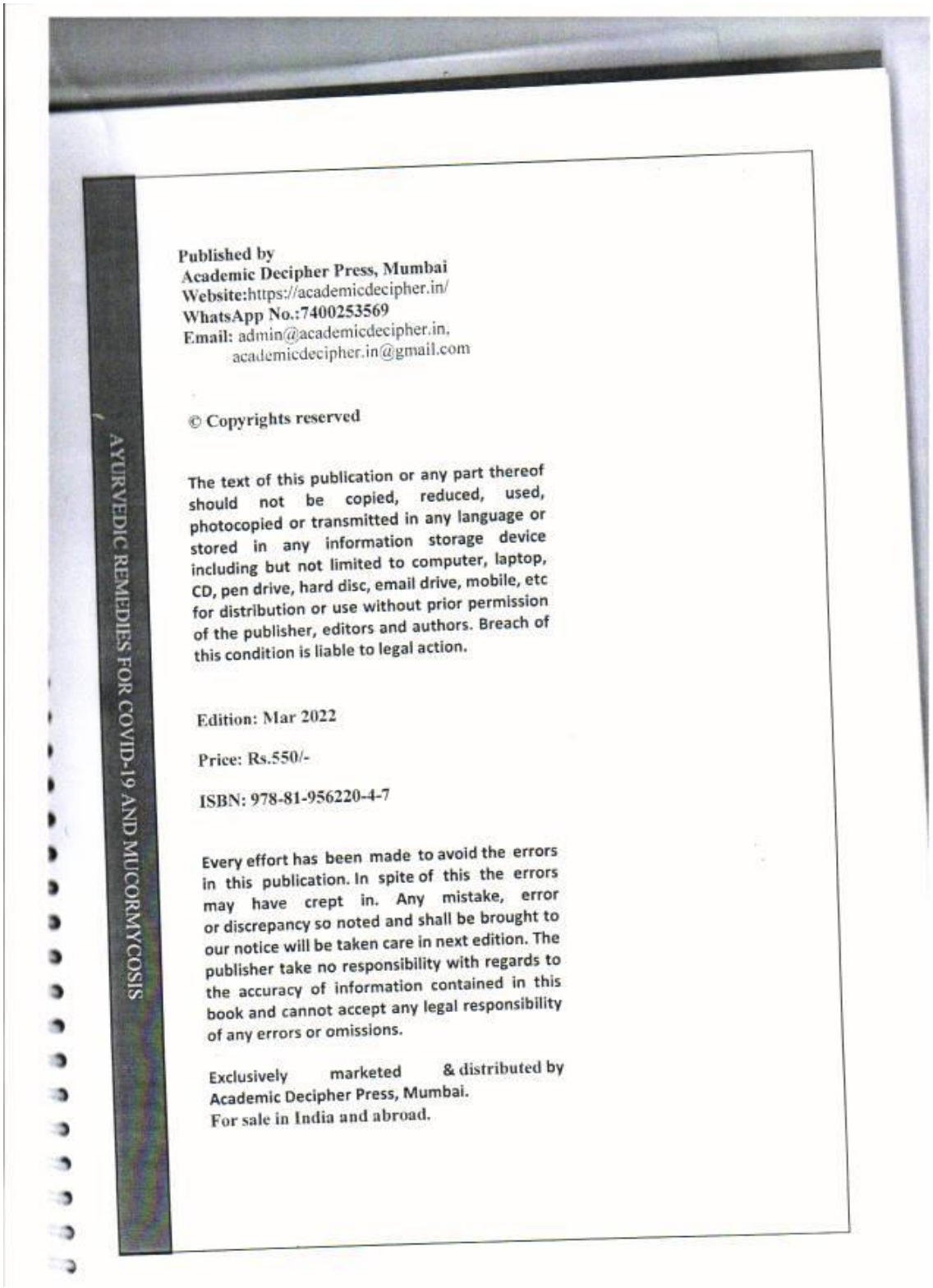
AYURVEDIC REMEDIES FOR COVID-19 AND MUCORMYCOSIS

ACADEMIC DECIPHER PRESS,
MUMBAI

PRICE: RS.550/-

ISBN: 978-81-956220-4-7

FIRST EDITION: MAR 2022



AYURVEDIC REMEDIES FOR COVID-19 AND MUCORMYCOSIS

Published by
Academic Decipher Press, Mumbai
Website:https://academicdecipher.in/
WhatsApp No.:7400253569
Email: admin@academicdecipher.in,
academicdecipher.in@gmail.com

Edition: Mar 2022

Price: Rs.550/-

ISBN: 978-81-956220-4-7

Exclusively marketed & distributed by
Academic Decipher Press, Mumbai.
For sale in India and abroad.

AYURVEDIC REMEDIES FOR COVID-19 AND MUCORMYCOSIS

ACADEMIC DECIPHER PRESS, MUMBAI

21

AYURVEDIC REMEDIES FOR MUCORMYCOSIS

Ms. Mohini Upadhye*, Dr. Shashikant Dhole, Ms. Mayuri Bhosale,
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ABSTRACT

Mucormycosis is a serious but rare fungal infection caused by a group of moulds called mucormycetes. It is an angioinvasive infection caused by the ubiquitous filamentous fungi of the mucorales order of the class zygomycetes. Mucormycosis has emerged as the third most common invasive mycosis. Sinuses or the lungs will be affected due to the inhalation of these fungal spores from the air. Mortality rate of 54% is due to these Mucormycosis cases. Mostly it occurs usually in people with reduced ability to fight infections. Treatment cost is also very high and needs a long term treatment course. Ayurvedic medicines are effective in treatment and management of Mucormycosis as it produces potent, effective, safe and broad-spectrum antifungal potentials. Early diagnosis and prompt Ayurvedic treatment can reduce the mortality and morbidity of this lethal fungal infection. This article describes Ayurvedic treatment protocol and preventive measures for Mucormycosis.

INTRODUCTION

The first well-documented case of disease was due to members of Mucorales which was published by the German pathologist Paltauf in 1885. It was known as systemic infection which involves gastric and rhinocerebral region, which was also described as "Mycosis Mucorina" by Paltauf.[1]

Mucormycosis also known as (zygomycosis) is a serious, potentially deadly fungal infection. These infections were called zygomycosis, due to presence of *Zygomycetes* which represent the general class of fungi that causes mucormycosis.[2]

Rhizopus arrhizus is the species from the Mucoraceae family, is the most commonly identified cause of mucormycosis in humans.

Generally, depending upon type of infections mucormycosis are broken down into five presentations: rhinocerebellar, pulmonary, cutaneous, gastrointestinal, and disseminated. The widespread use of glucocorticoids can lead to secondary bacterial or fungal infections.[3]
These infections are usually acquired when spores from the molds are breathed in (inhaled) or, less commonly, enter the body through a cut in the skin. These organisms are having ubiquitous nature as they are available majorly in the soil and decaying organic substrates.

Edited Book

Recent Advances In Pharmaceutical Sciences

(Volume 5)

Dr. Arun Kumar Pandey and Dr. Harshita Jain

Publisher

Innovare Academic Sciences Pvt Ltd
T-8, Mahaveer Apartment, Near SIRT College, Ayodhya Bypass, Bhopal 462041, MP, India. **Phone:** +91 425108574
Email: info@innovareacademics.in | https://innovareacademics.in/

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Edited Book: Recent Advances in Pharmaceutical Sciences (Volume 5)

Publication Year: Feb. 2022

MRP: INR 500

ISBN: 978-81-952065-2-0

Publisher and address:

Innovare Academic Sciences Pvt Ltd

T-8, Mahaveer Apartment, Near SIRT College, Ayodhya Bypass, Bhopal 462041, MP, India. Phone: +91 9425108574

Email: info@innovareacademics.in | https://innovareacademics.in/

Printer: Innovare Academic Sciences Pvt Ltd

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Recent Advances in Pharmaceutical Sciences [Volume5]

Chapter-

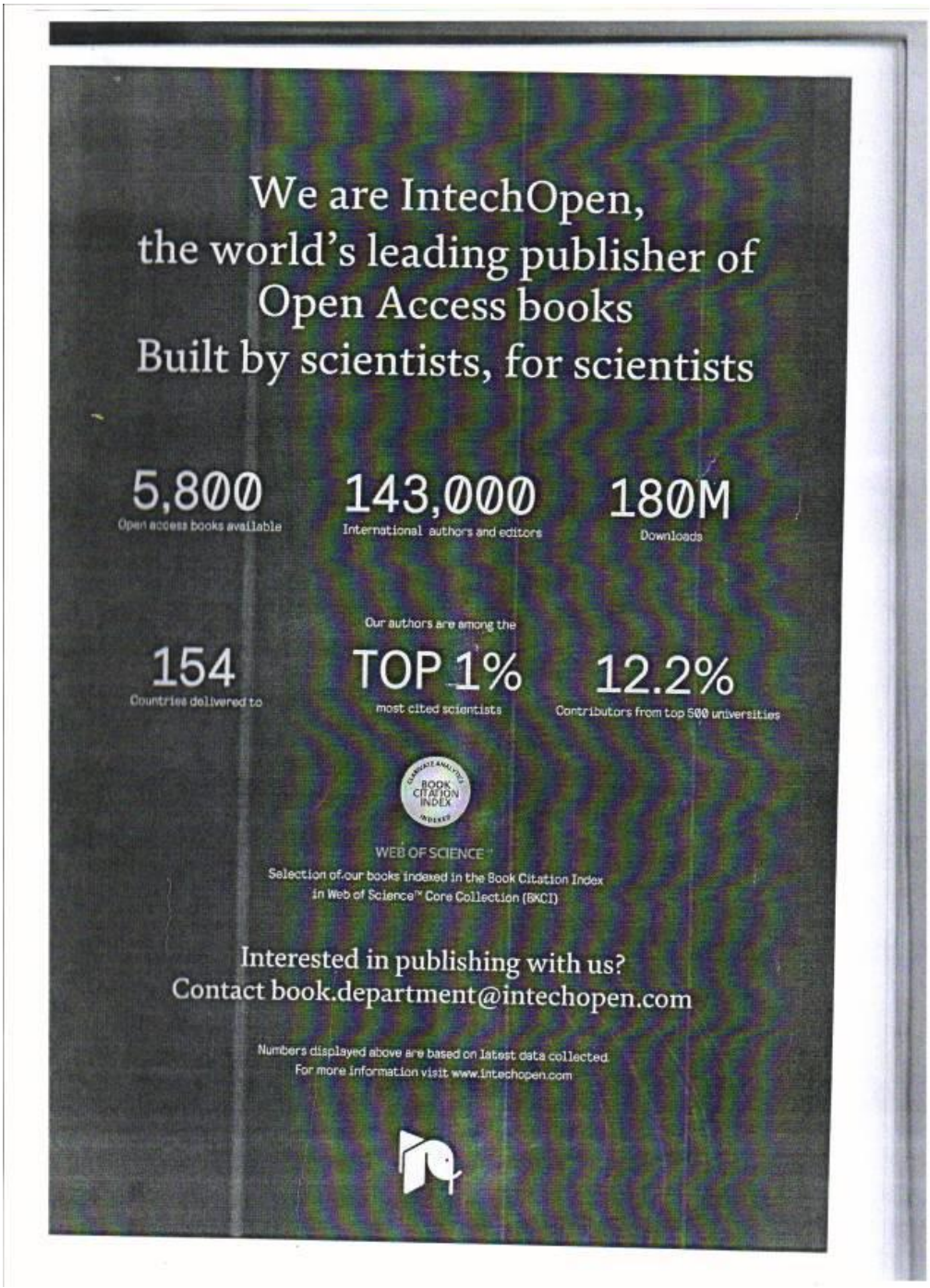
NIOSOMES: A PROMISING DRUG DELIVERY SYSTEM IN TRANSDERMAL DRUG DELIVERY (TDDS)

Vibhavari M. Chatur, Shashikant N. Dhole*
Department of Pharmaceutics, PES Modern College of Pharmacy, Moshi, Pune, Maharashtra India

ABSTRACT: Infectious disease treatment and immunisation have undergone a transformative change in recent years. With the advancement of biotechnology and genetic engineering, a large number of disease-specific biologicals have been created, as well as a focus on delivering these biologicals effectively. Niosomes are vesicular nanocarriers that are gaining popularity as a potential transdermal drug delivery system due to properties like enhanced drug penetration, a local depot for sustained drug release, and a rate-limiting membrane for modulating systemic absorption of drugs through the skin. Niosomes are non-ionic surfactant-based vesicles that are biodegradable, relatively nontoxic, more stable, and less expensive than liposomes. This analysis gives a high-level overview of niosomes, including their chemical composition, structure, benefits, and applications, as well as some general observations on niosomes as percutaneous permeation enhancers.

INTRODUCTION

Targeted drug delivery is a concept that aims to concentrate a drug in the tissues of interest while lowering the relative concentration. As a result, the drug is localised at the desired location. As a result, the medication has no effect on the underlying tissues. Synthetic polymers, liposomes, microspheres, erythrocytes, and niosomes have all been targeted using various carriers [1]. Niosomes are vesicular nanocarriers that have gotten a lot of attention because of their unique properties. They have amphiphilic molecules in a lamellar [bilayer] structure surrounded by an aqueous compartment. contain both hydrophobic [tails] and hydrophilic [heads] classes and are self-assembling, aggregating into a variety of shapes like micelles or into a planar lamellar bilayer [2].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OPEN ACCESS PEER-REVIEWED CHAPTER

Antioxidant Potential of Phytoconstituents with Special Emphasis on Curcumin

WRITTEN BY

Uday Deokate and Mohini Upadhye

Submitted: 12 February 2022 , Reviewed: 28 February 2022 , Published: 07 June 2022

DOI: 10.5772/intechopen.103982

FROM THE EDITED VOLUME

Ginger - Cultivation and Use

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Abstract

Various fruits, vegetables, cereal grains, edible macrofungi, microalgae, and medicinal plants are containing phytoconstituents which are considered to be antioxidants. Polyphenols and carotenoids are the two main kinds of antioxidant phytochemicals and they contribute the most to the antioxidant properties of plant and its derivatives are widely employed as antioxidants. Turmeric is a rhizomatous herbaceous perennial plant (Curcuma longa) of the ginger family. The medicinal properties of turmeric, the source of curcumin, have been known for thousands of years; however, the ability to determine the exact mechanism(s) of action and to determine the bioactive components have only recently been investigated. Curcumin (1,7-bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione), also called diferuloylmethane, is the main natural polyphenol found in the rhizome of Curcuma longa (turmeric) and in others Curcuma spp. Curcumin, a polyphenol, has been shown to target multiple signaling molecules while also demonstrating activity at the cellular level, which has helped to support its multiple health benefits such as antioxidant, anti-inflammatory, antimutagenic, antimicrobial and anticancer properties. Curcumin has received worldwide attention for its multiple health benefits, which appear to act primarily through its anti-oxidant and anti-inflammatory mechanisms.

Keywords

curcumin | phytoconstituents | free radicals | antioxidant

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Next Chapter

Pharmacological Properties of Ginger Combinations

By Douglas Ongeri Ochora

184 downloads

Chapter

Antioxidant Potential of Phytoconstituents with Special Emphasis on Curcumin

Uday Deokate and Mohini Upadhye

Abstract

Various fruits, vegetables, cereal grains, edible macrofungi, microalgae, and medicinal plants are containing phytoconstituents which are considered to be antioxidants. Polyphenols and carotenoids are the two main kinds of antioxidant phytochemicals and they contribute the most to the antioxidant properties of plant and its derivatives are widely employed as antioxidants. Turmeric is a rhizomatous herbaceous perennial plant (*Curcuma longa*) of the ginger family. The medicinal properties of turmeric, the source of curcumin, have been known for thousands of years; however, the ability to determine the exact mechanism(s) of action and to determine the bioactive components have only recently been investigated. Curcumin (1,7-bis(4-hydroxy-3-methoxyphenyl)-1,6-heptadiene-3,5-dione), also called diferuloylmethane, is the main natural polyphenol found in the rhizome of *Curcuma longa* (turmeric) and in others *Curcuma* spp. Curcumin, a polyphenol, has been shown to target multiple signaling molecules while also demonstrating activity at the cellular level, which has helped to support its multiple health benefits such as antioxidant, anti-inflammatory, antimutagenic, antimicrobial and anticancer properties. Curcumin has received worldwide attention for its multiple health benefits, which appear to act primarily through its anti-oxidant and anti-inflammatory mechanisms.

Keywords: curcumin, phytoconsituents, free radicals, antioxidant

1. Introduction

Free radicals are produced during routine cellular metabolic processes. These free radicals are considered as important part of the pathological complications including diabetes mellitus, cardiovascular disorders, neurodegenerative disorders, cancer, cataracts, asthamatic conditions, rheumatoid arthritis, inflammatory conditions, intestinal complications, ischemic and postischemic conditions.

Antioxidants are those substances which at very low concentrations are capable of significantly reducing or preventing the oxidation of the substrates which can be oxidized are called as antioxidants. There is a highly complex system including enzymatic and non-enzymatic systems which is effective in synergistic way with each other, so as to protect the body cells and different organs from the damage caused b

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Summary of papers published in national/ international conference proceedings per teacher during last five years

Sr. No.	Name of national/ international conference proceedings	Year	Number of Papers
1	Innovations In Chemical, Biological and Pharmaceutical Sciences (ICBPS-2023) Dated November 23-25, 2023. Organized by Institute of Pharmaceutical ResearchGLA University, Mathura (U.P.) in collaboration with APTI-UP State Branch	**2023**	**05**
2	International Conference onPublic Health and Technology December 25-26, 2023 Center for Academic & Professional Career Development and Research (CAPCDR) (ISNI:0000000505092482)	**2023**	**07**
3	72nd Indian Pharmaceutical Congress, Nagpur, Maharashtra. Dated: 20 Jan 2022 to 22 Jan 2022 Theme: Access to Quality and affordable Medical Products Venue: Department of Pharmaceutical Sciences, Rashtrasant Tukadoji Maharaj Nagpur, University, Nagpur	**2022**	**05**
4	Proceedings of Savitribai Phule Pune University sponsored Two Days State Level Workshop on "Current Trends and Regulatory Requirements of Herbal Products" held on 7th and 8th Feb 2020	**2020**	**22**
5	Proceedings of Savitribai Phule Pune University sponsored Two Days National Conference on "Pharmaceutical Validation" Held on 22nd and 23rd Feb 2020	**2020**	**33**
6	International conference Emerging Trends in Delivery of Phytoconstituents and Ethnopharmacology Validation of Traditional Medicine II 29th- 30th Nov 2019	**2019**	**01**
7	Savitribai Phule Pune University Sponsored Insight on emerging trends challenges and avenues in Pharmacology and allied area 08 Feb 2019 and 9 Feb 2019	**2019**	**30**
Total			**103**

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Conference Title

Innovations In Chemical, Biological and Pharmaceutical Sciences (ICBPS-2023)

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Institute of Pharmaceutical Research GLA University, Mathura (U.P.) in collaboration withAPTI-UP State Branch

Sr. No	Faculty Name	Title of abstract published
1	Dr. Vijaya Vichare	Estimation of preservative in presence of adapalene in an anti-acne formulation by validation RP-HPLC methods
2	Dr. Nilesh Kulkarni	Development of multiparticulate based topical targeted gel formulation for Itraconazole prepared by emulsion solvent evaporation technique
3	Dr. Rahul Shivarkar	Formulation and Evaluation of fast disintegration tablet containing blackberry root extract by quality by design (QbD) approach
4	Dr. Vrushali Tambe	Development and Evaluation of Sparfloxacin formulation for management of antibiotic Resistance
5	Dr. Mohini Upadhye	Modulatory Effects of Holostemma Annulare on attenuating the key enzymes activities of carbohydrate metabolism in streptozotocin -Nicotinamide-Induced Diabetic Rats

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PP-PR/0063

ESTIMATION OF PRESERVATIVE IN PRESENCE OF ADAPALENE IN AN ANTI-ACNE FORMULATION BY VALIDATED RP-HPLC METHOD

Vijaya Vichare*, Nilu Choudhary, Purva Yelwande, Vaishnavi Ithape
PES Modern College of Pharmacy (for ladies), Moshi, Pune, Maharshtra-412105
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A simple and economic reverse phase high performance liquid chromatographic (RP-HPLC) method was developed and validated as per ICH guidelines for the determination of preservative Phenoxyethanol in presence of Adapalene. Separation of preservative and API was achieved by using C18 column as stationary phase, Acetonitrile: Water as mobile phase at flow rate of 1.2ml/min. Wavelength of 272 nm was used for detection. The developed RP-HPLC method was found to be linear, sensitive, accurate and precise. This method was robust as per results obtained by applying DoE approach. Hence, the proposed method can be recommended for the simultaneous determination of Adapalene and Phenoxyethanol in routine quality control analysis for analysis of combined drug formulations.

Keywords- Adapalene, Phenoxyethanol, RP-HPLC, Preservative.

PP-PR/0064

DEVELOPMENT OF MULTIPARTICULATE BASED TOPICAL TARGETED GEL FORMULATION FOR ITRACONAZOLE PREPARED BY EMULSION SOLVENT EVAPORATION TECHNIQUE

Nilesh Kulkarni*, Shruti Burad, Komal Khade, Suvarna Gore, Pooja Harkal
PES, Modern college of Pharmacy (For Ladies), Moshi, Pune, Maharashtra, India 412105
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Itraconazole is a BCS class II antifungal drug having low solubility and also possess extensive first pass metabolism, so it needs to increase solubility and bioavailability of itraconazole by formulating multiparticulate based gel formulation to improve rate of permeation through transdermal route. For the preparation of multiparticulate system the organic phase consists of ethyl acetate and acetone in various ratios. Aqueous phase contains polyvinyl alcohol (PVA) with ethyl cellulose and third component as Eudragit RL 100 or chitosan or HPMC K4 or mucilage extracted from seeds of Vigna Mungo and drug dissolved in the organic solvent. The prepared multiparticules were evaluated for drug content, entrapment efficiency, drug loading and characterized for fourier transform infrared spectroscopy, differential scanning calorimentry, field emission scanning electron microscopy, particle size and zeta potential measurement. The optimized formulation microparticle containing itraconazole: ethyl cellulose: chitosan, itraconazole: ethyl cellulose: HPMC K4 and itraconazole: ethyl cellulose: mucilage extracted from seeds of Vigna Mungo was formulated as gel formulation using 1% of Carbopol 940 as gelling agent. There is difference in the position of the absorption bands of FTIR in Itraconazole, Itraconazole loaded microparticle, it can be concluded there is interaction between the drug and the excipients and may be due to hydrogen bond formation. The DSC curve of the pure drug Itraconazole showed that it is in crystalline anhydrous state, exhibiting a sharp endothermic

peak at 165◦C(corresponding to its melting point 160-165◦C), and for the formulation peak of microparticle (containing chitosan, HPMC K4 and mucilage of Vigna Mungo) showed reduced endothermic area at 165◦C, suggesting changed crystallanitiy i.e. from crystalline to amorphous state. It is also confirmed by FESEM study. The gel formulations containing microparticle showed better diffusion and antifungal activity as that of plain itazonazole gel formulation. Hence the microparticle containing gel found to be better alternative for the enhanced drug diffusion across skin barrier over plain itazonazole.

