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

INDEX

Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year wise during last five years

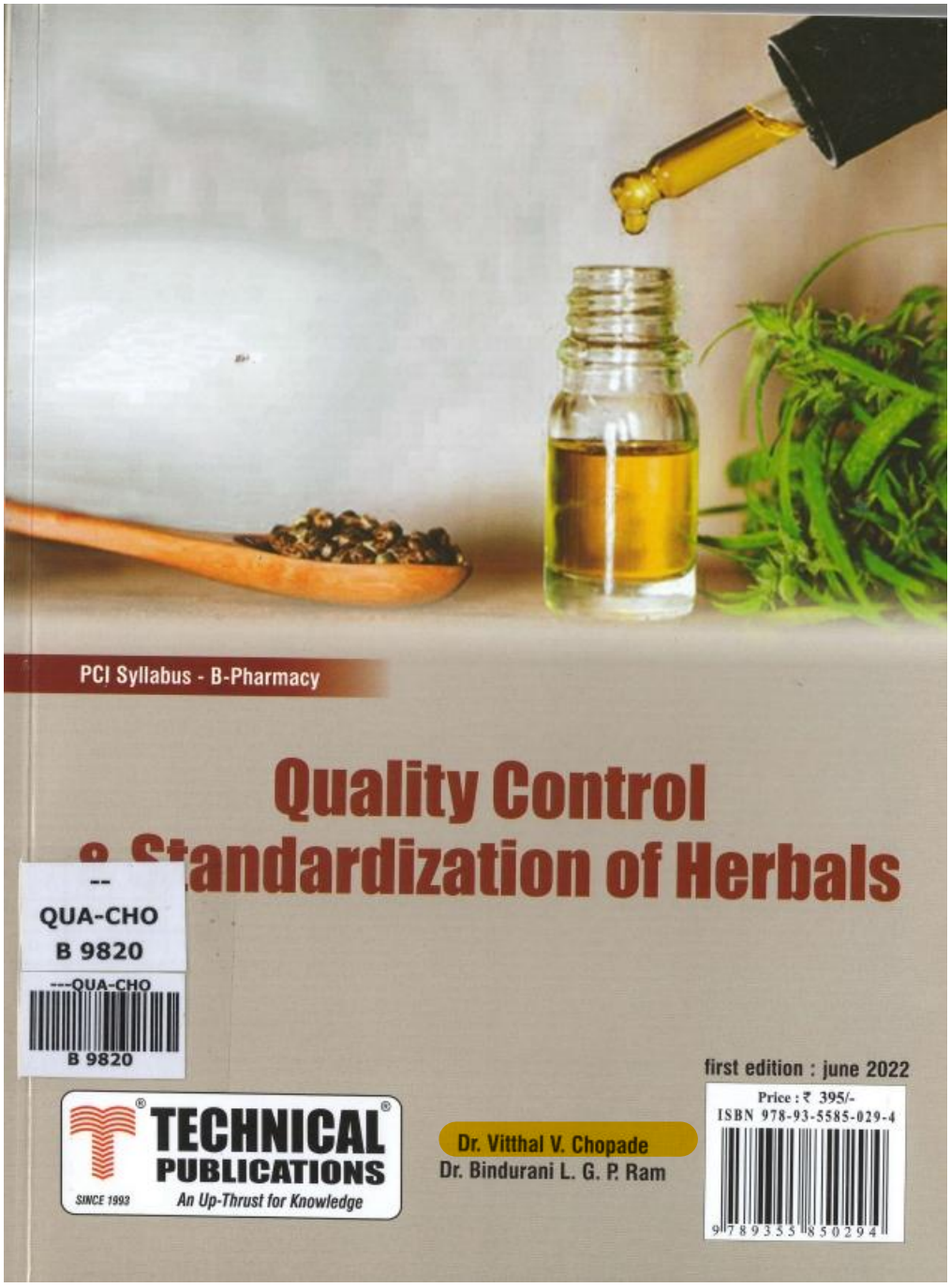
Sr. No.	Parameter	Calendar Year	No. of Books and chapters in edited volumes /Books Published /Conference proceedings
1	Books and chapters in edited volumes /Books Published /Conference proceedings	2022-2023	163
2		2021-2022	15
3		2020-2021	13
4		2019-2020	35
5		2018-2019	43

ACADEMIC YEAR: 2022-2023

Sr. No.	Title of Books and chapters in edited volumes / Books Published / Conference proceedings	Page No.
BOOKS		
1.	Quality control & standardization of herbals	12
2.	Pharmaceutic Organic Chemistry -II	20
3.	Dietary supplements & nutraceuticals	27
4.	Principles of Drug Discovery	32
5.	Pharmaceutical Organic Chemistry -III	36
6.	Pharmaceutical Organic Chemistry -III	36
7.	Regulatory Affairs	41
8.	The Microbial World: Exploring the Diversity of Bacteria	47
9.	The Microbial World: Exploring the Diversity of Bacteria	47
10.	A Textbook of Organic Chemistry	51
11.	Elements of Pharmacotherapeutics	54
12.	Elements of Pharmacotherapeutics	54
BOOK CHAPTERS		
13.	Chapter 4 Quantitative analysis of ursolic acid in the leaves of species of genus tecoma and tabebuia of bignoniaceae family by high-performance thin-layer method	60
14.	Chapter 2 Recent Advances in Microfluidics for Drug Screening and Its Applications	64
15.	Chapter 9 Review article: ophthalmic niosomal in situ gel	67
16.	Chapter-8 Prevotella histicola	70
17.	Chapter-9 Prevotella denticola	77
18.	Chapter-10 Prevotella micans	79
19.	Chapter-11 Prevotella bryantii	81

119.	Synthesis and conjugation of aromatase inhibitors for targeted drug in treatment cancer	168
120.	Formulation development and characterization of melatonin based higher SPF herbal sunscreen formulation	169
121.	Analysis of side effects observed due to cardiovascular drugs at a tertiary care hospital	170
122.	Pharmacological studies on collagen induced arthritis in swiss albino mic	171
123.	Recent advances in studies on guillain barre syndrome.	172
124.	Synthesis, molecular docking of atenolol impurity: insights from spectroscopic and pharmacokinetic approaches	173
125.	Molecular docking for antiviral compounds against sars-cov-2: a computational study	174
126.	Molecular docking for antiviral compounds against sars-cov-2: a computational study	174
127.	In silico study of Triazole linked Quinazolione derivatives for anti-diabetic as Dipeptidyl peptidase inhibitory activity.	175
128.	In silico study of Triazole linked Quinazolione derivatives for anti-diabetic as Dipeptidyl peptidase inhibitory activity.	175
129.	In silico study of quinazolinone-sulfonamide derivatives for Dipeptidyl peptidase-IV as anti- diabetic Activity	177
130.	In silico study of quinazolinone-sulfonamide derivatives for Dipeptidyl peptidase-IV as anti- diabetic Activity	177
131.	In sillico study of Novel Sulphonamide/Isothiocyanate Linked Quinazolinone Derivatives for DPP -IV inhibitory as antidiabetic activity	178
132.	In sillico study of Novel Sulphonamide/Isothiocyanate Linked Quinazolinone Derivatives for DPP -IV inhibitory as antidiabetic activity	178
133.	Targated delivery of 5-Fluorocil in breast cancer using hollow mesoporous alumina nanoparticles	179
134.	Targated delivery of 5-Fluorocil in breast cancer using hollow mesoporous alumina nanoparticles	179
135.	Influence of combination of phytoconstituents in ethanol withdrawal induced depression	180

Quality control & standardization of herbals



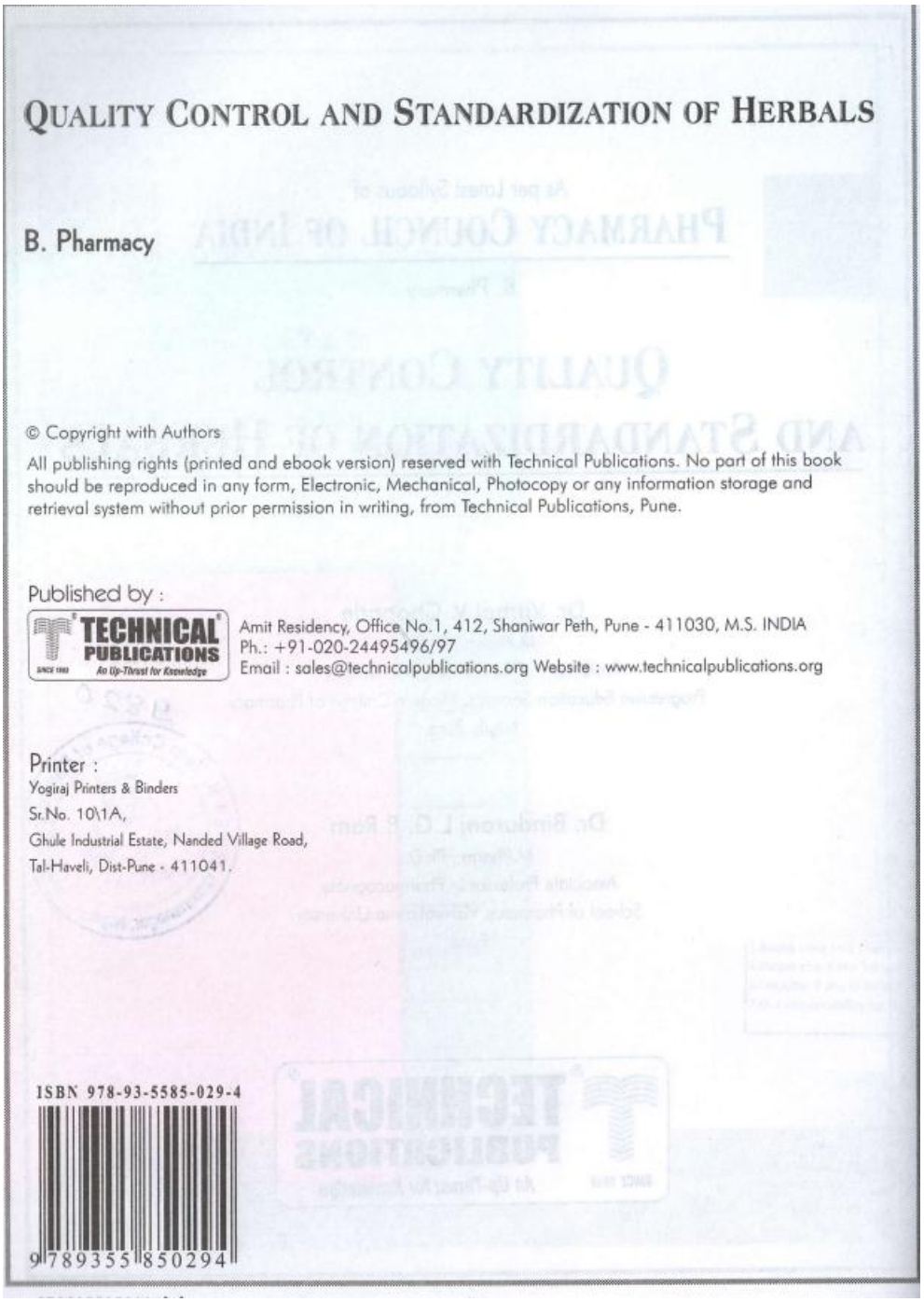


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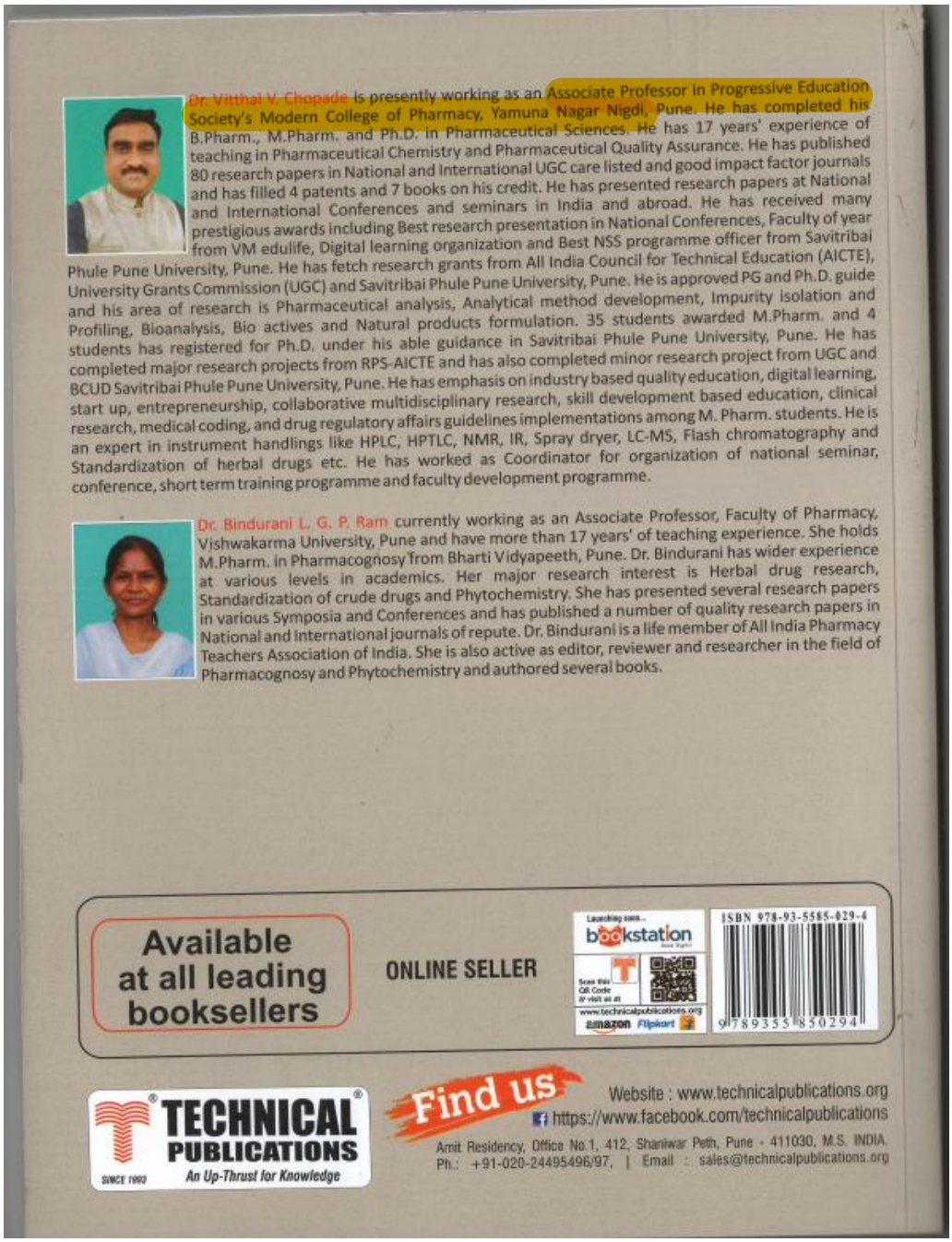
TABLE OF CONTENTS

Unit - I

Unit - IV

Chapter - 4 Stability Testing & GMP Requirements of Herbal Medicines (4 - 1) to (4 - 44)



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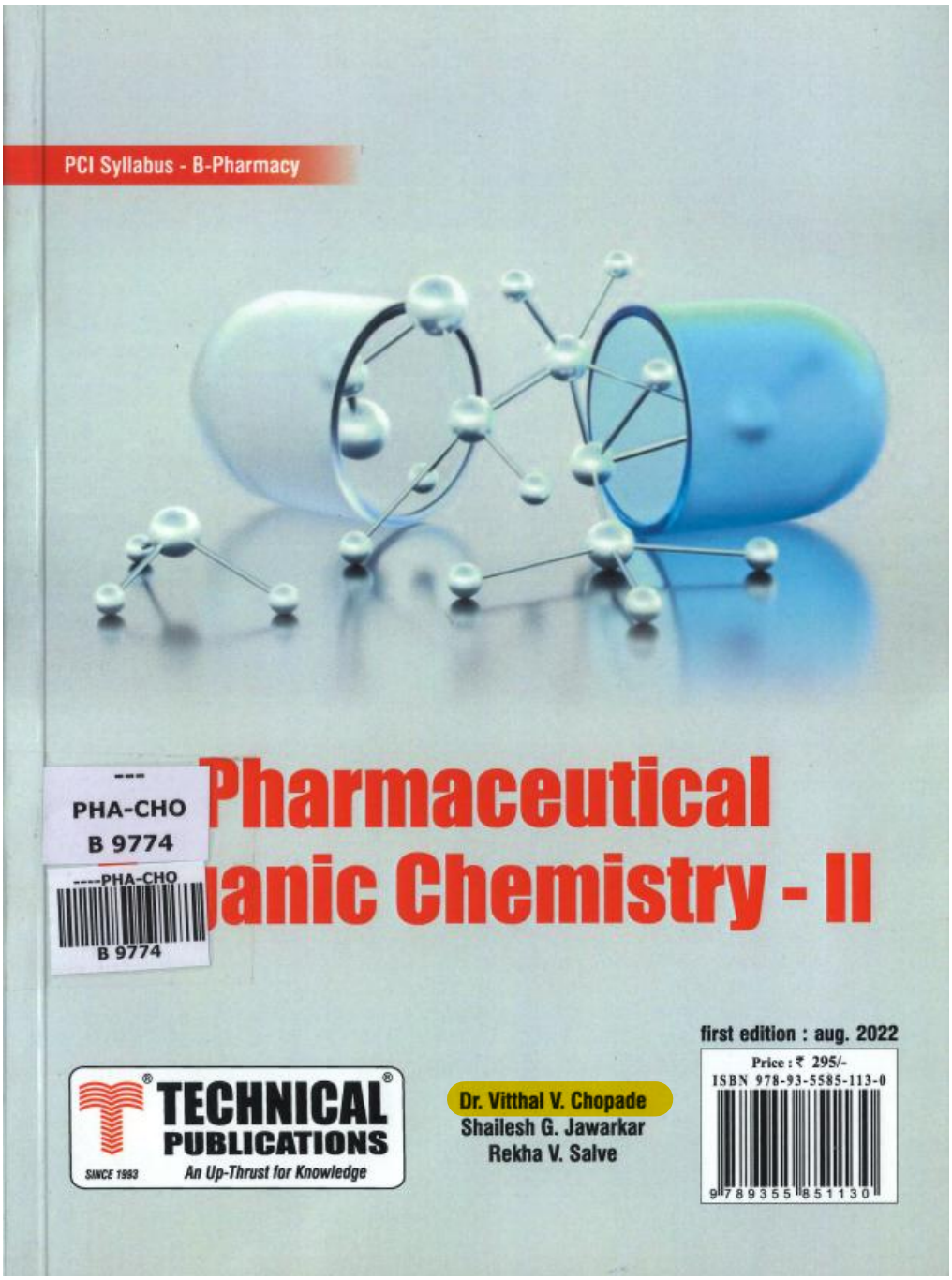

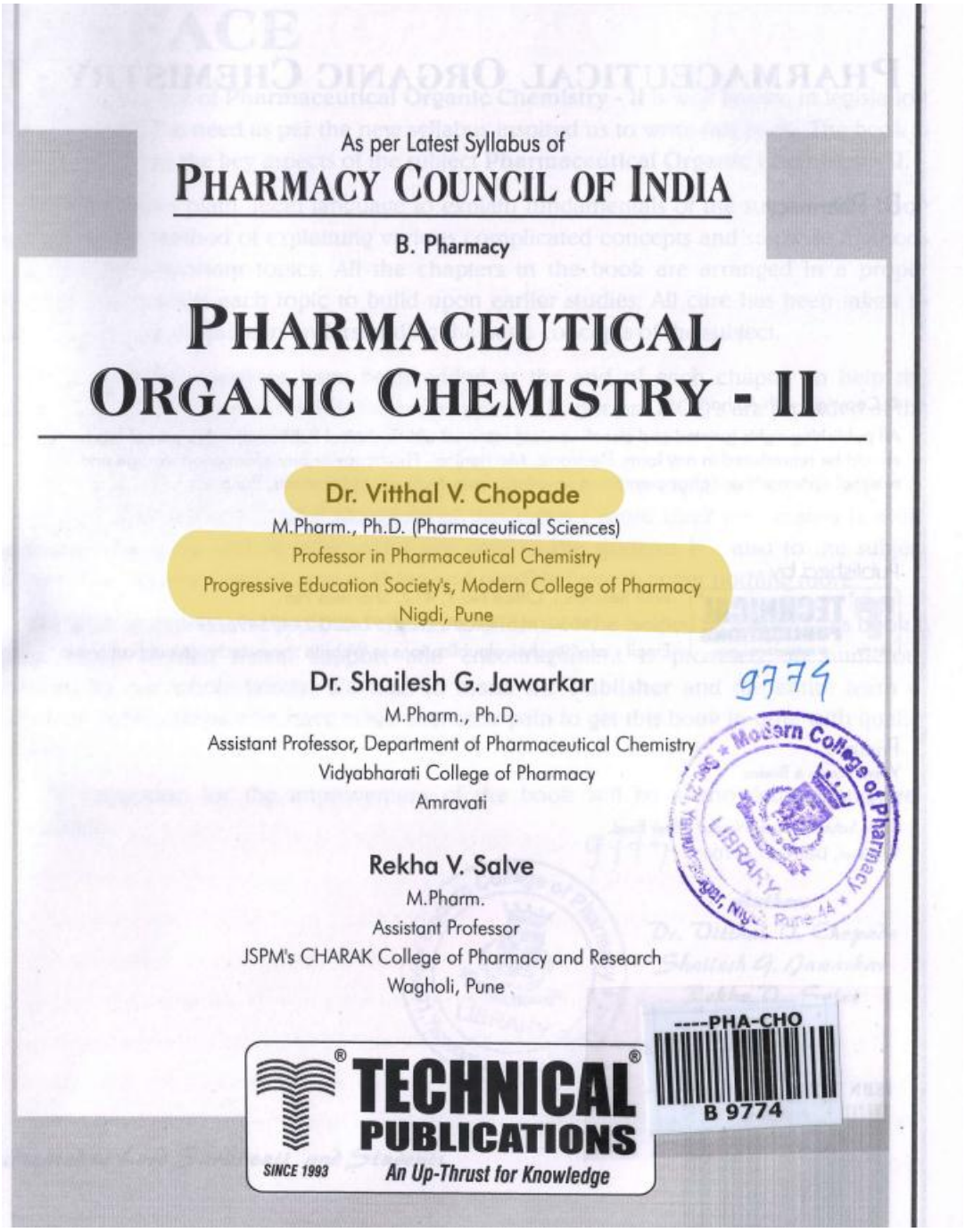

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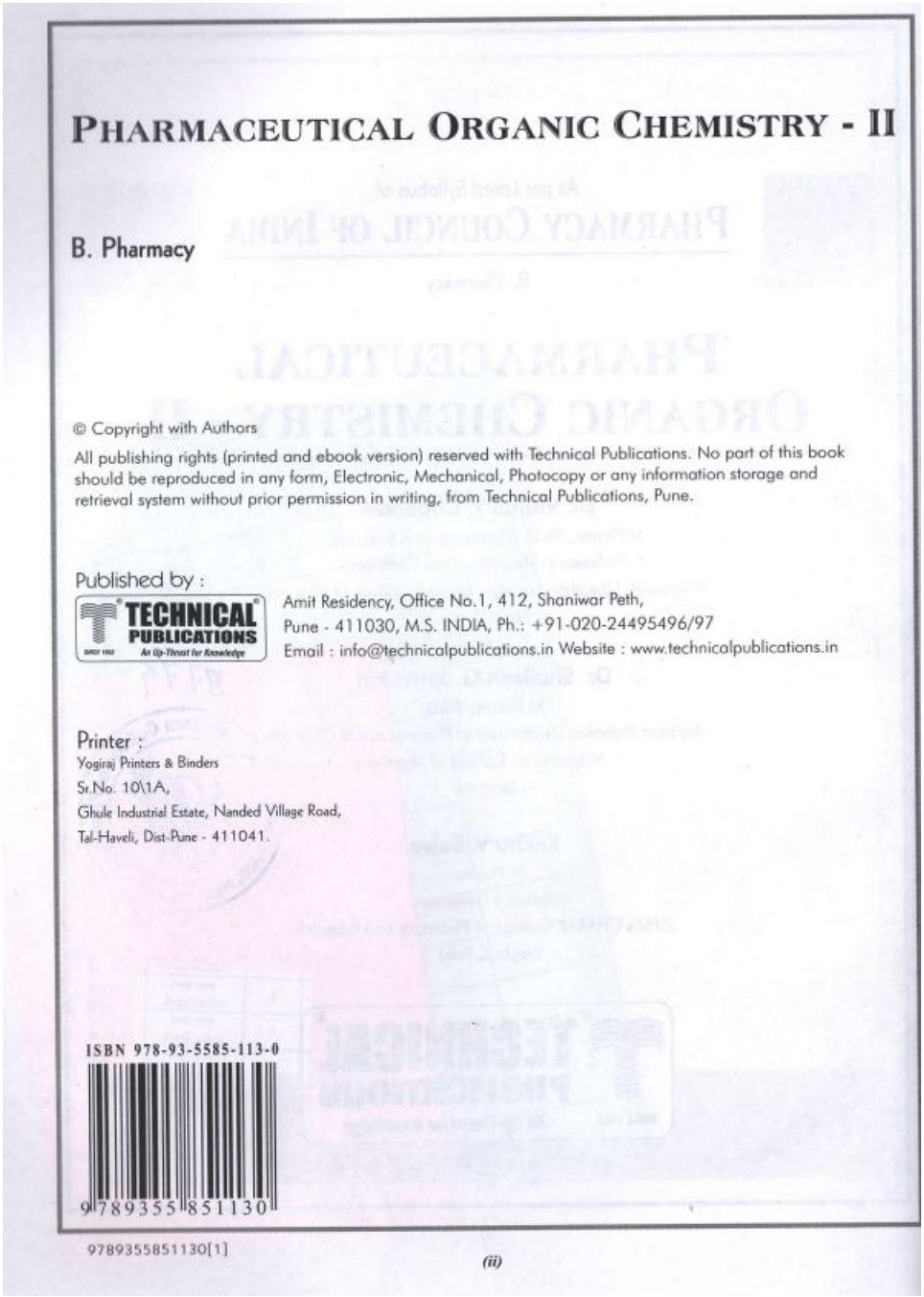

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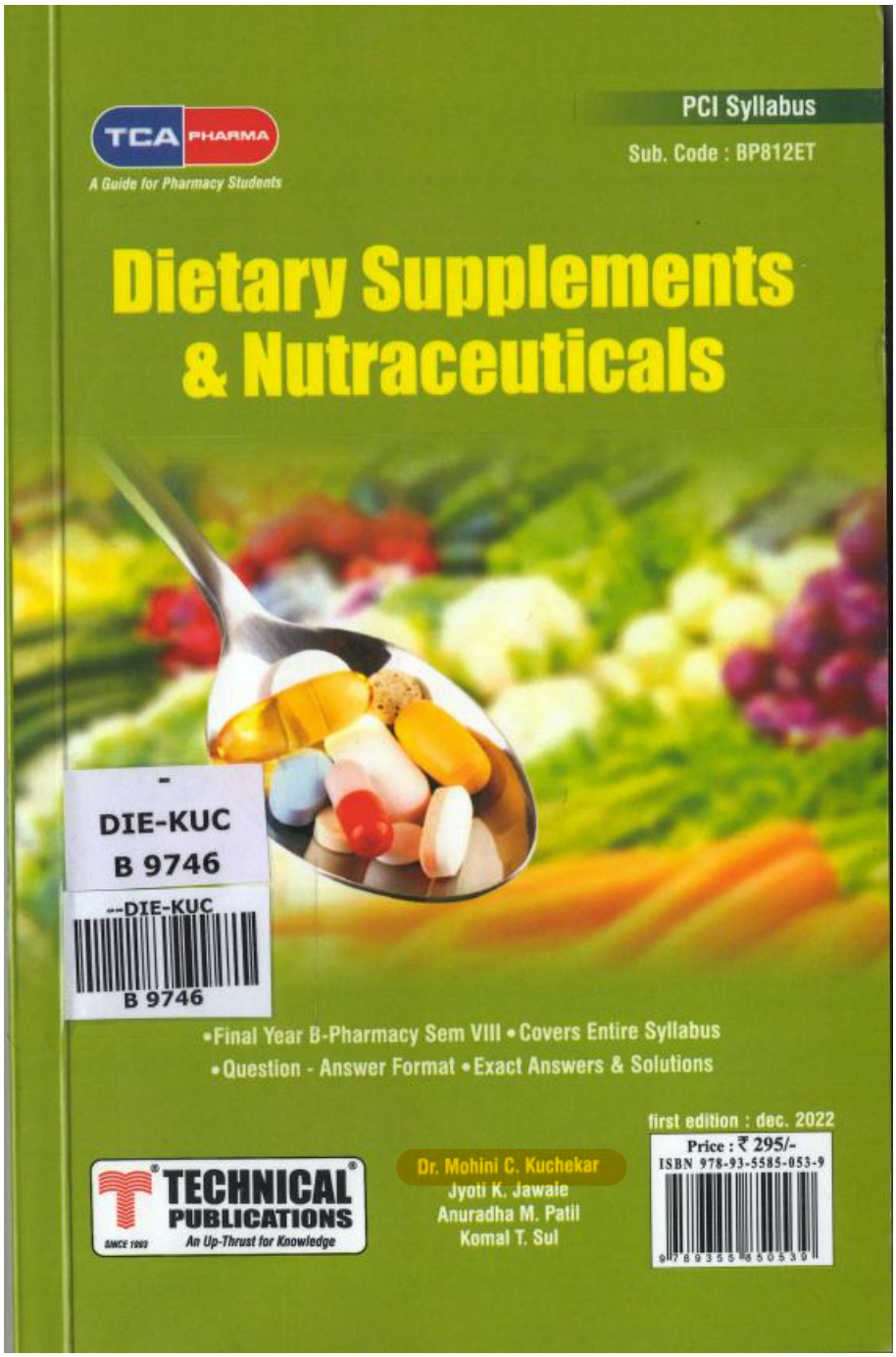

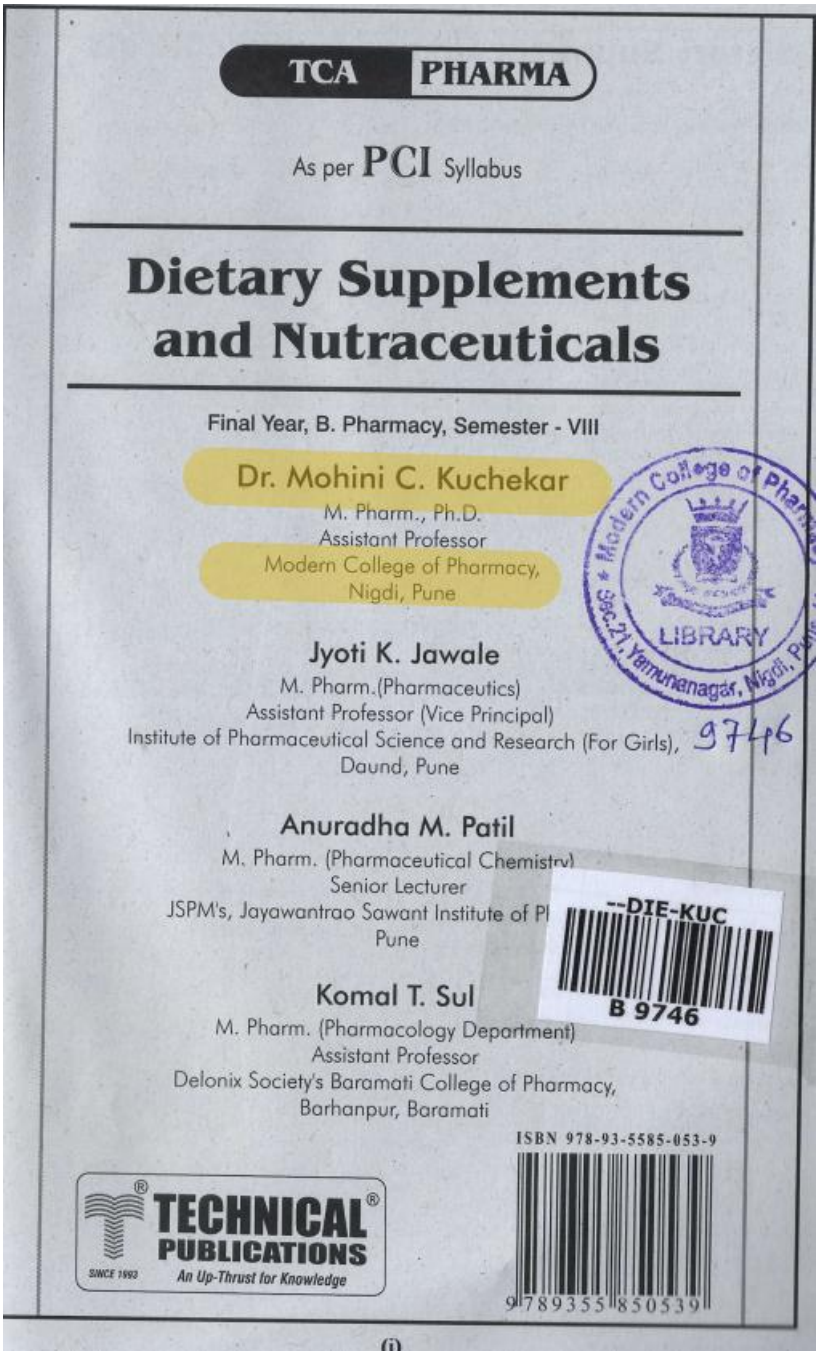

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TABLE OF CONTENTS

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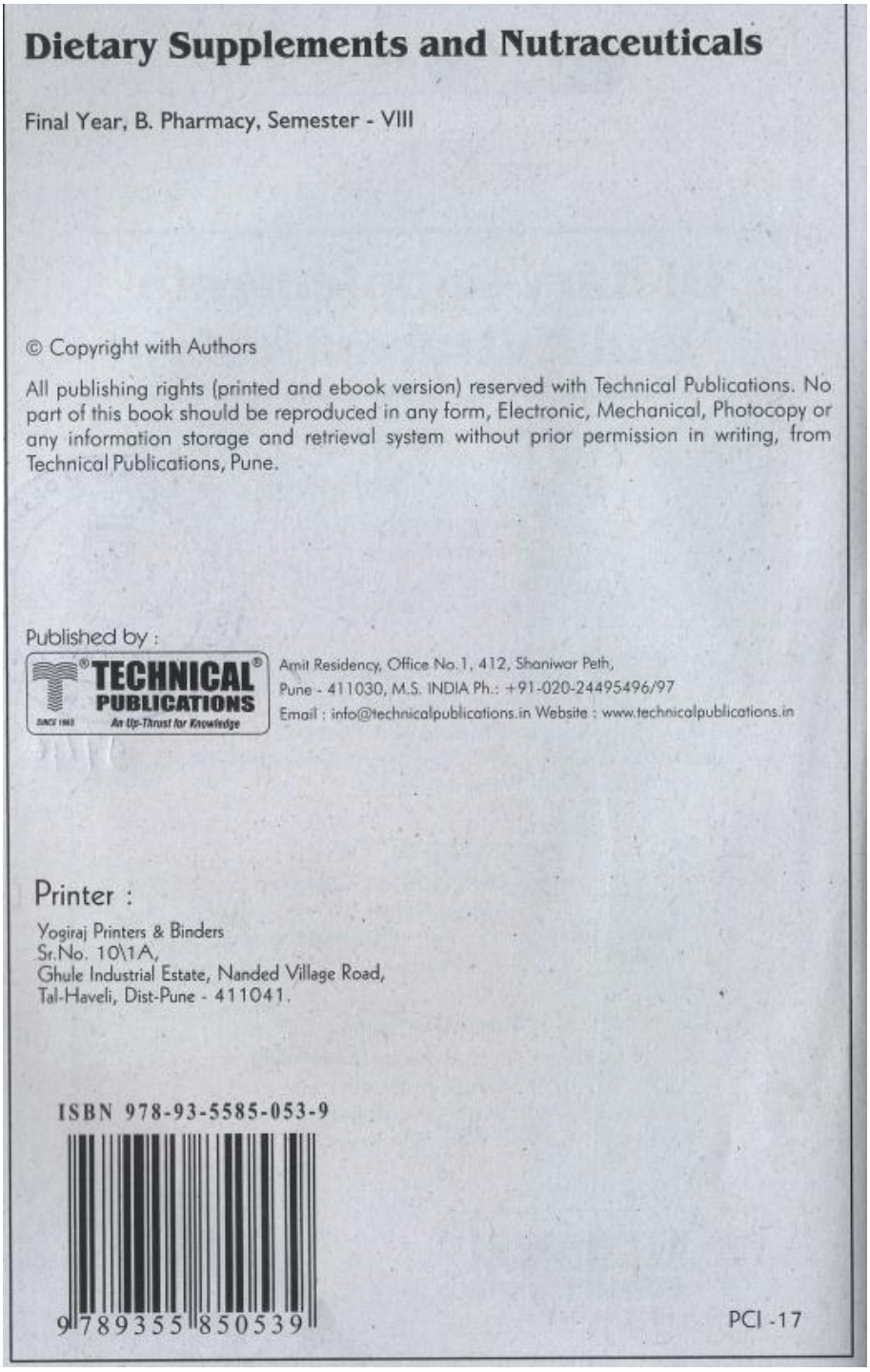

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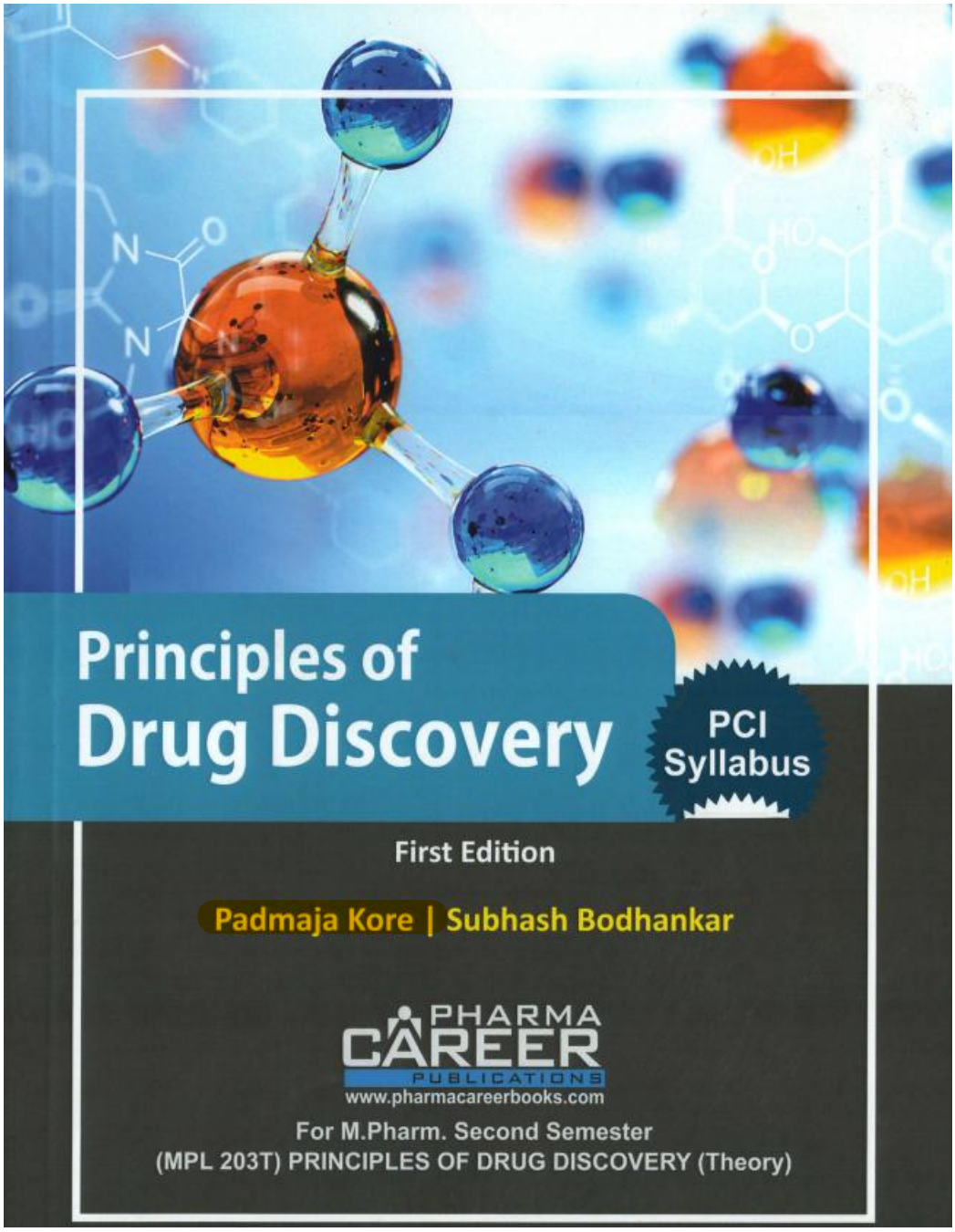

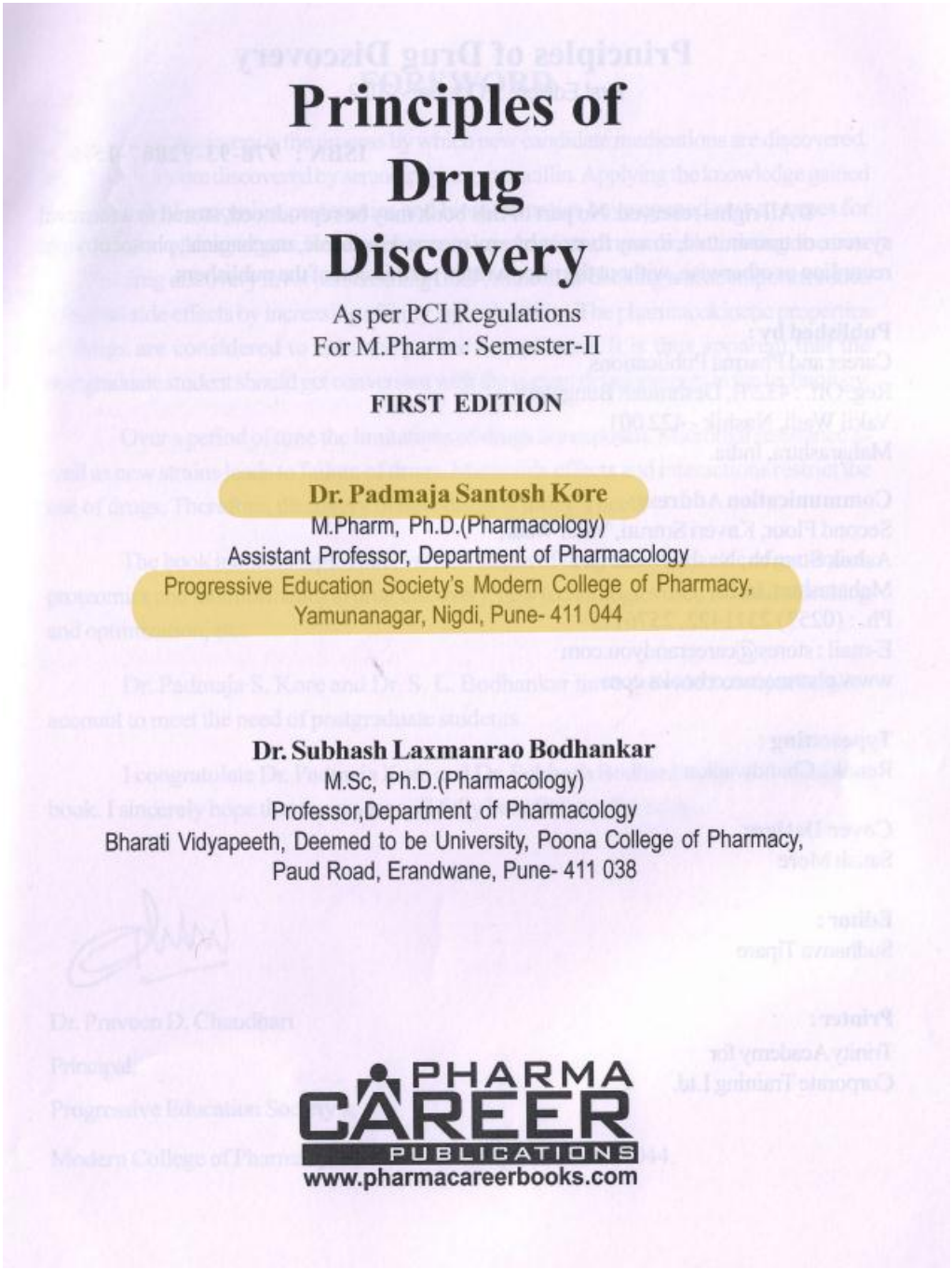

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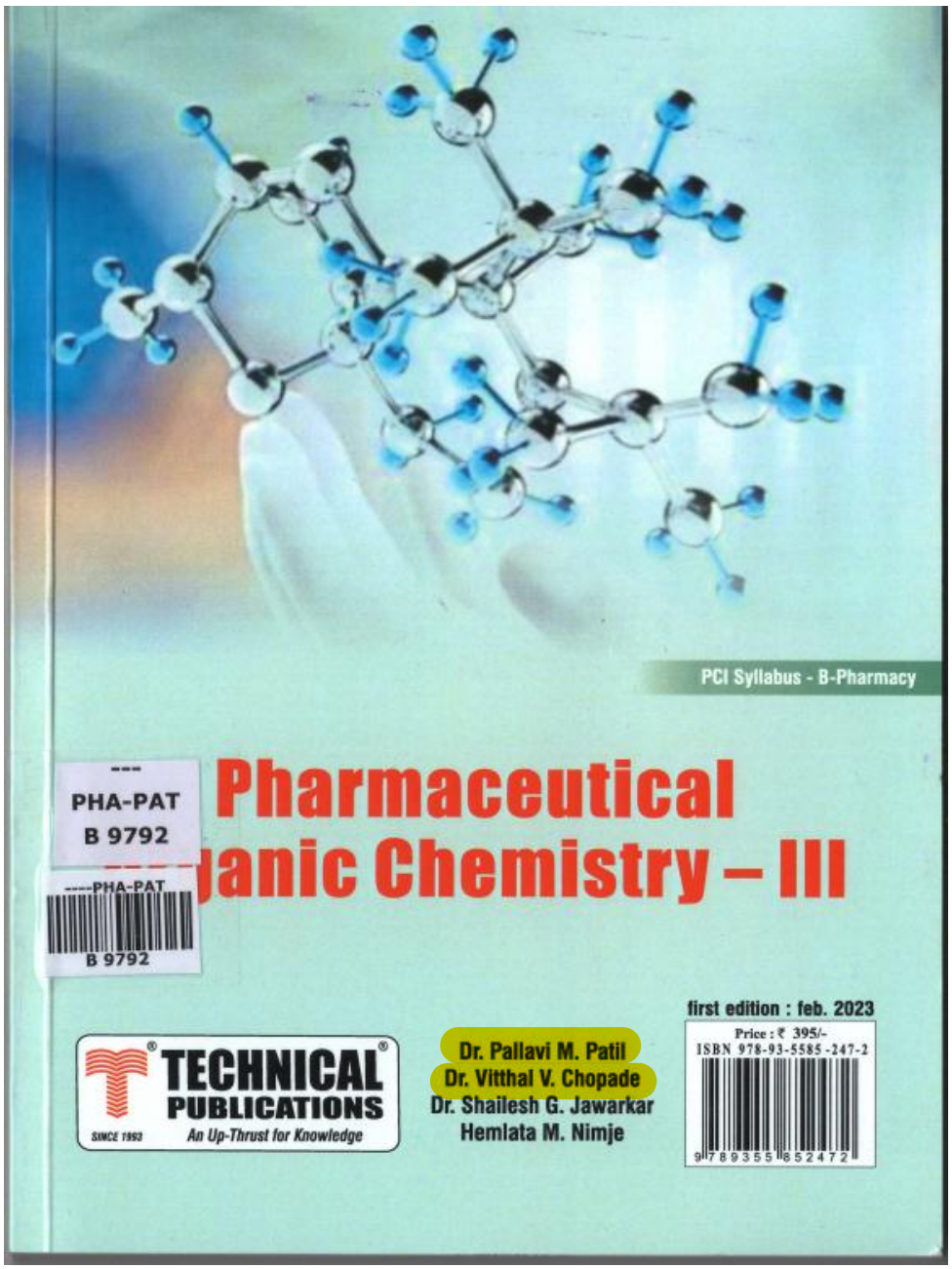

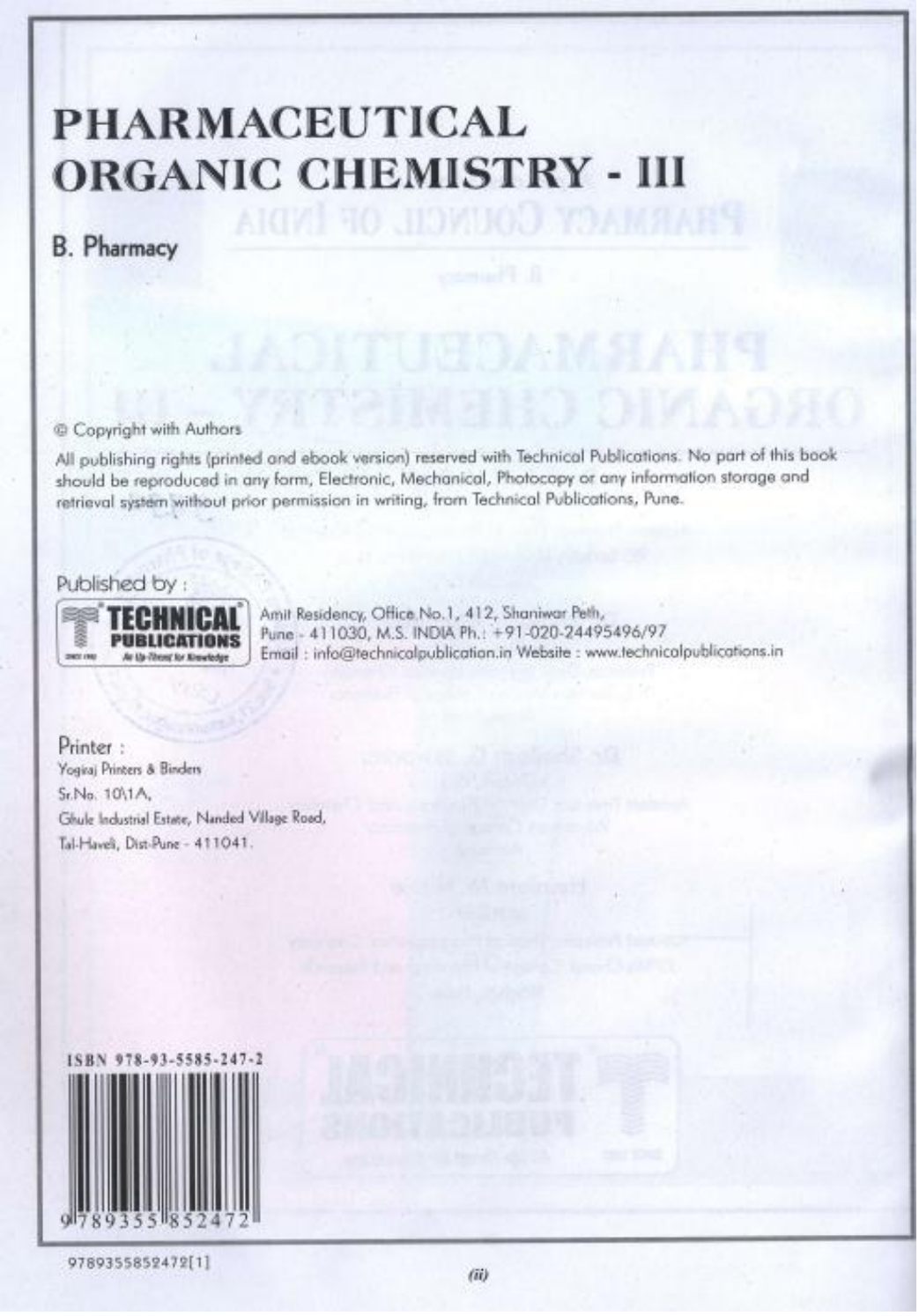

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(ii)

TABLE OF CONTENTS

Unit - I

Unit - II

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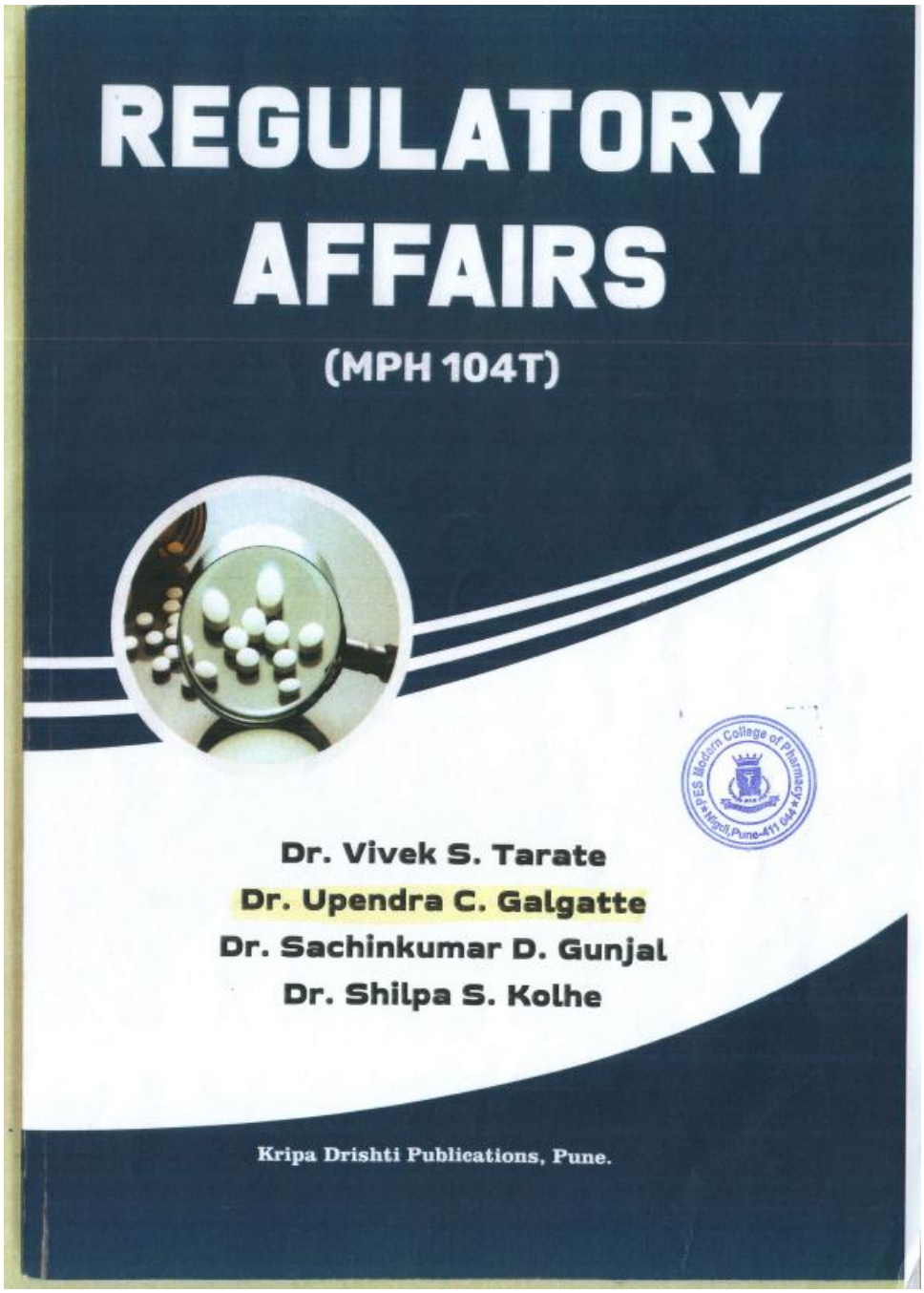

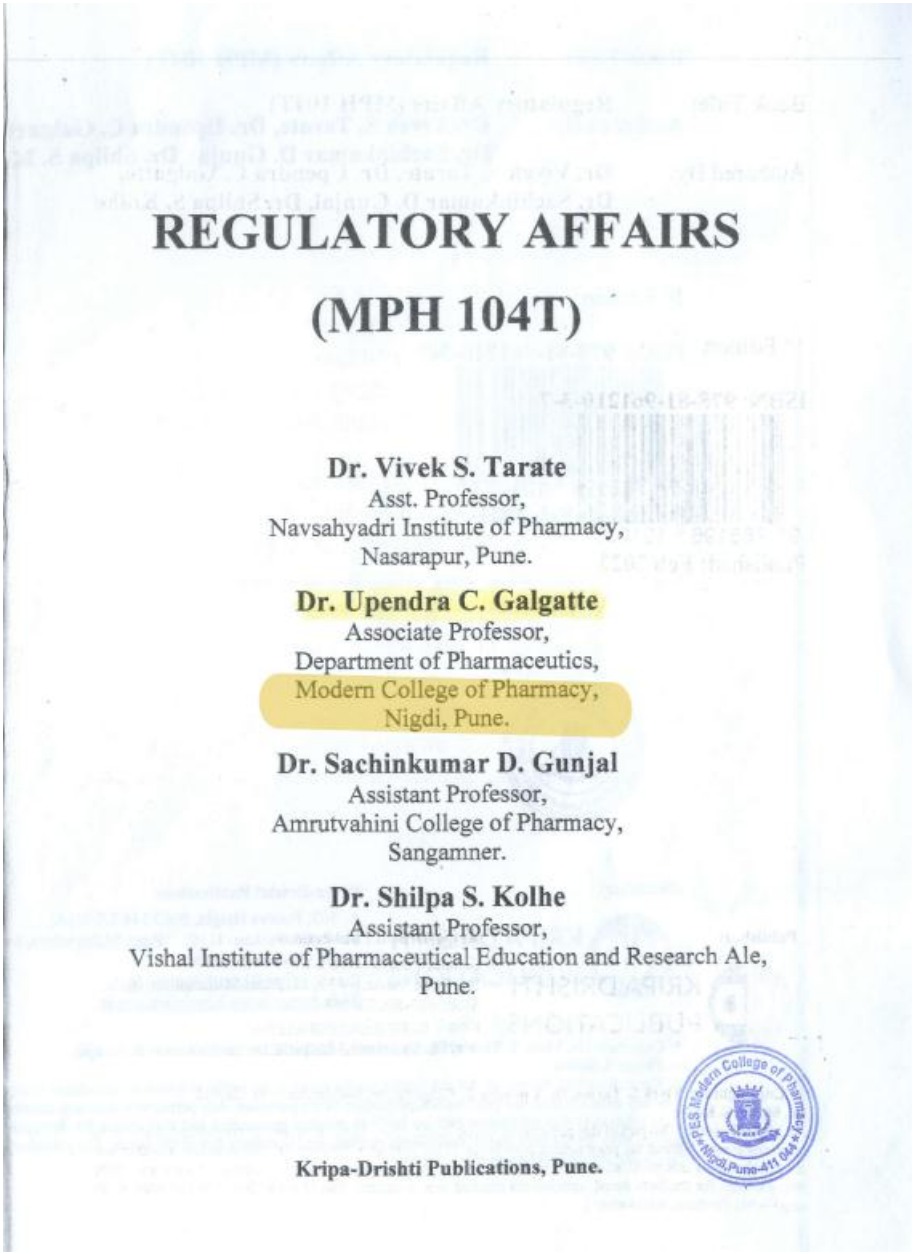

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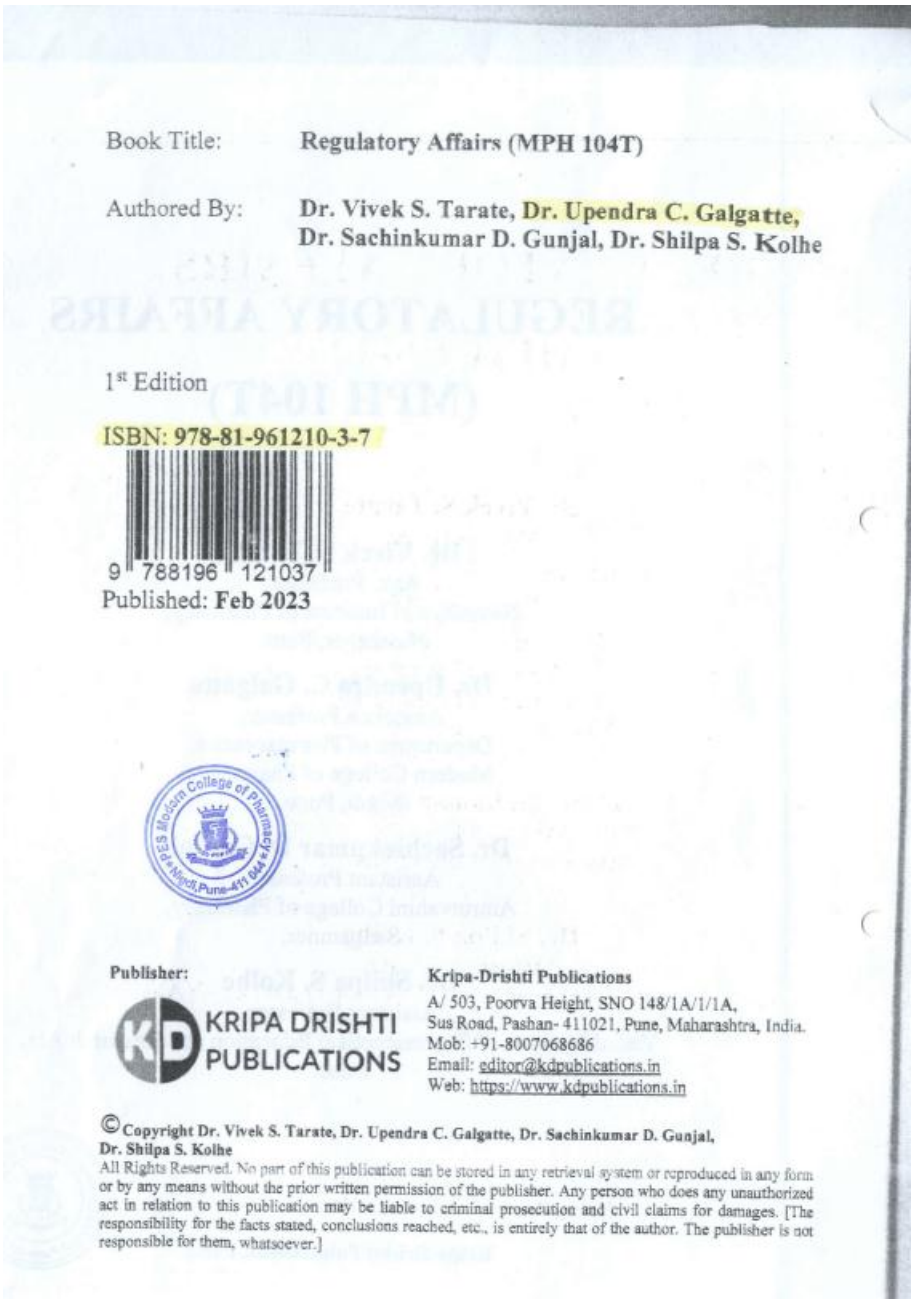

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INDEX

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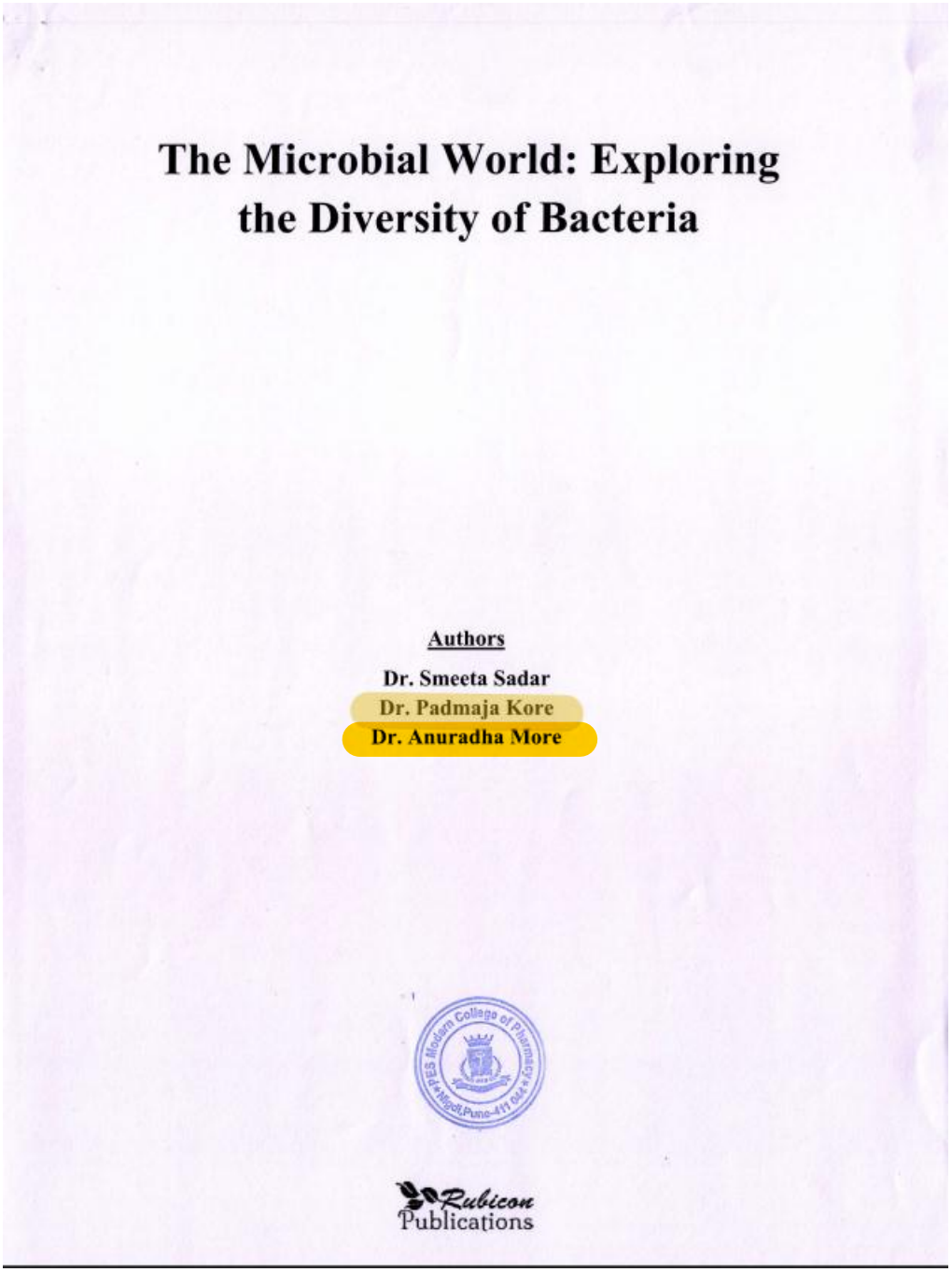


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Dr. Smeeta Sadar - Dr. Padmaja Kore - Dr. Anuradha More
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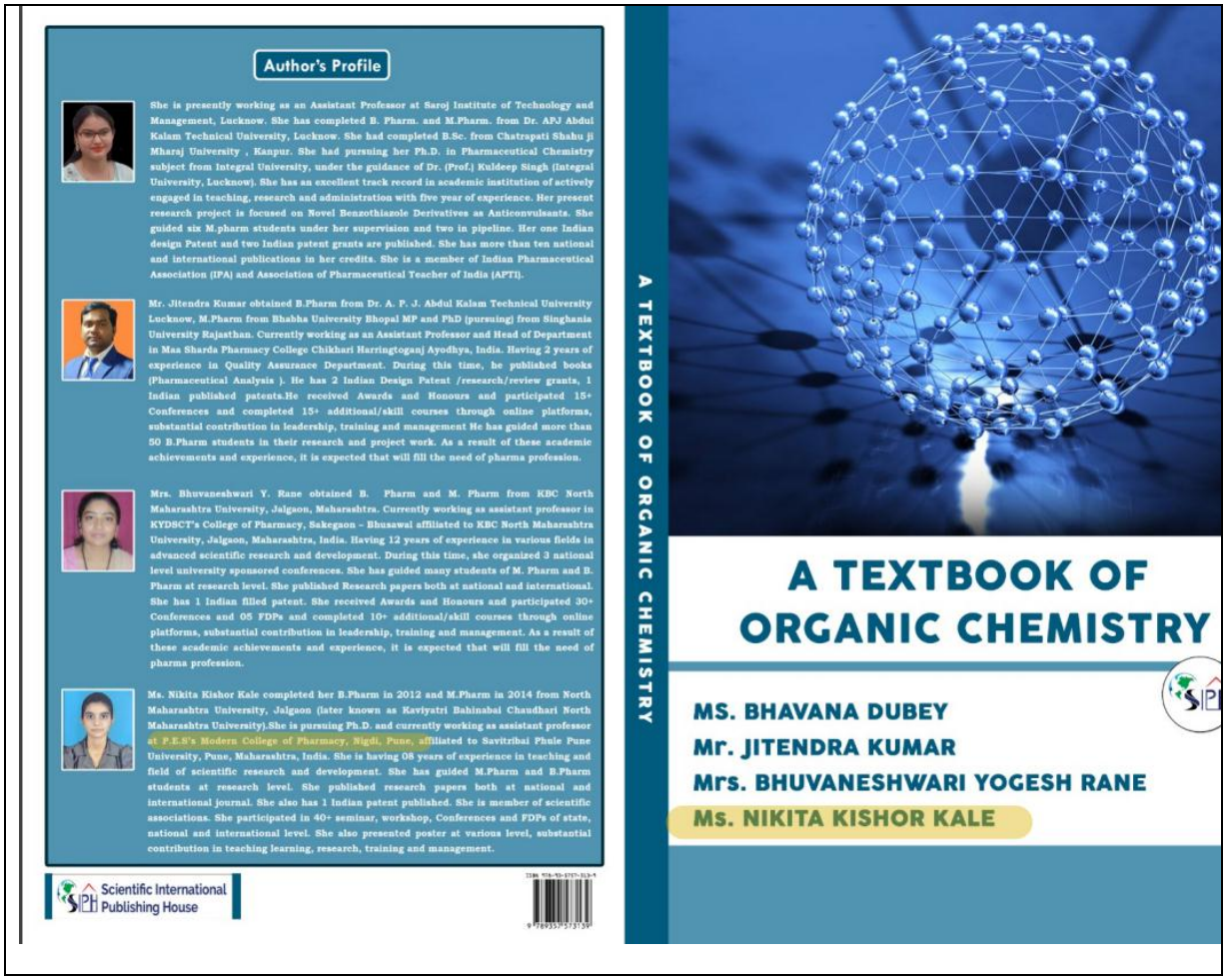

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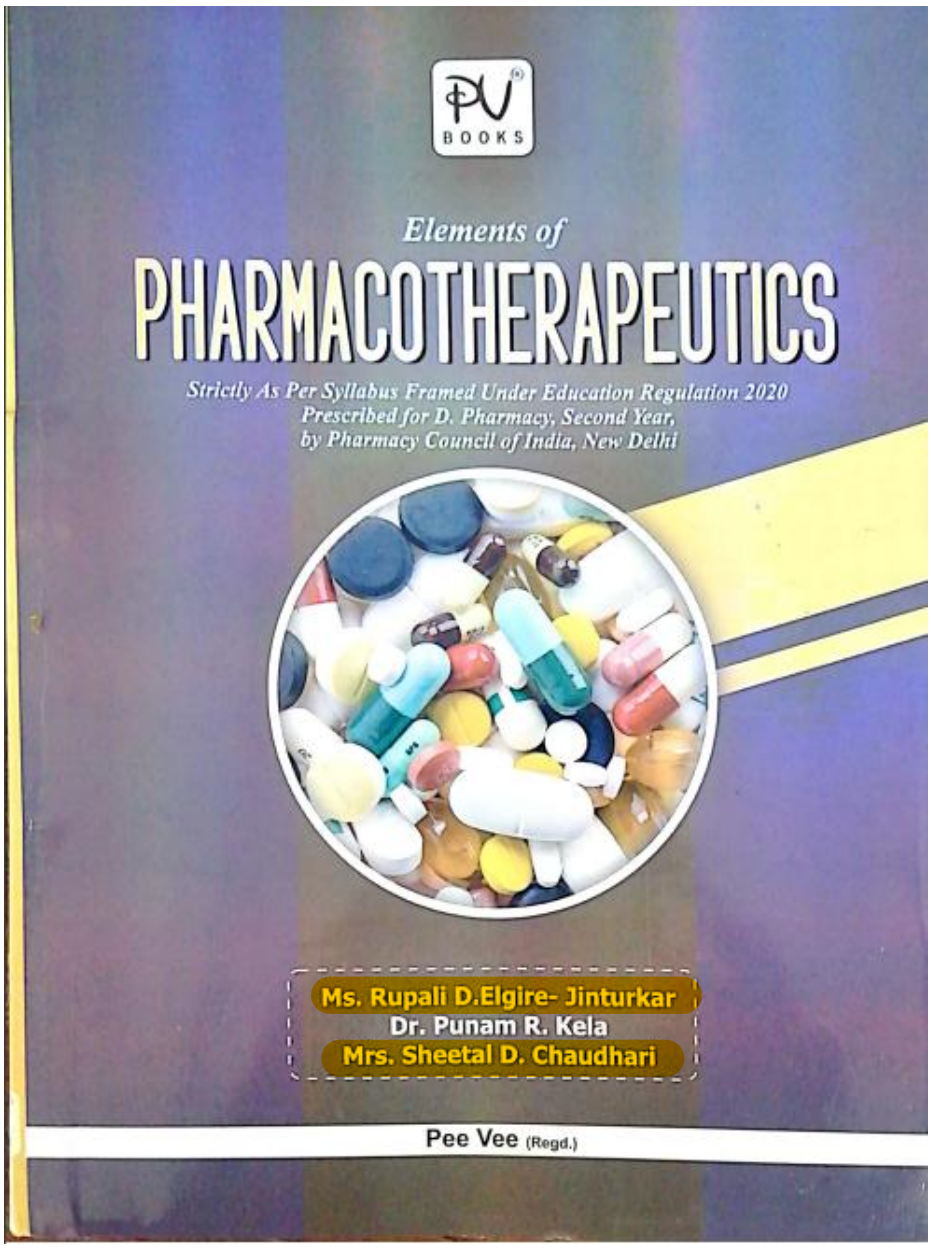