Keywords: microparticle, Vigna Mungo, permeation

PP-PR/0066

FORMULATION AND EVALUATION OF FAST DISINTEGRATION TABLET CONTAINING BLACKBERRY ROOT EXTRACT BY QUALITY BY DESIGN (QbD) APPROACH

Rahul Shivarkar*, Bhakti Gurav, Shraddha Jagtap, Pratiksha Mahanavar, Pooja Kamble, Snehal Pansare

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To increase market exclusively, fast disintegrating dosage form allows a manufacturer offering patients a convenient dosage form or dosage regiment. For the formulation development of the fast- disintegrating tablets, super-disintegrate are is first choice of excipients which are extensively used as they effectively result into the immediate disintegration, release and absorption of the drug. With this approach, we formulated fast

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disintegration tablet containing blackberry root extract by Qbd approach. For the same, we optimize some batches considering 3 excipients sodium starch glycolate, Crossprovidone and microcrystalline cellulose. The QbD software shows few runs that have different disintegration time: then we chose some batches and worked on that. Then optimize our formulations for increase disintegration time by QBD approach. We performed 4 dummy batches of tablet by using the sodium Starch glycolate, Crossprovidone are the synthetic disintegrating agent, as well as using of natural disintegrating agent such as okra without using root extract, and by comparing the disintegrating time of all the batches found to be 30 min, 35min, 25 min or 22 min. After that we performed other 6 batches to optimise specific disintegration time of tablet by adding plant extract and the result shows disintegration time found to be 10 min of one of the batch as we focusing on disintegration time parameter. The prepared tablet with QbD approach are evaluated for, Weight variation, (%) Thickness (mm), Hardness (kg/ cm²) Friability (%), Bulk density (gm/ cm²), Tapped density (gm/ cm²), Carr's index (%), Hausner ratio, angle of repose (θ).

Keywords: Disintegration, Super-disintegrate, Blackberry root, Quality by Design (Qbd)

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PP-PR/0055

DEVELOPMENT AND EVALUATION OF SPARFLOXACIN FORMULATION FOR MANAGEMENT OF ANTIBIOTIC RESISTANCE

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Antibiotics resistance is a global health threat resulting due to extreme exposure and misuse of antibiotics. One of the resistance mechanisms is bacterial expression of efflux pumps and their mutations over the period due to which antibiotic concentration inside the bacterial cell is reduced. Blocking this pathway is a potential strategy to reduce bacterial resistance. This study is focused on determining the effectiveness of various phytoconstituents as an inhibitor of various efflux pumps of *Escherichia coli* namely AcrAB-Tolc, AcrB, EmrE, EmrD and MacA by in silico methods. Docking analysis using Pyrx and Autodock software showed Rutin with the highest average binding affinity. In vitro studies have demonstrated better activity of Sparfloxacin in resistant *Escherichia coli* when used along with Piperine or Citric acid. Further, the capsule formulation containing Sparfloxacin in combination with citric acid was developed and evaluated.

Keywords: Antibiotic resistance, *Escherichia coli,* Efflux pump, Citric acid, Piperine, Sparfloxacin

PP-PR/0056

REVOLUTIONIZING SCIENCE AND MEDICINE: THE DYNAMIC POTENTIAL OF NANOPARTICLES

Anuradha yadav[1], Arpita Singh[1], Sweta Shukla[2], Shubhankit Soni[3]
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Nanoparticles have emerged as a groundbreaking and versatile tool in the fields of science and medicine, offering remarkable potential to transform various aspects of research, diagnosis, and treatment. This paper explores the dynamic capabilities of nanoparticles in these domains, delving into their unique properties, synthesis techniques, and wide-ranging applications. By harnessing their size-dependent properties, nanoparticles enable precise drug delivery, imaging, and diagnostics, revolutionizing the way we approach healthcare and scientific exploration. This review highlights recent advancements, challenges, and future prospects, demonstrating how nanoparticles have ushered in a new era of innovation and discovery in science and medicine.

Keywords: Nanoparticles, Drug Delivery, Medicine, Scientific Exploration, Dynamic Capabilities.

Mycobacterium tuberculosis is an infectious mycobacterium that causes tuberculosis (TB) in humans and is persistently infecting the people of developing countries. Novel series of 10 phenyl nicotinonitrile were synthesized and screened against the Mycobacterium tuberculosis H37Rv strain. The compounds were characterized based on spectral analysis. Further, the compound's physicochemical and pharmacokinetic profiles were also examined. Since the compounds were screened for activity against the whole Mtb cells, their enzyme target was interpreted by performing molecular docking against multiple target enzymes. Compound 5g showed better activity against Mtb among other phenyl nicotinonitrile series. It obeys Lipinski's Rule of Five and shows a good kinetic profile. From molecular docking, analysis simulates that compound 5g shows the highest docking score against all enzyme targets. Among them, it showed the highest docking score against the dihydrofolate reductase enzyme. Structural activity relationship (SAR) was also studied to put insight and make a better understanding of other structural key features.

Keywords: Phenyl nicotinonitrile derivatives; anti-TB activity; molecular docking; ADME prediction; Lipinski's rule of 5; SA

OP-PC/011

MODULATORY EFFECTS OF *HOLOSTEMMA ANNULARE* ON ATTENUATING THE KEY ENZYMES ACTIVITIES OF CARBOHYDRATE METABOLISM IN STREPTOZOTOCIN–NICOTINAMIDE-INDUCED DIABETIC RATS

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Diabetes mellitus is a disease due to abnormality of carbohydrate metabolism and it is mainly linked with low blood insulin level or insensitivity of target organs to insulin. This is characterized by hyperglycaemia and long term complications affecting the eyes, kidneys, nerves and blood vessels and is the most common endocrine disorder. Although the underlying mechanism of diabetic complications remains unclear, much attention has been focused on the role of oxidative stress. It has been suggested that oxidative stress may contribute to the pathogenesis of different diabetic complications. Diabetic experimental animal models have shown that oxidative stress causes persistent and chronic hyperglycaemia, therby depleting the activities of the antioxidant defense system and otherwise promoting free radicals generation *Holostemma annulare* is a well-known medicinal plant, which is an important constituent in more than 34 ayurvedic preparations. The roots are reported in tridosha to possess cooling, alterative, tonic and lactative properties. They are also used in diabetes, gonorrhoea, coughs, stomach-ache, consumption, fever.

The ethanolic extract of *Holostemma annulare* roots has been reported to contain six amino acids, viz; alanine, aspartic acid, glucine, serine, threonine and valine. The benzene extract contains α-amyrin, lupeol and β-sitosterol. In the present investigation, we attempted further to investigate the alcoholic root extract of *Holostemma annulare* was studied for its antioxidant status and its effects on key enzymes of carbohydrate metabolism in streptozotocin and nicotinamide induced type 2 diabetic rats.

Conference Title

International Conference on Public Health and Technology December 25-26, 2023

Center for Academic & Professional Career Development and Research (CAPCDR) (ISNI:0000000505092482)

Sr. No	Faculty Name	Title of abstract
1	Bhagyashri Parande, Dr.S. N. Dhole	Exploring the Synergy of Technology in public Health
2	C. C. Dongaonkar Dr. S. N. Dhole	Artificial intelligence role in healthcare: A public health prospective
3	B. S. Parande Dr.S.N.Dhole	3D printing in dosage form development
4	Dr.Nilesh S. Kulkarni	Formulation, Development and Characterization of Oral Jelly to Improve Therapeutic Effectiveness
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7	C. C. Dongaonkar Dr.S.N.Dhole	Tele-Health Triumph: A Public Health Perspective

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Public Health and Technology
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Center for Academic & Professional Career Development and Research
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Center for Academic & Professional Career Development and Research (CAPCDR)
(ISNI: 0000000505092482)

First published in Bangladesh, January 2024, by the

KMF Publishers
(ISIN: 000000050389326X)
(RJSC&F: P-48328/2022)

DOI: https://doi.org/10.5281/zenodo.10450996

ISBN: 978-984-35-5464-2

QR SCAN

978-984-35-5464-2

Computer Editing:

KMF Cyber Solutions

Printing:

KMF Printers

Price:

Hard Copy: BDT 500.00 International USD$20.00 (Excluding International Freight)

Soft Copy: Open Access

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Exploring the Synergy of Technology in Public Health

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The intersection of technology and public health has been brought in a new era of innovation, offering transformative solutions to address various healthcare challenges. Review explores the multifaceted role of technology in public health initiatives, encompassing digital health interventions, social media monitoring ,3D printing, data analytics, telemedicine, wearable devices, and artificial intelligence. In recent years, the utilization of social media monitoring in the realm of public health has emerged as a powerful tool for surveillance, communication, and intervention strategies. It delves into how this approach enables the real-time tracking of disease outbreaks, identification of health-related trends, and monitoring of public sentiment towards health interventions and policies. This review discusses the integration of social media data with traditional epidemiological surveillance, showcasing its potential in early detection, rapid response, and risk communication during public health crises, applications of wearable devices in public health research, disease monitoring, and early detection, emphasizing their role in facilitating remote patient monitoring and enhancing healthcare delivery. Three-dimensional printing (3DP) enables the development of diverse geometries through computer aided design using different techniques and materials for desired applications such as pharmaceutical drug delivery medicine. The FDA approval of printed-medicine opens up an unprecedented opportunity for the discovery of new compounds and technologies for the pharmaceutical industry development. A new telemedicine health care model has emerged as a result of traditional healthcare model evaluation the ongoing advancement, of current network information technology and people's desire for healthcare.

Keywords: technology, computer aided design, pharmaceutical drug

Center for Academic & Professional Career Development and Research (CAPCDR)
(ISNI: 0000000505092482)

Artificial intelligence role in healthcare: A public health prospective

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Artificial intelligence (AI) is going to be used in the healthcare industry more and more because of the complexity and growth of data in this sector. The healthcare providers, and life sciences organisations currently use a variety of AI technologies. The main application categories include administrative tasks, patient engagement and adherence, and diagnosis and treatment recommendations . Various AI technologies are presently used by life sciences organizations, payers, and healthcare providers. The primary application categories include diagnosis and treatment recommendations, patient involvement and adherence, and administrative activities. AI has demonstrated its capacity to improve diagnostics, optimize treatment strategies, and enhance overall healthcare delivery. While acknowledging the ethical considerations and challenges, the promising outcomes underscore the importance of continued research, collaboration, and thoughtful implementation.

Keywords: Artificial intelligence, Role of AI in healthcare for public health prospective

Center for Academic & Professional Career Development and Research (CAPCDR)
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3D printing in dosage form development

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3D printing in pharmaceuticals involves the creation of objects layer by layer using computer• aided design. The process includes modeling, printing, and finishing. Various 3D printing methods and technologies are used, such as inkjet printing, fused deposition modeling, and thermal inkjet printing. 3D printing offers advantages such as personalized medicine, small batch production, and precise dosing of potent drugs. It has applications in prosthesis development, tissue engineering, drug development, and more. The FDA has approved the first 3D printed pill, which uses Zip Dose technology for rapid disintegration. 3D printing has the potential to revolutionize the pharmaceutical Industry by allowing for customized dosage forms and improved drug delivery.

Keywords: 3D printing

Center for Academic & Professional Career Development and Research (CAPCDR)
(ISNI: 0000000505092482)

Formulation, Development and Characterization of Oral Jelly to Improve Therapeutic Effectiveness

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The most commonly used oral solid dosage forms are in tablets, capsules, granules, powder and pills. The most evident drawback of such commonly used oral dosage form is difficulty in swallowing, leading to patient's incompliance specially in the case of pediatric and geriatric patients, but it is also seen in case of people who ill in bed and to those active working patients who are busy or travelling, especially those who have no access to water. Hence to avoid such inconveniences and to fulfill all the medical needs, the pharmaceutical researches developed a new novel drug delivery system known as Oral Medicated Jellies (OMJ's). Oral medication jellies have some ideal qualities to set them apart from typical dosage forms, they require less time to dissolve, absorb and show clinical effects as compared to other oral dosage forms and hence it shows better patient compliance. By controlling the viscosity of jelly with the help of gelling agent, rate of drug release and drug plasma concentration level can be controlled. Oral jellies have significant advantages for both solid and liquid dosage forms, as they remain solid during storage which aid in stability of dosage forms and they transform in liquid like form within few seconds to few minute after its administration as well as jelly candies have become very common in children as they enjoy chewing the jelly. Medicated jelly can be used in the local treatment of ailment related to oral cavity and also in the treatment of systemic conditions. Development of jelly as novel type of formulation results in increased bioavailability, bypass extensive hepatic first pass metabolism, reduction of dosage wastage and drug frequency, dose dumping, stability and taste masking.

Keywords: Pharmaceutical jellies, pediatric formulations, dysphagia, gelling agents, evaluation of jelly, bioavailability enhancement

Center for Academic & Professional Career Development and Research (CAPCDR)
(ISNI: 0000000505092482)

Nanostructured Lipid Carrier To Improve Oral Bioavailability

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Oral administration was thought to be the best way to administer both traditional and novel drugs because it decreases patient noncompliance, is well-accepted by patients, and can also relieve the pain and discomfort associated with parenteral preparations. However, despite the many benefits of oral formulations, a number of disadvantages significantly impair bioavailability. Drug delivery methods using nanocarriers have shown to be the most effective available nowadays. By helping with site-specific targeting, nanoparticles can stop drugs from breaking down across different physiological barriers. Lipidic systems are regarded as the most evident among all the emerging nano drug carriers. Lipid carriers that are nanostructured are thus created. As these consist of liquid and solid lipid mixes, which make up the safe lipidic colloidal systems. The structure of these NLCs' is imperfect that provides Long-term drug stability and a high drug loading capacity. Surfactants are used in system for stabilization. This lipidic formulation offers improved penetration, longer half-life, decreased clearance, and greater drug solubility and improve oral bioavailability of various class of drugs. A type of lipid-based carrier called nanostructured lipid carrier (NLC) replaces a certain amount of solid lipid with liquid lipid to get over some of the main drawbacks associated with solid lipid nanoparticles (SLNs). Research using nanostructured lipid carriers shows that they may be the most advantageous carrier for improving the oral bioavailability of both hydrophilic and lipophilic medications. This article provides a brief overview of the different types, components, and fabrication methods of NLC that are employed in NLC formulations, with a primary focus on typical barriers that affect the bioavailability of drugs delivered orally. NLCs' advantage over solid lipid nanoparticles is highlighted in this review. NLCs increase a drug's oral bioavailability is further described in this review.

Keywords: nanostructured lipid carrier, solid lipid nanoparticle, bioavailability, nanocarriers, nanoparticles

Center for Academic & Professional Career Development and Research (CAPCDR)
(ISNI: 0000000505092482)

Nanofibers Based Approaches for Enhancing Solubility and Bioavailability in BCS class II Drugs-A Comprehensive Review

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This review explores the innovative use of nanofiber technologies to address the solubility and bioavailability challenges associated with Biopharmaceutical Classification System (BCS) Class II drugs.These drugs characterized by low aqueous solubility and high permeability,present significant hurdles in drug development and therapeutic efficacy. Nowadays, polymer nanofibers have gained attention due to remarkable characteristics such as high porosity and large surface area to volume ratio.Nanofiber-based formulations have emerged as innovative strategies to enhance drug solubility,dissolution rate and overall bioavailability.The review begins by outlining the fundamental issues surrounding BCS Class II drugs and the impact of poor solubility on their therapeutic efficacy. It then provides an in depth analysis of various nanofiber fabrication techniques, such as electrospinning, Centrifugal jet spinning and meltblowing etc, highlighting their suitability for encapsulating and delivering poorly water soluble drugs. Additionally, the review highlights the various types of polymers/Copolymers and nanocomposites used in nanofiber formulations, discussing their compatibility with BCS Class II drugs and their potential to improve drug solubility.The polymers also plays crucial role in nanofiber innovation it has used for Biomedical applications,wound dressings and scaffolds for tissue engineering.The electrospun nanofibers has directly impact by different parameters like needle diameter, flow rate, applied voltage, and distance between the needle and collector,solvent, polymer concentration,viscosity,temperature and humidity.furthermore characterisation of electrospun nanofibers include various studies such as solubility,drug release kinetic, scanning electron microscopy (SEM), differential scanning calorimetric (DSC), and Fourier transform infrared (FTIR) spectroscopy.The comprehensive discussion extends to encompass in vitro and in vivo studies provides insights into the effectiveness of nanofiber based drug delivery systems.In conclusion, this review consolidates current knowledge on nanofiber-based strategies for enhancing the solubility and bioavailability of BCS Class II drugs.this work aims to guide researchers and pharmaceutical scientists towards the effective application of nanofiber technologies,ultimately improving therapeutic outcome in drug delivery.

Keywords: Nanofibers,Bioavailability,Electrospinning,Meltblowing,polymers,Copolymers,Drug release

Center for Academic & Professional Career Development and Research (CAPCDR)
(ISNI: 0000000505092482)

Tele-Health Triumph: A Public Health Perspective

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A new telemedicine healthcare model has emerged as a result of the traditional healthcare model's evolution, the ongoing advancement of current network information technology, and people's desire for healthcare. The term "Telemedicine" describes the extensive use of information technology for long-distance communication and the exchange of medical data between several locations. Specialty care, patient consultations, remote patient monitoring, and medical education are all improved by telemedicine, which keeps patients in their homes. Telemedicine is paving the way for a new world of innovative approaches to medicine. The rapid adoption of real-time communications technology by treatment providers has enabled new Telemedicine applications. Telehealth services include treatment services, giving medical advice, follow-up medical services, and transmitting medical information. There are numerous uses for telemedicine in patient care, public health, education, research, and administration. Telehealth, also referred to as telemedicine or e-medicine, is the remote delivery of healthcare services over the telecommunications infrastructure. Telehealth allows healthcare providers to evaluate, diagnose, inform and treat patients without an in-person visit. This paper gives a brief overview of telemedicine's history, discusses a few instances of its use, telemedicine in public health, challenges, future of telemedicine in health care.

Keywords: Telemedicine or e-medicine, Telemedicine in Public Health, Future of Telemedicine

Papers Published in National/ International Conference Proceedings 2022

Conference Title

72nd Indian Pharmaceutical Congress, Nagpur, Maharashtra.

Dated: 20 Jan 2022 to 22 Jan 2022

Theme: Access to Quality and affordable Medical Products

Venue: Department of Pharmaceutical Sciences, Rashtrasant Tukadoji Maharaj Nagpur, University, Nagpur

Sr. No	Faculty Name	Title of abstract published
1	Dr. Nilesh S. Kulkarni	Development, optimization and evaluation of Self Nanoemulsifying drug delivery for poorly water-soluble drug levosulphiride
2	Prof. Dr. Shashikant N. Dhole, Dr. Nilesh S. Kulkarni	Development and evaluation of lyophilized oduct containing Azelinidipine with Hydroxypropyl β-cyclodextrin/ soluplus as binary inclusion complex and effect of ternary component as PEG 400 and L-arginin
3	Prof. Dr. Shashikant N. Dhole, Dr. Nilesh S. Kulkarni	Development, optimization and evaluation of levosulphiride containing lyophilized solid lipid nanoparticles
4	Dr. Smita D. More	Formulation and evaluation of Herbal conventional tablet for Dengue fever
5	Ms. Rani Dhole	Design, development of noisomes for solubility enhancement of poorly water-soluble drug

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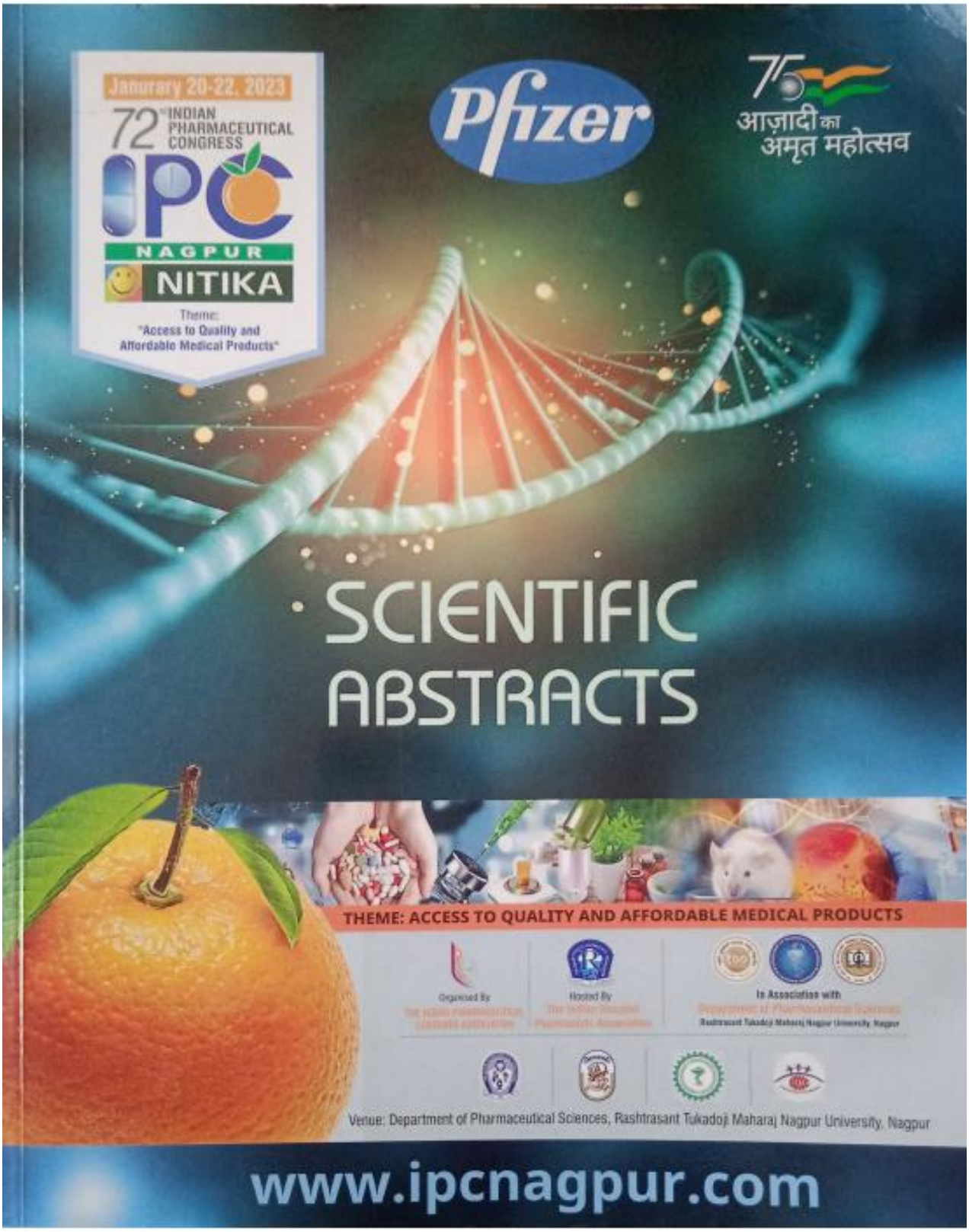
January 20-22, 2023
72nd INDIAN PHARMACEUTICAL CONGRESS
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Theme:
"Access to Quality and Affordable Medical Products"
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आज़ादी का अमृत महोत्सव
SCIENTIFIC ABSTRACTS
THEME: ACCESS TO QUALITY AND AFFORDABLE MEDICAL PRODUCTS
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Venue: Department of Pharmaceutical Sciences, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
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FORMULATION AND EVALUATION OF ASPIRIN DELAYD RELEASE TABLET

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The main aim of the study is to develop delayed release stable tablet formulation of Aspirin. The delayed release tablet is intended to release the drug after some delay or after tablet pass GI tract. Aspirin delayed release tablet is used to increase bioavailability and to reduce risk of hospitalization for heart failure, coronary thrombosis deliver drug at a near constant rate for 24hr. Keeping these factors in view it is aimed to formulate, evaluate and stabilize Aspirin (75mg) DR tablet to provide a controlled and predictable release of Aspirin and which is useful in the treatment of Coronary Thrombosis (heart disease) for Once in Day administration. The half life of Anticplatelet agent is 6 Hours which makes it suitable candidate for delayed release formulation. The present work aims to avoid degradation of drug in acidic environment of stomach. So due to enteric coating drug releases into the small intestine so that drug gets larger surface area for absorption. Micro crystalline cellulose, maize starch, cross carmilose Sodium is a disintegrant used to prepare a blend for direct compaction method. Hence our present study was performed on these formulations as aspirin delayed release tablet.

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CONSTRUCTION OF CO CRYSTAL CLARITHROMYCIN – A NEW ATTEMPT FOR SOLUBILITY ENHANCEMENT

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The meager physicochemical properties like low solubility and low dissolution rate of clarithromycin remain as an obstruction for formulation development. In the present work, we explore the evolution of clarithromycin co-crystal, which may offer the synergetic physicochemical properties of the drug. Co-crystal crafting depends on two possible intermolecular interactions, heteromeric and the homomeric selection of compounds with complementary functional groups are contemplated as a possible cause of supramolecular synthons in co-crystal formation. Specifically, co-crystals of clarithromycin with L-asparagine and L-glutamine with molar ratio (1:1) were fabricated by using slow solvent evaporation and slow evaporation techniques. Novel co-crystals of clarithromycin-asparagine (CLR-AS) and clarithromycin-glutamine (CLR-G) co-crystals obtained by slow solvent evaporation were utilized for preliminary investigation and further scale-up was done by using the solvent evaporation technique.The novel co-crystals showed a new characteristic of powder X-ray diffraction, thermograms of differential scanning calorimetry and scanning electron microscopy. These results signify the establishment of intermolecular interaction within the co-crystals. In both the novel co-crystals, clarithromycin was determined to be engaged in the hydrogen bond interaction with the complementary functional groups of L-asparagine and L-glutamine. Compared with the pure clarithromycin, CLR-AS and CLR-G co-crystal showed 9.72-fold and 6.24-fold improved solubility respectively. The dissolution test showed that the CLR-AS and CLR-G co-crystal exhibited 3.97-fold and 2.94-fold higher dissolution rate than the pure clarithromycin at pH 6.0 phosphate buffer respectively.Conclusion Modulation in the chemical environment, improvement in the solubility, and dissolution rate demonstrated the benefit of co-crystallization to improve the physicochemical properties of the drug.

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FORMULATION AND EVALUATION OF HERBAL CONVENTIONAL TABLET FOR DENGUE FEVER

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Purpose: The purpose of this research work is to formulate and evaluate herbal conventional tablet of Adhatoda vasica leaf extract against dengue fever. The aim of this study is to increase the platelet count in thrombocytopenia. Materials: Adhatoda vasica leaf extract, natural excipients such as guar gum, acacia, starch, mannitol, magnesium stearate etc. Results: Preformulation studies were carried out for drug and mixture. Melting point of drug was found to be 106°C -110°C and there was no drug excipients interaction which was confirmed by the IR study. Prepared tablets were evaluated for various parameters like weight variation, thickness, hardness, friability, drug content, in vitro dissolution, in-vivo study and the results of all test were found to be satisfactory. Thickness found to be uniform, friability and hardness were found within the limits thus shows good mechanical strength of tablets. All batches passed test for uniformity of weight as per IP limits. The optimized batch was formulated using [illegible] shows initial drug release of 22.29 % at end of 1 hour and drug release of 93.53% at the end of 8 hours. In vivo study shows increase in platelet count by optimized batch (F4) and stability studies showed that there is not much difference in drug content and/or vitro release pattern after 90 day's period. Conclusion: Herbal conventional tablet of Adhatoda vasica leaf were formulated successfully for the treatment of thrombocytopenia.

A 348

FORMULATION AND EVALUATION OF EXTENDED RELEASE SOLID DISPERSION OF A POORLY WATER SOLUBLE DRUG

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Solid dispersion system can solve the problem of drug with poor aqueous solubility and bioavailability. In this research, formulate and characterize solid dispersion (SD) of [illegible] using Eudragit RL 100 and Gum Karaya as a polymer by the solvent evaporation and kneading method. FTIR spectroscopy was used to look for interactions between drug and polymers. In this study, fifteen batches of formulation were made using Central Composite design using design expert software, with varied amounts of Eudragit RL100, Gum Karaya, MCC, Magnesium Stearate and Talc in each batch. Drug content and an in vitro dissolution study were all assessed on the produced tablet. Batch (TSE 11 and TK 11 (MCC 120 mg, Magnesium Stearate 07 mg, and Talc 2 mg) was chosen as the best batch based on its extended drug release (up to 12 hours) and good physical properties (angle of repose). It can be concluded from in vitro drug release experiments that drug release is suitable in terms of extended release of drug after 12 hours in the optimize batch (TSE 11 and TK 11) drug release was found to be 87.4% and 96.43% for 12 hours. DSC, XRD and SEM analysis were used to evaluate the optimized tablet batch's (TSE 11 and TK 11). For three months, the stability research was conducted on the optimized formulation (TSE 11 and TK 11) at 40 °C and 75% relative humidity. After 0, 30, 60 and 90 days, the tablet were tested for percent cumulative drug release. There were no significant changes in drug release or content, leading to the conclusion that the optimized tablet batch (TSE 11 and TK 11) were stable.

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FORMULATION AND EVALUATION OF CALAMINE CREAM FROM SYNTHESIZED CALAMINE DRUG

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The calamine cream, lotion and ointment are used for prevention of sun burns, itching, rashes, is also used as an antiseptic. Calamine is used as the moisture. In market the calamine lotion is used for treating from the itching, sun burns. But there is no formulation of cream and ointment because of the instability of cream and ointment because the calamine is soluble in the acidic. We have to make the preparation of the cream in the acid. We have used buffer solution in some bases to overcome the instability problem. The melting point of the calamine is 1750 to 1800C. The calamine consists of Zinc Oxide (ZnO) and Ferric oxide (Fe2O3). Firstly, we synthesis the Ferric Oxide from the Ferrous Sulphate. After that our calamine power is prepared from the synthesis of the ferrous sulphate. Then, we have done the several identification test such as the acid insoluble, lead, sulphate and chloride test for the identification of the synthesis calamine power. Then we have prepared the calamine cream by using oil and water phase ingredient such as Cetostearyl Alcohol, Polyethylene Glycol, Glyceryl Monostearate, Liquid Paraffin (oil phase) and Phenoxyethanol and Water (liquid phase). We have mixed the phase into the water phase after mixing the ingredient properly we have added the synthesis calamine power. Then we have done several Evaluation parameters such as Color, Odor, Appearance, PH, Viscosity, Consistency, and washability.

A 351

DEVELOPMENT, OPTIMIZATION AND EVALUATION OF LEVOSULPIRIDE CONTAINING LYOPHILIZED SOLID LIPID NANOPARTICLE

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The bioavailability is dependent on solubility and permeability. The work is focused on improvement in solubility and permeability of BCS class IV drug Levosulpiride. The [illegible]

A-401

INCREASING THE SUSTAINABILITY OF ORAL DOSAGE FORM: AN APPROACH TOWARDS THE DEVELOPMENT OF MODIFIED RELEASE TABLET

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The Modified release dosage is a mechanism in which the drug is delivered to a specific target for a prolonged period of time. This type of dosage form involves lengthening the t half of the drug and hence increasing the bioavailability. These are developed by altering drug absorption or the site of drug release in order to achieve predetermined clinical objectives. Modified drug release dosage forms are complemented by the allied processes of drug design, dosage administration, membrane transport and absorption of drug to the biological site of action. The goal of developing Modified Release Formulations is to increase patient compliance; it enables patients with chronic diseases(diabetes, heart diseases, gastrointestinal disorders , Alzheimer's disease, Parkinson's disease, etc.) to take medicines less often with less fluctuation in the dosage form and hence increasing efficiency and also minimizing local and systemic side effects. Usually this is to slow the release of the drug and keep steadier levels of drug in the bloodstream for prolong periods of time. Delay release (e.g., enteric coated), extended release (ER), targeted release, and oral dosing (OOT) are examples of MR drug products. Modified drug deliveries through oral route have proven to be of a great significance to prolong the effect of the active ingredient for sufficient time span in the body. These formulations are an aid of treatment to developing chronic diseases in the world and improving health of people around the globe.

A-402

DEVELOPMENT AND EVALUATION OF RITONAVIR NANOPARTICLE AGGLOMERATES AS DRY POWDER INHALER.

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In the recent times pulmonary drug delivery route is gaining much importance as it offers drug delivery to the lung both for local and systemic treatment. Dry powder inhaler (DPI) has several advantages both in terms of use and effectiveness over other pulmonary devices. The present study aims to develop and evaluate DPI formulation of an oral antiretroviral drug Ritonavir as nanoparticle agglomerates. Drug formulated into nanoparticle to enhance the drug solubility and lung deposition along with modified bio-distribution, in vivo stability, bioavailability and penetration through biological barriers. Nanosuspension was prepared using precipitation techniques. The prepared lyophilized Ritonavir nanosuspension was characterized and found that Ritonavir nanoparticle agglomerates can be effective in achieving high fine particle fraction for better lung deposition.

A-403

AMPLIFICATION OF AQUEOUS SOLUBILITY OF PROGESTERONE USING MELT-GRANULATION TECHNIQUE

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The purpose of the current research was to improve the bioavailability of progesterone through oral administration by boosting the hormone's water solubility. The goal of this study was to determine whether or not employing melt granulation techniques with a variety of polymers may improve the degree to which progesterone is soluble. When looking into the interactions between drug carriers and other substances, researchers turned to techniques such as X-ray diffraction, differential scanning calorimetry, SEM and Fourier transform infrared spectroscopy. PEG 6000 (1:1.5) demonstrated the highest solubility, followed by PEG 6000 (1:1) > Gelucire 50/13 (1:1.5) > Gelucire 50/13 (1:1). Increasing the aqueous solubility of the weakly soluble progesterone was demonstrated by these findings.

A-404

STABLE ANTIMALARIAL COMBINED FORMULATION DEVELOPMENT FOR BITTER TASTING DRUGS

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Malaria remains one of the most serious infectious diseases; Globally, there were an estimated 229 million malaria cases in 2019 in 87 malaria endemic countries leading to hundreds of thousands of deaths, predominantly among children. Artemisinin-based combination therapies (ACT) are realized as main mechanisms of global malaria elimination programmes and have been shown to reduce transmission of this malarial species in zones with moderate and low endemicity. The present research studies aimed to develop combination therapy for the treatment of malaria. Dry powder mix formulation was developed which conceals bitter taste and overcomes stability of antimalarial drugs. Novel reconstituted oral liquid system shows adequate chemical stability of the drug during shelf life, avoids physical instability related to solubility, pH and incompatibilities with other ingredients. Also, it reduces transportation expenses as it is in dry form.

A-405

DEVELOPMENT, OPTIMIZATION AND EVALUATION OF SELF NANOEMULSIFYING DRUG DELIVERY FOR POORLY SOLUBLE DRUG LEVOSULPIRIDE

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The bioavailability is dependent on solubility and permeability. The work is focused on improvement in solubility and permeability of BCS class IV drug Levosulpiride. The objective of present invention was the development of Self nanoemulsifying Drug delivery improvement in solubility and permeability. The drug solubility was estimated in various surfactants and co-surfactant. The pseudo ternary phase diagram was constructed using Capryol 90, Maisine 35, LAS, Capmul PG 8, capmul MCM, Sefsol as individual or combination oil with tween 20, propylene glycol and Lutrol E400 as surfactant and co-surfactant respectively. The phase diagram helps to select the ideal proportion of oil and Smix ratio for development of L-SMEDDS. The drug containing L-SMEDDS is developed as Capmul MCM (40 % w/w), Tween 20 (25 % w/w) and propylene glycol (25 % w/w) as oil, surfactant and co-surfactant respectively. The prepared L-SMEDDS is converted into solid dosage form by adsorption to solid carrier. Aerosil 200 was used in 0.20 % w/w proportion. The prepared SNEDDS and S-SNEDDS was evaluated for drug content, % transmittance, globule size, zeta potential and in-vitro dissolution studies. The S-SNEDDS was characterized by DSC, FTIR, Particle size and zeta potential and % transmittance. The globule size and zeta potential of SNEDDS and S-SNEDDS formulation was found to be 180 nm with -24.80 mV and 220 nm with -31.8 mV respectively. The DSC, FTIR and powder XRD studies confirm the change in physical state from crystalline to amorphous state over plain levosulpiride. The in-vitro dissolution studies confirms the enhancement in dissolution rate of solid SNEDDS of levosulpiride over plain levosulpiride. The developed formulation containing Capmul MCM, Tween 20 and Propylene glycol has the capability to improve solubility and bioavailability of levosulpiride as a nanoemulsifying dosage form.

A-406

PAINLESS INSULIN DRUG DELIVERY SYSTEM

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For most patients with type 1 diabetes, the worst part of the disease is to inject themselves needle, both for glucose measurement and to deliver insulin. The anxiety of injections are well known. Psychological resistances to self injection of insulin have been documented across large demographic groups, such as diabetics. The issue is that many outpatient injectable are dosed sub-optimally .to overcome the problem needle based injections, there is new insulin delivery systems that has received attention during the past few years and that offers all of the weight while Free Insulin Delivery. In this recap we discussed about their types, mode of route of administration, how the system works and why we invest, and the conclusion.

A-407

DEVELOPMENT AND EVALUATION OF LYOPHILIZED PRODUCT CONTAINING AZELNIDIPINE WITH HYDROXYPROPYL-β-CYCLODEXTRIN/ SOLUPLUS AS BINARY INCLUSION COMPLEX AND EFFECT OF TERNARY COMPONENT AS PEG 6000 AND L-ARGININE

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Azelnidipine is a poorly water-soluble drug belonging to BCS class II and has absolute bioavailability of 20-25 %. The objective of the proposed work is to improve the solubility and bioavailability of azelnidipine using as solubility enhancer hydroxypropyl-β-cyclodextrin(HP-β-CD), Soluplus (SO) and also to study the effect of the water-soluble polymer PEG 6000 and L-Arginine on solubility of the lyophilized Azelnidipine- HP-β-CD and lyophilized Azelnidipine-Soluplus (SO). The inclusion complexes of Azelnidipine: HP-β-CD and Azelnidipine: Soluplus (SO) in 1:1 w/w ratio were prepared. The prepared inclusion complex was evaluated for solubility, in-vitro dissolution studies and characterized by FTIR, DSC, FESEM, powder XRD studies. The binary lyophilized product containing Azelnidipine: Soluplus (1:2) proportion showed highest solubility as that of Azelnidipine: HP-β-CD and plain azelnidipine. The ternary component as PEG 6000 and L-arginine was found to be less effective with respect to solubility enhancement. Lyophilized complex shows endothermic peak shifted to 75°C with reduced intensity as that of plain drug 122°C. It suggests change in physical state i.e., from crystalline to amorphous state. The changes in the physical state is confirmed by powder XRD and FESEM studies. FESEM studies of plain azelnidipine shows crystalline nature of the drug, whereas lyophilized product is revealed as one type of particle and porous structure. In-vitro drug release profile for plain drug, marketed product and lyophilized inclusion complex was compared and it was found that freeze-dried product showed greater percent cumulative drug release as compared to marketed product and plain drug. Thus, a fast dissolving binary system of Lyophilized Azelnidipine: Soluplus system was successfully developed.

A-408

DEVELOPMENT OF ZINC CONJUGATED CHITOSAN MICROPARTICLE AS A STABLE SOURCE OF ~ 24 NM ZINC NANOPARTICLE EFFECTIVE AGAINST BACTERIAL GROWTH

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Zn has a potential role in hemostasis and thrombosis. It may be used in wound healing applications. Zinc has a reduction potential of -0.76V, and it can easily be oxidized to ZnO. The toxicity of ZnO has well been reported, but Zn nanoparticle (ZnNP) is not studied. In this study we have synthesized zinc conjugated chitosan microparticles as a reservoir of stable zinc chloride was used as a source of zinc ions. The dried microparticle (ZnCCM) had an average diameter of 1.20 - 1.30 mm. It gets dissolved in 2 % (w/v) ascorbic acid solution to release ZnNP of ~ 24 nm diameter (as measured by DLS and TEM) and +24.5 mV zeta potential. It took 90 minutes for the complete release of the Zn nanoparticle (as measured by atomic absorption spectroscopy). Scanning Electron Microscopy (SEM), and Powder X-ray diffraction (PXRD) studies confirmed the presence of Zn crystals on the surface of ZnCCM. Fourier transformed infrared spectroscopy (FTIR) confirmed the role of the amino group of chitosan in conjugation with Zn crystals. The ZnNP released from the ZnCCM was better against Gram-negative bacteria like E. coli than Gram-positive bacteria like S. aureus.

A-409

[illegible] ARMED MUCOADHESIVE DRUG DELIVERY SYSTEM FOR ORAL CANCER CHEMOTHERAPY

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Oral cancer is one of the most common and invasive types of cancer, accounting for ~ 5% of cancer worldwide. In India its prevalence is second, accounting for (16.2 % of all cancers amongst women) (Globocan 2020). Here we worked on the development of Spatio-temporal mucoadhesive system to deliver anti-cancer drug and a lipid sphingomyelin lipid ceramide as an adjuvant for oral cancer chemotherapy. Docetaxel combination therapy as a novel therapeutic strategy was studied. The objectives of this study were to investigate the synergistic effect of ceramide (C) in combination with docetaxel (DTX) (DTX+C) and to explore the synergistic effects and mechanism. By exogenous administration, we have tried to potentiate the means to orchestrate tumor cell death through a myriad of signal transduction pathways. Films were prepared using film forming polymers. For their preparation solvent casting method was employed. This mucoadhesive system is planned in a way that their proficiency is being enhanced both pharmaceutically (in terms of fabrication made up of two layers: an outer hydrophobic layer which will protect the system from enzymes and environment of mouth and an inner layer of Chitosan, HEC and PVA with mucoadhesive properties to stick to the inner mouth, gums, or tongue. This inner layer is loaded with the drug and ceramide which would team up for optimum mucus penetration, sustained delivery respectively), and pharmacologically (via ceramide as an adjuvant to give a kick start to the signalling pathways along with anti-cancer drug. The 3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) and combination index (CI) assay using Chou-Talalay method were used which showed that simultaneous administration of DTX+C with a molar ratio of 2.5:1 could generate the optimal synergistic effect on Cal 27 cell lines (CI = 0.68). The apoptosis, cell cycle, ROS, MMP, scratch assay demonstrated that C could target mitochondria and activate Caspase-3 and induce apoptosis. Meanwhile, DTX could target and disrupt the microtubules cytoskeleton, leading to a high proportion of cancer cells in G2/M-phase arrest. Moreover, DTX+C could cause a synergistic destruction of cytoskeleton, which resulted in a significantly higher apoptosis and a significantly higher arrest in G2/M arrest comparing with either agent alone ($p < 0.01$). All these results suggested that ceramide could enhance the antitumor activity of DTX in a synergistic manner, and provide spatiotemporal release which suggest promising application prospects of DTX+C in combination treatment.

A-410

DEVLOPMENT AND EVALUATION OF TRIPHALA CHURNA TABLET BY USING NATURAL EXCIPIENTS ALONG WITH QBD APPROACH.

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The current study's goal was to create different Triphala tablet formulations employing direct compression and wet granulation processes. It was determined to create formulations containing alcoholic extract of Triphala in order to decrease the overall dosage size and include larger amounts of actives. According to this study, triphala extract tablets perform better during dissolving than triphala powder tablets because they include more active ingredients and are easier to formulate. The goal of this research project was to convert triphala churn into stable, pleasant, and patient-acceptable granules which converts into tablet that patients could swallow easily.

A-411

FORMULATION AND CHARACTERIZATION STUDIES OF STABILIZED VITAMIN C ANHYDROUS GEL

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Developing skin lightening products can be a challenge to formulators. Vitamin C is recognized for its antioxidant and skin lightening properties in skin care products. From 2014 to 2021, vitamin C and its derivatives have been used in over 30% of new skin care launches that make skin lightening or brightening claims. At the same time, vitamin C is highly susceptible to oxidation, especially in water-based systems and when exposed to air. Although vitamin C derivatives have been developed with greater stability, their efficacy and greater formulation cost have led formulators to decrease their use levels. In addition, it is difficult to design finished products that remain stable for a long period of time, because most contain a relatively high percentage of water. The present study focused on designing anhydrous silicone formulations containing glycerin, a simple polyol. The objective was to develop an acceptable sensory profile while incorporating and stabilizing a high level of pure vitamin C. In addition, to achieve its pigment reduction activity, the formulation should not hinder release of the vitamin C or its ability to partition into skin. Performance of the anhydrous silicone systems was compared to a pure blend of glycerin and vitamin C as well as to a leading commercial benchmark. Study involved the evaluation of physiochemical properties of developed gel followed by accelerated stability study at higher temp (50 0 c) for 1 month. In-vitro diffusion study was performed by using cellulose acetate nitrate membrane to access the release profile of vitamin c from developed anhydrous gel. Study confirms that, it was possible to produce highly stable vitamin C incorporated into glycerin-in-silicone formulations with improved sensory characteristics. It is noted that good skin absorption, less gloss and a powderier feel with levels of vitamin C as high as 20% is achieved with this matrix stabilised systems.

E-18

VESICULAR DRUG DELIVERY SYSTEM IN THE MANAGEMENT OF RHEUMATOID ARTHRITIS

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Inflammatory diseases are the world's most common cause of death. The World Health Organization considers chronic diseases to be the biggest risk to human health. In the coming 30 years, chronic inflammation related disorders are expected to become more common in the world. Rheumatoid arthritis (RA) is an autoimmune disease in which the body's immune system misidentifies the joints and attacks them. Several therapies are currently available to reduce symptoms and prevent disease progression. However, more efficient treatments are required due to the severe side effects of current therapies, particularly when used long-term. The development of vesicular systems, which can be utilized to target the inflammatory cascade found in rheumatoid arthritis, has altered the treatment possibilities in the management of the disease. By regulating and sustaining the activity of the drugs while reducing side effects, vesicular drug delivery has made major progress in increasing their therapeutic efficacy. The main objective is to evaluate the potential of numerous innovative vesicular systems to target drug action, increase bioavailability, and lessen systemic adverse affects of anti-rheumatic drugs.

E-19

SOLUBILITY AND DISSOLUTION RATE ENHANCEMENT OF NEVIRAPINE BY USING CRYSTAL ENGINEERING TECHNIQUE

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To improve the solubility and dissolution profile of drugs with low water solubility, pharmaceutical cocrystallization is a useful crystal engineering technique. The preparation of the anti HIV drug Nevirapine's cocrystals via crystal engineering is the basis of the current work. Amino acids including L- arginine, L- cysteine, L -histidine, L-leucine, L- proline, L tyrosine were used as cocrystal formers in equimolar ratios to make the cocrystals of drug nevirapine by liquid assisted grinding technique. The produced cocrystals were evaluate by melting point, drug content, dissolution, solubility and the crystalline phase was characterized by Fourier transformation infrared spectroscopy (FTIR), Differential scanning calorimetry (DSC), and Powder X ray diffractometry (PXRD) techniques. The result reveals that the nevirapine cocrystals have better solubility and faster dissolution rate as compare to pure nevirapine. One can make the conclusion that cocrystallization is a useful strategy of drug design to deal with issues related to low solubility, which is the cause of poor drug bioavailability.