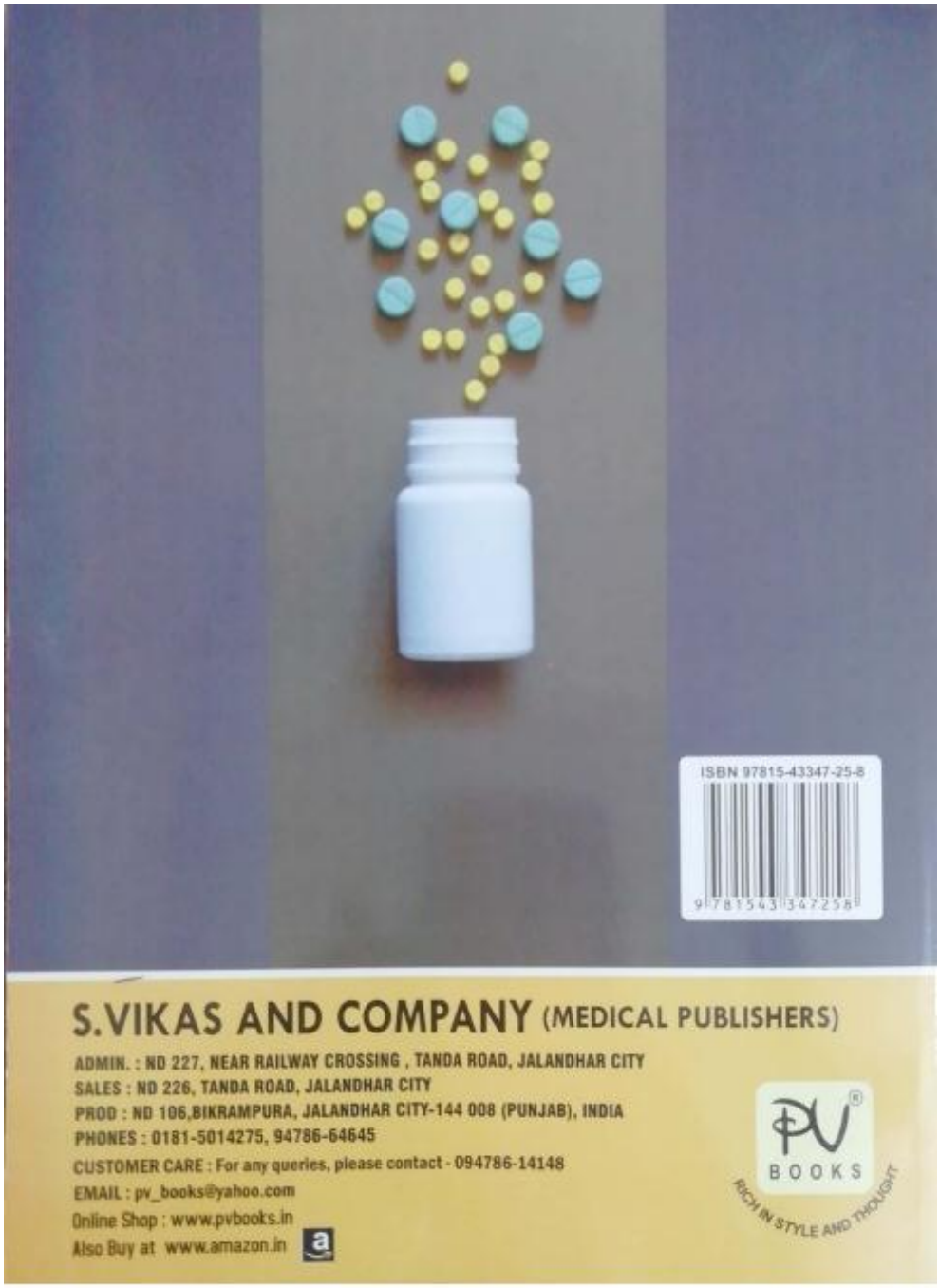
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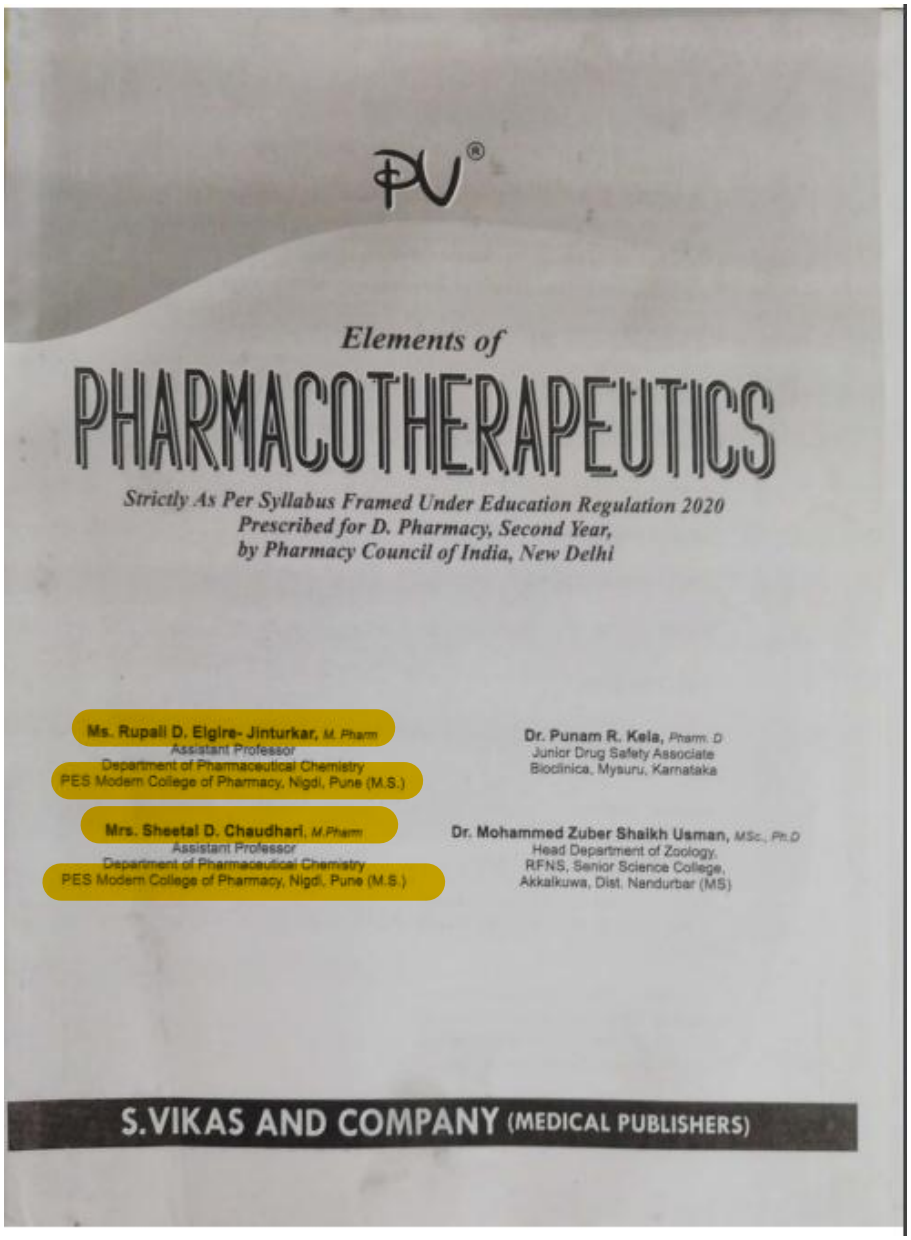
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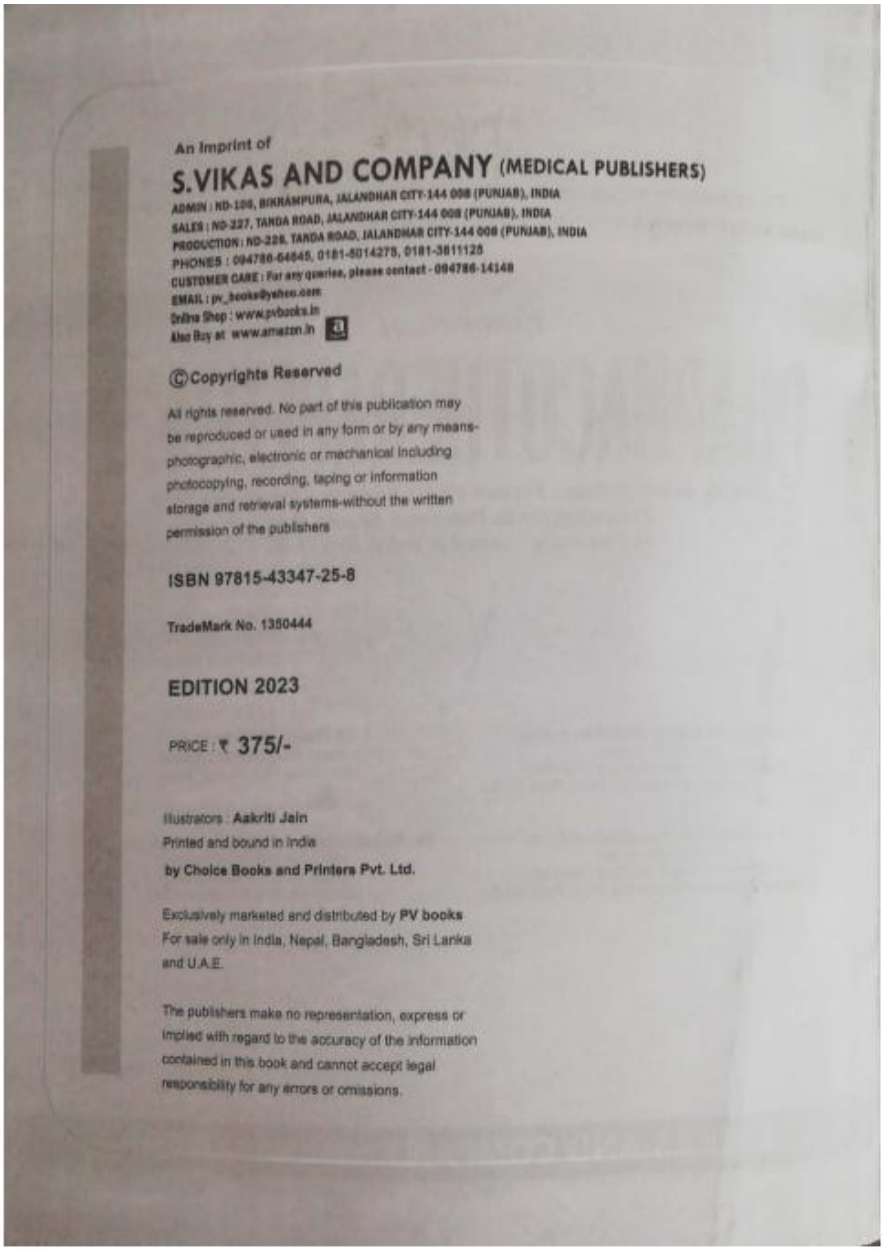

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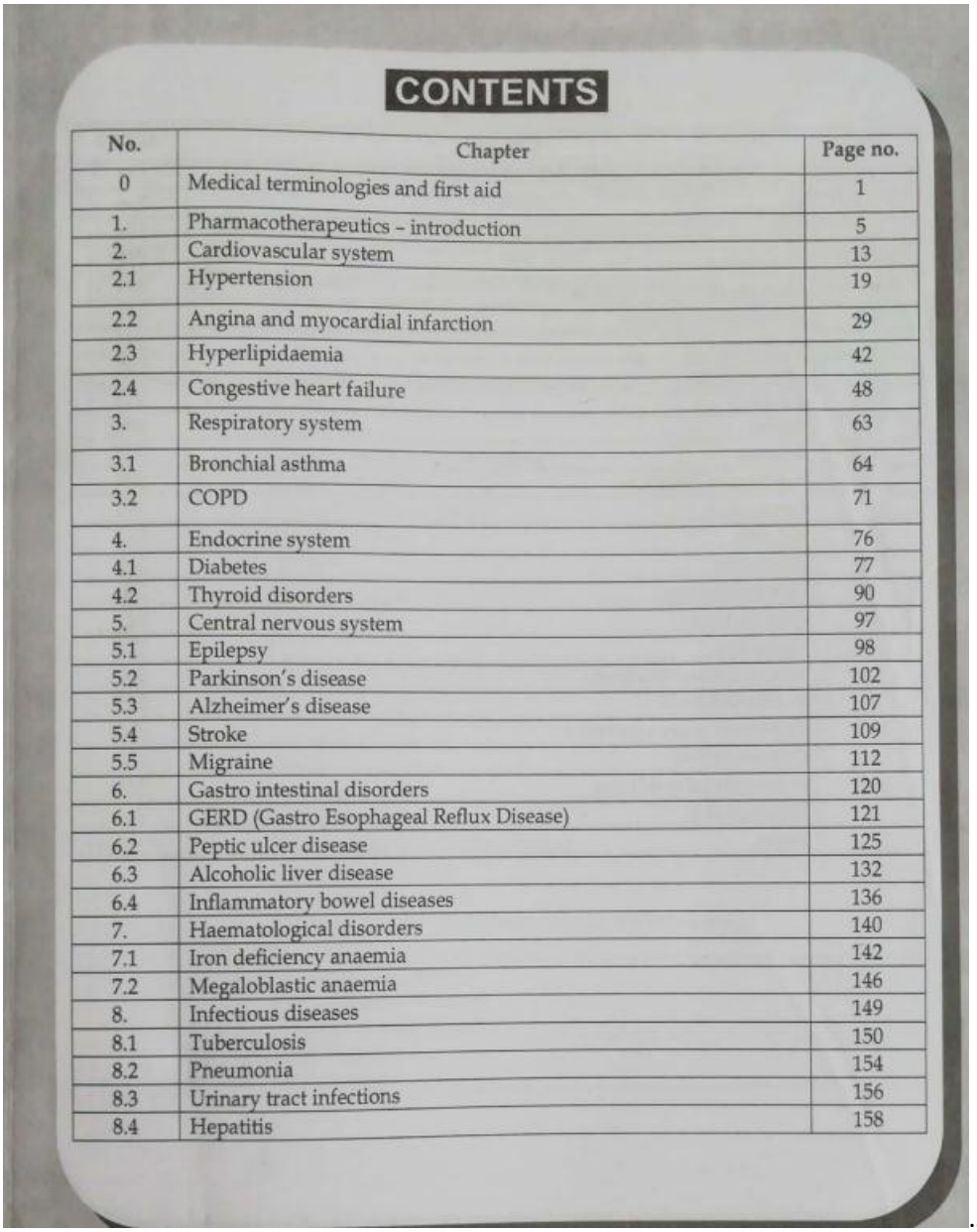

CONTENTS

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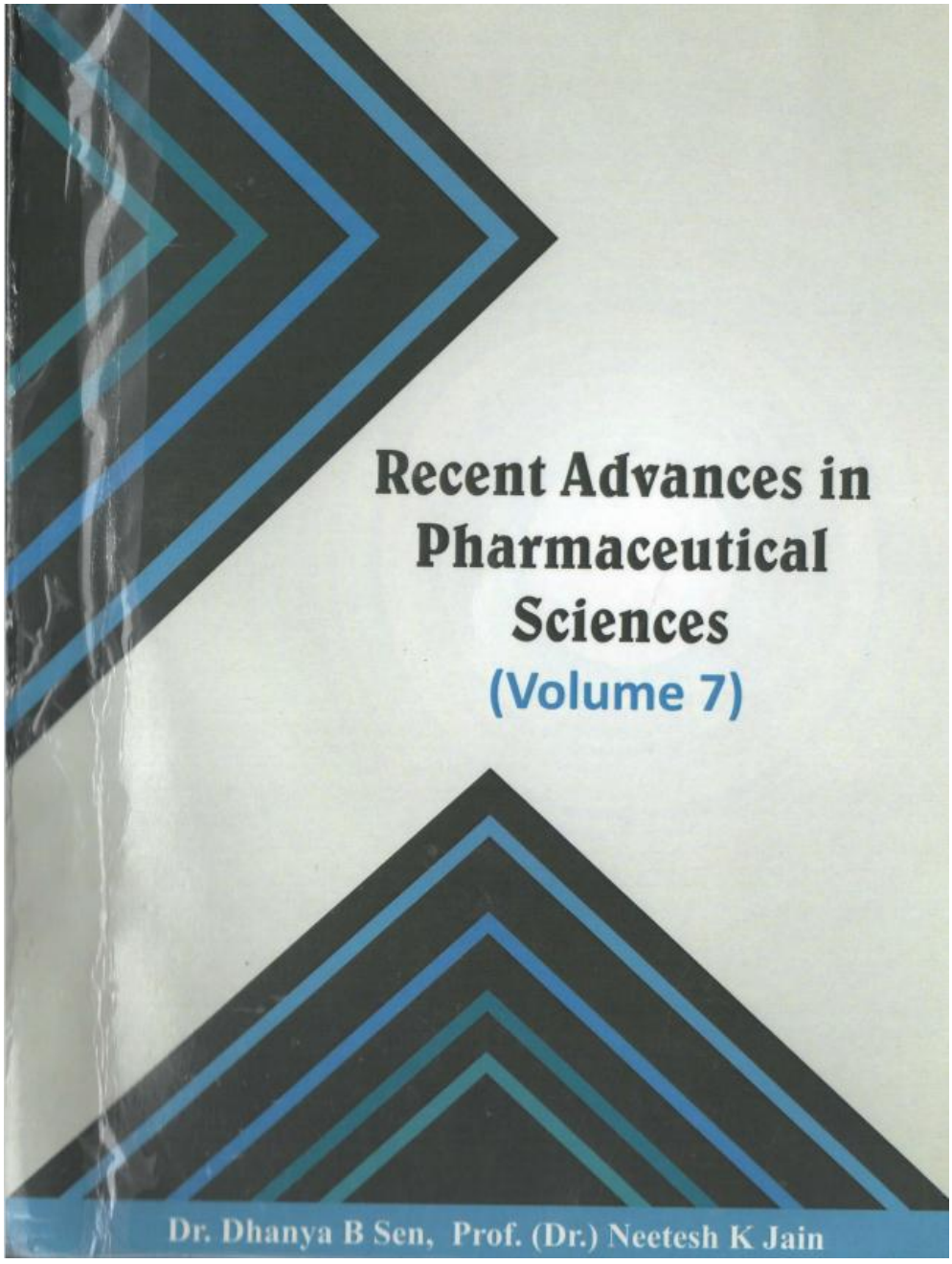
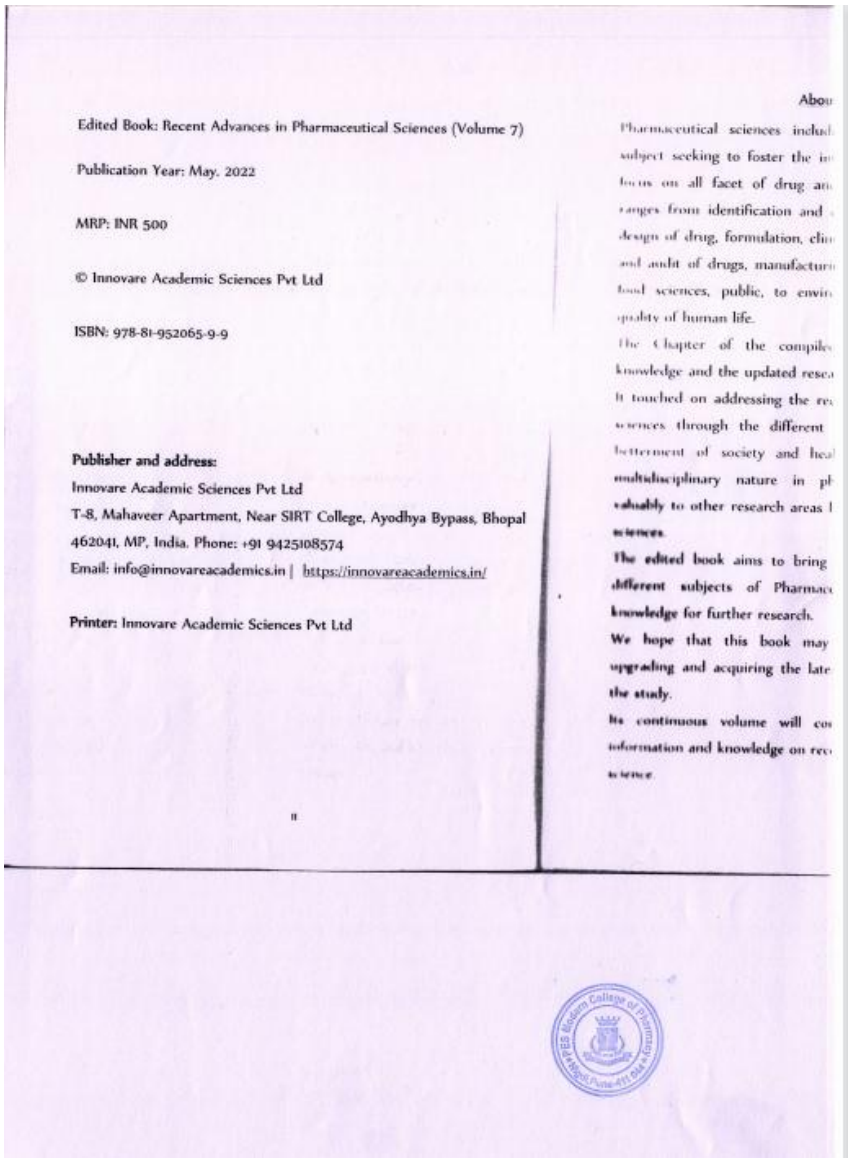
Chapter 4 Quantitative analysis of ursolic acid in the leaves of species of genus tecoma and tabebuia of bignoniaceae family by high- performance thin-layer method





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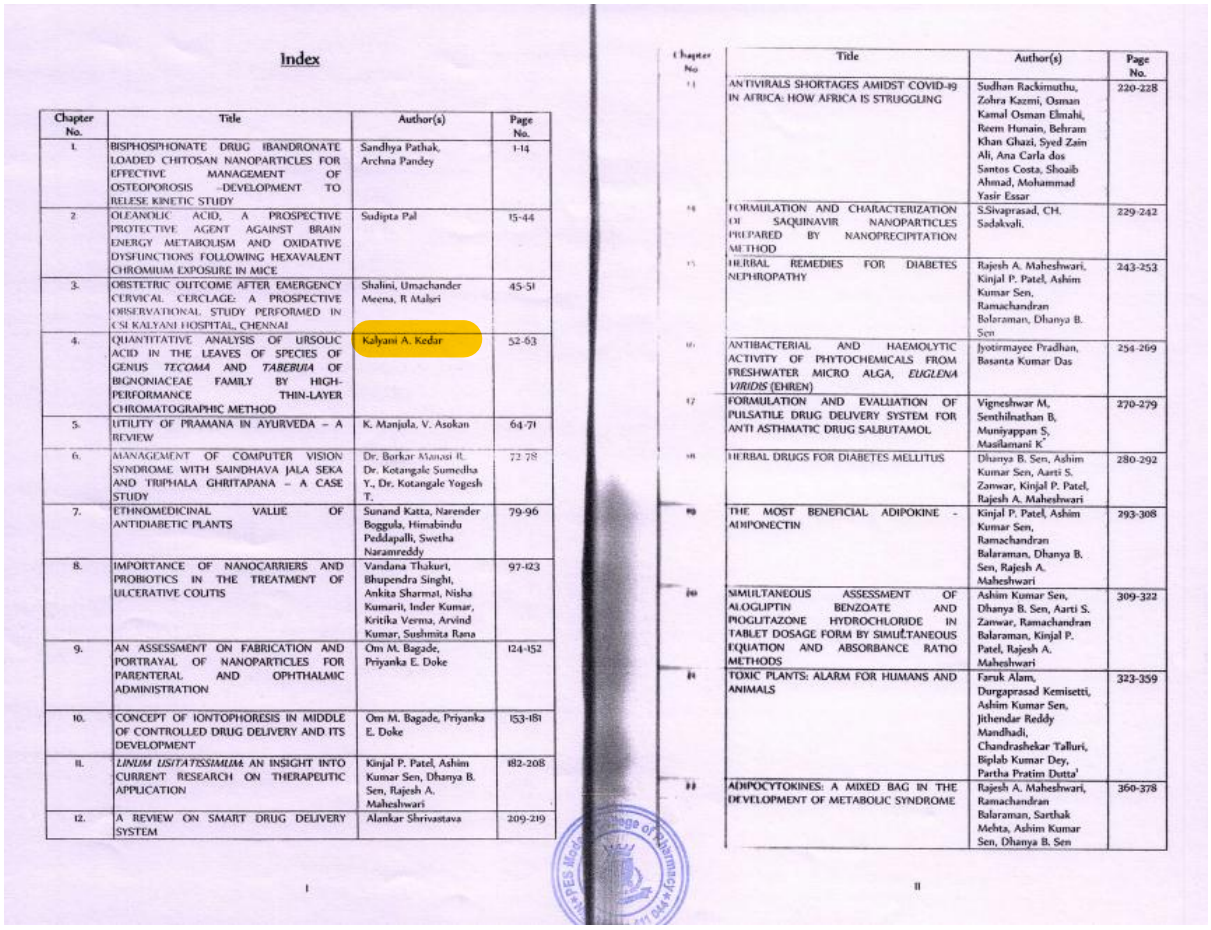


Index

Chapter-04

QUANTITATIVE ANALYSIS OF URSOLIC ACID IN THE LEAVES OF SPECIES OF GENUS *TECOMA* AND *TABEBUIA* OF BIGNONIACEAE FAMILY BY HIGH-PERFORMANCE THIN-LAYER CHROMATOGRAPHIC METHOD

Kalyani A. Kedar
[1]Department of Pharmacognosy, P. E. Society's Modern College of Pharmacy, Nigdi, Pune Maharashtra, India.

ABSTRACT: A simple and sensitive high-performance thin–layer chromatographic (HPTLC) method was developed for the quantification of ursolic acid in the leaves of three species of genus *Tecoma* (*Tecoma gaudichaudi* DC, *Tecoma capensis* (Thunb.) Lindl, *Tecoma stans* (L.) Juss. ex Kunth) and genus *Tabebuia* (*Tabebuia rosea* Bertol) belong to family Bignoniaceae. Chromatography was performed on Silica gel 60 F254 precoated HPTLC Plates with optimized mobile phase pet ether: ethyl acetate: formic acid (7:3:0.5, v/v/v). The method was validated using International Council for Harmonization (ICH) guidelines, including linearity, precision, accuracy, and robustness. Ursolic acid was found to be present in four species, i.e., *Tecoma gaudichaudi* DC (1.48%w/w), *Tecoma capensis* (Thunb.) Lindl. (0.79%w/w), *Tecoma stans* (L.) Juss.Ex Kunth (1.11%w/w),*Tabebuia rosea* (Bertol.) (1.13%w/w). A good linearity relationship was found to be (200-1400ng band−1) with correlation coefficient (r^2) value of 0.9946 with ursolic acid. The proposed method for the quantitation of ursolic acid was found to be reproducible and simple.

INTRODUCTION

Bignonia Linn (Bignoniaceae) is a monotypic genus of woody climbers, native to North America and mostly grown for ornament in the tropics of the old world [1]. Bignoniaceae family was having 100 genera and more than 750 plant species observed in various tropical regions of India. Known numbers of this family are *Bignonia, Tecoma, Catalpa,*

Tabebuia and Jacaranda. These are succulent herbs, shrubs, stem sometimes reduced to a rhizome or tuber. Numerous species of this family are observed as poisonous to leeches [2]. In Charak, Sushruta, the root, bark, stem and leaf of some species of Bignoniaceae family is useful for snake bite, the stem and wood for scorpion sting. In Bangladesh whole plant of *Tecoma gaudichaudi* DC use of a remedy for diabetes and infertility problems [3]. From all secondary metabolite's pentacyclic triterpenes, are an important group of it considered as lupenyl, ursanyl, betulenyl or oleanyl. They are presented in plant species as the form of aglycone's saponin triterpenoids [4-5]. Previous reports state that species of Bignoniaceae family show presence of promising active constituents such as tannins, flavonoids, triterpenes, alkaloids, carbohydrates, etc. [6].Ursolic acid was pentacyclic triterpene reported in several plant species such as*Alstonia scholars* R. Br., *Diospyros melanoxlon, Holoptelea integrifolia*[7-9]. Ursolic acid was reported to for its various biological activities such as anti-inflamatory, antidiabetic and can target several steps of cancer development. Thus, being a promising tool for the treatment and chemoprevention of cancer [10-12].

The phytochemical analysis of various species of Bignoniaceae family was not studied so far hence; the following research deals with to carry an out analysis of ursolic acid by high-performance thin layer chromatography in four species of Bignoniaceae family (*Tecoma gaudichaudi* DC, *Tecoma capensis* (Thunb.) Lindl, *Tecoma stans* (L.) Juss.Ex Kunth, *Tabebuia rosea* (Bertol.) Berto).

MATERIALS AND METHODS

Plant Materials

All four species of Bignoniaceae family, i.e.*Tecoma gaudichaudi* DC (Sample 1), *Tecoma capensis* (Thunb.) Lindl. (Sample 2), *Tecoma stans* (L.) Juss.Ex Kunth (Sample 3), *Tabebuia rosea* (Bertol.) (Sample 4) were collected from different area of Pune district (Maharashtra), and the plants were authenticated at Botanical Survey of India, Pune with reference no. BSI/WRC/Iden./2015/576 on dated 18-12-2015. The specimen voucher number is KALKTEG1, KKA-2, KKA-3, KKA-1 specimens of plants were deposited at the Botanical Survey of India, Pune and department of Pharmacogosy, Modern College of Pharmacy, Nigdi, Pune.

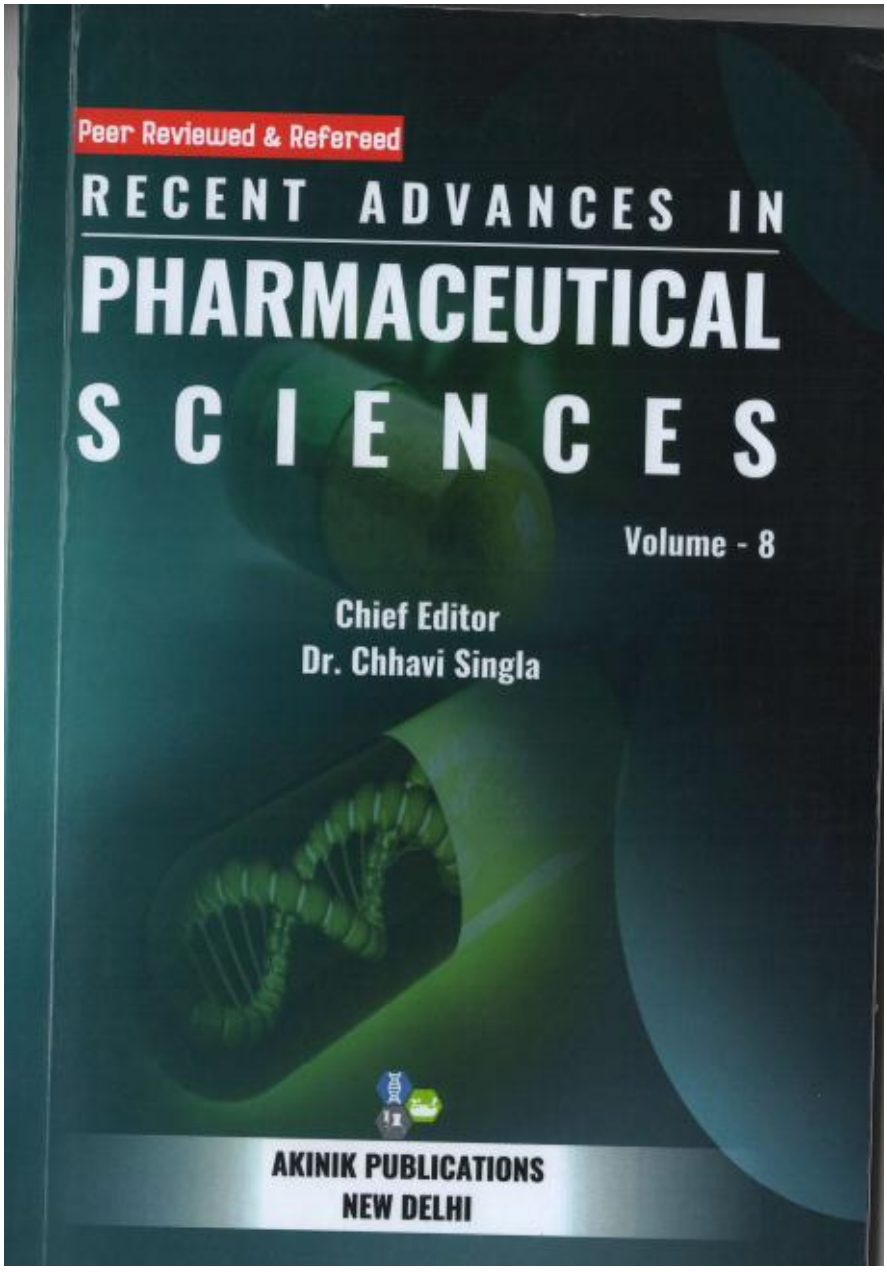
Chemicals and reagents

Ursolic acid was purchased from Sigma-Adrich (USA), analytical grade solvents, reagents, silica gel 60 F254 precoated HPTLC Plates (20×20cm) were purchased from Merck (Germany).

HPTLC instrumentation and experimental conditions

Chromatographic analysis was done on 20×10cm HPTLC Silica gel F254 plates (Merck, Germany). Samples of extracts and standards were applied as

Chapter 2 Recent Advances in Microfluidics for Drug Screening and Its Application



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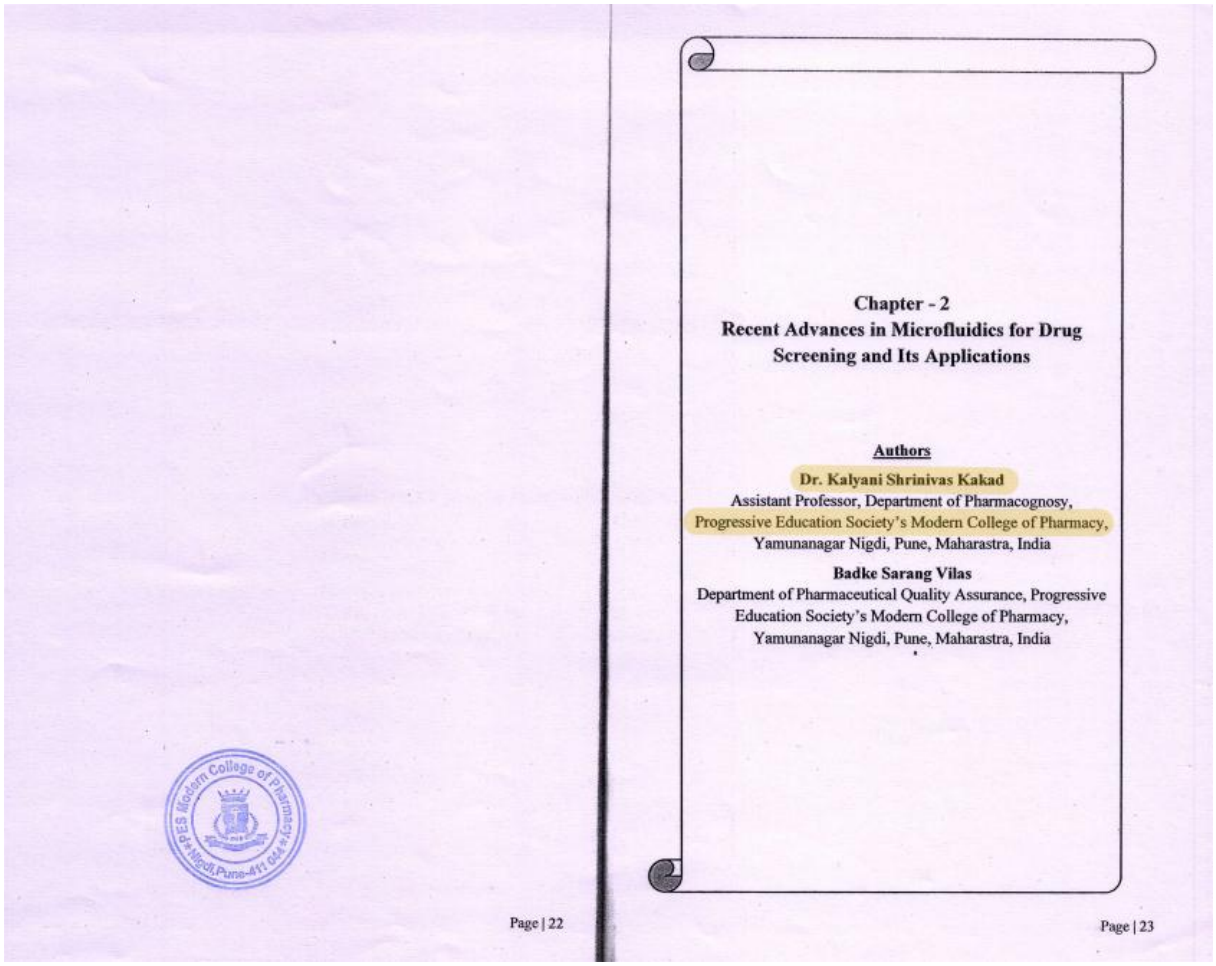

Chapter - 2

Recent Advances in Microfluidics for Drug Screening and Its Applications

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Chapter 9 Review article: ophthalmic niosomal in situ gel

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About the Book

Pharmaceutical sciences include broad range of multidisciplinary subject seeking to foster the integration of areas of knowledge that focus on all facet of drug and therapies. Pharmaceutical sciences ranges from identification and control of organism causing disease, design of drug, formulation, clinical trial, metabolism, quality control and audit of drugs, manufacturing, plant-based source of medicines, food sciences, public, to environmental health for improving the quality of human life.

The Chapter of the compiled edited book contains advanced knowledge and the updated research outcomes to update the readers. It touched on addressing the recent advancement of pharmaceutical sciences through the different approaches with the aim for the betterment of society and health of well-being. Additionally, its multidisciplinary nature in pharmaceutical sciences contributes valuably to other research areas like medical, biological, and chemical sciences.

The edited book aims to bring authors to one platform with the different subjects of Pharmaceutical sciences and share their knowledge for further research.

We hope that this book may interest a broad readership for upgrading and acquiring the latest information for the extension of the study.

Its continuous volume will come one by one to share more information and knowledge on recent advancements in pharmaceutical science.

Chapter-09

REVIEW ARTICLE: OPHTHALMIC NIOSOMAL IN SITU GEL

Dr. Ujwala Desai[1*], Dr. Punam Kela[2], Esha Patel[3]
[1*]Assistant Professor, Department of Pharmaceutics, PES Modern College of Pharmacy, sector no. 21, yamunanagar, Nigdi, Pune, Maharashtra, India, [2]Assistant professor, Department ofPharmacy practice, PES Modern College of Pharmacy, sector no. 21, yamunanagar, Nigdi, Pune, Maharashtra, India, [3]Pharm D Student, PES Modern College of Pharmacy, sector no. 21, yamunanagar, Nigdi, Pune, Maharashtra, India

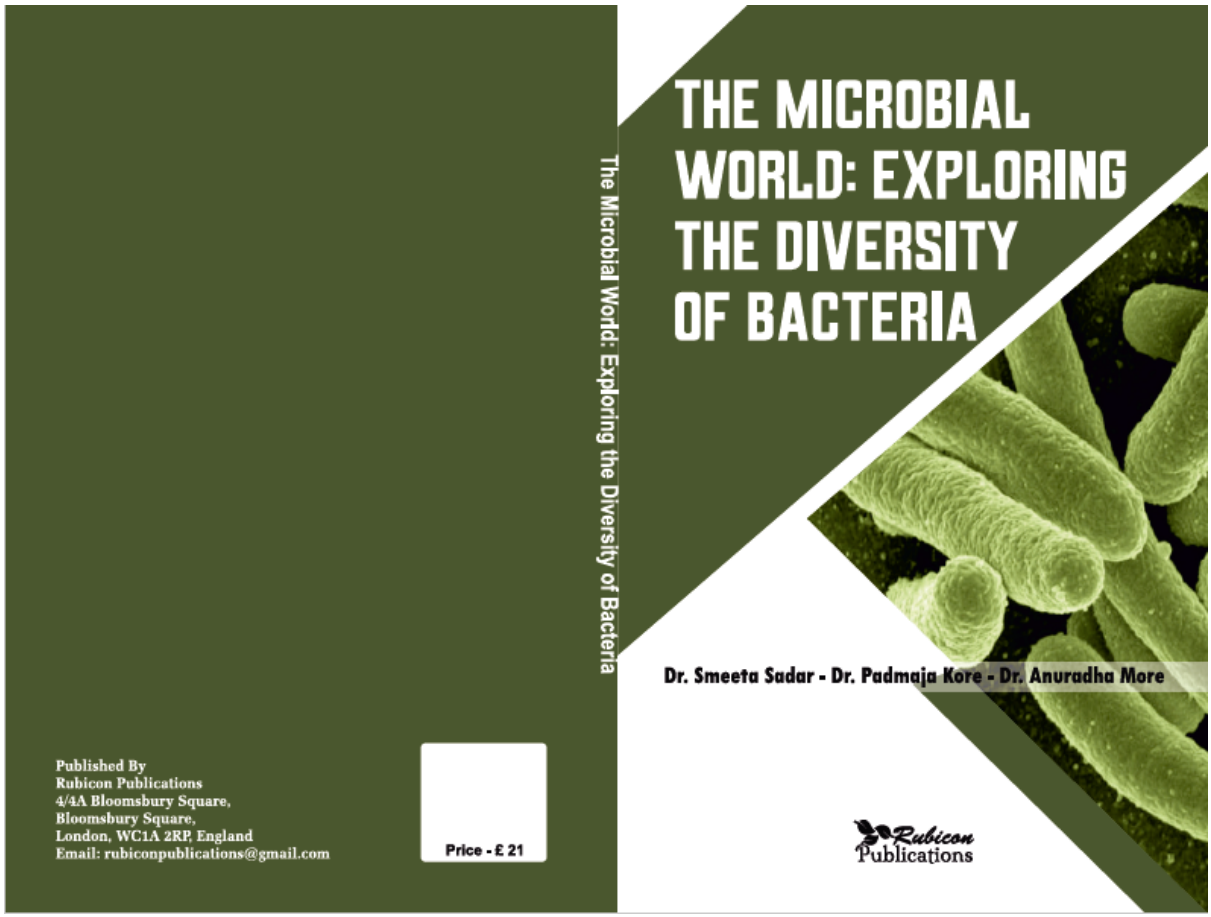
ABSTRACT: The main aim of a pharmaceutical formulation is the achievement of minimum therapeutic drug concentration at the location of action a sufficient time period to elicit a response. The bioavailability of drugs of ocular desage form are reduced due to tear production, non-productive absorption, transient residence time, impermeability of corneal epithelium and metabolism of drug by lysosomal enzymes present in lachrymal fluids. Though the topical application is still the best way to achieve desired drug concentration in treatment of ocular disorder. Other ophthalmic solutions, suspensions and various other dosage form are still not able to treat ocular disorders. The article affirms the significance of using niosomes as a likely ocular drug delivery system and emphasizes the requirement for its successful formulation to fulfil the future tasks and thereby deliver the dosage form for ocular therapy more effectively. The solitary physicochemical characteristics can be exploited by different polymers in combination with niosomes. This strategy has thus brings out upgraded outcomes compared with conventional systems. We have discussed here, the latest in use of biocompatible and biodegradable polymers in colloidal shipper systems foremost competent plan giving outcomes in the exponential expand of the bioavailability of the ophthalmic drugs.

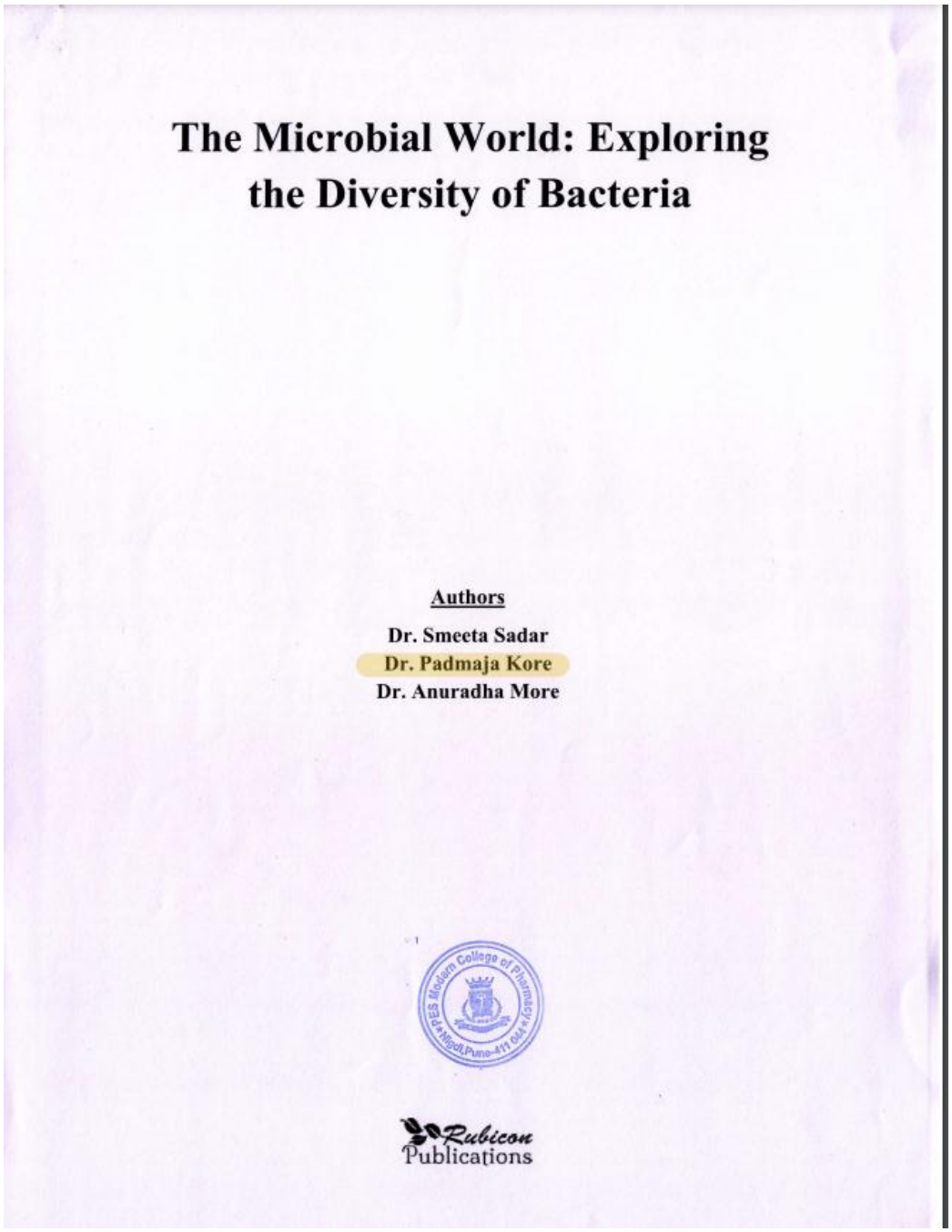
INTRODUCTION

Ocular diseases were widely noticed since the beginning of human race and animals. There have been references to ailments of the eye in dogs and cattle in 4000 year old papyri of Ancient Egypt Between 450 and 510 AD, eight chapters devoted to the eye ailments of the horse and associated remedies were translated from Greek by Publius Vegetius Renatus in Artis Veterinariaesive Mulomedicinae [1,2]. Drug delivery in ocular healing s a challenging problem for scientists working inthe multi-disciplinary areas regarding the eye, incorporating chemical, biochemical, pharmaceutical, medical, clinical, and toxicological sciences. Recently, increased attention has been targeted on two main objectives: (A) To find or make newer efficacious, secure drug molecules for diversified ocular disorders and diseases (B) To enhance prevailing ocular dosage form and exploit the recent delivery systemsfor upgrading the ocular bioavailability of abiding molecule [3]. Newer up to dates in ocular therapeutics aim at replacing the prevailing dosage forms with novel drug delivery systems that bid improved biopharmaceutical properties with the capacity to give our therapeutic agents more exactly to aimed receptors in the eye in aliable manner [4,5].

Poor bioavailability of drugs from ocular dosage form is chiefly due to the precorneal deprive elements which include tear dynamics (blinking reflex and tear turnover), non-fruitful absorption, fleeting residence time in the cul-de-sac, relative impermeability through corneal epithelial membrane, quick precorneal, drainage by gravity, recurring infusion , nasolacrimal drainage, ard the non attendance of steer liberation [6, 7, 8, 9, 10, 11, 12, 13, 14]. Due to anatomical and physiological constraints, a small part of the administered drug (approx. 1% or even less) of the inbred dose is accessible or ocular absorption [15, 16]. Recurred dosing of drugs thus becomes requisite to achieve the healing concentration at the aimed site.This often results in corresponding increase in systemic and local side effects. The highdose and dosing frequency causes incapable side effects like GI disturbances and stomach upset [17]. The systemic route can overpower this but due to the proximity of blood-retinal barrier and blood-aqueous barrier, it finally leads to lofty overwhelming of dose at the aimed site. In order to beat the dilemma of conventional ocular therapy, such as, drug drainage, short domicile time and recurred infusion; latest delivery systems are being surveyed in general, to uplift the ocular bioavailability of the drug. Various advances like particulate drug delivery, use of mucoadhesive, viscosity improvement, vesicle drug delivery, prodrugs, and other controlled

Chapter-8 Prevotella histicola





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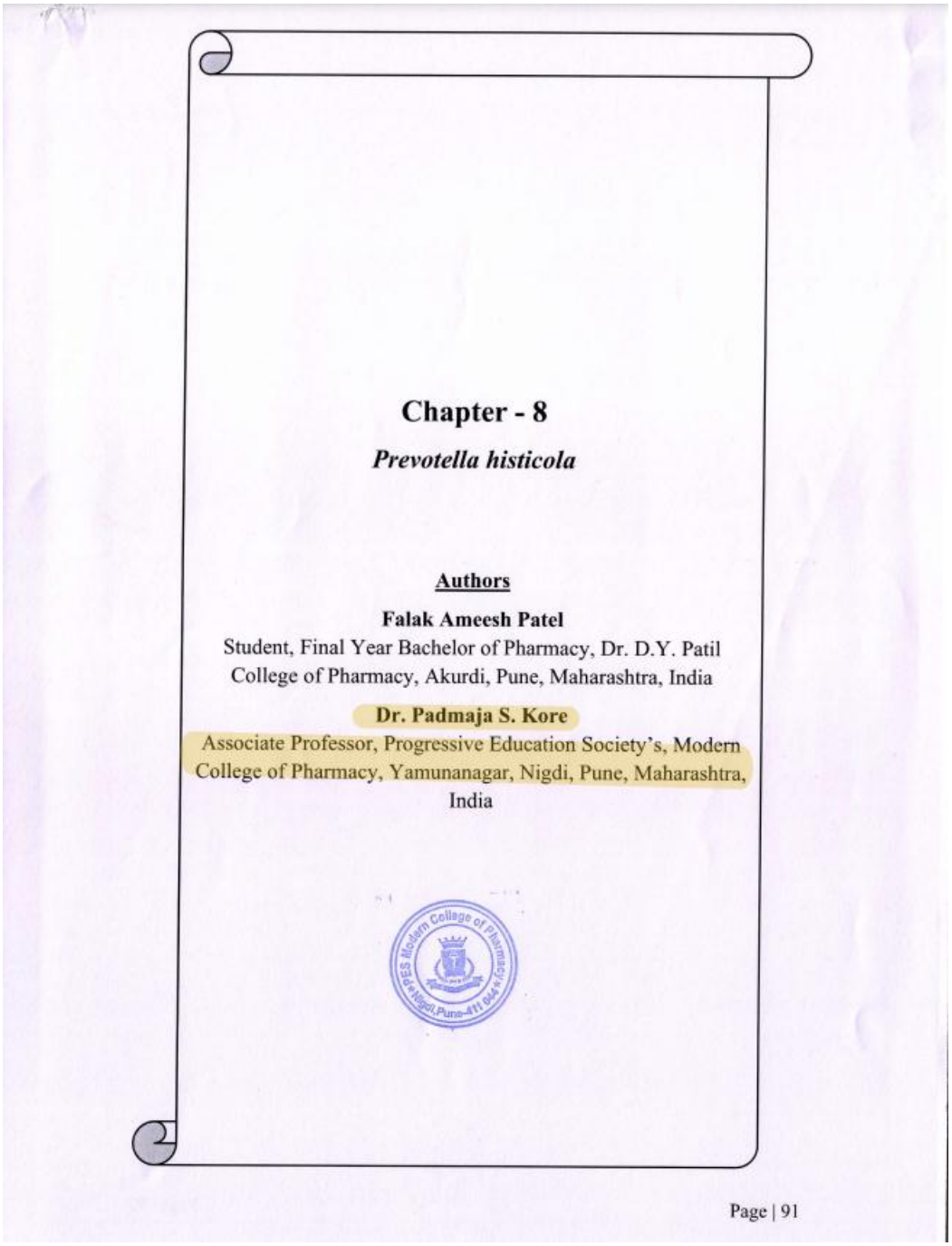

Chapter - 8

Prevotella histicola

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Page | 91

Chapter - 8

Prevotella histicola

Falak Ameesh Patel and Dr. Padmaja Kore

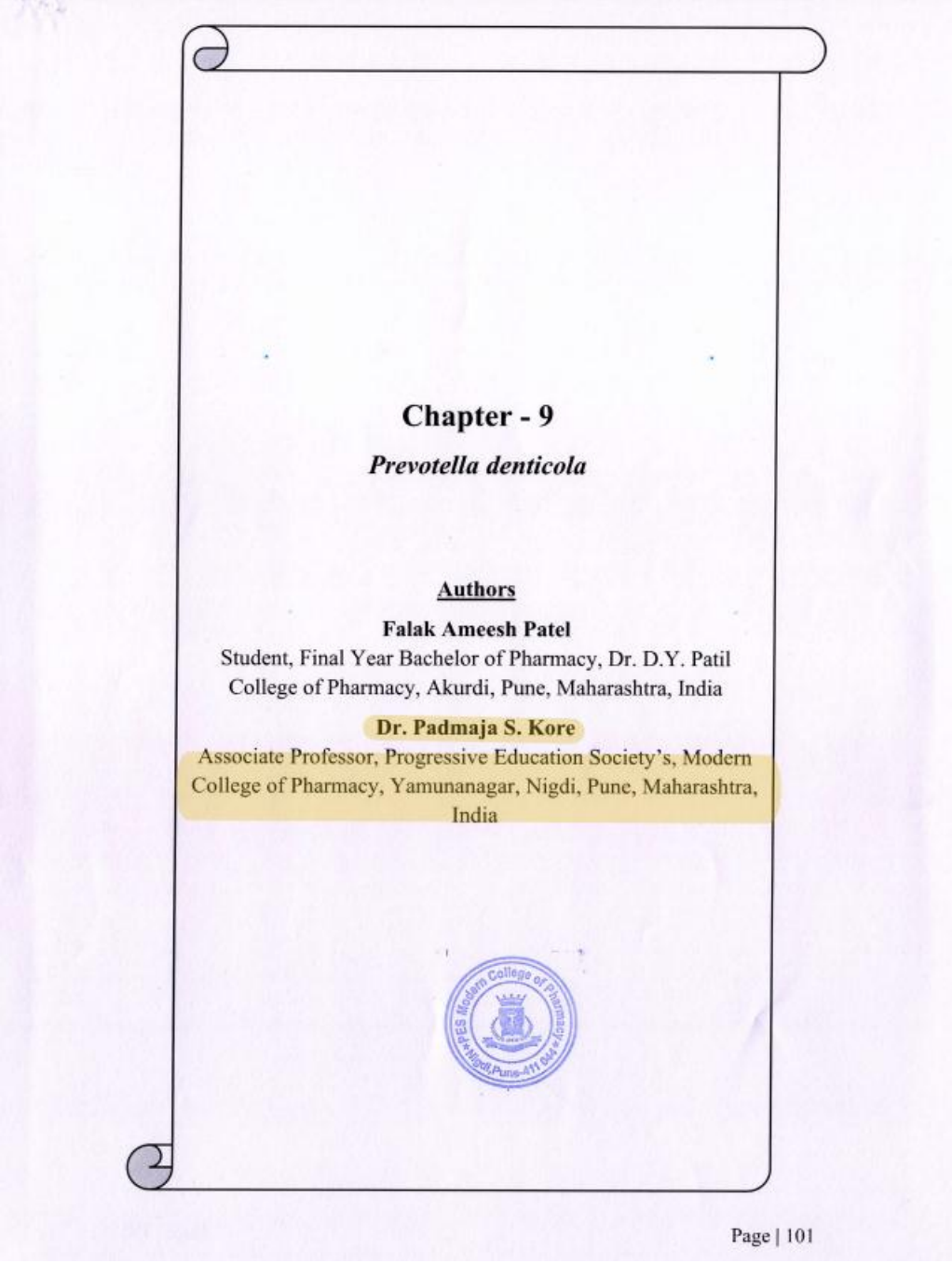
Abstract

Prevotella histicola is a gram-negative, anaerobic bacteria that was first identified in the oral cavity of humans. It is part of the normal oral microbiome and is often found in dental plaque, which is a sticky biofilm that forms on the teeth. *P. histicola* has been studied in relation to its role in dental health and disease. In healthy individuals, it has been shown to help maintain the balance of the oral microbiome and prevent the growth of pathogenic bacteria. However, in individuals with periodontal disease, an infection of the gums and surrounding tissue, *P. histicola* has been found to be overrepresented in the oral microbiome and has been associated with the progression of the disease. In addition to its role in oral health, *P. histicola* has also been studied in the context of other infections and diseases. It has been found in the lower respiratory tract of patients with pneumonia and has been associated with the development of the infection.

It has also been isolated from infected wounds and has been shown to be involved in the development of wound infections. *P. histicola* is resistant to many common antibiotics, including penicillin and amoxicillin, making it difficult to treat infections caused by this bacteria. However, it is sensitive to other antibiotics, such as clindamycin and metronidazole, which can be used as alternative treatments. In conclusion, *P. histicola* is a gram-negative anaerobic bacteria that is commonly found in the oral cavity. It plays a role in maintaining the balance of the oral microbiome, but can also contribute to the progression of periodontal disease and other infections. It is resistant to some antibiotics but can be treated with alternative options. Further research is needed to fully understand the role of *P. histicola* in human health and disease.

Discovered by: *Prevotella* is a genus named by French microbiologist A. R. Prevol [1, 5].

Chapter-9 Prevotella denticola



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Falak Ameesh Patel and Dr. Padmaja Kore

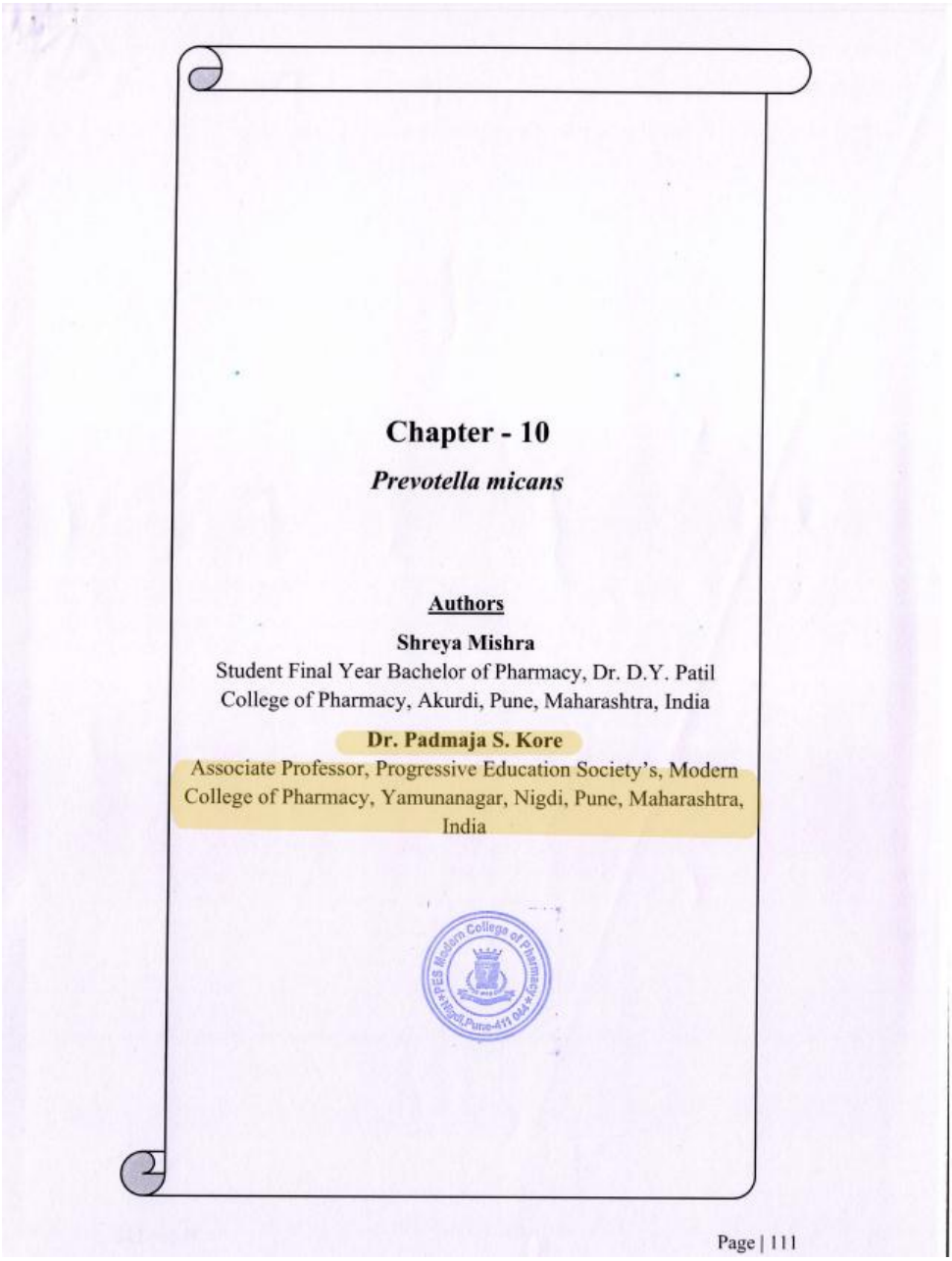
Abstract

Prevotella denticola is a gram-negative, anaerobic bacteria that was first identified in the oral cavity of humans. It is part of the normal oral microbiome and is often found in dental plaque, which is a sticky biofilm that forms on the teeth. *P. denticola* has been studied in relation to its role in dental health and disease. In healthy individuals, it has been shown to help maintain the balance of the oral microbiome and prevent the growth of pathogenic bacteria. However, in individuals with periodontal disease, an infection of the gums and surrounding tissue, *P. denticola* has been found to be overrepresented in the oral microbiome and has been associated with the progression of the disease. In addition to its role in oral health, *P. denticola* has also been studied in the context of other infections and diseases. It has been found in the lower respiratory tract of patients with pneumonia and has been associated with the development of the infection. It has also been isolated from infected wounds and has been shown to be involved in the development of wound infections. *P. denticola* is resistant to many common antibiotics, including penicillin and amoxicillin, making it difficult to treat infections caused by this bacteria. However, it is sensitive to other antibiotics, such as clindamycin and metronidazole, which can be used as alternative treatments. In conclusion, *P. denticola* is a gram-negative anaerobic bacteria that is commonly found in the oral cavity. It plays a role in maintaining the balance of the oral microbiome, but can also contribute to the progression of periodontal disease and other infections. It is resistant to some antibiotics but can be treated with alternative options. Further research is needed to fully understand the role of *P. denticola* in human health and disease.

Prevotella is a genus named by French microbiologist A. R. Prevol.

- Gram classification: It is a gram negative bacteria (50%)
- Shape: Bacilli
- Size: 2.93759Mb

Chapter-10 Prevotella micans



Chapter - 10

Prevotella micans

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Chapter - 10

Prevotella micans

Shreya Mishra and Dr. Padmaja Kore

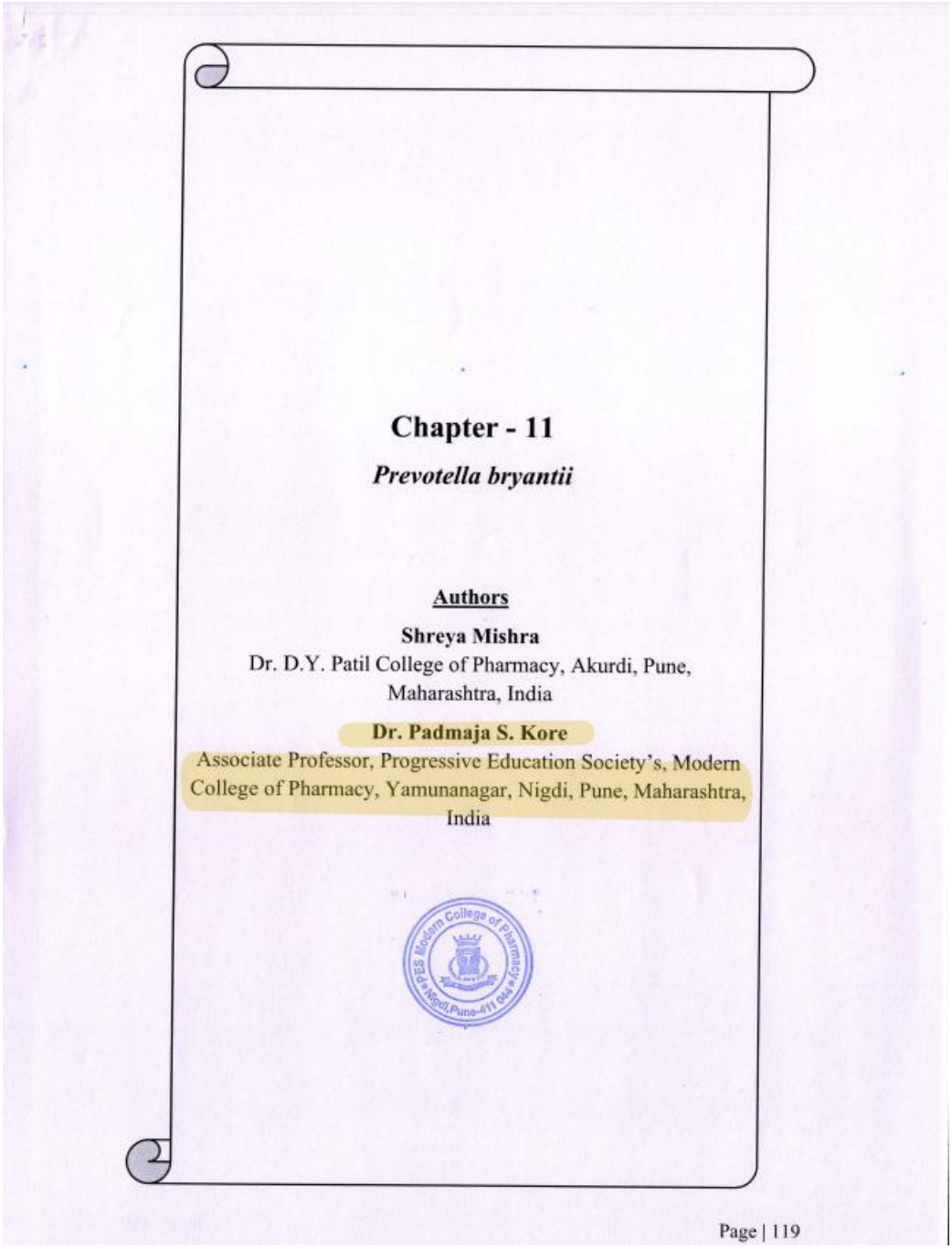
Abstract

Four strains of anaerobic Gram-negative bacilli isolated from the human mouth were characterized using a variety of phenotypic and genotypic tests. The strains were found to comprise a homogeneous group and 16S rRNA gene sequence analysis revealed them to be distinct from but related to a loose cluster of *Prevotella* species including *Prevotella buccalis*, *Prevotella nanceiensis* and *Prevotella marshii*. A novel species, *Prevotella micans* sp. nov., is proposed to accommodate these strains. *Prevotella micans* is saccharolytic and produces acetic, isovaleric and succinic acids and minor amounts of isobutyric acid as end products of fermentation. The G+C content of the DNA of the type strain is 46 mol%. The type strain of *Prevotella micans* is E7.56^T (=DSM 21469^T =CCUG 56105^T).

Introduction

Strain E7.56T was recovered from necrotic pulp, strain 4D22 from subgingival plaque in a deep periodontal pocket and strains AHN 8723 and AHN 8376 from the gingival crevices of two children. Under anaerobic conditions (80% N_2, 10% H_2, 10% CO_2), strains were cultivated at 37 °C on meticulous anaerobe agar supplemented with 5% horse blood. After being incubated for five days, colony morphologies were observed under a dissecting microscope and documented. After Gram staining of smears made from 2-day FAA plate cultures, cellular morphology was noted. Using phase-contrast imaging, the cellular motility of 18-hour cultures of peptone-yeast extract-glucose (PYG) broth was investigated. The cell-wall ultra structure was examined using transmission electron microscopy [1].

Chapter-11 Prevotella bryantii



Chapter - 11

Prevotella bryantii

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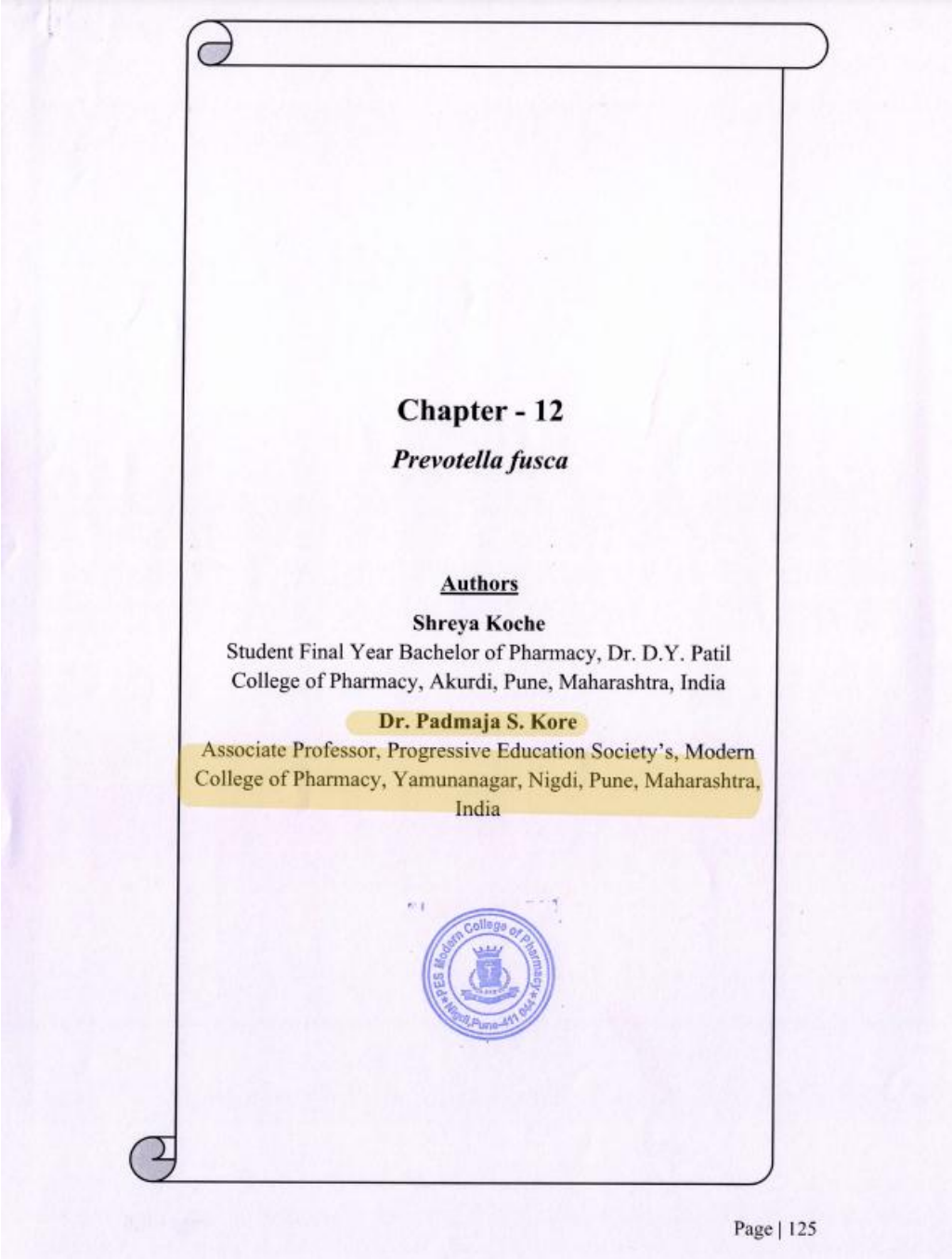
Chapter - 11

Prevotella bryantii

Shreya Mishra and Dr. Padmaja Kore

- **Discovered by:** Avgustin *et al.* (1997)
- **Gram's classification:** Gram negative bacteria
- **Shape:** Rod shape
- **Size:** 3.59Mb
- **Motility:** No
- **Capsule:** lipopolysaccharide capsule
- **Endospores:** Do not form spores.
- **Scientific classification**
  - Domain: Bacteria
  - Phylum: Bacteroidetes
  - Class: Bacteroidetes
  - Order: Bacteroidales
  - Family: Bacteroidaceae
  - Genus: *Prevotella*
  - Species: Bryantii
- **Respiration:** Anaerobic
- **Optimum Temperature:** 30-37 °C
- **Optimum pH:** 5.5
- **Colony morphology in nutrient agar:** Deep colonies are lenticular, 2-3mm in diameter, smooth convex and opaque, light buff in colour.
- **Colony morphology in MacConkey agar:** Not found
- **Hemolysisin blood agar:** They are anaerobically cultured in blood agar (5-10% blood), shows pink colonies
- **Colony morphology in Selective medium:** Not found

Chapter-12 Prevotella fusca



Chapter - 12

Prevotella fusca

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Page | 125

Chapter - 12

Prevotella fusca

Shreya Koche and Dr. Padmaja Kore

Abstract

The human oral Microbiome is the most studied human microflora, due to the fact that it is easily sampled and is strongly associated with important oral infectious diseases such as tooth decay and gum disease [2]. Within the oral microbiome the microbes are characterized from the 16S rRNA gene sequence as they are used during a cloning process in hope of a clear understanding of the roles that microbes provide [3]. There are many different species of bacteria that are living in the oral cavity, *Prevotella fusca* are among one of the species. *Prevotella fusca* originates from the subgingival plaque that is located within the oral cavity [4]. The DNA G+C content of the type strain is 43 mol % [4].

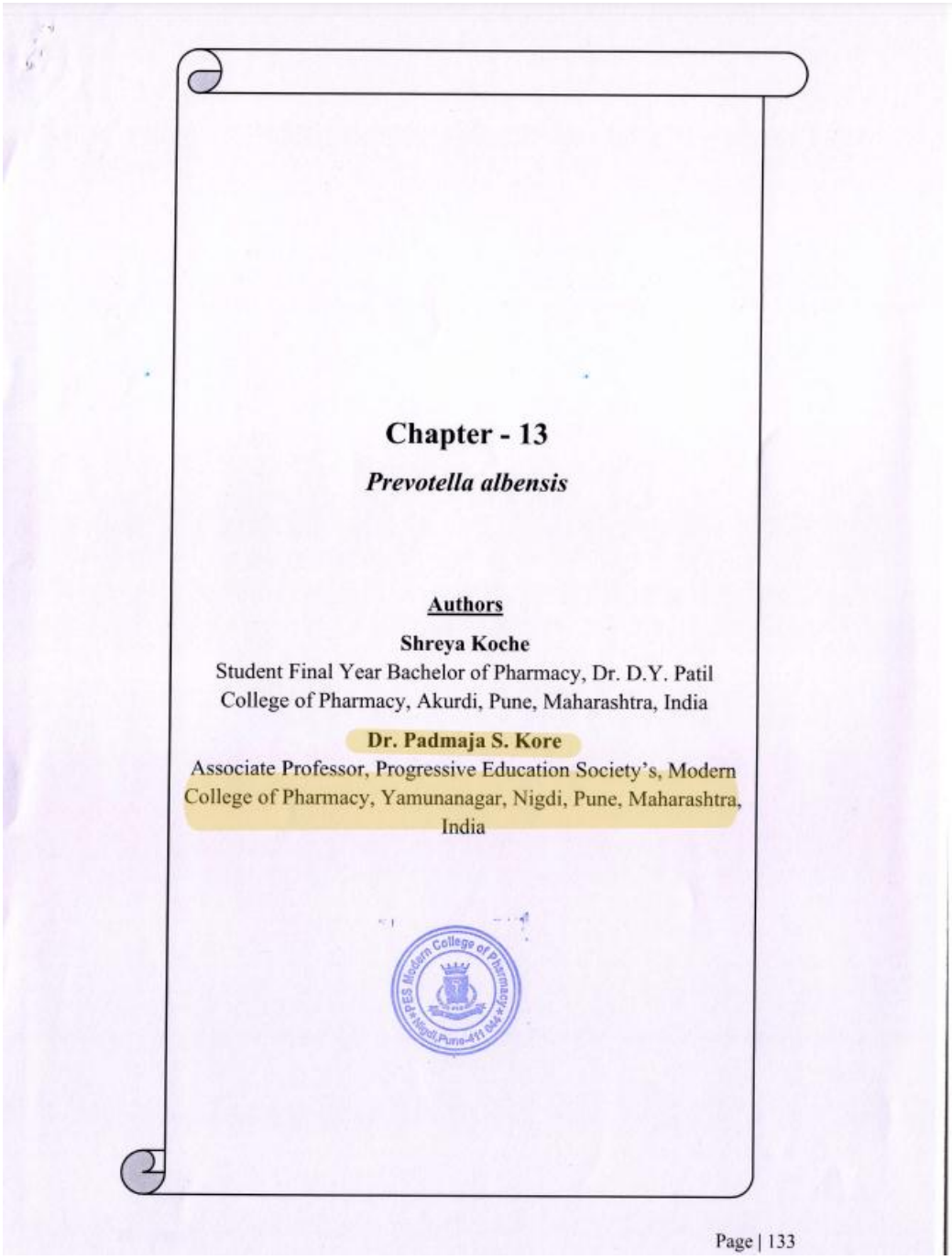
Introduction

Prevotella fusca exists with the following characteristics

Table 1: Characteristics of *Prevotella fusca*

Character	Description
Gram's Classification	Gram-negative
Scientific classification	Kingdom-Bacteria Phylum-Bacteroidetes Class-Bacteroidetes Order-Bacteroidales Family-*Prevotellacea* Genus-*Prevotella* Species- *P. fusca*
Isolation	Subgingival plaque within the oral cavity
Motility	Non- Motile
Genome Size	0.8 µm wide by 1.2–6.0 µm long.
Appearance	Off-white rough surface appearance
Shape	Bacili or circular shaped

Chapter-13 Prevotella albensis



Chapter - 13

Prevotella albensis

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Chapter - 13

Prevotella albensis

Shreya Koche and Dr. Padmaja Kore

Abstract

Prevotella albensis was previously known as *Bacteroides ruminicola subsp. ruminicola*, is a species of bacterium. *Prevotella* species are mainly found in human oral and vaginal flora. They play a vital role in the pathogenesis of periodontal disease, gingivitis, extraoral and some odontogenic infections. The strains are usually carried in families and hence are also as called intrafamilial carriage. They are also associated with carotid atherosclerosis.

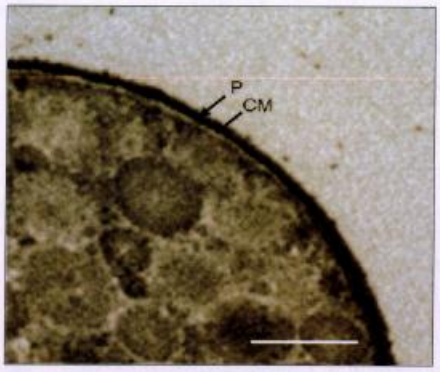
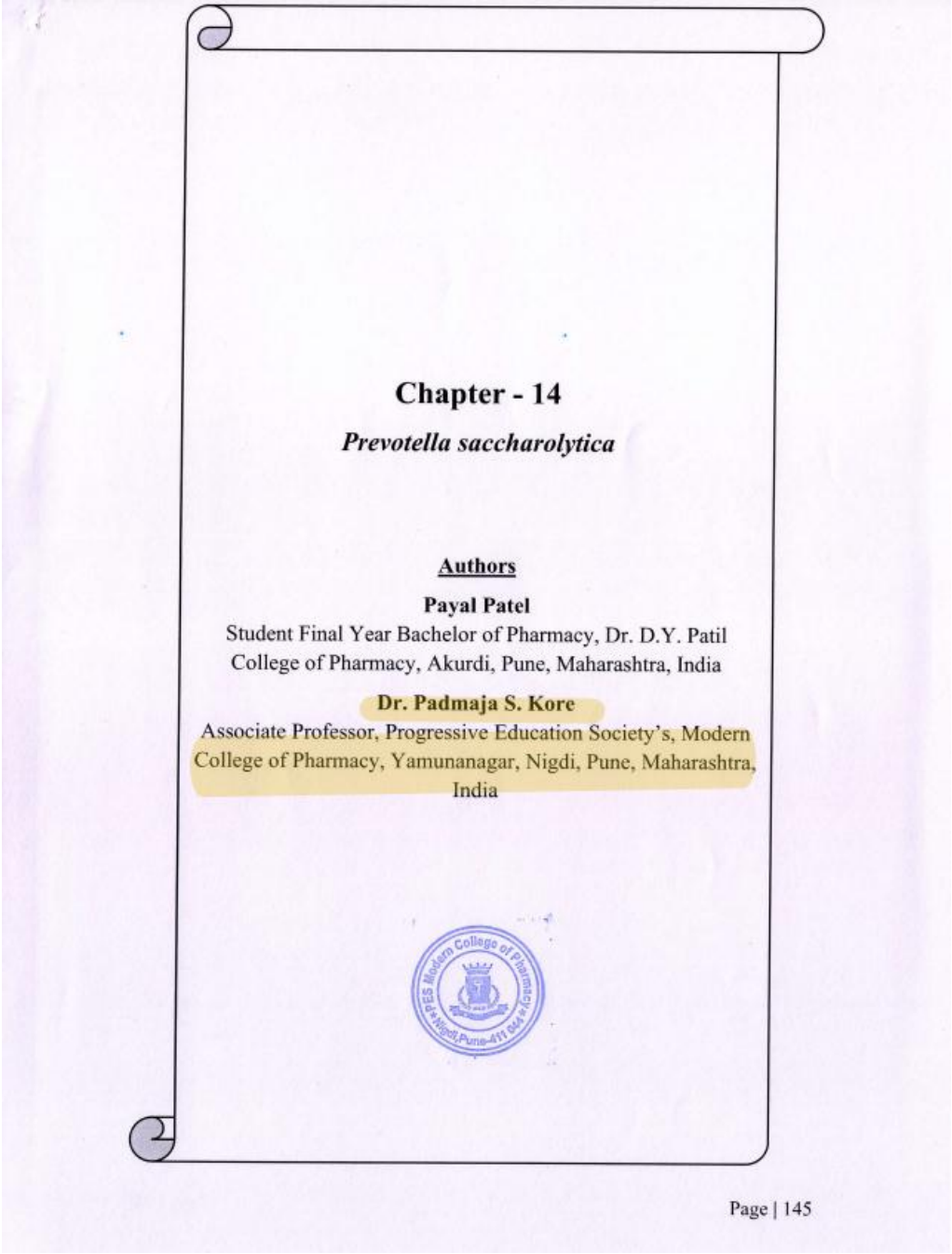


Fig 1: *Prevotella albensis*

Introduction

Prevotella albensis is a gram-negative, rod-shaped bacteria. *Prevotella*is a genus named by French microbiologist A. R. Prevol. It is an anaerobic organism which is isolated from the rumen of cattles [1]. Temperature range of these microorganisms is Mesophilic. The strains grew at pH 4.7 to 7.6 with optimum growth at pH 5.7 to 6.7 a rather wide pH range for optimum growth.

Chapter-14 Prevotella saccharolytica



Chapter - 14

Prevotella saccharolytica

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Chapter - 14

Prevotella saccharolytica

Payal Patel and Dr. Padmaja Kore

Abstract

A wide range of phenotypic and genotypic tests was performed on two strains of anaerobic, Gram-negative bacilli that were discovered to be unique from any previously identified species (D033B-12-2T and D080A-01). These strains were found to be present in the human oral cavity. The strains had 93.5 percent of their sequence identity with the *Prevotella marshii* type strain, according to the examination of the 16S rRNA gene. C16:0, iso-C14:0, C14:0, anteiso-C15:0, iso-C16:0, and C16:0 3-OH were the main long-chain fatty acids found in cells.

The DNA of strain D033B-12-2T included 44 mol% G+C. The name *Prevotella saccharolytica* sp. nov. is proposed for the strains D033B-12-2T and D080A-01, which are thought to represent a single unique species of the genus *Prevotella*. The strain is designated as D033B-12-2T (also known as DSM 22473T or CCUG 57944T).

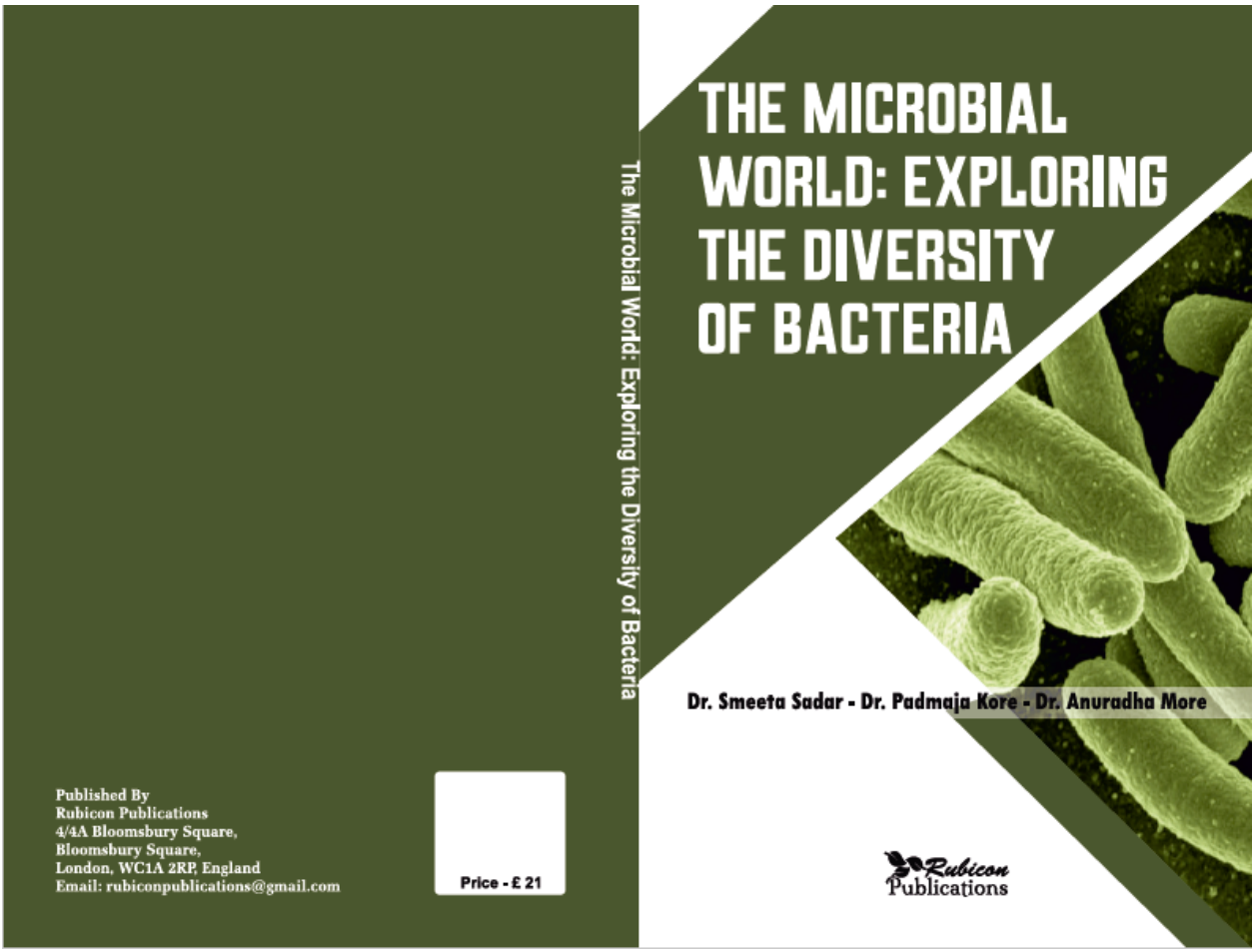
Keywords: PRAS, juvenile periodontitis, supragingival plaque, acetic acid.

Introduction

Prevotella species are commonly isolated from human oral tissues in both health and oral and dental illnesses. Bacteroides group D33 was assigned to the strains D033B-12-2T and D080A-01, which were part of W. E. C. Moore and L. V. Holdeman Moore's collection and formerly of the Virginia Polytechnic Institute [1]. The novel strains were saccharolytic and produced acetic acid and succinic acid as end products of fermentation (fig.4). Although the strains were different from identified species, preliminary screening based on incomplete 16S rRNA gene sequence analysis revealed that they belonged to the same taxon of the genus *Prevotella*. A person with juvenile periodontitis had the strain D033B-12-2T isolated from a 9-mm-deep periodontal pocket, and a healthy participant had the strain D080A-01 isolated from supragingival plaque [2].

The two bacteria had a 99.4% similarity in 16S rRNA gene sequence over 1452 clearly matched bases and were most closely linked to the

Chapter-15 Prevotella brevis



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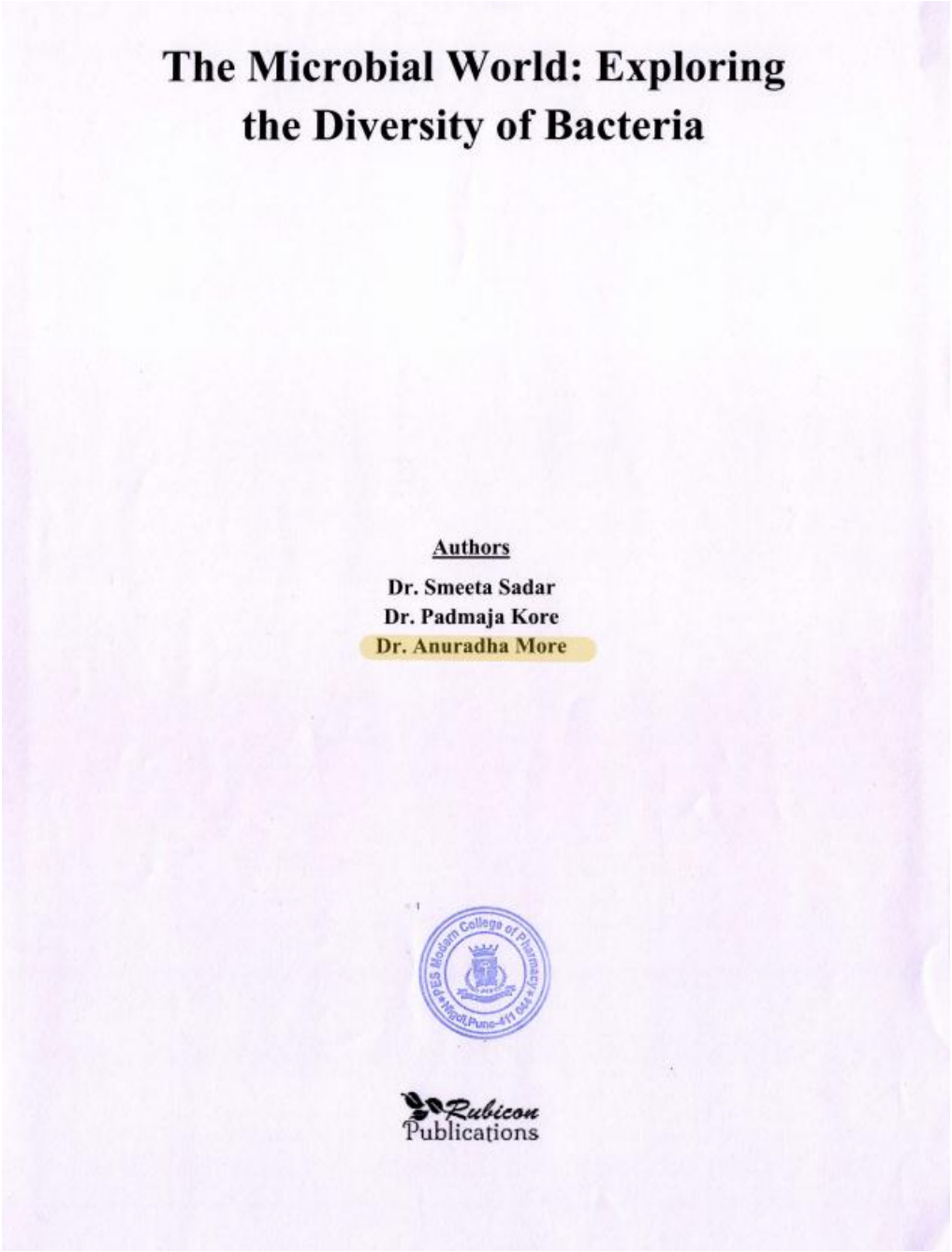

The Microbial World: Exploring the Diversity of Bacteria

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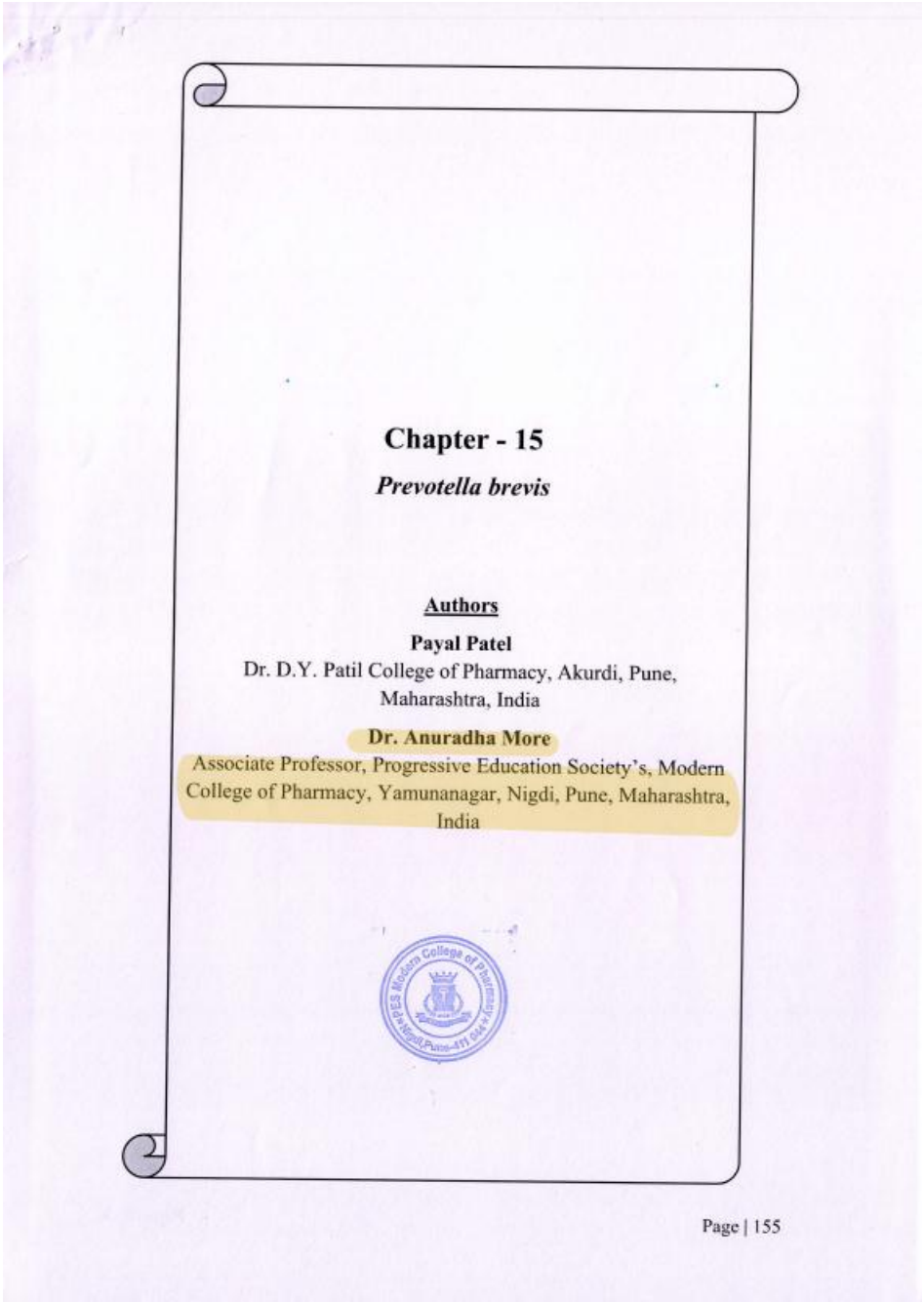

Chapter - 15

Prevotella brevis

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Chapter - 15

Prevotella brevis

Payal Patel and Dr. Anuradha More

Abstract

Prevotella brevis (bre'vis, adj. brevis, short) is a bacterium. Gram-negative bacilli that were discovered by Holdeman *et al.* introduced the biovars 1 and 2 of brevis (formerly *Bacteroides ruminicola* subs *P. brevis*), which include type strain GA33 [= ATCC 19188]. These strains were found to be present in the rumen and human oral cavities.

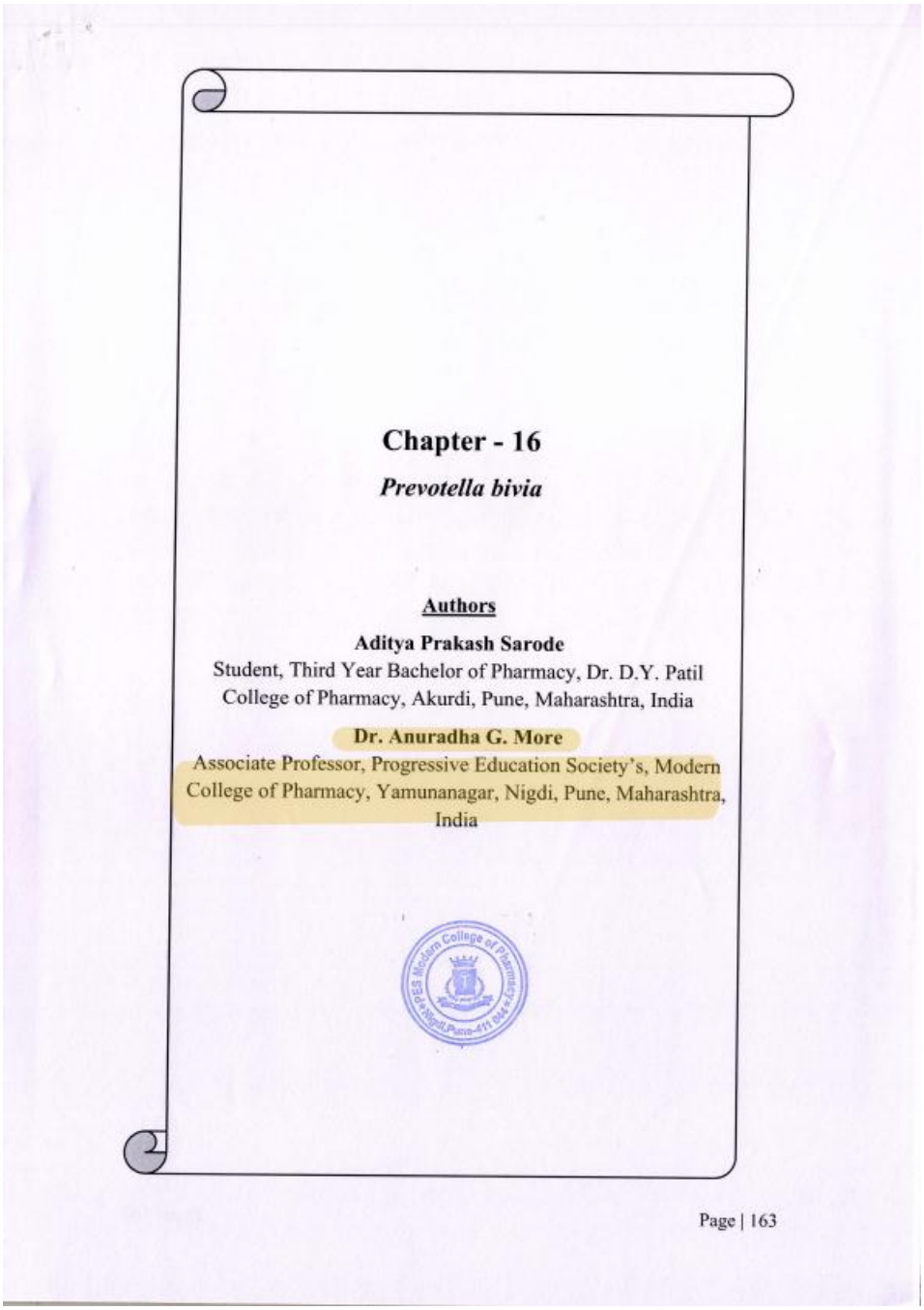
Those strains that have DNA G+C levels between 45 and 52 mol% and resemble strain GA33T are the only ones that fall under this new species. The extracellular DNase activity produced by *P. brevis* strains was relatively high. It frequently failed to develop dipeptidyl peptidase activity and carboxymethyl cellulase (CMCase) activity that plate assays could detect. N-acetylglucosamine is fermented by *Prevotella brevis* but not xylose. In a medium without rumen fluid but with trypticase and yeast extract added, certain bacteria thrive. Gum arabic can be used as an energy source for strains to grow. Cell morphology in *P. brevis* strains can range from coccoid to oval.

Introduction

Holdeman *et al.* provided *Prevotella brevis*, gram-negative bacilli, including the type strain GA33 (ATCC 19188). Only strains with DNA G+C levels between 45 and 52 mol% that resemble strain GA33T are included in this new species. Lack CMCase activity in plate assays and ferment N-acetylglucosamine but not xylose, salicin, arbutin, or rhamnose. Gum arabic can be used by strains as a source of energy. Coccoid to oval cell shape is common in *P. brevis* strains. *Prevotella P. brevis* strains displayed dipeptidyl peptidase activity and extracellular DNase activity in large quantities and with the highest mean activity [1, 2]. It also produces succinic acid [3].

Rumen fluid is necessary for the growth of this bacterium. Additionally, oxygen sensitivity is high. It is required to thoroughly minimize all media. The culture will die if it is exposed to oxygen in any way [3]. All strains

Chapter-16 Prevotella bivia



Chapter - 16

Prevotella bivia

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Page | 163

Chapter - 16

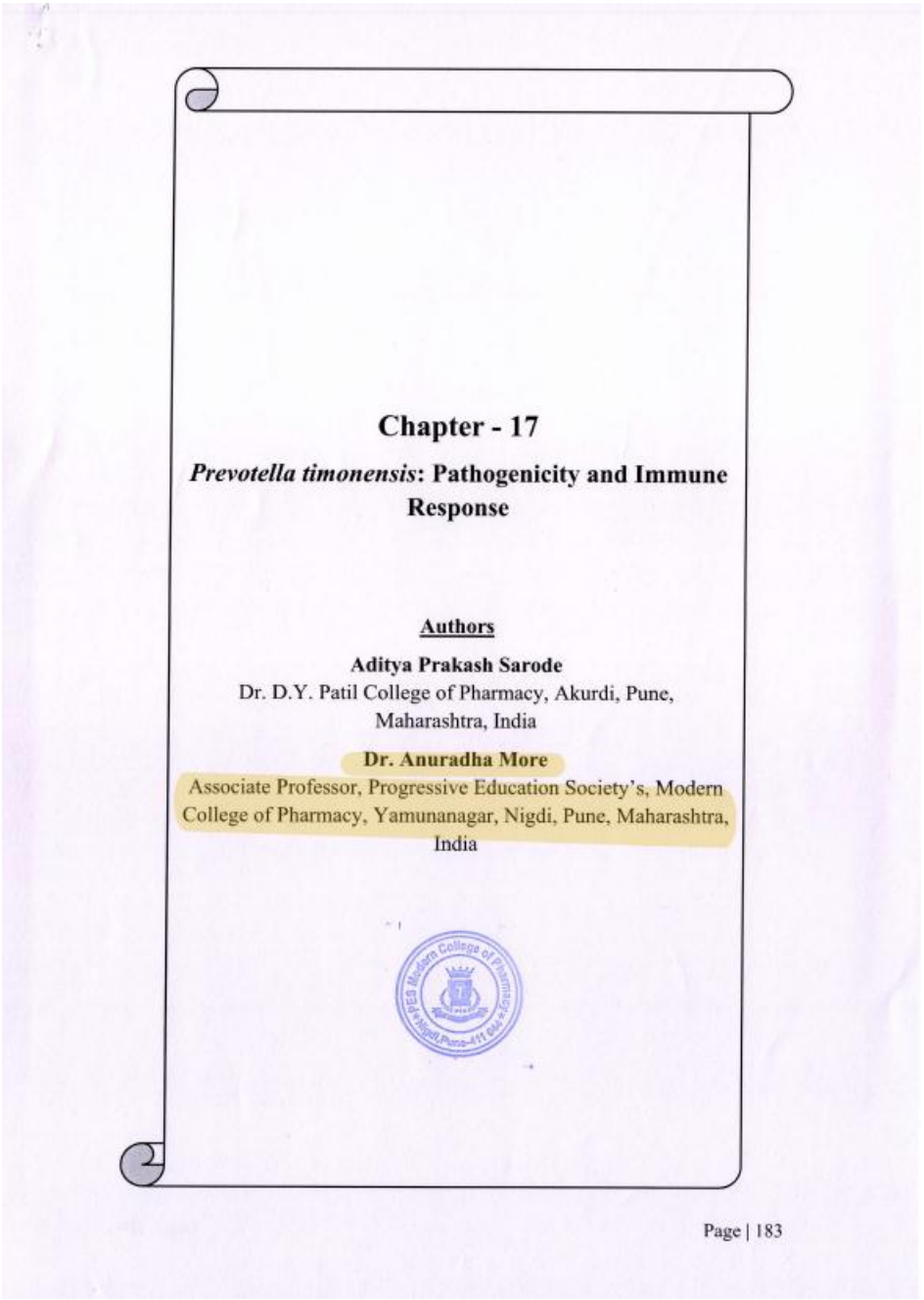
Prevotella bivia

Aditya Prakash Sarode and Dr. Anuradha More

Abstract

Prevotella bivia is a gram-negative anaerobic bacterium that is commonly found in the female genital tract. This microorganism is a member of the *Prevotella* genus, which is known to be associated with various human diseases, including bacterial vaginosis, periodontitis, and infections of the respiratory, gastrointestinal, and urinary tracts. *P. bivia* is also considered to be a potential opportunistic pathogen that can cause serious infections in immunocompromised individuals. This article aims to provide an overview of the current knowledge on *P. bivia*, including its taxonomy, morphology, and pathogenesis. The article also discusses the clinical significance of this microorganism, its epidemiology, and its role in various diseases. One of the main topics covered in this article is the association between *P. bivia* and bacterial vaginosis. Bacterial vaginosis is a common vaginal infection that is characterized by an imbalance of the vaginal microbiota. *P. bivia* has been identified as one of the key bacterial species involved in the pathogenesis of this condition. The article discusses the potential mechanisms by which *P. bivia* contributes to bacterial vaginosis, including its ability to produce biofilms and to induce inflammation in the vaginal mucosa. The article also discusses the role of *P. bivia* in other human diseases, such as periodontitis and respiratory infections. *P. bivia* has been implicated in the pathogenesis of periodontitis, a chronic inflammatory disease that affects the supporting tissues of the teeth. The article reviews the evidence linking *P. bivia* to periodontitis and discusses the potential mechanisms by which this microorganism contributes to the disease. Finally, the article reviews the current diagnostic methods for *P. bivia* infections and the available treatment options. The article also highlights the importance of further research on *P. bivia* and its role in human health. In conclusion, *P. bivia* is a microorganism that has important clinical implications and has been associated with several human diseases. Further research is needed to fully understand the pathogenesis of *P. bivia* infections and to develop effective diagnostic and therapeutic strategies.

Chapter-17 Prevotella timonensis: Pathogenicity and Immune Response



Chapter - 17

***Prevotella timonensis*: Pathogenicity and Immune Response**

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Page | 183

Chapter - 17

Prevotella timonensis: Pathogenicity and Immune Response

Aditya Prakash Sarode and Dr. Anuradha More

Abstract

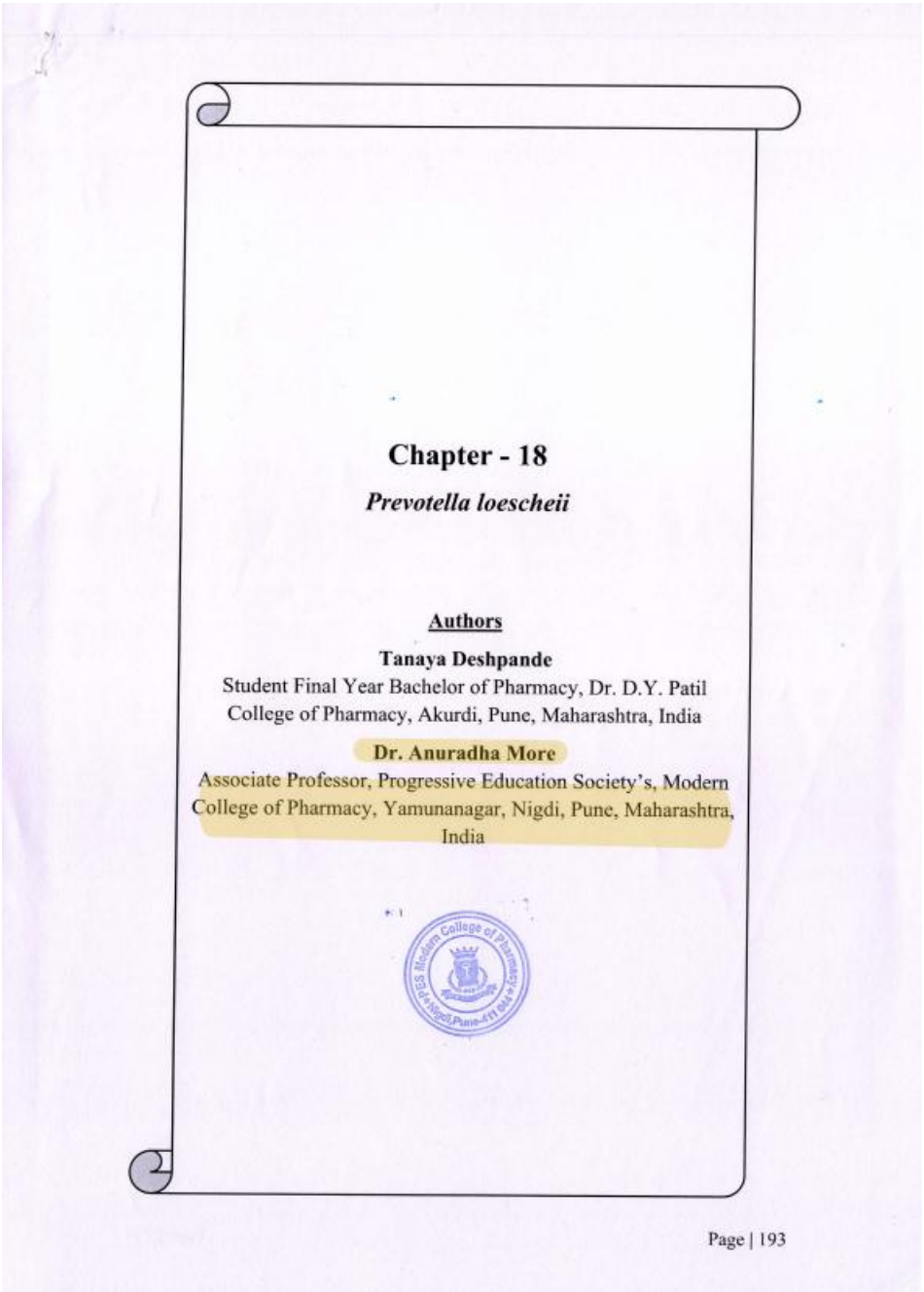
The gram-negative obligate anaerobe *Prevotella* species is widely connected with human infections such as dental caries and periodontitis, as well as other disorders such as chronic osteomyelitis, bite-related infections, rheumatoid arthritis, and intestinal diseases such as ulcerative colitis. This often-benign commensal contains virulence elements such adhesins, hemolysins, secretion systems exopolysaccharide, LPS, proteases, quorum sensing molecules, and antibiotic resistance to develop into a well-adapted pathogen capable of infecting and multiplying well in the host tissue. This review discusses a few of these virulence factors and how *Prevotella* species might benefit from them to spread inflammatory disorders like periodontitis. Additionally, we looked at other possible virulence factors utilizing genome analysis of *Prevotella* reference strains, which may offer insights as biomarkers and serve as the targets for efficient therapies in *Prevotella*-related disorders including periodontitis.

Introduction:

Prevotella spp. are obligate anaerobes that are mostly found at mucosal surfaces and are part of the normal human microbiota in the oral cavity, gastrointestinal system, and urogenital tract in healthy people [1]. Other taxonomic investigations, such as 16S rDNA, PCR-RFLP, and DNA-DNA hybridization, have revealed the presence of *Prevotella* spp. in the rumen of various animals, demonstrating that it is not limited to humans [12]. Previously, microflora studies relied on culture-based methods; however, recent studies have enumerated the use of high throughput sequencing, which has outperformed these methods and improved detection of new non-cultivable *Prevotella* spp [13, 14].

Their heightened prevalence in the gut has been associated with diets high in carbs and fibre, as demonstrated by several authors, supporting it as a beneficial bacteria of the gut [15-16]. *Prevotella* spp., despite being a

Chapter-18 Prevotella loescheii



Chapter - 18

Prevotella loescheii

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Page | 193

Chapter - 18

Prevotella loescheii

Tanaya Deshpande and Dr. Anuradha More

Abstract

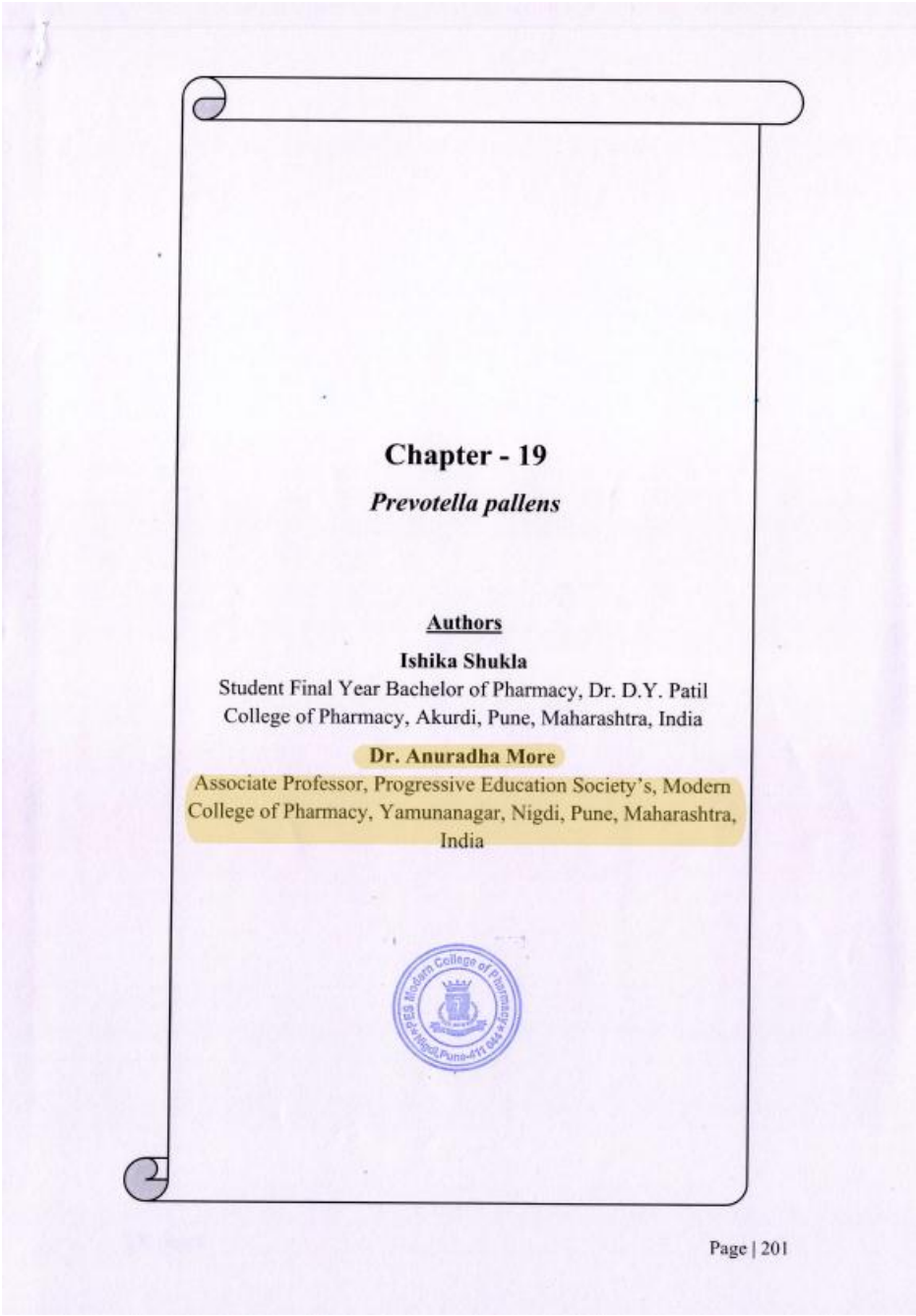
Prevotella loescheii is a gram-negative bacterium which is rod shaped and is often found in the human mouth. It is also nonmotile, an obligate anaerobe, and is a non-spore forming bacterium. It was given after Walter J. Loesche's name, an American dental microbiologist. The growth was first observed on blood agar, the colonies formed were round, convex and smooth. Cells are usually single, in pairs or they can be in short chains when viewed under a microscope. *Prevotella loescheii* produces a light brown pigment when cultured for more than 48 hours. This type of species is often observed in people suffering with oral diseases, that include gingivitis and periodontitis. It has been demonstrated to occasionally be resistant to the antibiotic metronidazole. The C+G of *Prevotella loescheii* is 49 to 51 mol% [1].

Fig 1: Growth of *P. loescheii* in the presence of *S. aureus* [2]

Introduction

Earlier, *Prevotella loescheii* was placed in the genus Bacteroides. Soon after that similar species such as *P. melaninogenicus* and *P. oralis* were re-examined, and it led to an observation that they were different enough from other Bacteroides species therefore they were classified in a new genus,

Chapter-19 Prevotella pallens



Chapter - 19

Prevotella pallens

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Page | 201

Chapter - 19

Prevotella pallens

Ishika Shukla and Dr. Anuradha More

Abstract

Prevotella pallens strain NCTC 13042 is a bacterial type strain isolated from the saliva of a human child. This strain is grown anaerobically on modified chopped meat medium and trypticase soy medium. It is a species of small flowering plant that belongs to the Asteraceae family. It is found in arid to semi-arid regions of the southwestern United States and Mexico. *Prevotella pallens* serves as an important food source for pollinators and a host plant for herbivores, and has traditional medicinal uses. This species warrants further research to better understand its taxonomy, distribution, ecological significance, and conservation status.

Introduction

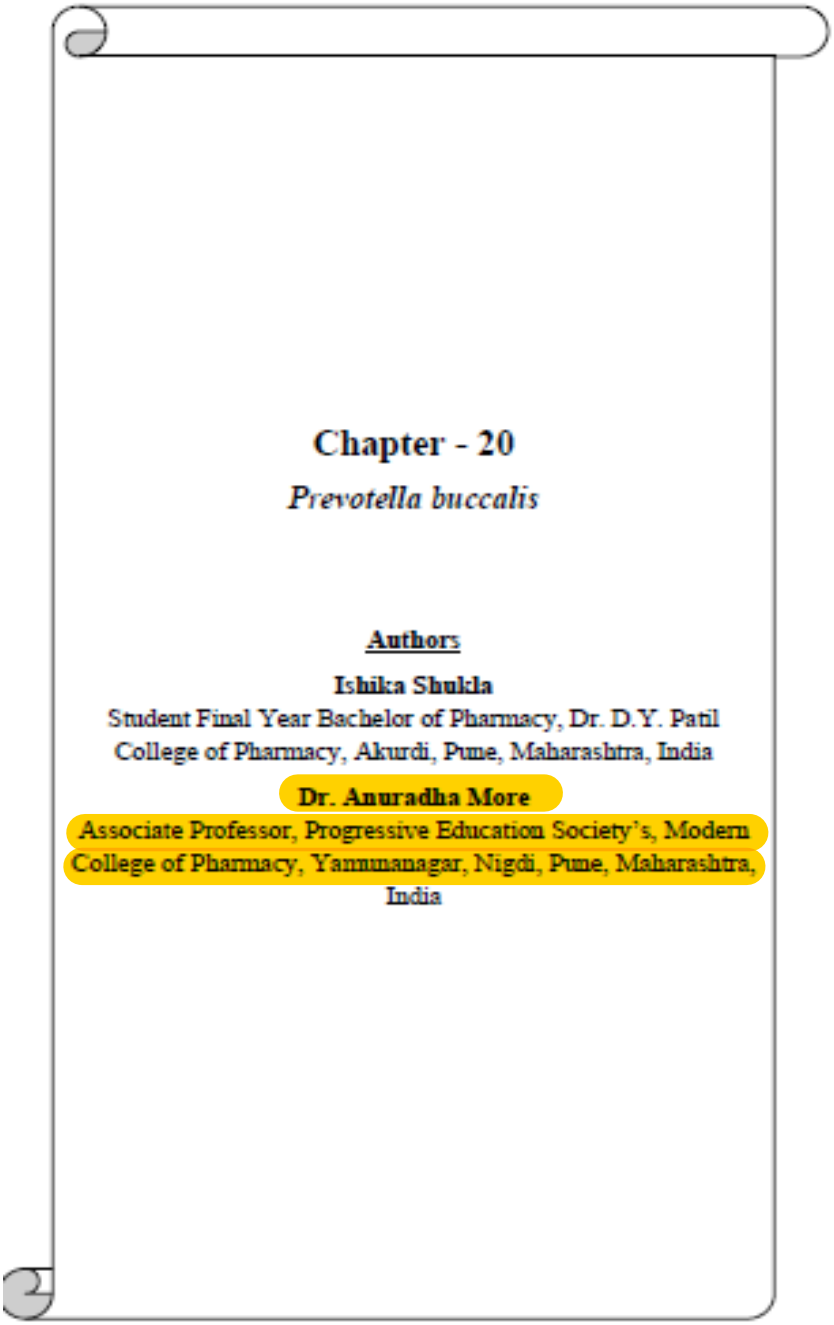
Prevotella pallens is a Gram-negative anaerobic bacterium that belongs to the Asteraceae family and is commonly found in the human gut microbiota. This bacterial species has garnered significant attention due to its unique characteristics and potential impact on human health.

In recent years, research on *Prevotella pallens* has revealed its involvement in various physiological and pathological processes in the human body. Studies have shown that *Prevotella pallens* is associated with conditions such as periodontal disease, inflammatory bowel disease (IBD), and obesity. Furthermore, *Prevotella pallens* has been found to possess distinctive metabolic capabilities, including the ability to degrade complex carbohydrates, produce short-chain fatty acids (SCFAs), and modulate immune responses.

Table 1: Characteristics of *Prevotella pallens*

Scientific classification	Kingdom-Bacteria Phylum-Bacteroidetes Class-Bacteroidia Order-Bacteroidales Family-*Prevotellaceae*

Chapter-20 Prevotella buccalis



Chapter - 20

Prevotella buccalis

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Chapter - 20

Prevotella buccalis

Ishika Shukla and Dr. Anuradha More

Abstract

Prevotella buccalis is a gram-negative anaerobic bacteria found in the oral cavity. It is a member of the *Prevotella* genus and is commonly associated with periodontal diseases. *P. buccalis* has been shown to produce a variety of virulence factors, including proteases and lipases, which can contribute to tissue destruction in the oral cavity. The bacterium has also been linked to systemic diseases such as cardiovascular disease, diabetes, and respiratory infections. The prevalence of *P. buccalis* in the oral microbiome is influenced by a variety of factors, including diet, oral hygiene practices, and host immune response. Understanding the role of *P. buccalis* in oral and systemic health is an area of active research, with potential implications for the development of new diagnostic and therapeutic approaches for periodontal diseases and related conditions.

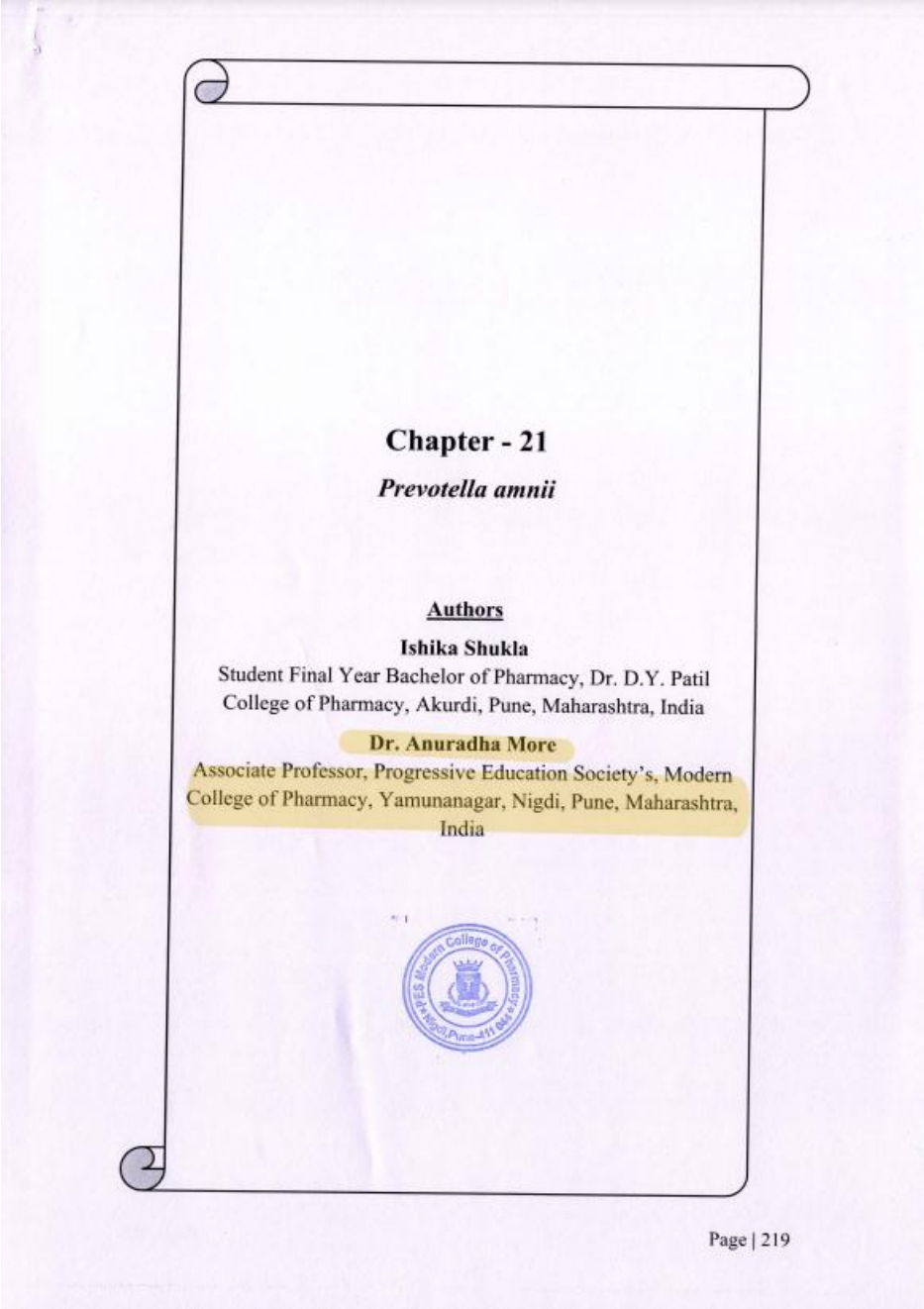
Introduction

Prevotella buccalis is a gram-negative anaerobic bacteria that is commonly found in the human oral cavity. It is a member of the *Prevotella* genus and is known to be a key contributor to the development and progression of periodontal disease. The bacterium has also been implicated in the pathogenesis of several systemic diseases, such as cardiovascular disease, diabetes, and respiratory infections.

P. buccalis is a versatile pathogen that produces a wide range of virulence factors, including proteases, lipases, and other enzymes, which can contribute to tissue destruction and inflammation in the oral cavity. These virulence factors can also activate host immune responses and facilitate the dissemination of the bacterium to other parts of the body.

The prevalence of *P. buccalis* in the oral microbiome is influenced by a variety of factors, including diet, oral hygiene practices, and host immune response. Studies have also shown that the presence of *P. buccalis* in the oral cavity is associated with a higher risk of developing periodontal disease and systemic diseases.

Chapter-21 Prevotella amnii



Chapter - 21

Prevotella amnii

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Page | 219

Chapter - 21

Prevotella amnii

Vaibhavi Kulkarni and Dr. Anuradha More

Abstract

By influencing immunological development, immune responses, metabolism, and defence against invasive pathogens, the microbiota plays a crucial role in human health and disease. The search for microorganisms that modulate disease has been prompted by technological developments that enable thorough genetic sequencing characterisation of microbial communities. Recent investigations in humans have connected localised and systemic disease, such as periodontitis, bacterial vaginosis, rheumatoid arthritis, metabolic abnormalities, and low-grade systemic inflammation, to the increased prevalence of *Prevotella* species at mucosal locations [1]. From human amniotic fluid, two rod-shaped, Gram-negative, anaerobic, non-spore-forming organisms were identified. The strains were tentatively classified as Bacteroidaceae based on morphological and biochemical criteria, although they did not seem to belong to any recognised species of this family. Sequencing analyses of the 16S rRNA gene revealed that the strains were closely related to one another and established that they belonged to the genus *Prevotella*, however sequence divergence values of >4% with reference to the organisms from human clinical sources are a novel species, as shown by *Prevotella* species. The unique organism was shown to be most closely related to *Prevotella bivia*, an organism typically linked to pelvic inflammatory disorders, according to phylogenetic analysis. It is suggested that the unidentified isolates from human amniotic fluid be classified as *Prevotella amnii* sp. nov., which is a new species of the genus *Prevotella*, based on biochemical standards and phylogenetic considerations. *Prevotella amnii* strain CCUG 53648 ^{T} (=JCM 14753^{T}) is the type [2].

Introduction

Prevotella amnii exists with the following characteristics-

Burden of diseases in India and need for pharmaceutical care

BURDEN OF DISEASES IN INDIA AND NEED FOR PHARMACEUTICAL CARE

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Non communicable diseases (NCDs) are one of the major challenges for public health in the 21st century, not only in terms of human suffering they cause but also the harm they inflict on the socio-economic development of the country. NCDs kill approximately 41 million people (71% of global deaths) worldwide each year, including 14 million people who die too young between the ages of 30 and 70. The majority of premature NCD deaths are preventable.

In India, nearly 5.8 million people (WHO report, 2015) die from NCDs (heart and lung diseases, stroke, cancer, and diabetes) every year or in other words, 1 in 4 Indians has a risk of dying from an NCD before they reach the age of 70.

In a report "India: Health of the Nation's States" by the Ministry of Health and Family Welfare (MOHFW), Government of India (GOI), it is found that there is an increase in the contribution of NCDs from 30% of the total disease burden- 'disability-adjusted life years (DALYs) in 1990 to 55% in 2016 and also an increase in the proportion of deaths due to NCDs (among all deaths) from 37% in 1990 to 61% in 2016. This shows a rapid epidemiological transition with a shift in disease burden to NCDs.

The major NCDs are cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes. Physical inactivity, unhealthy diets (diets low in fruit, vegetables, and whole grains, but high in salt and fat), tobacco use (smoking, secondhand smoke, and smokeless tobacco), and the harmful use of alcohol are the main behavioral risk factors for NCDs.

Actions to beat non-communicable diseases

The sweeping increase of the burden due to this combination of risks in every part of the country indicates emphatically that major efforts need to be put in place to control their impact in every state before the situation gets totally out of control. The epidemic of NCDs cannot be halted simply by treating the sick, healthy persons have to be protected by addressing the root causes. Reducing the major risk factors for NCDs is the key focus currently to prevent deaths from NCDs. Tackling the risk factors will therefore not only save lives; it will also provide a huge boost for preventing NCDs and the economic development of the country.

The diabetes-pandemic is spreading like wildfire, especially among developing countries. The IDF Diabetes Atlas 9th edition 2019 shows that 463 million adults are currently living with diabetes worldwide, 77 million in India (second-largest nation housing this disease), and the estimated 578 million adults with diabetes are expected by 2030. Indians ranking highest (population) followed by China and the USA. India is one of the 7 countries of the IDF SEA region.

7

Bioinformatics tools in clinical research

BIOINFORMATIC TOOLS IN CLINICAL RESEARCH

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Introduction

Clinical research is putting in great effort to improve peoples' health and well-being. Diseases including cancer, hepatitis, HIV, and others are spreading quickly and becoming more severe, leading to significant morbidity and mortality. Clinical trials are carried out to determine the safety and effectiveness of pharmaceuticals, whereas clinical research involves the discovery and development of drugs. The identification, validation, and lead optimization of targets are the first steps in the lengthy process of drug discovery. Preclinical trials, extensive clinical trials, and finally post-marketing vigilance for drug safety come after this. Clinical and preclinical research is frequently a time-consuming, expensive, and dangerous process. As a result, predicting the efficacy of a drug is necessary in order to ensure the success of the drug development process. Bioinformatics is the applications of computer science in biology thatcan improve drug discovery with efficient statisticalalgorithms, rationale approaches for target identification, validation, and optimization. Computers and softwaretools greatly help creating databases, predict the functionof proteins, model the structure of proteins, determinethe coding regions of nucleic acid sequences, find suitabledrug compounds from a large pool, perform data mining, analyzing, and interpret data faster thereby reducing timeof drug discovery and eventually the cost involved in it.

Clinical research is a branch of science that ensures thesafety and effectiveness of medications, devices, diagnosticproducts, and treatment regimens for human use.Varioussoftware can predict the possible interactions, toxicities, and indications thereby, accurately defining the successof a novel compound or the repositioning for new uses.

Software and bioinformatics tools in Pharmacovigilance

ARISg

It is the top platform for both the clinical safety system and pharmacovigilance. This programme offers a practical and all-inclusive solution for handling adverse event reporting in accordance with legal standards. ARISg offers a combined system for Pharmacovigilance and risk management, so enabling pharmaceutical businesses to monitor and analyze their products for safety risk.

Argus

Oracle Software called Argus enables pharmaceutical businesses to maximize worldwide compliance, make quick and better safety choices, and integrate risk management systems. With automated case processing, regular reporting, in-depth analytics, and safety operations all integrated into a single system, Argus offers configurable end-to-end safety processes.

Software used in clinical trials:

Promiscuous

11

3D printing in pharmaceutical and biomedical applications

3D PRINTING IN PHARMACEUTICAL AND BIOMEDICAL APPLICATIONS

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Introduction

Three-dimensional (3D) printing technology is a new rapid prototyping technique in which solid objects are constructed by depositing material in layers. The 3D printing offers more advantages over the conventional process of manufacturing like pulverization, blending, granulation and compaction to overcome some challenges of pharmaceutical field.3D printing also very beneficial in designing of several dosage forms which contains several active ingredients, which can be formulated as single or multi-layer printed tablet with better release profile.3D printing technology achieves extraordinary success in the design and manufacturing of dosage forms, which can be used in personalized and customized medication.

Advantages of 3D printing in the pharmaceuticals

High efficiency: It works much faster than conventional methods of manufacturing especially when it comes to manufacturing objectives like artificial organs and implantable devices

Customization and personalization: It provide a great benefit for the pharmaceutical and medical sectors

Increased cost-effectiveness: This technique is very useful for small scale manufacturing unit that produces highly complicated products and used inexpensive materials. A controlled particle size can be achieved in dosage form and maintain better drug release profiles, improve efficacy of dosage, and minimizes multi-dosing.

3D Printing Vs Traditional Printing

3D printing technology is a computer-driven manufacturing technology used for manufacturing the product from a digital model.

Table No. 1: 3D Printing Vs Traditional Printing

Traditional Printing	3D Printing
High Manufacturing Cost	Low Manufacturing cost
Less innovative	Easy and inexpensive innovation
More time required	Lesser time taken due to compressed design cycle
Creates more waste	Lighter and smaller amount of waste

2. 3D printing procedure

Various digital CAD (computer-aided design) software's like onshape, solid works, creo parametric, auto CAD, autodesk etc. are used for designing 3D models.

Process:

Artificial intelligence in pharmaceutical science

ARTIFICIAL INTELLIGENCE IN PHARMACEUTICAL SCIENCE

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Introduction

Artificial intelligence (AI) is the simulation of human behaviour in terms of intelligence processes used in problem solving. Human cognitive science reading, observation, preparation, interpretation, reasoning, correction, speech recognition, linguistics, and other sources are examples of such mechanisms. Artificial intelligence is defined as the study and application of algorithms for data analysis, learning, and interpretation. Artificial intelligence and machine learning, in particular, provide the pharmaceutical industry with a real opportunity to do R&D differently, allowing it to operate more efficiently and significantly improve the early stages of drug development success. Artificial intelligence (AI) is concerned with understanding data and analysing how algorithms are used. Artificial intelligence (AI) uses sophisticated computer algorithms to carry out human-like functions including decision-making and data interpretation. AI makes activities easier by teaching machines from past experiences, connecting actions and effort to outcomes, seeing faults and fixing them, adapting to novel and random input values, and doing human-like tasks with ease through extensive scenario analysis. To do this, AI employs Natural Language Processing (NLP) to transform human speech into a language that robots can understand. AI is essential for validating novel drug targets and creating better therapeutic compounds. Repurposing the medications for current drug candidates to uncover novel indications helps speed up clinical studies like drug performance prediction, in vitro testing, and toxicity computation prior to clinical trial findings, computer-based synthesis, synthesis and designing of organic compounds, synthetic complex scoring, molecular design automation, predicting organic reaction outcomes, and medicine. In order to solve issues and challenges in the drug design process, artificial intelligence (AI), particularly deep learning (DL) and machine learning (ML) algorithms, has emerged as a potential solution. AI is a rapidly developing technology with several uses in both business and daily life. The pharmaceutical industry has recently found new and inventive methods to leverage this potent technology to assist address some of the most pressing issues confronting pharma at the moment. AI is implemented into machines to analyse and forecast the outcomes of treatment regimens for various illnesses and conditions.

Applications of Artificial intelligence in pharmaceutical science

AI is essential for developing new medication candidates and creating better therapeutic compounds. Repurposing the medications for current drug candidates to uncover novel indications helps speed up clinical studies like drug performance prediction, in vitro testing, and toxicity computation prior to clinical trial findings, computer-based synthesis, synthesis and designing of organic compounds, synthetic complex scoring, molecular design automation, predicting organic reaction outcomes, and medicine.

1. Drug discovery

Principle elements and plan for pharmaceutical care

PRINCIPLE ELEMENTS AND PLAN FOR PHARMACEUTICAL CARE

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Pharmaceutical care is the pharmacist's primary responsibility. A patient's quality of life can be improved through pharmaceutical care, which is the direct and responsible administration of medication-related care.

Principal Elements of Pharmaceutical care

The main characteristics of pharmaceutical care are that it is medication-related, that it directly affects the patient that it is given to produce definite results, that these results are intended to improve the patient's quality of life, and that the provider accepts personal responsibility for the results. Some important principle elements are mention are-

1. **Medication Related:** Pharmaceutical care includes both decisions about medication use for specific patients as well as pharmaceutical therapy (the administration of medications). This can involve deciding not to utilize medication therapy, as well as making decisions about medication selection, dosages, routes of administration, monitoring medication therapy, and giving specific patients counselling and information on medications as needed.
2. **Pharmaceutical Care:** Caring, or a genuine concern for another person's well, lies at the heart of the concept of care. Medical, nursing, and pharmaceutical care is only a few of the integrated care areas that make up overall patient care. Each of these specialties in medicine has its own set of specialists who must work together for the patient's complete recovery. In the creation, implementation, and monitoring of a therapeutic plan intended to provide specific therapeutic outcomes that enhance the patient's quality of life, the pharmacist collaborates directly with other experts and the patient.
3. **Outcomes**: Pharmaceutical care aims to enhance the quality of life of each patient by achieving specific (predefined), medication-related therapeutic objectives. The desired results are:
   - ✓ The sickness of a patient is cured.
   - ✓ Reduction or elimination of a patient's symptoms
   - ✓ Slowing or stopping the progression of an illness
   - ✓ Controlling a disease or its symptoms.

The following are some categories of medication-related issues-

- ✓ Indications that have not been treated
- ✓ Incorrect drag selection
- ✓ Inadequate dose
- ✓ Inability to take medication
- ✓ Overdose
- ✓ Adverse drug reactions

25

Personalized medicine: new health care approach

PERSONALIZED MEDICINE: NEW HEALTH CARE APPROACH

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Personalized medicine

Personalized medicine is frequently regarded as the direction of medicine in the future. With a few notable exceptions, cancer research has not advanced as anticipated because of the difficulties presented by tumour heterogeneity and clonal evolution. Diseases brought on by solitary genetic changes are more susceptible to precision medicine techniques in both benign and malignant disease. Personalized medicine is much more difficult because the majority of common diseases are brought on by a complicated interplay of numerous genetic and environmental factors. Clinical consultations, resource allocation, and research funding prioritisation are being distorted by the current euphoria around personalised medicine. A clinical researcher must operate as both a change and development agent and a communicator of reality. As a result, personalised medicine that emphasises the individual as a person and not just as a genome, along with continuous attention to the individual as a person, will lead to further advancements in health and healthcare.

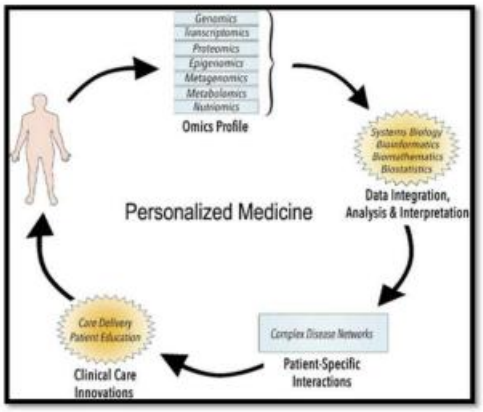

Figure 1: Personalized medicine

An emerging area of medicine is personalised medicine, which analyses a person's genetic profile to inform decisions about illness prevention, diagnosis, and treatment. Doctors can choose the best treatment and deliver it with the right dosage or regimen by having knowledge about a patient's genetic profile. Human Genome Project data is being used to enhance personalised treatment.

People have high expectations for "personalised medicine" as a type of treatment that is more suited to the requirements of individuals. The goal is for healthcare to move away from a "one size fits all" philosophy and towards more specialised illness prediction, prevention, and treatment 1, 2, 3, 4, 5. One of the

Softwares used in medical coding.

SOFTWARES USED IN MEDICAL CODING.

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Introduction:

Medical coding is the process of assigning specific codes to medical diagnoses and procedures. These codes are used for a variety of purposes, such as billing insurance companies, tracking healthcare data, and analyzing the effectiveness of treatments. There are several different systems of medical coding, including the International Classification of Diseases (ICD) and the Current Procedural Terminology (CPT). Medical coders are responsible for accurately assigning the appropriate codes to medical records, using coding manuals and guidelines. It is a growing field, with many opportunities for employment in hospitals, clinics, and insurance companies. Some medical coders work as freelancers, offering their services to healthcare providers on a contract basis.

Importance of medical coding:

Medical coding is the process of assigning standardized codes to medical diagnoses, procedures, and treatments. These codes are used for a variety of purposes, including reimbursement, research, quality assurance, and public health reporting. The importance of medical coding can be summarized as follows:

Accurate billing and reimbursement:

- Medical coding ensures that healthcare providers are accurately reimbursed for the services they provide. Insurance companies and government programs such as Medicare and Medicaid rely on medical codes to determine payment for services. Accurate coding helps to prevent errors and fraud.

Improved patient care:

- Medical coding provides a standardized way to track patient care and outcomes. This information can be used to improve patient care by identifying patterns and trends, tracking the effectiveness of treatments, and identifying areas for improvement.

Compliance with regulations

- Healthcare providers must comply with numerous regulations, including those related to billing and reimbursement. Medical coding helps providers ensure that they are following regulations and avoiding penalties.

Research and public health:

- Medical codes provide a way to track health trends and identify areas for public health interventions. Researchers can use medical codes to study disease patterns, treatment outcomes, and health disparities.

There are several different types of medical coding, including **ICD-10** (International Classification of Diseases, 10th revision) coding, **CPT** (Current Procedural Terminology) coding, and **HCPCS** (Healthcare Common Procedure Coding System) coding. Each of these coding systems has its own set of codes and guidelines that must be followed to ensure accuracy and compliance with regulatory requirements.

35

Artificial intelligence in drug discovery

ARTIFICIAL INTELLIGENCE IN DRUG DISCOVERY

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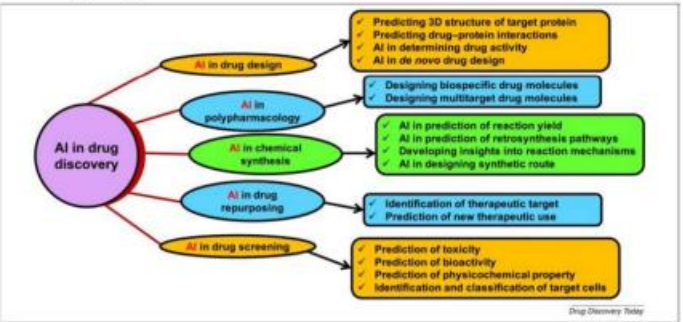
Introduction

The advancement of computational science has accelerated the research and discovery of new drugs. Artificial intelligence is widely used in both the business and academic worlds (AI). Machine learning (ML), a key component of AI, has been used in many different areas, including data generation and analytics. ML is an example of an algorithm-based technique that has a solid mathematical and computational theory background.