E-20

FORMULATION,DESIGN AND OPTIMISATION OF FAST DISSOLVING TABLETS

Muskan Motwani
Smt Kishoritai Bhoyar College Of Pharmacy

The present study efforts were made to formulate develop and optimize fast dissolving tablet of Nitrofurantoin by direct compression using Lyophilisation Technique. In this research of fast dissolving tablets of Nitrofurantoin by direct compression method we have used different concentrations of Crospovidone and Croscarmellose sodium as super disintegrants. A two-factor three-level (32) factorial design was being used to optimize the formulations. Nine formulation batches (F1-F9) were prepared accordingly. Two factors as independent variables (X1- amount of Crospovidone and X2- amount of Croscarmellose sodium) were taken with three levels (+ 1, 0, -1). The levels of two factors were selected on the basis of preliminary experiments conducted and their effect on two dependent variables (disintegration time and in vitro dissolution) was studied along with their % prediction error. All the active blends were evaluated for pre compression parameters (angle of repose, Carr's index, Hausner ratio) and the tablets were evaluated for post-compression parameters (weight variation, hardness and friability, disintegration time, and in vitro dissolution). The optimum batch was selected by DSC and stability studies. Formulation F3 was selected by the Design Expert software which exhibited DT (19 sec), and in vitro drug release (85%) within 10 minutes.

E-21

DESIGN AND DEVELOPMENT OF NIOSOMES FOR SOLUBILITY ENHANCEMENT OF POORLY SOLUBLE DRUG

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Niosomes are vesicles composed of non-ionic biodegradable surfactants, relatively nontoxic, more stable and inexpensive, and are alternative to liposome. Niosomal drug delivery is potentially applicable to many pharmacological agents for their action against various diseases. Approach for the solubility enhancement of poorly soluble drugs in current study is niosomal formulation aspect. Sorafenib Tosylate (BCS class II drug) is an antineoplastic tyrosine kinase inhibitor. It is used in treatment of renal cell carcinoma. In this study, niosomes containing Sorafenib tosylate were formulated by thin film hydration method to enhance the solubility of Sorafenib tosylate. Different formulations comprised of non ionic surfactants like Tween 20, 40, 60, 80, Acrosyl K140, cholesterol had prepared using thin film hydration method. Further it was investigated for compatibility study, particle size, zeta potential, SEM, entrapment efficiency, in-vitro evaluation, etc. Niosomal gel has prepared and evaluated for its pH, viscosity, spreadability, etc. Results showed that enhancement of solubility of Sorafenib tosylate in niosomal gel as compared to plain drug. Also cumulative % drug release was tremendously enhanced. Study concluded that, Tween 20, 40, 60 with cholesterol has newer approach for successful development of niosomes for enhancement of solubility and dissolution of poorly water soluble drug like Sorafenib tosylate.

E-22

DEVELOPMENT AND CHARACTERIZATION OF POLYMERIC NANOPARTICLES OF CRESS AND MUCILAGE CONTAINING *LORNOXICAM*

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Rheumatoid arthritis is a severe autoimmune disease causing inflammation of the synovial joints and may involves individual joint pain. Present investigation was attempted to develop a Formulation of polymeric nanoparticle of cress seed mucilage containing lornoxicam. The nanoparticles were prepared by solvent evaporation method. The prepared nanoparticle was evaluated for particle size, Zeta potential, surface morphology, in-vitro drug release etc. The optimization of nanoparticles was done by 32 full factorial design. The optimized batch shown an average particle size from 81.6 to 421 nm and zeta potential shows -21.8 which indicates the better physical stability. The surface morphology of prepared nanoparticle was found to be crystalline lornoxicam is converted to its non-spherical amorphous form with smooth surface and it was encapsulated by polymer. Entrapment efficiency was found from 89 to 97.6 % and the in- vitro release behaviour from all the drug loaded batches were found to provided sustained release over a period of 10 hrs. Accelerated stability study showed that there was no significant change in particles size, PDI, zeta potential, and % EE for a total period of 3 months. It is concluded that, the prepared lornoxicam nanoparticles as a promising approach for delivering be used as ideal carrier to deliver drug.

E-23

FORMULATION DEVELOPMENT AND IN-VITRO EVALUATION OF SUSTAINED RELEASE TABLETS OF VALSARTAN

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Career Point University, Kota, Rajasthan

Valsartan is mainly known for it's Antihypertensive properties. The aim of the current research work was to develop sustained release matrix tablets of Valsartan using natural polymers like Guar gum and Pectin. A total of six formulations were developed using Guar gum and Pectin in different ratios i.e. (1:0.5,1:1,1:5) respectively. The tablets were prepared using direct compression method and subjected to post compression study. In vitro dissolution study was conducted for 24 hours as Valsartan is a BCS-II drug. The study concluded that FG3 formulation which was prepared using guar gum with a drug:polymer ratio of 1:1.5 have shown a good drug release profile upto 23 hours and considered to be a better choice as compared to the other formulations.

Title of the proceedings of the conference: Proceedings of Savitribai Phule Pune University sponsored Two Days State Level Workshop on "Current Trends and Regulatory Requirements of Herbal Products" held on 7th and 8th Feb 2020

Name of the conference: Current Trends and Regulatory Requirements of Herbal Products

National / International: State

Calendar Year of publication: 2020

ISBN number: e- ISSN:2582-5062

Affiliating Institute at the time of publication: PES Modern college of Pharmacy (For Ladies) Moshi Pune

Document Link: Proceedings-of-Current-Trends-and-Regulatory-Requirements-of-Herbal-Products-held-on-7-and-8-Feb2020-1_compressed.pdf (mcpledu.org)

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7th and 8th Feb 2020

At

PES's Modern College of Pharmacy (For Ladies), Moshi, Pune , M.S., India

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e- ISSN:2582-5062
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H 1 Preparation and evaluation of an important polyherbal Ayurvedic medicine: Drakshavaleha

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Avaleha is considered as the most common secondary dosage form as Kalpana which is used in many disorders. They are becoming more popular due to easy administration, more palatable and longer shelf life. It is prepared as a semisolid formulation of herbal drugs in the form of decoction or extracts or powder of herbs by addition of sweetners as jaggery, sugar candy or sugar. Constistancy of Avaleha varies from freely flowing, paste like, semisolid and granular which depends upon the substrate and Oushada churna ratio. Avaleha are most effective as they are having better drug absorption through the oral cavity.

Drakshavaleha is an important Ayurvedic medicine mentioned in Astanga Hridaya Chikithsasthana. It is prepared by using ingredients such as Draksha, Kana (Pippali), Sarkara, Madhuka, Shunti, Thvakshiri, Dhatriphala, Madhu.

Drakshavaleha cures weakness, anaemia, digestive disorders, Jaundice, hyperacidity, dyspepsia and improves liver function. The aim of present study is to prepare Drakshavaleha according to classical method mentioned in Astanga Hridaya Chikithsa Sthana with due importance to Standard Operative Procedure and evaluate it based upon organoleptic and physicochemical parameters.

Keywords: Drakshavaleha, Ayurvedic, evaluate

H 2 Formulation development of Herbal Antiinflammatory Ointment

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Inflammation is a pathologic condition which focuses a wide range of diseases such as rheumatic and immune-mediated conditions, diabetes, cardiovascular disorders etc. There are different medicines available for controlling and suppressing inflammatory complications such as steroids, nonsteroid anti-inflammatory drugs, and immunosuppressant which are the practical examples of these medications Most of these are associated with adverse effects. There should be an ideal therapy which includes minimum effective dose by the highest efficacy and the least adverse effects. Medicinal plants and their secondary metabolites isolated are progressively used in the treatment of various diseases as a complementary medicine and can be used to achieve increased pharmacological response at the lowest degree of unwanted side effects. *Curcuma longa* and *Azadirachta indica* possess various medicinal activities as per traditional system and many of them have been proven by modern research. The extracts of *Curcuma longa* and *Azadirachta indica* showed a prominent antiinflammatory activity. The present work was carried out to formulate and evaluate a potent antiinflammatory ointment containing extracts of *Curcuma longa* and *Azadirachta indica.*

Keywords: anti-inflammatory, *Curcuma longa*, *Azadirachta indica*

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e- ISSN:2582-5062
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H 3 Preparation and evaluation of Tisanes containing unique blend of herbs to pacify vata, kapha and pitta dosha

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Herbal tea is essentially an herbal mixture made from leaves, seeds and/ or root obtained from various plants. These are not derived from the usual tea plants, but rather from 'tisanes'. There are different kinds of tisanes that have been used for their medicinal properties. Some of them being consumed for its energizing properties to induce relaxation and also posses strong benifial medicinal properties such as to cure stomach or digestive problems, strengthen the immune system, anti-inflammatory, antibacterial etc. Many herbal teas such as Black tea, Green tea, Chamomile tea, Ginger tea, Ginseng tea, Peppermint tea, Cinnamon tea etc. are very popular now a days. The objective of the study was to prepare various herbal teas such as Essencetea, Mucontea and Digestea used to pacify Vata dosha, Kapha dosha and Pitta dosha respectively. These consisits of important herbs such as Cumin, Cinnamon, Orange peels, Amla, Turmeric, Fennel, Coriander, Cilantro etc. Antioxidant activity was evaluated by invitro antioxidant assay using hydrogen peroxide method. These herbal teas also impart colour, aroma, flavor, astringency and overall acceptability and have many health benefits. The antioxidants and vitamins found to be present in these herbal teas are important for curing diseases and infections and can protect against oxidative stress and lower the risk of chronic disease.

Keywords: Vata, Kapha, Pitta, herbal, tea

H 4 Development of a Novel Neutraceutical Formulation containing Turmeric and Neem extracts

Shravani Rakshe, Sujita Ghongade, Mohini Upadhye, Smita More
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Nutraceuticals are considered as functional food or any part of food that provides medical or health benefits including the prevention and/or treatment of a disease. Nutraceuticals have many advantages over the medicine because they lack side effect, considered as natural dietary supplement. For effective quality of a product the manufacturing should be carried out under close monitoring conditions. There should not be any kind of interactions amongst environmental conditions and the equipments in manufacturing with the formulated product and hence there should be proper manufacturing of nutraceutical products maintaining required cGMPs which will mandate proper quality and process control testings from incoming materials to final products. This increases the credibility of and provides additional improvements towards the safety and efficacy of these products being manufactured according to the Food Safety and Standards Authority of India. The packaging and sealing of these products should be tightly controlled and thus provides a shelf stable, contaminatefree storage for the product whereby

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e- ISSN:2582-5062
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double bond were represented by 1689 cm^{-1}. peak at 1375 cm^{-1} represented C-H bending where as NMR was also characteristic of phytotaxanol, exhibiting the hydroxyl proton signal at δ 5.21as a multiplet, which helped us to characterize this compound as taxaterone, tinsoporin A and B respectively

Keywords: *Cocciniagrandis,* taxaterone, tinsoporin

H 8 Simultaneous Estimation Of Dapsone And Adapalene In Gel Formulation By Derivative Spectroscopic Method

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Dapsone is an antibacterial agent mostly used in the treatment of leprosy and skin disorders. Adapalene is a retinoid analogue with actions similar to those of tretinoin and naphthoic acid derivative. Adapalene is topically used in the treatment of acne. Combination of Dapsone and Adapalene is used to treat Acne and available as a gel formulation in market. There is no scientific reporting of UV-Visible spectroscopic method for simultaneous estimation of Dapsone and Adapalene in combined dosage form. A simple, accurate, precise and rapid first order derivative spectroscopic method have been developed for the simultaneous estimation of Dapsone and Adapalene. From first order derivative overlay spectra wavelength 317 nm (zero absorbance of Adapalene) and 365 (zero absorbance of Dapsone) were selected for analysis. Analysis of marketed formulation was done by derivative spectroscopic method. The percentage drug content was found to be 100.596 and 101.833 for Dapsone and Adapalene respectively. The method was validated as per ICH guidelines Q2 (R1) for linearity, range, accuracy and precision. The linearity of method was found to be in a range of 25–125 µg/ml for Dapsone and 0.5-2.5 µg/ml for Adapalene.

Keywords: Dapsone, Adapalene, linearity, range, accuracy ,precision

H 9 Formulation, Development And Evaluation of Microemusion Based Gel Of Aripiprazole

Pooja P. Shrimangale, Prajakta K. Pol, Dr. Sohan S. Chitlange, Dr. Dheeraj Nagore
Department of Pharmaceutical Quality Assurance, Dr. D. Y. Patil Institute of Pharmaceutical Sciences and Research Pimpri, Pune, India-411018.

The term microemulsion refers to thermodynamically stable, isotropic clear dispersion of two immiscible liquid, such as oil and water, which is stabilized by an interfacial film of surfactant molecule. The present study was aimed to develope and evaluate microemulsion based gel of Aripiprazole for Psychosis. Microemlsion are prepared by the spontaneous emulsification

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H 17 Colloids and Its Recent Advances in Pharmaceuticals

Pradnya Swami*, Smita More, Sneha Rashinkar, Shweta Bhagwat

PES Modern College of Pharmacy (For Ladies) Moshi

Research in the industries and modern physics requires everyday observation and experience. This is important as practically all the matter we deal commonly is in colloidal condition. Stability of colloids is important aspect which determines the behavior of particles. Colloidal systems are composed of small particles dispersed in medium. The fact that these particles have such small dimensions is the reason that a huge surface or Interfacial area is created. Colloidal drug delivery systems are characterized to ensure their predictable Invivo and Invitro performances. Various physicochemical characteristics like size, shape, surface properties, lamellarity, phase behaviour drug release profile etc are evaluated. Followed by use of advanced techniques like electron microscopy having greater resolution can be used to view the particles. Internal structure and lamellarity can be determined by freeze fracture microscopy. The huge interface associated with colloids is the reason why colloid and surface chemistry are often studied together. Majority of the industries uses colloids as thickening agents in industrial products such as lubricants, lotions, toothpaste, coatings, etc. Recently colloids find wide applications such as food stuffs and medicines, purification of water, sewage disposal, smoke precipitation, artificial rain, rubber industry, leather tanning, cleansing action of soaps, Smoke screen, formation of delta, blue colour of the sky, preparation of nano materials, building roads, metallurgical operations, manufacturing of paints and inks and many others. The study concludes that colloidal drug delivery systems are designed for controlled and targeted delivery of various pharmacological agent and other drug delivery system which is still lacking in few of the emerging areas of pharmacy.

Keywords: colloids, controlled, targeted

H 22 Until There Is A Care There Is Hope - Here Is The Hope For Alzheimer.

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Alzheimer's disease is an irreversible, progressive brain disorder that slowly destroys memory and thinking skills. It is a chronic neurodegenerative disease that usually starts slowly and gradually worsens over time. The symptoms of AD are loss of memory, poor judgment, wandering, losing things, mood changes. Current treatments for Alzheimer are - Cholinesterase

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inhibitors, NMDA receptor antagonist. But these drugs do not prevent cognitive damage they only reduce the disease progression. It is found that coconut oil is useful in slowning the progression of AD in human beings. It acts as an energy source for the nerve cells, which are starved in AD. They act by boosting ketones, hence improves cognitive function. The purpose of the present review is to explore the literature related to coconut oil, outlining the mechanistic physiology and to discuss the potential role of coconut supplementation as a therapeutic option in the prevention and management of AD.
Key words: Alzheimer, neurodegenerative, coconut oil

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(AutoDock Vina 1.1.2). The PK interactions studies of co-administration of TC with GP demonstrated a significant increase in C_{max}, AUC_{0-t} and MRT_{0-t} of GP ($p<0.01$) with a substantial decrease in Vd and CL.*In silico* molecular docking studies on CYP2C9demonstrated high inhibition potential of berberine (binding affinity: -9.6 kcal/mol) and formation of two hydrogen bonds with Ser 209 and Asn 474 in active site of enzyme, complementing the literature reports as well as our in vivo PK findings. The results obtained from *in vivo* and *in silico* studies proposed thatco-administration of GP and TC extract can result in potentially significant PK HDI. This knowledge will prove helpful for healthcare professionals as well as diabetic patients on GP therapy. It eventually warrants further studies to predict the pharmacokinetics and pharmacodynamics HDI of GP in humans.

Key words: *Tinospora Cordifolia,* Glimepiride, Interaction

H 28 Strategies and Prospectives Of Nasal Drug Delivery System

Jyoti Lokhande, Smita More
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Now days many drugs have better systemic bioavailability through nasal route as compared to oral administration. In addition, intranasal drug delivery enables dose reduction, rapid attainment of therapeutics. Bloods levels, quicker onsets of pharmacological acitivity, and fewer side effects. The recent advancement of nasal drug delivery system has increased enormously and is gaining significant importance. The advantages, disadvantages, mechanism of action and application of nasal drug delivery system in local delivery, systematic delivery, nasal vaccines and CNS delivery are lucid. The relevant aspects of biological, physicochemical and pharmaceutical factors of nasal cavity that must be considered during the process of discovery and development of new drugs for nasal delivery as incorporation into appropriate nasal pharmaceutical formulation. Nasal route is more suitable for those drugs which cannot be administered orally due to gastric degradation or hepatic first pass metabolism of the drug. IN delivery is non- invasive, essentially painless, does not requires sterile preparation, and is easily and readily administered by the patients or a physician, example in an emergency setting. Furthermore, the nasal route may offer improved delivery for "non-Lipinski" drugs. Current work focuses on all the aspects of nasal drug delivery.

Key words: bioavailability, Nasal, advancement

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H 29 Novel Coronavirus (2019-nCoV): A comprehensive review

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Coronaviruses can cause multiple system infections in various animals and mainly respiratory tract infections in humans, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). The 2019 novel coronavirus (2019-nCoV) is a new virus that causes respiratory illness in people and can spread from person-to-person. This virus was first identified during an investigation into an outbreak in Wuhan, China. This virus probably originally emerged from an animal source but now seems to be spreading from person-to-person. It's important to note that person-to-person spread can happen on a continuum. Some viruses are highly contagious, while other viruses are less so. At this time, it's unclear how easily or sustainably this virus is spreading between people. Patients with 2019-nCoV have reportedly had mild to severe respiratory illness. There is currently no vaccine to protect against 2019-nCoV. The best way to prevent infection is to avoid being exposed to this virus. There is no specific antiviral treatment for 2019-nCoV. People with 2019-nCov can seek medical care to help relieve symptoms. Measures shall be taken to strengtehen the immune system through immunomodulatory drugs as per Ayurvedic practices such as Agastya Harityaki, Samshamani Vati, Trikatu, Pratimarsa Nasya etc.

Key words: Coronaviruses, immunomodulatory, Ayurvedic

H 30 Type 1 Diabetes Mellitus: An Overview Of Its Conventional And Modernized Management

Rohini R. Pujari, Snehal Kumbhar, Snehal Shinde

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Type 1 diabetes mellitus is a condition in which your immune system destroys insulin-making cells in your pancreas. These are called beta cells. The condition is usually diagnosed in children and young people, so it used to be called juvenile diabetes. While a person can prevent type 2 by avoiding a sugar-rich diet and inactive lifestyle, preventing type 1 is not possible. A person with type 1 diabetes will need to take insulin for the rest of their life. Not doing so can result in ever-increasing blood sugar levels and dangerous complications like diabetic neuropathy, nephropathy, diabetic ketoacidosis and cardiovascular diseases. There are several diagnostic measures to detect and distinguish type 1 diabetes from type 2 diabetes mellitus. Insulin is administered conventionally using syringes by subcutaneous route which causes pain and other problems. Along with administration of insulin, continuous glucose monitoring is required which requires pricking the finger several times with needles for blood sugar testing using glucometers which

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e- ISSN:2582-5062
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becomes very difficult to manage especially in case of small children. These problems occurring in management of Type 1 diabetes has been overcome by some advancement in the same. This review will give a detailed account of history, etiology, pathophysiology, immune mechanism and comparison between conventional and advanced methods of diagnostic measures and management of Type 1 diabetes mellitus.

Key words: diabetes mellitus, advancement, conventional

H 31 Anti-biotic Resistances: Superbugs

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The increasing threat to global health posed by antibiotic resistance remains of serious concern. Human health remains at higher risk due to several reported therapeutic failure to many life threatening drug resistance microbial infections. Antibiotics have been used for a long time and are frequently prescribed. Because of this widespread use, the infectious bacteria the antibiotics were designed target have adapted and changed, making the drugs less effective. This is antibiotic resistance. Antibiotics are not effective against viral infections such as the common cold, most sore throats, and the flu. Using antibiotics when they are not needed contributes to antibiotic resistance and unwanted side effects.

Key words: antibiotic, infectious, resistance

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e- ISSN:2582-5062
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precision studies, intra-day and inter-day, % relative error was found between ±15 and % RSD was less than 15 %. The developed method meets the requirements of US-FDA guidelines. For this drug the technique was used IR method, HPLC technique and HPTLC technique. The drug was characterized by using IR spectroscopy, melting point, chromatographic methods such as HPLC and HPTLC and also performed linearity which is range as 0.999. In this report, a simple, rapid, selective and accurate HPLC-UV method was described for the quantification of Dofetilide in solid dosage form in the concentration range of 10–70 µg/ml. The method meets the requirements of the US-FDA guidelines.

Key words: RP-HPLC, HPTLC, Dofetilide

H 33 Prebiotics And Probiotics: A Critical Appraisal

Kajal Khillari, Pratiksha Bhojane, Divya Chavan, Om Bagade, Ankita Chaudhari, Saroja Suravase
PES Modern College of Pharmacy, Moshi, Pune -412105

Prebiotics are mostly fibers that are non-digestible food ingredients and beneficially affect the host's health by selectively stimulating the growth and/or activity of some genera of microorganisms in the colon.A product produced by one microorganism stimulating the growth of another microorganism". Escherichia coli strain Nissle 1917, certain enterococci, especially Enterococcus faecium SF68, and the yeast Saccharomyces boulardii. Bacillus dominant the scene mostly of the genus formers bacterial spore. Liver secretes bile salts into the small intestine to digest fatty foods at a concentration of 0.15-0.30%. Hot water extraction from chicory root followed by enzymatic hydrolysis. Health benefits from prebiotics may be obtained by incorporating them into products such as nutraceuticals and functional foods. Overall in this review probiotics and prebiotics have been discussed with respect to the systemic effects they exert on the host's health, metabolism and immune system. Probiotics, probiotics have systemic effects on the host's health metabolism and immune system.

Key words: Prebiotics, probiotics, nutraceuticals

H 34 Different techniques of Iontophoresis and its applications: Way to drug delivery system.

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Iontophoresis is a procedure of transdermal medication conveyance by utilization of a voltage angle on the skin. Molecules are transported over the stratum corneum by electrophoresis and electroosmosis and the electric field can likewise expand the penetrability of the skin. These wonders, straightforwardly and in a roundabout way, establish dynamic transport of issue because of a connected electric flow. The vehicle is estimated in units of synthetic motion, ordinarily µmol/(cm2*hour). Iontophoresis has test, restorative and symptomatic applications. In

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e- ISSN:2582-5062
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spite of the fact that iontophoresis is regularly used to treat serious perspiring, it might likewise be utilized to treat an assortment of games wounds. The electrical flow helps the skin effectively ingest the meds. Iontophoresis has been utilized to treat unnecessary perspiring on the hands and feet since the 1940s. Amid iontophoresis, a therapeutic gadget is utilized to pass a gentle electrical ebb and flow through water (more often than not utilizing shallow searches for gold or feet or explicit cushions for other body territories) and through the skin's surface. The future parts of iontophoretic treatment and the drugs at present accessible are incorporated into this article. Iontophoresis as a treatment routine has picked up ubiquity in moderately less treatment procedure yet the idea ought to be all around advanced as it offers improvement to transdermal medication conveyance framework. This framework being non intrusive, torment free and with least symptoms must be utilized in the majority of the treatment routine.