1. AI in drug screening

A drug's discovery and development can take over ten years and cost an average of US$2.8 billion. Even then, nine out of 10 medicinal compounds fall short of passing regulatory approval and Phase II clinical trials. Based on the practicality of the synthesis, algorithms are like deep neural networks (DNNs), extreme learning machines (ELMs), and nearest-neighbour classifiers (RF). These algorithms can also predict in vivo activity and toxicity. Many biopharmaceutical firms, including Bayer, Roche, and Pfizer, have partnered with IT businesses to create a platform for the identification of treatments for conditions like immuno-oncology and cardiovascular illnesses.

2. AI in designing drug compounds

Predicting the structure of the target protein, assigning the right target during drug molecule development is crucial for effective treatment. The development of the disease involves many proteins, some of which are over expressed. So, it is essential to predict the structure of the target protein while designing the therapeutic molecule in order to selectively target disease. Because the design is in line with the chemical environment of the target protein site, AI can help in structure-based drug discovery by anticipating the 3D protein structure. This aids in anticipating the effect of a compound on the target along with safety considerations before their synthesis or production.

3. Prediction of the physicochemical properties

32

Bioinformatics for healthcare applications

BIOINFORMATICS FOR HEALTHCARE APPLICATIONS

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Bioinformatics is an integrative field in life sciences that combines biology and information technology. Its application includes the study of molecular sequences and genomics data. Being a combination of different branches of life sciences, the objective of bioinformatics is to develop methodologies and tools to study large volumes of biological data in order to organize, store, systematize, visualize, annotate, query, understand and interpret those data.

Bioinformatics includes

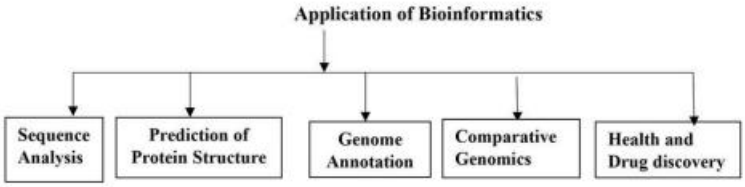
- **Cloud computing**
- **Statistic**
- **Mathematics**
- **Pattern recognition**
- **Machine learning**
- **Molecular modeling**

In simpler terms, bioinformatics is the computer technology to manage large amount of biological information.

Objectives:

The main objective of bioinformatics is to collect, store, analyze and disseminate biological data and information, such as DNA and amino acid sequences or annotations about those sequences.

Applications of bioinformatics:



The various applications of the bioinformatics are as follows:

A. Sequence Analysis :

The genetic basis of organism is depending on all genes of its genome. Sequence analysis is a method used to understand its structure, function, features. There are various powerful tools are available in the computer science and each tool has its own merits and demerits. These tools are used to identify the sequences which are related to DNA mutations of an organism. Shotgun sequence technique is used for sequence analysis of various fragments of DNA.

B. Prediction of Protein Structure :

39

Artificial intelligence in healthcare

ARTIFICIAL INTELLIGENCE IN HEALTHCARE

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Introduction

Artificial intelligence (AI) is defined as machine intelligence as opposed to human or other living species intelligence. AI can also be defined as the study of "intelligent agents," which are any agents or devices that can perceive and understand their surroundings and take appropriate action to maximise their chances of achieving their goals. Big data and machine learning are influencing almost every aspect of modern life, including entertainment, commerce, and healthcare.

AI's ability to deliver better and faster results in healthcare is reshaping the way healthcare providers deliver care, allowing them to devote more time and resources to their patients. With artificial intelligence AI in healthcare leading the charge in improving patient care, medical professionals can be confident in their ability to focus on providing quality care while saving time and money with AI-powered administrative tasks. Finally, artificial intelligence in healthcare enables healthcare providers to provide better and faster patient care. Artificial intelligence can help medical professionals save time and money by automating mundane administrative tasks, while also giving them more control over their workflow process.

The healthcare ecosystem is beginning to recognise the significance of AI-powered tools in next-generation healthcare technology. AI is thought to be capable of improving any process in the healthcare industry delivery. The cost savings that AI can bring to the healthcare system, for example, is a major motivator for the implementation of AI applications. A significant portion of these cost savings result from shifting the healthcare model from a reactive to a proactive approach, with a focus on health management rather than disease treatment.

Artificial intelligence applications in healthcare

There are various viewpoints on the most beneficial applications of AI in healthcare. According to Forbes, the most important areas in 2018 will be administrative workflows, image analysis, robotic surgery, virtual assistants, and clinical decision support. Accenture's 2018 report mentioned the same topics, as well as connected machines, dosage error reduction, and cyber security. AI allows for the review and translation of mammograms to be completed 30 times faster and with 99% accuracy, reducing unnecessary biopsies.

1. **Managing Medical Records and Other Data**

Data management is the most widely used application of artificial intelligence and digital automation because the first step in health care is compiling and analyzing information (such as medical records and another past history). To provide faster, more consistent access, robots collect, store, re-format, and trace data.

2. **Accurate Cancer Diagnosis & Early Diagnosis of Fatal Blood Diseases**

Monitor adverse drug reaction of theophylline in asthmatic patients

MONITOR ADVERSE DRUG REACTION OF THEOPHYLLINE IN ASTHMATIC PATIENTS

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Pharmacovigilance (PV) was officially introduced in December 1961 with the publication in the peer-reviewed medical journal. The Lancet' by William McBride's by the Australian doctor who first suspected a causal link between serious fatal deformities and thalidomide drug used during pregnancy. Thalidomide is used as an anti-emetics and sedative agent in pregnant women. In 1968, the world health organization (WHO) proposed the program for International drug monitoring of pilot project to centralize world data on adverse drug reactions. The main aim of the WHO program was to identifying the earliest possible PV signals. PV is the science and activities related to the detected assessment, understanding, and prevention of adverse effects, particularly long-term and short-term adverse effects of medicines. Pharmacovigilance (PV) is a continuous process accepted for safety evaluation accompanied by steps to improve safe usage of medicines. Fig.1 represents the scope of the Pharmacovigilance in pharmaceutical field.

Scope of Pharmacovigilance

Fig. 1. Scope of Pharmacovigilance

Pharmacovigilance cycle

The WHO Pharmacovigilance ensures the safe use of medicines and vaccines throughout the life cycle of the products.

Pharmacist: a key to pharmaceutical care

PHARMACIST: A KEY TO PHARMACEUTICAL CARE

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Pharmaceutical science, defined by the AACP (American Association of College of Pharmacy) Research and Graduates Affairs committee, encompasses a broad range of interdisciplinary fields related to drug discovery, optimization, delivery, optimal dosing as well as health outcome and policy. Although many pharmaceuticals helping to directly cure diseased conditions, they can also be used to manage pain, symptoms and side effects of other treatments, helping to relieves discomfort so pharmaceutical care is a boon for society.

Pharmaceutical care gives a valuable contribution from being drug product oriented to one that is patient oriented to achieve definite results that improves patient's quality of life. In order to get pharmaceutical care, Pharmacists have to accept for a shift of a practice in pharmacy the role of a pharmacist, communicator, decision maker, teacher, researcher, lifelong learner, leader, and manager, which will help them to provide personalized care. As a patient's visit community pharmacists usually, they are playing a major role in providing respective care to the patients, especially in the treatment of chronic, acute and non-communicable diseases.

Many studies have been organized; it shows that the allocation of pharmaceutical care has its valuable contribution in common disorders such as high sugar level, high blood pressure, asthma, hyperlipidemia, body pain, rheumatic disease, cancer, tuberculosis, nervous disorders as well as in-communicable diseases. Abundant data is currently being published in many scientific journals, in an account to establish the clinical, economic and humanistic viability of pharmaceutical care. In pharmaceutical care, the major role is of pharmacists because pharmacists are improving the quality of dosage forms and drug therapy by modifying the structure through which drug therapy is provided. The other important side of pharmaceutical care is medication of drugs which have an adorable value to treating disease conditions. So, the heart of pharmaceutical care is pharmacists and medicine that directly provides special care to raise patient's quality of life and accepts personal responsibility for their betterment. Thus, the focus of this review is to study the importance of various aspects in pharmaceutical care which have to be carried out by pharmacists.

Artificial intelligence in medicine

ARTIFICIAL INTELLIGENCE IN MEDICINE

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Introduction

Artificial intelligence (AI) refers to the use of technology and computers to simulate intelligent behaviour and critical thinking that is comparable to that of a human being. In 1956, John McCarthy used the term "AI" for the first time to refer to the engineering and science of creating intelligent machines. The two categories of artificial intelligence (AI) in medicine are virtual and physical. Applications like electronic health record systems and neural network-based treatment decision guidance are examples of the virtual part. The physical section focuses on geriatric care, robotic surgery assistants, and intelligent prosthetics for the disabled.The difficulty for modern medicine is to gather, examine, and use the vast amount of knowledge required to address challenging clinical issues. The creation of AI systems aimed at assisting the clinician in the formulation of a diagnosis, the making of therapeutic decisions, and the prediction of outcome has been linked to the development of medical AI. They are made to help healthcare professionals perform daily tasks that require the manipulation of data and knowledge. The creation of AI systems aimed at assisting the clinician in the formulation of a diagnosis, the making of therapeutic decisions, and the prediction of outcome has been linked to the development of medical AI. The term "Medical Technology" is frequently used to refer to a variety of instruments that can help medical practitioners diagnose patients earlier, prevent problems, optimise therapy and/or offer less intrusive options, and shorten hospitalisation for patients and society as a whole. The general public has embraced intelligent medical technologies (i.e., AI-powered ones) in part because they enable the 4P model of medicine (Predictive, Preventative, Personalized, and Participatory) and, consequently, patient autonomy.

Current Applications of Artificial Intelligence in medicine

1. **Pulmonary Medicine**

According to reports, the interpretation of pulmonary function tests represents a viable area for the creation of AI applications in the field of pulmonary medicine. According to a new study, when it comes to analysing the results of pulmonary function tests, AI-based software offers more accurate interpretation and acts as a decision support tool. The study was subject to a number of criticisms, one of which was how the study's pulmonologists had significantly lower rates of accurate diagnosis than the national average.

2. **Nephrology**

Clinical nephrology has used artificial intelligence in a number of settings. It has been shown to be helpful, for instance, in predicting the decline in glomerular filtration rate in individuals with polycystic kidney disease and determining the risk for progressive IgA nephropathy. Yet, a recent analysis shows how the sample size required for inference currently limits research.

3. **Neurology**

55

Introducing principle, elements and perceived barriers toward provision of pharmaceutical care

INTRODUCING PRINCIPLE, ELEMENTS AND PERCEIVED BARRIERS TOWARD PROVISION OF PHARMACEUTICAL CARE

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Pharmaceutical care: The conception of pharmaceutical care in its modern sense was introduced in 1980: "Pharmaceutical care includes the determination of the medicine needs for a given specific and the provision not only of the medicine required but also the necessary services to assure optimally safe and effective treatment.

"Responsibility exception of medical treatment for the purpose of achieving definite outcomes that enhance a patient's quality of life."

❖ **Principles of Pharmaceutical Care:**

1. **Subjects need timely & precise responses to signs and symptoms.** First, patients need timely and accurate responses to their essential medical problems by the initiator (physician, nurse practitioner, etc.). The "drug of choice" for the wrong evidence will not improve a patient's clinical condition or quality of life. Others involved in drug therapy often should delay to the physician's diagnostic expertise. For pharmacists and other cotherapists, this concept would most frequently refer to determining and resolving drug therapy problems
2. **Subjects need access to safe & cost-effective medications:**
   There are at least six situations at which access to medications can be constricted: national drug license laws; finances, including insurance provisions and formulary inclusions; prescribing; inventory availability; dispensing; and use by the patient (including bioavailability).
   - National drug licensing decisions (marketing controls) are part of the environment of medications use system. These are behind a professional's control in the treatment of a particular patient. I'm including them here for completeness. Nonetheless, sometimes a so-called orphan drug.
   - Some patients cannot afford to pay for the medications they need. A formulary may behind a patient's getting the medicine that the doctor would prefer, or even deny any prescription beyond coverage limits.
3. **Patients Need Planned, Professional, Follow-up:** This statement is closely related to statement 1 (responsiveness). It emphasizes the need for planned, continual, detecting throughout therapy. Systematic analysis and result to drug therapy issues may be the most important area of possible development in medications use. Two levels of monitoring are necessary: facilitator (patient) and co-therapist (professional).
4. **Patients Need Cooperation with and Among Health Professionals**
   As with monitoring, two 4 levels of cooperation can be discerned.
   - **Patient participation in care:** Outcomes of drug therapy may be unrecognizable, and in some cases may depend on patients' faith, at least faith influence a patient's medication-taking

57

Digital therapeutics and telemedicine

DIGITAL THERAPEUTICS AND TELEMEDICINE

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Digital therapeutics

Digital therapeutics, a subset of digital health, is a care discipline and treatment option that treats a medical or psychological condition using digital and often online health technologies. All technologies that interact with patients for health-related purposes are referred to as digital health. It includes a diverse range of products used in the wellness and healthcare industries. Digital therapeutics can be identified from the other digital health categories by its primary function of core target software-generated therapeutic strategies to patients in order to prevent, operate, or treat medical disorders or diseases.

A Digital Therapeutic, like a drug, is composed of digital active ingredients and excipients that comprise the patient's application of use (patient-facing). This distinction may be important in clinical development, particularly in confirmatory clinical trials, where it is not possible to modify the digital active ingredient during development but is possible to update the excipients within certain limits.

In addition to the patient-facing components, Digital Therapeutics includes a dashboard for the physician and a delivery platform from which the application can be downloaded.

Fig.1. Composition of Digital Therapeutics

Telemedicine

Telemedicine is a general concept for any medical activity that involves a distance element. It dates back at least to the use of ship-to-shore radio for giving medical advice to sea captains in its commonly understood sense, in which a doctor-patient interaction involves telecommunication. A few years ago, the term telemedicine was supplanted by the term telehealth, which was thought to be more "politically correct," but in the last year or so, it has been supplanted by even more fashionable terms such as online health and e-health.

Benefits of telemedicine

Through virtual mode, it is quite beneficial to use telemedicine as it avoids the cross-contamination of contagious diseases. Telemedicine offers extended patient care through self-care management and risk assessment. It provides better convenience and comfort to the patient especially in chronic disorders by

Therapeutic drug monitoring

THERAPEUTIC DRUG MONITORING

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Therapeutic drug monitoring (TDM) is a branch of pharmacology that specializes in the measurement of medication levels in blood. Its main focus is on drugs with a narrow therapeutic range, means the drugs that can easily be under or overdosed.

The incorporation of TDM in clinical practice can enable healthcare professionals to optimize drug treatment. Conventional TDM was started way back in the 1960s. Over the past several decades, TDM has made a substantial contribution to personalize pharmaco-therapy. In the current times, the scope of TDM has extended to be applied in various medical conditions.

Most drugs can be dosed correctly without special testing or monitoring. But for certain types of drugs, it can be hard to figure out a dose that provides enough medicine to treat patient's condition without causing dangerous side effects. TDM helps your provider find out if you are taking the right dose of medicine.

TDM is the measurement of drug concentration in biological fluids to determine the drug dose achieving a pre-defined target level for a patient. This technique requires that a relationship between concentration (i.e., exposure) and effect (i.e., pharmacodynamic response) to be demonstrated. Measures of exposure include the area under the plasma concentration-time curve (AUC), time above a threshold concentration, maximum concentration (Cmax), and trough concentration. TDM can correct for most of PK variability, consequently reducing the variability in response.

Indications for requesting plasma drug concentrations

- Monitoring compliance
- Individualizing therapy - during early therapy and during dosage changes
- Diagnosing under treatment
- Avoiding toxicity
- Monitoring and detecting drug interactions
- Guiding withdrawal of therapy

Following information is required for Therapeutic Drug Monitoring

- Patient's clinical history concerning past therapeutic responses
- Patient's clinical condition
- Pharmacokinetics of the drug
- Dosage regimen
- Sampling time
- Purpose of therapeutic drug monitoring.
- Patient's clinical responses

The process of TDM

62

Pharmacoeconomics: an overview

PHARMACOECONOMICS: AN OVERVIEW

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Introduction:

The International Society for Pharmacoeconomics and Outcomes Research (ISPOR) defines pharmacoeconomics as "the field of study that evaluates the behaviour of individuals, firms, and markets relevant to the use of pharmaceutical products, services, and programs, and which frequently focuses on the costs (inputs) and consequences (outcomes) of that use". The demand for and the cost of pharmaceutical care are rising in all countries as the digitalization in and improvement of health technologies. The pharmacoeconomic assessment is essential to find the rational therapy at the lowest price.

Pharmacoeconomics can be defined as the branch of economics that utilizes cost-benefit, cost-effectiveness, cost minimization, cost-of-illness and cost-utility analyses to compare pharmaceutical items and treatment management. It is the part of health economics that focuses on the economic evaluation of pharmaceutical Products, health Economics and outcomes research, and patient-reported outcomes (PRO) in Individual, aim at determining patient worth in terms of impact of disease and its treatment on physical working skills and psychological and social wellbeing, known also as "health-related quality of life" (HRQL).

Importance of Pharmacoeconomics:

Pharmacoeconomics has become most important over the past 20 years, due to an increased need of Economic drug therapies for the diseases

1) Increasing health Value has led to the necessity to find the optimum therapy at the minimum price.
2) Pharmaceutical consumption which comprises a large part of healthcare expenditures, have been rising much faster than total healthcare expenditures.
3) Several drug alternatives and authorized consumers also fuel the demand for economic analyses of pharmaceutical products.
4) The increasing cost of healthcare products and services has become a wide concern for consumers, healthcare professionals, patient and the common public.
5) This rising concern has brought about demand for the utilization of economic estimation of alternative healthcare outcomes. This expansion in healthcare spending is due to increased life expectancy, expanded technology, increased assurance, raised in standards of living and increasing need in healthcare quality and services.
6) Healthcare resources are not easily reachable and affordable to many patients; hence Pharmacoeconomic evaluations play a key role in the issuing of these resources.

65

Artificial intelligence in education

ARTIFICIAL INTELLIGENCE IN EDUCATION

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Introduction

Artificial intelligence (AI), generally expressed by the general public as the ability of machines or computers to think and act as humans do, represents the efforts towards computerized systems to imitate the human mind and actions. With the advancement of worldwide science and technology, AI technology has advanced by leaps and bounds. AI technology is frequently utilized and updated across many industries. It is evident that AI has significantly affected the learning environment and teaching approaches in schools. More and more people are becoming aware of the value of this technology in the field of education as it grows. AI has been implemented extensively in the field of education and has showed great application benefits, which have a significant impact on the teaching process and classroom management. At the current, many nations throughout the world are worried about the implementation of artificial intelligence in education, specifically how to make it valuable to all people. The use of AI in education has resulted in the complete implementation of teaching and learning, as well as the possibility for teaching and learning reform. This article examines and assesses the application of AI in education in detail.

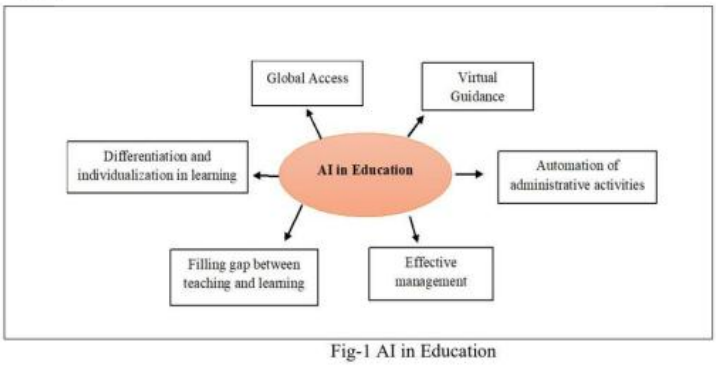

Fig-1 AI in Education

Applications of AI in Education-

Applications for artificial intelligence in education typically involve intelligent tutor-assisted personalized teaching and learning, intelligent assistants like educational robots, children's partners at home, intelligent assessment, mining and intelligent analysis of educational data, learning analysis and learning, digital portraits, etc. Literature studies show that artificial intelligence technology in education has been used in the following aspects:

(i) The Automatic Grading System: The automatic grading system is an expert computer programme with artificial intelligence that replicates the actions of a teacher to grade student work in a classroom. It

71

Digitalization in pharmaceutical care

DIGITALIZATION IN PHARMACEUTICAL CARE

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Pharmaceutical care is an approach to patient care that emphasizes the responsible provision of medication therapy to achieve definite outcomes that improve patients' quality of life. In recent years, there have been several significant developments in pharmaceutical care.To optimize the health of all members of society the promotion of safe, effective and rational medicine use, through pharmaceutical care has become the need of the hour. This article focuses on emerging trends in pharmaceutical care, Digitalization in pharmaceutical care, Digital therapeutics, Health related quality of life and antimicrobial resistance. Overall, the pharmaceutical care industry is rapidly evolving, with new technologies, treatment approaches, and care models emerging. As these trends continue to develop, pharmacists and other healthcare providers will need to adapt and evolve to provide the best possible care to patients.

Pharmaceutical care is increasingly moving from a product-oriented model, where medications are the focus of treatment, to a patient-oriented model that emphasizes the delivery of comprehensive services to patients. In this model, pharmacists and other healthcare providers work collaboratively with patients to manage their health and improve outcomes. There are several ways that pharmaceutical care is becoming

73

Digital therapeutics in current era

DIGITAL THERAPEUTICS IN CURRENT ERA

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A digital therapeutic is a software-based intervention designed to treat or manage a medical or mental health condition. It is a type of digital health technology that uses evidence-based therapeutic interventions to support patient care and outcomes. Digital therapeutics can be delivered through various digital platforms such as mobile applications, websites, wearable devices, and virtual reality. They often use cognitive behavioral therapy (CBT), mindfulness-based interventions, or other behavioral interventions to help patients manage their symptoms, improve their health, and achieve better health outcomes. Digital therapeutics are often used as an adjunct to traditional therapy or medication, but they can also be used as a standalone treatment option. They are typically backed by clinical studies and regulatory approvals, which help to ensure their safety and efficacy.DTx is becoming increasingly popular in the new era due to its ability to offer personalized and cost-effective treatment options.

Digital Therapeutic Core Principles:

Digital therapeutics (DTx) is evidence-based therapeutic interventions that use digital technology to treat, manage, or prevent medical conditions. Evidence-based: Digital therapeutics are grounded in scientific research and clinical evidence. They are designed to deliver measurable outcomes, such as improvements in symptoms, functional ability, or quality of life. User-centered: Digital therapeutics should be designed with the end-user in mind. They should be easy to use, engaging, and accessible to patients, caregivers, and healthcare providers. Scalable: Digital therapeutics should be scalable and have the potential to reach large numbers of patients. They should be designed to integrate into existing healthcare systems, and support the needs of healthcare providers and payers. Secure and private: Digital therapeutics should adhere to strict data security and privacy standards. Patient data should be encrypted, and the platform should comply with applicable regulatory standards, such as HIPAA and GDPR. Continuous engagement: Digital therapeutics should offer continuous engagement and monitoring to support patients in achieving their health goals. The platform should offer ongoing support, feedback, and personalized recommendations. Interoperability: Digital therapeutics should be interoperable and integrate with other healthcare systems, such as electronic health records, to ensure continuity of care. Regular updates and improvements: Digital therapeutics should be regularly updated to reflect the latest evidence-based practices and technologies. The platform should be designed to support ongoing research and development, and incorporate user feedback and insights.

Here are some ways that digital therapeutics is being used in the new era:

- Mental health treatment: DTx can provide mental health treatment for conditions such as anxiety, depression, and addiction. Patients can use apps and online programs to receive cognitive behavioral therapy, mindfulness exercises, and other types of therapy.

Artificial intelligence in bioinformatics

ARTIFICIAL INTELLIGENCE IN BIOINFORMATICS

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Introduction

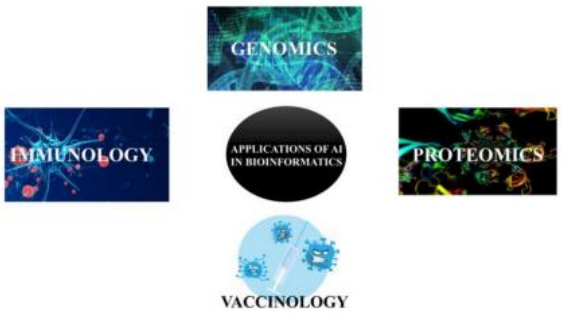
The advancement of Artificial Intelligence (AI) extends the frontiers of new computer concepts, making much science and engineering difficulties a reality. When we can't use a computational tool to produce value or solve issues, its sensitivity and flexibility are meaningless. Machine learning, a popular branch of AI technology, is concerned with gathering and recognizing useful and relevant information from large and complicated databases using various kinds of neural networks. Machine learning algorithms, which are by definition data-hungry, typically excel in real sectors that create and contain a large amount of data. The major applications in which we are most interested include bioinformatics and other fields that generate a great amount of data.

Bioinformatics

Bioinformatics is the investigation of biological data. Basic applications in this discipline include genetic sequence and molecular structure analysis, while advanced applications include biological system modeling. AI in Bioinformatics provide both fundamental and clinical research using biological data matching, protein binding, and function-structure analysis. This analysis aids in the development of medications as well as complicated systems.

Applications of AI in bioinformatics

Advances in fields of immunology and vaccinology depend on innovations in biotechnology, particularly genomics, proteomics, signature tagged mutagenesis, immune modulation, complex system analysis, and computational simulations.



Applications of AI in Bioinformatics

a) **Applications of AI in Immunology**

82

Effect of digital therapeutics on health care industry

EFFECT OF DIGITAL THERAPEUTICSS ON HEALTH CARE INDUSTRY

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The digital revolution has radically changed all sectors of society, and recently it began to affect the health industry in particular, mainly due to the increase in the amount of health information produced by each individual patient. The COVID-19 pandemic has significantly accelerated the digital transformation of health care, and many digital health solutions have become key components of the functioning of the post-Covid-19 system. Physicians are increasingly using consumer digital tools for routine monitoring and diagnosis of a number of diseases. According to IQVIA's (Institute for Human Data Science Reports) July 2021 investment in digital health will grow to a record $2.00. Billion in 2020 have driven primarily by continued acceleration in mergers and acquisitions activity and the growing influence of venture capitalists.

What is digital therapeutics (DTx)?

Digital therapeutics (DTx) are evidence-based, outcome-enhancing health interventions delivered directly to patients through software applications to prevent, manage, alleviate or treat a range of physical and mental illnesses. Some of his (DTx) interventions combine software with hardware such as external sensors and virtual reality (VR) glasses. (DTx) combines a set of mature software technologies guided by clinical insights. (DTx) is not about technology, but how these digital interventions are developed and used. (DTx) is a subdivision of digital health that represents a collection of technologies, products and services in the health and wellness sector.

The term "digital therapies defined as evidence-based behavioural therapies delivered online that can increase the accessibility and effectiveness of health care. The digital therapeutics Alliance (DTA) defines as "the delivery of evidence-based therapeutic interventions to patients, guided by software, to prevent, manage or treat a medical disease or illness.DTA also envisions that all stakeholders, including patients, health care providers and payers, adopt smart and accessible tools to approach various diseases with high quality, safe and effective data measures.

Relationship between digital Health, digital Medicine, and digital therapeutics

The relationship between digital health, digital medicine and digital therapeutics is necessary to avoid confusion between digital health stakeholders and the manufacturers and developers of these products to better position and use these products in the market. Digital Health acts as an umbrella entity covering digital medicine, which also includes DTx. Products classified in each of these categories present different levels of requirements and risks. In addition, their requirements for clinical evidence and formal monitoring differ. Digital health is a broad category of technologies, platforms, and systems that engage consumers in achieving lifestyle, wellness, and health-related goals. Examples of digital health systems include health information technologies, telehealth systems, systems that use consumer health information, and clinical care management tools.

Pharmaceutical care

PHARMACEUTICAL CARE

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Introduction

Pharmaceutical care refers to the process in which a pharmacist works in collaboration with a patient and other professional to develop, carry out, and track a therapeutic plan that will result in a particular therapeutic outcome for the patient. Pharmaceutical care refers to a change in pharmacy practice from one that is patient-oriented to one that is drug product-oriented in order to achieve specific results that enhance patients' quality of life. Pharmacists must take on the roles of caretaker, communicator, decision-maker, teacher, researcher, good leader, leadership, and management in order to deliver pharmaceutical care, which will assist them to provide tailored treatment. Community pharmacists can play a significant role in providing individualized care to patients as a result of the increased frequency of patient visits, particularly in the management of chronic non- communicable diseases (NCDs).

Definition

It is defined as "the responsible provision of drug therapy for the purpose of achieving definite therapeutic outcomes that improve the patient's quality of life".

Process of pharmaceutical

- Develop patient-pharmacist relationships

Gather data Analyze data Determine the issues associated to drugs

Assess the severity of drug-related issues.

Define intended results (clinical or therapeutic), create a treatment plan, and create a monitoring strategy.

Execute the pharmacological care plan and monitor it.

Major functions of pharmaceutical care

- Identifying potential and actual drug related problems.
- Resolving actual drug related problems
- Preventing potential drug related problems

The pharmaceutical care cycles

3D printing in dosage form

3D PRINTING IN DOSAGE FORM

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Years of medication therapy saw patients suited to the manufacturer's dosage recommendations rather than the dose being fitted to the patient's needs. As a result of the incorrect dose, there was a high prevalence of side effects. Nonetheless, there has been a shift in recent years towards customised dosing. Whether patients are being treated with thyroid hormones or insulin, it has been shown that the idea of customised dose benefits the patients. Thyroid hormone therapy is a unique instance of customised therapy. Here, each person's dose adjustment is managed individually by measuring blood levels at predetermined intervals. The therapy can be tailored to the unique patient's age, weight, and medical history by changing the dose.

3d printing technologies

1. Drop-on-solid Printing (DoS)

The Massachusetts Institute of Technology introduced DoS printing, also known as binder jetting or the drop-on-powder technique, for the first time in 1993. DoS printing are used in a variety of industries, including the manufacturing of automobiles, medical devices, and pharmaceuticals, due to the vast range of materials that are suited for it. With DoS, the first FDA-approved drug is printed. As a result, this method attracted a lot of interest in the industrial industry.

2. Pressure-assisted Microsyringes (PAM)

The PAM method is an alternate printing approach for tissue engineering that was created by Vozzi et al. in 2002. A glass syringe, an electronic pressure regulator, and a computer to regulate the printing settings were all included in the developed printer prototype. This prototype has been improved throughout the years, and PAM is now well-known in the tissue engineering research community.

3. Fused Filament Fabrication

S. Scott Crump created the technique in 1988 under the name Fused Deposition Modeling (FDMTM), which Stratasys eventually patented and commercialised. FFF is currently a growing technology used in many different applications. Because of its low-cost equipment and ability to tailor solid dosage forms to the demands of the patient, it has already been used in the medical area and is the most extensively researched 3DP technology for pharmaceutical applications. This approach has been the focus of many pharmaceutical research groups, especially over the last four years. Because of the wide range of applications, there is a wide variety of literature available, particularly on the examination of oral DDS.

4. Selective Laser Sintering (SLS)

The United States' University of Texas at Austin's Deckard and Beaman introduced and patented selective laser sintering (SLS) in 1990. SLS has a wide range of uses, especially in the disciplines of tissue engineering and aerospace, where it is routinely employed to create bone scaffolds.

5. Stereolithography (SLA)

88

Telemedicine an Evolving Health Practice with use of modern tools

TELEMEDICINE AN EVOLVING HEALTH PRACTICE WITH USE OF MODERN TOOLS

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Telemedicine concept is gamechanger in modern healthcaresystem and it offers access to the patient to healthcare services, irrespective of their location or mobility, and to reduce the barriers of distance, time, and cost to access the healthcare services. The COVID-19 pandemic has enhanced telemedicine adoption in India, as many patients turning to virtual consultations to avoid exposure to the virus. Telemedicine can also enable the delivery of healthcare services during public health emergencies or natural disasters, when in-person healthcare services may not be feasible or safe.

Telemedicine refers to the delivery of healthcare services, such as consultations, diagnosis, treatment, and monitoring, using telecommunication technologies such as video conferencing, phone calls, text messages, email, and other digital communication channels. In this review we explore the latest tools used in telemedicine as follows

Telehealth platforms: Telehealth app platforms, such as 'Teladoc' (United State and Canada), 'Amwell' (United State), and Doctor on Demand, provide patients with access to virtual consultations with healthcare providers. These platforms often offer a range of services, including primary care, mental health care, skin care and specialty care. Some examples of telehealth apps that popular in India are Practo, Medlife,Apollo24/7, Portea. Mfine is an AI-powered telehealth app that offers virtual consultations with doctors and specialists. The app uses AI to provide personalized treatment recommendations based on patient data. The key advances in telehealth platforms:

1. **Mobile apps:** Many telehealth platforms now offer mobile apps that allow patients to access virtual consultations and other services from their smartphones and tablets. Mobile apps make it

Artificial intelligence in cloud computing in industrial sector

ARTIFICIAL INTELLIGENCE IN CLOUD COMPUTING IN INDUSTRIAL SECTOR

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Introduction

The term "cloud" in cloud computing refers to a collection of networks; similar to how real clouds are made up of water molecules. The user has unrestricted access to cloud computing modalities at any time. Users often prefer a middleman provider for internet service in cloud computing rather than building up their own physical infrastructure. Users must only pay for the services they have utilized. In cloud computing, the workload may be transferred to lessen the workload.

To use cloud computing, all we need is a web browser like Chrome. The following are the main characteristics of cloud computing:

1. Elasticity and Resource Pooling
2. On-Demand and Self-Service Services
3. Costing
4. Service Quality

Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) are the three types of cloud computing services. Facebook, YouTube, Dropbox, and Gmail are just after instances of cloud computing that people use on a regular basis. It provides scalability, flexibility, agility, and simplicity, which is why its use in businesses is quickly expanding.

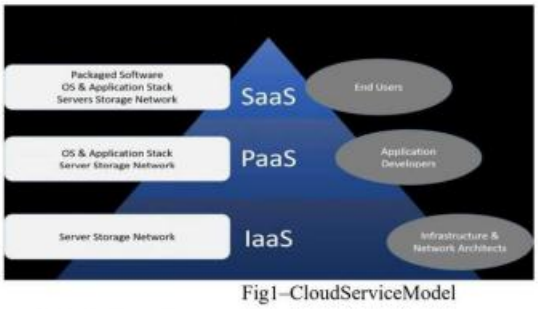

Fig1–CloudServiceModel

Applications of cloudcomputing

1. Ecommerce and Business Applications

Ecommerce is the internet-based sales and services setup that got attention in the 20th century. The recent trends of mobile computing encourage vendors and service providers to take additional benefits from the internet revolution in terms of business. The dawn of mobile apps and ecommerce websites helps entrepreneurs to take risks into new ventures. The e-commerce increased revenues of companies at very minimum investment. The architecture of today's ecommerce relies on the availability of the website's

94

Artificial intelligence in marketing

ARTIFICIAL INTELLIGENCE IN MARKETING

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Introduction

World trends are influenced by technological disruption, where Artificial Intelligence (AI) plays a significant part in the development of machines that can mimic human intelligence through the use of computer and information technology. In digital marketing campaigns where speed is crucial, AI is frequently deployed. To ensure optimal efficiency, AI marketing solutions analyse data and customer profiles to learn how to best engage with clients. They then give them personalised messages at the appropriate moment without help from marketing team employees. Today's digital marketers frequently employ AI to support marketing teams or carry out more tactical jobs that don't require as much human finesse.

To the best of our knowledge, there is no study that covers completely and holistically the body of knowledge produced on AI in the closely related fields of marketing, consumer research, and psychology, despite the fact that the adoption of AI by marketing managers and consumers is growing exponentially. Engineers, IT specialists, and analysts have been drawn to AI up to this point, but it is now expanding beyond of its usual spheres of application and making a bigger impact in the management and marketing sectors.

AI is increasingly widely used in the field of digital marketing as well, working behind the scenes to improve pay-per-click advertising, personalize websites, provide content, forecast behaviour, and more. According to Forbes, 84 percent of marketing businesses are introducing or increasing their use of AI and machine learning in 2018 as marketers swiftly recognize the advantages of the technology. The way businesses are run has been changed by artificial intelligence (AI), and digital marketing is no exception. Businesses are using AI to automate their marketing processes and gain a competitive edge in the market as a result of technological advancements.

The gap between data science and implementation can be closed with the help of artificial intelligence marketing solutions. It used to be impossible to go through and analyze massive amounts of data, but today it's not only possible but also simple. Marketing strategies based on artificial intelligence actually comprehend the world in the same manner that a human would. This implies that the platforms can quickly find meaningful concepts and themes among massive data sets. These platforms can comprehend open form information like social media, natural language, and email responses since AI solutions also perceive emotion and communication like a human.

Artificial Intelligence application in marketing:

1. **Data analysis**

This is the fundamental idea of AI. Data obtained from traditional measurements, consumer engagement, inbound communications, new business generation, and any other inputs from various communication

The challenges, potential and future of digital therapeutics

THE CHALLENGES, POTENTIAL AND FUTURE OF DIGITAL THERAPEUTICS

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Introduction

The healthcare industry now offers stakeholders more options than ever before as it increasingly digitizes. The improvement of treatment and health monitoring both inside and outside of healthcare settings can be attributed to the growing adoption of intelligent medical devices, software programmes, and cloud-based platforms. Nonetheless, innovation is still urgently needed in healthcare. It keeps relying on Digital health technology due to a lack of physicians, illness outbreaks, and the need to reduce supplier prices.

Digital therapeutics (DTx), defined by the Digital Therapeutics Alliance as "evidence-based therapeutic interventions driven by high-quality software programs to prevent, manage, or treat a medical disorder or disease.A wide range of physical, mental, and behavioral health disorders can be helped, treated, managed, or prevented with the use of digital therapies, which are specialized tech-based tool that use specialized software. They can be categorized as any recognized software-based treatment method. Healthcare providers typically work with internal or external developers to plan, build, and execute digital treatments. Smartphone apps are often used to deliver DTx solutions. This makes them more accessible by delivering treatment directly to patient's homes.

History

In 1995, Dr. Joseph Kvedar from Boston, USA, led a program to learn the development and application of technology for delivering care outside the traditional setup of a hospital or a doctor's office while suggesting the "one-to-many model of care." The idea was to expand the physicians' scope by overcoming time, place and personnel limitations that restrict healthcaredelivery while also taking better care of patients with fewer resources by providing access, convenience, and efficiency. This attempt by Dr. Kvedar could be attributed to being among the first made by researchers in the digital health/DTx domain.

- The use of digital products to produce better health outcomes has been documented in the literature since at least 2000. Dr. Tom Ferguson first used the phrase "E-patient" in 1999, but it wasn't until almost ten years later that it became widely known. Since 2012, the word "DTx" has been used formally. Patients who are "equipped, enabled, empowered, and engaged in their health and healthcare decisions" are referred to as "e-patients." Currently, there are an increasing number of e-patients. They are more interested in making decisions about their care and desire to do so. People anticipate their doctors to provide them with well-informed responses to their inquiries about medicine and health technologies. The necessity for digital health and related tools is unavoidable in such a conscious world.
- The Food and Drug Administration (FDA) approved the first prescription digital therapeutic five years ago (PDTx). PDTx are digital therapies that are recommended by a doctor and covered by

Artificial intelligence & machine learning in robotics

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING IN ROBOTICS

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Introduction

Automation, robotics, artificial intelligence, machine learning, and automation are the theoretical and analytical pillars on which robotics and artificial intelligence studies are based. The use of robotics, artificial intelligence, and machine learning technologies can be used in this body of literature as both independent and dependent variables. Independent variables can be used to see how the use of these technologies affects a variety of outcomes, such as effects on labour, productivity, growth, and firm organisation. Dependent variables can be used to examine factors that encourage or discourage the adoption and use of these technologies. It is crucial that organisational researchers characterise any such constructs in their research carefully in order to distinguish these similar but different constructs from one another. An "automatically controlled, reprogrammable, multipurpose manipulator, programmable in three or more axes, which can be either fixed in place or mobile for use in industrial automation applications" is what the International Federation of Robots (IFR), an international industrial group focused on commercial robotics, defines as an industrial robot. Footnote4 While this description is a good place to start other robotics may have different ideas about things like whether a robot must be automatically controlled or can operate on its own, or whether it needs to be programmable. In a broader sense, a robot may be any machine that is able to do difficult actions or activities automatically. General artificial intelligence refers to computer software that has the capacity to reason and act independently; nothing comparable exists at the moment. Software that uses highly complex computational techniques to identify patterns in data and forecast the future is referred to as "narrow artificial intelligence." In this sense, the software "learns" from existing data and is referred to as "machine learning," but this is distinct from real learning.

In manufacturing and production processes, automation refers to the employment of largely automatic, probably computer-controlled systems and equipment that replace some or all of the jobs that were previously completed by human labour. As advancements like the steam engine and the cotton gin can be seen as automating formerly manual operations, automation is not a new idea. Researchers in this field are concerned about the ways and contexts in which increased usage of robotics and artificial intelligence technologies may result in increased automation as well as the possible effects that such increased automation may have on the workforce and organisational design.

Numerous industry analysts contend that the most important and undoubtedly one of the most fascinating areas of robotic research is the application of AI. An intelligent robot might act and carry out all kinds of jobs in a human-like fashion, even if intelligent computers may one day be able to "think" like a human.

103

Potential applications of human machine interface technology in different domains

POTENTIAL APPLICATIONS OF HUMAN MACHINE INTERFACE TECHNOLOGY IN DIFFERENT DOMAINS

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Introduction

A Human-Machine Interface (HMI) is a user interface or dashboard that connects a person to a machine, system, or device. While the term can technically be applied to any screen that allows a user to interact with a device, HMI is most commonly used in the context of an industrial process.

Applications of Human-Machine Interface

1. HMI in healthcare & rehabilitation engineering

In the fields of neurology, neurosurgery, psychology, medical diagnostics, and rehabilitation engineering, HMI technology is currently having a considerable impact. The sensors-based HMI technology is crucial for saving lives, whether it is in essential, life-supporting systems or to monitor the respiratory parameters during dialysis for renal patients. The life support for trauma and transport (LSTATTM) is a stretcher-based self-contained life-supporting unit that provides emergency care during the transport of a patient in critical time to save life in road accidents and injuries that occur in remote areas where full hospital facilities are not available. The HMI-based mobile healthcare devices with quick and reliable findings are widely utilised for diagnostic purposes in the monitoring of diabetes, blood pressure, hypertension, or any other health-related parameter of an individual. Using HMI-based home measures, which accurately track isolated diastolic hypertension, pulse pressure, and systolic hypertension, the total cardiovascular prognosis can be determined.

2. Human prostheses and robotic surgery controls

By combining different tactile and 3D acceleration sensors with real-time communication systems based on EEG pattern identification and feature extraction, the new technical systems of brain control technology-based BCI systems are designed to control the movements of prosthetic hands. BCI now only successfully supports a few key bodily actions because of the limitations and difficulties in pattern identification and feature extraction in EEG data. Due to the lack of synchronised multi DOF control capability and the scarcity of independent controls and repeatability, using surface EMG signals to control a prosthetic hand with greater degrees of freedom is challenging. The implanted electrode approach yields superior outcomes for gaining better control with prosthetic hands. With the use of minimally invasive surgery techniques, this was initially adopted on animals and eventually on humans. The volunteer was able to intuitively and simultaneously control two degrees of freedom with the prosthetic hand using this way, which was not achievable with surface EMG controls.

4.3. Sensory substitution systems

The general functional principle of the sensory substitution system is to transmit the stimuli characteristic of one sensory medium into stimuli of another sensory medium such as touch to vision or any other form.

106

Artificial intelligence in human resource management

ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT

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Introduction

Software, machines, and computers all fall under the umbrella of artificial intelligence. The term "robot" was originally used in the year 1920 during a science fiction play by the Czech author Karel Capek called RossumoviUniverzálnRoboti, which translates to Rossum's Universal Robots, popularly known as R.U.R. John McCarthy coined the phrase "artificial intelligence" in 1956 during his initial academic meeting on the topic. But this journey to gain a deeper understanding of this region had begun much earlier. First, we can discuss the shift in power; client-based services will become more automated, including help desks, chatbots, customer care, and assistance centres. Reconfiguring the connection between professionals and end users will increase availability and reduce time-consuming chores. When it comes to sourcing and purchasing responsibilities, AI will be able to swiftly compile all smart data and produce dashboards that are more effective. Employees must now factor in the help and methods of the machine in their regular work. While they might be replaced by AI in some tasks. Artificial intelligence is useful for a number of corporate processes where it can help to lessen the workload and stress on humans. Business changes quickly and requires quick responses. Organizations can inform their current performance and daily operations by deploying AI systems. Due to mounting commercial pressure, harsh managers recognized the value of artificial intelligence in the workplace. Nowadays, artificial intelligence is being integrated into an organization's whole structure. In the human resource department, for example, all human functions—such as candidate screening, hiring, aligning human resource activities, and performance management—are carried out using AI systems. Yet, there is currently a lack of a general framework for AI application in the human resource management study field, as well as the unique dimensions of human resource management, to examine its specific application. As a result, this article provides a conceptual AI application to the HRM model based on the six dimensions of HRM and the primary technical applications of AI in order to instruct businesses on how to use AI technology to support human resource management. On the basis of the examination of the Leap.ai and Baidu industrial instances, we talk about the hiring and training practices used in AI applications. The suggested AIHRM framework offers conceptual direction and practical application suggestions for the integration of human resource management with AI technology. There are also some suggested areas for future research.

Applications of AI in human resource management

HR departments are using tools like data analysis, artificial intelligence, and cloud computing to simplify resources. The use of artificial intelligence or digital technologies in HR like a chatbot, machine learning, and robot process automation is common practice in human resource management which support recruitment, screening, onboarding, interviewing, etc.

109

Artificial intelligence in life style

ARTIFICIAL INTELLIGENCE IN LIFE STYLE

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Introduction

Artificial intelligence (AI) has recently incorporated itself into our daily lives in ways that we might not even be aware of. It has spread so far that many people are still oblivious of its effects and how much we depend on it.

Many of us pick up our laptop or cell phone as soon as we wake up to begins our day. Our decision-making, planning, and information-seeking processes now all automatically include doing this. Once we've switched on our devices, we instantly plug into AI functionality such as:

- face ID and image recognition
- emails
- apps
- social media
- Google search
- digital voice assistants like Apple's Siri and Amazon's Alexa
- online banking
- driving aids – route mapping, traffic updates, weather conditions
- shopping
- leisure downtime – such as Netflix and Amazon for films and programs

A crucial aspect in business is and will continue to be global communication and networking. Making use of data science and artificial intelligence is crucial, and its potential development trajectory is unbounded.

Application:

Greater consumer brand associations, according to the CBBE idea, increase the perceived value of brands. Increased perceived brand value strengthens consumer faith in the brand. As a measure of consumer-brand interaction, it has been operationalized as a multi-dimensional construct largely composed of brand association, perceived value, brand trust, and brand loyalty. Greater consumer brand trust is correlated with higher brand loyalty. Consider that consumer brand meaning and a favourable brand connection are both essential drivers of brand equity that may be achieved through social approbation. The respect earned as a result of brand ownership in a referent community, which is enhanced by a smartphone's design, favourably influences user brand association. Luxurious brands are therefore very sought-after by Personalization as a process interlinks customers and marketers and solidifies the relationship between them. Positive connections have a role in encouraging customer engagement (CE) behaviours. Consumer relationships that also involve emotional bonding move to a level of engagement. One of the main reasons for AI's appeal is said to be the high level of personalization it provides.

Artificial intelligence in social media

ARTIFICIAL INTELLIGENCE IN SOCIAL MEDIA

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Introduction

Artificial intelligence helps social media platforms control the pool of information and make sense of it in order to understand new trends, user behaviour, and their interests, find and block abusive content, and for a variety of other purposes. AI also plays an important role in social media marketing by allowing brands to measure enterprise performance and identify users who can be converted into potential customers. AI has the potential to revolutionize how brands market on social media platforms such as Facebook, Instagram, and Twitter. It can automate many time-consuming social media management tasks and even perform large-scale social media monitoring. AI allows social media marketers to get closer to their target audience and learn about their preferences. This helps them target their ads in a better way as well as create content in a better way.

Nowadays, social networks directly remind us of well-known websites in this field, such as Facebook, Twitter, and Instagram. Social networks are an essential component of social media. We can share all of our daily activities with a group of people who live in a virtual world thanks to social networks. Furthermore, we must distinguish between a social network and social media. Because of their ability to connect people and share diverse information, media such as television, radio, and even the press are social networks. However, because they lack the ability to interact with viewers, these media are limited and static. As a result, we refer to them as static media.

We now use the terms social network and social media interchangeably without realizing the distinction. To put it simply, social media encompasses social networks and forums, blogs, and even question and answer platforms. In conclusion, social networks are only a subset of social media. Today, we can define social media as a mode of communication characterized by social interactions between users and the use of content as a sharing tool. This definition applies to social networks as well. Each individual can now create a personalized message with unique content in the form of text, photo, video, etc. A network is considered social if it allows users to share content in various forms with other network users. Furthermore, social networks allow users to add friends and form new relationships in order to build a diverse contact list. Finally, social media offers a plethora of tools that allow Internet users to express themselves, have fun, learn new things, form new communities, and share their thoughts.

Applications of Artificial Intelligence in social media-

A. Chatbots -

A chatbot is a piece of artificial intelligence software that can maintain a conversation or discussion with a user using natural language on various platforms such as email applications, websites, or mobile applications. Chatbots respond as highly advanced and highly promising expressions of human-machine interaction. Chatbots, on the other hand, are merely a basic evolution of a question-and-answer system

116

Artificial intelligence in agriculture

ARTIFICIAL INTELLIGENCE IN AGRICULTURE

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Introduction

John McCarthy first suggested a study based on the premise that "every element of learning or any other characteristic of intelligence can, in theory, be so precisely described that a machine can be made" at the 1955 Dartmouth Conference, which is where the term "Artificial Intelligence" was first used to replicate it. Due to its ability to address issues that humans struggle to handle effectively, artificial intelligence (AI), one of the core areas of computer science, has today permeated a number of industries, including manufacturing, healthcare, education, and finance. Humans are still astounded by what Intelligence is capable of.

In 1997, IBM's Deep Blue defeated world chess champion Garry Kasparov, and in 2016, AlphaGo defeated world Go champion Lee Sedol. These victories serve as examples of how artificial intelligence (AI) can outperform the majority of human brainpower.

Agriculture, a crucial aspect of any nation, continues to be one of the biggest obstacles at the moment.Approximately 820 million individuals worldwide suffer from hunger today. Furthermore, 70 percent more food must be created because the world's population is projected to increase to 9.1 billion in 2050. In addition to the anticipated expenditures in agriculture, additional investment will be required because without it, by 2050, 370 million people would go hungry. In addition, it is anticipated that there will be an expanding gap between the water supply and demand, and by 2025, it is likely that over three billion people will face water stress.

Artificial intelligence in e-commerce

ARTIFICIAL INTELLIGENCE IN E-COMMERCE

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Introduction

Artificial intelligence is usually associated with the artificial fabrication of human minds that are capable of learning, planning, perceiving, and processing natural language. It focuses on the theory and creation of computer systems that can perform tasks which need human intelligence, like speech recognition, visual perception, decision-making, and language translation. The Technology sector known as artificial intelligence mostly uses machines designed to function like humans. The father of artificial intelligence, John McCarthy, defined it as "the scientific and technical knowledge of developing smart computer programmes in particular". There is now no doubt that artificial intelligence is the way of the future and gradually it will begin to impact every aspect of human life. Online platforms that cover a wide range of Internet services, such as marketplace services, search engines, social networks, application stores, communication services, and payment systems, are the significant components in e-commerce.AI has been used in the financial and e-commerce sectors with the main goal of designing standard, reliable product quality control methods and the search for new ways to reach and serve customers, while also maintaining low cost. These goals include a better customer experience, effective supply chain management, improved operational efficiency, reduced mate size.`

The Application of Artificial Intelligence Technology in Electronic Commerce –

In the field of electronic commerce, artificial intelligence technology has gradually developed into a powerful tool to boost sales growth and maximize e-commerce operations. Artificial intelligence technology is becoming increasingly mature and is dramatically changing the way people work and live. The following are the main ways that artificial intelligence is now being used in the world of e-commerce:

- **Chatbots**

To improve consumer satisfaction and offer better services to clients, the majority of financial and e-commerce websites use chatbots. Artificial intelligence and machine learning techniques were used in the development of these chatbots. They have the capacity to act in human-like ways. These chatbots are capable of learning, and based on the availability of past data, they can give customers the best recommendations. Chatbots can assist customers in finding the right products, checking the availability of products, comparing different products, and ultimately assisting customers with payment. The chatbot can also help customers in getting in touch with the appropriate customer support representatives if they have any complaints or inquiries. Customers can communicate with the robots via text, voice, and even images.

- **Recommendation Engine**

Antidrug antibodies

ANTIDRUG ANTIBODIES

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Monoclonal antibodies are antibodies that are identical and are each a clone of a single parent cell. They are derived from one type of immune cell.The introduction of mAb has contributed a lot to various diagnostic applications such as Inflammatory Bowel Disease (IBD), Multiple Sclerosis(MS) and Rheumatoid Arthritis(RA). They were first produced by the fusion of myeloma cells and splenic cells from a mouse which was immunized against an antigen.

mAb were invented by George Kohler and Cesar Milsten. Later,in 1988 Greg Winter pioneered the technique to humanize monoclonal antibodies.Treatment with mAbis not designed in order to "cure", but to target and modulate specific immune pathways. Hence, discontinuation of mAb treatment may lead to the re-appearance of the disease.

APPLICATIONS:

Diagnostic Applications:

mAbs in Biochemical Analysis:

- Pregnancy
- Cancers
- Hormonal disorders
- Infectious diseases

mAbs in Diagnostic Imaging:

- Cardiovascular diseases
- Cancers
- Immunohistopathology of cancers
- Hematopoietic Malignancies
- Bacterial Infections

2. Therapeutic Applications:

1) **Direct Therapeutic Agents:**
   - In destroying disease-causing organisms
   - In the treatment of cancer
   - In the immunosuppression of organ transplantation
   - In the treatment of AIDS
2) **Targeting Agents in Therapy:**
   - Immunotoxins
   - Drug delivery
   - Dissolution of blood clots
   - Radio immunotherapy

127

Liquid roll-on formulation having foot deodorizing and antimicrobial activity

LIQUID ROLL-ON FORMULATION HAVING FOOT DEODORIZING AND ANTIMICROBIAL ACTIVITY

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Abstract: Sweating is a biological function that helps to synchronize body temperature. The most common areas of sweating include armpit, face, palm, and sole of feet. Like armpit odour, foot odour is found to be large issue. Foot odor is caused by gram positive microbial-metabolism. Flora on the surface of the foot's skin is capable of breaking down a lipid and protein filled fluid secreted on the skin by exocrine glands, particularly sebaceous and apocrine glands. The lipids and proteins present in this secreted fluid are broken down by microbial enzymes called lipases and proteases. The existence of one or more of *Staphylococcus epidermis, Bacillus subtilis and Propionibacterium Acnes* on foot surface may trigger the generation of isovaleric and propionic acids, which in turn can cause a distinctive odor of feet. The present study evaluated a combination of natural oils against the odour causing bacteria, namely, *Bacillus subtilis* and *Staphylococcus* epidermidis. İt is found that a mixture of lemon oil, neem oil and tulsi oil when formulated into a liquid roll-on formulation exhibited synergistic antibacterial activity. The liquid roll-on formulation was prepared using different polymers such as Carbopol, Xanthan gum, HPC & PVP/VA copolymer and tested for appearance, homogeneity, viscosity, pH, spreadability, color, physical stability, antibacterial activity, irritation test, and deodorizing performance. The liquid roll-on formulation found to have desired properties such as clarity, spreadability, quick absorption post application, and non-stickiness. The liquid roll-on formulation also demonstrated antibacterial efficiency against the bacteria which causes a strong foot odour.

Keywords: Foot odour; Lemon oil; Tulsi oil; Neem oil; Liquid Roll-on; *Bacillus subtilis; Staphylococcus epidermidis*.

1. Introduction

Foot odour is known to be triggered by the secretion of glands such as eccrine and sebaceous glands. The secretion contains various amino acids, including serine, alanine, leucine, isoleucine and valine. Amongst these amino acids, valine, leucine, and isoleucine are accountable for forming foot odour; serine and alanine are considered basic amino acids responsible for moistening sweat. The amino acids such as leucine, valine, and isoleucine are broken down by microorganisms present on the skin surface into lower fatty acids, which are volatile in nature. It is known that gram-positive bacteria metabolism causes a strong foot odour. Microbial enzymes such as proteases or lipases disrupt the secretion of protein and lipids into fatty acids and amino acids that get vaporized. These volatilized compounds are perceived as unpleasant odorants. Amoore and Kanda *et al*., found that isovaleric acid appears to be a crucial odorant. Further, Sawano and Ara *et al*. found that foot odour consists of isovaleric acid and various free fatty acids such as propionic, isobutyric, and butyric acids. Further, a mild foot odour was observed in sensory tests in human-being by utilizing cultures of *S. epidermis*, *C. minutissiumum* and *S. hominis,* amild foot

131

A case study report on anorectal fistula

Abstract Code: MCOP-14

A CASE STUDY REPORT ON ANORECTAL FISTULA

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Abstract

Anal fistula is a frequent benign illness; however, the complex variety poses a challenge in clinical practice. This case was notable for its extended medical history and complicated clinical presentation. The disease's appearance is complex and unusual due to its long-term development. We made a precise diagnosis of anal fistula using medical imaging examinations, and subsequently performed a fistulectomy to correct it. During the post-operative period, the patient made a good recovery. The treatment of

Mednme: apersonalizede-health toolfor patients and health care providers

Abstract Code: MCOP-16

MEDNME: APERSONALIZEDE-HEALTH TOOLFOR PATIENTS AND HEALTHCAREPROVIDERS

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Abstract

Introduction: The innovations in e-Health applications for the management of personal health, introduce a new era for the people and healthcare providers, aiming to optimize and manage the drug therapy for disease, towards advanced personalized tools.Empowerment of patient is associated with strategies that allow the people to gain control over their own health and lives.

Objectives:It is a mobile application for the people, in order to upload and store medical records, has pill reminder, daily log book for health related notes and drug counselling in simple English language etc. This application also has Hindi version of it for 141 crores Indian citizens. This also addresses the needs of pharmacists during the dispensing of prescriptions to patients and also helps physicians and other healthcare providers for

Epidemiological study of anti- snake venom use in snake bite patients

Abstract Code: MCOP-19

EPIDEMIOLOGICAL STUDY OF ANTI-SNAKE VENOM USE IN SNAKE BITE PATIENTS

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Abstract

Introduction: Snake bites are the common cause of morbidity and mortality in tropical nations. It is a serious problem in many sectors &becomes an occupational disease. In India, there are approximately 236 species of snakes the most of which are non-poisonous and 13 known species that are toxic and responsible for most of the venomous bites lead to cause panic reaction and local injury.

Objective:

1. To perform the epidemiological study for snake bite patients and to evaluate whether or not ASV was given to patients who had been treated in hospitals.

2. To study and compare the low and high dose of ASV given in the patients for thetreatment.

Methodology: 156 Patients with history of venous snake bite with signs of envenomation were included in the study after taking proper informed consent. Data were collected on pre-designed, pre-tested, and structured questionnaire form and master chart by

Type D personality and its association with myocardial abstract code: mcop-20 infarction patients

interviewing the study. Immediately, low dose (30 to 50 ml) of ASV was started and patients were kept under intensive observation with supportive care & titrated up to 500 ml.

Result: Among the 156 patients, there were 74 males and 82 females. 91 patients had vasculotoxic, 43 patients had neurotoxic and 20 patients had mixed type of envenomation. In study, Average dose of ASV given was 48.11 ml.

Conclusion: The epidemiological study shows the epidemics of the ASV use, those who came to the hospital earlier needed a low dose of ASV to save the lives of victims of poisonous snake bites with proper support management.

Keywords: Anti-Snake Venom (ASV), Snake bites,epidemiological study

Abstract Code: MCOP-20

TYPE D PERSONALITY AND ITS ASSOCIATION WITH MYOCARDIAL INFARCTION PATIENTS

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Abstract

Introduction: Type D (Distress) personality is a newly Identified risk factor for cardiac outcomes can also deteriorate the health outcomes of myocardial infarction patients. Type D personality is based on two global stable personality traits including negative affectivity (NA) and social inhibition (SI). Negative affectivity is the tendency to experience various negative emotions.Social inhibitions is the tendency to inhibit the expression of emotions in social interaction.

Objective: Estimate prevalence and Relationship between type D personalities in myocardial Infarction patients.

Methodology: In this study we had selected patients of acute myocardial infarction and DS 14 questionnaires and a proforma were filled by the consenting patients. NA and SI score was calculated based on the responses recorded in the DS 14 questionnaire and patients were analysed for their psychological status. If the patient was having NA score>10 and SI score >10 then that person was considered as having Type D personality.

Result: Total 205 patients were followed among which 153 were male and 52 were females. Prevalence of type D personality was found to be 15.12 and the prevalence of negative affectivity was 50.73 and social inhibition was 17.56.

Conclusion: These findings focus a new approach on type D and suggest a role in explaining link between type D and poor prognosis in myocardial infarction patients. NA and SI are global personality traits that may have special association with hypertension and coronary diseases.

Keywords: DS 14 questionnaire, Type D (Distress) personality, negative affectivity (NA) and social inhibition (SI)

Abstract Code: MCOP-21

MATERIOVIGILANCE PROGRAM OF INDIA

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Toxic pesticides drift- a study of 20 cases

technologies for the treatment and sometimes digital biomarkers are also used. In UK, Germany, France this therapy is been utilized by some of the patients. Telemedicine is the delivery of the healthcare at the distance and the most important mediator between the clinical trials and new drug discovery. Rapid and widespread adoption of digitalization of healthcare through DTx& telemedicine are the boon for the golden era of the healthcare system worldwide. Many health apps on smartphones, standards for data storage, opt out option from information, technical security, data audits, and data sharing needs to be executed in absolute manner.

Keywords: Digital therapeutics, Telemedicine

Abstract Code: MCOP-28

PHARMACEUTICAL CARE

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Abstract

The pharmaceutical care is defined as "The responsible Provision of chug therapy for the purpose of achieving definite Therapeutic outcomes that improve the patient's quality of life. Pharmaceutical care is a practice in which the practitioner takes responsibility for a patient's drug-related needs, and is held accountable for this commitment. In the course of this practice, responsible drug therapy is provided for the purpose of achieving positive patient outcome. The types of pharmaceutical care includes SOAP Analysis, CORE pharmacotherapy, FARM Analysis, PRIME pharmacotherapy Plan, P-Pharmaceutical based problem, patient not receiving a prescribed drug, Routine monitoring (Lab Data), R-risk, to patients-ADR.

Keywords: Pharmaceutical Care, Pharmacotherapy Plan

Abstract Code: MCOP-29

TOXIC PESTICIDES DRIFT- A STUDY OF 20 CASES

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Abstract

Introduction: A pesticide is a substance used in agricultural production to control pests/disease. It can lead to accidental poisoning, poisoning by oral route, or while spraying in field. All patients developed toxic effects of pesticide spray while spraying plants that were almost as tall as themselves. Airborne movement of pesticide to unintended targets is called pesticide drift.

Objective: To study toxic effects of pesticides due to inappropriate handling.

Methodology:An observational study of 20 consecutive cases was admitted to Medicine wards in 5 months due to toxic effects of organophosphates while spraying. All cases were medico-legal; history was taken, about victim's education, pump used, protective measures taken, weather conditions, type of crops, approximate height of plants in relation to victim's height. All patients consented to be part of study.

Result: The age group of patients were 17-50 years.15% Patient were literate, none of the educated individual had agricultural knowledge. Average height of victims was 165cm. In 12

Phytochemical evaluation, pharmacological activities and toxicological profile of impatiens balsamina

cases, crops were about 6 to 8 inches above the patient's height. In 8 cases, they were at face level.95% patients had mild to moderate form of illness from which they recovered.Maximum days of hospitalization were 9 days, minimum 2 days and average is 1 day.3 patients had required ventilator support out of which 2 (10%) survived and 1 (5%) succumbed.

Conclusion: Drift of pesticides while spraying is common and can lead to serious consequences, even death. Precaution should be taken. Operative use of pesticides should be provided.

Keywords: Pesticide Drift, Organophosphates

Abstract Code: MCOP-30

DIGITAL THERAPEUTICS AND TELEMEDICINE

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Abstract

Digital therapeutics refers to all technologies that interact with patients for health-related purposes. Digital Therapeutics provides evidence-based therapeutic interventions utilizing high quality software programs to prevent manage or treat medical disorders and diseases. They are used alone or in combination with drugs, devices, or other therapies to optimize patient care and health outcomes. Telemedicine uses electronic and telecommunication technologies to share medical information even when the patient and doctor are not in the same room. Telemedicine uses virtual mode for interaction which is very beneficial as it avoids cross-contamination of infectious diseases.

Keywords: Digital Therapeutics, Telemedicine, Telecommunication

Abstract Code: MCOP-31

PHYTOCHEMICAL EVALUATION, PHARMACOLOGICAL ACTIVITIES AND TOXICOLOGICAL PROFILE OF *IMPATIENS BALSAMINA L*

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Abstract

Impatiens balsamina (rose balsam) belonging to the family balsaminaceae is an annual herb which is native to south East Asia. It has been used as cathartic, emetic, diuretic and has been used in treatment of wounds, inflammation of skin and jaundice. Various studies on this plant reveal the presence of flavonoids, naphthoquinone, quinones, triterpenoid, saponins, alkaloids and leucoanthocyanins. The plant and its different parts like seed, stem, leaf and flowers possesses various pharmacological activities like antifungal, antibacterial, antioxidant and antipruritic properties. This comprehensive review summarizes all the available information on *Impatiens balsamina* from various sources including PubMed, Elsevier, Springer link, Science direct, Scopus along with various literature reviews from 1958 to 2022 in order to provide updated information on *Impatiens balsamina*for future investigational works.

Keywords: *Impatiens balsamina* (rose balsam)Phytochemical Evaluation, Pharmacological Activitiy

171

Phytochemical evaluation and pharmacological activities of neolamarckia cadamba

Abstract Code: MCOP-32

PHYTOCHEMICAL EVALUATION AND PHARMACOLOGICAL ACTIVITIES OF *NEOLAMARCKIA CADAMBA*

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Abstract

The *Neolamarckiacadamba* is one of the important medicinal plants belonging to the Rubiaceaefamily.*N. Cadamba* occurs naturally from Sri Lanka, India, Nepal and Bangladesh eastward through Malaysia to New Guinea. It is crucially significant as it has the largest number of phytochemicals and secondary metabolites (viz., N. cadambagenic acid, cadamine, quinovic acid, β-sitosterol, cadambine, etc.) having pharmacological and biological properties like antidiabetic, analgesic, antipyretic, anti-inflammatory, antidiarrheal, diuretic and laxative, etc. It can be used as an alternative to various synthetic chemical compounds in the prevention as well as the treatment of several incurable diseases. Moreover, the*N. cadamba* is one of the ornamental plants with religious significance. This comprehensive review summarizes all the available information on *Neolamarckiacadamba* from various sources including PubMed, Elsevier, Springer link, Science direct, Scopus along with various literature reviews till 2022 in order to provide updated information on *Neolamarckiacadamba*for future investigational works.

Keywords: Neolamarckiacadamba, Phytochemical Evaluation, Pharmacological Activitiy

Abstract Code: MCOP-33

HEALTH RELATED QUALITY OF LIFE

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Abstract

A multi-dimensional concept called Health-related Quality of Life (HRQOL) is frequently used to analyse the health state affecting one's quality of life. We have selected Rheumatoid Arthritis being the 2nd most prevalent autoimmune disease and its diagnosis by the application of Artificial Intelligence.

Objective:This study created and evaluated a strategy using Artificial Intelligence for merging the measures into a summary score in order to address this issue. Health-related quality of life is an effective tool of general health as it collects data on people's physical and mental health statuses as well as the effects of health status on quality of life.

Methodology: This involves methods to diagnose Rheumatoid Arthritis. Self-perceived health status, physical and emotional functioning, and other variables are frequently used to measure HRQOL.The field will progressively use artificial intelligence. Payers, care providers, and life sciences organisations currently use a variety of AI technologies.

172

Medical health card

Methodology :Typicalformulaforinsulin oral filmsincludesthefollowinghowever not limitedto

1. 5 to 20 wt % permeationenhancers
2. 0.5 to 10 wt % insulinorinsulinanalogue
3. 10 to 30 wt % plasticizer
4. 40 to 90 wt % watersolubleandhydrophilicpolymer

Results: Thethin film is anotheraspect of theinventionadvantageouslyusedfortreatingalldia betesexampleType 1, type 2, congenitaldiabetesandgestationaldiabetes.

Conclusion: Since thedemandsideforpharmaceuticaltreatment has beenchangingandnowadaystheapproachesis morepatientcentredandqualitybasedsoeventually it wouldonly be necessarytoevidenceproperlytheadvantages of insulin film as portablesafeandefficaciouswithtargeteddeliveryw hileofferingconvenientPharmaceuticaldosage form.

Illustrate film weighingincludefrom 10 mg to 30 mg.

Thefilmsmaybeappliedbuccalpalatalorsublinguall y. Theproducedthin film can be packagedexampleindividually a singlepouchessingleunitdoses.

Alternativelyinsulinnanoparticles can be preparedbythenanoprecipitationbased on theacidbaseneutralizationmethodandthenencapsu latedintothinfilmstherebyusing a simpleprocessintegration of nanoparticleand film formingprocessesandadopting a bottomto top Nanoparticlemanufacturingapproach

Keywords: İnsulin Films, Type 1, type 2, congenital diabetesand gestationaldiabetes.

Abstract Code: MCOP-36

MEDICAL HEALTH CARD

Gaurav Memane, SumedhaSavane, Vaishnavee Deshmukh, Mr. Devendra Visokar; Dr. Anjali Kumbhar; Dr. Sunita Pawar

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Abstract

The aim of this proposed e-health card system is to improve efficiency, access and accountability of health care services. Medical health card is a card which consists of complete demographic details, past medical and medication history, social history and present medical condition treatment and reports of the patient which can be scanned by unique QR code and is accessible in any normal or emergency condition. Approximate number of MD doctors in Maharashtra 10Lakhs 41k with atleast 50-60 OPD patients per day. Data isn't stored. Patients doesn't keep prescription properly and unaware of their own medical, medication and allergic history. This health card will be help to overcome all the noted problems and will helpful in accidental, emergency and chronic disease patient.Among the given sample size of 100 ; 40 people were not familiar with their clinical condition.Out of which 9.6% were unknown to their disease while 8.4% were unknown to their allergy.The most common unknown factor was their medical/medication history which scored the highest percentage that is about 16.4%. Apart from this scenario any medical emergency requires the basic information of patients like their Blood group. In this study 5.6% people found to be in this need of information.This card

Effects of subacute administration of 4- hydroxyisoleucineon cognitive, suicidal, and sexual behavior in social isolation stress-induced olfactory bulbectomized rats

standardized fenugreek seed extract (INDUS1520) for skin applications.

Methods: The INDUS1520 is characterized and standardized for total and select groups of flavonoid glycosides. The aqueous solution of INDUS1520 was evaluated using *in vitro* assessments at concentrations (sensitization: 12 samples ranging from 0.20 µg/ml – 400 µg/ml, cutaneous irritation: 16 mg +/-2 mg , and eye irritation: 1%, 3% and 5 %) and *in vivo* clinical safety at the concentrations of 1%, 3% and 5 % (primary patch test and human repeat insult patch test, HRIPT) as per the international guidelines and reported procedures.

Results: The total flavonoid content of INDUS1520 was 94.08% (i.e.940.8 mg quercetin equivalent (mg QE) per g (colorimetric method) and 38.55% (high-performance liquid chromatography method). The content of selected flavonoids from group 1 (vitexin+ isovitexin+vitexin 2-O-rhamnoside) was 22.73 and Group-2 (vicenin 1+vicenin 2+vicenin 3+schaftoside+isoschaftoside+orientin+iso-orientin) was 15.82%. INDUS1520 at tested concentrations did not show skin sensitizing, cutaneous irritant and eye irritant properties during *in vitro* and human clinical safety testings (primary patch test and HRIPT).

Conclusion: The present study demonstrated the non-irritant and non-sensitizing nature of INDUS1520 on the skin and eyes and suggested robust safety for development toward potential skin care or dermatological applications.

Keywords: flavonoid glycosides, fenugreek seed extract, dermatological application

Abstract Code: MCOP-39

EFFECTS OF SUBACUTE ADMINISTRATION OF 4-HYDROXYISOLEUCINEON COGNITIVE, SUICIDAL, AND SEXUAL BEHAVIOR IN SOCIAL ISOLATION STRESS-INDUCED OLFACTORY BULBECTOMIZED RATS

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Abstract

Objective:Evaluation of effects of subacute oral administration of (2S, 3R, 4S)-4-hydroxyisoleucine (4-HI) on cognitive, suicidal, and sexual behaviour in social-isolation stress-induced olfactory bulbectomized (Iso-OBX) in rats

Methods:Bilateral olfactory bulbectomy (OBX) was induced in 30 Sprague Dawley rats. After a recovery period of 14 days, the rats were randomized into five groups of 6 rats each and stressed with social isolation (individual housing). The rats were orally treated with either vehicle (OBXIso), a standard antidepressant, fluoxetine (30 mg/kg) or 4HI (10, 30, 100 mg/kg) once a day from day-14 onwards. A separate group of 6 rats with social isolation but without OBX (ShamIso) was also maintained. The sexual behaviour (latency and frequency of mounting and Intromission), cognitive/spatial memory-related (reference and working memory in a radial maze), and suicidal behaviour (aggression, irritability, and passive avoidance) parameters were measured on day-28, day-32,

176

Mass spectroscopy in bioanalytical method development

subjected to wet lab synthesis, followed by an *in vitro* biological evaluation. The structures of all the synthesized compounds were confirmed by spectral analysis and were subjected to The Aldoketoreductase inhibition assay enzyme assay. Chlopropamide was used as a standard for the assay, and it displayed 0.018 µM IC_{50} value. Compound 1f, 1g, 1i, 1j, and 1v exhibited 15.55, 15.85, 13.95, 14.48, and 13.45 µM IC_{50} values, respectively. The proposed 15 compounds of sulphonylurea with a coumarin ring system were synthesized in good yield using the developed schemes. All the reactions were monitored by the TLC one spot technique and the structures of the synthesized compounds were confirmed by IR, 1H NMR, 13C NMR, Mass spectra, and C H N analysis.

Keywords: Aldo-Keto Reductase (AKR) inhibitors, Type 2 diabetes mellitus,Coumarin Derivative

Abstract Code: PC-04

MASS SPECTROSCOPY IN BIOANALYTICAL METHOD DEVELOPMENT

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Abstract

Modern bioanalytical chromatography-mass spectrometry has so many potential applications that any attempt to standardise them becomes arbitrary. It would be more accurate to state that chromatography-mass spectrometry finds use in every field of biology and medicine. Understanding the pharmacokinetics of any drug and/or its metabolites requires the development and validation of bioanalytical methods. Liquid chromatography-mass spectrometry (LC-MS/MS) is a method that combines mass spectrometry and liquid chromatography (or HPLC). For the qualitative and quantitative examination of drug compounds, drug products, and biological samples, laboratories frequently use (LC-MS/MS). This article discusses different extraction methods, such as liquid-liquid extraction, solid phase extraction, and protein precipitation, which are crucial for sample preparation and LC-MS/MS sample detection.

Modern bioanalytical methods are now multitargeted in terms of the analytes they target and standardised in terms of the matrices they use. the capacity of chromatography to detect traces of analytes in the presence of a large number of biomatrix macro components Current applications of metabolomics include clinical diagnosis and anti-doping control. Procedures for preparing biological samples for instrumental analysis are being developed and streamlined to increase adaptability.

Keywords: bioanalytical chromatography-mass spectrometry

Abstract Code: PC-05

TACRINE DERIVATIVES AS POTENTIAL ACETYLCHOLINE ESTERASE INHIBITORS: PRE-ADMET ANALYSIS AND COMPUTATIONAL STUDY

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179

Tacrine derivatives as potential acetylcholine esterase inhibitors: pre-admet analysis and computational study

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Abstract

Objectives: To discover and develop some Tacrine analogues as potential Acetylcholine esterase (AChE) inhibitors in light of the fact that N-substitution on tacrine reduces its pre-existing side effects and improved inhibition. The goal of this work was to perform computational study of new Tacrine derivatives for Pre-ADMET and molecular docking in order to identify prospective lead molecules.

Materials and Methods: Each of the proposed derivatives was subjected to an *in-silico* for Pre-ADMET study and virtual screening by molecular docking. Molecules meeting all of the criteria and had a higher binding affinity with the Acetylcholine esterase enzyme were discoved. Research on the binding interaction of the most effective drugs was conducted using AutoDockmolecular docking tool. Novel Series of N-substituted Tacrine was designed by considering all the data analyzed from literature survey. It was observed that m-4, m-1, m-6, m-7and m-12 displayed much less binding free energy (PDB ID: 7E3I) than the reference inhibitor and all derivatives demonstrated drug-likeness properties with less toxicity by pre-ADMET study. This article described the designing of fifteen novel N-substituted tacrine derivatives. All were subjected to Pre-ADMET study and molecular docking. The results showed that all compounds exhibited promising AChE inhibitory activity. Also, from pre-ADMET study it can be concluded that all designed molecules showed Drug-likeliness. The above findings serve as models for future research and derivatization of AChE inhibitors.

Keywords: Acetylcholine esterase (AChE) inhibitor,N-substituted Tacrine

Abstract Code: PC-06

GREEN SOLVENTS: AN ECO-FRIENDLY APPROACH IN ANALYTICAL CHEMISTRY

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Department of Pharmaceutical Chemistry, PES's Modern College of Pharmacy, Nigdi, Pune

Abstract

Since the last three decades, chemical research has grown exponentially, along with the use of hazardous and toxic solvents, reagents, and reactants, causing long-term environmental harm. Environmental concerns are currently a popular subject for laboratory investigations. It is crucial that all analytical experiments be secure and considerate of the environment. There are several improper procedures used in small-scale experiments in the field of analytical chemistry, which could be detrimental to the analyst and the environment. An unregulated disposal of organic solvent wastes is one of these methods. There has been a modest trend towards using green chemistry concepts in research, development, and implementation as a result of new inventions and advancements in the field. Yet, due to recent advancements in materials and techniques that complement the green approach, the usage of green analytical chemistry has significantly increased during the past ten years.

Keywords: Green solvent, green analytical chemistry, Ecofriendly

Green solvents: an eco-friendly approach in analytical chemistry

Savitribai Phule Pune University, Pune, Maharashtra, India.

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Objectives: To discover and develop some Tacrine analogues as potential Acetylcholine esterase (AChE) inhibitors in light of the fact that N-substitution on tacrine reduces its pre-existing side effects and improved inhibition. The goal of this work was to perform computational study of new Tacrine derivatives for Pre-ADMET and molecular docking in order to identify prospective lead molecules.

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Abstract Code: PC-06

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Sheetal Chaudhari*, Dr. V. V. Chopade

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Abstract

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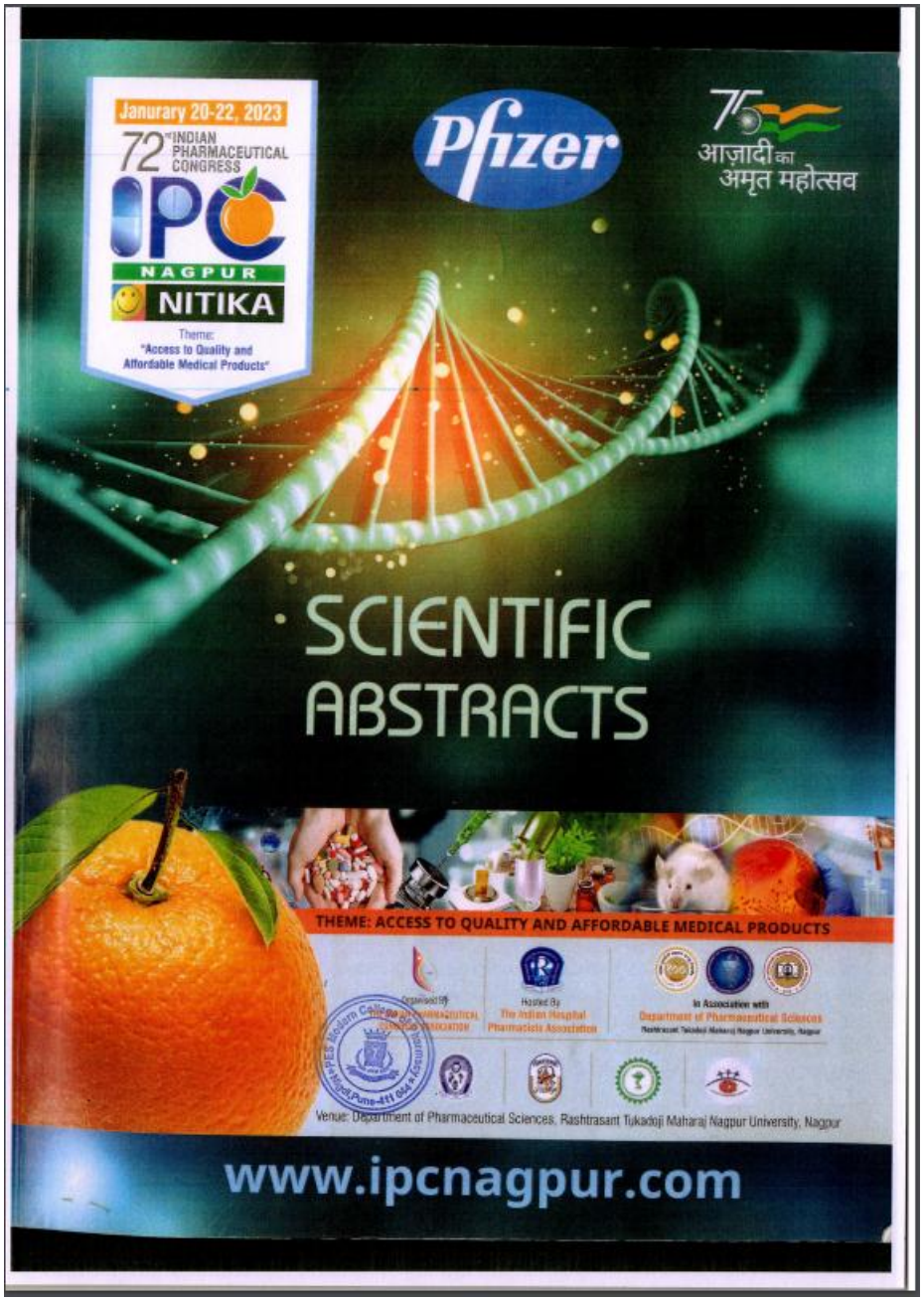
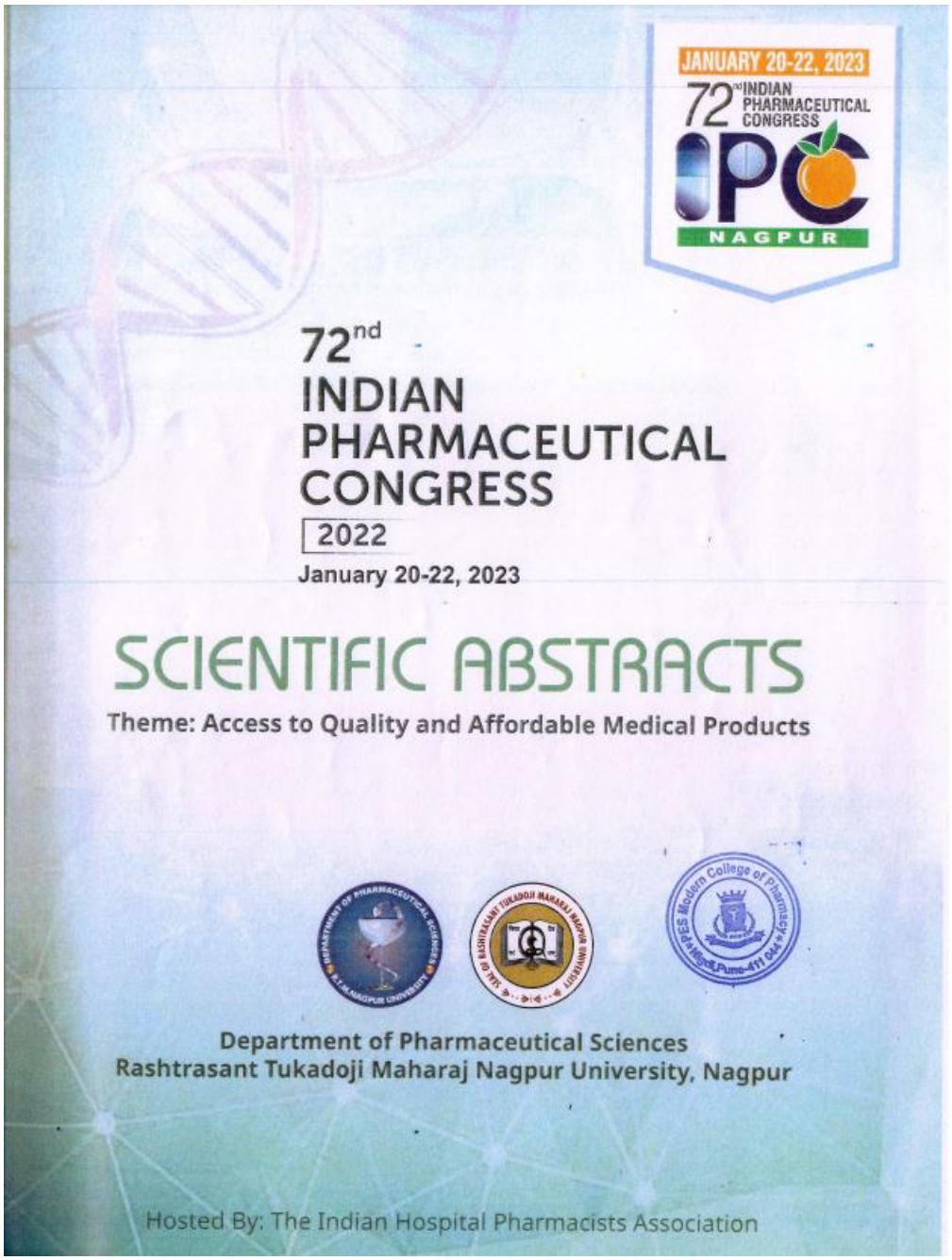
Keywords: Green solvent, green analytical chemistry, Ecofriendly

Development of terbinafine hydrochloride niosomal in situ gel for opthalmic drug delivery

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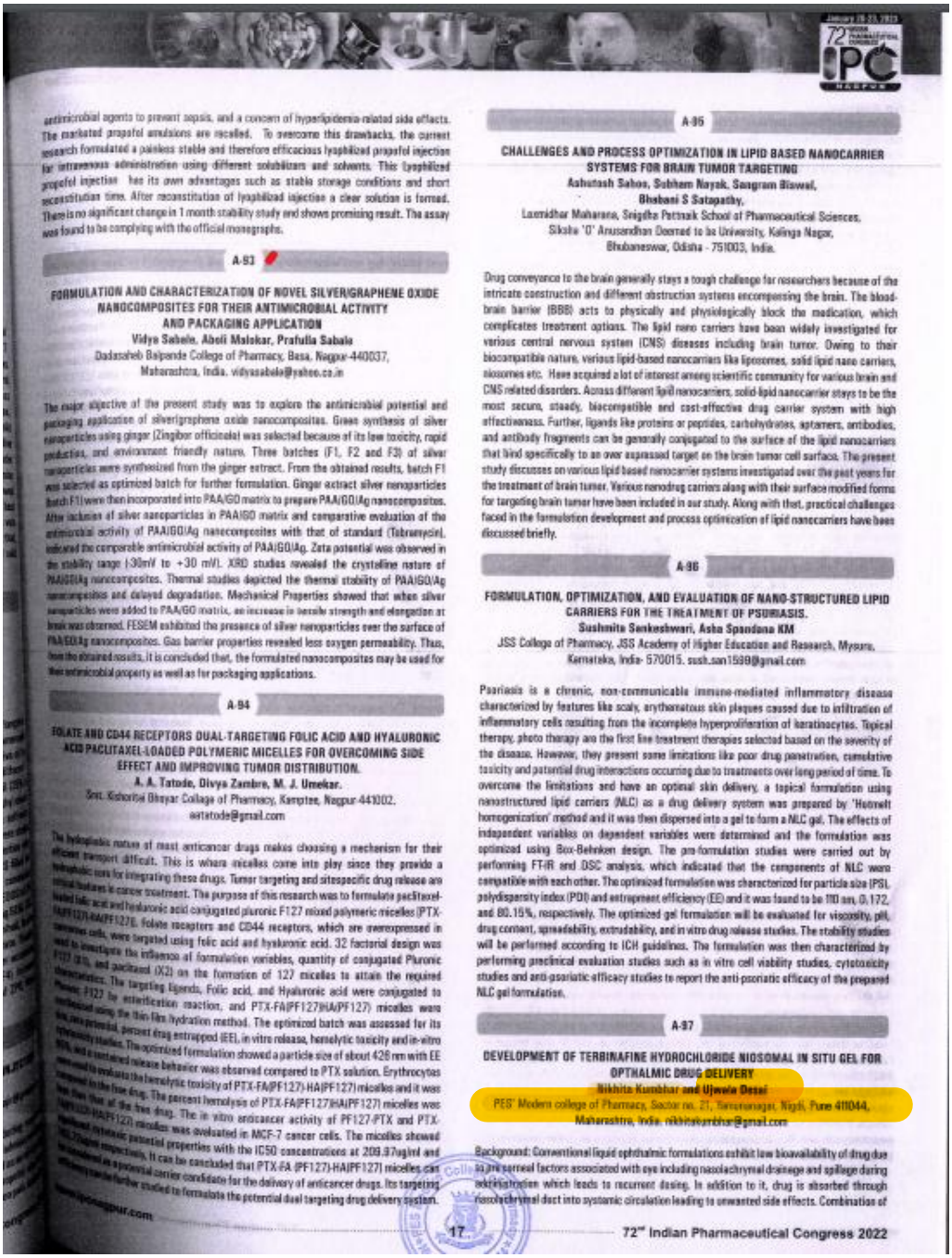
January 20-22, 2023
SCIENTIFIC ABSTRACTS
Theme: Access to Quality and Affordable Medical Products
Department of Pharmaceutical Sciences
Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Hosted By: The Indian Hospital Pharmacists Association



antimicrobial agents to prevent sepsis, and a concern of hyperlipidemia related side effects. The marketed propofol emulsions are recalled. To overcome this drawbacks, the current research formulated a painless stable and therefore efficacious lyophilized propofol injection for intravenous administration using different solubilizers and solvents. This lyophilized propofol injection has its own advantages such as stable storage conditions and short reconstitution time. After reconstitution of lyophilized injection a clear solution is formed. There is no significant change in 1 month stability study and shows promising result. The assay was found to be complying with the official monographs.

A-93

FORMULATION AND CHARACTERIZATION OF NOVEL SILVER/GRAPHENE OXIDE NANOCOMPOSITES FOR THEIR ANTIMICROBIAL ACTIVITY AND PACKAGING APPLICATION

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The major objective of the present study was to explore the antimicrobial potential and packaging application of silver/graphene oxide nanocomposites. Green synthesis of silver nanoparticles using ginger (Zingiber officinale) was selected because of its low toxicity, rapid production, and environment friendly nature. Three batches (F1, F2 and F3) of silver nanoparticles were synthesized from the ginger extract. From the obtained results, batch F1 was selected as optimized batch for further formulation. Ginger extract silver nanoparticles batch F1) were then incorporated into PAA/GO matrix to prepare PAA/GO/Ag nanocomposites. After inclusion of silver nanoparticles in PAA/GO matrix and comparative evaluation of the antimicrobial activity of PAA/GO/Ag nanocomposites with that of standard (Tobramycin), indicated the comparable antimicrobial activity of PAA/GO/Ag. Zeta potential was observed in the stability range (-30mV to +30 mV). XRD studies revealed the crystalline nature of PAA/GO/Ag nanocomposites. Thermal studies depicted the thermal stability of PAA/GO/Ag nanocomposites and delayed degradation. Mechanical Properties showed that when silver nanoparticles were added to PAA/GO matrix, an increase in tensile strength and elongation at break was observed. FESEM exhibited the presence of silver nanoparticles over the surface of PAA/GO/Ag nanocomposites. Gas barrier properties revealed less oxygen permeability. Thus, from the obtained results, it is concluded that, the formulated nanocomposites may be used for their antimicrobial property as well as for packaging applications.

A-94

FOLATE AND CD44 RECEPTORS DUAL-TARGETING FOLIC ACID AND HYALURONIC ACID PACLITAXEL-LOADED POLYMERIC MICELLES FOR OVERCOMING SIDE EFFECT AND IMPROVING TUMOR DISTRIBUTION.

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The hydrophobic nature of most anticancer drugs makes choosing a mechanism for their efficient transport difficult. This is where micelles come into play since they provide a hydrophobic core for integrating these drugs. Tumor targeting and site-specific drug release are critical features in cancer treatment. The purpose of this research was to formulate paclitaxel-loaded folic acid and hyaluronic acid conjugated pluronic F127 mixed polymeric micelles (PTX-HA(PF127)-FA(PF127)). Folate receptors and CD44 receptors, which are overexpressed in cancerous cells, were targeted using folic acid and hyaluronic acid. 32 factorial design was used to investigate the influence of formulation variables, quantity of conjugated Pluronic F127 (X1), and paclitaxel (X2) on the formation of 127 micelles to attain the required characteristics. The targeting ligands, Folic acid, and Hyaluronic acid were conjugated to Pluronic F127 by esterification reaction, and PTX-FA(PF127)HA(PF127) micelles were synthesized using the thin film hydration method. The optimized batch was assessed for its size, zeta potential, percent drug entrapped (EE), in vitro release, hemolytic toxicity and in-vitro cytotoxicity studies. The optimized formulation showed a particle size of about 426 nm with EE 80%, and a sustained release behavior was observed compared to PTX solution. Erythrocytes were used to evaluate the hemolytic toxicity of PTX-FA(PF127)-HA(PF127) micelles and it was compared to the free drug. The percent hemolysis of PTX-FA(PF127)HA(PF127) micelles was less than that of the free drug. The in vitro anticancer activity of PF127-PTX and PTX-HA(PF127)-FA(PF127) micelles was evaluated in MCF-7 cancer cells. The micelles showed significant cytotoxic potential properties with the IC50 concentrations at 209.37ug/ml and 180.25ug/ml respectively. It can be concluded that PTX-FA (PF127)-HA(PF127) micelles can be considered as a potential carrier candidate for the delivery of anticancer drugs. Its targeting efficiency can be further studied to formulate the potential dual targeting drug delivery system.

A-95

CHALLENGES AND PROCESS OPTIMIZATION IN LIPID BASED NANOCARRIER SYSTEMS FOR BRAIN TUMOR TARGETING

Ashutosh Sahoo, Subham Nayak, Sangram Biswal, Bhabani S Satapathy,
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Drug conveyance to the brain generally stays a tough challenge for researchers because of the intricate construction and different obstruction systems encompassing the brain. The blood-brain barrier (BBB) acts to physically and physiologically block the medication, which complicates treatment options. The lipid nano carriers have been widely investigated for various central nervous system (CNS) diseases including brain tumor. Owing to their biocompatible nature, various lipid-based nanocarriers like liposomes, solid lipid nano carriers, niosomes etc. Have acquired a lot of interest among scientific community for various brain and CNS related disorders. Across different lipid nanocarriers, solid lipid nanocarrier stays to be the most secure, steady, biocompatible and cost-effective drug carrier system with high effectiveness. Further, ligands like proteins or peptides, carbohydrates, aptamers, antibodies, and antibody fragments can be generally conjugated to the surface of the lipid nanocarriers that bind specifically to an over expressed target on the brain tumor cell surface. The present study discusses on various lipid based nanocarrier systems investigated over the past years for the treatment of brain tumor. Various nanodrug carriers along with their surface modified forms for targeting brain tumor have been included in our study. Along with that, practical challenges faced in the formulation development and process optimization of lipid nanocarriers have been discussed briefly.

A-96

FORMULATION, OPTIMIZATION, AND EVALUATION OF NANO-STRUCTURED LIPID CARRIERS FOR THE TREATMENT OF PSORIASIS.

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Psoriasis is a chronic, non-communicable immune-mediated inflammatory disease characterized by features like scaly, erythematous skin plaques caused due to infiltration of inflammatory cells resulting from the incomplete hyperproliferation of keratinocytes. Topical therapy, photo therapy are the first line treatment therapies selected based on the severity of the disease. However, they present some limitations like poor drug penetration, cumulative toxicity and potential drug interactions occurring due to treatments over long period of time. To overcome the limitations and have an optimal skin delivery, a topical formulation using nanostructured lipid carriers (NLC) as a drug delivery system was prepared by 'Hotmelt homogenization' method and it was then dispersed into a gel to form a NLC gel. The effects of independent variables on dependent variables were determined and the formulation was optimized using Box-Behnken design. The pre-formulation studies were carried out by performing FT-IR and DSC analysis, which indicated that the components of NLC were compatible with each other. The optimized formulation was characterized for particle size (PS), polydispersity index (PDI) and entrapment efficiency (EE) and it was found to be 110 nm, 0.172, and 80.15%, respectively. The optimized gel formulation will be evaluated for viscosity, pH, drug content, spreadability, extrudability, and in vitro drug release studies. The stability studies will be performed according to ICH guidelines. The formulation was then characterized by performing preclinical evaluation studies such as in vitro cell viability studies, cytotoxicity studies and anti-psoriatic efficacy studies to report the anti-psoriatic efficacy of the prepared NLC gel formulation.

A-97

DEVELOPMENT OF TERBINAFINE HYDROCHLORIDE NIOSOMAL IN SITU GEL FOR OPTHALMIC DRUG DELIVERY

Nikhita Kumbhar and Ujwala Dessi
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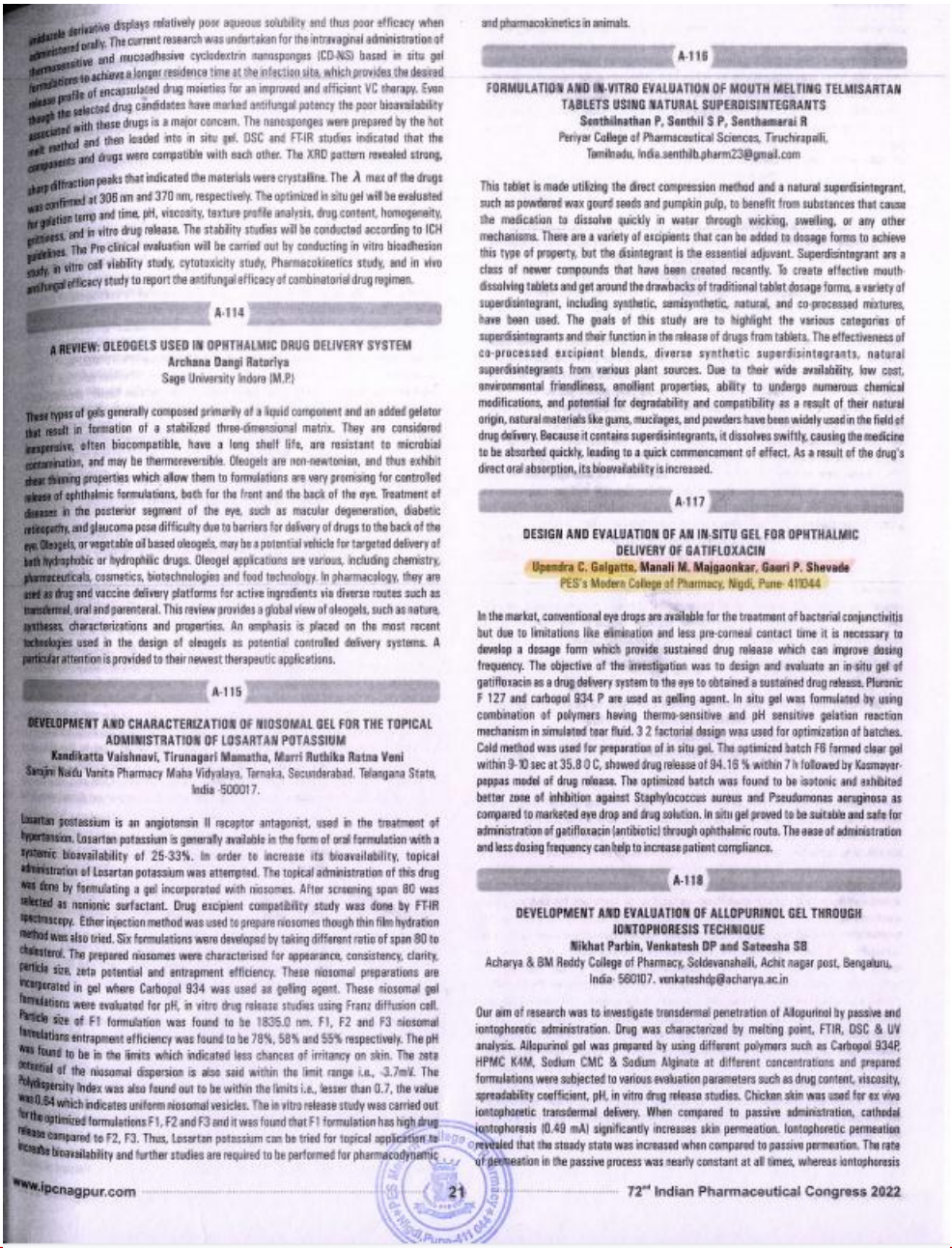
Background: Conventional liquid ophthalmic formulations exhibit low bioavailability of drug due to pre corneal factors associated with eye including nasolachrymal drainage and spillage during administration which leads to recurrent dosing. In addition to it, drug is absorbed through nasolachrymal duct into systemic circulation leading to unwanted side effects. Combination of

Design and evaluation of an in-situ gel for ophthalmic drug delivery of Gatifloxacine



imidazole derivative displays relatively poor aqueous solubility and thus poor efficacy when administered orally. The current research was undertaken for the intravaginal administration of thermosensitive and mucoadhesive cyclodextrin nanosponges (CD-NS) based in situ gel formulations to achieve a longer residence time at the infection site, which provides the desired release profile of encapsulated drug moieties for an improved and efficient VC therapy. Even though the selected drug candidates have marked antifungal potency the poor bioavailability associated with these drugs is a major concern. The nanosponges were prepared by the hot melt method and then loaded into in situ gel. DSC and FT-IR studies indicated that the components and drugs were compatible with each other. The XRD pattern revealed strong, sharp diffraction peaks that indicated the materials were crystalline. The λ max of the drugs was confirmed at 306 nm and 370 nm, respectively. The optimized in situ gel will be evaluated for gelation temp and time, pH, viscosity, texture profile analysis, drug content, homogeneity, gelliness, and in vitro drug release. The stability studies will be conducted according to ICH guidelines. The Pre-clinical evaluation will be carried out by conducting in vitro bioadhesion study, in vitro cell viability study, cytotoxicity study, Pharmacokinetics study, and in vivo antifungal efficacy study to report the antifungal efficacy of combinatorial drug regimen.

A-114

A REVIEW: OLEOGELS USED IN OPHTHALMIC DRUG DELIVERY SYSTEM

Archana Dangi Ratariya
Sage University Indore (M.P.)

These types of gels generally composed primarily of a liquid component and an added gelator that result in formation of a stabilized three-dimensional matrix. They are considered inexpensive, often biocompatible, have a long shelf life, are resistant to microbial contamination, and may be thermoreversible. Oleogels are non-newtonian, and thus exhibit shear thinning properties which allow them to formulations are very promising for controlled release of ophthalmic formulations, both for the front and the back of the eye. Treatment of diseases in the posterior segment of the eye, such as macular degeneration, diabetic retinopathy, and glaucoma pose difficulty due to barriers for delivery of drugs to the back of the eye. Oleogels, or vegetable oil based oleogels, may be a potential vehicle for targeted delivery of both hydrophobic or hydrophilic drugs. Oleogel applications are various, including chemistry, pharmaceuticals, cosmetics, biotechnologies and food technology. In pharmacology, they are used as drug and vaccine delivery platforms for active ingredients via diverse routes such as transdermal, oral and parenteral. This review provides a global view of oleogels, such as nature, syntheses, characterizations and properties. An emphasis is placed on the most recent technologies used in the design of oleogels as potential controlled delivery systems. A particular attention is provided to their newest therapeutic applications.

A-115

DEVELOPMENT AND CHARACTERIZATION OF NIOSOMAL GEL FOR THE TOPICAL ADMINISTRATION OF LOSARTAN POTASSIUM

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Losartan potassium is an angiotensin II receptor antagonist, used in the treatment of hypertension. Losartan potassium is generally available in the form of oral formulation with a systemic bioavailability of 25-33%. In order to increase its bioavailability, topical administration of Losartan potassium was attempted. The topical administration of this drug was done by formulating a gel incorporated with niosomes. After screening span 80 was selected as nonionic surfactant. Drug excipient compatibility study was done by FT-IR spectroscopy. Ether injection method was used to prepare niosomes though thin film hydration method was also tried. Six formulations were developed by taking different ratio of span 80 to cholesterol. The prepared niosomes were characterised for appearance, consistency, clarity, particle size, zeta potential and entrapment efficiency. These niosomal preparations are incorporated in gel where Carbopol 934 was used as gelling agent. These niosomal gel formulations were evaluated for pH, in vitro drug release studies using Franz diffusion cell. Particle size of F1 formulation was found to be 1835.0 nm. F1, F2 and F3 niosomal formulations entrapment efficiency was found to be 78%, 58% and 55% respectively. The pH was found to be in the limits which indicated less chances of irritancy on skin. The zeta potential of the niosomal dispersion is also said within the limit range i.e., -3.7mV. The Polydispersity Index was also found out to be within the limits i.e., lesser than 0.7, the value was 0.64 which indicates uniform niosomal vesicles. The in vitro release study was carried out for the optimized formulations F1, F2 and F3 and it was found that F1 formulation has high drug release compared to F2, F3. Thus, Losartan potassium can be tried for topical application to increase bioavailability and further studies are required to be performed for pharmacodynamic and pharmacokinetics in animals.

A-116

FORMULATION AND IN-VITRO EVALUATION OF MOUTH MELTING TELMISARTAN TABLETS USING NATURAL SUPERDISINTEGRANTS

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This tablet is made utilizing the direct compression method and a natural superdisintegrant, such as powdered wax gourd seeds and pumpkin pulp, to benefit from substances that cause the medication to dissolve quickly in water through wicking, swelling, or any other mechanisms. There are a variety of excipients that can be added to dosage forms to achieve this type of property, but the disintegrant is the essential adjuvant. Superdisintegrant are a class of newer compounds that have been created recently. To create effective mouth-dissolving tablets and get around the drawbacks of traditional tablet dosage forms, a variety of superdisintegrant, including synthetic, semisynthetic, natural, and co-processed mixtures, have been used. The goals of this study are to highlight the various categories of superdisintegrants and their function in the release of drugs from tablets. The effectiveness of co-processed excipient blends, diverse synthetic superdisintegrants, natural superdisintegrants from various plant sources. Due to their wide availability, low cost, environmental friendliness, emollient properties, ability to undergo numerous chemical modifications, and potential for degradability and compatibility as a result of their natural origin, natural materials like gums, mucilages, and powders have been widely used in the field of drug delivery. Because it contains superdisintegrants, it dissolves swiftly, causing the medicine to be absorbed quickly, leading to a quick commencement of effect. As a result of the drug's direct oral absorption, its bioavailability is increased.

A-117

DESIGN AND EVALUATION OF AN IN-SITU GEL FOR OPHTHALMIC DELIVERY OF GATIFLOXACIN

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In the market, conventional eye drops are available for the treatment of bacterial conjunctivitis but due to limitations like elimination and less pre-corneal contact time it is necessary to develop a dosage form which provide sustained drug release which can improve dosing frequency. The objective of the investigation was to design and evaluate an in-situ gel of gatifloxacin as a drug delivery system to the eye to obtained a sustained drug release. Pluronic F 127 and carbopol 934 P are used as gelling agent. In situ gel was formulated by using combination of polymers having thermo-sensitive and pH sensitive gelation reaction mechanism in simulated tear fluid. 3 2 factorial design was used for optimization of batches. Cold method was used for preparation of in situ gel. The optimized batch F6 formed clear gel within 9-10 sec at 35.8 0 C, showed drug release of 94.16 % within 7 h followed by Kasmayer-peppas model of drug release. The optimized batch was found to be isotonic and exhibited better zone of inhibition against Staphylococcus aureus and Pseudomonas aeruginosa as compared to marketed eye drop and drug solution. In situ gel proved to be suitable and safe for administration of gatifloxacin (antibiotic) through ophthalmic route. The ease of administration and less dosing frequency can help to increase patient compliance.

A-118

DEVELOPMENT AND EVALUATION OF ALLOPURINOL GEL THROUGH IONTOPHORESIS TECHNIQUE

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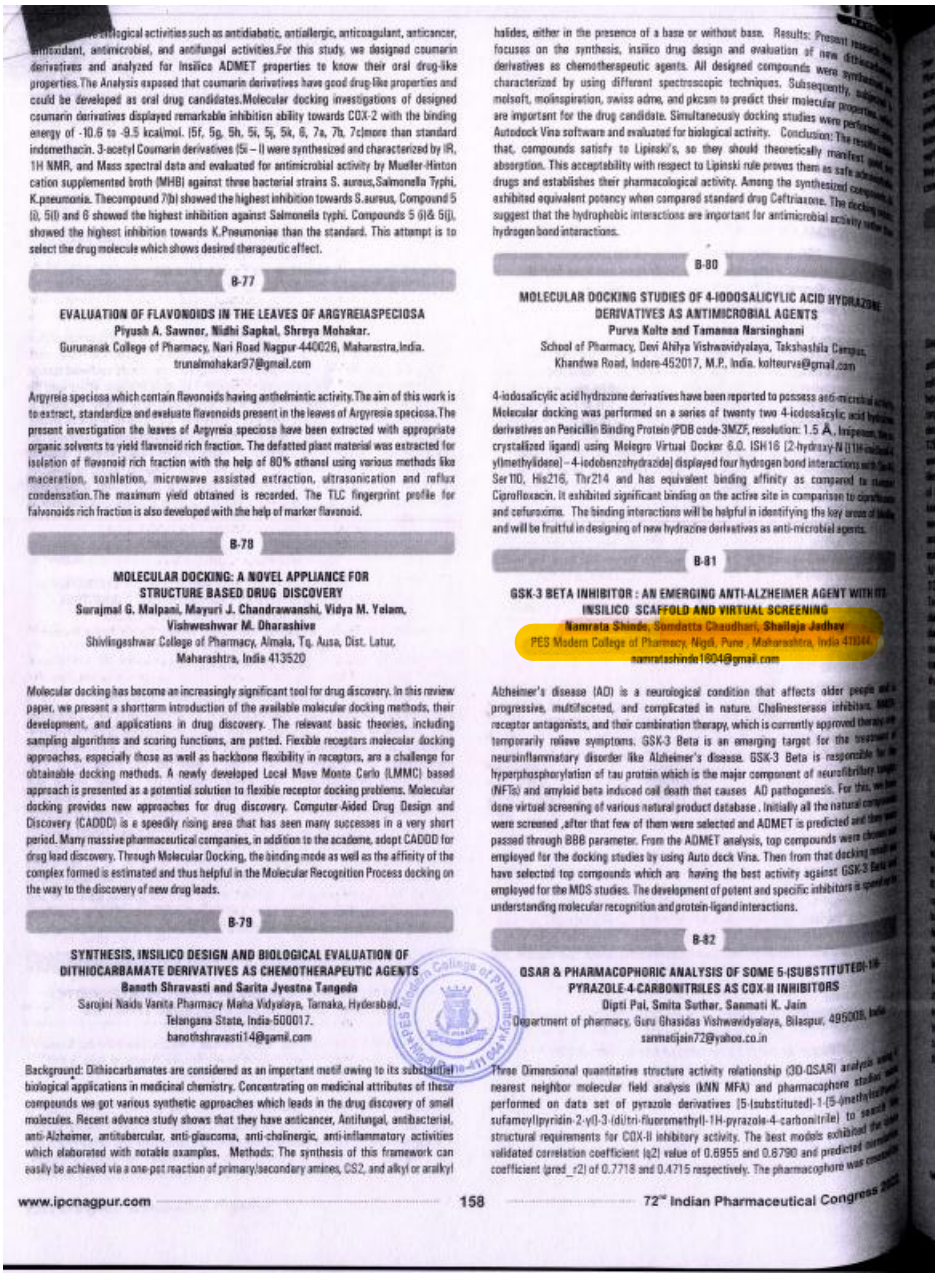
Our aim of research was to investigate transdermal penetration of Allopurinol by passive and iontophoretic administration. Drug was characterized by melting point, FTIR, DSC & UV analysis. Allopurinol gel was prepared by using different polymers such as Carbopol 934P, HPMC K4M, Sodium CMC & Sodium Alginate at different concentrations and prepared formulations were subjected to various evaluation parameters such as drug content, viscosity, spreadability coefficient, pH, in vitro drug release studies. Chicken skin was used for ex vivo iontophoretic transdermal delivery. When compared to passive administration, cathodal iontophoresis (0.49 mA) significantly increases skin permeation. Iontophoretic permeation revealed that the steady state was increased when compared to passive permeation. The rate of permeation in the passive process was nearly constant at all times, whereas iontophoresis

Gsk-3 beta inhibitor: an emerging anti-alzheimer agent with its insilico scaffold and virtual screening



...ological activities such as antidiabatic, antiallergic, anticoagulant, anticancer, antioxidant, antimicrobial, and antifungal activities.For this study, we designed coumarin derivatives and analyzed for insilico ADMET properties to know their oral drug-like properties.The Analysis exposed that coumarin derivatives have good drug-like properties and could be developed as oral drug candidates.Molecular docking investigations of designed coumarin derivatives displayed remarkable inhibition ability towards COX-2 with the binding energy of -10.6 to -9.5 kcal/mol. (5f, 5g, 5h, 5i, 5j, 5k, 6, 7a, 7b, 7c)more than standard indomethacin. 3-acetyl Coumarin derivatives (5i – l) were synthesized and characterized by IR, 1H NMR, and Mass spectral data and evaluated for antimicrobial activity by Mueller-Hinton cation supplemented broth (MHB) against three bacterial strains S. aureus,Salmonella Typhi, K.pneumonia. Thecompound 7(b) showed the highest inhibition towards S.aureus, Compound 5 (i), 5(l) and 6 showed the highest inhibition against Salmonella typhi. Compounds 5 (i)& 5(j), showed the highest inhibition towards K.Pneumoniae than the standard. This attempt is to select the drug molecule which shows desired therapeutic effect.

B-77

EVALUATION OF FLAVONOIDS IN THE LEAVES OF ARGYREIASPECIOSA

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Argyreia speciosa which contain flavonoids having anthelmintic activity.The aim of this work is to extract, standardize and evaluate flavonoids present in the leaves of Argyreia speciosa.The present investigation the leaves of Argyreia speciosa have been extracted with appropriate organic solvents to yield flavonoid rich fraction. The defatted plant material was extracted for isolation of flavonoid rich fraction with the help of 80% ethanol using various methods like maceration, soxhletion, microwave assisted extraction, ultrasonication and reflux condensation.The maximum yield obtained is recorded. The TLC fingerprint profile for falvonoids rich fraction is also developed with the help of marker flavonoid.

B-78

MOLECULAR DOCKING: A NOVEL APPLIANCE FOR STRUCTURE BASED DRUG DISCOVERY

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Molecular docking has become an increasingly significant tool for drug discovery. In this review paper, we present a shortterm introduction of the available molecular docking methods, their development, and applications in drug discovery. The relevant basic theories, including sampling algorithms and scoring functions, are potted. Flexible receptors molecular docking approaches, especially those as well as backbone flexibility in receptors, are a challenge for obtainable docking methods. A newly developed Local Move Monte Carlo (LMMC) based approach is presented as a potential solution to flexible receptor docking problems. Molecular docking provides new approaches for drug discovery. Computer-Aided Drug Design and Discovery (CADDD) is a speedily rising area that has seen many successes in a very short period. Many massive pharmaceutical companies, in addition to the academe, adopt CADDD for drug lead discovery. Through Molecular Docking, the binding mode as well as the affinity of the complex formed is estimated and thus helpful in the Molecular Recognition Process docking on the way to the discovery of new drug leads.

B-79

SYNTHESIS, INSILICO DESIGN AND BIOLOGICAL EVALUATION OF DITHIOCARBAMATE DERIVATIVES AS CHEMOTHERAPEUTIC AGENTS

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Background: Dithiocarbamates are considered as an important motif owing to its substantial biological applications in medicinal chemistry. Concentrating on medicinal attributes of these compounds we got various synthetic approaches which leads in the drug discovery of small molecules. Recent advance study shows that they have anticancer, Antifungal, antibacterial, anti-Alzheimer, antitubercular, anti-glaucoma, anti-cholinergic, anti-inflammatory activities which elaborated with notable examples. Methods: The synthesis of this framework can easily be achieved via a one-pot reaction of primary/secondary amines, CS2, and alkyl or aralkyl halides, either in the presence of a base or without base. Results: Present research focuses on the synthesis, insilico drug design and evaluation of new dithiocarbamate derivatives as chemotherapeutic agents. All designed compounds were synthesized, characterized by using different spectroscopic techniques. Subsequently, molsoft, molinspiration, swiss adme, and pkcsm to predict their molecular properties, which are important for the drug candidate. Simultaneously docking studies were performed using Autodock Vina software and evaluated for biological activity. Conclusion: The results showed that, compounds satisfy to Lipinski's, so they should theoretically manifest good oral absorption. This acceptability with respect to Lipinski rule proves them as safe acceptable drugs and establishes their pharmacological activity. Among the synthesized compounds, 8k exhibited equivalent potency when compared standard drug Ceftriaxone. The docking results suggest that the hydrophobic interactions are important for antimicrobial activity rather than hydrogen bond interactions.

B-80

MOLECULAR DOCKING STUDIES OF 4-IODOSALICYLIC ACID HYDRAZONE DERIVATIVES AS ANTIMICROBIAL AGENTS

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4-iodosalicylic acid hydrazone derivatives have been reported to possess anti-microbial activity. Molecular docking was performed on a series of twenty two 4-iodosalicylic acid hydrazone derivatives on Penicillin Binding Protein (PDB code-3MZF, resolution: 1.5 Å , Impedem, the co-crystallized ligand) using Molegro Virtual Docker 6.0. ISH16 (2-hydroxy-N-[(1H-indol-3-yl)methylidene]-4-iodobenzohydrazide) displayed four hydrogen bond interactions with Ser70, Ser110, His216, Thr214 and has equivalent binding affinity as compared to standard Ciprofloxacin. It exhibited significant binding on the active site in comparison to ciprofloxacin and cefuroxime. The binding interactions will be helpful in identifying the key areas of binding and will be fruitful in designing of new hydrazine derivatives as anti-microbial agents.

B-81

GSK-3 BETA INHIBITOR : AN EMERGING ANTI-ALZHEIMER AGENT WITH ITS INSILICO SCAFFOLD AND VIRTUAL SCREENING

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Alzheimer's disease (AD) is a neurological condition that affects older people and is progressive, multifaceted, and complicated in nature. Cholinesterase inhibitors, NMDA receptor antagonists, and their combination therapy, which is currently approved therapy, can temporarily relieve symptoms. GSK-3 Beta is an emerging target for the treatment of neuroinflammatory disorder like Alzheimer's disease. GSK-3 Beta is responsible for the hyperphosphorylation of tau protein which is the major component of neurofibrilary tangles (NFTs) and amyloid beta induced cell death that causes AD pathogenesis. For this, we have done virtual screening of various natural product database . Initially all the natural compounds were screened ,after that few of them were selected and ADMET is predicted and then were passed through BBB parameter. From the ADMET analysis, top compounds were chosen and employed for the docking studies by using Auto dock Vina. Then from that docking result we have selected top compounds which are having the best activity against GSK-3 Beta and employed for the MDS studies. The development of potent and specific inhibitors is opened up by understanding molecular recognition and protein-ligand interactions.

B-82

QSAR & PHARMACOPHORIC ANALYSIS OF SOME 5-(SUBSTITUTED)-1H-PYRAZOLE-4-CARBONITRILES AS COX-II INHIBITORS

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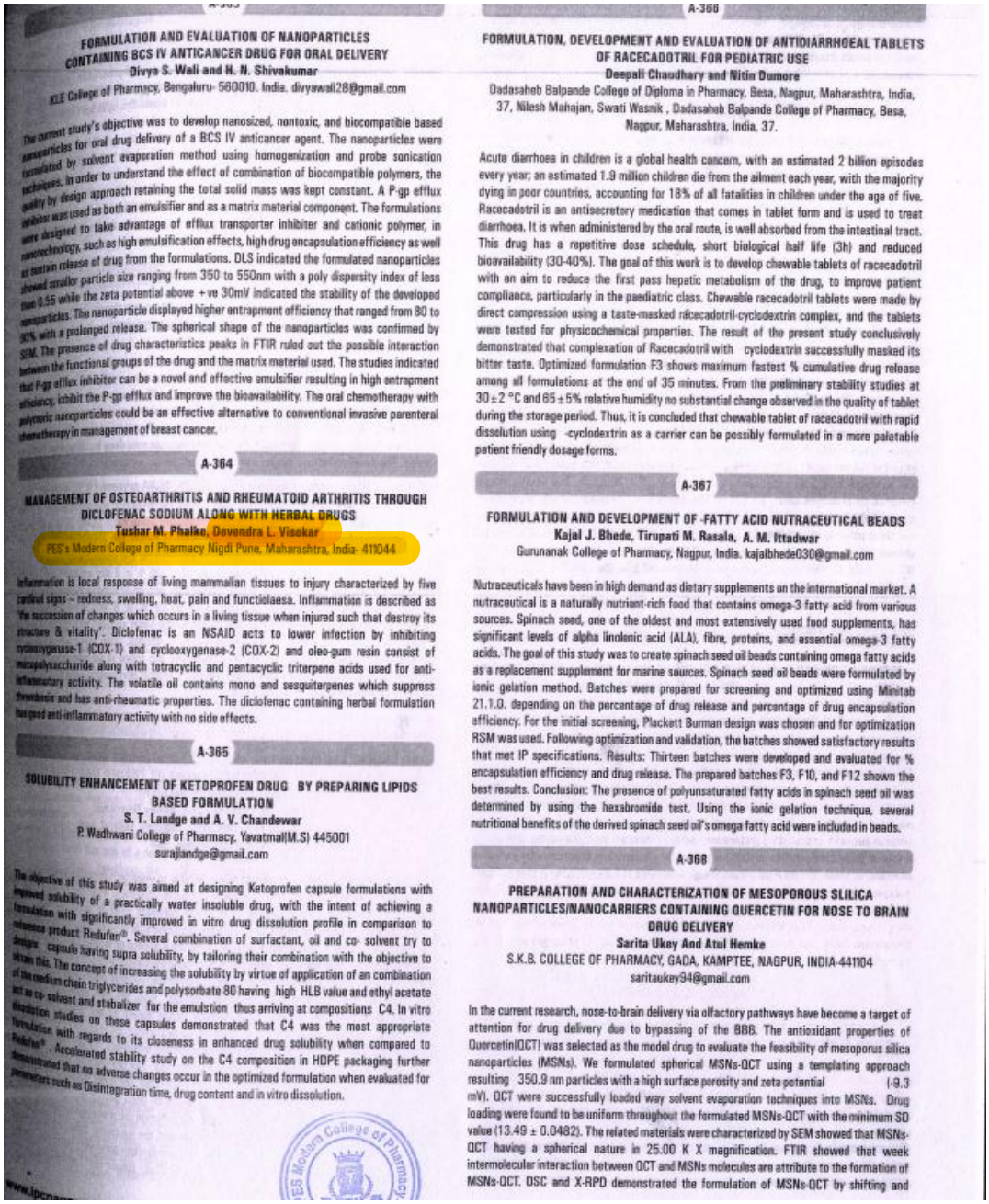
Three Dimensional quantitative structure activity relationship (3D-QSAR) analysis using nearest neighbor molecular field analysis (kNN MFA) and pharmacophore studies were performed on data set of pyrazole derivatives (5-(substituted)-1-(5-(methylsulfamoyl)pyridin-2-yl)-3-(di/tri-fluoromethyl)-1H-pyrazole-4-carbonitrile) to search the structural requirements for COX-II inhibitory activity. The best models exhibited the cross validated correlation coefficient (q2) value of 0.6955 and 0.6790 and predicted correlation coefficient (pred_r2) of 0.7718 and 0.4715 respectively. The pharmacophore was ...

Management of osteoarthritis and rheumatoid arthritis through diclofenac sodium along with herbal drugs



FORMULATION AND EVALUATION OF NANOPARTICLES CONTAINING BCS IV ANTICANCER DRUG FOR ORAL DELIVERY

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The current study's objective was to develop nanosized, nontoxic, and biocompatible based nanoparticles for oral drug delivery of a BCS IV anticancer agent. The nanoparticles were formulated by solvent evaporation method using homogenization and probe sonication techniques. In order to understand the effect of combination of biocompatible polymers, the quality by design approach retaining the total solid mass was kept constant. A P-gp efflux inhibitor was used as both an emulsifier and as a matrix material component. The formulations were designed to take advantage of efflux transporter inhibiter and cationic polymer, in nanotechnology, such as high emulsification effects, high drug encapsulation efficiency as well as sustain release of drug from the formulations. DLS indicated the formulated nanoparticles showed smaller particle size ranging from 350 to 550nm with a poly dispersity index of less than 0.55 while the zeta potential above +ve 30mV indicated the stability of the developed nanoparticles. The nanoparticle displayed higher entrapment efficiency that ranged from 80 to 90% with a prolonged release. The spherical shape of the nanoparticles was confirmed by SEM. The presence of drug characteristics peaks in FTIR ruled out the possible interaction between the functional groups of the drug and the matrix material used. The studies indicated that P-gp efflux inhibiter can be a novel and effective emulsifier resulting in high entrapment efficiency, inhibit the P-gp efflux and improve the bioavailability. The oral chemotherapy with polymeric nanoparticles could be an effective alternative to conventional invasive parenteral chemotherapy in management of breast cancer.

A-364

MANAGEMENT OF OSTEOARTHRITIS AND RHEUMATOID ARTHRITIS THROUGH DICLOFENAC SODIUM ALONG WITH HERBAL DRUGS

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Inflammation is local response of living mammalian tissues to injury characterized by five cardinal signs – redness, swelling, heat, pain and functiolaesa. Inflammation is described as 'the succession of changes which occurs in a living tissue when injured such that destroy its structure & vitality'. Diclofenac is an NSAID acts to lower infection by inhibiting cyclooxygenase-1 (COX-1) and cyclooxygenase-2 (COX-2) and oleo-gum resin consist of mucopolysaccharide along with tetracyclic and pentacyclic triterpene acids used for anti-inflammatory activity. The volatile oil contains mono and sesquiterpenes which suppress thrombosis and has anti-rheumatic properties. The diclofenac containing herbal formulation has good anti-inflammatory activity with no side effects.

A-365

SOLUBILITY ENHANCEMENT OF KETOPROFEN DRUG BY PREPARING LIPIDS BASED FORMULATION

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The objective of this study was aimed at designing Ketoprofen capsule formulations with improved solubility of a practically water insoluble drug, with the intent of achieving a formulation with significantly improved in vitro drug dissolution profile in comparison to reference product Redufen®. Several combination of surfactant, oil and co- solvent try to design capsule having supra solubility, by tailoring their combination with the objective to obtain this. The concept of increasing the solubility by virtue of application of an combination of the medium chain triglycerides and polysorbate 80 having high HLB value and ethyl acetate act as co- solvent and stabalizer for the emulsion thus arriving at compositions C4. In vitro dissolution studies on these capsules demonstrated that C4 was the most appropriate formulation with regards to its closeness in enhanced drug solubility when compared to Redufen®. Accelerated stability study on the C4 composition in HDPE packaging further demonstrated that no adverse changes occur in the optimized formulation when evaluated for parameters such as Disintegration time, drug content and in vitro dissolution.

A-366

FORMULATION, DEVELOPMENT AND EVALUATION OF ANTIDIARRHOEAL TABLETS OF RACECADOTRIL FOR PEDIATRIC USE

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Acute diarrhoea in children is a global health concern, with an estimated 2 billion episodes every year; an estimated 1.9 million children die from the ailment each year, with the majority dying in poor countries, accounting for 18% of all fatalities in children under the age of five. Racecadotril is an antisecretory medication that comes in tablet form and is used to treat diarrhoea. It is when administered by the oral route, is well absorbed from the intestinal tract. This drug has a repetitive dose schedule, short biological half life (3h) and reduced bioavailability (30-40%). The goal of this work is to develop chewable tablets of racecadotril with an aim to reduce the first pass hepatic metabolism of the drug, to improve patient compliance, particularly in the paediatric class. Chewable racecadotril tablets were made by direct compression using a taste-masked racecadotril-cyclodextrin complex, and the tablets were tested for physicochemical properties. The result of the present study conclusively demonstrated that complexation of Racecadotril with cyclodextrin successfully masked its bitter taste. Optimized formulation F3 shows maximum fastest % cumulative drug release among all formulations at the end of 35 minutes. From the preliminary stability studies at 30 ± 2 °C and 65 ± 5% relative humidity no substantial change observed in the quality of tablet during the storage period. Thus, it is concluded that chewable tablet of racecadotril with rapid dissolution using -cyclodextrin as a carrier can be possibly formulated in a more palatable patient friendly dosage forms.

A-367

FORMULATION AND DEVELOPMENT OF -FATTY ACID NUTRACEUTICAL BEADS

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Nutraceuticals have been in high demand as dietary supplements on the international market. A nutraceutical is a naturally nutrient-rich food that contains omega-3 fatty acid from various sources. Spinach seed, one of the oldest and most extensively used food supplements, has significant levels of alpha linolenic acid (ALA), fibre, proteins, and essential omega-3 fatty acids. The goal of this study was to create spinach seed oil beads containing omega fatty acids as a replacement supplement for marine sources. Spinach seed oil beads were formulated by ionic gelation method. Batches were prepared for screening and optimized using Minitab 21.1.0. depending on the percentage of drug release and percentage of drug encapsulation efficiency. For the initial screening, Plackett Burman design was chosen and for optimization RSM was used. Following optimization and validation, the batches showed satisfactory results that met IP specifications. Results: Thirteen batches were developed and evaluated for % encapsulation efficiency and drug release. The prepared batches F3, F10, and F12 shown the best results. Conclusion: The presence of polyunsaturated fatty acids in spinach seed oil was determined by using the hexabromide test. Using the ionic gelation technique, several nutritional benefits of the derived spinach seed oil's omega fatty acid were included in beads.

A-368

PREPARATION AND CHARACTERIZATION OF MESOPOROUS SLILICA NANOPARTICLES/NANOCARRIERS CONTAINING QUERCETIN FOR NOSE TO BRAIN DRUG DELIVERY

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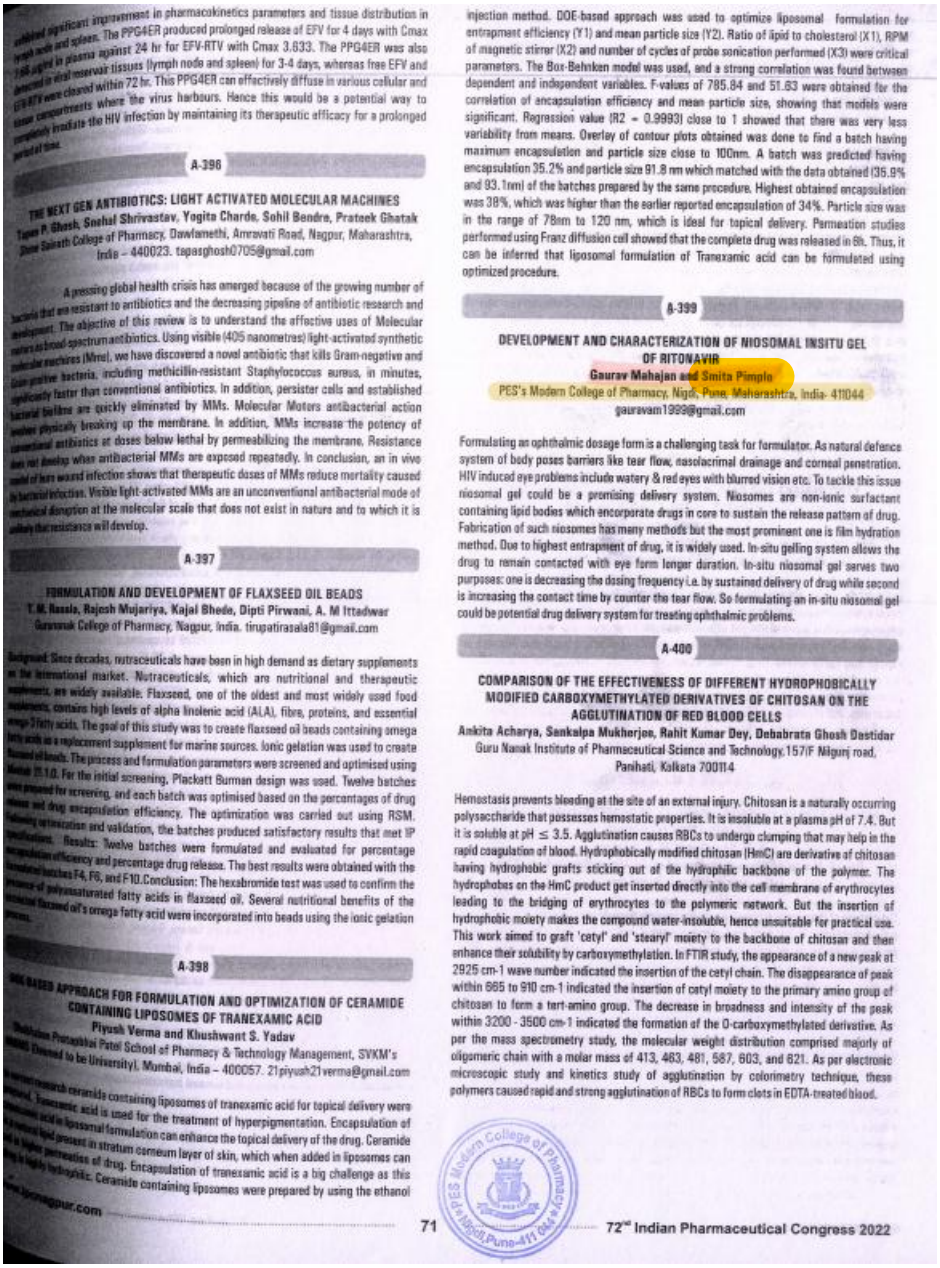
In the current research, nose-to-brain delivery via olfactory pathways have become a target of attention for drug delivery due to bypassing of the BBB. The antioxidant properties of Quercetin(QCT) was selected as the model drug to evaluate the feasibility of mesoporus silica nanoparticles (MSNs). We formulated spherical MSNs-QCT using a templating approach resulting 350.9 nm particles with a high surface porosity and zeta potential (-9.3 mV). QCT were successfully loaded way solvent evaporation techniques into MSNs. Drug loading were found to be uniform throughout the formulated MSNs-QCT with the minimum SD value (13.49 ± 0.0482). The related materials were characterized by SEM showed that MSNs-QCT having a spherical nature in 25.00 K X magnification. FTIR showed that week intermolecular interaction between QCT and MSNs molecules are attribute to the formation of MSNs-QCT. DSC and X-RPD demonstrated the formulation of MSNs-QCT by shifting and

Development and Characterization Of Niosomal In situ Gel Of Ritonavir



exhibited significant improvement in pharmacokinetics parameters and tissue distribution in lymph node and spleen. The PPG4ER produced prolonged release of EFV for 4 days with Cmax 7.66 ng/ml in plasma against 24 hr for EFV-RTV with Cmax 3.633. The PPG4ER was also detected in viral reservoir tissues (lymph node and spleen) for 3-4 days, whereas free EFV and EFV-RTV were cleared within 72 hr. This PPG4ER can effectively diffuse in various cellular and tissue compartments where the virus harbours. Hence this would be a potential way to completely irradiate the HIV infection by maintaining its therapeutic efficacy for a prolonged period of time.

A-396

THE NEXT GEN ANTIBIOTICS: LIGHT ACTIVATED MOLECULAR MACHINES

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A pressing global health crisis has emerged because of the growing number of bacteria that are resistant to antibiotics and the decreasing pipeline of antibiotic research and development. The objective of this review is to understand the effective uses of Molecular motors as broad spectrum antibiotics. Using visible (405 nanometres) light-activated synthetic molecular machines (MMs), we have discovered a novel antibiotic that kills Gram-negative and Gram-positive bacteria, including methicillin-resistant Staphylococcus aureus, in minutes, significantly faster than conventional antibiotics. In addition, persister cells and established bacterial biofilms are quickly eliminated by MMs. Molecular Motors antibacterial action involves physically breaking up the membrane. In addition, MMs increase the potency of conventional antibiotics at doses below lethal by permeabilizing the membrane. Resistance does not develop when antibacterial MMs are exposed repeatedly. In conclusion, an in vivo model of burn wound infection shows that therapeutic doses of MMs reduce mortality caused by bacterial infection. Visible light-activated MMs are an unconventional antibacterial mode of mechanical disruption at the molecular scale that does not exist in nature and to which it is unlikely that resistance will develop.

A-397

FORMULATION AND DEVELOPMENT OF FLAXSEED OIL BEADS

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Background: Since decades, nutraceuticals have been in high demand as dietary supplements in the international market. Nutraceuticals, which are nutritional and therapeutic supplements, are widely available. Flaxseed, one of the oldest and most widely used food supplements, contains high levels of alpha linolenic acid (ALA), fibre, proteins, and essential omega-3 fatty acids. The goal of this study was to create flaxseed oil beads containing omega fatty acids as a replacement supplement for marine sources. Ionic gelation was used to create flaxseed oil beads. The process and formulation parameters were screened and optimised using Minitab 17.1.0. For the initial screening, Plackett Burman design was used. Twelve batches were prepared for screening, and each batch was optimised based on the percentages of drug release and drug encapsulation efficiency. The optimization was carried out using RSM. Following optimization and validation, the batches produced satisfactory results that met IP specifications. Results: Twelve batches were formulated and evaluated for percentage encapsulation efficiency and percentage drug release. The best results were obtained with the formulated batches F4, F6, and F10.Conclusion: The hexabromide test was used to confirm the presence of polyunsaturated fatty acids in flaxseed oil. Several nutritional benefits of the extracted flaxseed oil's omega fatty acid were incorporated into beads using the ionic gelation process.

A-398

QbD BASED APPROACH FOR FORMULATION AND OPTIMIZATION OF CERAMIDE CONTAINING LIPOSOMES OF TRANEXAMIC ACID

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Ceramide containing liposomes of tranexamic acid for topical delivery were formulated. Tranexamic acid is used for the treatment of hyperpigmentation. Encapsulation of tranexamic acid in liposomal formulation can enhance the topical delivery of the drug. Ceramide is a natural lipid present in stratum corneum layer of skin, which when added in liposomes can increase the permeation of drug. Encapsulation of tranexamic acid is a big challenge as this drug is highly hydrophilic. Ceramide containing liposomes were prepared by using the ethanol injection method. DOE-based approach was used to optimize liposomal formulation for entrapment efficiency (Y1) and mean particle size (Y2). Ratio of lipid to cholesterol (X1), RPM of magnetic stirrer (X2) and number of cycles of probe sonication performed (X3) were critical parameters. The Box-Behnken model was used, and a strong correlation was found between dependent and independent variables. F-values of 785.84 and 51.83 were obtained for the correlation of encapsulation efficiency and mean particle size, showing that models were significant. Regression value ($R2 = 0.9993$) close to 1 showed that there was very less variability from means. Overlay of contour plots obtained was done to find a batch having maximum encapsulation and particle size close to 100nm. A batch was predicted having encapsulation 35.2% and particle size 91.8 nm which matched with the data obtained (35.9% and 93.1nm) of the batches prepared by the same procedure. Highest obtained encapsulation was 38%, which was higher than the earlier reported encapsulation of 34%. Particle size was in the range of 78nm to 120 nm, which is ideal for topical delivery. Permeation studies performed using Franz diffusion cell showed that the complete drug was released in 6h. Thus, it can be inferred that liposomal formulation of Tranexamic acid can be formulated using optimized procedure.

A-399

DEVELOPMENT AND CHARACTERIZATION OF NIOSOMAL INSITU GEL OF RITONAVIR

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Formulating an ophthalmic dosage form is a challenging task for formulator. As natural defence system of body poses barriers like tear flow, nasolacrimal drainage and corneal penetration. HIV induced eye problems include watery & red eyes with blurred vision etc. To tackle this issue niosomal gel could be a promising delivery system. Niosomes are non-ionic surfactant containing lipid bodies which encorporate drugs in core to sustain the release pattern of drug. Fabrication of such niosomes has many methods but the most prominent one is film hydration method. Due to highest entrapment of drug, it is widely used. In-situ gelling system allows the drug to remain contacted with eye form longer duration. In-situ niosomal gel serves two purposes: one is decreasing the dosing frequency i.e. by sustained delivery of drug while second is increasing the contact time by counter the tear flow. So formulating an in-situ niosomal gel could be potential drug delivery system for treating ophthalmic problems.

A-400

COMPARISON OF THE EFFECTIVENESS OF DIFFERENT HYDROPHOBICALLY MODIFIED CARBOXYMETHYLATED DERIVATIVES OF CHITOSAN ON THE AGGLUTINATION OF RED BLOOD CELLS

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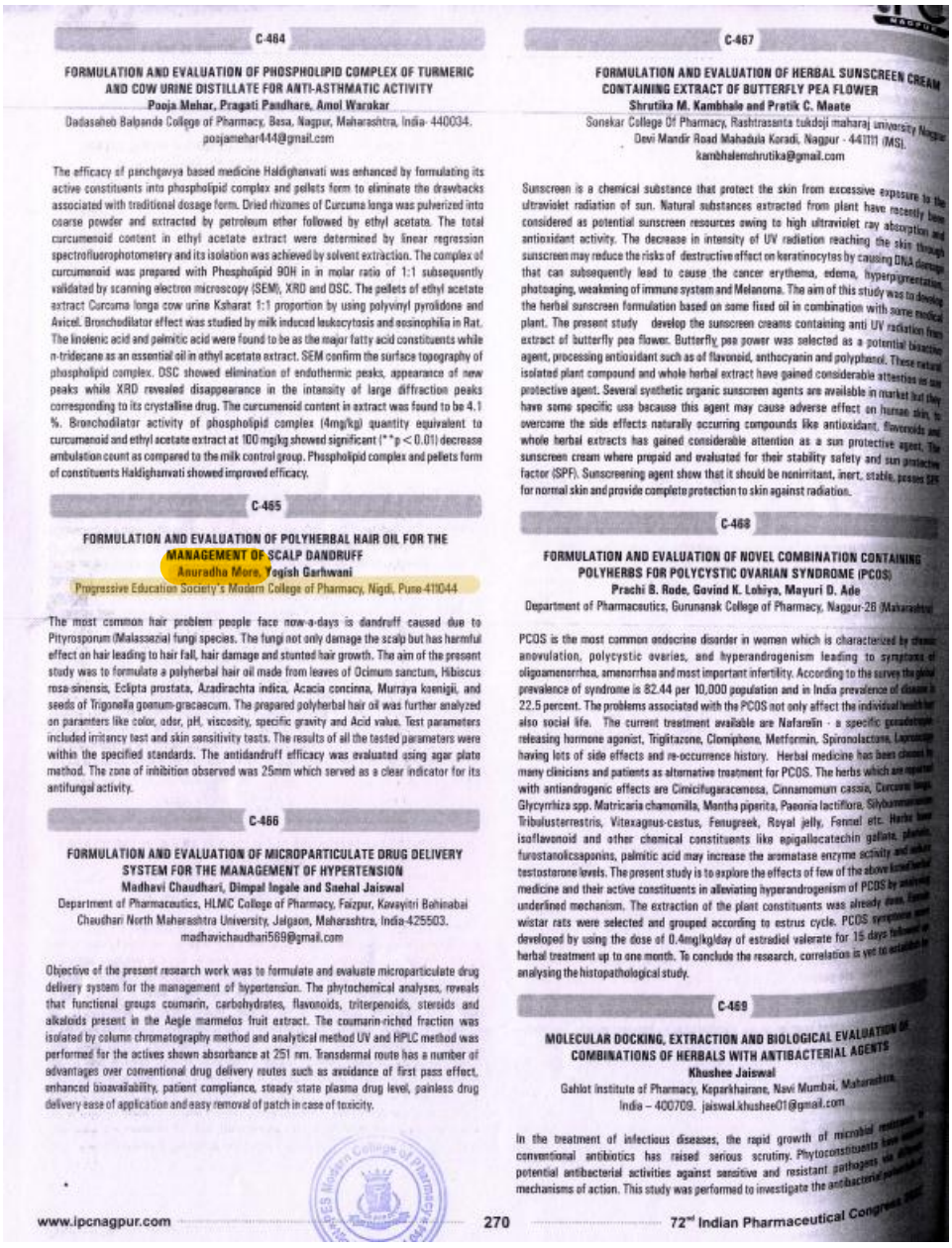
Hemostasis prevents bleeding at the site of an external injury. Chitosan is a naturally occurring polysaccharide that possesses hemostatic properties. It is insoluble at a plasma pH of 7.4. But it is soluble at pH ≤ 3.5. Agglutination causes RBCs to undergo clumping that may help in the rapid coagulation of blood. Hydrophobically modified chitosan (HmC) are derivative of chitosan having hydrophobic grafts sticking out of the hydrophilic backbone of the polymer. The hydrophobes on the HmC product get inserted directly into the cell membrane of erythrocytes leading to the bridging of erythrocytes to the polymeric network. But the insertion of hydrophobic moiety makes the compound water-insoluble, hence unsuitable for practical use. This work aimed to graft 'cetyl' and 'stearyl' moiety to the backbone of chitosan and then enhance their solubility by carboxymethylation. In FTIR study, the appearance of a new peak at 2925 cm-1 wave number indicated the insertion of the cetyl chain. The disappearance of peak within 665 to 910 cm-1 indicated the insertion of cetyl moiety to the primary amino group of chitosan to form a tert-amino group. The decrease in broadness and intensity of the peak within 3200 - 3500 cm-1 indicated the formation of the O-carboxymethylated derivative. As per the mass spectrometry study, the molecular weight distribution comprised majorly of oligomeric chain with a molar mass of 413, 463, 481, 587, 603, and 621. As per electronic microscopic study and kinetics study of agglutination by colorimetry technique, these polymers caused rapid and strong agglutination of RBCs to form clots in EDTA-treated blood.

Formulation and evaluation of polyherbal hair oil for the management of scalp dandruff



C-464

FORMULATION AND EVALUATION OF PHOSPHOLIPID COMPLEX OF TURMERIC AND COW URINE DISTILLATE FOR ANTI-ASTHMATIC ACTIVITY

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The efficacy of panchgavya based medicine Haldighanvati was enhanced by formulating its active constituents into phospholipid complex and pellets form to eliminate the drawbacks associated with traditional dosage form. Dried rhizomes of Curcuma longa was pulverized into coarse powder and extracted by petroleum ether followed by ethyl acetate. The total curcumenoid content in ethyl acetate extract were determined by linear regression spectrofluorophotometery and its isolation was achieved by solvent extraction. The complex of curcumenoid was prepared with Phospholipid 90H in in molar ratio of 1:1 subsequently validated by scanning electron microscopy (SEM), XRD and DSC. The pellets of ethyl acetate extract Curcuma longa cow urine Ksharat 1:1 proportion by using polyvinyl pyrolidone and Avicel. Bronchodilator effect was studied by milk induced leukocytosis and eosinophilia in Rat. The linolenic acid and palmitic acid were found to be as the major fatty acid constituents while n-tridecane as an essential oil in ethyl acetate extract. SEM confirm the surface topography of phospholipid complex. DSC showed elimination of endothermic peaks, appearance of new peaks while XRD revealed disappearance in the intensity of large diffraction peaks corresponding to its crystalline drug. The curcumenoid content in extract was found to be 4.1 %. Bronchodilator activity of phospholipid complex (4mg/kg) quantity equivalent to curcumenoid and ethyl acetate extract at 100 mg/kg showed significant (**p < 0.01) decrease ambulation count as compared to the milk control group. Phospholipid complex and pellets form of constituents Haldighanvati showed improved efficacy.