Key words: Iontophoresis, electrophoresis , electroosmosis

H 35 Study of pre-extraction techniques of crude drugs and different emerging extraction methods

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PES Modern College of Pharmacy Moshi, Pune-412105

The acquisition of medicinal plants began with the pre-extraction and furthermore the extraction procedures, which is an significant step within the processing of the bioactive constituents from plant materials. Traditional methods likemaceration and Soxhlet extraction are commonly used at the tiny research setting or at Small Manufacturing Enterprise (SME) level. Significance advances are made within the processing of medicinal plants like the fashionable extraction methods; microwave-assistedextraction (MAE), ultrasound-assisted extraction (UAE) and Supercritical fluid extraction (SFE), in which these advances are aimed to extend yield at lower cost. Moreover, modifications on the methods are continuously developed. With such sort of methods present, assertion of proper extraction method need rigorous characterization. This appraisal which reflects the principle, potential and few barriers of the commonly used methods with examples in upcoming years to trigger out the proper method selection. With regards to the discriminatory phytochemicals in medicinal plants. Apparently, the shift towards natural products in pharmaceuticals and cosmaceuticals industry, the research on medicinal plants especially are as crucial as the research on conventional drugs.Medicinal plants are presently in appreciable significance view because of their special traits as an extensive source of therapeutic phytochemicals which may lead for the fabrication of novel drugs. Interest in utilizing natural sources in their designing, development and characterization of various products, as substitute to conventional drugs and artificial products, contribute to extend interest in research and industrial postulation of medicinal plants.

Key words: pre-extraction , Supercritical fluid extraction, microwave-assistedextraction

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e- ISSN:2582-5062
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H 36 A Novel Approach of Spherical Agglomeration

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Spherical agglomeration is particle engineering technique which involves the transformation of fine crystals into spherical shape particles which enhances the powder properties such as particle size,shape ,flow properties, solubility and bioavailability of pharmaceutical drug substance. This techniques could be used for masking of the bitter taste of drugs, Utilization of these process improves wettability and dissolution of some drugs. The processes such as separation , filtration,drying etc. to be carried out more efficiently by application of these technique.The method has several disadvantags as Selection of the suitable solvents is tedious process, Maintenance of processing parameters(temperature, agitation etc.)is difficult, Traditional crystallization process, Different techniques are reported in literature for the preparation of spherical agglomerates as Solvent change method, Quasi emulsion solvent diffusion method, Ammonia diffusion method, Salting out method. Literature survey indicates the use of polymers as Polyethylene glycol, Cross povidone, Starch, Cross carmellose sodium, Hydroxyl propyl methyl cellulose, Hydroxyl propyl cellulose, Ethyl cellulose, PEG400, Polaxomer188 etc. Spherical agglomeration can be adopted as an important approach for increasing the solubility and dissolution of poorly soluble drug.

Key words: agglomeration, solubility, dissolution

H 37 Reality Check Biodegradable Sanitary Napkins

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As we know that now a days the females are suffering from severe problem of cancer caused by the use of sanitary napkins. So we carried out a survey on different biodegradable and non biodegradable sanitary napkins. To check weather the marketed biodegradable sanitary napkins are really biodegradable and safe to use. We have checked different parameters as absorption capacity, degradation, chlorine test to ensure the safety of napkins. A survey was carried out to know what kind of problems females suffer from after use of sanitary napkins.

Key words: sanitary, napkins, biodegradable

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e- ISSN:2582-5062
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H 38 REVIEW ON ANTIBACTERIAL ACTIVITY OF HERBS

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Research in the industry and the reviews related to the antibacterial activity in pharmaceutical industry is observe and study. This study aimed to test a variety of naturally occurring, medicinal and potentially food-compatible herb and spice extracts for their antimicrobial potential against a group of food borne bacterial pathogens. Medicinal plants are traditionally used for the treatment of human infections .The use of plants in treatment of burns, dermatophytes and infectious diseases are common in traditional medicine. The development of new antimicrobial agents against resistant pathogens is increasing interest .The beneficial medicinal effects of plant materials typically result from the secondary products present in the plant although, it is usually not attributed to a single compound but a combination of the metabolites. This Antibacterial activity supports their use in treatment of infections caused by such resistant bacteria. The present review deals with study of antibacterial activity of various medicinal plants. One such review shows Euphorbia hirta is having antibacterial activity. Along with this different herbs are available which provide antibacterial activity. This review will focus on compilation of literature study of different herbs providing antibacterial activity which will be helpful for the future scientist in formulating the dosage form.

Keywords: antibacterial, infections, herbs

H 39 Neutraceuticals: Novel Perspective For Health Promotion And Disease Prevention

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A nutraceutical is a food or a part of a food substance that provides medical or health benefits, including the prevention and treatment of diseases. The food products used as nutraceutical are Probiotic, Prebiotic, Dietary fiber, Omega 3 fatty acid, and antioxidants. In this article an attempt has been made to outline the basic aspects of nutraceuticals such as its classification, and importance and complexity as dietary supplements. From various literatures few of the critical validation aspects of nutraceuticals like complexity of nutraceutical market, an emerging need for official dietary supplement testing methodology, and its role and applications as supplement in herbal medicine, regulatory acts and issues in India relevant to nutraceuticals, sample set validation of nutraceuticals, few of the research reports on validation of few selected nutraceuticals with current scenario and future prospects are compiled and reviewed , which would help to frame a fundamental idea on the validation aspects of nutraceuticals.

Keywords: nutraceutical, dietary supplements, validation

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e- ISSN:2582-5062
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excision wound and burn wound models in Wister albino rats and compared with standard Nano crystalline silver gel (0.002% w/w). The topical carbopol based emulgel incorporating BCO and NO exhibited excellent film forming ability, greater bioadhesiveness which will minimize the frequency of application with improved patient compliance. The % wound size reduction in burn wound and excision wound found to be 69% and 66% respectively with 14 days required for reepithelization. The formulated emulgel shows good wound healing in both burn and excision wound models in rats. This may be due to presence of beneficial polyunsaturated fatty acids and thymoquinone in BCO which have been previously reported to produce a marked increase in the neutrophil migration to the wound healing area stimulating the release of vascular endothelial growth factor, accelerating wound healing. NO containing nimbidine and sodium nimbidate also prevent microbial infection and exerts anti-inflammatory effect.

Keywords: emulgel, Wound Healing, *Azadirachta indica*, *Nigella sativa L.*

H 42 Sustained Release Herbal Matrix Tablets, Preparation And Their Evaluation

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Oral administration has been most convenient and commonly used route of drug delivery. In the recent years, researchers focus on development of sustained release drug delivery as oral route of administration. This dosage form is designed to release drug at programmed rate by maintaining drug level constant for definite period of time with minimum side effect. The *Cinnamomum tamala* (Lauraceae) leaves has been proved for its diuretic activity in the previous literature, hence, the present study has been carried out to formulate sustained release matrix tablet and studied its evaluation parameters. It was concluded that, *Cinamomum tamala* can be successfully formulated in to the sustained release dosage form which will be beneficial for its improved bioavailability and sustained release action.

Keywords: *Cinnamomum tamala,* sustained release, matrix tablet

H 43 Mucoadhesive Potential Of Casein Protein In Miconazole Mucoadhesive Prolong Release Tablets

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H 46 Formulation And Characterization Of Triphala Churna

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Due to safety and efficacy Ayurvedic medicines play an important role in gastrointestinal problems. Hence churna meant for digestive property and it is also used for constipation as home remedy has been formulated. Triphala churna is a powdered preparation made with fruit pericarp of three ingredients, Emblica officinalis (Amala), Terminalia belerica (Behada), Terminalia chebula (Hirda) in equal proportion. In the present study the raw material was procured from local market and Triphala churna was prepared by standard procedures and evaluated by different Methods.

Keywords: Triphala, Emblica officinalis, Terminalia belerica, Terminalia chebula

H 47 Formulation and Characterization of Medicated Pain Relief oil

Sakshi Arjun, Poonam P. Taru, Juee Bhalekar, Vaishnavi Jadhav
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Since ancient times Health has been of utmost importance for the mankind. Chronic musculoskeletal pain is a common symptom of the human population. In the present era Inflammation and rheumatism remain serious problem. It has been reported since time immemorial. Chronic pain of musculoskeletal origin is a very common symptom and has major effect on the physical, mental, and economic aspects of the patients. There is always a issue among physicians and patients for effective analgesic, curable preparation that can be locally applied. The definition of chronic pain which is most acceptable is the pain which last for more than 3–6 months. The present work was aimed to formulate herbal pain relieving oil using various herbs viz., Seasom oil, Ginger Powder, Garlic, Ajowan etc., for the treatment of arthritis. The formulated herbal oil was evaluated and various parameters such as viscosity, saponification value, pH etc., were determined and reported. Number of allopathic formulation available in market for the treatment of inflammation, but these suffer from side effects like heartburn, stomach pain, nausea, vomiting, diarrhea, constipation, nephrotoxiciy etc. It is considered that the herbal medication as safer as compared to that of allopathic medicine in the market.

Keywords: Seasom oil, Ginger , Garlic, Ajowan, oil

H 48 Regulatory requirements of herbal medicines in India: An overview

Shital Jambhulkar, Rewati Deshpande, Ayesha Tamboli, Dr. Nalanda Borkar, Dr. Sonia Singh
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H 50 Antioxidant As Neutraceuticals

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In many cases, we can't keep up with the need for essential nutrients through our normal diet and that's where antioxidant-containing neutraceuticals play an important role.Antioxidants in particular, represent a growing category of neutraceuticals. These compounds are able to mitigate some of the damage caused by free radicals – most often reactive oxygen species – on the lipids present in cell membranes. E.g Vitamin C is a non-enzymatic antioxidant capable of neutralizing potentially harmful reactive oxygen species. While many fruits and vegetables – such as broccoli, strawberries and oranges – are high in dietary vitamin C The importance of antioxidants for maintaining the physiological functions of liver, kidney, digestive system, and prevention of cardiovascular diseases and cancer has also been highlightedfor example, black chokeberry (*Aronia melanocarpa*) found in juices, purees, jams, and so forth which, containing high levels of polyphenols and flavonoids, has potential interventive value for a range of chronic diseases such as diabetes and cardiovascular diseases . Fermented grain food supplements also contain antioxidants, e.g., Antioxidant Biofactor, reducing lipid oxidation by scavenging upon the peroxyl radical.

Keywords: antioxidant, neutraceuticals, free radicals

Title of the proceedings of the conference: Proceedings of Savitribai Phule Pune University sponsored Two Days National Conference on "Pharmaceutical Validation" Held on 22nd and 23rd Feb 2020

Name of the conference: Pharmaceutical Validation

National / International : National

Calendar Year of publication: 2020

ISBN number: e- ISSN:2582-5062

Affiliating Institute at the time of publication: PES Modern college of Pharmacy (For Ladies) Moshi Pune

Document Link: Proceedings-of-Savitribai-Phule-Pune-University-sponsored-Two-Days-National-Conference-on-Pharmaceutical-Validation-Held-on-22nd-and23rd-Feb-2020_compressed.pdf (mcpledu.org)

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At

PES's Modern College of Pharmacy (For Ladies), Moshi, Pune , M.S., India

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Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A8

Icthyosis: An Update

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Ichthyoses refers to group of skin disorders also called as disorders of keratinization or cornification (DOK), constitutes a heterogeneous group of skin diseases associated by the common clinical feature of abnormal barrier function, causing a default compensatory pathway of hyperproliferation, resulting into generalized or localized scaling of skin. Other clinical manifestations include generalized erythroderma, xerosis, palmoplantar and hypohydrosis keratoderma infections. Dependent on pathophysiology, mode of inheritance and clinical features, icthyosis was firstly classified at Ichthyosis Consensus Conference, 2009 into two forms: nonsyndromic forms having clinical features limited to the skin and syndromic forms including involvement of additional organ systems. This review mainly gives the details about the definition, types, etiology, epidemiology, prevalence rate, pathophysiology, immunology, clinical features, diagnosis and treatment of icthyosis.
Keywords: icthyosis, pathophysiology, epidemiology

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
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A10

Amorphophallus paeoniifolius Starch: As Novel Alternative Disintegrant for Pharmaceutical Application

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Oral drug delivery system has always been the most prevalent route of administration and continuous efforts are made to improve the drug delivery by this route. The purpose of the current research work was to isolate and study the physicochemical properties of the *Amorphophallus paeoniifolius* starch and further compare its disintegration ability with the maize starch. Starch was isolated from *Amorphophallus paeoniifoliu* by aqueous extraction method and possesses characteristic that are typical of starches. It was further evaluated for presence of other foreign matter and phytoconstituents. Results showed that isolated sample was free from foreign organic matter and total ash value was found to be 0.1%. P-XRD study indicates amorphous nature of starch and SEM images reveals smooth nature of particles. Tablets were prepared by wet granulation method by varying concentration in the range of 2.5 to 10% w/w for both the starches. Pre and post-compression parameters were studied and were found within the pharmacopoeial limits. Disintegration tests showed that disintegration time decreases with increasing concentration of both the starches. At 10% w/w concentration, disintegration time was found to be lowest hence it was selected as optimized formulation and stability studies were performed and it was found to be stable. Determination of disintegration efficiency indicates that *Amorphophallus paeoniifolius* starch exhibit disintegrating potential.
Nanoparticles
Keywords: phytoconstituents, wet granulation, optimized formulation

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A12

A Review on Analytical Method Development and Validation for Antidiabetic Drugs by UV, HPLC and HPTLC

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SGLT-2 are the newly developed class of antidiabetic medicine also called as gliflozins. Empagliflozin, Dapagliflozin, Canagliflozin are the SGLT-2 class inhibitor. Which are used to treatment of type II diabetes mellitus. Drug required the analytical procedures along with pharmacokinetics and pharmacodynamic parameters and stability study of the drug are required. In this review we compiled different published analytical method for the development and determination of the empagliflozin. It shows the pharmacological parameters of various SGLT-2 inhibitors which include the protein binding, Tmax, T1/2, and bioavailability of various SGLT-2 inhibitors. It shows the analytical method development and validation of Empagliflozin, Canagliflozin and Dapaglilozin alone with its combination of other drug by using UV, HPLC, HPTLC method.

Keywords: SGLT-2 inhibitors, Tmax, empagliflozin

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
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A18

General Characterization and Proteome Analysis of Snake Venom Toxins

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Snake venoms are complex mixtures of organic and inorganic compounds, many of which display biological activity. Also snake venoms are an extremely rich source of pharmacologically active proteins with a considerable clinical and medical potential. It has been demonstrated that antisera raised against whole venom or a single purified venom protein from one species of snake will react with proteins in the venom of other species. The structural and functional elucidation of snake venoms components may contribute to a better understanding of the mechanism of action of these proteins during envenomation and their potential pharmacological and therapeutic applications. The latest achievements in the determination of snake venom proteome, based primarily on the development of new strategies and techniques. Detailed knowledge of the venom toxin composition and biological properties of the protein constituents should provide the scaffold for the design of new more effective drugs for the treatment of the haemostatic system and heart disorders, inflammation, cancer and consequences of snake bites, as well as new tools for clinical diagnostic and assays of haemostatic parameters.

Keywords: Antisera, Scaffold, Haemostatic Parameters

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A20

Risk of Complications in Obese Patients

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Obesity is a medical condition in which excess of body fat accumulation to an extent that it may have negative effect. Such as in type 2 diabetes, where there occurs a resistant to insulin secreted, due to accumulation of fat. Due to obesity the HDL level reduces which leads to heart disease. Also the obesity causes cancer by promoting chronic lower level inflammation which causing damage to DNA and other health problems. The people are generally considered as an obese when their body mass index is more than or equal to 25kg/sq.m. The measurement of body mass index is obtained by dividing person's weight by the square of person's height in meter square. Obesity is a cause of all chronic diseases which leads to increase in death rate. Considering the body mass index the obesity is thus treated as –if BMI IS LESS THAN 28 it can be treated by controlling diet and physical exercise , if it is in between 28 to 35 then pharmacological treatment is preferred. If it is exceed than 35 or 40 then the bariatric surgery is recommended.

Keywords: Obesity, Inflammation, Body mass index, Bariatric surgery

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A24

Evaluation of Various Marketed Hair Conditioner

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Hair conditioner is a hair care product used to improve the feel, appearance and manageability of hair its main purpose to reduce the friction between strands of hair to allow easier brushing or combing , which might otherwise cause damage to the scalp. The evaluation is helpful to have technical measurements of product performance that provide guidence to the formulation chemist, while also potentially being useful in product marketing. Of course, these instrument-based evaluations contain no information about the aesthetics of formulations, which are considered to be atleast equal in consumer importance. As such, surface lubrication represents the primary function of conditionning products, with improve manageability through grooming becoming an additional benefit.The ideal pH of hair conditioners for occuring the seal of cuticle and provide shine to the hair is 4.0. The work is aim to evaluate marketed brands (Dove, Loreal, TRESemme, Pantene, Sunsilk) for Colour, PH, wetting action, surface tension.

Keywords: Brushing, Performance, Aesthetics

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A25

Mask for Viral Infections, Energy Boosting and Stress Relief

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There is a well-known phrase "prevention is always better than cure", mouths masks are one of the most commonly used preventive measure for various viral infection as mouth mask help limit the spread of germs while talking, sneezing, coughing, and protecting the other people from all type of respiratory viral infection this masks can be made more effective by incorporating various medication in them. Also various types of masks can be prepared for relaxing body and mind and also for reducing stress and fatigue by using various mixture of essential oil in them .This mask can be used as a self-medication and can be made available in cheaper cost. Instead of using cotton mask, it is preferable to use surgical mask as a supporting medium for this formulation. It is easy and comfortable to use for individual of any age group and also easily disposable.

Keyword: Preventive measure, Stress and fatigue, Disposable

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A26

Investigation of Antivenom Activity of *Tamarindus Indica* Seed Extract

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Snake envenomation is common in tropical and subtropical regions of the world. Snakebites represent a public health hazard that leads to high morbidity and mortality in the Indian subcontinent. Snakebite is an occupational hazard for the rural agriculturist. Among the poisonous snakes of India, Vipera russelli and common cobra are one of the most common causes of snakebite. Antivenom is currently the only available antidote for treating snakebite universally. Antivenins are commonly used to treat the snakebites; however, they are limited in their efficacy in the neutralization of local tissue damage. In the recent years, there has been growing interest in alternative therapies and therapeutic use of natural products, especially which are derived from plants. Lethality, inhibition of phospholipase A2 enzyme, neutralization of hemorrhagic action, neutralization of procoagulant activity and protease inhibition are tested for the antivenom efficacy of plant extract. Plant extracts represent an extremely rich source of pharmacologically active compounds and possess more than one biochemical/pharmacological property. Interaction of such compounds with the toxins/enzymes leads to the neutralization/inhibition of their activities. Tamarind (*Tamarindus indica*) belongs to the family Leguminosae and grows abundantly all over India.Tamarind seed extract inhibited the PLA2, protease, hyaluronidase, L-amino acid oxidase and 5-nucleotidase enzyme activities of venom in a dose dependent manner.

Keyword: Hazard, Antidote, Neutralization, Procoagulant activity

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A27

Quality By Design (QBD) Approach in Pharmaceuticals

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Traditional approach of formulating a new drug product is an exhaustive task and involves a number of resources like man, money, time and experimental efforts, using this Quality by Design (QbD) approach one can get the pharmaceutical product of desired (best) quality with minimizing above resources as well as knowing the influence of one factor over the desired associated process. Hence aim of this review is the understanding of QbD approach to design product and manufacturing process to get desired pharmaceutical product. QbD follows the concepts of ICH guidelines (Q8, Q9 & Q10) which are essential for processing a pharmaceutical process. This review emphasis various aspects of keynotes of QbD like ascertaining drug product quality profile, priorizing input variables for optimization, modelization & validation of QbD methodology and in the last QbD validation, scale up and production as well as software used for QbD. Hence QbD approach not only useful in facilitating comprehension of the products or process but also useful to attain an excellent and economical product which follow federal compliance.

Keyword: Optimization, Modelization, Scale up

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A28

Structural evidence of differential forms of Nanocrystals and its effect on solubilization of a model drug by Response Surface Methodology

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Introduction: Nanocrystals are tiny particle with a size of about a virus, which can be filled with a wide variety of drugs and can circulate around the body until they encounter the specific target site and stick on the surface and begin to release the drug in a controlled and predictable manner.**Objectives:**The present study was carried out to utilize the practicability of polymeric nanoparticles as an alternativecarrier for targetingRasagilinemesylate (RM), for improving poor oral bioavailability. **Methodology:**RMloaded nanocrystalswith different polymerswere developed by precipitation techniquewithresponse surface methodology (RSM)was evaluated for various physicochemical parametersand in vitro drug release. **Results and Discussion:**Infra-red (IR) studies revealed that there was no interaction between the drug and polymer.In DSC, endothermic peak was observed which indicated substantial crystalline change of drug due to nanosizing. XRD of formulation confirmed that formation of amorphous product which might lead to enhanced solubility of the drug.From the RSM it was observed that best optimized formulation was F6 which showed i.eEntrapment efficiency 83.7%, Particle size 246 nm. The particle size analysis revealed that 90% of the particles had a particle size around 240 nm which perfectly matched with the SEM (Average by scale 242 nm) had almost round and uniform shape and an average particle size of 246 nm was observed in TEM which was porous and spherical in nature.The value of zeta potential -24.5mV indicates the more retention time for nanocrystalsand long term stability.**Conclusion:**It is thus concluded that controlled drug delivery via the polymer based systems hasbeen proposed to be conquest both in present and in future;as having copious prospective advantages for scientific as wellas economic reasons.

Keywords: Solubility, Particle size, zeta potential, Bioavailability

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A30

Comprehensive Study on Standardization Parameters of Indigenous Medicinal Plants

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Pharmacognosy is considered as study of medicine derived from natural sources, mainly from plant. It basically deals with standardization, authentication and study of natural drug. Pharmacognostic studies ensures plant identify, lays down standardization parameter which will help and prevent adlterations.
The present study will be helpful for conformation of the identity, finding quality and purity and detection of presence of adulterants by various parameters like morphological, microscopical, physicochemical, chemical and biological observations. *Muntingia calabura*. Is an important medicinal plant as the leaves can be used for preparing herbal tea for various health benefits.. Also traditional medicinal uses have been reported for the leaves including tretment for headaches, prostate problems, gastric ulcers, bark is sused as antiseptic, flowers are important as antiseptic, reducing swelling, antispasmodic and fruits have reported to be useful in respiratory problems and antidiarrheic.
As per records, comparitive pharmacognostical work on such potential drug is not mentioned, the present work was taken up to produce the pharmacognostical standards. The study deals with the pharmacognostical examinations including morphological, microscopical and phytochemical characters. Physicochemical constants of leaves, bark and fruits of *Muntingia calabura* were also determined which include determination of leaf constants, ash value, foaming index, swelling index, moisture content and extractive value, foreign organic matter, crude fiber content etc as per official guidelines. This study will be helpful for setting of the monograph and standards of *Muntingia calabura*.
Keyword: Conformation, Potential drug, Antidiarrheic

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A32

Structure Based Drug Design

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Structure-based drug design is the design and optimization of chemical structure with the goal of identifying a compound suitable for clinical testing. The drug is most commonly an organic small molecule that activates or inhibits the function of a biomolecule such as a protein, which in turn results in a therapeutic benefit to the patient. Drug design that relies on the knowledge of the three-dimensional structure of the biomolecular target is known as structure-based drug design. Drug discovery has evolved through various stages into more rational and evidence-based drug designing. Compared to conventional methods which were time consuming and less logical, new drug designing based on structure is rational, evidence based, faster and more scientific in nature. In the era of modern medicine, where newer insights into molecular level of disease processes are available, it is very essential that drug designing be based on molecular mechanism of pathologic processes. Structure-based drug designing has made tremendous contributions in the field of cancer chemotherapy, drug resistant infections, neurological diseases, to mention a few.Computational structure-based drug designing opens the door to novel treatments in modern medicine.
Keyword: Optimization, Biomolecular target, Cancer chemotherapy

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A33

A Review on Analytical Method Development and Validation for Antiretroviral Drugs

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Efavirenz, Atazanavir, Nevirapine, Doravirine, Rilpivirine belongs to the class of antiretroviral drugs under Nonnucleoside reverse transcriptase inhibitor class. Antiretroviral drugs are the medications used for infection of retroviruses mainly HIV. They function as a chain-terminator during the extension of DNA chain during reverse transcription process. different classes of antiretroviral drug act at different stages of the HIV life cycle. In this review we complied different analytical method for the development and determination of the Efavirenz, Atazanavir, Nevirapine. It shows the pharmacological parameters of various Antiretroviral drugs alsoIt shows the analytical method development and validation of Efavirenz, Atazanavir, Nevirapine, Doravirine, Rilpivirine alone with its combination of other drug by using HPLC method.
Keyword: Analytical method, Chain-terminator, Rilpivirine

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A35

Doehlert Design- A Methodology for Analytical Method Development and Validation

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An analytical chemistry involves various Techniques and methodologies applicable for qualitative, quantitative and structural information of drug substances. QbD is one of the methodologies for analytical method development and Validation. QbD means that product and process performance characteristics are scientifically designed to meet specific objectives, not merely empirically derived from performance of test batches. In a QbD approach, the impact and interactions between critical method variables are understood using a Design of Experiments approach. Doehlert Design is symmetrical second order experimental design widely used in analytical chemistry for analytical method development and validation. In this review we studied various applications of Doehlert Design in analytical Chemistry. Applications of the Doehlert design in analytical chemistry are increasing in recent years, mainly because of its advantageous characteristics in relation to other designs.
Keywords: Quality by Design, Design of Experiments, Doehlert Design

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A36

Water Never Becomes Stale

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Water is essential for life,now a days we are facing scarcity of Water. Water supplied by municipalities is purified by sedimentation, filtration and chlorination. In every house water is collected daily, storedand used for drinking and cooking purposes. Usually remaining water is thrown out because in our society people believe that stored water becomes stale. So attempt is made in present work to find out microbial quality ofwater stored for 7 days. Microbial quality of stored water is tested by two methods- 1) Plate count method : where number of microorganisms in water were measured as colony forming unit per ml of water. 2) Turbidity method : where number of microorganismsin water were expressed as absorbance by using liquid medium. Municipality water has 1 ppm residual chlorine levels which protect water from microbial multiplication.Number of microorganisms in water does not increase if stored in clean and closed container. It was observed that there is no increase in number of microorganisms in water on storage. Our experiment proves that microbial quality of water does not deteriorate during storage, so drinking water should not thrown out. Drinking water stored properly can be used even after 7 days and is safe microbiologically.