C-465

FORMULATION AND EVALUATION OF POLYHERBAL HAIR OIL FOR THE MANAGEMENT OF SCALP DANDRUFF

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The most common hair problem people face now-a-days is dandruff caused due to Pityrosporum (Malassezial fungi species. The fungi not only damage the scalp but has harmful effect on hair leading to hair fall, hair damage and stunted hair growth. The aim of the present study was to formulate a polyherbal hair oil made from leaves of Ocimum sanctum, Hibiscus rosa-sinensis, Eclipta prostata, Azadirachta indica, Acacia concinna, Murraya koenigii, and seeds of Trigonella goenum-gracaecum. The prepared polyherbal hair oil was further analyzed on paramters like color, odor, pH, viscosity, specific gravity and Acid value. Test parameters included irritancy test and skin sensitivity tests. The results of all the tested parameters were within the specified standards. The antidandruff efficacy was evaluated using agar plate method. The zone of inhibition observed was 25mm which served as a clear indicator for its antifungal activity.

C-466

FORMULATION AND EVALUATION OF MICROPARTICULATE DRUG DELIVERY SYSTEM FOR THE MANAGEMENT OF HYPERTENSION

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Objective of the present research work was to formulate and evaluate microparticulate drug delivery system for the management of hypertension. The phytochemical analyses, reveals that functional groups coumarin, carbohydrates, flavonoids, triterpenoids, steroids and alkaloids present in the Aegle marmelos fruit extract. The coumarin-riched fraction was isolated by column chromatography method and analytical method UV and HPLC method was performed for the actives shown absorbance at 251 nm. Transdermal route has a number of advantages over conventional drug delivery routes such as avoidance of first pass effect, enhanced bioavailability, patient compliance, steady state plasma drug level, painless drug delivery ease of application and easy removal of patch in case of toxicity.

C-467

FORMULATION AND EVALUATION OF HERBAL SUNSCREEN CREAM CONTAINING EXTRACT OF BUTTERFLY PEA FLOWER

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Sunscreen is a chemical substance that protect the skin from excessive exposure to the ultraviolet radiation of sun. Natural substances extracted from plant have recently been considered as potential sunscreen resources owing to high ultraviolet ray absorption and antioxidant activity. The decrease in intensity of UV radiation reaching the skin through sunscreen may reduce the risks of destructive effect on keratinocytes by causing DNA damage that can subsequently lead to cause the cancer erythema, edema, hyperpigmentation, photoaging, weakening of immune system and Melanoma. The aim of this study was to develop the herbal sunscreen formulation based on some fixed oil in combination with some medical plant. The present study develop the sunscreen creams containing anti UV radiation from extract of butterfly pea flower. Butterfly pea power was selected as a potential bioactive agent, processing antioxidant such as of flavonoid, anthocyanin and polyphenol. These natural isolated plant compound and whole herbal extract have gained considerable attention as sun protective agent. Several synthetic organic sunscreen agents are available in market but they have some specific use because this agent may cause adverse effect on human skin, to overcome the side effects naturally occurring compounds like antioxidant, flavonoids and whole herbal extracts has gained considerable attention as a sun protective agent. The sunscreen cream where prepaid and evaluated for their stability safety and sun protective factor (SPF). Sunscreening agent show that it should be nonirritant, inert, stable, posses SPF for normal skin and provide complete protection to skin against radiation.

C-468

FORMULATION AND EVALUATION OF NOVEL COMBINATION CONTAINING POLYHERBS FOR POLYCYSTIC OVARIAN SYNDROME (PCOS)

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PCOS is the most common endocrine disorder in women which is characterized by chronic anovulation, polycystic ovaries, and hyperandrogenism leading to symptoms of oligoamenorrhea, amenorrhea and most important infertility. According to the survey the global prevalence of syndrome is 82.44 per 10,000 population and in India prevalence of disease is 22.5 percent. The problems associated with the PCOS not only affect the individual health but also social life. The current treatment available are Nafarelin - a specific gonadotropin releasing hormone agonist, Triglitazone, Clomiphene, Metformin, Spironolactone, Leprocrine having lots of side effects and re-occurrence history. Herbal medicine has been chosen by many clinicians and patients as alternative treatment for PCOS. The herbs which are reported with antiandrogenic effects are Cimicifugaracemosa, Cinnamomum cassia, Curcuma longa, Glycyrrhiza spp. Matricaria chamomilla, Mentha piperita, Paeonia lactiflora, Silybummarianum, Tribulusterrestris, Vitexagnus-castus, Fenugreek, Royal jelly, Fennel etc. Herbs have isoflavonoid and other chemical constituents like epigallocatechin gallate, phenolic, furostanolicsaponins, palmitic acid may increase the aromatase enzyme activity and reduce testosterone levels. The present study is to explore the effects of few of the above listed herbal medicine and their active constituents in alleviating hyperandrogenism of PCOS by analysing underlined mechanism. The extraction of the plant constituents was already done. Female wistar rats were selected and grouped according to estrus cycle. PCOS symptoms were developed by using the dose of 0.4mg/kg/day of estradiol valerate for 15 days followed by herbal treatment up to one month. To conclude the research, correlation is yet to establish by analysing the histopathological study.

C-469

MOLECULAR DOCKING, EXTRACTION AND BIOLOGICAL EVALUATION OF COMBINATIONS OF HERBALS WITH ANTIBACTERIAL AGENTS

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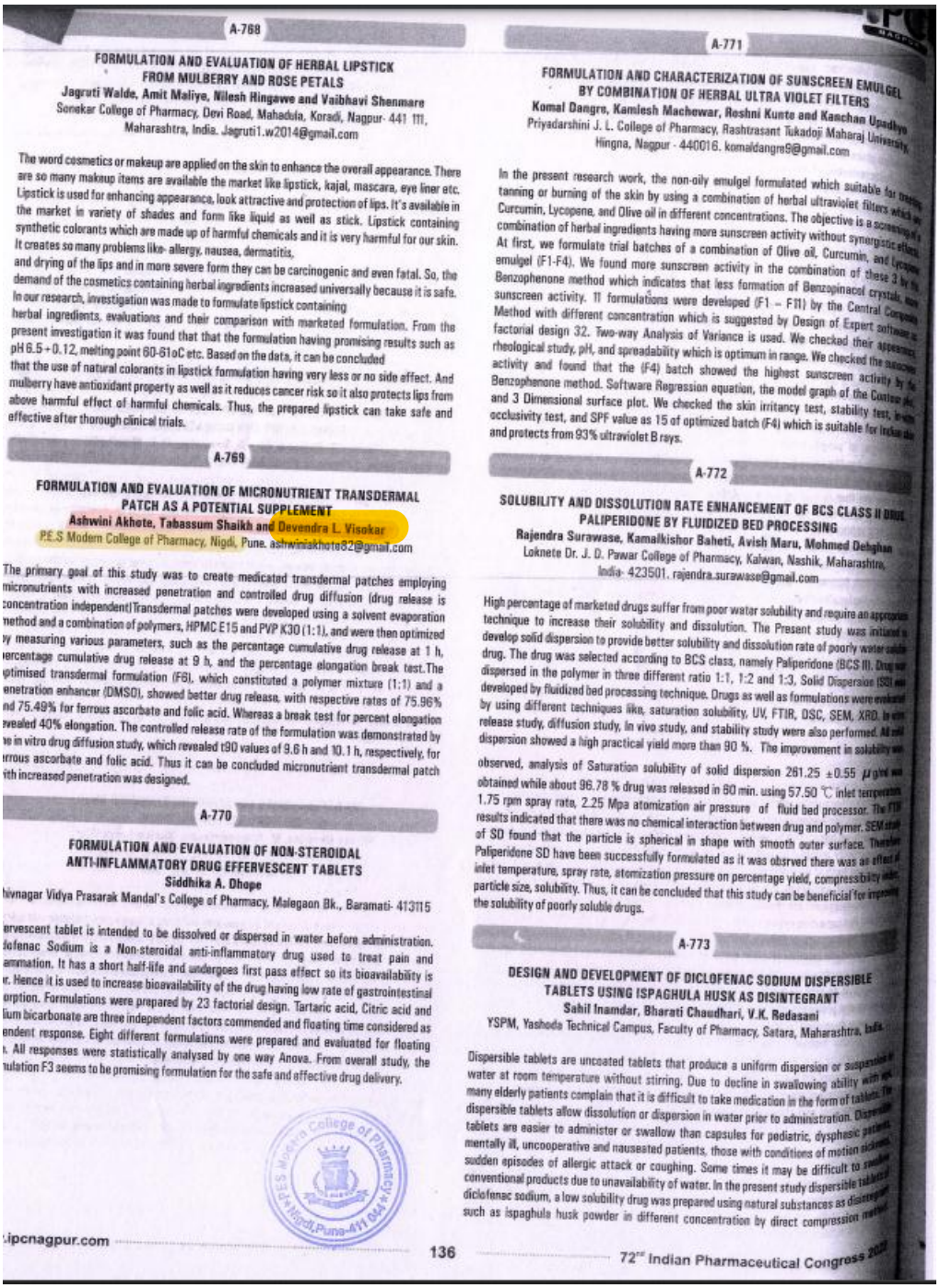
In the treatment of infectious diseases, the rapid growth of microbial resistance to conventional antibiotics has raised serious scrutiny. Phytoconstituents have shown potential antibacterial activities against sensitive and resistant pathogens via different mechanisms of action. This study was performed to investigate the antibacterial potential

Formulation and evaluation of micronutrient transdermal patch as a potential supplement



A-768

FORMULATION AND EVALUATION OF HERBAL LIPSTICK FROM MULBERRY AND ROSE PETALS

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The word cosmetics or makeup are applied on the skin to enhance the overall appearance. There are so many makeup items are available the market like lipstick, kajal, mascara, eye liner etc. Lipstick is used for enhancing appearance, look attractive and protection of lips. It's available in the market in variety of shades and form like liquid as well as stick. Lipstick containing synthetic colorants which are made up of harmful chemicals and it is very harmful for our skin. It creates so many problems like- allergy, nausea, dermatitis, and drying of the lips and in more severe form they can be carcinogenic and even fatal. So, the demand of the cosmetics containing herbal ingredients increased universally because it is safe. In our research, investigation was made to formulate lipstick containing herbal ingredients, evaluations and their comparison with marketed formulation. From the present investigation it was found that that the formulation having promising results such as pH 6.5 ± 0.12, melting point 60-61oC etc. Based on the data, it can be concluded that the use of natural colorants in lipstick formulation having very less or no side effect. And mulberry have antioxidant property as well as it reduces cancer risk so it also protects lips from above harmful effect of harmful chemicals. Thus, the prepared lipstick can take safe and effective after thorough clinical trials.

A-769

FORMULATION AND EVALUATION OF MICRONUTRIENT TRANSDERMAL PATCH AS A POTENTIAL SUPPLEMENT

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The primary goal of this study was to create medicated transdermal patches employing micronutrients with increased penetration and controlled drug diffusion (drug release is concentration independent)Transdermal patches were developed using a solvent evaporation method and a combination of polymers, HPMC E15 and PVP K30 (1:1), and were then optimized by measuring various parameters, such as the percentage cumulative drug release at 1 h, percentage cumulative drug release at 9 h, and the percentage elongation break test.The optimised transdermal formulation (F6), which constituted a polymer mixture (1:1) and a penetration enhancer (DMSO), showed better drug release, with respective rates of 75.96% and 75.49% for ferrous ascorbate and folic acid. Whereas a break test for percent elongation revealed 40% elongation. The controlled release rate of the formulation was demonstrated by the in vitro drug diffusion study, which revealed t90 values of 9.6 h and 10.1 h, respectively, for ferrous ascorbate and folic acid. Thus it can be concluded micronutrient transdermal patch with increased penetration was designed.

A-770

FORMULATION AND EVALUATION OF NON-STEROIDAL ANTI-INFLAMMATORY DRUG EFFERVESCENT TABLETS

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effervescent tablet is intended to be dissolved or dispersed in water before administration. Diclofenac Sodium is a Non-steroidal anti-inflammatory drug used to treat pain and inflammation. It has a short half-life and undergoes first pass effect so its bioavailability is low. Hence it is used to increase bioavailability of the drug having low rate of gastrointestinal absorption. Formulations were prepared by 23 factorial design. Tartaric acid, Citric acid and Sodium bicarbonate are three independent factors commended and floating time considered as dependent response. Eight different formulations were prepared and evaluated for floating time. All responses were statistically analysed by one way Anova. From overall study, the formulation F3 seems to be promising formulation for the safe and affective drug delivery.

A-771

FORMULATION AND CHARACTERIZATION OF SUNSCREEN EMULGEL BY COMBINATION OF HERBAL ULTRA VIOLET FILTERS

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In the present research work, the non-oily emulgel formulated which suitable for treating tanning or burning of the skin by using a combination of herbal ultraviolet filters which are Curcumin, Lycopene, and Olive oil in different concentrations. The objective is a screening of a combination of herbal ingredients having more sunscreen activity without synergistic effects. At first, we formulate trial batches of a combination of Olive oil, Curcumin, and Lycopene emulgel (F1-F4). We found more sunscreen activity in the combination of these 3 by the Benzophenone method which indicates that less formation of Benzopinacol crystals, more sunscreen activity. 11 formulations were developed (F1 – F11) by the Central Composite Method with different concentration which is suggested by Design of Expert software as factorial design 32. Two-way Analysis of Variance is used. We checked their appearance, rheological study, pH, and spreadability which is optimum in range. We checked the sunscreen activity and found that the (F4) batch showed the highest sunscreen activity by the Benzophenone method. Software Regression equation, the model graph of the Contour plot and 3 Dimensional surface plot. We checked the skin irritancy test, stability test, leakage test, occlusivity test, and SPF value as 15 of optimized batch (F4) which is suitable for Indian skin and protects from 93% ultraviolet B rays.

A-772

SOLUBILITY AND DISSOLUTION RATE ENHANCEMENT OF BCS CLASS II DRUG PALIPERIDONE BY FLUIDIZED BED PROCESSING

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High percentage of marketed drugs suffer from poor water solubility and require an appropriate technique to increase their solubility and dissolution. The Present study was initiated to develop solid dispersion to provide better solubility and dissolution rate of poorly water soluble drug. The drug was selected according to BCS class, namely Paliperidone (BCS II). Drug was dispersed in the polymer in three different ratio 1:1, 1:2 and 1:3. Solid Dispersion (SD) was developed by fluidized bed processing technique. Drugs as well as formulations were evaluated by using different techniques like, saturation solubility, UV, FTIR, DSC, SEM, XRD. In vitro release study, diffusion study, In vivo study, and stability study were also performed. All solid dispersion showed a high practical yield more than 90 %. The improvement in solubility was observed, analysis of Saturation solubility of solid dispersion 261.25 ±0.55 µg/ml was obtained while about 96.78 % drug was released in 60 min. using 57.50 ℃ inlet temperature, 1.75 rpm spray rate, 2.25 Mpa atomization air pressure of fluid bed processor. The FTIR results indicated that there was no chemical interaction between drug and polymer. SEM study of SD found that the particle is spherical in shape with smooth outer surface. Therefore Paliperidone SD have been successfully formulated as it was observed there was an effect of inlet temperature, spray rate, atomization pressure on percentage yield, compressibility index, particle size, solubility. Thus, it can be concluded that this study can be beneficial for improving the solubility of poorly soluble drugs.

A-773

DESIGN AND DEVELOPMENT OF DICLOFENAC SODIUM DISPERSIBLE TABLETS USING ISPAGHULA HUSK AS DISINTEGRANT

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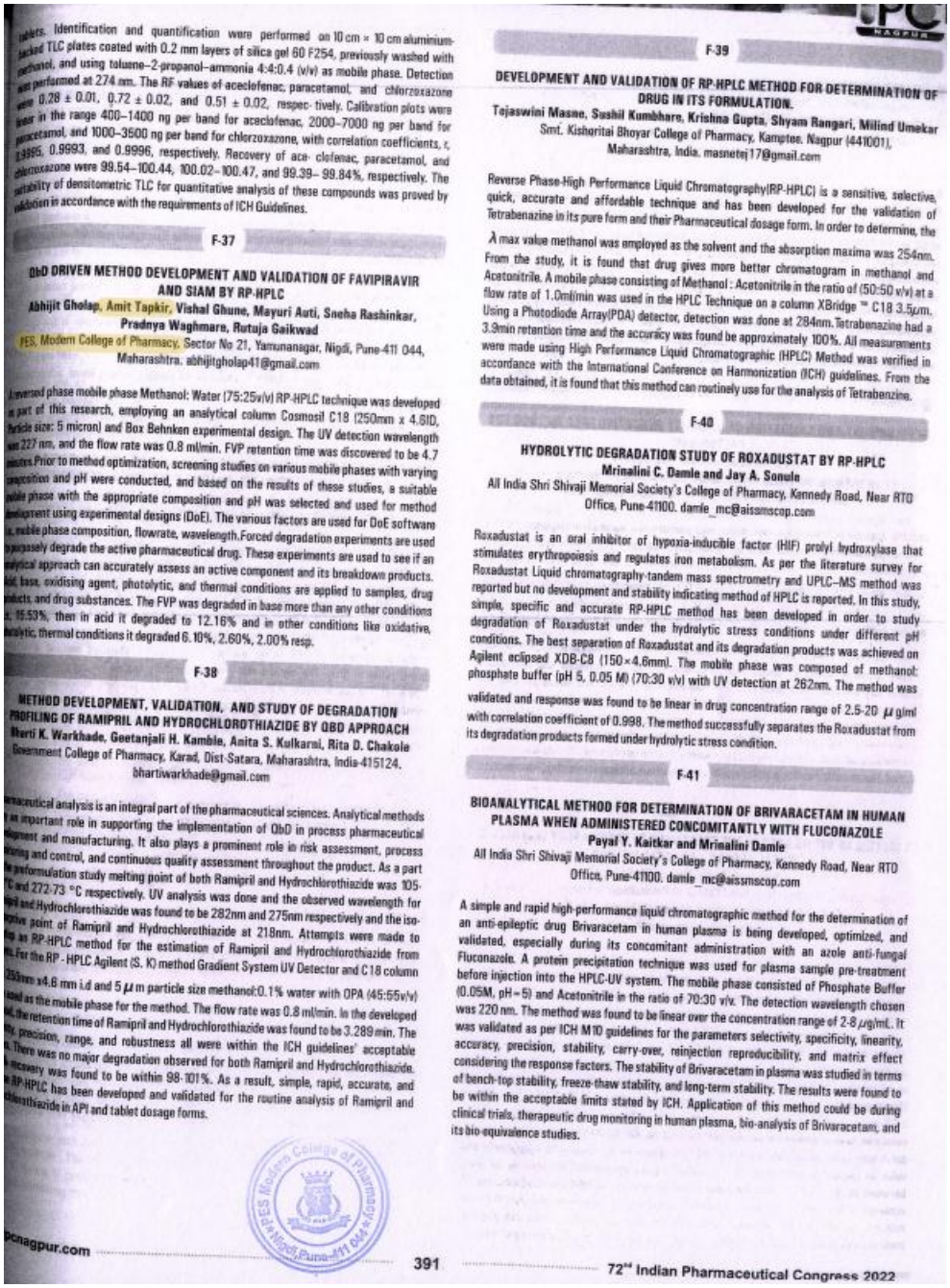
Dispersible tablets are uncoated tablets that produce a uniform dispersion or suspension in water at room temperature without stirring. Due to decline in swallowing ability with age, many elderly patients complain that it is difficult to take medication in the form of tablets. The dispersible tablets allow dissolution or dispersion in water prior to administration. Dispersible tablets are easier to administer or swallow than capsules for pediatric, dysphasic patients, mentally ill, uncooperative and nauseated patients, those with conditions of motion sickness, sudden episodes of allergic attack or coughing. Some times it may be difficult to swallow conventional products due to unavailability of water. In the present study dispersible tablets of diclofenac sodium, a low solubility drug was prepared using natural substances as disintegrant such as ispaghula husk powder in different concentration by direct compression method

Qbd Driven method development and validation of Favipiravir and Siam by RP-HPLC



tablets. Identification and quantification were performed on 10 cm × 10 cm aluminium-backed TLC plates coated with 0.2 mm layers of silica gel 60 F254, previously washed with methanol, and using toluene–2-propanol–ammonia 4:4:0.4 (v/v) as mobile phase. Detection was performed at 274 nm. The *Rf* values of aceclofenac, paracetamol, and chlorzoxazone were 0.28 ± 0.01, 0.72 ± 0.02, and 0.51 ± 0.02, respec- tively. Calibration plots were linear in the range 400–1400 ng per band for aceclofenac, 2000–7000 ng per band for paracetamol, and 1000–3500 ng per band for chlorzoxazone, with correlation coefficients, *r*, 0.9995, 0.9993, and 0.9996, respectively. Recovery of ace- clofenac, paracetamol, and chlorzoxazone were 99.54–100.44, 100.02–100.47, and 99.39– 99.84%, respectively. The suitability of densitometric TLC for quantitative analysis of these compounds was proved by validation in accordance with the requirements of ICH Guidelines.

F-37

QbD DRIVEN METHOD DEVELOPMENT AND VALIDATION OF FAVIPIRAVIR AND SIAM BY RP-HPLC

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A reversed phase mobile phase Methanol: Water (75:25v/v) RP-HPLC technique was developed as part of this research, employing an analytical column Cosmosil C18 (250mm x 4.6ID, Particle size: 5 micron) and Box Behnken experimental design. The UV detection wavelength was 227 nm, and the flow rate was 0.8 ml/min. FVP retention time was discovered to be 4.7 minutes Prior to method optimization, screening studies on various mobile phases with varying composition and pH were conducted, and based on the results of these studies, a suitable mobile phase with the appropriate composition and pH was selected and used for method development using experimental designs (DoE). The various factors are used for DoE software is, mobile phase composition, flowrate, wavelength.Forced degradation experiments are used to purposely degrade the active pharmaceutical drug. These experiments are used to see if an analytical approach can accurately assess an active component and its breakdown products. Acid, base, oxidising agent, photolytic, and thermal conditions are applied to samples, drug products, and drug substances. The FVP was degraded in base more than any other conditions i.e. 15.53%, then in acid it degraded to 12.16% and in other conditions like oxidative, photolytic, thermal conditions it degraded 6.10%, 2.60%, 2.00% resp.

F-38

METHOD DEVELOPMENT, VALIDATION, AND STUDY OF DEGRADATION PROFILING OF RAMIPRIL AND HYDROCHLOROTHIAZIDE BY QBD APPROACH

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Pharmaceutical analysis is an integral part of the pharmaceutical sciences. Analytical methods play an important role in supporting the implementation of QbD in process pharmaceutical development and manufacturing. It also plays a prominent role in risk assessment, process monitoring and control, and continuous quality assessment throughout the product. As a part of the preformulation study melting point of both Ramipril and Hydrochlorothiazide was 105-107 °C and 272-73 °C respectively. UV analysis was done and the observed wavelength for Ramipril and Hydrochlorothiazide was found to be 282nm and 275nm respectively and the iso-sorptive point of Ramipril and Hydrochlorothiazide at 218nm. Attempts were made to develop an RP-HPLC method for the estimation of Ramipril and Hydrochlorothiazide from tablets. For the RP - HPLC Agilent (S. K) method Gradient System UV Detector and C18 column (250mm x4.6 mm i.d and 5 µm particle size methanol:0.1% water with OPA (45:55v/v) was used as the mobile phase for the method. The flow rate was 0.8 ml/min. In the developed method, the retention time of Ramipril and Hydrochlorothiazide was found to be 3.289 min. The linearity, precision, range, and robustness all were within the ICH guidelines' acceptable limits. There was no major degradation observed for both Ramipril and Hydrochlorothiazide. The % recovery was found to be within 98-101%. As a result, simple, rapid, accurate, and precise RP-HPLC has been developed and validated for the routine analysis of Ramipril and Hydrochlorothiazide in API and tablet dosage forms.

F-39

DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR DETERMINATION OF DRUG IN ITS FORMULATION.

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Reverse Phase-High Performance Liquid Chromatography(RP-HPLC) is a sensitive, selective, quick, accurate and affordable technique and has been developed for the validation of Tetrabenazine in its pure form and their Pharmaceutical dosage form. In order to determine, the λ max value methanol was employed as the solvent and the absorption maxima was 254nm. From the study, it is found that drug gives more better chromatogram in methanol and Acetonitrile. A mobile phase consisting of Methanol : Acetonitrile in the ratio of (50:50 v/v) at a flow rate of 1.0ml/min was used in the HPLC Technique on a column XBridge ™ C18 3.5µm. Using a Photodiode Array(PDA) detector, detection was done at 284nm.Tetrabenazine had a 3.9min retention time and the accuracy was found be approximately 100%. All measurements were made using High Performance Liquid Chromatographic (HPLC) Method was verified in accordance with the International Conference on Harmonization (ICH) guidelines. From the data obtained, it is found that this method can routinely use for the analysis of Tetrabenzine.

F-40

HYDROLYTIC DEGRADATION STUDY OF ROXADUSTAT BY RP-HPLC

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Roxadustat is an oral inhibitor of hypoxia-inducible factor (HIF) prolyl hydroxylase that stimulates erythropoiesis and regulates iron metabolism. As per the literature survey for Roxadustat Liquid chromatography-tandem mass spectrometry and UPLC–MS method was reported but no development and stability indicating method of HPLC is reported. In this study, simple, specific and accurate RP-HPLC method has been developed in order to study degradation of Roxadustat under the hydrolytic stress conditions under different pH conditions. The best separation of Roxadustat and its degradation products was achieved on Agilent eclipsed XDB-C8 (150×4.6mm). The mobile phase was composed of methanol: phosphate buffer (pH 5, 0.05 M) (70:30 v/v) with UV detection at 262nm. The method was validated and response was found to be linear in drug concentration range of 2.5-20 µg/ml with correlation coefficient of 0.998. The method successfully separates the Roxadustat from its degradation products formed under hydrolytic stress condition.

F-41

BIOANALYTICAL METHOD FOR DETERMINATION OF BRIVARACETAM IN HUMAN PLASMA WHEN ADMINISTERED CONCOMITANTLY WITH FLUCONAZOLE

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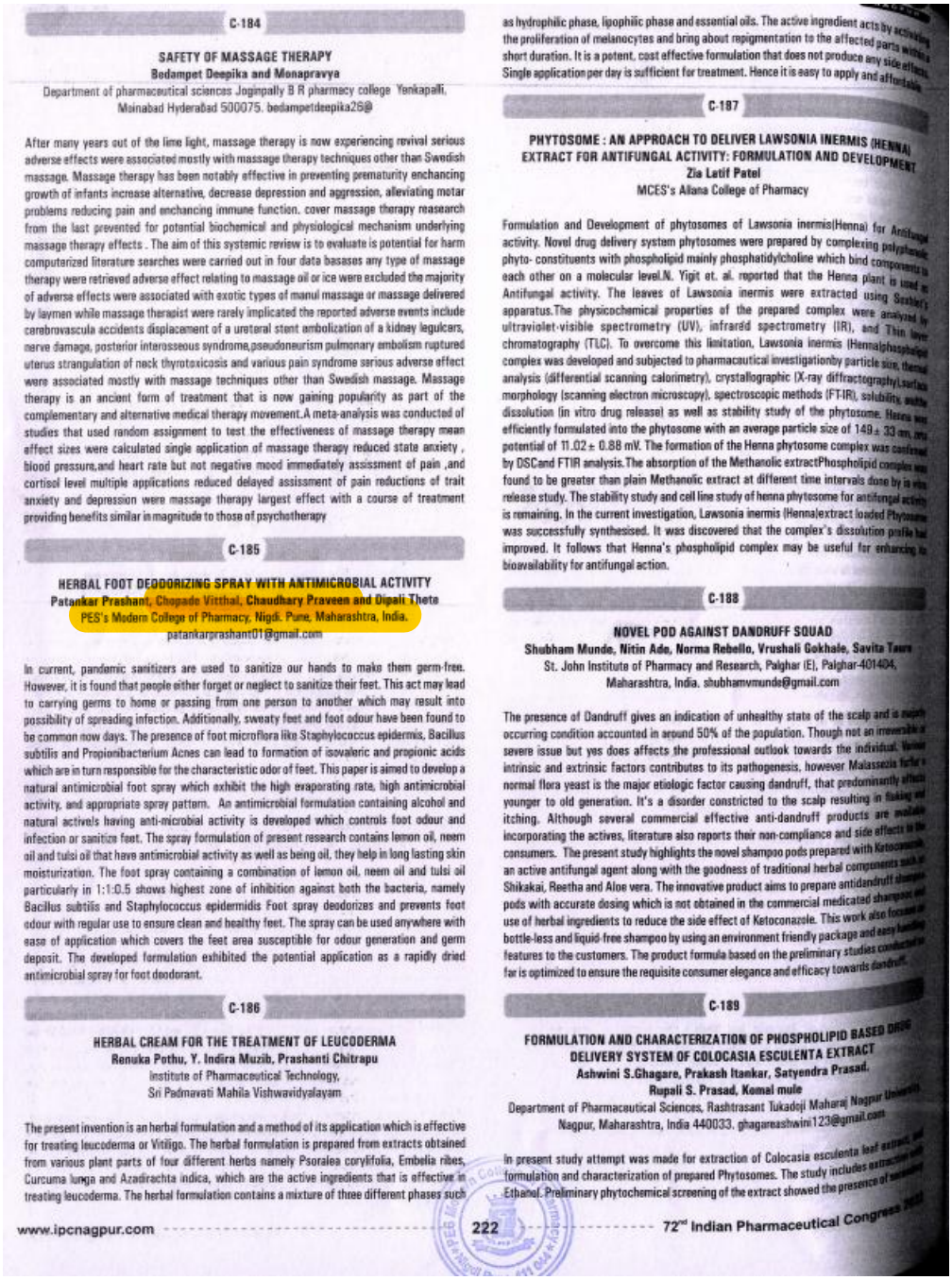
A simple and rapid high-performance liquid chromatographic method for the determination of an anti-epileptic drug Brivaracetam in human plasma is being developed, optimized, and validated, especially during its concomitant administration with an azole anti-fungal Fluconazole. A protein precipitation technique was used for plasma sample pre-treatment before injection into the HPLC-UV system. The mobile phase consisted of Phosphate Buffer (0.05M, pH – 5) and Acetonitrile in the ratio of 70:30 v/v. The detection wavelength chosen was 220 nm. The method was found to be linear over the concentration range of 2-8 µg/mL. It was validated as per ICH M10 guidelines for the parameters selectivity, specificity, linearity, accuracy, precision, stability, carry-over, reinjection reproducibility, and matrix effect considering the response factors. The stability of Brivaracetam in plasma was studied in terms of bench-top stability, freeze-thaw stability, and long-term stability. The results were found to be within the acceptable limits stated by ICH. Application of this method could be during clinical trials, therapeutic drug monitoring in human plasma, bio-analysis of Brivaracetam, and its bio-equivalence studies.

Herbal foot deodorizing spray with antimicrobial activity



C-184

SAFETY OF MASSAGE THERAPY

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After many years out of the lime light, massage therapy is now experiencing revival serious adverse effects were associated mostly with massage therapy techniques other than Swedish massage. Massage therapy has been notably effective in preventing prematurity enchancing growth of infants increase alternative, decrease depression and aggression, alleviating motar problems reducing pain and enchancing immune function. cover massage therapy reasearch from the last prevented for potential biochemical and physiological mechanism underlying massage therapy effects . The aim of this systemic review is to evaluate is potential for harm computerized literature searches were carried out in four data basases any type of massage therapy were retrieved adverse effect relating to massage oil or ice were excluded the majority of adverse effects were associated with exotic types of manul massage or massage delivered by laymen while massage therapist were rarely implicated the reported adverse events include cerebrovascula accidents displacement of a ureteral stent embolization of a kidney legulcers, nerve damage, posterior interosseous syndrome,pseudoneurism pulmonary embolism ruptured uterus strangulation of neck thyrotoxicosis and various pain syndrome serious adverse effect were associated mostly with massage techniques other than Swedish massage. Massage therapy is an ancient form of treatment that is now gaining popularity as part of the complementary and alternative medical therapy movement.A meta-analysis was conducted of studies that used random assignment to test the effectiveness of massage therapy mean effect sizes were calculated single application of massage therapy reduced state anxiety , blood pressure,and heart rate but not negative mood immediately assissment of pain ,and cortisol level multiple applications reduced delayed assissment of pain reductions of trait anxiety and depression were massage therapy largest effect with a course of treatment providing benefits similar in magnitude to those of psychotherapy

C-185

HERBAL FOOT DEODORIZING SPRAY WITH ANTIMICROBIAL ACTIVITY

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In current, pandemic sanitizers are used to sanitize our hands to make them germ-free. However, it is found that people either forget or neglect to sanitize their feet. This act may lead to carrying germs to home or passing from one person to another which may result into possibility of spreading infection. Additionally, sweaty feet and foot odour have been found to be common now days. The presence of foot microflora like Staphylococcus epidermis, Bacillus subtilis and Propionibacterium Acnes can lead to formation of isovaleric and propionic acids which are in turn responsible for the characteristic odor of feet. This paper is aimed to develop a natural antimicrobial foot spray which exhibit the high evaporating rate, high antimicrobial activity, and appropriate spray pattern. An antimicrobial formulation containing alcohol and natural actives having anti-microbial activity is developed which controls foot odour and infection or sanitize feet. The spray formulation of present research contains lemon oil, neem oil and tulsi oil that have antimicrobial activity as well as being oil, they help in long lasting skin moisturization. The foot spray containing a combination of lemon oil, neem oil and tulsi oil particularly in 1:1:0.5 shows highest zone of inhibition against both the bacteria, namely Bacillus subtilis and Staphylococcus epidermidis Foot spray deodorizes and prevents foot odour with regular use to ensure clean and healthy feet. The spray can be used anywhere with ease of application which covers the feet area susceptible for odour generation and germ deposit. The developed formulation exhibited the potential application as a rapidly dried antimicrobial spray for foot deodorant.

C-186

HERBAL CREAM FOR THE TREATMENT OF LEUCODERMA

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The present invention is an herbal formulation and a method of its application which is effective for treating leucoderma or Vitiligo. The herbal formulation is prepared from extracts obtained from various plant parts of four different herbs namely Psoralea corylifolia, Embelia ribes, Curcuma longa and Azadirachta indica, which are the active ingredients that is effective in treating leucoderma. The herbal formulation contains a mixture of three different phases such as hydrophilic phase, lipophilic phase and essential oils. The active ingredient acts by activating the proliferation of melanocytes and bring about repigmentation to the affected parts within a short duration. It is a potent, cost effective formulation that does not produce any side effects. Single application per day is sufficient for treatment. Hence it is easy to apply and affordable.

C-187

PHYTOSOME : AN APPROACH TO DELIVER LAWSONIA INERMIS (HENNA) EXTRACT FOR ANTIFUNGAL ACTIVITY: FORMULATION AND DEVELOPMENT

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Formulation and Development of phytosomes of Lawsonia inermis(Henna) for Antifungal activity. Novel drug delivery system phytosomes were prepared by complexing polyphenolic phyto- constituents with phospholipid mainly phosphatidylcholine which bind components to each other on a molecular level.N. Yigit et. al. reported that the Henna plant is used as Antifungal activity. The leaves of Lawsonia inermis were extracted using Soxhlet's apparatus.The physicochemical properties of the prepared complex were analyzed by ultraviolet-visible spectrometry (UV), infrared spectrometry (IR), and Thin layer chromatography (TLC). To overcome this limitation, Lawsonia inermis (Hennalphospholipid complex was developed and subjected to pharmaceutical investigationby particle size, thermal analysis (differential scanning calorimetry), crystallographic (X-ray diffractography),surface morphology (scanning electron microscopy), spectroscopic methods (FT-IR), solubility, and dissolution (in vitro drug release) as well as stability study of the phytosome. Henna was efficiently formulated into the phytosome with an average particle size of 149± 33 nm, zeta potential of 11.02± 0.88 mV. The formation of the Henna phytosome complex was confirmed by DSCand FTIR analysis.The absorption of the Methanolic extractPhospholipid complex was found to be greater than plain Methanolic extract at different time intervals done by in vitro release study. The stability study and cell line study of henna phytosome for antifungal activity is remaining. In the current investigation, Lawsonia inermis (Hennalextract loaded Phytosome was successfully synthesised. It was discovered that the complex's dissolution profile had improved. It follows that Henna's phospholipid complex may be useful for enhancing its bioavailability for antifungal action.

C-188

NOVEL POD AGAINST DANDRUFF SQUAD

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The presence of Dandruff gives an indication of unhealthy state of the scalp and is majorly occurring condition accounted in around 50% of the population. Though not an irreversible or severe issue but yes does affects the professional outlook towards the individual. Various intrinsic and extrinsic factors contributes to its pathogenesis, however Malassezia furfur a normal flora yeast is the major etiologic factor causing dandruff, that predominantly affects younger to old generation. It's a disorder constricted to the scalp resulting in flaking and itching. Although several commercial effective anti-dandruff products are available incorporating the actives, literature also reports their non-compliance and side effects to the consumers. The present study highlights the novel shampoo pods prepared with Ketoconazole an active antifungal agent along with the goodness of traditional herbal components such as Shikakai, Reetha and Aloe vera. The innovative product aims to prepare antidandruff shampoo pods with accurate dosing which is not obtained in the commercial medicated shampoos and use of herbal ingredients to reduce the side effect of Ketoconazole. This work also focuses on bottle-less and liquid-free shampoo by using an environment friendly package and easy handling features to the customers. The product formula based on the preliminary studies conducted so far is optimized to ensure the requisite consumer elegance and efficacy towards dandruff.

C-189

FORMULATION AND CHARACTERIZATION OF PHOSPHOLIPID BASED DRUG DELIVERY SYSTEM OF COLOCASIA ESCULENTA EXTRACT

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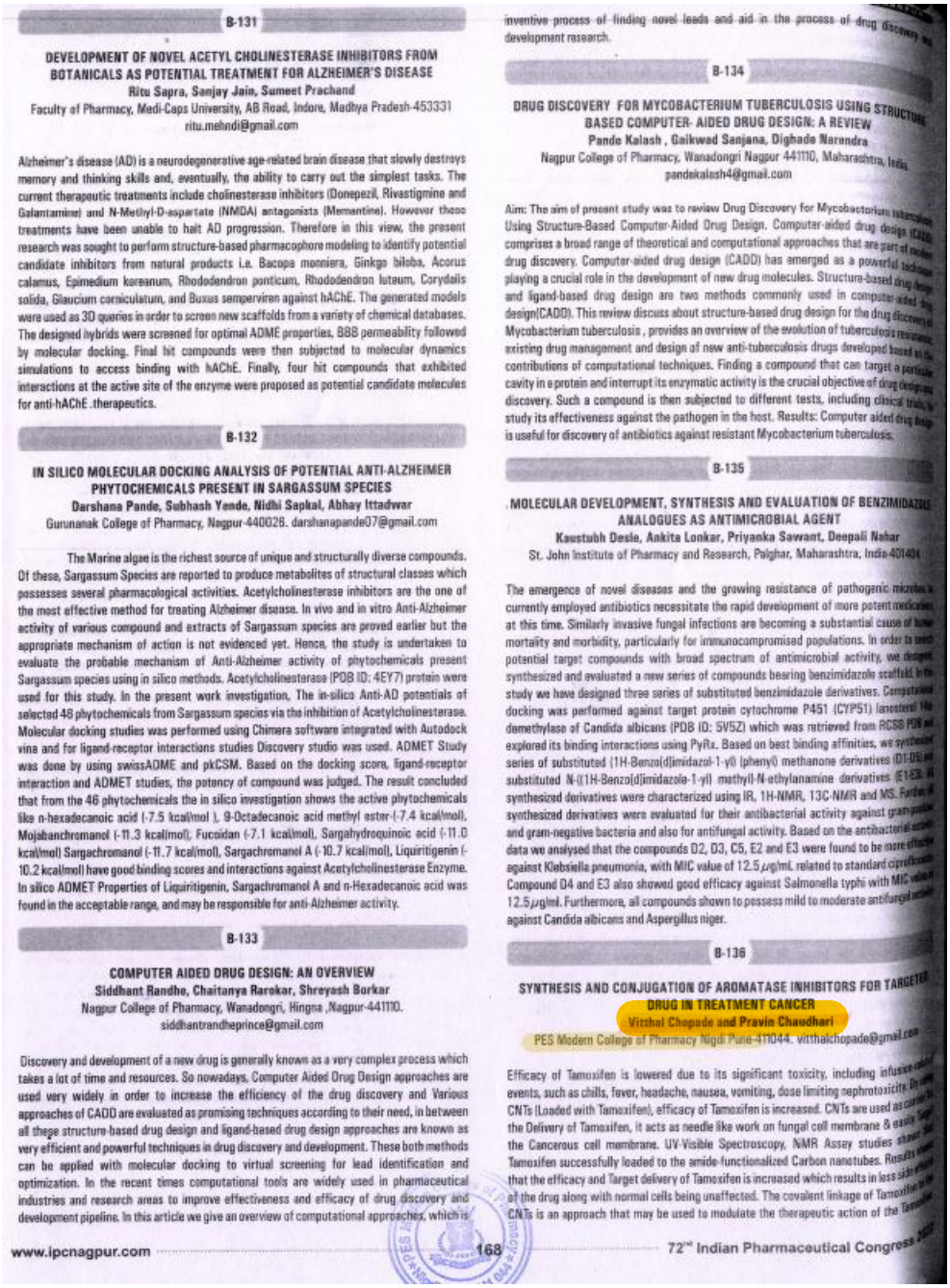
In present study attempt was made for extraction of Colocasia esculenta leaf extract, its formulation and characterization of prepared Phytosomes. The study includes extraction with Ethanol. Preliminary phytochemical screening of the extract showed the presence of

Synthesis and conjugation of aromatase inhibitors for targeted drug in treatment cancer



B-131

DEVELOPMENT OF NOVEL ACETYL CHOLINESTERASE INHIBITORS FROM BOTANICALS AS POTENTIAL TREATMENT FOR ALZHEIMER'S DISEASE

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Alzheimer's disease (AD) is a neurodegenerative age-related brain disease that slowly destroys memory and thinking skills and, eventually, the ability to carry out the simplest tasks. The current therapeutic treatments include cholinesterase inhibitors (Donepezil, Rivastigmine and Galantamine) and N-Methyl-D-aspartate (NMDA) antagonists (Memantine). However these treatments have been unable to halt AD progression. Therefore in this view, the present research was sought to perform structure-based pharmacophore modeling to identify potential candidate inhibitors from natural products i.e. Bacopa monniera, Ginkgo biloba, Acorus calamus, Epimedium koreanum, Rhododendron ponticum, Rhododendron luteum, Corydalis solida, Glaucium corniculatum, and Buxus semperviren against hAChE. The generated models were used as 3D queries in order to screen new scaffolds from a variety of chemical databases. The designed hybrids were screened for optimal ADME properties, BBB permeability followed by molecular docking. Final hit compounds were then subjected to molecular dynamics simulations to access binding with hAChE. Finally, four hit compounds that exhibited interactions at the active site of the enzyme were proposed as potential candidate molecules for anti-hAChE therapeutics.

B-132

IN SILICO MOLECULAR DOCKING ANALYSIS OF POTENTIAL ANTI-ALZHEIMER PHYTOCHEMICALS PRESENT IN SARGASSUM SPECIES

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The Marine algae is the richest source of unique and structurally diverse compounds. Of these, Sargassum Species are reported to produce metabolites of structural classes which possesses several pharmacological activities. Acetylcholinesterase inhibitors are the one of the most effective method for treating Alzheimer disease. In vivo and in vitro Anti-Alzheimer activity of various compound and extracts of Sargassum species are proved earlier but the appropriate mechanism of action is not evidenced yet. Hence, the study is undertaken to evaluate the probable mechanism of Anti-Alzheimer activity of phytochemicals present Sargassum species using in silico methods. Acetylcholinesterase (PDB ID: 4EY7) protein were used for this study. In the present work investigation, The in-silico Anti-AD potentials of selected 48 phytochemicals from Sargassum species via the inhibition of Acetylcholinesterase. Molecular docking studies was performed using Chimera software integrated with Autodock vina and for ligand-receptor interactions studies Discovery studio was used. ADMET Study was done by using swissADME and pkCSM. Based on the docking score, ligand-receptor interaction and ADMET studies, the potency of compound was judged. The result concluded that from the 46 phytochemicals the in silico investigation shows the active phytochemicals like n-hexadecanoic acid (-7.5 kcal/mol), 9-Octadecanoic acid methyl ester-(-7.4 kcal/mol), Mojabanchromanol (-11.3 kcal/mol), Fucoidan (-7.1 kcal/mol), Sargahydroquinoic acid (-11.0 kcal/mol) Sargachromanol (-11.7 kcal/mol), Sargachromanol A (-10.7 kcal/mol), Liquiritigenin (-10.2 kcal/mol) have good binding scores and interactions against Acetylcholinesterase Enzyme. In silico ADMET Properties of Liquiritigenin, Sargachromanol A and n-Hexadecanoic acid was found in the acceptable range, and may be responsible for anti-Alzheimer activity.

B-133

COMPUTER AIDED DRUG DESIGN: AN OVERVIEW

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Discovery and development of a new drug is generally known as a very complex process which takes a lot of time and resources. So nowadays, Computer Aided Drug Design approaches are used very widely in order to increase the efficiency of the drug discovery and Various approaches of CADD are evaluated as promising techniques according to their need, in between all these structure-based drug design and ligand-based drug design approaches are known as very efficient and powerful techniques in drug discovery and development. These both methods can be applied with molecular docking to virtual screening for lead identification and optimization. In the recent times computational tools are widely used in pharmaceutical industries and research areas to improve effectiveness and efficacy of drug discovery and development pipeline. In this article we give an overview of computational approaches, which is inventive process of finding novel leads and aid in the process of drug discovery and development research.

B-134

DRUG DISCOVERY FOR MYCOBACTERIUM TUBERCULOSIS USING STRUCTURE BASED COMPUTER- AIDED DRUG DESIGN: A REVIEW

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Aim: The aim of present study was to review Drug Discovery for Mycobacterium tuberculosis Using Structure-Based Computer-Aided Drug Design. Computer-aided drug design (CADD) comprises a broad range of theoretical and computational approaches that are part of modern drug discovery. Computer-aided drug design (CADD) has emerged as a powerful technique playing a crucial role in the development of new drug molecules. Structure-based drug design and ligand-based drug design are two methods commonly used in computer-aided drug design(CADD). This review discuss about structure-based drug design for the drug discovery of Mycobacterium tuberculosis , provides an overview of the evolution of tuberculosis resistance, existing drug management and design of new anti-tuberculosis drugs developed based on the contributions of computational techniques. Finding a compound that can target a particular cavity in a protein and interrupt its enzymatic activity is the crucial objective of drug design and discovery. Such a compound is then subjected to different tests, including clinical trials, to study its effectiveness against the pathogen in the host. Results: Computer aided drug design is useful for discovery of antibiotics against resistant Mycobacterium tuberculosis.

B-135

MOLECULAR DEVELOPMENT, SYNTHESIS AND EVALUATION OF BENZIMIDAZOLE ANALOGUES AS ANTIMICROBIAL AGENT

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The emergence of novel diseases and the growing resistance of pathogenic microbes to currently employed antibiotics necessitate the rapid development of more potent medicines at this time. Similarly invasive fungal infections are becoming a substantial cause of human mortality and morbidity, particularly for immunocompromised populations. In order to search potential target compounds with broad spectrum of antimicrobial activity, we designed, synthesized and evaluated a new series of compounds bearing benzimidazole scaffold. In this study we have designed three series of substituted benzimidazole derivatives. Computational docking was performed against target protein cytochrome P451 (CYP51) lanosterol 14α-demethylase of Candida albicans (PDB ID: 5V5Z) which was retrieved from RCSB PDB and explored its binding interactions using PyRx. Based on best binding affinities, we synthesized series of substituted (1H-Benzo[d]imidazol-1-yl) (phenyl) methanone derivatives (D1-D5) and substituted N-((1H-Benzo[d]imidazole-1-yl) methyl)-N-ethylanamine derivatives (E1-E3). We synthesized derivatives were characterized using IR, 1H-NMR, 13C-NMR and MS. Further, the synthesized derivatives were evaluated for their antibacterial activity against gram-positive and gram-negative bacteria and also for antifungal activity. Based on the antibacterial activity data we analysed that the compounds D2, D3, C5, E2 and E3 were found to be more effective against Klebsiella pneumonia, with MIC value of 12.5 μg/ml related to standard ciprofloxacin. Compound D4 and E3 also showed good efficacy against Salmonella typhi with MIC value of 12.5 μg/ml. Furthermore, all compounds shown to possess mild to moderate antifungal activity against Candida albicans and Aspergillus niger.

B-136

SYNTHESIS AND CONJUGATION OF AROMATASE INHIBITORS FOR TARGETED DRUG IN TREATMENT CANCER

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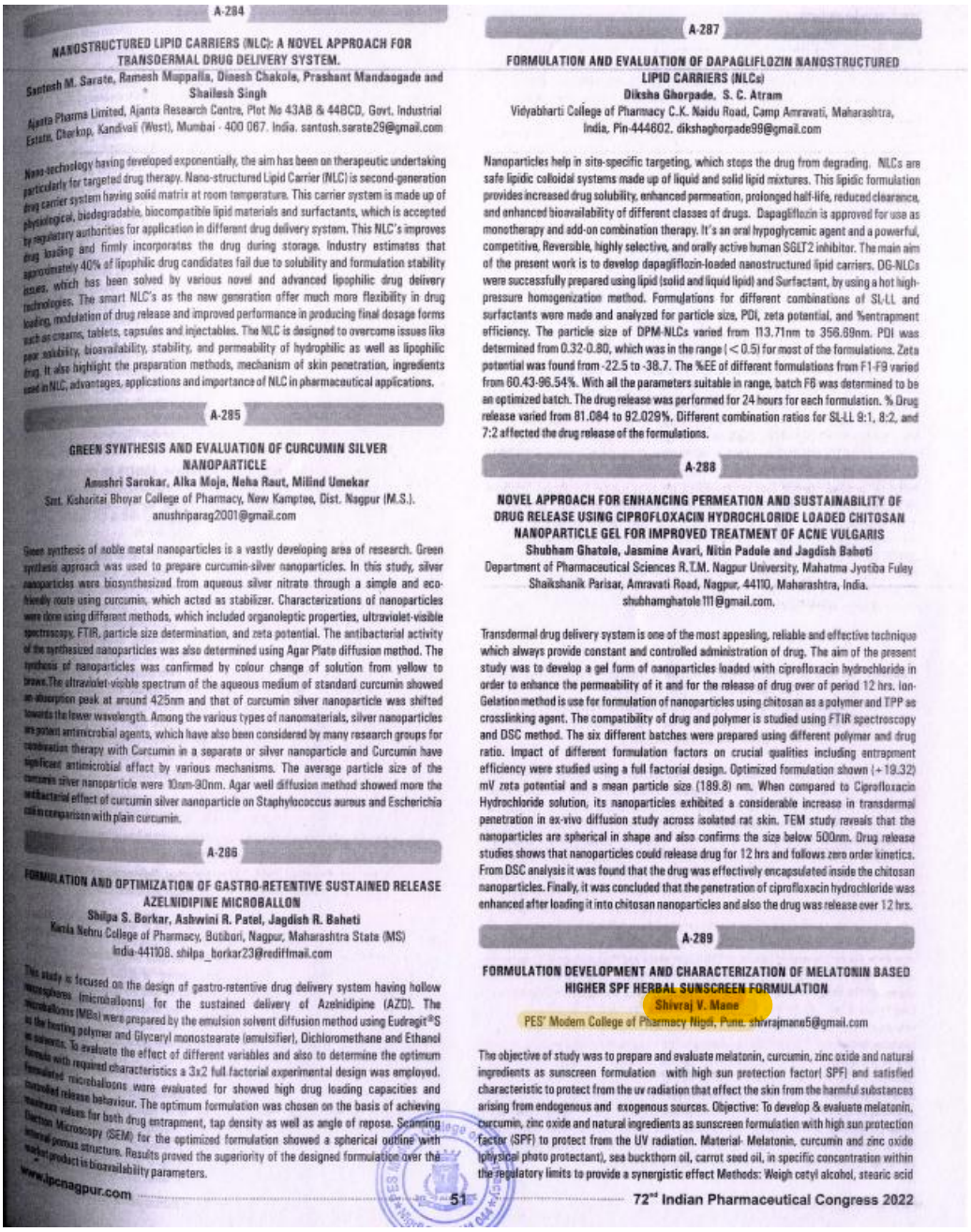
Efficacy of Tamoxifen is lowered due to its significant toxicity, including infusion-related events, such as chills, fever, headache, nausea, vomiting, dose limiting nephrotoxicity. By using CNTs (Loaded with Tamoxifen), efficacy of Tamoxifen is increased. CNTs are used as carrier for the Delivery of Tamoxifen, it acts as needle like work on fungal cell membrane & easily enter the Cancerous cell membrane. UV-Visible Spectroscopy, NMR Assay studies show that Tamoxifen successfully loaded to the amide-functionalized Carbon nanotubes. Results show that the efficacy and Target delivery of Tamoxifen is increased which results in less side effects of the drug along with normal cells being unaffected. The covalent linkage of Tamoxifen to the CNTs is an approach that may be used to modulate the therapeutic action of the Tamoxifen

Formulation development and characterization of melatonin based higher spf herbal sunscreen formulation



A-284

NANOSTRUCTURED LIPID CARRIERS (NLC): A NOVEL APPROACH FOR TRANSDERMAL DRUG DELIVERY SYSTEM.

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Nano-technology having developed exponentially, the aim has been on therapeutic undertaking particularly for targeted drug therapy. Nano-structured Lipid Carrier (NLC) is second-generation drug carrier system having solid matrix at room temperature. This carrier system is made up of physiological, biodegradable, biocompatible lipid materials and surfactants, which is accepted by regulatory authorities for application in different drug delivery system. This NLC's improves drug loading and firmly incorporates the drug during storage. Industry estimates that approximately 40% of lipophilic drug candidates fail due to solubility and formulation stability issues, which has been solved by various novel and advanced lipophilic drug delivery technologies. The smart NLC's as the new generation offer much more flexibility in drug loading, modulation of drug release and improved performance in producing final dosage forms such as creams, tablets, capsules and injectables. The NLC is designed to overcome issues like poor solubility, bioavailability, stability, and permeability of hydrophilic as well as lipophilic drug. It also highlight the preparation methods, mechanism of skin penetration, ingredients used in NLC, advantages, applications and importance of NLC in pharmaceutical applications.

A-285

GREEN SYNTHESIS AND EVALUATION OF CURCUMIN SILVER NANOPARTICLE

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Green synthesis of noble metal nanoparticles is a vastly developing area of research. Green synthesis approach was used to prepare curcumin-silver nanoparticles. In this study, silver nanoparticles were biosynthesized from aqueous silver nitrate through a simple and eco-friendly route using curcumin, which acted as stabilizer. Characterizations of nanoparticles were done using different methods, which included organoleptic properties, ultraviolet-visible spectroscopy, FTIR, particle size determination, and zeta potential. The antibacterial activity of the synthesized nanoparticles was also determined using Agar Plate diffusion method. The synthesis of nanoparticles was confirmed by colour change of solution from yellow to brown. The ultraviolet-visible spectrum of the aqueous medium of standard curcumin showed an absorption peak at around 425nm and that of curcumin silver nanoparticle was shifted towards the lower wavelength. Among the various types of nanomaterials, silver nanoparticles are potent antimicrobial agents, which have also been considered by many research groups for combination therapy with Curcumin in a separate or silver nanoparticle and Curcumin have significant antimicrobial affect by various mechanisms. The average particle size of the curcumin silver nanoparticle were 10nm-90nm. Agar well diffusion method showed more the antibacterial effect of curcumin silver nanoparticle on Staphylococcus aureus and Escherichia coli in comparison with plain curcumin.

A-286

FORMULATION AND OPTIMIZATION OF GASTRO-RETENTIVE SUSTAINED RELEASE AZELNIDIPINE MICROBALLON

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The study is focused on the design of gastro-retentive drug delivery system having hollow microspheres (microballoons) for the sustained delivery of Azelnidipine (AZD). The microballoons (MBs) were prepared by the emulsion solvent diffusion method using Eudragit®S as the floating polymer and Glyceryl monostearate (emulsifier), Dichloromethane and Ethanol as solvents. To evaluate the effect of different variables and also to determine the optimum formula with required characteristics a 3x2 full factorial experimental design was employed. Formulated microballoons were evaluated for showed high drug loading capacities and controlled release behaviour. The optimum formulation was chosen on the basis of achieving maximum values for both drug entrapment, tap density as well as angle of repose. Scanning Electron Microscopy (SEM) for the optimized formulation showed a spherical outline with internal porous structure. Results proved the superiority of the designed formulation over the market product in bioavailability parameters.

A-287

FORMULATION AND EVALUATION OF DAPAGLIFLOZIN NANOSTRUCTURED LIPID CARRIERS (NLCs)

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Nanoparticles help in site-specific targeting, which stops the drug from degrading. NLCs are safe lipidic colloidal systems made up of liquid and solid lipid mixtures. This lipidic formulation provides increased drug solubility, enhanced permeation, prolonged half-life, reduced clearance, and enhanced bioavailability of different classes of drugs. Dapagliflozin is approved for use as monotherapy and add-on combination therapy. It's an oral hypoglycemic agent and a powerful, competitive, Reversible, highly selective, and orally active human SGLT2 inhibitor. The main aim of the present work is to develop dapagliflozin-loaded nanostructured lipid carriers. DG-NLCs were successfully prepared using lipid (solid and liquid lipid) and Surfactant, by using a hot high-pressure homogenization method. Formulations for different combinations of SL:LL and surfactants were made and analyzed for particle size, PDI, zeta potential, and %entrapment efficiency. The particle size of DPM-NLCs varied from 113.71nm to 356.89nm. PDI was determined from 0.32-0.80, which was in the range (< 0.5) for most of the formulations. Zeta potential was found from -22.5 to -38.7. The %EE of different formulations from F1-F9 varied from 60.43-96.54%. With all the parameters suitable in range, batch F6 was determined to be an optimized batch. The drug release was performed for 24 hours for each formulation. % Drug release varied from 81.084 to 92.029%. Different combination ratios for SL:LL 9:1, 8:2, and 7:2 affected the drug release of the formulations.

A-288

NOVEL APPROACH FOR ENHANCING PERMEATION AND SUSTAINABILITY OF DRUG RELEASE USING CIPROFLOXACIN HYDROCHLORIDE LOADED CHITOSAN NANOPARTICLE GEL FOR IMPROVED TREATMENT OF ACNE VULGARIS

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Transdermal drug delivery system is one of the most appealing, reliable and effective technique which always provide constant and controlled administration of drug. The aim of the present study was to develop a gel form of nanoparticles loaded with ciprofloxacin hydrochloride in order to enhance the permeability of it and for the release of drug over of period 12 hrs. Ion-Gelation method is use for formulation of nanoparticles using chitosan as a polymer and TPP as crosslinking agent. The compatibility of drug and polymer is studied using FTIR spectroscopy and DSC method. The six different batches were prepared using different polymer and drug ratio. Impact of different formulation factors on crucial qualities including entrapment efficiency were studied using a full factorial design. Optimized formulation shown (+19.32) mV zeta potential and a mean particle size (189.8) nm. When compared to Ciprofloxacin Hydrochloride solution, its nanoparticles exhibited a considerable increase in transdermal penetration in ex-vivo diffusion study across isolated rat skin. TEM study reveals that the nanoparticles are spherical in shape and also confirms the size below 500nm. Drug release studies shows that nanoparticles could release drug for 12 hrs and follows zero order kinetics. From DSC analysis it was found that the drug was effectively encapsulated inside the chitosan nanoparticles. Finally, it was concluded that the penetration of ciprofloxacin hydrochloride was enhanced after loading it into chitosan nanoparticles and also the drug was release over 12 hrs.

A-289

FORMULATION DEVELOPMENT AND CHARACTERIZATION OF MELATONIN BASED HIGHER SPF HERBAL SUNSCREEN FORMULATION

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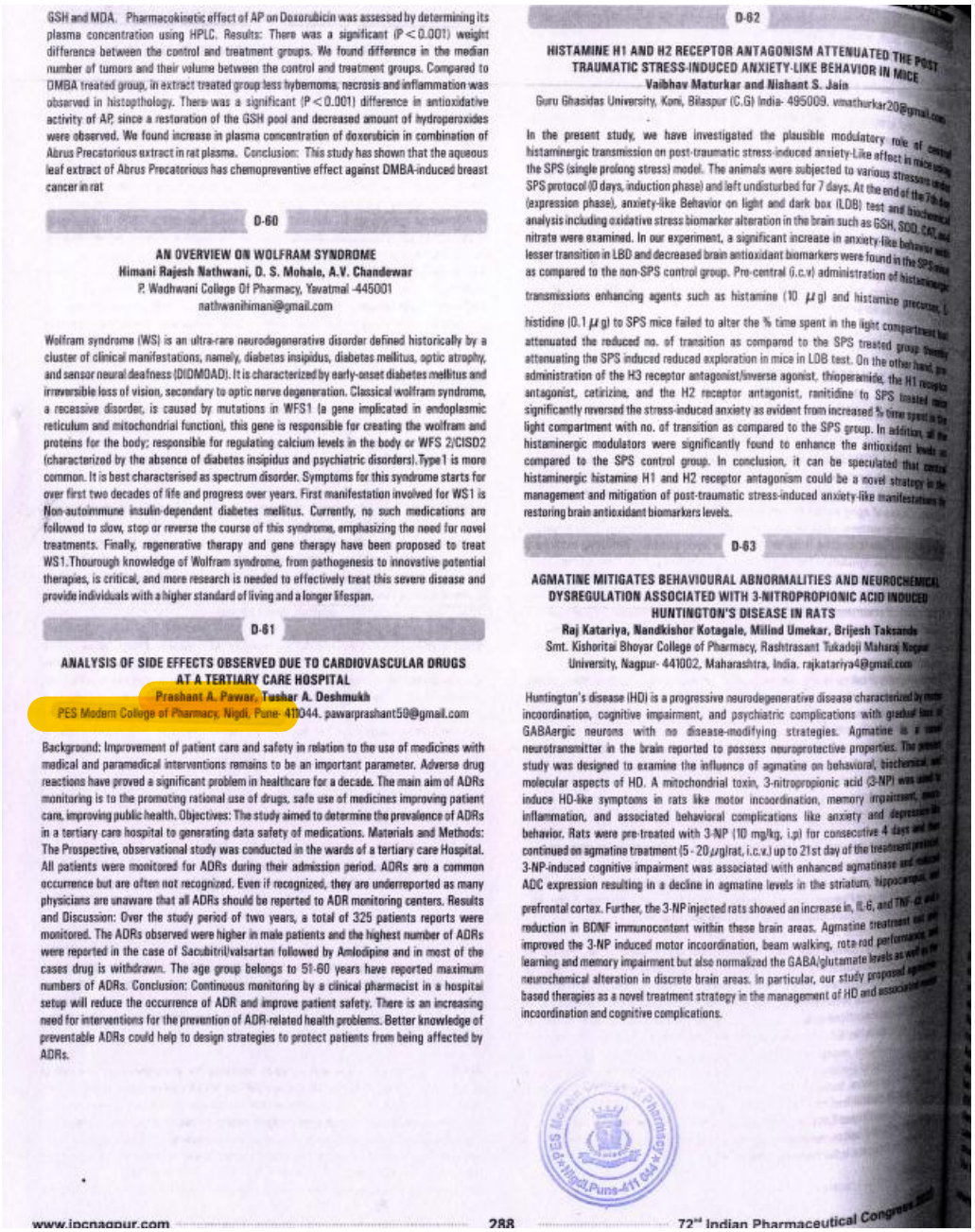
The objective of study was to prepare and evaluate melatonin, curcumin, zinc oxide and natural ingredients as sunscreen formulation with high sun protection factor(SPF) and satisfied characteristic to protect from the uv radiation that effect the skin from the harmful substances arising from endogenous and exogenous sources. Objective: To develop & evaluate melatonin, curcumin, zinc oxide and natural ingredients as sunscreen formulation with high sun protection factor (SPF) to protect from the UV radiation. Material- Melatonin, curcumin and zinc oxide (physical photo protectant), sea buckthorn oil, carrot seed oil, in specific concentration within the regulatory limits to provide a synergistic effect Methods: Weigh cetyl alcohol, stearic acid

Analysis of side effects observed due to cardiovascular drugs at a tertiary care hospital



GSH and MDA. Pharmacokinetic effect of AP on Doxorubicin was assessed by determining its plasma concentration using HPLC. Results: There was a significant ($P < 0.001$) weight difference between the control and treatment groups. We found difference in the median number of tumors and their volume between the control and treatment groups. Compared to DMBA treated group, in extract treated group less hyperplasia, necrosis and inflammation was observed in histopathology. There was a significant ($P < 0.001$) difference in antioxidative activity of AP, since a restoration of the GSH pool and decreased amount of hydroperoxides were observed. We found increase in plasma concentration of doxorubicin in combination of Abrus Precatorious extract in rat plasma. Conclusion: This study has shown that the aqueous leaf extract of Abrus Precatorious has chemopreventive effect against DMBA-induced breast cancer in rat

D-60

AN OVERVIEW ON WOLFRAM SYNDROME

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Wolfram syndrome (WS) is an ultra-rare neurodegenerative disorder defined historically by a cluster of clinical manifestations, namely, diabetes insipidus, diabetes mellitus, optic atrophy, and sensor neural deafness (DIDMOAD). It is characterized by early-onset diabetes mellitus and irreversible loss of vision, secondary to optic nerve degeneration. Classical wolfram syndrome, a recessive disorder, is caused by mutations in WFS1 (a gene implicated in endoplasmic reticulum and mitochondrial function), this gene is responsible for creating the wolfram and proteins for the body; responsible for regulating calcium levels in the body or WFS 2(CISD2 (characterized by the absence of diabetes insipidus and psychiatric disorders).Type1 is more common. It is best characterised as spectrum disorder. Symptoms for this syndrome starts for over first two decades of life and progress over years. First manifestation involved for WS1 is Non-autoimmune insulin-dependent diabetes mellitus. Currently, no such medications are followed to slow, stop or reverse the course of this syndrome, emphasizing the need for novel treatments. Finally, regenerative therapy and gene therapy have been proposed to treat WS1.Thourough knowledge of Wolfram syndrome, from pathogenesis to innovative potential therapies, is critical, and more research is needed to effectively treat this severe disease and provide individuals with a higher standard of living and a longer lifespan.

D-61

ANALYSIS OF SIDE EFFECTS OBSERVED DUE TO CARDIOVASCULAR DRUGS AT A TERTIARY CARE HOSPITAL

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Background: Improvement of patient care and safety in relation to the use of medicines with medical and paramedical interventions remains to be an important parameter. Adverse drug reactions have proved a significant problem in healthcare for a decade. The main aim of ADRs monitoring is to the promoting rational use of drugs, safe use of medicines improving patient care, improving public health. Objectives: The study aimed to determine the prevalence of ADRs in a tertiary care hospital to generating data safety of medications. Materials and Methods: The Prospective, observational study was conducted in the wards of a tertiary care Hospital. All patients were monitored for ADRs during their admission period. ADRs are a common occurrence but are often not recognized. Even if recognized, they are underreported as many physicians are unaware that all ADRs should be reported to ADR monitoring centers. Results and Discussion: Over the study period of two years, a total of 325 patients reports were monitored. The ADRs observed were higher in male patients and the highest number of ADRs were reported in the case of Sacubitril/valsartan followed by Amlodipine and in most of the cases drug is withdrawn. The age group belongs to 51-60 years have reported maximum numbers of ADRs. Conclusion: Continuous monitoring by a clinical pharmacist in a hospital setup will reduce the occurrence of ADR and improve patient safety. There is an increasing need for interventions for the prevention of ADR-related health problems. Better knowledge of preventable ADRs could help to design strategies to protect patients from being affected by ADRs.

D-62

HISTAMINE H1 AND H2 RECEPTOR ANTAGONISM ATTENUATED THE POST TRAUMATIC STRESS-INDUCED ANXIETY-LIKE BEHAVIOR IN MICE

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In the present study, we have investigated the plausible modulatory role of central histaminergic transmission on post-traumatic stress-induced anxiety-Like effect in mice using the SPS (single prolong stress) model. The animals were subjected to various stressors under SPS protocol (0 days, induction phase) and left undisturbed for 7 days. At the end of the 7th day (expression phase), anxiety-like Behavior on light and dark box (LDB) test and biochemical analysis including oxidative stress biomarker alteration in the brain such as GSH, SOD, CAT, and nitrate were examined. In our experiment, a significant increase in anxiety-like behavior was lesser transition in LBD and decreased brain antioxidant biomarkers were found in the SPS mice as compared to the non-SPS control group. Pre-central (i.c.v) administration of histaminergic transmissions enhancing agents such as histamine (10 μg) and histamine precursor, L-histidine (0.1 μg) to SPS mice failed to alter the % time spent in the light compartment but attenuated the reduced no. of transition as compared to the SPS treated group thereby attenuating the SPS induced reduced exploration in mice in LDB test. On the other hand, pre-administration of the H3 receptor antagonist/inverse agonist, thioperamide, the H1 receptor antagonist, cetirizine, and the H2 receptor antagonist, ranitidine to SPS treated mice significantly reversed the stress-induced anxiety as evident from increased % time spent in the light compartment with no. of transition as compared to the SPS group. In addition, all the histaminergic modulators were significantly found to enhance the antioxidant levels as compared to the SPS control group. In conclusion, it can be speculated that central histaminergic histamine H1 and H2 receptor antagonism could be a novel strategy in the management and mitigation of post-traumatic stress-induced anxiety-like manifestations by restoring brain antioxidant biomarkers levels.

D-63

AGMATINE MITIGATES BEHAVIOURAL ABNORMALITIES AND NEUROCHEMICAL DYSREGULATION ASSOCIATED WITH 3-NITROPROPIONIC ACID INDUCED HUNTINGTON'S DISEASE IN RATS

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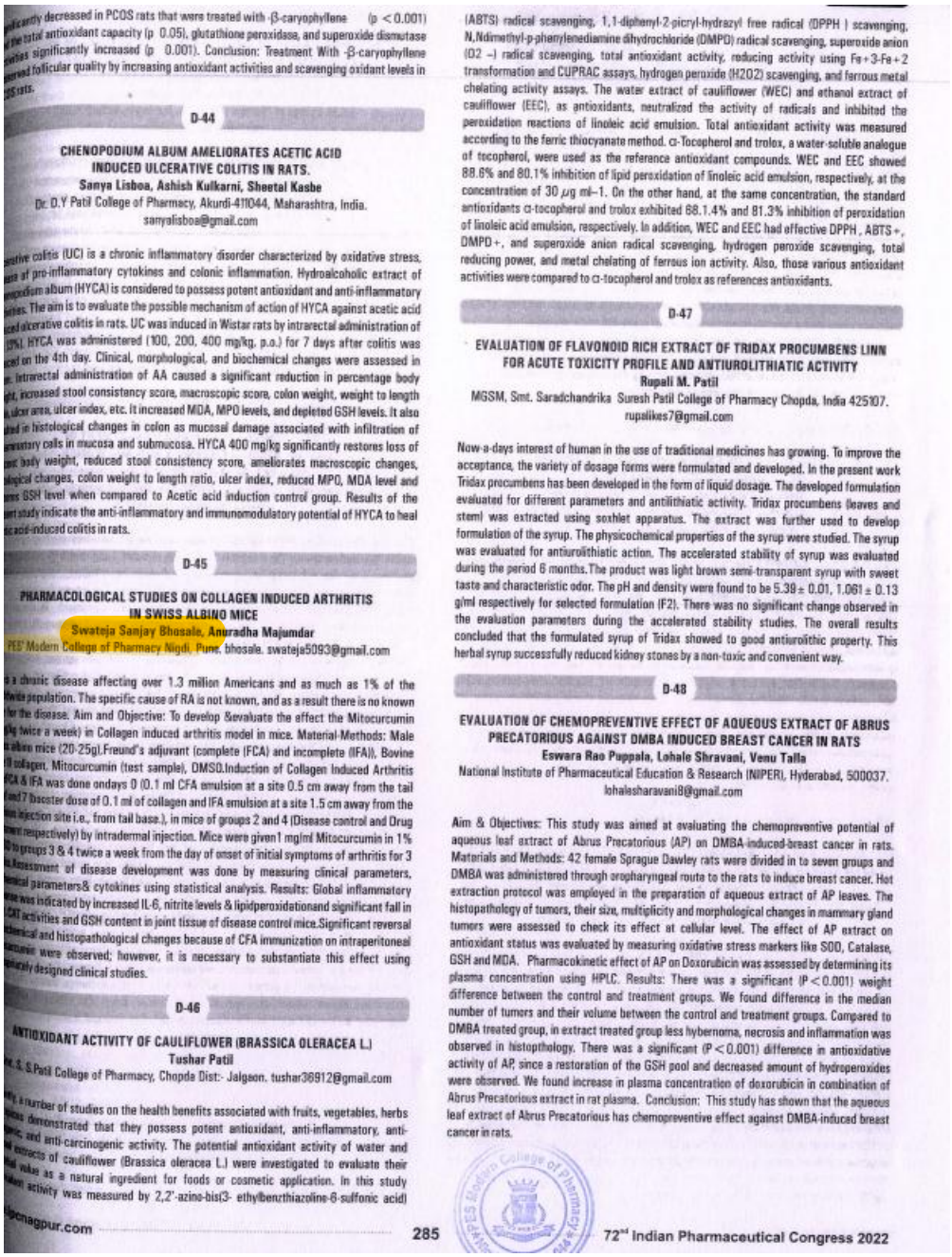
Huntington's disease (HD) is a progressive neurodegenerative disease characterized by motor incoordination, cognitive impairment, and psychiatric complications with gradual loss of GABAergic neurons with no disease-modifying strategies. Agmatine is a novel neurotransmitter in the brain reported to possess neuroprotective properties. The present study was designed to examine the influence of agmatine on behavioral, biochemical, and molecular aspects of HD. A mitochondrial toxin, 3-nitropropionic acid (3-NP) was used to induce HD-like symptoms in rats like motor incoordination, memory impairment, neuroinflammation, and associated behavioral complications like anxiety and depression-like behavior. Rats were pre-treated with 3-NP (10 mg/kg, i.p) for consecutive 4 days and then continued on agmatine treatment (5 - 20 μg/rat, i.c.v.) up to 21st day of the treatment protocol. 3-NP-induced cognitive impairment was associated with enhanced agmatinase and reduced ADC expression resulting in a decline in agmatine levels in the striatum, hippocampus, and prefrontal cortex. Further, the 3-NP injected rats showed an increase in, IL-6, and TNF-α and reduction in BDNF immunocontent within these brain areas. Agmatine treatment not only improved the 3-NP induced motor incoordination, beam walking, rota-rod performance, and learning and memory impairment but also normalized the GABA/glutamate levels as well as the neurochemical alteration in discrete brain areas. In particular, our study proposed agmatine based therapies as a novel treatment strategy in the management of HD and associated incoordination and cognitive complications.

Pharmacological studies on collagen induced arthritis in swiss albino mice



significantly decreased in PCOS rats that were treated with -β-caryophyllene ($p < 0.001$) ... the total antioxidant capacity (p 0.05), glutathione peroxidase, and superoxide dismutase ... activities significantly increased (p 0.001). Conclusion: Treatment With -β-caryophyllene ... improved follicular quality by increasing antioxidant activities and scavenging oxidant levels in ... PCOS rats.

D-44

CHENOPODIUM ALBUM AMELIORATES ACETIC ACID INDUCED ULCERATIVE COLITIS IN RATS.

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...erative colitis (UC) is a chronic inflammatory disorder characterized by oxidative stress, ...ase of pro-inflammatory cytokines and colonic inflammation. Hydroalcoholic extract of ...enopodium album (HYCA) is considered to possess potent antioxidant and anti-inflammatory ...erties. The aim is to evaluate the possible mechanism of action of HYCA against acetic acid ...ced ulcerative colitis in rats. UC was induced in Wistar rats by intrarectal administration of ...(3%). HYCA was administered (100, 200, 400 mg/kg, p.o.) for 7 days after colitis was ...ced on the 4th day. Clinical, morphological, and biochemical changes were assessed in ... Intrarectal administration of AA caused a significant reduction in percentage body ...ght, increased stool consistency score, macroscopic score, colon weight, weight to length ... ulcer area, ulcer index, etc. It increased MDA, MPO levels, and depleted GSH levels. It also ...ated in histological changes in colon as mucosal damage associated with infiltration of ...ammatory cells in mucosa and submucosa. HYCA 400 mg/kg significantly restores loss of ...ose body weight, reduced stool consistency score, ameliorates macroscopic changes, ...logical changes, colon weight to length ratio, ulcer index, reduced MPO, MDA level and ...ases GSH level when compared to Acetic acid induction control group. Results of the ...ent study indicate the anti-inflammatory and immunomodulatory potential of HYCA to heal ...tic acid-induced colitis in rats.

D-45

PHARMACOLOGICAL STUDIES ON COLLAGEN INDUCED ARTHRITIS IN SWISS ALBINO MICE

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...a chronic disease affecting over 1.3 million Americans and as much as 1% of the ...dwide population. The specific cause of RA is not known, and as a result there is no known ...for the disease. Aim and Objective: To develop &evaluate the effect the Mitocurcumin ...kg twice a week) in Collagen induced arthritis model in mice. Material-Methods: Male ...albino mice (20-25gl.Freund's adjuvant (complete (FCA) and incomplete (IFA)), Bovine ...II collagen, Mitocurcumin (test sample), DMSO.Induction of Collagen Induced Arthritis ...(CIA & IFA was done ondays 0 (0.1 ml CFA emulsion at a site 0.5 cm away from the tail ...base and 7 booster dose of 0.1 ml of collagen and IFA emulsion at a site 1.5 cm away from the ...main injection site i.e., from tail base.), in mice of groups 2 and 4 (Disease control and Drug ...treatment respectively) by intradermal injection. Mice were given1 mg/ml Mitocurcumin in 1% ...w to groups 3 & 4 twice a week from the day of onset of initial symptoms of arthritis for 3 ...wks. Assessment of disease development was done by measuring clinical parameters, ...biochemical parameters& cytokines using statistical analysis. Results: Global inflammatory ...response was indicated by increased IL-6, nitrite levels & lipidperoxidationand significant fall in ...SOD, CAT activities and GSH content in joint tissue of disease control mice.Significant reversal ...of biochemical and histopathological changes because of CFA immunization on intraperitoneal ...Mitocurcumin were observed; however, it is necessary to substantiate this effect using ...appropriately designed clinical studies.

D-46

ANTIOXIDANT ACTIVITY OF CAULIFLOWER (BRASSICA OLERACEA L.)

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...A number of studies on the health benefits associated with fruits, vegetables, herbs ...have demonstrated that they possess potent antioxidant, anti-inflammatory, anti-...genic, and anti-carcinogenic activity. The potential antioxidant activity of water and ...ethanol extracts of cauliflower (Brassica oleracea L.) were investigated to evaluate their ...medicinal values as a natural ingredient for foods or cosmetic application. In this study ...the antioxidant activity was measured by 2,2'-azino-bis(3- ethylbenzthiazoline-6-sulfonic acid) ...(ABTS) radical scavenging, 1,1-diphenyl-2-picryl-hydrazyl free radical (DPPH) scavenging, N,Ndimethyl-p-phenylenediamine dihydrochloride (DMPD) radical scavenging, superoxide anion (O2 –) radical scavenging, total antioxidant activity, reducing activity using Fe+3-Fe+2 transformation and CUPRAC assays, hydrogen peroxide (H2O2) scavenging, and ferrous metal chelating activity assays. The water extract of cauliflower (WEC) and ethanol extract of cauliflower (EEC), as antioxidants, neutralized the activity of radicals and inhibited the peroxidation reactions of linoleic acid emulsion. Total antioxidant activity was measured according to the ferric thiocyanate method. α-Tocopherol and trolox, a water-soluble analogue of tocopherol, were used as the reference antioxidant compounds. WEC and EEC showed 88.6% and 80.1% inhibition of lipid peroxidation of linoleic acid emulsion, respectively, at the concentration of 30 μg ml–1. On the other hand, at the same concentration, the standard antioxidants α-tocopherol and trolox exhibited 88.1.4% and 81.3% inhibition of peroxidation of linoleic acid emulsion, respectively. In addition, WEC and EEC had effective DPPH , ABTS+, DMPD+, and superoxide anion radical scavenging, hydrogen peroxide scavenging, total reducing power, and metal chelating of ferrous ion activity. Also, those various antioxidant activities were compared to α-tocopherol and trolox as references antioxidants.

D-47

EVALUATION OF FLAVONOID RICH EXTRACT OF TRIDAX PROCUMBENS LINN FOR ACUTE TOXICITY PROFILE AND ANTIUROLITHIATIC ACTIVITY

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Now-a-days interest of human in the use of traditional medicines has growing. To improve the acceptance, the variety of dosage forms were formulated and developed. In the present work Tridax procumbens has been developed in the form of liquid dosage. The developed formulation evaluated for different parameters and antilithiatic activity. Tridax procumbens (leaves and stem) was extracted using soxhlet apparatus. The extract was further used to develop formulation of the syrup. The physicochemical properties of the syrup were studied. The syrup was evaluated for antiurolithiatic action. The accelerated stability of syrup was evaluated during the period 6 months.The product was light brown semi-transparent syrup with sweet taste and characteristic odor. The pH and density were found to be 5.39± 0.01, 1.061± 0.13 g/ml respectively for selected formulation (F2). There was no significant change observed in the evaluation parameters during the accelerated stability studies. The overall results concluded that the formulated syrup of Tridax showed to good antiurolithic property. This herbal syrup successfully reduced kidney stones by a non-toxic and convenient way.

D-48

EVALUATION OF CHEMOPREVENTIVE EFFECT OF AQUEOUS EXTRACT OF ABRUS PRECATORIOUS AGAINST DMBA INDUCED BREAST CANCER IN RATS

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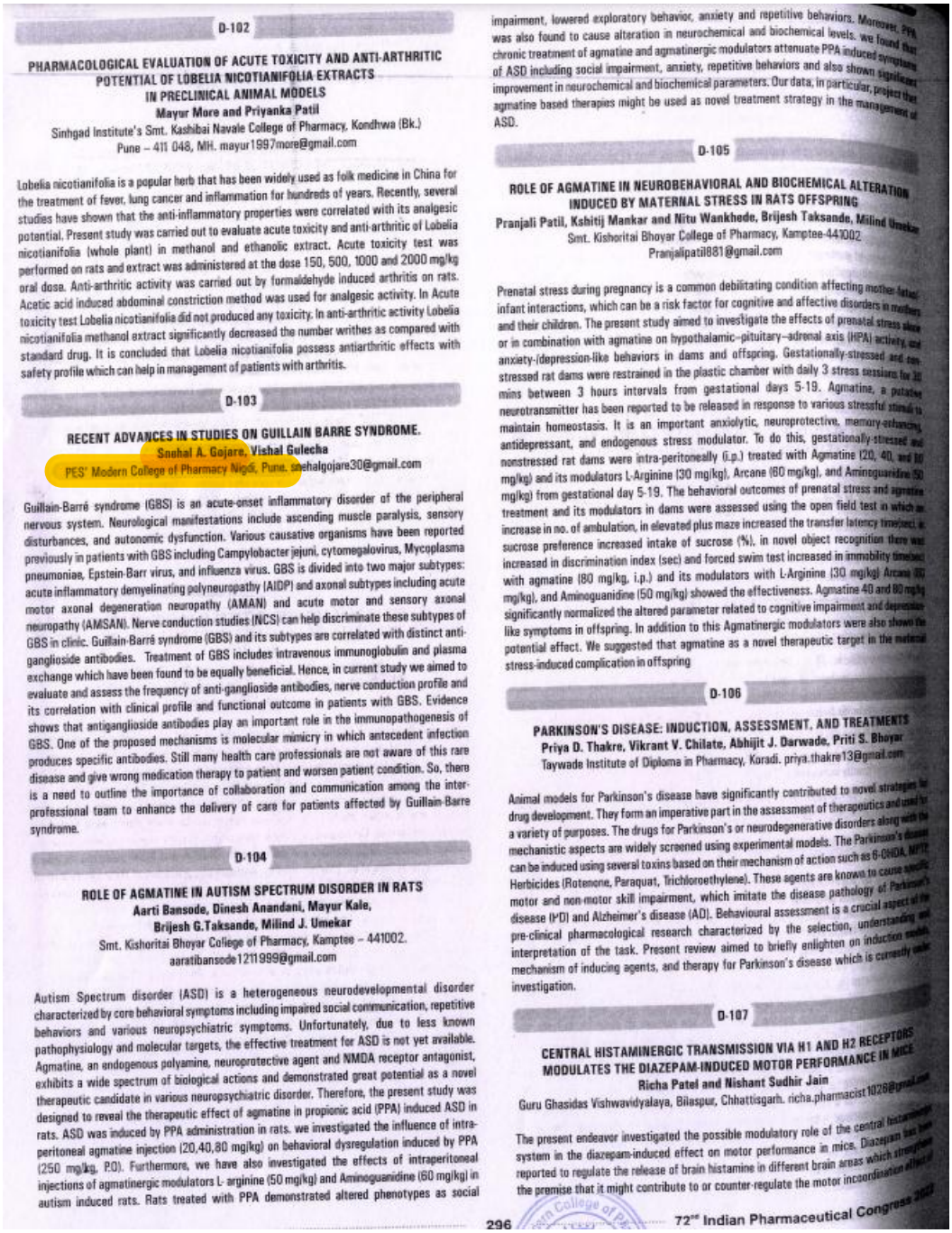
Aim & Objectives: This study was aimed at evaluating the chemopreventive potential of aqueous leaf extract of Abrus Precatorious (AP) on DMBA-induced-breast cancer in rats. Materials and Methods: 42 female Sprague Dawley rats were divided in to seven groups and DMBA was administered through oropharyngeal route to the rats to induce breast cancer. Hot extraction protocol was employed in the preparation of aqueous extract of AP leaves. The histopathology of tumors, their size, multiplicity and morphological changes in mammary gland tumors were assessed to check its effect at cellular level. The effect of AP extract on antioxidant status was evaluated by measuring oxidative stress markers like SOD, Catalase, GSH and MDA. Pharmacokinetic effect of AP on Doxorubicin was assessed by determining its plasma concentration using HPLC. Results: There was a significant ($P < 0.001$) weight difference between the control and treatment groups. We found difference in the median number of tumors and their volume between the control and treatment groups. Compared to DMBA treated group, in extract treated group less hybernoma, necrosis and inflammation was observed in histopthology. There was a significant ($P < 0.001$) difference in antioxidative activity of AP, since a restoration of the GSH pool and decreased amount of hydroperoxides were observed. We found increase in plasma concentration of doxorubicin in combination of Abrus Precatorious extract in rat plasma. Conclusion: This study has shown that the aqueous leaf extract of Abrus Precatorious has chemopreventive effect against DMBA-induced breast cancer in rats.

Recent advances in studies on guillain barre syndrome.



D-102

PHARMACOLOGICAL EVALUATION OF ACUTE TOXICITY AND ANTI-ARTHRITIC POTENTIAL OF LOBELIA NICOTIANIFOLIA EXTRACTS IN PRECLINICAL ANIMAL MODELS

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Lobelia nicotianifolia is a popular herb that has been widely used as folk medicine in China for the treatment of fever, lung cancer and inflammation for hundreds of years. Recently, several studies have shown that the anti-inflammatory properties were correlated with its analgesic potential. Present study was carried out to evaluate acute toxicity and anti-arthritic of Lobelia nicotianifolia (whole plant) in methanol and ethanolic extract. Acute toxicity test was performed on rats and extract was administered at the dose 150, 500, 1000 and 2000 mg/kg oral dose. Anti-arthritic activity was carried out by formaldehyde induced arthritis on rats. Acetic acid induced abdominal constriction method was used for analgesic activity. In Acute toxicity test Lobelia nicotianifolia did not produced any toxicity. In anti-arthritic activity Lobelia nicotianifolia methanol extract significantly decreased the number writhes as compared with standard drug. It is concluded that Lobelia nicotianifolia possess antiarthritic effects with safety profile which can help in management of patients with arthritis.

D-103

RECENT ADVANCES IN STUDIES ON GUILLAIN BARRE SYNDROME.

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Guillain-Barré syndrome (GBS) is an acute-onset inflammatory disorder of the peripheral nervous system. Neurological manifestations include ascending muscle paralysis, sensory disturbances, and autonomic dysfunction. Various causative organisms have been reported previously in patients with GBS including Campylobacter jejuni, cytomegalovirus, Mycoplasma pneumoniae, Epstein-Barr virus, and influenza virus. GBS is divided into two major subtypes: acute inflammatory demyelinating polyneuropathy (AIDP) and axonal subtypes including acute motor axonal degeneration neuropathy (AMAN) and acute motor and sensory axonal neuropathy (AMSAN). Nerve conduction studies (NCS) can help discriminate these subtypes of GBS in clinic. Guillain-Barré syndrome (GBS) and its subtypes are correlated with distinct anti-ganglioside antibodies. Treatment of GBS includes intravenous immunoglobulin and plasma exchange which have been found to be equally beneficial. Hence, in current study we aimed to evaluate and assess the frequency of anti-ganglioside antibodies, nerve conduction profile and its correlation with clinical profile and functional outcome in patients with GBS. Evidence shows that antiganglioside antibodies play an important role in the immunopathogenesis of GBS. One of the proposed mechanisms is molecular mimicry in which antecedent infection produces specific antibodies. Still many health care professionals are not aware of this rare disease and give wrong medication therapy to patient and worsen patient condition. So, there is a need to outline the importance of collaboration and communication among the inter-professional team to enhance the delivery of care for patients affected by Guillain-Barre syndrome.

D-104

ROLE OF AGMATINE IN AUTISM SPECTRUM DISORDER IN RATS

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Autism Spectrum disorder (ASD) is a heterogeneous neurodevelopmental disorder characterized by core behavioral symptoms including impaired social communication, repetitive behaviors and various neuropsychiatric symptoms. Unfortunately, due to less known pathophysiology and molecular targets, the effective treatment for ASD is not yet available. Agmatine, an endogenous polyamine, neuroprotective agent and NMDA receptor antagonist, exhibits a wide spectrum of biological actions and demonstrated great potential as a novel therapeutic candidate in various neuropsychiatric disorder. Therefore, the present study was designed to reveal the therapeutic effect of agmatine in propionic acid (PPA) induced ASD in rats. ASD was induced by PPA administration in rats. we investigated the influence of intra-peritoneal agmatine injection (20,40,80 mg/kg) on behavioral dysregulation induced by PPA (250 mg/kg, P.O). Furthermore, we have also investigated the effects of intraperitoneal injections of agmatinergic modulators L- arginine (50 mg/kg) and Aminoguanidine (60 mg/kg) in autism induced rats. Rats treated with PPA demonstrated altered phenotypes as social impairment, lowered exploratory behavior, anxiety and repetitive behaviors. Moreover, PPA was also found to cause alteration in neurochemical and biochemical levels. we found that chronic treatment of agmatine and agmatinergic modulators attenuate PPA induced symptoms of ASD including social impairment, anxiety, repetitive behaviors and also shown significant improvement in neurochemical and biochemical parameters. Our data, in particular, project that agmatine based therapies might be used as novel treatment strategy in the management of ASD.

D-105

ROLE OF AGMATINE IN NEUROBEHAVIORAL AND BIOCHEMICAL ALTERATION INDUCED BY MATERNAL STRESS IN RATS OFFSPRING

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Prenatal stress during pregnancy is a common debilitating condition affecting mother-fetal/infant interactions, which can be a risk factor for cognitive and affective disorders in mothers and their children. The present study aimed to investigate the effects of prenatal stress alone or in combination with agmatine on hypothalamic–pituitary–adrenal axis (HPA) activity, and anxiety-/depression-like behaviors in dams and offspring. Gestationally-stressed and non-stressed rat dams were restrained in the plastic chamber with daily 3 stress sessions for 30 mins between 3 hours intervals from gestational days 5-19. Agmatine, a putative neurotransmitter has been reported to be released in response to various stressful stimuli to maintain homeostasis. It is an important anxiolytic, neuroprotective, memory-enhancing, antidepressant, and endogenous stress modulator. To do this, gestationally stressed and nonstressed rat dams were intra-peritoneally (i.p.) treated with Agmatine (20, 40, and 80 mg/kg) and its modulators L-Arginine (30 mg/kg), Arcane (60 mg/kg), and Aminoguanidine (50 mg/kg) from gestational day 5-19. The behavioral outcomes of prenatal stress and agmatine treatment and its modulators in dams were assessed using the open field test in which an increase in no. of ambulation, in elevated plus maze increased the transfer latency time(sec), in sucrose preference increased intake of sucrose (%), in novel object recognition there was increased in discrimination index (sec) and forced swim test increased in immobility time(sec) with agmatine (80 mg/kg, i.p.) and its modulators with L-Arginine (30 mg/kg) Arcane (60 mg/kg), and Aminoguanidine (50 mg/kg) showed the effectiveness. Agmatine 40 and 80 mg/kg significantly normalized the altered parameter related to cognitive impairment and depression like symptoms in offspring. In addition to this Agmatinergic modulators were also shown the potential effect. We suggested that agmatine as a novel therapeutic target in the maternal stress-induced complication in offspring

D-106

PARKINSON'S DISEASE: INDUCTION, ASSESSMENT, AND TREATMENTS

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Animal models for Parkinson's disease have significantly contributed to novel strategies for drug development. They form an imperative part in the assessment of therapeutics and used for a variety of purposes. The drugs for Parkinson's or neurodegenerative disorders along with the mechanistic aspects are widely screened using experimental models. The Parkinson's disease can be induced using several toxins based on their mechanism of action such as 6-OHDA, MPTP, Herbicides (Rotenone, Paraquat, Trichloroethylene). These agents are known to cause specific motor and non-motor skill impairment, which imitate the disease pathology of Parkinson's disease (PD) and Alzheimer's disease (AD). Behavioural assessment is a crucial aspect of the pre-clinical pharmacological research characterized by the selection, understanding and interpretation of the task. Present review aimed to briefly enlighten on induction models, mechanism of inducing agents, and therapy for Parkinson's disease which is currently under investigation.

D-107

CENTRAL HISTAMINERGIC TRANSMISSION VIA H1 AND H2 RECEPTORS MODULATES THE DIAZEPAM-INDUCED MOTOR PERFORMANCE IN MICE

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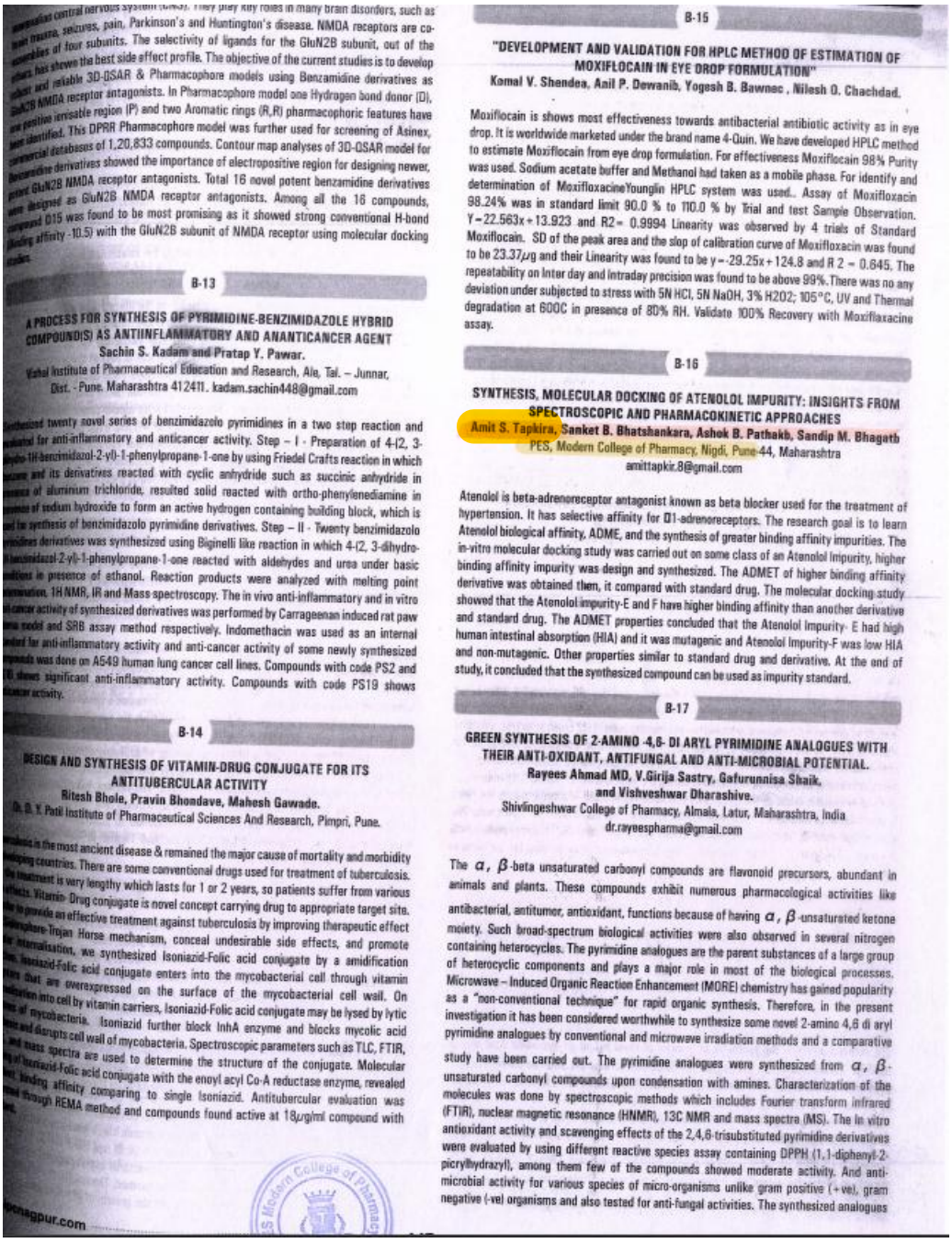
The present endeavor investigated the possible modulatory role of the central histaminergic system in the diazepam-induced effect on motor performance in mice. Diazepam has been reported to regulate the release of brain histamine in different brain areas which strengthens the premise that it might contribute to or counter-regulate the motor incoordination effect of

Synthesis, molecular docking of atenolol impurity: insights from spectroscopic and pharmacokinetic approaches



B-13

A PROCESS FOR SYNTHESIS OF PYRIMIDINE-BENZIMIDAZOLE HYBRID COMPOUND(S) AS ANTIINFLAMMATORY AND ANANTICANCER AGENT

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B-14

DESIGN AND SYNTHESIS OF VITAMIN-DRUG CONJUGATE FOR ITS ANTITUBERCULAR ACTIVITY

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B-15

"DEVELOPMENT AND VALIDATION FOR HPLC METHOD OF ESTIMATION OF MOXIFLOCAIN IN EYE DROP FORMULATION"

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Moxifiocain is shows most effectiveness towards antibacterial antibiotic activity as in eye drop. It is worldwide marketed under the brand name 4-Quin. We have developed HPLC method to estimate Moxifiocain from eye drop formulation. For effectiveness Moxifiocain 98% Purity was used. Sodium acetate buffer and Methanol had taken as a mobile phase. For identify and determination of MoxifloxacineYounglin HPLC system was used.. Assay of Moxifloxacin 98.24% was in standard limit 90.0 % to 110.0 % by Trial and test Sample Observation. Y=22.563x+13.923 and R2= 0.9994 Linearity was observed by 4 trials of Standard Moxifiocain. SD of the peak area and the slop of calibration curve of Moxifloxacin was found to be 23.37μg and their Linearity was found to be y=-29.25x+124.8 and R 2 = 0.645. The repeatability on Inter day and Intraday precision was found to be above 99%.There was no any deviation under subjected to stress with 5N HCl, 5N NaOH, 3% H2O2; 105°C, UV and Thermal degradation at 60OC in presence of 80% RH. Validate 100% Recovery with Moxifiaxacine assay.

B-16

SYNTHESIS, MOLECULAR DOCKING OF ATENOLOL IMPURITY: INSIGHTS FROM SPECTROSCOPIC AND PHARMACOKINETIC APPROACHES

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Atenolol is beta-adrenoreceptor antagonist known as beta blocker used for the treatment of hypertension. It has selective affinity for Ω1-adrenoreceptors. The research goal is to learn Atenolol biological affinity, ADME, and the synthesis of greater binding affinity impurities. The in-vitro molecular docking study was carried out on some class of an Atenolol impurity, higher binding affinity impurity was design and synthesized. The ADMET of higher binding affinity derivative was obtained then, it compared with standard drug. The molecular docking study showed that the Atenolol impurity-E and F have higher binding affinity than another derivative and standard drug. The ADMET properties concluded that the Atenolol impurity- E had high human intestinal absorption (HIA) and it was mutagenic and Atenolol impurity-F was low HIA and non-mutagenic. Other properties similar to standard drug and derivative. At the end of study, it concluded that the synthesized compound can be used as impurity standard.

B-17

GREEN SYNTHESIS OF 2-AMINO -4,6- DI ARYL PYRIMIDINE ANALOGUES WITH THEIR ANTI-OXIDANT, ANTIFUNGAL AND ANTI-MICROBIAL POTENTIAL.

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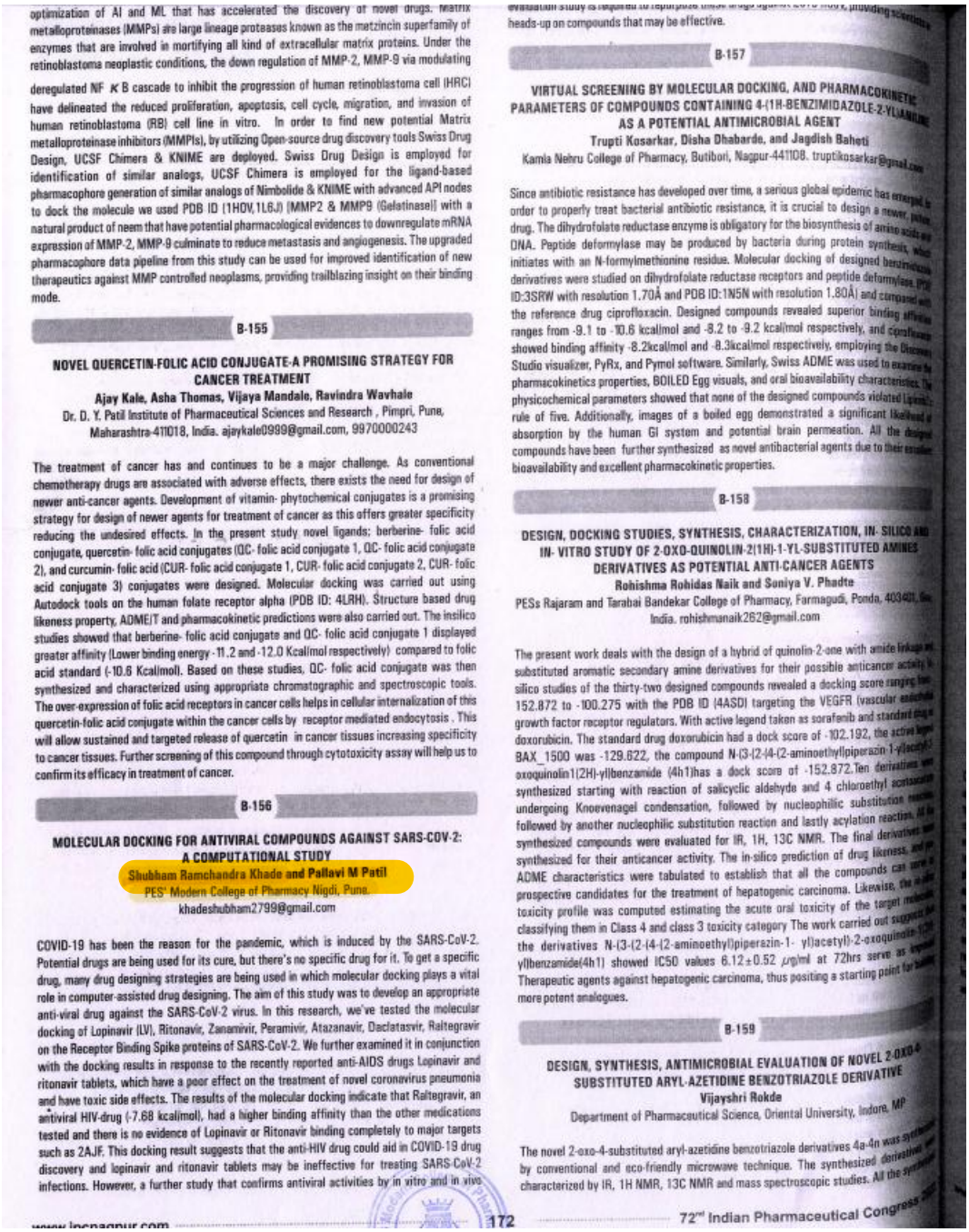
The α, β-beta unsaturated carbonyl compounds are flavonoid precursors, abundant in animals and plants. These compounds exhibit numerous pharmacological activities like antibacterial, antitumor, antioxidant, functions because of having α, β-unsaturated ketone moiety. Such broad-spectrum biological activities were also observed in several nitrogen containing heterocycles. The pyrimidine analogues are the parent substances of a large group of heterocyclic components and plays a major role in most of the biological processes. Microwave – Induced Organic Reaction Enhancement (MORE) chemistry has gained popularity as a "non-conventional technique" for rapid organic synthesis. Therefore, in the present investigation it has been considered worthwhile to synthesize some novel 2-amino 4,6 di aryl pyrimidine analogues by conventional and microwave irradiation methods and a comparative study have been carried out. The pyrimidine analogues were synthesized from α, β-unsaturated carbonyl compounds upon condensation with amines. Characterization of the molecules was done by spectroscopic methods which includes Fourier transform infrared (FTIR), nuclear magnetic resonance (HNMR), 13C NMR and mass spectra (MS). The in vitro antioxidant activity and scavenging effects of the 2,4,6-trisubstituted pyrimidine derivatives were evaluated by using different reactive species assay containing DPPH (1,1-diphenyl-2-picrylhydrazyl), among them few of the compounds showed moderate activity. And anti-microbial activity for various species of micro-organisms unlike gram positive (+ve), gram negative (-ve) organisms and also tested for anti-fungal activities. The synthesized analogues

Molecular docking for antiviral compounds against sars-cov-2: a computational study



optimization of AI and ML that has accelerated the discovery of novel drugs. Matrix metalloproteinases (MMPs) are large lineage proteases known as the metzincin superfamily of enzymes that are involved in mortifying all kind of extracellular matrix proteins. Under the retinoblastoma neoplastic conditions, the down regulation of MMP-2, MMP-9 via modulating deregulated NF κ B cascade to inhibit the progression of human retinoblastoma cell (HRC) have delineated the reduced proliferation, apoptosis, cell cycle, migration, and invasion of human retinoblastoma (RB) cell line in vitro. In order to find new potential Matrix metalloproteinase inhibitors (MMPIs), by utilizing Open-source drug discovery tools Swiss Drug Design, UCSF Chimera & KNIME are deployed. Swiss Drug Design is employed for identification of similar analogs, UCSF Chimera is employed for the ligand-based pharmacophore generation of similar analogs of Nimbolide & KNIME with advanced API nodes to dock the molecule we used PDB ID (1HOV,1L6J) (MMP2 & MMP9 (Gelatinase)] with a natural product of neem that have potential pharmacological evidences to downregulate mRNA expression of MMP-2, MMP-9 culminate to reduce metastasis and angiogenesis. The upgraded pharmacophore data pipeline from this study can be used for improved identification of new therapeutics against MMP controlled neoplasms, providing trailblazing insight on their binding mode.

B-155

NOVEL QUERCETIN-FOLIC ACID CONJUGATE-A PROMISING STRATEGY FOR CANCER TREATMENT

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The treatment of cancer has and continues to be a major challenge. As conventional chemotherapy drugs are associated with adverse effects, there exists the need for design of newer anti-cancer agents. Development of vitamin- phytochemical conjugates is a promising strategy for design of newer agents for treatment of cancer as this offers greater specificity reducing the undesired effects. In the present study novel ligands; berberine- folic acid conjugate, quercetin- folic acid conjugates (QC- folic acid conjugate 1, QC- folic acid conjugate 2), and curcumin- folic acid (CUR- folic acid conjugate 1, CUR- folic acid conjugate 2, CUR- folic acid conjugate 3) conjugates were designed. Molecular docking was carried out using Autodock tools on the human folate receptor alpha (PDB ID: 4LRH). Structure based drug likeness property, ADME/T and pharmacokinetic predictions were also carried out. The insilico studies showed that berberine- folic acid conjugate and QC- folic acid conjugate 1 displayed greater affinity (Lower binding energy -11.2 and -12.0 Kcal/mol respectively) compared to folic acid standard (-10.6 Kcal/mol). Based on these studies, QC- folic acid conjugate was then synthesized and characterized using appropriate chromatographic and spectroscopic tools. The over-expression of folic acid receptors in cancer cells helps in cellular internalization of this quercetin-folic acid conjugate within the cancer cells by receptor mediated endocytosis . This will allow sustained and targeted release of quercetin in cancer tissues increasing specificity to cancer tissues. Further screening of this compound through cytotoxicity assay will help us to confirm its efficacy in treatment of cancer.

B-156

MOLECULAR DOCKING FOR ANTIVIRAL COMPOUNDS AGAINST SARS-COV-2: A COMPUTATIONAL STUDY

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COVID-19 has been the reason for the pandemic, which is induced by the SARS-CoV-2. Potential drugs are being used for its cure, but there's no specific drug for it. To get a specific drug, many drug designing strategies are being used in which molecular docking plays a vital role in computer-assisted drug designing. The aim of this study was to develop an appropriate anti-viral drug against the SARS-CoV-2 virus. In this research, we've tested the molecular docking of Lopinavir (LV), Ritonavir, Zanamivir, Peramivir, Atazanavir, Daclatasvir, Raltegravir on the Receptor Binding Spike proteins of SARS-CoV-2. We further examined it in conjunction with the docking results in response to the recently reported anti-AIDS drugs Lopinavir and ritonavir tablets, which have a poor effect on the treatment of novel coronavirus pneumonia and have toxic side effects. The results of the molecular docking indicate that Raltegravir, an antiviral HIV-drug (-7.68 kcal/mol), had a higher binding affinity than the other medications tested and there is no evidence of Lopinavir or Ritonavir binding completely to major targets such as 2AJF. This docking result suggests that the anti-HIV drug could aid in COVID-19 drug discovery and lopinavir and ritonavir tablets may be ineffective for treating SARS-CoV-2 infections. However, a further study that confirms antiviral activities by in vitro and in vivo

evaluation study is required to repurpose these drugs against SARS-CoV-2, providing scientists heads-up on compounds that may be effective.

B-157

VIRTUAL SCREENING BY MOLECULAR DOCKING, AND PHARMACOKINETIC PARAMETERS OF COMPOUNDS CONTAINING 4-(1H-BENZIMIDAZOLE-2-YL)AMINE AS A POTENTIAL ANTIMICROBIAL AGENT

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Since antibiotic resistance has developed over time, a serious global epidemic has emerged. In order to properly treat bacterial antibiotic resistance, it is crucial to design a newer, potent drug. The dihydrofolate reductase enzyme is obligatory for the biosynthesis of amino acids and DNA. Peptide deformylase may be produced by bacteria during protein synthesis, which initiates with an N-formylmethionine residue. Molecular docking of designed benzimidazole derivatives were studied on dihydrofolate reductase receptors and peptide deformylase. (PDB ID:3SRW with resolution 1.70Å and PDB ID:1N5N with resolution 1.80Å) and compared with the reference drug ciprofloxacin. Designed compounds revealed superior binding affinities ranges from -9.1 to -10.6 kcal/mol and -8.2 to -9.2 kcal/mol respectively, and ciprofloxacin showed binding affinity -8.2kcal/mol and -8.3kcal/mol respectively, employing the Discovery Studio visualizer, PyRx, and Pymol software. Similarly, Swiss ADME was used to examine the pharmacokinetics properties, BOILED Egg visuals, and oral bioavailability characteristics. The physicochemical parameters showed that none of the designed compounds violated Lipinski's rule of five. Additionally, images of a boiled egg demonstrated a significant likelihood of absorption by the human GI system and potential brain permeation. All the designed compounds have been further synthesized as novel antibacterial agents due to their excellent bioavailability and excellent pharmacokinetic properties.

B-158

DESIGN, DOCKING STUDIES, SYNTHESIS, CHARACTERIZATION, IN- SILICO AND IN- VITRO STUDY OF 2-OXO-QUINOLIN-2(1H)-1-YL-SUBSTITUTED AMINES DERIVATIVES AS POTENTIAL ANTI-CANCER AGENTS

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The present work deals with the design of a hybrid of quinolin-2-one with amide linkage and substituted aromatic secondary amine derivatives for their possible anticancer activity. In-silico studies of the thirty-two designed compounds revealed a docking score ranging from -152.872 to -100.275 with the PDB ID (4ASD) targeting the VEGFR (vascular endothelial growth factor receptor regulators. With active legend taken as sorafenib and standard drug as doxorubicin. The standard drug doxorubicin had a dock score of -102.192, the active legend BAX_1500 was -129.622, the compound N-(3-(2-(4-(2-aminoethyl)piperazin-1-yl)acetyl)-2-oxoquinolin1(2H)-yl)benzamide (4h1)has a dock score of -152.872.Ten derivatives were synthesized starting with reaction of salicyclic aldehyde and 4 chloroethyl acetoacetate undergoing Knoevenagel condensation, followed by nucleophilic substitution reaction followed by another nucleophilic substitution reaction and lastly acylation reaction. All the synthesized compounds were evaluated for IR, 1H, 13C NMR. The final derivatives were synthesized for their anticancer activity. The in-silico prediction of drug likeness, and pharmacokinetic ADME characteristics were tabulated to establish that all the compounds can serve as prospective candidates for the treatment of hepatogenic carcinoma. Likewise, the in-silico toxicity profile was computed estimating the acute oral toxicity of the target molecules classifying them in Class 4 and class 3 toxicity category The work carried out suggests that the derivatives N-(3-(2-(4-(2-aminoethyl)piperazin-1- yl)acetyl)-2-oxoquinolin-1(2H)-yl)benzamide(4h1) showed IC50 values 6.12±0.52 µg/ml at 72hrs serve as lead Therapeutic agents against hepatogenic carcinoma, thus positing a starting point for further more potent analogues.

B-159

DESIGN, SYNTHESIS, ANTIMICROBIAL EVALUATION OF NOVEL 2-OXO-4-SUBSTITUTED ARYL-AZETIDINE BENZOTRIAZOLE DERIVATIVE

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The novel 2-oxo-4-substituted aryl-azetidine benzotriazole derivatives 4a-4n was synthesized by conventional and eco-friendly microwave technique. The synthesized derivatives were characterized by IR, 1H NMR, 13C NMR and mass spectroscopic studies. All the synthesized

In silico study of Triazole linked Quinazolione derivatives for anti-diabetic as Dipeptidyl peptidase inhibitory activity

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Reg id: 1689
Poster id CB62

In silico study of Triazole linked Quinazolione derivatives for anti-diabetic as Dipeptidyl peptidase inhibitory activity.

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The objective of the study was to perform in silico molecular docking studies of proposed hits Triazole linked quinazolinone derivatives for the determination of their anti-diabetic activity. ADME study, The docking studies were performed to established the relationship between physicochemical and structural properties of the hits with their antidiabetic activity. In the docking study, the compounds were studied for their Dipeptidyl peptidase inhibitory (DPP-IV) activity GLP-1, and which may contribute, to their antidiabetic activity with the probable mode of action. In the docking study which show the minimum binding energy. In conclusion of docking study, the 3-dimensional structure of protein GLP-1 (5DMF) in complex with Sitagliptin was used in the present study. The molecules bound to the active site of GLP-1 residues like Thr347, Lbu384, Trp383, Phe404, Met343, Lbu347 of all the synthesized compounds as potent inhibitors since they have a better minimum binding energy and also interact with active site residue. We have perform In silico study on this 12 compounds (S1A1-S1A12). In the conclusion of docking study, the compounds might possess the Dipeptidyl peptidase inhibitory (DPP-IV) activity GLP-1, and this may contribute, to their antidiabetic activity with the probable mode of action. From the result of docking study, we have synthesized the compounds which show the minimum binding energy

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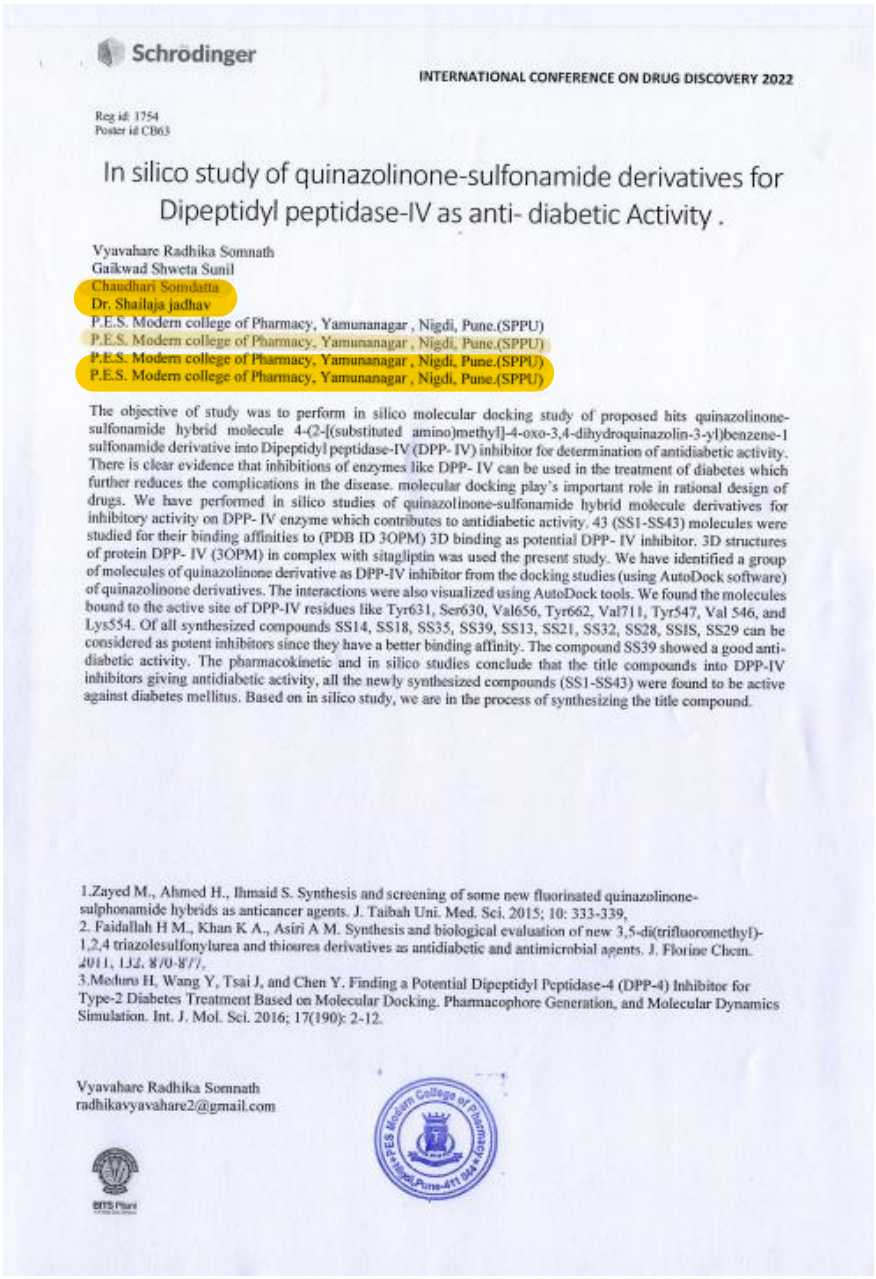
In silico study of quinazolinone-sulfonamide derivatives for Dipeptidyl peptidase-IV as anti- diabetic Activity



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Reg id: 1754
Poster id CB63

In silico study of quinazolinone-sulfonamide derivatives for Dipeptidyl peptidase-IV as anti- diabetic Activity .

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The objective of study was to perform in silico molecular docking study of proposed hits quinazolinone-sulfonamide hybrid molecule 4-(2-[(substituted amino)methyl]-4-oxo-3,4-dihydroquinazolin-3-yl)benzene-1 sulfonamide derivative into Dipeptidyl peptidase-IV (DPP- IV) inhibitor for determination of antidiabetic activity. There is clear evidence that inhibitions of enzymes like DPP- IV can be used in the treatment of diabetes which further reduces the complications in the disease. molecular docking play's important role in rational design of drugs. We have performed in silico studies of quinazolinone-sulfonamide hybrid molecule derivatives for inhibitory activity on DPP- IV enzyme which contributes to antidiabetic activity. 43 (SS1-SS43) molecules were studied for their binding affinities to (PDB ID 3OPM) 3D binding as potential DPP- IV inhibitor. 3D structures of protein DPP- IV (3OPM) in complex with sitagliptin was used the present study. We have identified a group of molecules of quinazolinone derivative as DPP-IV inhibitor from the docking studies (using AutoDock software) of quinazolinone derivatives. The interactions were also visualized using AutoDock tools. We found the molecules bound to the active site of DPP-IV residues like Tyr631, Ser630, Val656, Tyr662, Val711, Tyr547, Val 546, and Lys554. Of all synthesized compounds SS14, SS18, SS35, SS39, SS13, SS21, SS32, SS28, SSIS, SS29 can be considered as potent inhibitors since they have a better binding affinity. The compound SS39 showed a good anti-diabetic activity. The pharmacokinetic and in silico studies conclude that the title compounds into DPP-IV inhibitors giving antidiabetic activity, all the newly synthesized compounds (SS1-SS43) were found to be active against diabetes mellitus. Based on in silico study, we are in the process of synthesizing the title compound.

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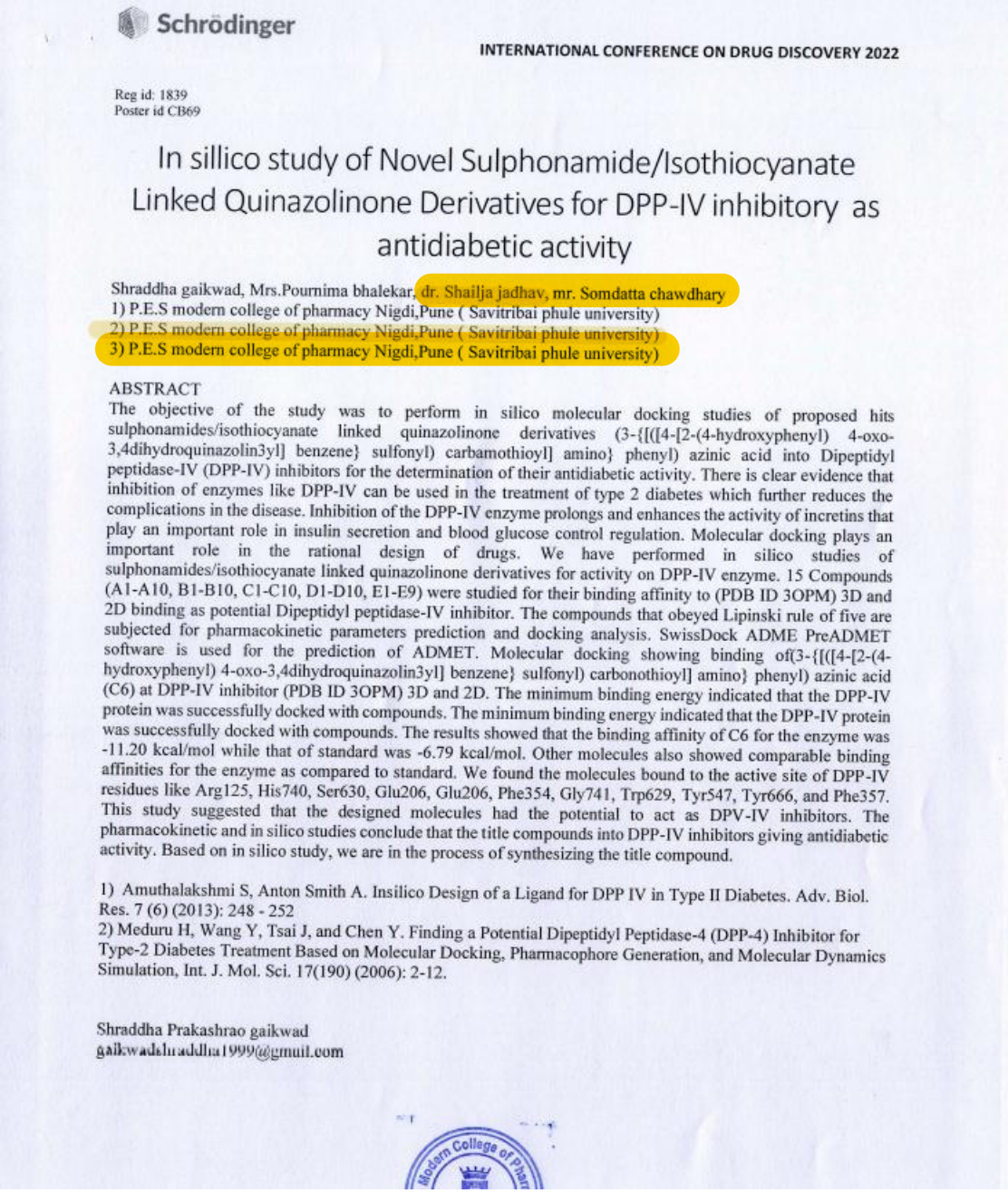
In sillico study of Novel Sulphonamide/Isothiocyanate Linked Quinazolinone Derivatives for DPP -IV inhibitory as antidiabetic activity



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Reg id: 1839
Poster id CB69

In sillico study of Novel Sulphonamide/Isothiocyanate Linked Quinazolinone Derivatives for DPP-IV inhibitory as antidiabetic activity

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ABSTRACT
The objective of the study was to perform in silico molecular docking studies of proposed hits sulphonamides/isothiocyanate linked quinazolinone derivatives (3-{[([4-[2-(4-hydroxyphenyl) 4-oxo-3,4dihydroquinazolin3yl] benzene} sulfonyl) carbamothioyl] amino} phenyl) azinic acid into Dipeptidyl peptidase-IV (DPP-IV) inhibitors for the determination of their antidiabetic activity. There is clear evidence that inhibition of enzymes like DPP-IV can be used in the treatment of type 2 diabetes which further reduces the complications in the disease. Inhibition of the DPP-IV enzyme prolongs and enhances the activity of incretins that play an important role in insulin secretion and blood glucose control regulation. Molecular docking plays an important role in the rational design of drugs. We have performed in silico studies of sulphonamides/isothiocyanate linked quinazolinone derivatives for activity on DPP-IV enzyme. 15 Compounds (A1-A10, B1-B10, C1-C10, D1-D10, E1-E9) were studied for their binding affinity to (PDB ID 3OPM) 3D and 2D binding as potential Dipeptidyl peptidase-IV inhibitor. The compounds that obeyed Lipinski rule of five are subjected for pharmacokinetic parameters prediction and docking analysis. SwissDock ADME PreADMET software is used for the prediction of ADMET. Molecular docking showing binding of(3-{[([4-[2-(4-hydroxyphenyl) 4-oxo-3,4dihydroquinazolin3yl] benzene} sulfonyl) carbonothioyl] amino} phenyl) azinic acid (C6) at DPP-IV inhibitor (PDB ID 3OPM) 3D and 2D. The minimum binding energy indicated that the DPP-IV protein was successfully docked with compounds. The minimum binding energy indicated that the DPP-IV protein was successfully docked with compounds. The results showed that the binding affinity of C6 for the enzyme was -11.20 kcal/mol while that of standard was -6.79 kcal/mol. Other molecules also showed comparable binding affinities for the enzyme as compared to standard. We found the molecules bound to the active site of DPP-IV residues like Arg125, His740, Ser630, Glu206, Glu206, Phe354, Gly741, Trp629, Tyr547, Tyr666, and Phe357. This study suggested that the designed molecules had the potential to act as DPV-IV inhibitors. The pharmacokinetic and in silico studies conclude that the title compounds into DPP-IV inhibitors giving antidiabetic activity. Based on in silico study, we are in the process of synthesizing the title compound.

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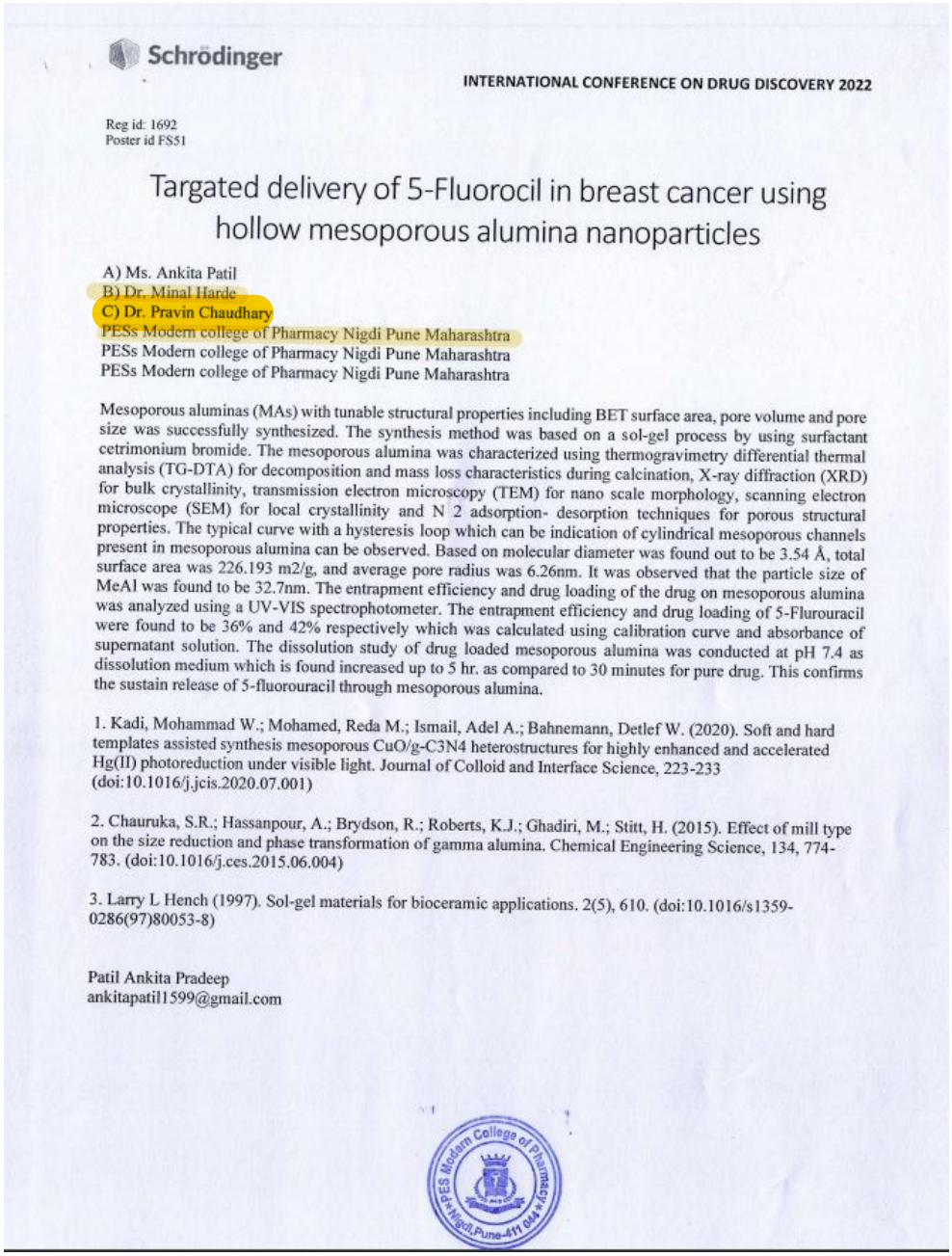
Targated delivery of 5-Fluorocil in breast cancer using hollow mesoporous alumina nanoparticles



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Reg id: 1692
Poster id FS51

Targated delivery of 5-Fluorocil in breast cancer using hollow mesoporous alumina nanoparticles

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Mesoporous aluminas (MAs) with tunable structural properties including BET surface area, pore volume and pore size was successfully synthesized. The synthesis method was based on a sol-gel process by using surfactant cetrimonium bromide. The mesoporous alumina was characterized using thermogravimetry differential thermal analysis (TG-DTA) for decomposition and mass loss characteristics during calcination, X-ray diffraction (XRD) for bulk crystallinity, transmission electron microscopy (TEM) for nano scale morphology, scanning electron microscope (SEM) for local crystallinity and N 2 adsorption- desorption techniques for porous structural properties. The typical curve with a hysteresis loop which can be indication of cylindrical mesoporous channels present in mesoporous alumina can be observed. Based on molecular diameter was found out to be 3.54 Å, total surface area was 226.193 m2/g, and average pore radius was 6.26nm. It was observed that the particle size of MeAl was found to be 32.7nm. The entrapment efficiency and drug loading of the drug on mesoporous alumina was analyzed using a UV-VIS spectrophotometer. The entrapment efficiency and drug loading of 5-Flurouracil were found to be 36% and 42% respectively which was calculated using calibration curve and absorbance of supernatant solution. The dissolution study of drug loaded mesoporous alumina was conducted at pH 7.4 as dissolution medium which is found increased up to 5 hr. as compared to 30 minutes for pure drug. This confirms the sustain release of 5-fluorouracil through mesoporous alumina.

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Influence of combination of phytoconstituents in ethanol withdrawal induced depression

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Reg id: 1173
Poster id PDD69

INFLUENCE OF COMBINATION OF PHYTOCONSTITUENTS IN ETHANOL WITHDRAWAL INDUCED DEPRESSION

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The harmful and hazardous use of alcohol is a serious problem in the world. It results in serious health, social and economic harms, and is the third-leading risk factor for death and disability. Alcohol withdrawal from chronic alcohol consumption results in a variety of symptoms including hyperexcitability which can manifest as increased tremor, over activity of the autonomic nervous system and convulsions which can be potentially lethal. Ethanol exerts its biological action through multiple receptors, including ion channels like GABAA, NMDA, 5HT3, 5-HT2 receptors, certain peptides and neurosteroids. The primary goal of ayurvedic medicine is to help people live long, healthy and balanced lifewith lesser side effects and higher efficacy. The present study evaluated the effect of combination of phytoconstituents in ethanol withdrawal induced depression. Alcohol dependence was produced in rat for ethanol withdrawal signs; rat were individually housed in small cages and ethanol 2.4%, 4.8% and 7.2%, v/v was given to the rats in a liquid diet for 21 days and then was withdrawn from the diet and animals were observed at 0, 2, 4, 6, 8 h for withdrawal signs. Fluoxetine (20mg/kg) as a standard and Rutin (100 mg/kg) and Ellagic acid(100 mg/kg) was given for 7 subsequent days and behavioural parameters were observed. Oxidative stress parameters (MDA, NO) and antioxidant enzyme parameters (SOD, GSH, CAT) were performed. Histopathological study was done on rat brain. It was found that chronic treatment with Rutin and Ellagic acid in combination significantly reduced the signs of hyperexcitability (EWS) and decrease the duration of immobility than the control rats in tail suspension test and forced swim test. It can be concluded that combination of Rutin and Ellagic acid or similar active phytoconstituents may be used for treatment of ethanol withdrawal induced depression.

Keywords: Alcohol withdrawal, dependence, antioxidant, hyperexcitability, depression.

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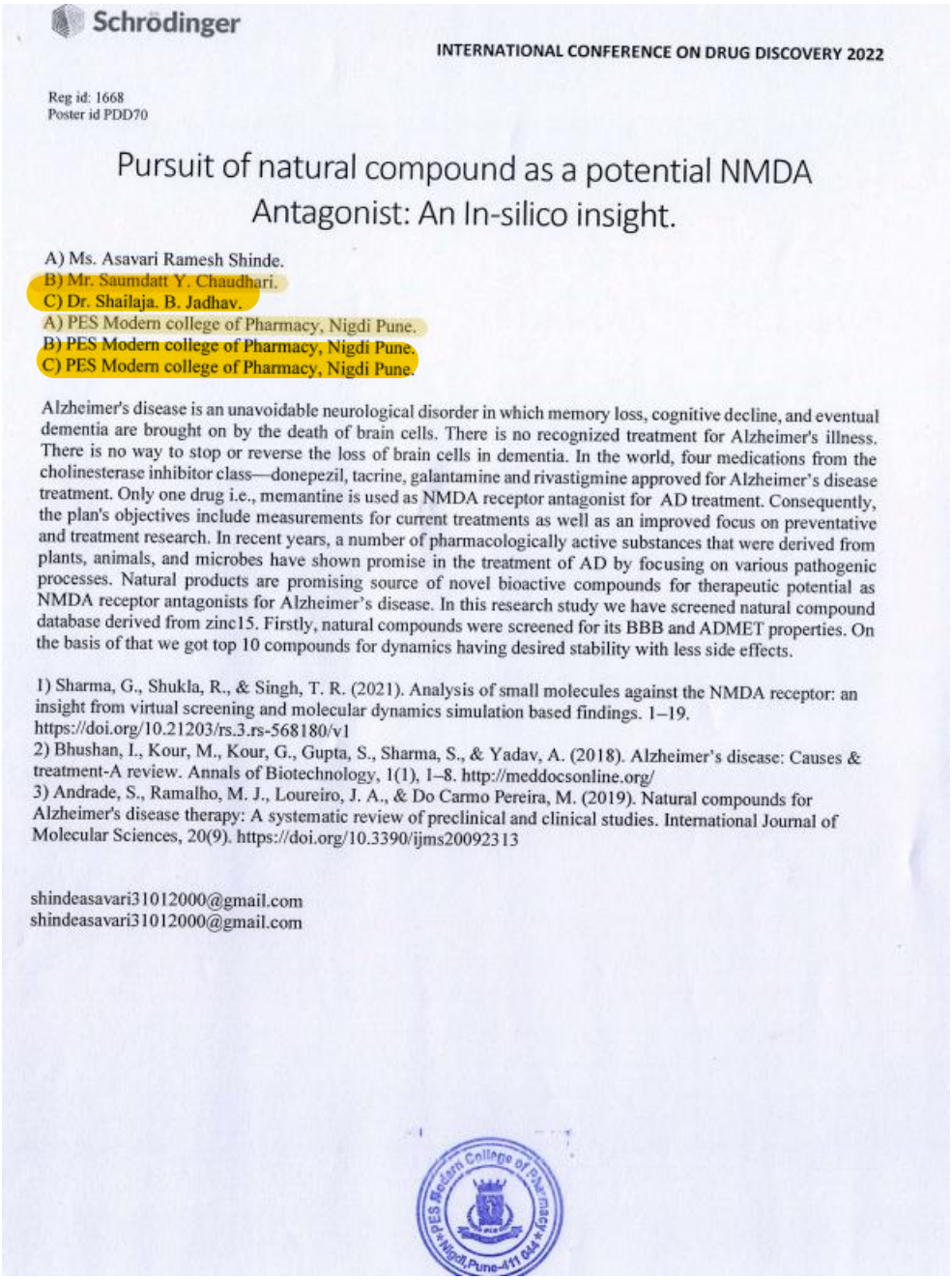
Pursuit of natural compound as a potential NMDA Antagonist: An In-silico insight



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Reg id: 1668
Poster id PDD70

Pursuit of natural compound as a potential NMDA Antagonist: An In-silico insight.

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Alzheimer's disease is an unavoidable neurological disorder in which memory loss, cognitive decline, and eventual dementia are brought on by the death of brain cells. There is no recognized treatment for Alzheimer's illness. There is no way to stop or reverse the loss of brain cells in dementia. In the world, four medications from the cholinesterase inhibitor class—donepezil, tacrine, galantamine and rivastigmine approved for Alzheimer's disease treatment. Only one drug i.e., memantine is used as NMDA receptor antagonist for AD treatment. Consequently, the plan's objectives include measurements for current treatments as well as an improved focus on preventative and treatment research. In recent years, a number of pharmacologically active substances that were derived from plants, animals, and microbes have shown promise in the treatment of AD by focusing on various pathogenic processes. Natural products are promising source of novel bioactive compounds for therapeutic potential as NMDA receptor antagonists for Alzheimer's disease. In this research study we have screened natural compound database derived from zinc15. Firstly, natural compounds were screened for its BBB and ADMET properties. On the basis of that we got top 10 compounds for dynamics having desired stability with less side effects.

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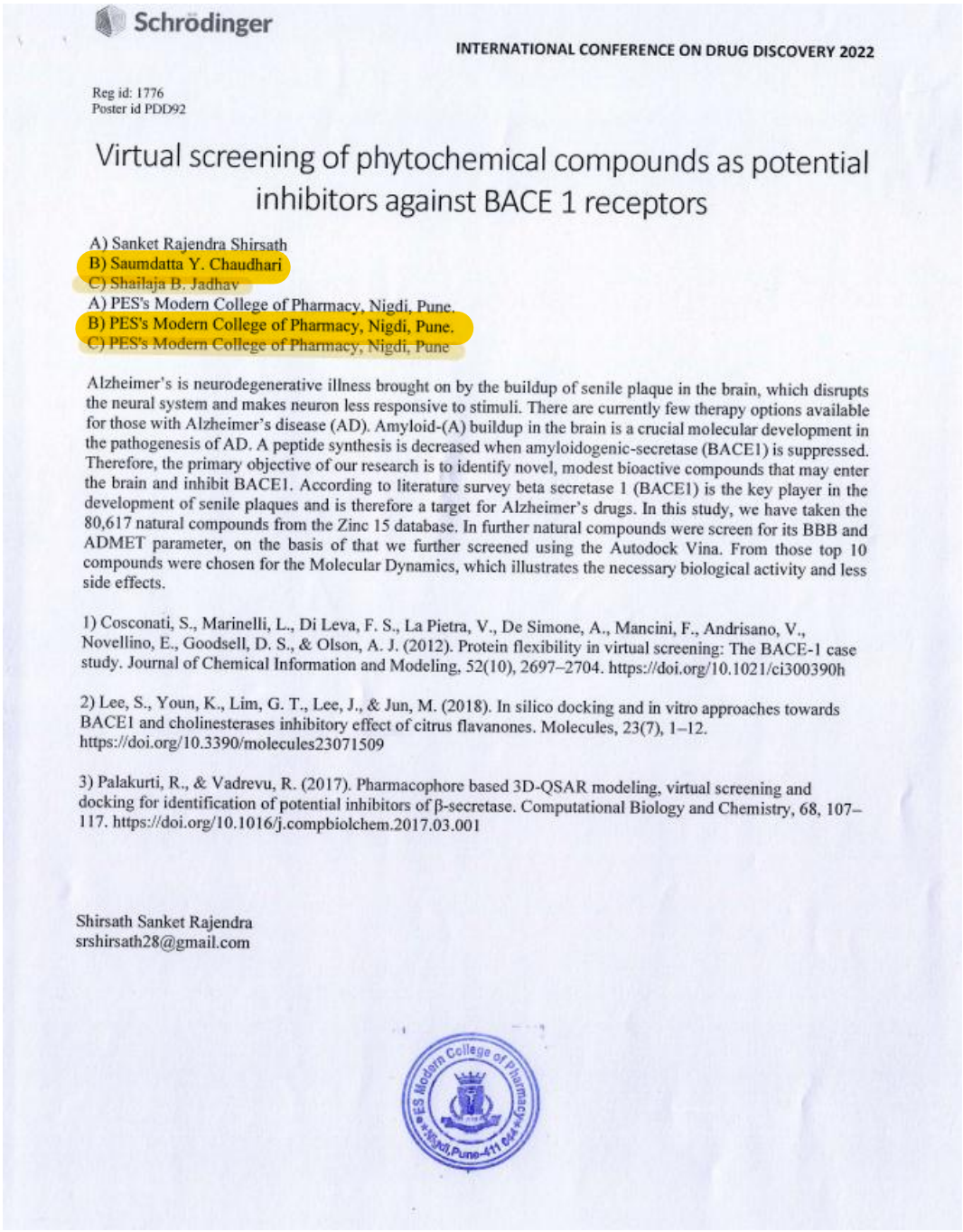
Virtual screening of phytochemical compounds as potential inhibitors against BACE 1 receptors



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INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1776
Poster id PDD92

Virtual screening of phytochemical compounds as potential inhibitors against BACE 1 receptors

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Alzheimer's is neurodegenerative illness brought on by the buildup of senile plaque in the brain, which disrupts the neural system and makes neuron less responsive to stimuli. There are currently few therapy options available for those with Alzheimer's disease (AD). Amyloid-(A) buildup in the brain is a crucial molecular development in the pathogenesis of AD. A peptide synthesis is decreased when amyloidogenic-secretase (BACE1) is suppressed. Therefore, the primary objective of our research is to identify novel, modest bioactive compounds that may enter the brain and inhibit BACE1. According to literature survey beta secretase 1 (BACE1) is the key player in the development of senile plaques and is therefore a target for Alzheimer's drugs. In this study, we have taken the 80,617 natural compounds from the Zinc 15 database. In further natural compounds were screen for its BBB and ADMET parameter, on the basis of that we further screened using the Autodock Vina. From those top 10 compounds were chosen for the Molecular Dynamics, which illustrates the necessary biological activity and less side effects.