Keywords: Turbidity method, Sedimentation, Deteriorate

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A37

A Review on Comparative Analysis of Phenolic, Flavonoid Content and Antioxidant Potential of Endogenous Medicinal Plant

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Medicinal plants are considered as rich sources of ingredients which can be used in drug development either pharmacopeial, non pharmacopeial or synthetic drug. Phenolic acids and flavonoids plays a significant role in plants, their impact mainly as antioxidant, on human health have been of great interest in recent years. Flavonoids are powerful antioxidants with anti inflammatory and immune system benefits. While phenols are used for anticancer activity.The given investigation describes the phytochemical analysis, phenolic content, flavonoid content and in vitro antioxidant activity of given endogenous plant. The phenolic and flavonoid content was estimated by spectrophotometric method and antioxidant property of aqueous and alcoholic extracts was estimated by % Hydrogen Peroxide activity Scavenging activity.

Keywords: Anticancer activity, Phytochemical analysis, Spectrophotometric

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A 38

Inherent Stability Testing of Anti-Acne Drug Combination by Different Validated Chromatographic Methods

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Understanding of inherent stability of drugs helps in proper formulation development. This information also guides regarding selection of appropriate storage conditions, packaging material and shelf life. Stress testing and development of stability indicating methods is the way for understanding the inherent chemical stability of a drug. In stress testing, drugs are subjected to undergo degradation under harsher conditions than accelerated stability studies. The ICH recommended stress testing conditions involve hydrolysis (acid, base, neutral), effect of temperature (with 10°C increments above accelerated stability studies), humidity, oxidation and photolysis on a drug substance. Such a stress testing generates likely degradation products. Identification of DPs helps in establishing degradation pathways and validating the stability indicating property of analytical procedures used. Therefore, a stability indicating RP-HPLC method was developed and validated for an anti-acne drug combination. The major DP was isolated and structure was predicted by LC-MS studies.

Keywords: Shelf life, Stress testing, Degradation, Anti-acne drug

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A39

Pharmaceutical Validation: A Mandatory Perspective

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It has always been known that the processes involved in pharmaceutical production impact significantly on the quality of the products The processes include raw material and equipment inspections as well as in-process controls. Process controls are mandatory in good manufacturing practice (GMP). The purpose is to monitor the on-line and off-line performance of the manufacturing process, and hence, validate it. Thus validation is an integral part of quality assurance. Quality is the primordial intention to any industry and its products manufactured. Multiple views on obtaining quality is the current interest in the pharmaceutical industry.

Method validation is an important part of analytical chemistry to confirm that the method employed for a specific test is suitable for its intended use. As such, it is an essential requirement for any package of information submitted to regulatory agencies in support of new product marketing or clinical trial applications. Currently, there is no single source or final guideline on analytical method validation that helps analysts to perform validation in a systematic manner. Therefore, industry depends on the analyst's knowledge and experience to develop simple and efficient methods of analysis.

The concept of validation has expanded through the years to embrace a wide range of activities from analytical methods used for quality control drug substances and drug products to computerized systems for clinical trials, labeling, or process control. Validation is founded on but not prescribed by regulatory requirements and is best views as an important & integral part of cGMP.

Keywords: Equipment, Quality assurance, Quality control

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A 40

In-vitro fertilization- An important tool of assisted reproductive technology

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In-vitro fertilization popularly known as IVF technology is one of the most successful forms of assisted reproductive technologies that are available today to assist couples who are finding it difficult to have children. It is a simple process in which the egg of a woman is fertilised with a sperm in a medically controlled laboratory under artificial conditions (literally in a glass). The fertilised embryo is then transferred into the uterus for growth. There is a systemic method for carrying out this process in numerous hospitals all over the world. The term In-vitro, from Latin word meaning in glass is used, because early biological experiments involving cultivation of tissues outside the living organism, from which they came, were carried out in glass containers such as beakers, test tubes or Petri-dishes. Today, the term in vitro is used to refer to any biological procedure that is performed outside the organism it would normally be occurring in, to distinguish it from an in vivo procedure, where the tissue remains inside the living organism within which it is normally found. This review gives us idea about all the aspects of in vitro fertilisation

Keywords: Technologies, Cultivation, Fertilisation

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A42

RP-HPLC Bioanalytical Method For Quantification Of Cilnidipine In Human Plasma

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A RP-HPLC method for quantitative estimation of Cilnidipine in human plasma was developed and validated. The chromatographic separation was performed on CYBERLAB™, USA RP-HPLC system equipped with C18 column (NeoSphere 250 mm X 4.6 mm with 5 micron pore size) using a mobile phase acetonitrile:water (70:30v/v) with a flow rate of 1mL per minute. The method was validated over concentration range 100-2000 ng/mlwith coefficient of correlation value (R^2) 0.999. The recovery was found to be 92.95 -103.60%. Limit of detection and limit of quantification was found to be 0.0002 ng/ml and 0.0007ng/ml respectively. This simple, selective and precise bioanalytical method was further successfully applied for pharmacokinetic study of nanoparticulate drug delivery system.

Keywords: Cilnidipine, Bioanalytical, Nanoparticulate

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A43

Development And Validation Of UV/VIS Method For Quantification Of Telmisartan In Dosage Form

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A simple, rapid, accurate and economic UV/VIS method for estimation of telmisartan in nanoparticulate drug delivery system was developed and validated. Telmisartan has showed wavelength of maxima at 296 nm. The method was validated over concentration range 4 -24 µg/ml with coefficient of correlation value (R^2) 0.9993.The mean recovery was found to be 100.39%. This value was within acceptable limits with a low % RSD.The results of intra-day and inter-day precision were indicated that the assay method was reproducible within the same day and between days.Limit of detection and limit of quantification was found to be 0.355µg/ml and 1.08µg/mlrespectively. The developed method was found to be reproducible for routine analysis of telmisartan in dosage form.

Keywords: Nanoparticulate, Precision, Limit of quantification

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A 45

Thermal and X-Ray crystalographic study in development of formulation stage

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Thermal techniques and X ray crystallography are useful techniques that have been successfully applied in the pharmaceutical industry to reveal important information regarding the physicochemical properties of drug and excipient molecules such as polymorphism, stability, purity, formulation compatibility among others and used to determine the arrangement of atoms of a crystalline solid in three dimensional spaces respectively. In pharmaceutical industries drug excipient physicochemical characterization is a systematic approach towards design of therapeutically active and stable dosage forms. For high resolution were used to get an insight on solid state properties of the drug and evaluate drug-excipient compatibility this analytical techniques are mainly used. This article contains considerations and interpretation of the graphical data obtained from these techniques.

Keywords: Polymorphism, Excipient, Systematic approach

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A 46

Formulation and *in vitro* characterization of Multi grain nutritious cookies for Diabetes Mellitus

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Introduction: Diabetes mellitus (DM) is group of metabolic disorder.Diabetes is due to either the pancreas not producing enough insulin, or the cells of body not responding properly to the insulin produced. Most of the people consumes cookies during breakfast and get energy, so we are formulating the cookies using different plants on the basis of palatability for diabetic patients. Objective: To improves fat and fiber content. Methodology: Grinding and blending method is used to formulate the cookies with different compositions of ingredients such as roasted black gram, juice of bitter guard, mango leaves, plum seeds etc. Result and Discussion: All ingredients were weighed as per formula and passed through the sieves after grinding with definite shape and size. Micromeritics study was observed at initially. Formulations were characterized by using some test like moisture content, ash value, fat content, carbohydrate content, protein content etc. Conclusion: On the basis of formulated data, it was found that our herbal cookies have high amount of proteins, fibers, carbohydrates preferably for the diabetic patients as compared to marketed products. Thus, the scale up of nutritious cookies can be possible with low cost and high efficiency.

Keywords: Micromeritics, Grinding and blending, Fibers

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A 47

Dry Powder Inhaler: An Exploitation of Emerging Technique

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Introduction: A Dry Powder Inhaler (DPI) is a device that delivers medication to the lungs in the form of dry powder. The study is set up with an intended to examine about the technical, physiological, and efficacy aspects of the novel pulmonary route of drug targeting and different delivery devices such as metered dose inhalers (MDI), dry powder inhalers (DPI), nebulizers. DPIs is efficient and environmentally friendly way of delivering drug to the lungs. DPIs is alternative to pMDI that delivers medications to the lungs in the form of dry powder. DPI are formulated using foue types of formulation strategies such as; Carrier free, Drug carrier, Drug additive, Drug carrier additive. Pharmaceutical powders once in a while spherical, and shape components are dimensionless measures of the deviation from sphericity. Particle size of API must be present in size range about 1-10 micrometer which also guarantee that the patients gets the same dose every time at different air flow rate. **Conclusion:** The study of DPI improves aerosol drug delivery system. It carries high dose capacity & high patient compatibility.

Keywords: Sphericity, Strategies, Pulmonary route, Nebulizers

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

A 48

Fabrication and statistical optimization of Carbamazepine loaded Nanocomposite beads

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Introduction: Nanocompositesbeads can be defined as multiphase materials, where one or more of the phases have at least one dimension less than 100 nm. Nanocomposites have a wide range of applications in drug delivery.**Objective:**To enhance the dissolution rate as well solubility of poorely water soluble drug. **Methodology**:Carbamazepine loadedNanocomposite beads with different polymer were prepared by using sol gel transition method by factorial design was evaluated for various physicochemical parameters and in vitro drug release.**Result and discussion**:The FTIR study showed that there was no chemical interaction between the drug and polymer thus it governs the compatability. Furthermore, the drug was stable in all the formulation.The experiment result indicated that polymer combined with surfactant,were evaluated as stabilizer to control the particle size and enhance the stability of drug nanoparticles.**Conclusion**: CBZ NCs beads showed a significantimprovement in the dissolution rate. This method is quite better for easy scale up and transformation in to the desire dosage form with minimum time.

Keywords: Particle size, Physicochemical parameters, Polymer

Proceedings of the Two Days National Conference on Pharmaceutical Validation held on 22nd and 23rd Feb 2020 at Modern College of Pharmacy (For Ladies), Moshi, Pune, M.S., India.

Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

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Formulation and Evaluation of Colloid Based Emulgel for Topical Drug Delivery

Mayuri Bhosale, Smita More, Shrutika Karpe, Gauri Khot

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Present work was carried out with the grail of formulating gellified emulsion of colloid having antibacterial agent. Transdermal route of administration of drug is effective route of administration. Purpose of present investigation was to develop colloidal emulgel, which have emerged as a promising drug delivery system for the delivery of hydrophobic drugs. Formulation deals with use of Carbapol 940, sodium CMC and HPMC were used as a gelling agent. Colloidal sol showed good antibacterial property which when used in the formulation can provide better activity on skin. Olive oil and Oleic acid were used as penetration enhancers. The emulsion was prepared and it was incorporated in gel base. The formulations were evaluated for physical properties, pH, drug content and rheological properties, spreading coefficient studies, skin irritation studies, anti-bacterial activity. Formulations showed comparable increase in antibacterial activity as compared to pure drug having antibacterial property. Colloidal emulgels has expanded both in cosmetics and in pharmaceutical preparation. So, it can be concluded that topical emulgel of colloids have shown better anti-bacterial activity. This concept will also be helpful in formulating many other formulations for oral and topical routes.

Keywords: Antibacterial, Penetration_Enhancers, Transdermal,

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www.ctppc.in

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A Review On In Vivo And In Vitro Testing Of Antiallergic Formulations

Sonal A. Konde, Mayuri M. More, V. S. Tambe

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Allergic diseases have great impact on the quality of life of both people and domestic animals. Allergy is one of the most important safety problems. In this topic, we reviewed common food allergy cell models including mast cells, basophil granulocyte and basophil as well as the animal models of mouse, rat, cat and zebra fish. For allergic conjunctivitis, the animal model used is guinea pig model of ovalbumin (OA). Dogs are also very useful species to improve our understanding on the mechanism involved in people's allergies and a natural model to study eczema. Large animals like sheep and horse are also used for screening of allergy. The purpose of the current topic is to review allergic diseases across species and to focus on how these diseases compare to the counterpart in people.

Keywords: Eczema, Ovalbumin, Basophil granulocyte

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Design, Development and in-vitro Characterization of Tooth Powder by using Cow Dung

Poonam Taru., Priyanka Mule., Shivani Zarkar., Aparna Patil
PES Modern College of Pharmacy (For Ladies), Moshi Pune

The cow dung is considered very sacred in Indian philosophy, it says that Gomay Vaste Laxmi i.e. Goddess of Wealth resides in cow dung. Cow dung is basically the rejects of herbivorous matter. The chemical based Tooth powders available in the market contain some harmful and poisonous chemicals, which are likely to cause threat to human health. An attempt has been made to prepare a 100% herbal product, based on traditional practices and rural wisdom. It is effective and cheaper than presently chemical based Tooth powder. Since it is totally herbal, it has no side effects on human health. The main aim of this product development is to provide employment to the rural youth and economic gains to farmers. This study deals with selection and Characterization of ingredients and evaluation of antimicrobial activity of Tooth Powder. Studies conducted about the comparison with the existing Marketed tooth powder. Cow dung tooth powder is very useful in case of tooth decay, sensitiveness for hot and cold water, swelling of gums, mouth pain, ulcers over tongue, sore throat, deterioration of taste, tonsillitis, hoarse throat, it is very beneficial for bad smell of mouth, pyorrhea.

Keywords: Tooth decay, Swelling of gums, Tonsillitis

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www.ctppc.in

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Preformulation: Strengthen the foundation for formulation and development

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Abstract: The preformulation is the first step in the rational development of a dosage form of a drug substance alone and when combined with excipients. **Objective:** The main objective of this study to generate useful information to the formulator to design an optimum drug delivery system. Preformulation studies strengthen the scientific foundation of the guidance, provide regulatory relief and conserve resources in the drug development and evaluation process, improve public safety standards, enhance product quality, facilitate the implementation of new technologies, and facilitate policy development and regulatory decision making. **Conclusion:** Preformulation studies give directions for development of formulation in choice of drug form, excipients, composition, physical structure, helps in adjustment of pharmacokinetic and biopharmaceutical properties, support for process development of drug substance support and useful data for development of analytical methods.

Keywords: Technologies, Regulatory, Pharmacokinetic

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Current Trends in Pharmacy and Pharmaceutical Chemistry
e-ISSN: 2582-5062
www.ctppc.in

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Formulation, development and statistical optimization of Losartan Potassium loaded Microsponges drug delivery system

Saroja Survase*, Ashwini R. Mali, Ankita K. Chaudhari, Om M. Bagade
PES Modern College of Pharemacy (For Ladies), Moshi, Pune 412 105

Introduction: Microsponge are tiny, spherical, uniform and micropous polymeric beads. The size of microparticles are in the range of 5-300µ.The purpose of this work was to develop a prolonged microsponge drug delivery system containing Losartan potassium. **Methods:** Losartan potassium-loaded, Eudragit-based microsponges were prepared using a quasi-emulsion solvent diffusion method by factorial design. The compatibility of the drug with formulation components was established by differential scanning calorimetry (DSC) and Fourier transform infra-red (FTIR). Process parameter like calibration curve that can be used to check linearity and wavelength of drug. **Results:** The results of compatibility tests showed that no chemical interaction or changes takes place during preparation of the formulations. furthermore, the drug was stable in all the formulations. In increase in drug: polymer ratio (X1) resulted in a reduction in the release rate of the drug from the microsponges. Entrapment efficiency was found to be around 90-95%. Wherein SEM image showed that the particles are found to be around spherical in shape. **Conclusion:** This study presents an approach for the modification of microsponges for prolonged drug release of losartan potassium. The compressibility of microsponges can be applied to achieve effective local action since microsponges may be taken up by macrophages present in colon.

Keywords: Factorial design, Release rate, Local action

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www.ctppc.in

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Consequences Of Errors In Validation

Pes's Modern College of Pharmacy (For Ladies) Moshi, Pune.

Miss Rohini Pujari, Miss Nikita Bhilare, Miss Aparna Patil

Validation is independent procedure that is used for checking that a product, service, or system meets requirements and specifications and that fulfills its required purpose. Many times we have studied and seen what validation exactly is and how necessary it is to maintain and regulate the quality of required product ; but here via case studies we are discussing about the consequences which affects the health of the society if validation goes wrong. Here we have studied the cases, out of which one is of MiniMed 600 Series insulin pump [Model 630G (MMT-1715) and Model 670G (MMT-1780)] which recalled due to a missing or broken retainer ring which helps to lock the insulin cartridge into place in the pump's reservoir compartment. If the cartridge is not locked firmly into place, under or over delivery of insulin may occur, this could result in hypoglycemia or hyperglycemia. Severe hyperglycemia can result in a loss of consciousness, seizure, and death. In this way we have studied the cases which clearly give us an idea about worst effects of errors in validation.

Keywords: Specifications, Regulate, Insulin cartridge

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www.ctppc.in

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Study of different approaches of tablet coating and its impact in development stage

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PES Modern College of Pharmacy (For Ladies), Moshi, Pune 412 105

Introduction: Tablet coating is the key step involved in the manufacturing of tablets having controlled release, delayed release profiles. The tablet coating have number of advantages like masking odor, taste, color of the drug, providing physical and chemical protection to drug, Protecting drug from the gastric environment. Solid dosage forms are coated for a number of reasons the most important of which is controlling the release profiles and bioavailability of the active ingredient. Objective: To study the different types of coating approaches for different types of tablets and focus on recent trends in tablet coating focuses on overcoming disadvantage of solvent based coating. Methodology: Three primary components of tablet coating are tablet properties, coating process and coating composition. Tablets are usually coated in horizontal rotating pan with coating solution is either directly poured or sprayed on to them. The amount of coating on the surface of a tablet is critical to the effectiveness of the oral dosage form. Tablets are usually coated in horizontal rotating pans with the coating sprayed onto the free surface of the tablet bed. Tablets must have a coating mass that lies within a prescribed range with very little inter-and intra-tablet coating variability. Conclusion: This study concerns with the different coating process, equipments involved, coated tablets evaluation and specialized coating techniques.

Keywords: Active ingredient, Key step, Release profiles

Papers Published in National/ International Conference Proceedings 2019

Conference Details: International conference Emerging Trends in Delivery of Phytoconstituents and Ethnopharmacology Validation of Traditional Medicine II 29th- 30th Nov 2019.

Sr. No.	Name of the teacher	Title of the paper
1	Dr. Vrushali S. Tambe	Isolation and qualitative analysis of Carica Papaya leaves tablet formulation and study of fragmentation pattern of rutin

Conference Details: Savitribai Phule Pune University Sponsored Insight on emerging trends challenges and avenues in Pharmacology and allied area 08 Feb 2019 and 9 Feb 2019

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2.	Dr. V. S. Kashikar	Phytochemical analysis and antiacne activity of herbal extracts on acne involved microorganism
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INTERNATIONAL CONFERENCE

Emerging Trends in Delivery of Phytoconstituents
&
Ethnopharmacology
Validation of Traditional Medicine - II

29-30th Nov 2019

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ABSTRACT BOOK

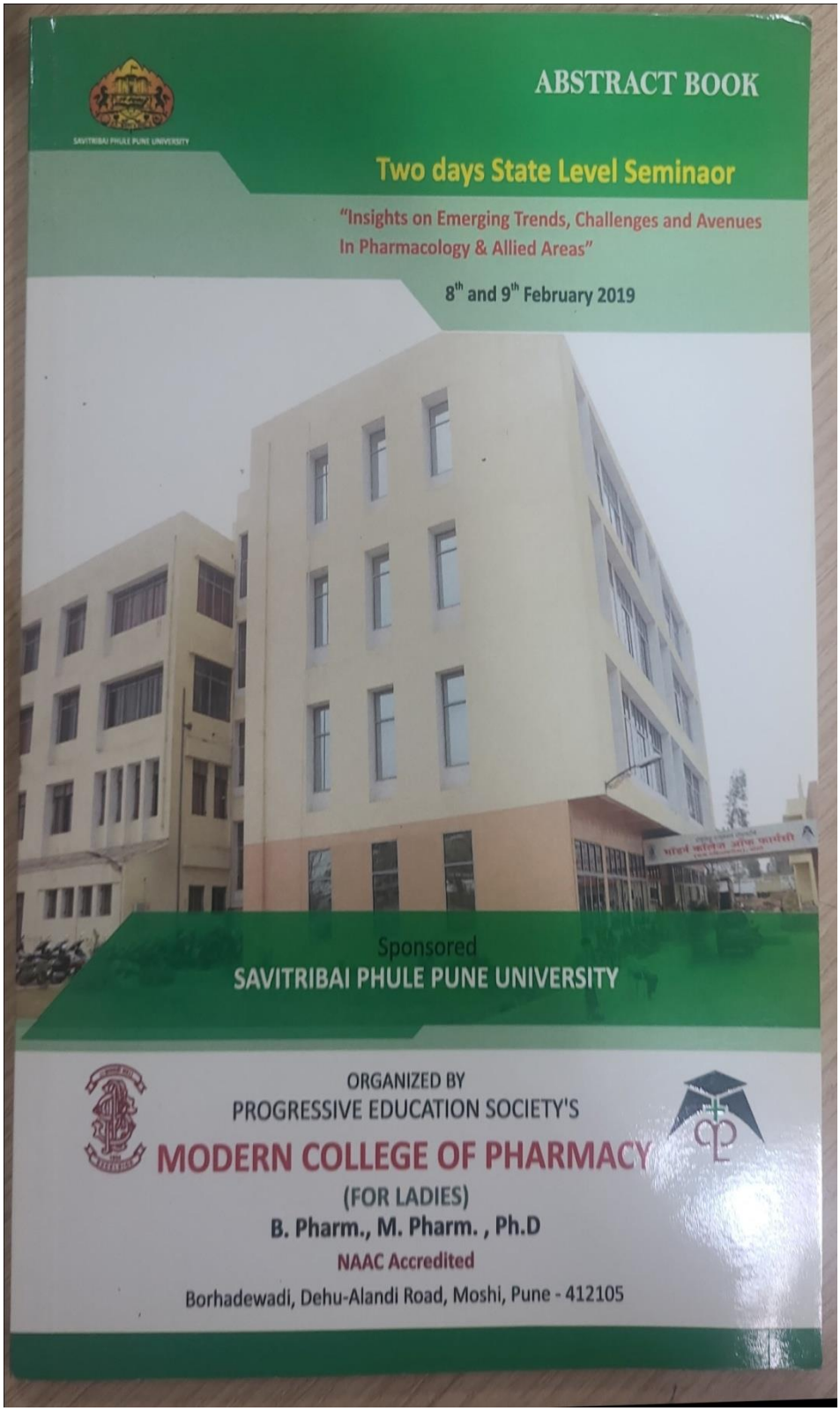
ABSTRACT:
A green synthesis approaches for the synthesis of silver nanoparticles by using alcoholic *BlumeaEriantha* DC extract has been used. In this study synthesis of nanoparticles and their biological evaluation was carried out. Equal amount of plant extract (*BlumeaEriantha*) and silver nitrate and ferric chloridewere mixed and incubated. Syntheses of silver and iron nanoparticles were confirmed by UV-visible spectroscopy, Fourier Transform Infra-Red spectroscopy, Scanning electron microscope, X-ray diffraction, Motic microscope and Transmission Electron Microscopy. Anti-oxidant and antimicrobial potential activity was determined by using standard protocols.The nanoparticles synthesized were spherical in shape having average particle size 50nm.Synthesized nanoparticles showed effective antioxidant, antibacterial and antifungal activity. It is an easy, cost-effective and doesn't involve any harmful and toxic chemicals. We have observed the effect of silver an iron nanoparticles to be more significant as antioxidant and antimicrobial activity against pathogens.
KEYWORDS:*Blumeaeriantha* DC; Silver nanoparticles; Antioxidant and Antimicrobial

PPF 33

IsolationandQualitativeAnalysisof*CaricaPapaya*LeavesTabletFormulationandStudyof FragmentationPatternOfRutin

PaiS.*[1],VrushaliS.Tambe[2],ArchanaM.Karnik[1],DyaneshwariWaichal[2]
[1]DepartmentofPharmaceuticalChemistry,SCES'sIndiraCollegeofPharmacy,Pune-411033, MaharashtraState,India.
[2]DepartmentofPharmaceuticalChemistry,PESModernCollegeofPharmacy(ForLadies), Pune-412105,Maharashtra,India.

ABSTRACT:
ToperformqualitativeanalysisofCaricapapayaleavestabletformulation
ToisolateandstudyfragmentationpatternofrutinHR-MSstudywasusedtocheckthepresenceofvariousphytoconstituentsinthetablet formulationinpositiveandnegativeionpolarity.Thisworkreportsastudyonthefragmentation patternofrutinbyelectrosprayionizationwithmultistagemassspectrometry(BrukerDaltonik GmbH,Germany,ImpactIIUHR-TOF,ultrahighresolution-timeofflight)inpositivemode. Theirspectralmatchwasstudied.
StandardrutinwasstudiedinpositiveESImodeduetoitsintensepeakowingtothepresenceof hydroxylgroups.Protonatedrutinwasobservedatm/zvalueof611.1608.(Exactmassofrutinis 610.1534.).Potentialdissociationpathwayforrutinisproposed.Thisdataisusefultoselectthe chemicalmarkerforanalysisoftabletformulation.Rutinwasfoundtobeamajorconstituentof tabletformulation.
RutinwasfoundtobeaconstituentofCaricapapayaleavestabletformulation.Fragmentation patternofrutinwasstudied.Toachievereproducibletherapeuticeffect,itisnecessaryto standardisetheherbalformulation.Theformulationcanbestandardisedusingrutinasachemical marker.
KEYWORDS: HR-MS,*Caricapapaya*,rutin


ABSTRACT BOOK
SAVITRIBAI PHULE PUNE UNIVERSITY
Two days State Level Seminaor
"Insights on Emerging Trends, Challenges and Avenues
In Pharmacology & Allied Areas"
8th and 9th February 2019
Sponsored
SAVITRIBAI PHULE PUNE UNIVERSITY
ORGANIZED BY
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Abstract Book

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Various Potentials of Isolated Bael Fruit Gum in Drotaverine Hydrochloride Tablets

Pratiksha Indore*[1], Kuldeep H. Ramteke[1], Savita Palve[1], Jyoti Rathod[1], Sachin S. Gaikwad[2]
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Gum constitutes a major group of naturally occurring polymer. Bael *(Aegle Marmellose linn)* fruits are edible, and reported in ancient system of medicines for their various activities. The present research work was conducted to evaluate the various excipients potential of bael fruit gum (BFG) for solid dosage form. BFG was isolated from partially ripe fruits of Bael. Identification and Standardization of BFG was carried out as per the stated procedures in the pharmacopoeia. Solid state characterization of BFG was done by SEM, FTIR, DSC and XRD techniques. Different formulations were prepared to check the excipients profile of BFG like disintegrant, diluents, binder and carrier for solid dispersion. Drotaverine Hydrochloride (DTV) was used as model drug for this experiment. Prepared formulations were optimized by using the SeDeM diagram expert system. BFG possess good compressibility, flowability, low moisture content, neutral pH, amorphous nature and good water solubility.. It also possesses the binder and disintegrant property. When BFG was lyophilized, it act as the superdisintegrant in immediate release tablets. Comparison of the BFG and Lyophilized BFG (LBFG) physicochemical properties shows that LBFG possess superior disintegrant potential as compare to BFG for immediate release tablet. From the research work it was concluded that BFG in concentration range of 10-12% shows superdisintegrant activity, same as marketed formulation.

ABBREVIATIONS:

BFG: Bale Fruit Gum, SEM: Scanning Electron Microscopy, FTIR: Fourier Transform Infrared Spectroscopy, DSC: Differential Scanning Calorimetry, XRD: X-ray Diffraction, DTV: Drotaverine Hydrochloride, LBFG: Lyophilized Bale Fruit Gum, PVP K-30: Polyvinyl Pyrrolidone, LOD: Loss on Drying.

A2

Phytochemical Analysis and Antiacne Activity of herbal extracts on acne involved microorganism

Tamanna Tamboli*, Sonal Narke, Nalini Chamalwad, Vrushali Kashikar
Progressive Education Society's Modern College of Pharmacy, Moshi,

The main intent of the present study is to evaluate antibacterial activity of Water and ethanolic extracts of leaves of *Murraya koenigii* and *Aegel marmelos*, *Azadirechta indica*, *Ficous religeosa*, *Carica papaya* and fruits of *Myristica fragrance* against pathogenic strains *Propionibacterium acne* (MTCC 1951), *Staphylococcus epidermidis* (MCC 2044), using agar well diffusion method. The concentrations of 5% of each extract was prepared and tested against pathogenic test organisms. Herbal Clarina cream was used as standard to compare the effect of antimicrobial activity of extracts in the same concentrations. The above studies showed that the Ethanolic extracts of all plant showed good inhibitory properties against *Propionibacterium acne* (MTCC 1951), *Staphylococcus epidermidis* (MCC 2044) as compared with water extracts.

Abstract Book

A3

Wearable Devices for Diabetes Monitoring: A Review

Pranali Ranpise[1]*, Vaishnavi Zamakade[1], Minal Ramdasi[1], Mohini Shelar, Ramteke.K.H[1].

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Diabetes Mellitus is an incurable disease resulting from an insufficiency of insulin in the body causing elevated blood glucose level known as Hyperglycemia or reduce glucose concentrations known as Hypoglycemia. A large amount of biosensors have been developed to provide diagnostic information regarding patient's health status. Wearable technology is a category of technological devices that can be worn by consumers and often include tracking information related to health and fitness. Devices such as Finger pricking device, Continuous glucose monitor, Glucose sensing patch, Flexible glucose sensor.

Wearable sensors have the potential to play a major role in the continuous and non invasive monitoring of biomarkers for diabetes mellitus. These all wearable devices provide an information base. This information is used for disease monitoring or diagnosis. It provides tangible impact on health and wellness. This review gives idea about advantages and disadvantages of recent advances pertaining to biological fluids other than blood such as interstitial fluid, sweat, saliva and ocular fluid. It also focus particularly on non invasive approaches which may enable continuous glucose monitoring for Diabetics.

Abstract Book

A7

Recent Trends in Intracranial Aneurysm

Priyanka Kad*, Supriya Mali, Priyanka Satpute, Krutika Khandekar. Priyanka Doke

PES's Modern College of Pharmacy (For Ladies) Moshi.

Smart Healthcare is a relatively new context-aware healthcare paradigm influenced by several fields of knowledge, namely medical informatics, communications and electronics, bioengineering, ethics and so on. Thus, many challenging problems are related to smart healthcare but in many cases they are explored individually in their respective fields and, as a result, they are not always known by the smart healthcare research community working in more specific domains. The aim of this article is to identify some of the most relevant trends and research lines that are going to affect the smart healthcare field in the years to come. The most appropriate treatment for cerebral aneurysms, both ruptured and enraptured, is currently under debate, and updated guidelines have yet to be defined. Multiple variables were categorized and subjected to statistical analysis for International Classification of Diseases, 9th Revision, Clinical Modification codes related to subarachnoid hemorrhage (SAH), unruptured aneurysm, and clipping and endovascular treatment of cerebral aneurysm. During the study period, the numbers of discharges remained stable for SAH but doubled for unruptured aneurysms. Concomitantly, the number of aneurysms treated with clip placement remained stable, and the number treated by means of endovascular procedures doubled. Endovascular treatment was associated with significantly higher mortality rates in small hospitals ($p<0.01$) and steadily increasing morbidity rates ([illegible] Morbidity rates mean LOS, and mean charges were higher for aneurysm clipping ([illegible] 0.01). From 1993 to 2003, endovascular techniques for aneurysm occlusion have been increasingly used, while the use of surgical clipping procedures has remained stable.

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Abstract Book

A9

Emerging Trends of Nano Crystals in Pharmaceutical Field

Geetanjali Nalawade, Diksha Kadave,Ankita Gaikwad, Aishwarya Shinde, Priyanka Doke*
PES's Modern College of Pharmacy (For Ladies) Moshi, Pune.

Nanotechnology is the science which affects our lives tremendously over the next decade in pharmacy. Transfer of microcrystal to nanocrystals or nanodimension changers its physical properties which were used in pharmaceutics to develop a new innovative formulation. The nanocrystal technology is not any more to the feature. There are various drugs which are available in market i.e. rapamune (immunosuppressant) & emend (chemotherapy). The low bioavailability and general delivery problems related to poor soluble drugs are major problems in the pharmaceutical preparations. The crystals have small (nano- or micro- meters) sizes, the increased surface-volume ratio leads to dramatically enhanced drug dissolution velocity and saturation solubility. There are several important advantages of nanocrystal formulations such as, enhanced oral bioavailability, improved dose proportionality, reduced food effects, suitability for administration by all routes and possibility of sterile filtration due to decreased particle size range. They are used as physical approach to alter and improve the pharmacokinetics and pharmacodynamics properties of various types of drug molecule. They have been used *in vivo* to protect the drug entity in the systemic circulation. The nanocrystal technology of the first generation is briefly reviewed, i. e. mainly Ball Milling and High Pressure Homogenization (HPH) in water. Smart Crystals as second generation of the drug nanocrystals differ in their physicochemical properties. The production has been optimized by introducing modifications to the HPH process. This leads to faster production, smaller nanocrystals and an improved physical stability. This has also implications for improved in vivo performance after dermal application and oral or intravenous administration.

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Abstract Bo

A8

Review on Microcapsule

Jyoti Lokhande

PES'S Modern College of Pharmacy (For Ladies), Moshi

Microcapsule content an active agent & surrounded polymeric shell or disper polymeric matrix. Microcapsule are a small sphere with a uniform wall around material inside the core/inherent phase, whereas the wall is some times cal shell/coating. There are reasons for microencapsulation. It is mainly used to inc stability & sustained/prolonged release of the product. Controlling the release rate c drug from the microcapsule. This technique was widely used for masking taste& odo many drugs and to improve patient compliance. Their are different types of microcap different mechanisms of drug release from microcapsule. It involves diffe mechanisms, factors influencing properties of microcapsule. Technique for prepara of microcapsule. Application of microcapsule and microencapsulation.

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Abstract Book

A10

Advancement of Nanotechnology and Nanoparticles in Diagnosis and Drug Delivery System for Cancer Treatment

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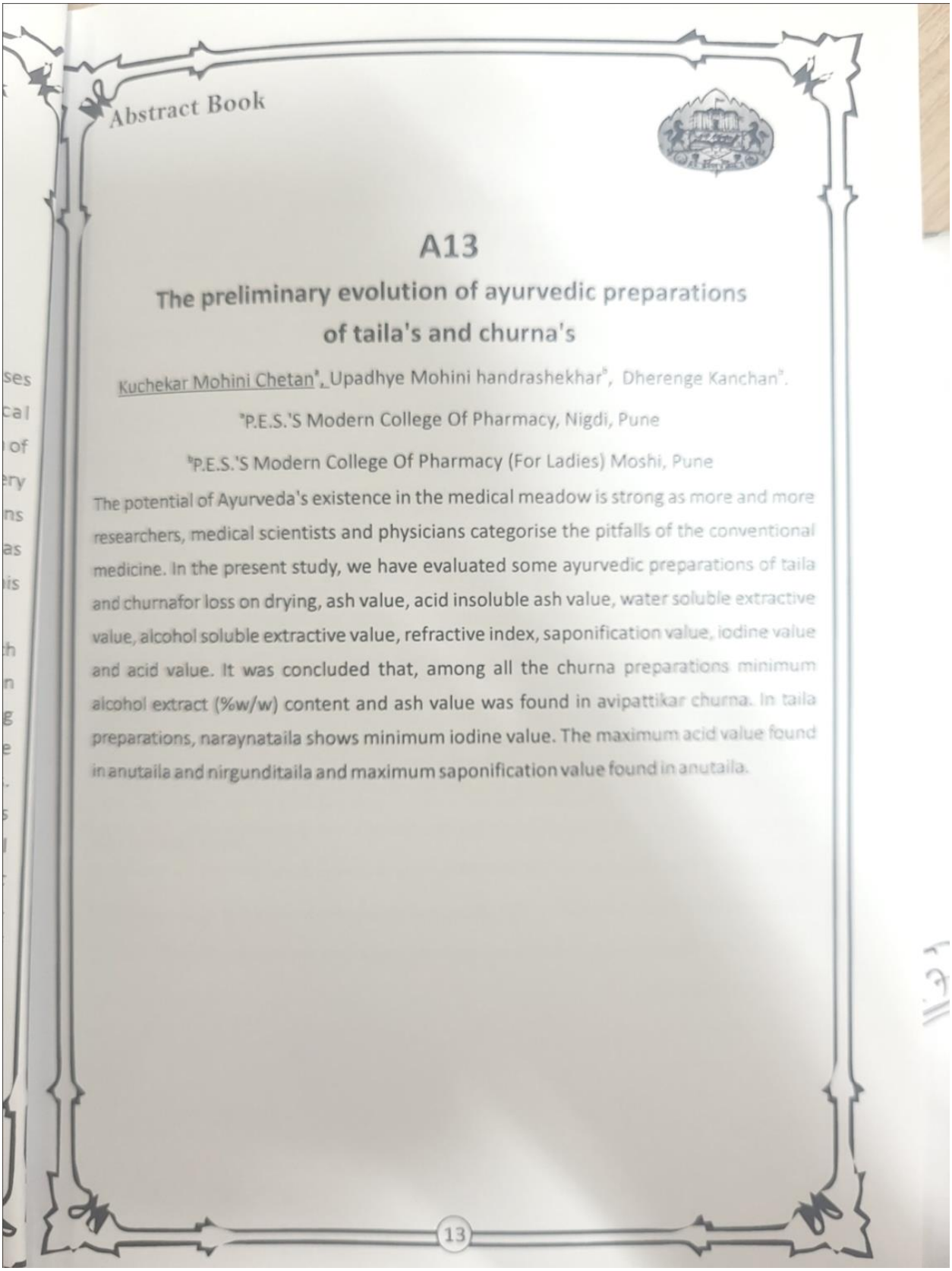
Cancer treatment is one of the major challenges of modern medicine. Several attempts have been made, in order to find more successful treatments. Nanotechnology has been claimed as a new smart technology that produces systems with the ability of targeting drugs to specific sites in the body. It has the potential to offer solutions to the current obstacles in cancer therapies, because of its unique size and large surface-to-volume ratios. It has capability to detect even a single cancerous cell in vivo and deliver the highly toxic drugs to the targeted cancerous cells, so the drug toxicity can also be reduced. Nanoparticles possess various properties such as self-assembly, stability, specificity, drug encapsulation and biocompatibility making them are promising tools for the advancement of drug delivery, medical imaging and as diagnostic sensors. There are many nanodevices used in the drug delivery, detection and treatment of cancer e.g. vesicles, micelles, liposomes, nanosphere, nanorobots, cantilever, nanoshells, carbon nanotubes, quantum dots, supermagnetic nanoparticles, nanowires, dandrimers, liquid crystal, nanocapsule, and recently synthesized, nanosponges etc. The studies to obtain tailor-made therapies, with low adverse side effects and improved efficacy is the need of hour. The aforementioned review includes the different applications of nanotechnology in cancer treatment, diagnosis and prognosis.



Abstract Book

A13

The preliminary evolution of ayurvedic preparations of taila's and churna's

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The potential of Ayurveda's existence in the medical meadow is strong as more and more researchers, medical scientists and physicians categorise the pitfalls of the conventional medicine. In the present study, we have evaluated some ayurvedic preparations of taila and churnafor loss on drying, ash value, acid insoluble ash value, water soluble extractive value, alcohol soluble extractive value, refractive index, saponification value, iodine value and acid value. It was concluded that, among all the churna preparations minimum alcohol extract (%w/w) content and ash value was found in avipattikar churna. In taila preparations, naraynataila shows minimum iodine value. The maximum acid value found in anutaila and nirgunditaila and maximum saponification value found in anutaila.

A14

Digitalization In Pharmacy

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he rapid progress in the pharmaceutical industry is due to the advancement in the digitalization and automation starting from the invention to the administration of the drug. New technologies and innovations are already enabling pharma companies to improve medicine development and patient care. Healthcare payers and other customers of pharma companies are demanding more and better data on the medication efficacy and improved patient quality of life. These demands cannot be fulfilled by purely traditional means. A drug to be administered safely and to provide efficacy it has to undergo a long journey from its discovery, including pre-clinical and clinical trials to further product development in the research and development. The quality control and quality assurance systems utilize digitalization to maintain the quality and standard of the drug product. Subsequently, packaging and labeling of the drug product are carried out with effective automation. Further, the marketing and supply of the drug products are digitally monitored and dispatched to the distributors and the pharmacies. The drug is dispensed to the patient for its administration with a concordance of digitally monitoring for enhanced efficacy and safety. The aforementioned review includes all the aspects of strategies for digitalization and automation in the pharmaceuticals from drug discovery to drug administration.

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Abstract Book

A15

Infertility: An update on etiology, pathophysiology and management

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Infertility is defined as the inability to conceive naturally after one year of regular unprotected intercourse. Infertility can be manifested either as the inability to become pregnant, inability to uphold a pregnancy, and inability to continue a pregnancy till term. There are various causes of female and male infertility. A vast number of investigations can be done to rule out the exact cause of infertility both in males and females. There are various treatment modalities that may be useful for the infertile couples. Although, for infertility treatment, couples visit gynecologists, but along with them the nurse midwives' play an important role to help the couple explore and identify problems related to reproductive health and coordinate with multidisciplinary team to promote and maintain reproductive health. The aforementioned review provides information regarding all the infertility causes, investigations, treatment modalities and role of nurse midwife in dealing with infertile couples.

Abstract Book

A17

Fabrication and Physicochemical Characterization of Rasagiline mesylate Loaded Nanasponges by Using Food Protein as a Stabilizer

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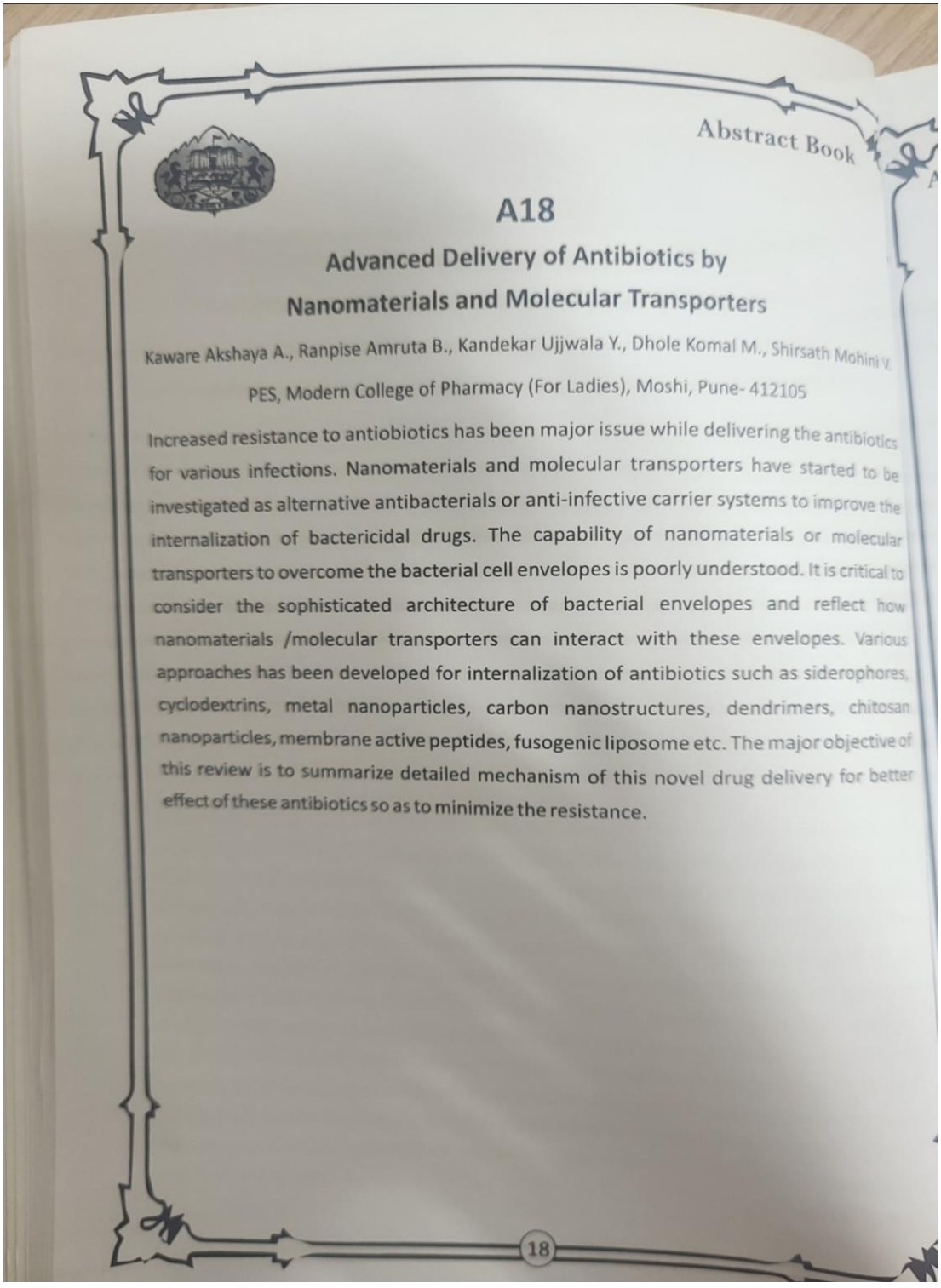
Nanosponges are tiny sponges with a size of about a virus, which can be filled with a wide variety of drugs and can circulate around the body until they encounter the specific target site and stick on the surface and begin to release the drug in a controlled and predictable manner. The present study was carried out to exploit the feasibility of polymeric nanosponges as an alternative carrier for targeting Rasagiline mesylate for improving poor oral bioavailability. It is a selective irreversible MAO-B inhibitor with good lipid solubility, poor oral bioavailability (around 36%) due to first pass metabolism and poor water solubility. Rasagiline mesylate loaded nanosponges with different polymers were developed by Quasi-ESD with CCD was evaluated for various physicochemical parameters. On the basis of production yield and practicability of the method, this method was selected for the formulation. Infra-red studies revealed that there was no interaction between the drug and polymer which showed compatibility. In DSC, endothermic peak was observed which indicated substantial crystalline change of drug due to nanosizing. XRD of formulation confirmed that formation of amorphous product which might lead to enhanced solubility of the drug. From the CCD it was observed that best optimized formulation was F4 showed i.e (Ee) 91.4%, (PS) 267.22 nm and %CDR 91.69%. The particle size analysis revealed that 90% of the particles had a particle size around 267.22 nm which perfectly matched with the SEM (Average by scale 233.40 nm) had almost round and uniform shape and an average particle size of 209 nm was observed in TEM. The value of zeta potential -19.9 mV indicates the more retention time for nanosponges and long term stability. **Conclusion:** From the accelerated stability study, it was confirmed that, prepared nanosponge was stable. It is thus concluded that controlled drug delivery using polymer and soy protein based systems has been proposed to be conquest both in present and in future; as having copious prospective advantages for scientific as well as economic reasons.



A18

Advanced Delivery of Antibiotics by Nanomaterials and Molecular Transporters

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Increased resistance to antiobiotics has been major issue while delivering the antibiotics for various infections. Nanomaterials and molecular transporters have started to be investigated as alternative antibacterials or anti-infective carrier systems to improve the internalization of bactericidal drugs. The capability of nanomaterials or molecular transporters to overcome the bacterial cell envelopes is poorly understood. It is critical to consider the sophisticated architecture of bacterial envelopes and reflect how nanomaterials /molecular transporters can interact with these envelopes. Various approaches has been developed for internalization of antibiotics such as siderophores, cyclodextrins, metal nanoparticles, carbon nanostructures, dendrimers, chitosan nanoparticles, membrane active peptides, fusogenic liposome etc. The major objective of this review is to summarize detailed mechanism of this novel drug delivery for better effect of these antibiotics so as to minimize the resistance.

Abstract Book

A19

Pharmacovigilance :An essential tool for drug safetymonitoring

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Pharmacovigillence is instrumental in helping to ensure patient safety for both newly released drugs and those that are well established in the market. The safety concern of drug is now becoming the priority area in healthcare industry, drug regulatory authorities and public community. Nowday's usage of medicine has been increasing day by day and pharmaceutical companies are developing new drug products and humans begin taking more and effective drugs as well as investigational drugs. Safety and efficacy are the two major predominant considerations about any drug. In each and every phase of a products life cycle pharmacovigilance plays a critical role. Thus, significance of pharmacovigilance is developing and became very important and inseparable part of clinical research. Finally the conclusion describes the major challenges and achievements for the future pharmacovigillence safety and toxicity is not so critical if botanicals are used in traditional forms.

Abstract Book

A21

Review on Oral Wafers: A Prominent Drug Delivery System

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In the recent few decades, priorities has been focused for more patient compliant dosage forms. Oral route for drug delivery is preferred over other routes because of its versatility. At all the times there are rising struggle for developing a dosage form which improve patient convince and compliance particularly for Oral drug delivery system. Wafers are thin polymeric films used as carriers for pharmaceutical agents. This innovative dosage form is taken orally but does not require water or swallowing. Wafers improve patient compliance and provide a rapid onset of action and reduce the extent of hepatic first pass metabolism. Due to small size, little dose, less thickness of wafer over other dosage form is most acceptable and pleasant. Oral wafer drug delivery system is an alternative approach for the tablets, capsules, and liquid oral dosage forms. The major difficulty in formulating wafer is the choice of drugs to be incorporated. Wafers with low dose of active pharmaceutical ingredient (API) and with a good mouth feel are prepared for making it more patients compliant. The manufacturing procedures are quite similar to oral disintegrating film but the composition of polymers may vary.

A22

5 In One Herbal Cream

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Bael is obtained from fresh as well as dried fruit of Aegle Marmelos, belonging to fa Rutaceae. The pulp contains mucilage, tannins, volatile oils, Aegelline, marmelosine which has potent antioxidant and skin soothing activity, that improves the appearanc signs of aging. Aloevera is ideal for sunburned or irritated skin. It has cooling proper and reduce skin irritation along with inflammations such as acne and eczema. Turmer antibacterial in nature and also lightens blemishes, fights acne and reduces wrink Almond oil is rich in vitamin E and reduce UV damage caused by free radicals. Cucum soothe skin irritation and reduce swelling ,it prevents water retention, reduces skin and lightens the skin.

The formulation containing all these five ingredients in combination fight against s irritation, signs of aging, inflammation, UV damage, acne and also helps to lighten the s Use of different formulations for different skin problems is minimised by having benef this formulation with advantage of combination of five precious herbs.

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Abstract Book

A23

Diabetic complications and its prevention

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Diabetes Mellitus is an expanding global health problem, closely linked to the epidemic of obesity. Patients having diabetes are at high risk for various complications. various factors like environmental factors,Unhealthy diet and genetic factors contribute to variety of complications, Thus diabetic complications has becoming common community problems. Major complications such as nephropathy, retinopathy and neuropathy, are well known. Specific efforts to treat complications in the lower leg "the diabetic foot" have been emphasized. Various complications to occur also in the upper extremity and hand. Diabetic nephropathy is the leading case of end stage renal disease and is associated with Cardiovascular risk. Hence, we should prevent such complications . In this study, we are going to explain some preventive measures of diabetics complications. By following certain principles or rules like taking medications as prescribed by doctor, by monitoring blood Sugar closely, or by exercising regularly patient can treat or prevent the severe complications.

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Abstract Book

A26

Application of 3D Printing Technology in the Development of Drug Delivery Systems

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Three-dimensional printing (3DP) is a unique prototyping technology that has advanced over the past 35 years and has the great potential to revolutionize the field of drug delivery with its inherent advantages of customizability and the ability to fabricate complex solid dosage forms with high accuracy and precision. 3DP can fabricate solid dosage forms with variable densities and diffusivities, complex internal geometries, multiple drugs and excipients. Literature data suggest many benefits of the 3DP technology over the conventional technologies in the field of novel drug delivery system (NDDS). 3DP can successfully address the issues relating to the drug delivery of poorly water-soluble drugs, peptides, potent drugs and the release of multi-drugs, etc. However, there are some problems that restrict the applications of 3DP in commercial market, such as the selections of suitable binders, excipients and the pharmaco-technical properties of final products. Further advancement in process performance is required to overcome these issues where 3DP technology can be successfully combined with NDDS. The aforementioned review gives an overview and the potential of 3DP in the progress of new drug delivery systems.

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Abstract Book

A25

Novel Antimicrobial Polyherbal Ointment

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Modern health care system recognizes herbal medicines as a form of alternative medicines and also identify as holistic approach. Everyone in life experiences different kinds of microbial infection. Herbal plants extracts of *Euphorbia hirta (Dudhi), Punica Granatum (pomegranate), Allium Sativum (garlic)* and *Asteracantha longifolia nees* (kokilaksa, talimkhana) were prepared using Ethanol: Water (70:30). Antimicrobial assay of plant extract mixture were carried out by agar disc diffusion method. Plant extract mixture of all extracts were screened against two opportunistic pathogens namely *Staphylococcus aureu , Streptococcus pyogenes* (gram positive bacteria) and one fungus *Candida Albicans* (ATCC no - 24433)using the concentration 0.1mg/ml,0.2mg/ml,0.5mg/ml,1mg/ml,2mg/ml, 2.5mg/ml Mixtures having concentration 0.1mg/ml and 2.5mg/ml show zone of inhibition 17 mm and 34 mm respectively against *Streptococcus pyogenes* and 15.5 mm and 32.5 mm against *Staphylococcus aureus*. And 0.1mg/ml and 2.5 mg/ml shows zone of inhibition 17 mm and 31 mm against *Candida albicans*. Results were compared with standard antibiotic gentamicin and fluconazole prepared in concentration 10 µg/ml, 20 µg/ml and 40 µg/ml. The phytochemical screening results suggest presence of chemical constituents such as flavonoids, tannins, terpenoids, alkaloids, sterols, glycosides and saponins which are mainly responsible for the antimicrobial activities. Polyherbal ointment from extracts were prepared and evaluated for its physiochemical parameters. It was also evaluated for its stability at various temperature conditions which shows no change in spradibility, extrudability and diffusion study. The prepared ointment is compared with marketed Himalaya Scavon VET CREAME antimicrobial formulation. The prepared ointment is graded for skin irritancy on the female albino rabbit, which shows non irritant effect, the result of safety assessment of ointment concluded the formulation fall under the negligible irritant (PII=0.083) . Thus this ointment have potential for further application as safe topical preparation to treat various skin disease effectively and use easily as a simple dosage form.

Abstract Book

A29

Pharmacognostic Assessment and Different Pharmacological Effects of *Tridax procumbence*

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Tridax Procumbens (TP) is commonly known as "Dagadipala" in Marathi belonging to family Asteraceae and its other common names includes "Jayantiveda" in Sanskrit, Ghamra in hindi, Coat buttons in English. TP mainly contains crude fibre 17%, soluble carbohydrate 39% and calcium oxide 5%. Tridax Procumbens has possesses significant medicinal properties. Fresh leaves of Tridax Procumbens collected from the botanical garden and Moshi village of Pune district, Maharashtra (India) during the month of June and July. The plant extract was prepared by Infusion, Macerations or Percolation process. In this method the fresh leaves are dried in air and residue obtained was subjected to successive extraction with various solvents like benzene, chloroform, ethyl acetate, methanol and ethanol. After the phytochemical screening of TP it was observed that alkaloids, tannins, saponin, flavanoids are present and flavones, glycoside, polysaccharide and monosaccharides have been isolated from leaves of the plants. It has known for several potential and therapeutic activities like antidiabetics, antiinflammatory, wound healing, antimicrobial, antidysentry, antidiaarhoeal, insecticidal and preventing loss of hair. Numerous medicinal species of TPs and their formulations are used for liver disorders in ethnomedical practices as well as in traditional systems of medicine in India. Herbal medicine has become an integral part of standard healthcare, based on a combination of time honoured traditional usage and ongoing scientific research. Buregeoning interest in medicinal herbs has increased scientific scrutiny of their therapeutic potential and safety.

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A28

Formulation, Statistical Optimization and Evaluation of Praziquantel Loaded Microspheres by Ionic Gelation Method

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The study was all about formulating sodium alginate microspheres of Praziquantel by ionic gelation method. Micro particles were prepared by using different concentration of sodium alginate and calcium chloride with respect to drug concentration. Microspheres were collected in the solution of calcium chloride of required concentration with constant stirring. The prepared microspheres were evaluated for physical characterizations and micromeritics properties. Some parameters like orifice diameter of needle used to pass the solution. Formulation 1 (Sodium alginate:drug;3:1) was found to be the best among all and which shows percent yield (92%), drug entrapment efficiency (22±0.56%), particle size (125µm), etc. It was observed that as the orifice diameter of needle decreased from needle no. 18 to 23, the microspheres were more spherical with retention in their shape and needle no.20 was found to be optimum. More spherical microspheres were observed with decrease in dropping height and optimum which was found to be 6 cm.

A30

REVIEW ON SPREADING AWARENESS ABOUT PMTCT (Mother to Child Transmission)

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Now a days HIV virus is spreading over the world very vigorously. According to more recent National AIDS control organization (NACO) data of India has demonstrated that, India has the third largest HIV epidemic in the world, with 2.1 million people living with HIV. From this number many patients are infants. They are being infected through mother to child transmission. PMTCT is a strategic vision by WHO (World Health Organization) to prevent mother to child transmission. In all over the world around 1.4 million HIV infections among children were prevented during 2010 to 2018 due to PMTCT programs. PMTCT programs supportsafe child birth and appropriate infant feeding exposed to HIV with virological testing after birth and during breastfeeding period and antiretroviral treatment for prevention and effective treatment.

Abstract Book

A31

Design, Development and *In Vitro* Evaluation of Solid Lipid Nanoparticles of Analgesic Drug

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Nanoparticles are subnanosized colloidal structures composed of synthetic or semi synthetic polymers of size range 10-1000 nm. The first reported nanoparticles were based on non-biodegradable polymeric systems such as polyacrylamide, polystyrene, etc.

The drug is dissolved, entrapped, encapsulated or attached to a Nanoparticle matrix. The nanoparticulate systems have great potentials being able to convert poorly soluble, poorly absorbed substances into promising deliverable drugs. SLNs are particles of nanometer range prepared using solid lipids and stabilized by surfactants, sometimes referred as lipospheres or nanospheres. In the present research study, Nimesulide SLNs have been prepared by Solvent diffusion method. Nimesulide is a NSAIDs drug with good lipid solubility, poor oral bioavailability due to first pass metabolism and poor water solubility with half life of about 1.8-4.7 hours. Approximate 50% orally administered dose is absorbed but absolute bioavailability is about 65% due to first pass metabolism.

For improving oral bioavailability, Nimesulide loaded SLNs were developed using Glyceryl monostearate, stearic acid. Solvent diffusion method was selected for preparation of SLN dispersions. SLN were characterized for particle size, entrapment efficiency. Scanning electron microscopy was used for particle morphology as well as particle size analysis. Particle size of SLN were measured by Malven zetasizer and obtained in the range of 800-900 nm.

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Abstract Book

A33

An Influence of Statistical Optimization for the Fabrication of an Ocular Insert

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Ocular inserts are defined as sterile preparations, with a thin, multilayered, drug-impregnated, solid or semisolid consistency devices place into cul-de-sac or sac of conjunctiva and whose size and shape are especially designed for ophthalmic application. Conventional dosage forms like Eye drops and eye ointments having the disadvantages like repeated administration, poor availability, massive and unpredictable doses, and drainage of medication by tear fluid. To overcome these problems ocular inserts may be usedAim of the present study is to design, develop and evaluate ocular insert of Olmesartan medoxomil by using CCD; so as to bypass its first pass metabolism. Olmesartan (BCS class-II) is potent Angiotensin Receptor Blocker. There was no interaction between drug and excipients as revealed by an IR spectra and calibration curve of the pure drug, and placebo formulation. Inserts of different ratios were prepared by solvent casting technique by using hydroxy propyl methyl cellulose (X1) as a polymer, PEG 400 (X2) was used as plasticizer, Distilled Water as a solvent & Stirring speed (X3) maintained for different period of time. These factors were selected as independent variables while thickness, folding endurance and drug content were selected as dependent variables. Furthermore, an optimal batch was selected from ten formulations by using central composite design and evaluated for weight variation, tensile strength, surface pH, swelling index Ocular tolerance study, scanning electron microscopy etc. To conclude, Solvent casting technique is a promising strategy in improving dissolution of poorly water soluble Olmesartan medoxomil.

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Abstract Book

A32

Influence of Different Technology in Present *Era* of Veterinary Drug Delivery System

Snehal A. Kamate *, Rutuja H. Yadav, Preeti T. Sakore, Om M. Bagade

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A diverse range of dosage forms and delivery systems has been developed to provide for the care and welfare of animals. The development of dosage forms which integrates an understanding of formulations, dissolution, stability and controlled release; pharmacokinetics (PK); pharmacodynamic (PD), and therapeutics. Formulation of dosage form typically involves combining active ingredient and one or more excipients; the resultant dosage form determines the route of administration, clinical efficacy and safety of drug. Optimization of drug doses is also critical to achieving clinical efficacy and safety. Increasingly, PK/PD model that describes drug response on the basis of dose optimization. The PK and PD phases are linked by the premise that free drug in systemic circulation is in equilibrium with the receptors. The PD phase involves interaction of drug with receptor, which triggers post-receptor events, and eventually leads to drug effect. Drug delivery strategies for veterinary formulations are complicated by diversity of species and breeds treated. Innovative solutions have been developed to meet many challenges (eg, convenient dosage formulations for treating external and internal parasites on dogs and cats). Unique opportunities also exist for controlled-release drug delivery systems in veterinary medicine and many such systems are in market. e.g., range of controlled-release boluses developed for delivering antimicrobials, anthelmintics, production enhancers, nutritional supplements and other drugs to ruminants. Although there is little economic incentive for development of these products, approval is needed to define safe and effective dosages as well as to determine appropriate withdrawal times for treated animals intended as food sources.

A34

Stem cell Therapy: A new paradigm

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Stem cells are undifferentiated cells with the ability of prolifertion, regeneration, conversion to differentiated cells & producing various tissues. Stem cells are divided into two categories of embryonic & adult. In another categorization stem cells are divided into totipotent, multipotent & unipotent cells. So far usage of stem cells in the treatment of various disease such as lymphoblastic leukemia, thalassemia, sickle cell anaemia, myeloid leukemia, Parkinson's disease, liver cirrhosis, Alzheimer's, diabetes , heart diseases. "Stem cells therapy" is emerging as a potentially revolutionary new way to treat disease & injury with wide ranging medical benifits . It aims to repair damaged & diseased body parts with healthy new cells provided by stem cells transplant. Stem cells therapy, prologued to an era of medical discovery of cells based therapies

Abstract Book

A35

Consideration of Chemotherapy for Eradication of Cancer in Human Being

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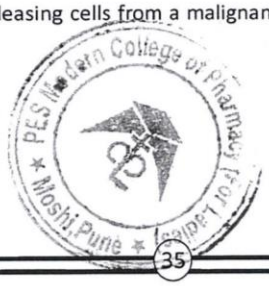
Chemotherapy is the use of any drug to treat any disease. But to most people, the word chemotherapy means drugs used for cancer treatment. It's often shortened to "chemo." Surgery and radiation therapy remove, kill, or damage cancer cells in a certain area, but chemo can work throughout the whole body. Some chemotherapy drugs can be taken in pill or capsule form. It targets cells that grow and divide quickly, as cancer cells do. Unlike radiation or surgery, which target specific areas, chemo can work throughout your body. Surgery: A doctor removes cancerous tumors or tissue, or organs contaminated with cancerous cells. Radiation therapy: An invisible radioactive particles used to kill cancer cells. It may be delivered by a special machine that bombards parts of your body from the outside, or by putting radioactive material on, near, and even inside your body. Biological Therapy: Living material in the form of bacteria, vaccines, or antibodies are carefully introduced to kill cancer cells. Chemotherapy may be used to: Shrink a tumor before radiation therapy or surgery called Neoadjuvant Chemotherapy. Destroy any remaining cancer cells after surgery or radiation therapy -- called Adjuvant Chemotherapy. Make other therapies (biological or radiation) more effective. Destroy cancer cells that return or spread to other parts of your body. Although chemotherapy is preferred over surgery because it kills all the releasing cells from a malignant tumor which can't be cured by surgery.



A36

Formulation and Evaluation of Clove Oil Containing Tooth Paste

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A thick, soft, moist substance used on a brush for clear ones teeth. A paste, normally used with a toothbrush for cleaning the teeth. Different ingredients required to make toothpaste like hydrogen peroxide, sodium bicarbonate, propylene glycol, dioctyl sodium sulfosuccinate, sodium saccharin, triclosan, titanium dioxide, etc. Toothpaste was formulated in forms of gels and opaque. Using Clove oil instead of whole cloves prevents the healthy tissue in your mouth from getting damaged as well. Clove oil contains anti-inflammatory and antibacterial property as well. The formulation was evaluated in terms of pH, consistency, uniformity, taste, smell and compatibility with spacial packaging for toothpaste at three temperatures, The prepared toothpaste containing clove oil material essential requirements for ideal toothpaste when compared with marketed formulations.

A38

Break Through In Treatment Of Burn Injuries: A Review

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Severe burn injuries are the most traumatic and physically debilitating injuries affecting nearly every organ system and leading to significant morbidity and mortality. A widespread range of these deaths induced by burn wound happens in low- and middle-income countries, where survivors face a lifetime of morbidity. Most of the deaths occur due to infections when a high percentage of the external regions of the body area is affected. Microbial nutrient availability, skin barrier disruption, and vascular supply destruction in burn injuries as well as systemic immune suppression are important parameters that cause burns to be susceptible to infections. Topical antimicrobials and dressings are generally employed to inhibit burn infections followed by a burn wound therapy, because systemic antibiotics have problems in reaching the infected site, coupled with increasing microbial drug resistance. Nano-technology has provided a range of molecular designed nanostructures (NS) that can be used in both therapeutic and diagnostic applications in burns. These include biological based approaches (e.g. immune-based antimicrobial molecules, therapeutic microorganisms, antimicrobial agents, etc.), antimicrobial photo- and ultrasound-therapy, as well as scaffolds, dressings, etc. for exogenous stem cells to aid skin regeneration. Eventually, recent breakthroughs and technologies with substantial potentials to tissue regeneration and skin wound therapy (that are as the basis of burn wound therapies) are briefly taken into consideration including 3D printing, cell-imprinted substrates, nano-architectured surfaces, and novel gene-editing tools such as CRISPR-Cas.

Abstract Book

A39

Leprosy: A Comprehensive Review

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Leprosy, also known as Hansen's disease, is a chronic infectious disease caused by Mycobacterium leprae, a microorganism that has a predilection for the skin and nerves. The disease is clinically characterized by one or more of the three cardinal signs: hypopigmented or erythematous skin patches with definite loss of sensation, thickened peripheral nerves, and acid-fast bacilli detected on skin smears or biopsy material. M. leprae primarily infects Schwann cells in the peripheral nerves leading to nerve damage and the development of disabilities. Despite reduced prevalence of M. leprae infection in the endemic countries following implementation of multidrug therapy (MDT) program by WHO to treat leprosy, new case detection rates are still high-indicating active transmission. The susceptibility to the mycobacteria and the clinical course of the disease are attributed to the host immune response, which heralds the review of immunopathology of this complex disease.

Abstract Book

A40

Stem Cells Therepy

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Stem cells are a population of undifferentiated cells characterised by the ability to extensively proliferate (self renewal), usually arise from single cells (clonal), and differentiate into different types of cells and tissues (potent). There are several sources of stem cells with varying potency. Pluripotent are embryonic stem cells derived from inner cell mass of the embryo . Stem cells can be used in cellular therepy to replace damaged cells or to regenerate organs this type of treatment could be used to : replace neurons damaged by spinal chord injury, stroke, Alzheimer's disease, Parkinson's disease or other neurological problems; produce insulin that could treat people with diabetes and heart muscle cells that cold repair damage after heart attack. Stem cells transplantation for leukemia a stem cell transplant can be used to restore healthy bone marrow in patients with leukemia. Stem cells help stimulate new bone marrow growth and restore the immune system. One of the most promising methods to cure diabetes is to transplant beta cells ,which sense blood sugar level and produce insuline to reduce them. Alzheimer's society supports the advancement of stem cell research to help understand the causes of dementia and to find new cures. Stem cells can grow into brain cells , and as a result , may have the potential to repair brain damage caused by neurological conditions, such as dementia.

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