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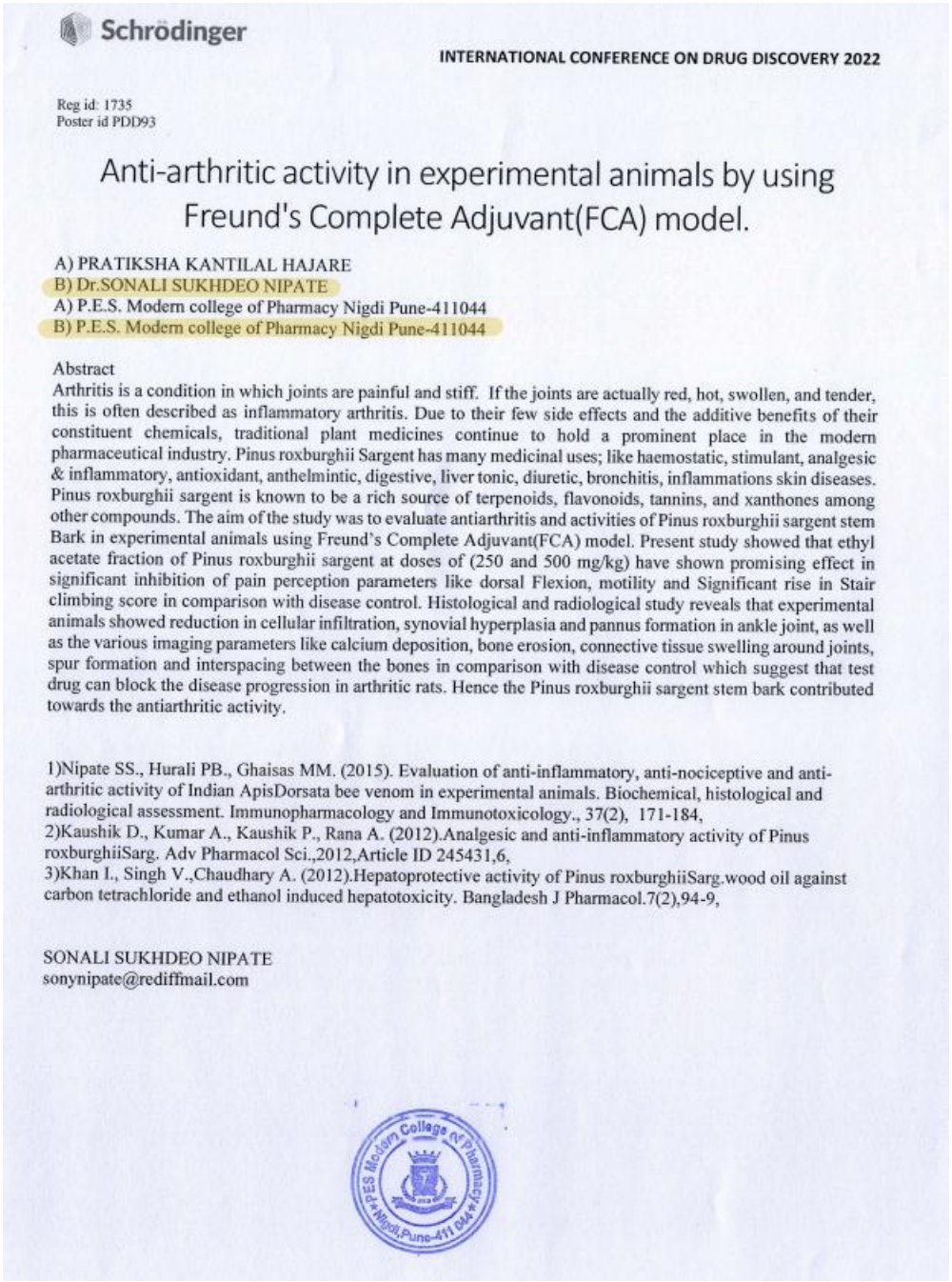
Anti-arthritic activity in experimental animals by using Freund's Complete Adjuvant(FCA) model



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Reg id: 1735
Poster id PDD93

Anti-arthritic activity in experimental animals by using Freund's Complete Adjuvant(FCA) model.

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Abstract
Arthritis is a condition in which joints are painful and stiff. If the joints are actually red, hot, swollen, and tender, this is often described as inflammatory arthritis. Due to their few side effects and the additive benefits of their constituent chemicals, traditional plant medicines continue to hold a prominent place in the modern pharmaceutical industry. Pinus roxburghii Sargent has many medicinal uses; like haemostatic, stimulant, analgesic & inflammatory, antioxidant, anthelmintic, digestive, liver tonic, diuretic, bronchitis, inflammations skin diseases. Pinus roxburghii sargent is known to be a rich source of terpenoids, flavonoids, tannins, and xanthones among other compounds. The aim of the study was to evaluate antiarthritis and activities of Pinus roxburghii sargent stem Bark in experimental animals using Freund's Complete Adjuvant(FCA) model. Present study showed that ethyl acetate fraction of Pinus roxburghii sargent at doses of (250 and 500 mg/kg) have shown promising effect in significant inhibition of pain perception parameters like dorsal Flexion, motility and Significant rise in Stair climbing score in comparison with disease control. Histological and radiological study reveals that experimental animals showed reduction in cellular infiltration, synovial hyperplasia and pannus formation in ankle joint, as well as the various imaging parameters like calcium deposition, bone erosion, connective tissue swelling around joints, spur formation and interspacing between the bones in comparison with disease control which suggest that test drug can block the disease progression in arthritic rats. Hence the Pinus roxburghii sargent stem bark contributed towards the antiarthritic activity.

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Anti-atherosclerotic activity of Origanum majorana L. in experimental animals

Schrödinger

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Reg id: 1756
Poster id PDD94

Anti-atherosclerotic activity of Origanum majorana L. in experimental animals .

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Atherosclerosis is a chronic inflammatory disease that is marked by atheromas, patchy intimal plaques in arteries that cause thickening and hardening of arteries. It is reported that "Origanum majorana L." possess antiulcerogenic, antiproliferative, antioxidant, anticarcinogenic activities, and also it is an important remedy against thromboembolic disease. Present study designed for evaluation of the anti-atherosclerotic activity of hydro distilled volatile oil (OMO) of Origanum majorana L. in high-fat diet-induced atherosclerotic rats. From the in vitro studies, it was found that OMO possesses fibrinolytic, thrombolytic, and antiplatelet activity. As these activities can play an effective role in the anti-atherosclerotic activity. Atherosclerosis was induced using a high-fat diet model in experimental animals. Lipid and lipoprotein profile, atherogenic index, cardiac markers, histopathological examination of the aorta were determined in the end of study. OMO significantly showed that the level total cholesterol (TC), triglyceride (TG), low-density lipid(LDL), very low-density lipids(VLDL) levels were decreased while there is an increase in high-density lipids (HDL) level, SGPT, SGOT, ALP and significant changes in WBCs and platelet count, increasing clotting and decreasing platelet count and the inflammatory biomarkers i.e. CRP level in serum was negative as compared to the normal group and also showed fibrinolytic, thrombolytic, and antiplatelet aggregation activity .The result suggested that oregano oil having fibrinolytic, thrombolytic, and antiplatelet activity hence it contributed towards antiatherosclerosis activity in high-fat diet-induced atherosclerotic rats.

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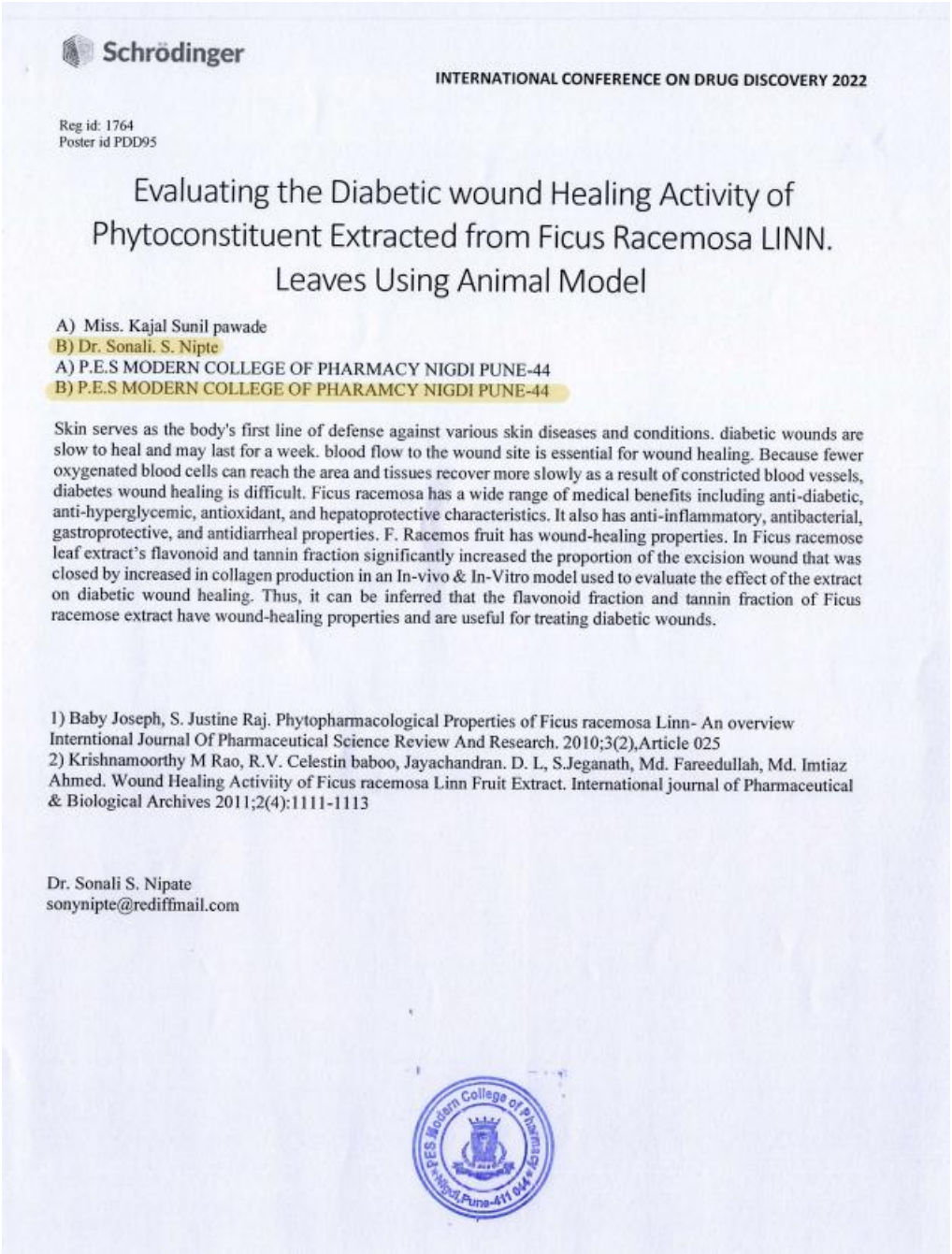
Evaluating the Diabetic wound Healing Activity of Phytoconstituent Extracted from Ficus Racemosa LINN. Leaves Using Animal Model



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INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1764
Poster id PDD95

Evaluating the Diabetic wound Healing Activity of Phytoconstituent Extracted from Ficus Racemosa LINN. Leaves Using Animal Model

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Skin serves as the body's first line of defense against various skin diseases and conditions. diabetic wounds are slow to heal and may last for a week. blood flow to the wound site is essential for wound healing. Because fewer oxygenated blood cells can reach the area and tissues recover more slowly as a result of constricted blood vessels, diabetes wound healing is difficult. Ficus racemosa has a wide range of medical benefits including anti-diabetic, anti-hyperglycemic, antioxidant, and hepatoprotective characteristics. It also has anti-inflammatory, antibacterial, gastroprotective, and antidiarrheal properties. F. Racemos fruit has wound-healing properties. In Ficus racemose leaf extract's flavonoid and tannin fraction significantly increased the proportion of the excision wound that was closed by increased in collagen production in an In-vivo & In-Vitro model used to evaluate the effect of the extract on diabetic wound healing. Thus, it can be inferred that the flavonoid fraction and tannin fraction of Ficus racemose extract have wound-healing properties and are useful for treating diabetic wounds.

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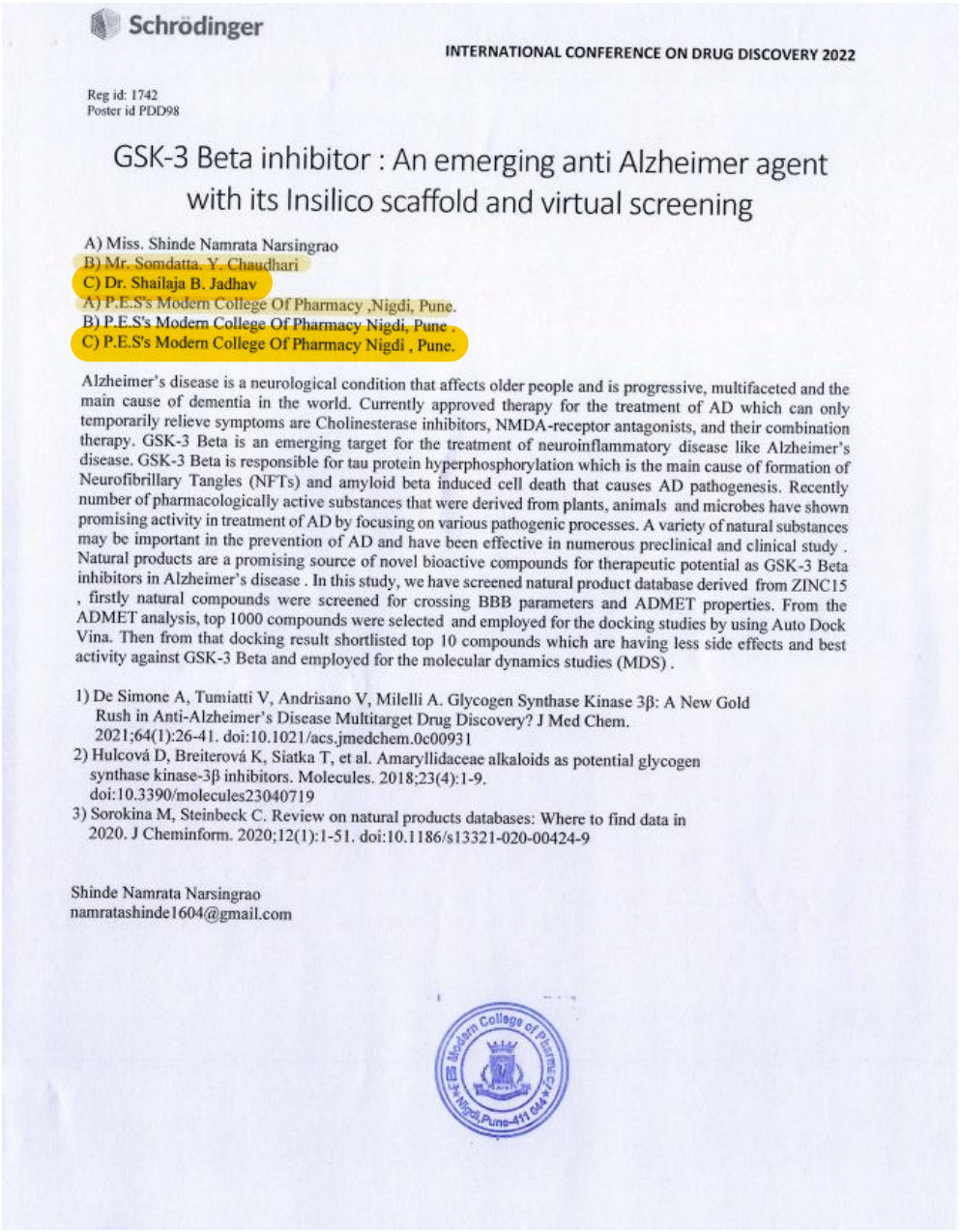
GSK-3 Beta inhibitor: An emerging anti Alzheimer agent with its Insilco scaffold and virtual screening



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INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1742
Poster id PDD98

GSK-3 Beta inhibitor : An emerging anti Alzheimer agent with its Insilico scaffold and virtual screening

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Alzheimer's disease is a neurological condition that affects older people and is progressive, multifaceted and the main cause of dementia in the world. Currently approved therapy for the treatment of AD which can only temporarily relieve symptoms are Cholinesterase inhibitors, NMDA-receptor antagonists, and their combination therapy. GSK-3 Beta is an emerging target for the treatment of neuroinflammatory disease like Alzheimer's disease. GSK-3 Beta is responsible for tau protein hyperphosphorylation which is the main cause of formation of Neurofibrillary Tangles (NFTs) and amyloid beta induced cell death that causes AD pathogenesis. Recently number of pharmacologically active substances that were derived from plants, animals and microbes have shown promising activity in treatment of AD by focusing on various pathogenic processes. A variety of natural substances may be important in the prevention of AD and have been effective in numerous preclinical and clinical study . Natural products are a promising source of novel bioactive compounds for therapeutic potential as GSK-3 Beta inhibitors in Alzheimer's disease . In this study, we have screened natural product database derived from ZINC15 , firstly natural compounds were screened for crossing BBB parameters and ADMET properties. From the ADMET analysis, top 1000 compounds were selected and employed for the docking studies by using Auto Dock Vina. Then from that docking result shortlisted top 10 compounds which are having less side effects and best activity against GSK-3 Beta and employed for the molecular dynamics studies (MDS) .

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In silico study of a natural compound as potential MAO-A inhibitor

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Reg id: 1741
Poster id PDD99

In silico study of a natural compound as potential MAO-A inhibitor

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Alzheimer's disease (AD) is a progressive neurodegenerative disorder associated with aging that is the reason for dementia worldwide. AD has a severe impact on cognitive functions such as memory, resulting in a number of functional losses. The ongoing rise in AD incidence necessitates the rapid creation of effective therapeutic strategies. Deposit extensive study on this disease only a few drugs capable of delaying disease progression are currently available. It has been demonstrated that several pharmacologically active plant-based compounds can effectively treat AD by inhibiting a number of enzymes, including acetylcholinesterase (AChE), butyrylcholinesterase (BuChE), NMDA and monoamine oxidases (MAOs), which are discussed as potential targets. Monoamine oxidase has an essential role in the breakdown of neurotransmitter that leads to the creation of some neurotoxic chemicals, MAO enzymes are possible therapeutic targets for the treatment of such neurological disorders. MAO inhibition has a broad anti-Alzheimer effect due to the reduction of oxidative stress caused by MAO enzymes. There have been many MAO inhibitors introduced thus but there is still a need for a fresh, effective treatment alternative. Consequently, the goal of the current study was to find out potent natural compounds that could be used as a medication to treat AD without causing any side effects. To do this, 80,000 natural product libraries from the natural product database of ZINC15 were virtually screened using computational methods for knowing its ADMET properties and BBB parameters. The resulting compounds were used for docking studies using Autodock Vina. MD simulations of the top 10 compounds were performed to evaluate the dynamics and stability of these compounds in the presence of the MAO-A complex. From the study, we can say that natural compounds have greater potential for anti-Alzheimer.

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Evalauation of antidiabetic and nephroprotective potential of cassia auriculata aerial parts in streptozotocin induced early diabetic nephropathy in rats

Reg id: 1748
Poster id PDD100

EVALAUATION OF ANTIDIABETIC AND NEPHROPROTECTIVE POTENTIAL OF CASSIA AURICULATA AERIAL PARTS IN STREPTOZOTOCIN INDUCED EARLY DIABETIC NEPHROPATHY IN RATS

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Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion and/or action. Diabetic nephropathy is most common complication of diabetes. Streptozotocin is toxic to the insulin producing β cells of the islets of Langerhansin of pancreas, and thus widely employed to induce diabetes in experimental rats. Plant derived formulations and remedies provide provides effective treatment against various diseases. Cassia auriculata is one the herbs having traditional importance for the treatment of diabetes and its related complications. The hydroalcoholic, ethyl acetate and petroleum ether extracts of aerial parts of Cassia auriculata were studied for the nephroprotective, antihyperglycemic and antidiabetic activity. To evaluate the nephroprotective potential of Cassia auriculata histopathological study of kidney, serum total protein, urinary total protein, serum albumin and urinary albumin were estimated. The antihyperglycemic activity is evaluated by oral glucose tolerance test, fasting blood glucose, glycosylated hemoglobulin and serum insulin, glycogen content of liver and skeletal muscle, SGPT, SGOT and ALP parameters. The antioxidant potential is studied through DPPH radical scavenging activity, nitric oxide radical scavenging activity, reducing power assay, superoxide radical scavenging activity, Estimation of GSH, SOD, CAT, MDA peroxidation and histopathologic study of liver. The oral administration of hydroalcoholic extract showed significant reduction in SGPT, SGOT, ALP levels. The OGTD test result indicates that the extract decrease in the blood sugar level. The urinary total protein and albumin were increased while creatine clearance was decreased.

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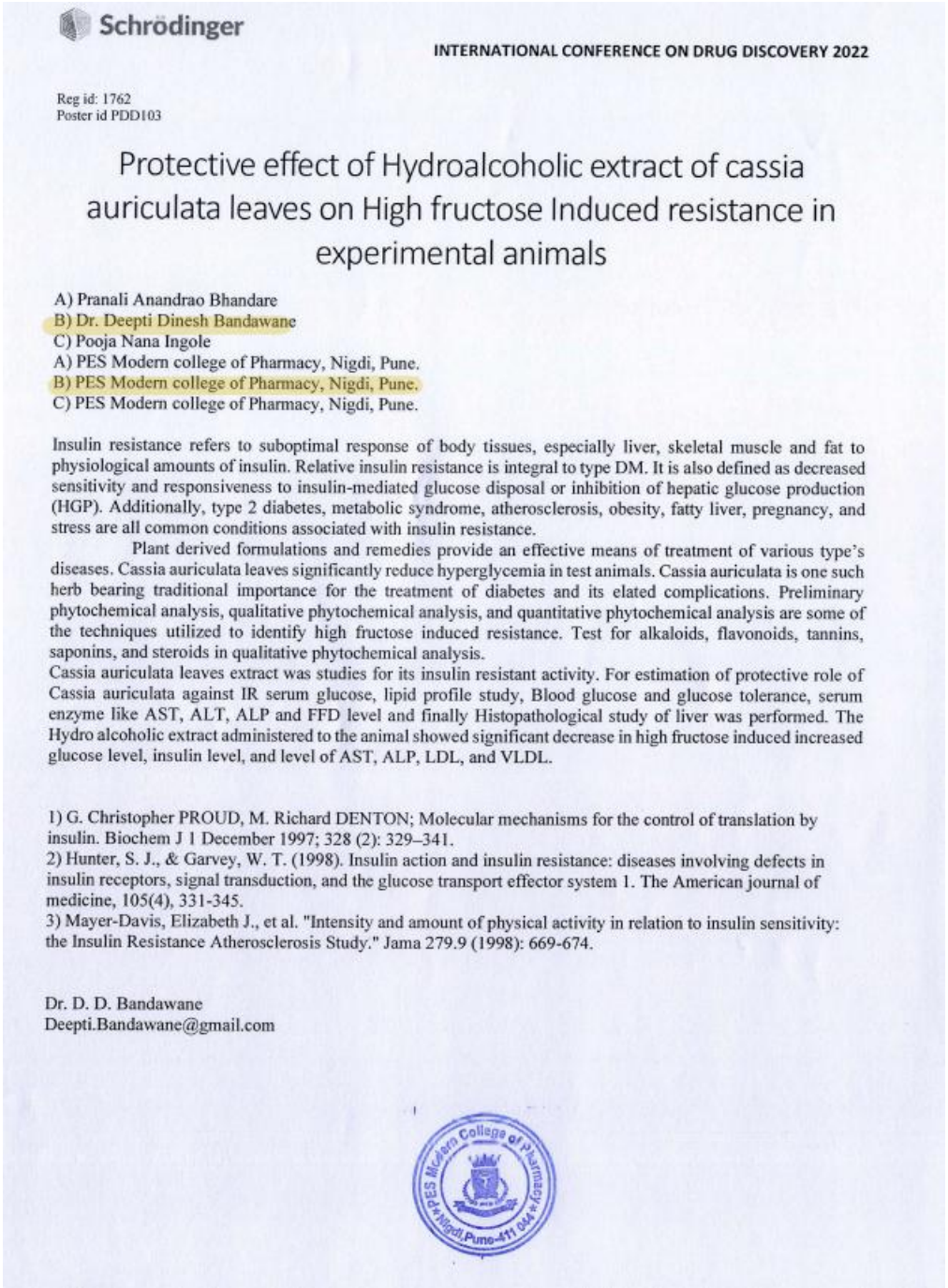
Protective effect of Hydroalcoholic extract of cassia auriculata leaves on High fructose Induced resistance in experimental animals



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Reg id: 1762
Poster id PDD103

Protective effect of Hydroalcoholic extract of cassia auriculata leaves on High fructose Induced resistance in experimental animals

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Insulin resistance refers to suboptimal response of body tissues, especially liver, skeletal muscle and fat to physiological amounts of insulin. Relative insulin resistance is integral to type DM. It is also defined as decreased sensitivity and responsiveness to insulin-mediated glucose disposal or inhibition of hepatic glucose production (HGP). Additionally, type 2 diabetes, metabolic syndrome, atherosclerosis, obesity, fatty liver, pregnancy, and stress are all common conditions associated with insulin resistance.

Plant derived formulations and remedies provide an effective means of treatment of various type's diseases. Cassia auriculata leaves significantly reduce hyperglycemia in test animals. Cassia auriculata is one such herb bearing traditional importance for the treatment of diabetes and its elated complications. Preliminary phytochemical analysis, qualitative phytochemical analysis, and quantitative phytochemical analysis are some of the techniques utilized to identify high fructose induced resistance. Test for alkaloids, flavonoids, tannins, saponins, and steroids in qualitative phytochemical analysis.

Cassia auriculata leaves extract was studies for its insulin resistant activity. For estimation of protective role of Cassia auriculata against IR serum glucose, lipid profile study, Blood glucose and glucose tolerance, serum enzyme like AST, ALT, ALP and FFD level and finally Histopathological study of liver was performed. The Hydro alcoholic extract administered to the animal showed significant decrease in high fructose induced increased glucose level, insulin level, and level of AST, ALP, LDL, and VLDL.

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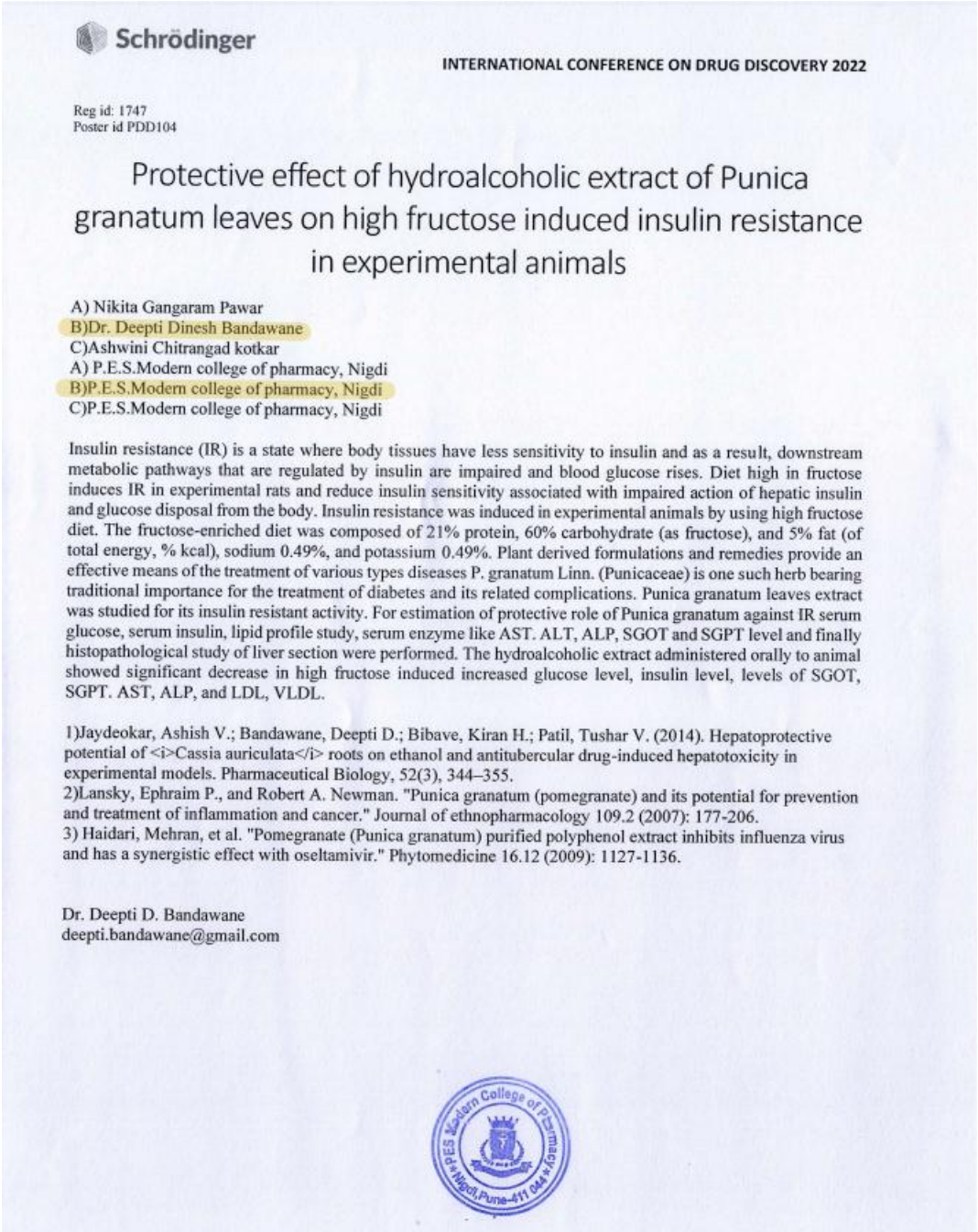
Protective effect of hydroalcoholic extract of Punica granatum leaves on high fructose induced insulin resistance in experimental animals



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Reg id: 1747
Poster id PDD104

Protective effect of hydroalcoholic extract of Punica granatum leaves on high fructose induced insulin resistance in experimental animals

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Insulin resistance (IR) is a state where body tissues have less sensitivity to insulin and as a result, downstream metabolic pathways that are regulated by insulin are impaired and blood glucose rises. Diet high in fructose induces IR in experimental rats and reduce insulin sensitivity associated with impaired action of hepatic insulin and glucose disposal from the body. Insulin resistance was induced in experimental animals by using high fructose diet. The fructose-enriched diet was composed of 21% protein, 60% carbohydrate (as fructose), and 5% fat (of total energy, % kcal), sodium 0.49%, and potassium 0.49%. Plant derived formulations and remedies provide an effective means of the treatment of various types diseases P. granatum Linn. (Punicaceae) is one such herb bearing traditional importance for the treatment of diabetes and its related complications. Punica granatum leaves extract was studied for its insulin resistant activity. For estimation of protective role of Punica granatum against IR serum glucose, serum insulin, lipid profile study, serum enzyme like AST. ALT, ALP, SGOT and SGPT level and finally histopathological study of liver section were performed. The hydroalcoholic extract administered orally to animal showed significant decrease in high fructose induced increased glucose level, insulin level, levels of SGOT, SGPT. AST, ALP, and LDL, VLDL.

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Antihistaminic effects of azadirachta indica leaves in laboratory animals

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INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1751
Poster id PDD114

ANTIHISTAMINIC EFFECTS OF AZADIRACHTA INDICA LEAVES IN LABORATORY ANIMALS

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ABSTRACT:

Azadirachta indica (Meliaceae) leaves have been traditionally used in the management of asthma and the current study was undertaken to scientifically validate the benefits of plant as an antihistaminic agent using the suitable animal model. The agents with antihistaminic properties are known to be good antiasthmatic agents; hence, in the current research work, the antihistaminic activity of an ethanolic extract of Azadirachta indica leaves (at a dose of 250 mg/kg, i.p.) was evaluated using haloperidol-induced catalepsy and clonidine-induced catalepsy in laboratory rats. The results showed that the ethanolic extract inhibits the catalepsy induced by the clonidine but no remarkable effect was observed on the catalepsy induced by haloperidol. This strongly suggests that, the inhibition is mediated through an antihistaminic action and there is no role of dopamine. Hence, in the present study, it is concluded that, the ethanolic extract has significant antihistaminic activity. The polar constituents in the ethanolic extract of leaves of Azadirachta indica may be responsible for the antihistaminic effects and therefore, the ethanolic leaves extract can be a better remedy as an antihistaminic agent.

KEY WORDS:
Asthma, Antihistaminic, Azadirachta indica, catalepsy bar, Haloperidol, Clonidine.

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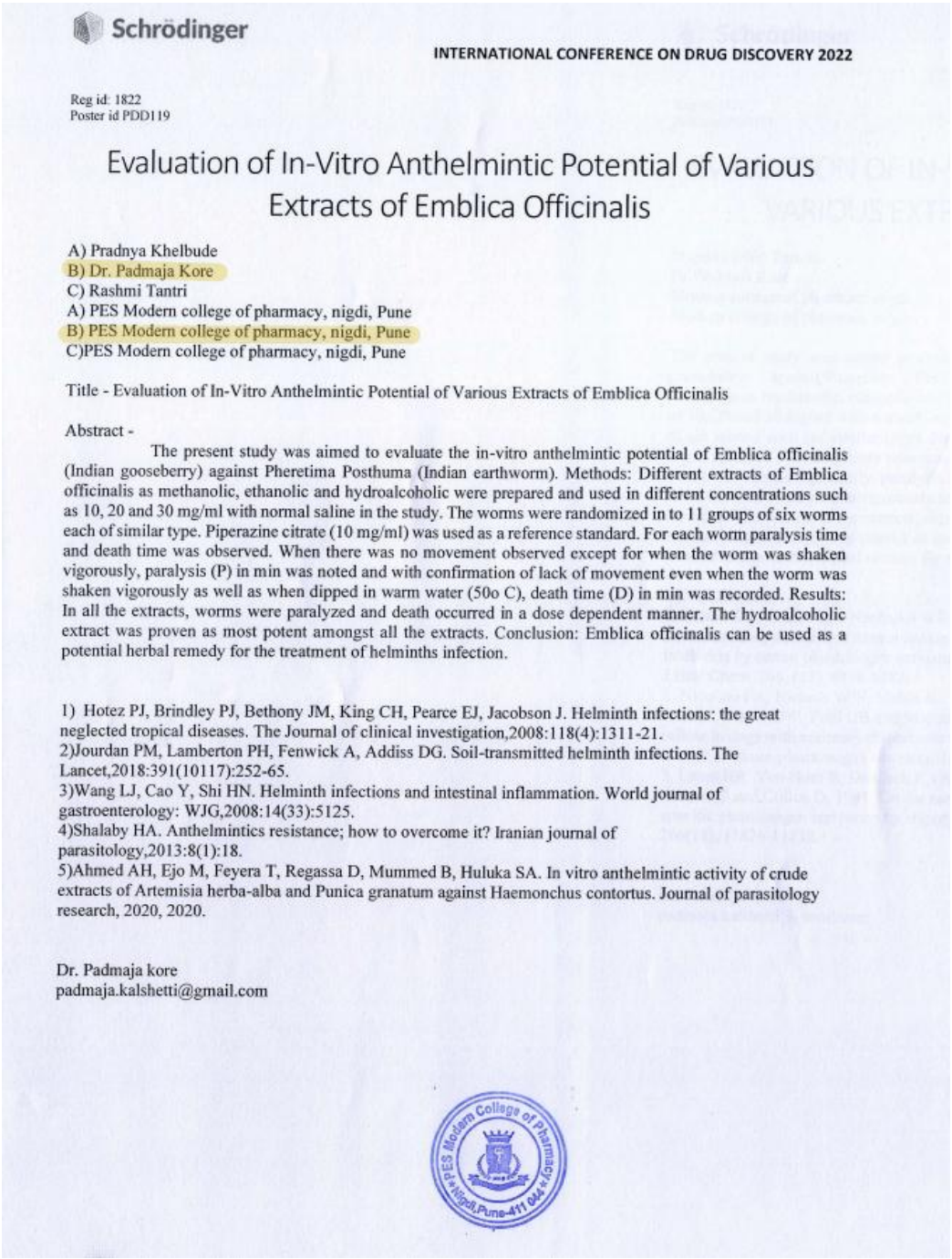
Evaluation of In-Vitro Anthelmintic Potential of Various Extracts of Emblica Officinalis



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INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1822
Poster id PDD119

Evaluation of In-Vitro Anthelmintic Potential of Various Extracts of Emblica Officinalis

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Title - Evaluation of In-Vitro Anthelmintic Potential of Various Extracts of Emblica Officinalis

Abstract -

The present study was aimed to evaluate the in-vitro anthelmintic potential of Emblica officinalis (Indian gooseberry) against Pheretima Posthuma (Indian earthworm). Methods: Different extracts of Emblica officinalis as methanolic, ethanolic and hydroalcoholic were prepared and used in different concentrations such as 10, 20 and 30 mg/ml with normal saline in the study. The worms were randomized in to 11 groups of six worms each of similar type. Piperazine citrate (10 mg/ml) was used as a reference standard. For each worm paralysis time and death time was observed. When there was no movement observed except for when the worm was shaken vigorously, paralysis (P) in min was noted and with confirmation of lack of movement even when the worm was shaken vigorously as well as when dipped in warm water (50o C), death time (D) in min was recorded. Results: In all the extracts, worms were paralyzed and death occurred in a dose dependent manner. The hydroalcoholic extract was proven as most potent amongst all the extracts. Conclusion: Emblica officinalis can be used as a potential herbal remedy for the treatment of helminths infection.

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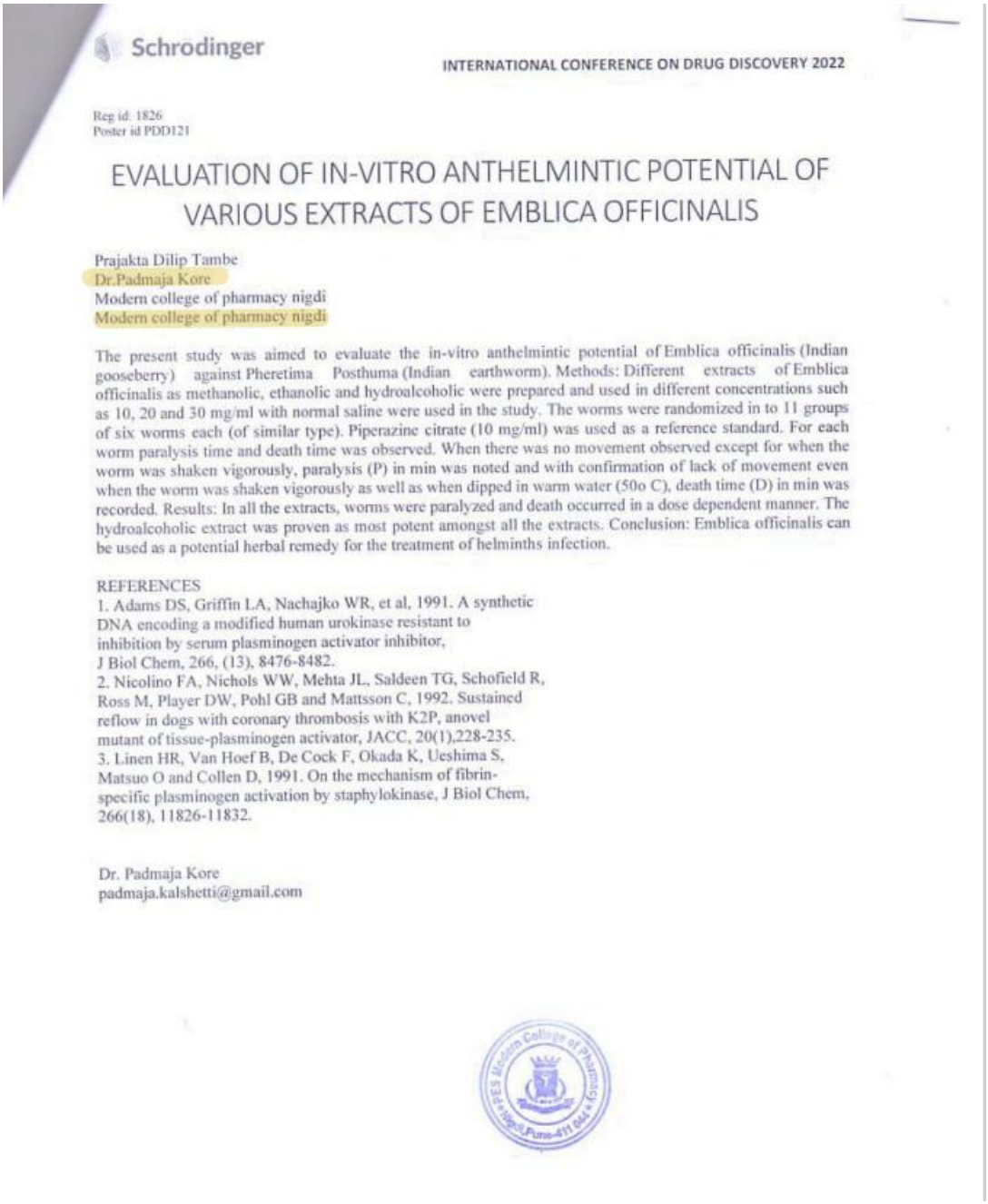
Evaluation of in-vitro anthelmintic potential of various extracts of emblica officinalis



Schrodinger

INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1826
Poster id PDD121

EVALUATION OF IN-VITRO ANTHELMINTIC POTENTIAL OF VARIOUS EXTRACTS OF EMBLICA OFFICINALIS

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The present study was aimed to evaluate the in-vitro anthelmintic potential of Emblica officinalis (Indian gooseberry) against Pheretima Posthuma (Indian earthworm). Methods: Different extracts of Emblica officinalis as methanolic, ethanolic and hydroalcoholic were prepared and used in different concentrations such as 10, 20 and 30 mg/ml with normal saline were used in the study. The worms were randomized in to 11 groups of six worms each (of similar type). Piperazine citrate (10 mg/ml) was used as a reference standard. For each worm paralysis time and death time was observed. When there was no movement observed except for when the worm was shaken vigorously, paralysis (P) in min was noted and with confirmation of lack of movement even when the worm was shaken vigorously as well as when dipped in warm water (50o C), death time (D) in min was recorded. Results: In all the extracts, worms were paralyzed and death occurred in a dose dependent manner. The hydroalcoholic extract was proven as most potent amongst all the extracts. Conclusion: Emblica officinalis can be used as a potential herbal remedy for the treatment of helminths infection.

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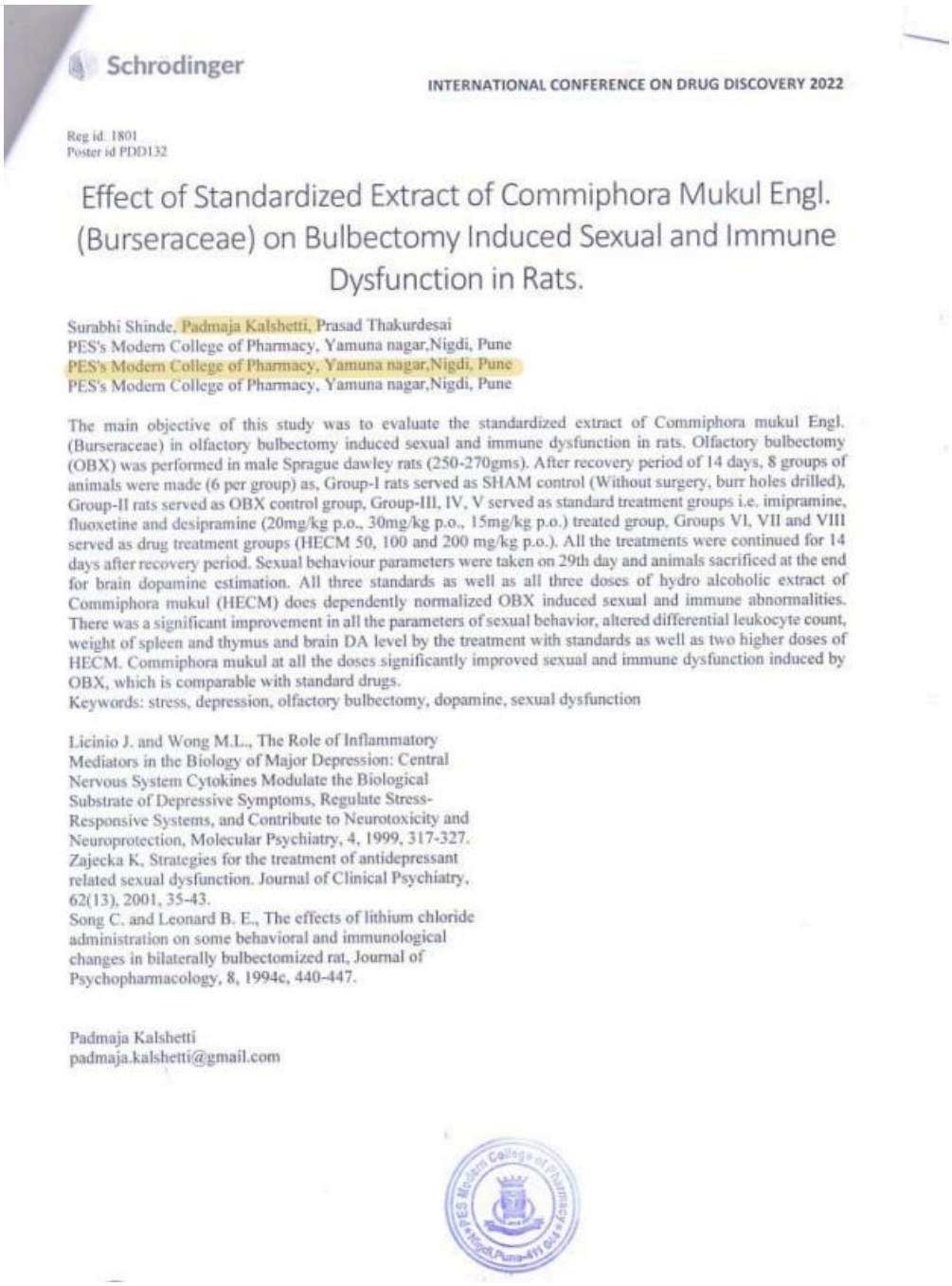
Effect of Standardized Extract of Commiphora Mukul Engl. (Burseraceae) on Bulbectomy Induced Sexual and Immune Dysfunction in Rats



Schrodinger

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Reg id: 1801
Poster id PDD132

Effect of Standardized Extract of Commiphora Mukul Engl. (Burseraceae) on Bulbectomy Induced Sexual and Immune Dysfunction in Rats.

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The main objective of this study was to evaluate the standardized extract of Commiphora mukul Engl. (Burseraceae) in olfactory bulbectomy induced sexual and immune dysfunction in rats. Olfactory bulbectomy (OBX) was performed in male Sprague dawley rats (250-270gms). After recovery period of 14 days, 8 groups of animals were made (6 per group) as, Group-I rats served as SHAM control (Without surgery, burr holes drilled), Group-II rats served as OBX control group, Group-III, IV, V served as standard treatment groups i.e. imipramine, fluoxetine and desipramine (20mg/kg p.o., 30mg/kg p.o., 15mg/kg p.o.) treated group, Groups VI, VII and VIII served as drug treatment groups (HECM 50, 100 and 200 mg/kg p.o.). All the treatments were continued for 14 days after recovery period. Sexual behaviour parameters were taken on 29th day and animals sacrificed at the end for brain dopamine estimation. All three standards as well as all three doses of hydro alcoholic extract of Commiphora mukul (HECM) does dependently normalized OBX induced sexual and immune abnormalities. There was a significant improvement in all the parameters of sexual behavior, altered differential leukocyte count, weight of spleen and thymus and brain DA level by the treatment with standards as well as two higher doses of HECM. Commiphora mukul at all the doses significantly improved sexual and immune dysfunction induced by OBX, which is comparable with standard drugs.
Keywords: stress, depression, olfactory bulbectomy, dopamine, sexual dysfunction

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Molecular Docking, Dynamics and Synthesis of some N-heteroaryl Flavon Hybrid Targeting Estrogen Receptor Alpha(ER-α)

Schrödinger

INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1813
Poster id SMDD62

Molecular Docking, Dynamics and Synthesis of some N-heteroaryl Flavon Hybrid Targeting Estrogen Receptor Alpha (ER-α).

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ABSTRACT
Background: Substitution of the N-heterocyclic ring on the flavon structure may potentiate its anticancer effect. Hormone related breast cancer is mostly caused by interactions with estrogen receptor alpha (ER-α), which functions as a transcription factor to control the transcription of numerous genes. Flavones are considered as a good substrate for the estrogen receptor.
Objective: A series of flavon derivatives with an N-heteroaryl ring at the 4' position of the B ring of flavon were designed, prepared, and evaluated for breast cancer activity.
Method: Molecular docking was used to study the binding interactions of the PzFL, PzF, PiFL, PiF, and IFL compounds with ER-α. Molecular dynamics and simulation studies were carried out in order to determine the stability and convergence of protein ligand complexes. The compounds were produced by cyclizing chalcones, and chalcones were produced by Claisen-Schmidt condensation of substituted aldehydes and 2-hydroxyacetophenone. Breast cancer activity was evaluated by the MTT assay on MCF-7 cell lines. Also, compounds were studied for their estrogen receptor binding potential on the same cell lines.
Results: Molecular docking of compounds showed the good docking score. Molecular dynamics of these compounds expressed stable RMSD, stable radius of gyration and low binding energy, suggested that ligand bound to protein is quite stable in complex. MTT assay on MCF-7 cell lines reported PzF and IFL were the most active compounds with lower IC50 values. ER-α binding assay of these compounds revealed the presence of binding interactions with receptor.
Conclusion: This study offers a viable reference point for the design of flavon-incorporated N-heterocyclic ring derivatives as breast cancer compounds.
Keywords: - Estrogen receptor alpha, Breast cancer, Flavon, MTT assay, Molecular dynamics

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Synthesis, characterization and in-silico study of two key impurities of propranolol

Schrödinger

INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

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Poster id SMDD190

Synthesis, characterization and in-silico study of two key impurities of propranolol.

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Title: Synthesis, characterization and in-silico study of two key impurities of propranolol.

Abstract:
Impurity synthesis is upcoming market in next few years and which will play a vital role in pharma industry. The Present work has based on synthesis of propranolol impurity. Propranolol belongs to group of medicines called β blockers. propranolol blocks β1 and β2 receptors, but has weak activity on β3 subtype. Impurity plays major role in quality control of active pharmaceutical ingredient. Impurity may be more potent than related drug. In contest of impurity synthesis, to minimizes expenses in traditional synthesis we perform docking studies. The work represents the synthesis of some impurities, that act as a reference standard for impurity present in API. The docking studies were performed to established the high binding affinity of impurity as compare to their API. The ADMET study was carried out to know the pharmacokinetic properties, drug likeness relates to their API and establish toxicity. For Insilco study the target protein is potent G- protein coupled receptor kinase which is (5-UVC) imported from protein data bank from web. During synthesis we found two impurities of propranolol these are; 3- (napthalen- 1-yloxy) propane- 1,2-diol (imp 1) and 1,3-bis (napthalen-1-yloxy) propan-2-ol (imp 2). In docking study impurity imp2, show the equal and high binding affinity compare to their standard API Propranolol. In docking study interaction were visualized using Biovia Discovery Studio software in that imp2 showed hydrogen bond, hydrophobic interaction and electrostatic interaction but their API only showed hydrogen bond and hydrophobic interaction. In ADMET study imp2 was showed similar pharmacokinetic activity as to their API. In this study, the imp2 were successfully synthesized using the procedure presented in the scheme and were purified by recrystallization and column chromatography. The identification of compound was established by single spot TLC and spectral analysis involving IR, 1H NMR and Mass.

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Synthesis and Insilico study of six key impurities of Atenolol: β blocker

Schrödinger

INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1765
Poster id SMDD191

Synthesis and Insilico study of six key impurities of Atenolol: β blocker

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Title- Synthesis and Insilico study of six key impurities of Atenolol: β blocker

Abstract-
There is a vital role that the impurity standard play in the development of any drug. The goal of the present work has to be synthesis the impurity of the atenolol. To concise the work we performed docking study to find potential impurity. Atenolol is beta blocker medication preferably block β1 receptor, primarily used to treat high blood pressure and heart associated chest pain. G-protein couple receptor kinase 2 (GRK2) inhibitor play an important role for the potential treatment of heart failure. For Insilico study GRK2 was consider as protein target (PDB id for GRK2-5UVC). To minimise expense in traditional synthesis we performed docking studies 6 types of impurity obtained Aimp1 {2-(4-hydroxyphenyl) acetamide}, Aimp2 {2-(4-(3-chloro-2-hydroxypropoxy)phenyl)acetamide}, Aimp3 {2-(4-(3-dihydroxypropoxy) phenyl)acetamide, Aimp4{2-(4-(3-amino-2-hydroxypropoxy phenyl)acetamide, Aimp5 {2,2' (((2-hydroxypropane-1,3-diyl)bis(oxy))bis(4,1-phenylnene))diacetamide, Aimp6 {2 2' ((((isopropylazanediyl)bis(2-hydroxypropane -3,1-diyl))bis (oxy)bis(4,1-phenylene))diacetamide. Docking study results revels that, Aimp5 and 6 are more potent the standard drug atenolol. According to ADMET study necessary for understand safety and efficacy of drug. ADMET performed by webserver preadmet, swissadme. Aimp1, Aimp2, Aimp3, Aimp6 shows good ADMET property. For future prospect pharmaceutical industry reduce the level of impurity to their required threshold according to ICH guideline. We synthesized impurity which belong to emergency cardiovascular drug, so that they have high market value in pharmaceutical industry for concerning safety of potent drug. In our research work study, we have found impurity (Aimp5 and 6) have high binding affinity and required ADME properties which might be helpful as a drug rather than impurity from drug.

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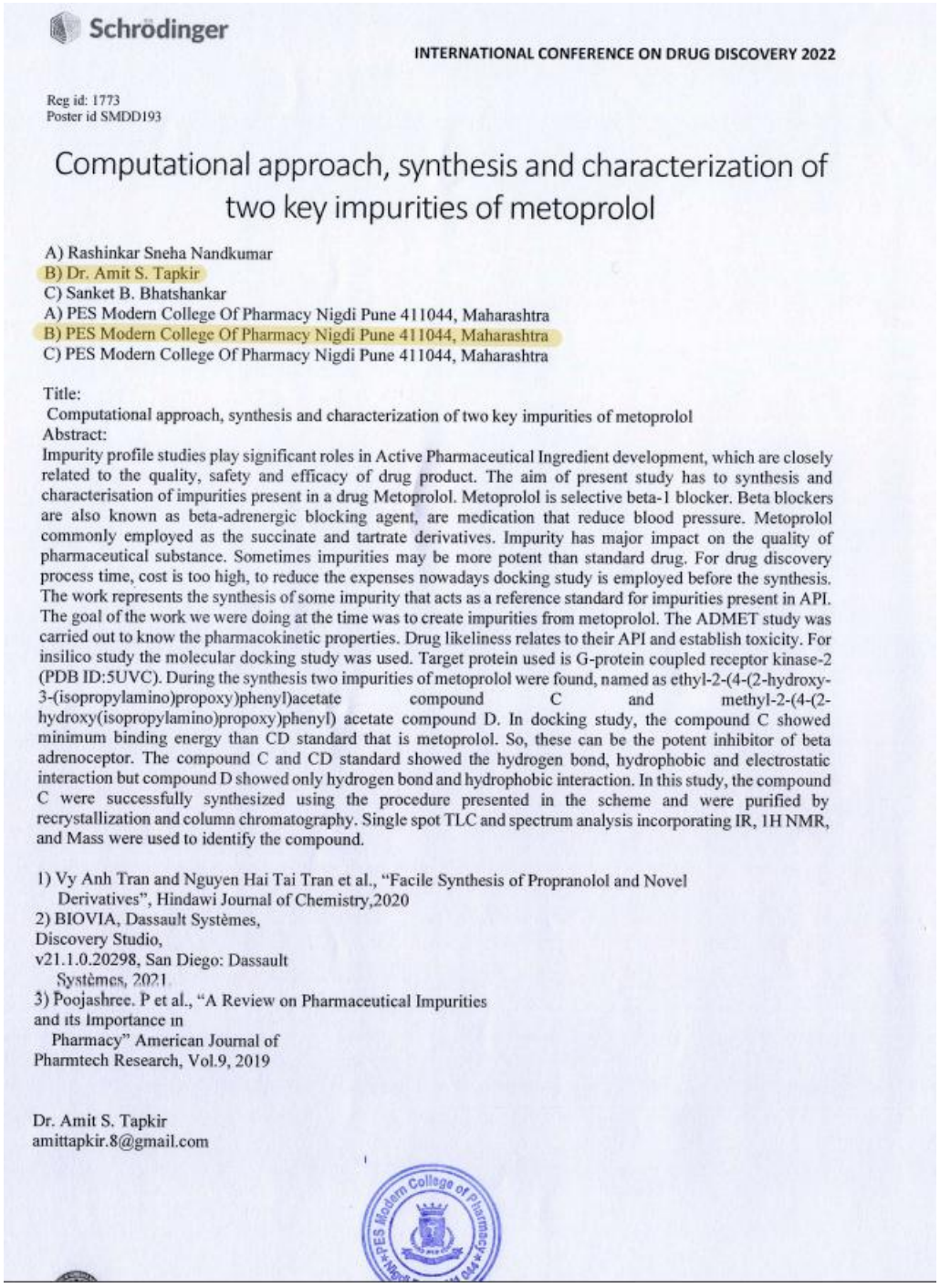
Computational approach, synthesis and characterization of two key impurities of metoprolol



Schrödinger

INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

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Poster id SMDD193

Computational approach, synthesis and characterization of two key impurities of metoprolol

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Title:
Computational approach, synthesis and characterization of two key impurities of metoprolol

Abstract:
Impurity profile studies play significant roles in Active Pharmaceutical Ingredient development, which are closely related to the quality, safety and efficacy of drug product. The aim of present study has to synthesis and characterisation of impurities present in a drug Metoprolol. Metoprolol is selective beta-1 blocker. Beta blockers are also known as beta-adrenergic blocking agent, are medication that reduce blood pressure. Metoprolol commonly employed as the succinate and tartrate derivatives. Impurity has major impact on the quality of pharmaceutical substance. Sometimes impurities may be more potent than standard drug. For drug discovery process time, cost is too high, to reduce the expenses nowadays docking study is employed before the synthesis. The work represents the synthesis of some impurity that acts as a reference standard for impurities present in API. The goal of the work we were doing at the time was to create impurities from metoprolol. The ADMET study was carried out to know the pharmacokinetic properties. Drug likeliness relates to their API and establish toxicity. For insilico study the molecular docking study was used. Target protein used is G-protein coupled receptor kinase-2 (PDB ID:5UVC). During the synthesis two impurities of metoprolol were found, named as ethyl-2-(4-(2-hydroxy-3-(isopropylamino)propoxy)phenyl)acetate compound C and methyl-2-(4-(2-hydroxy(isopropylamino)propoxy)phenyl) acetate compound D. In docking study, the compound C showed minimum binding energy than CD standard that is metoprolol. So, these can be the potent inhibitor of beta adrenoceptor. The compound C and CD standard showed the hydrogen bond, hydrophobic and electrostatic interaction but compound D showed only hydrogen bond and hydrophobic interaction. In this study, the compound C were successfully synthesized using the procedure presented in the scheme and were purified by recrystallization and column chromatography. Single spot TLC and spectrum analysis incorporating IR, 1H NMR, and Mass were used to identify the compound.

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Potential effect of venom from various Venomous animals in cardiovascular disease

Schrödinger

INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

Reg id: 1811
Poster id SMDD208

POTENTIAL EFFECT OF VENOM FROM VARIOUS VENOMOUS ANIMALS IN CARDIOVASCULAR DISEASE

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Hypertension account for 9.4 million deaths worldwide every year. Venom from animal kingdom is proven for many pharmacological and biological activities which can be used clinically. Chinese physicians use snake venom products routinely to treat stroke and view them as effective and relatively safe. In present study Daboia russelii (RV) and Mesobuthus tumulus (SV) venom studied for Anti-hypertensive activity by fructose and adrenaline induced hypertension model in rats. RV and SV consist of complex, aqueous mixture containing Arginine esterases, Bradykinin-potentiating peptides (BPP), Disintegrins, L-amino acid oxidases (LAAO), Phosphodiesterases (PDE), Phospholipase A2's (PLA2), PLA2-based presynaptic neurotoxins, Purines and pyrimidines, Russelobin and K+, Na+, Ca2+, Cl- channel toxins, Hypotensin peptide, lipolytic peptide, PGI2 and NO releasing peptide. It has been found that RV & SV possesses anti-hypertensive activity. In fructose and adrenaline induced hypertension, RV & SV able to decrease blood pressure, total cholesterol, triglyceride, VLDL & LDL. Increase HDL, blood clotting time which is supportive for hypertension treatment.

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A Validated Method Using HPTLC for Determination of Bilastine and Design New Drug Discovery of Antihistaminic Activity.

Schrödinger

INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

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Poster id SMDD219

A Validated Method Using HPTLC for Determination of Bilastine and Design New Drug Discovery of Antihistaminic Activity.

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Abstract
A sensitive, accurate and precise high-performance thin layer chromatographic method was developed for simultaneous estimation of Bilastin/BILAS in bulk and tablet dosage form. The successful separation was achieved ON CAMAG HPTLC. The stationary phase and n-Hexane: Methanol: Iso Propyl Alcohol (1:5:4 v/v/v) as mobile phase. Chromatographic analysis was carried out in the reflectance/absorbance mode at 277nm. The method was validated with respect to linearity, specificity, accuracy, precision, limit of detection and limit of quantitation and applied for analysis of drug in tablet dosage form. The Rf values were found to be 0.53 ± 0.02 for selected drug. The linear regression analysis data for the calibration plots showed a linear relationship in the concentration range 500-2500 ng/band with correlation coefficient 0.997. A validation study has been performed as per ICH guidelines. Inertsil C18 column (150 mm length x 2.1 mm, 3 µm particle size) and the mobile phase comprised of 0.1% formic acid and methanol (50:50 v/v) pumped at rate of 0.2 mL/min. The injection volume of drug was 10 µL and temperature of column was 40°C. The main objectives of this research were to in silico screen the bilastine as to develop antihistaminic activity. Docking studies on bilastine have been carried out using V Life MDS 4.3 software. The molecular docking analysis was carried out better understand the interactions between bilastine and receptors. Hydrophobic and hydrogen bond interactions lead to identification of active binding sites. Docking is an important tool in understanding the structural requirements for design of novel, potent and selective inhibitors and can be employed to design new drug discovery and can be used for antihistaminic activity.

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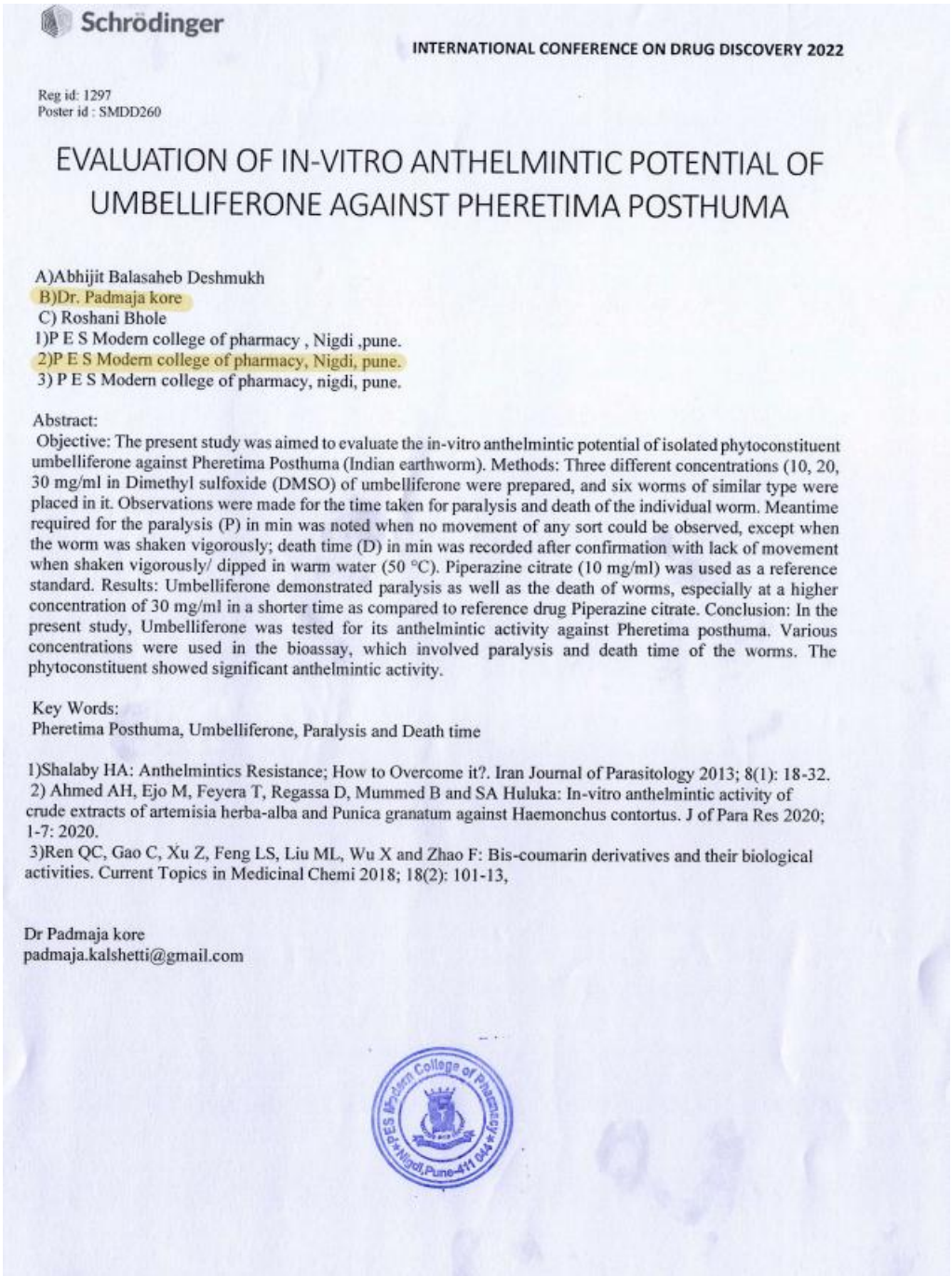
Evaluation of in-vitro anthelmintic potential of umbelliferone against pheretima posthuma



Schrödinger

INTERNATIONAL CONFERENCE ON DRUG DISCOVERY 2022

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Poster id : SMDD260

EVALUATION OF IN-VITRO ANTHELMINTIC POTENTIAL OF UMBELLIFERONE AGAINST PHERETIMA POSTHUMA

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Abstract:
Objective: The present study was aimed to evaluate the in-vitro anthelmintic potential of isolated phytoconstituent umbelliferone against Pheretima Posthuma (Indian earthworm). Methods: Three different concentrations (10, 20, 30 mg/ml in Dimethyl sulfoxide (DMSO) of umbelliferone were prepared, and six worms of similar type were placed in it. Observations were made for the time taken for paralysis and death of the individual worm. Meantime required for the paralysis (P) in min was noted when no movement of any sort could be observed, except when the worm was shaken vigorously; death time (D) in min was recorded after confirmation with lack of movement when shaken vigorously/ dipped in warm water (50 °C). Piperazine citrate (10 mg/ml) was used as a reference standard. Results: Umbelliferone demonstrated paralysis as well as the death of worms, especially at a higher concentration of 30 mg/ml in a shorter time as compared to reference drug Piperazine citrate. Conclusion: In the present study, Umbelliferone was tested for its anthelmintic activity against Pheretima posthuma. Various concentrations were used in the bioassay, which involved paralysis and death time of the worms. The phytoconstituent showed significant anthelmintic activity.

Key Words:
Pheretima Posthuma, Umbelliferone, Paralysis and Death time

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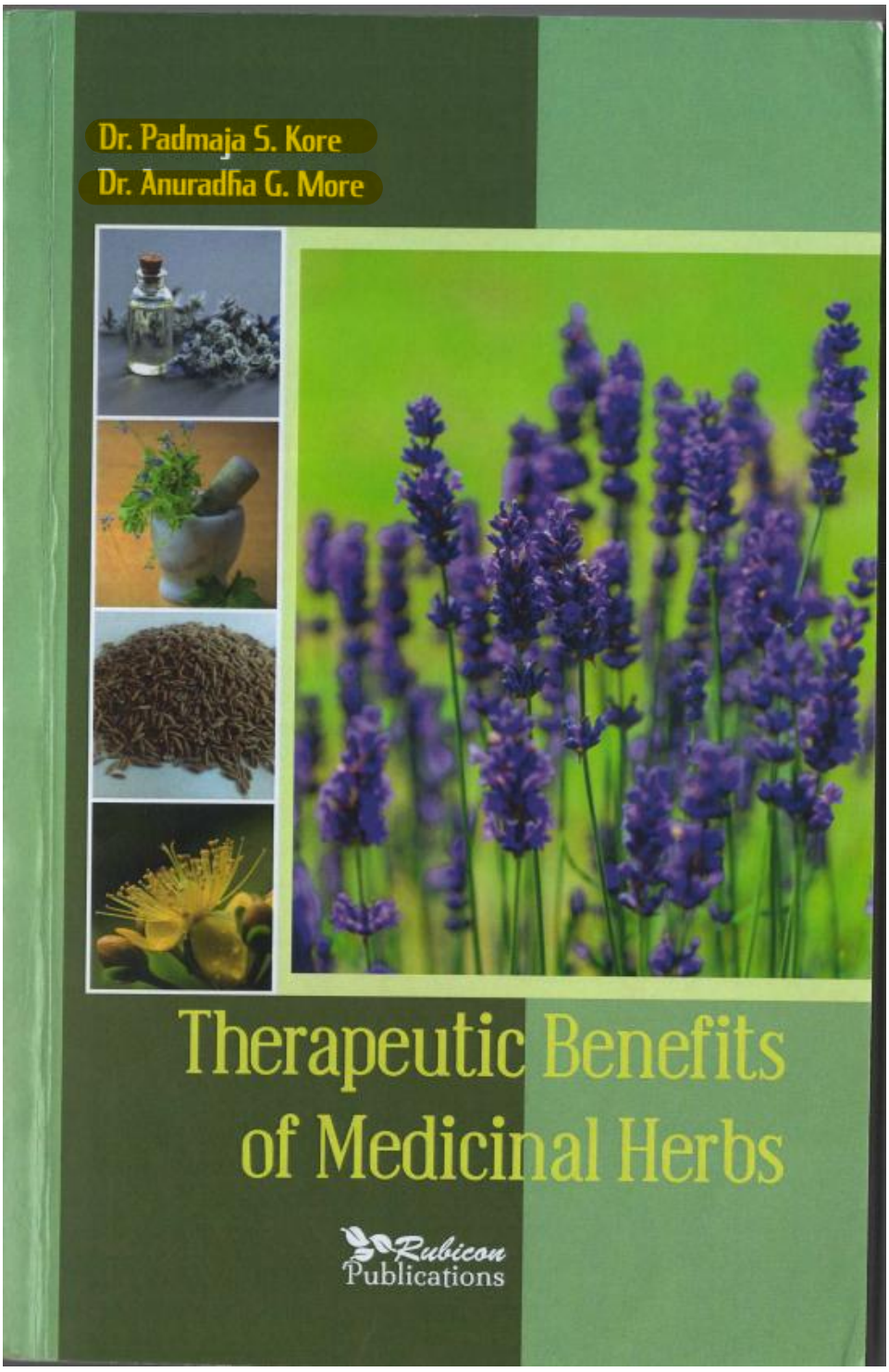
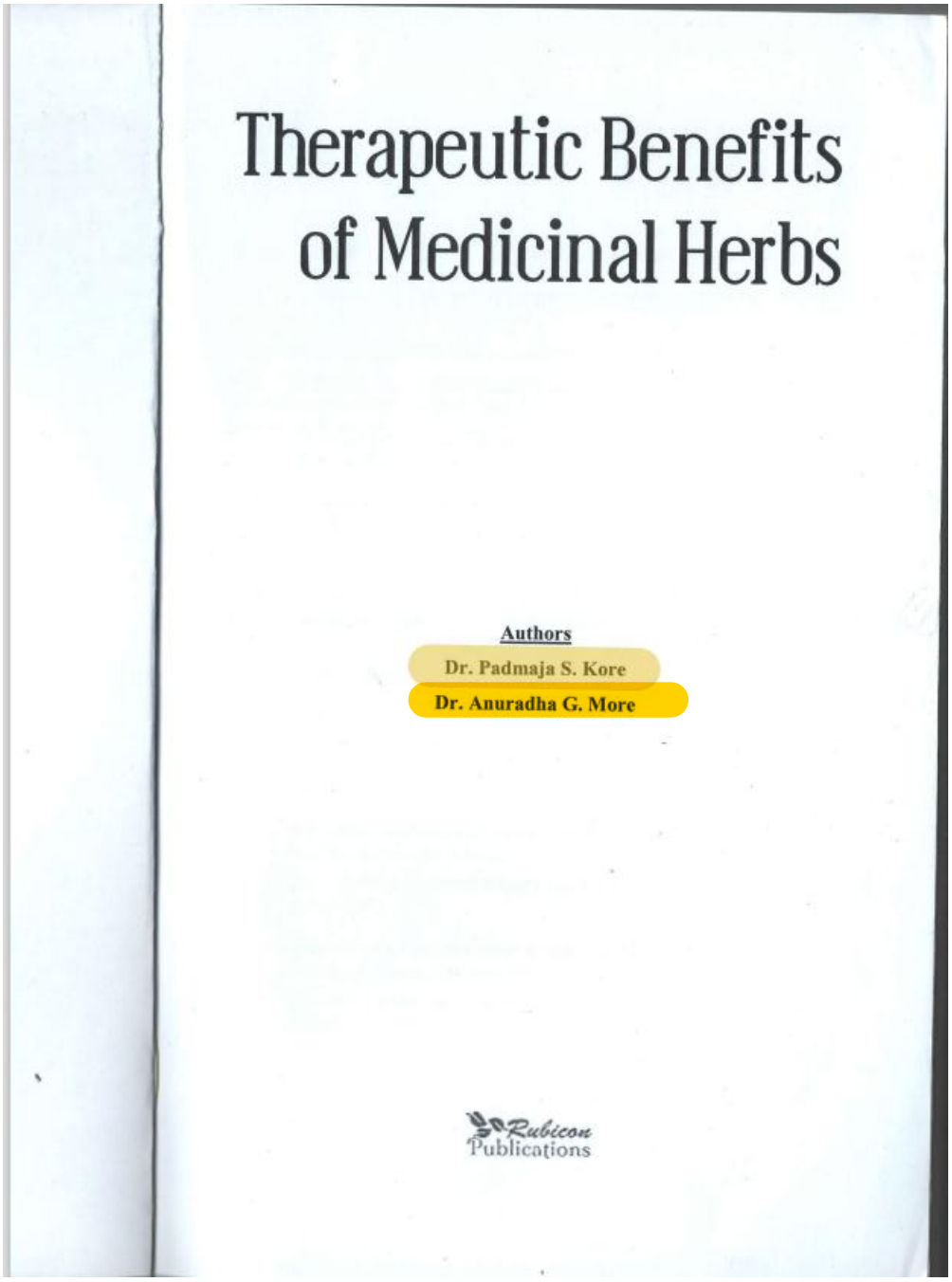
INDEX

Therapeutic Benefits of medicinal herbs




Therapeutic Benefits
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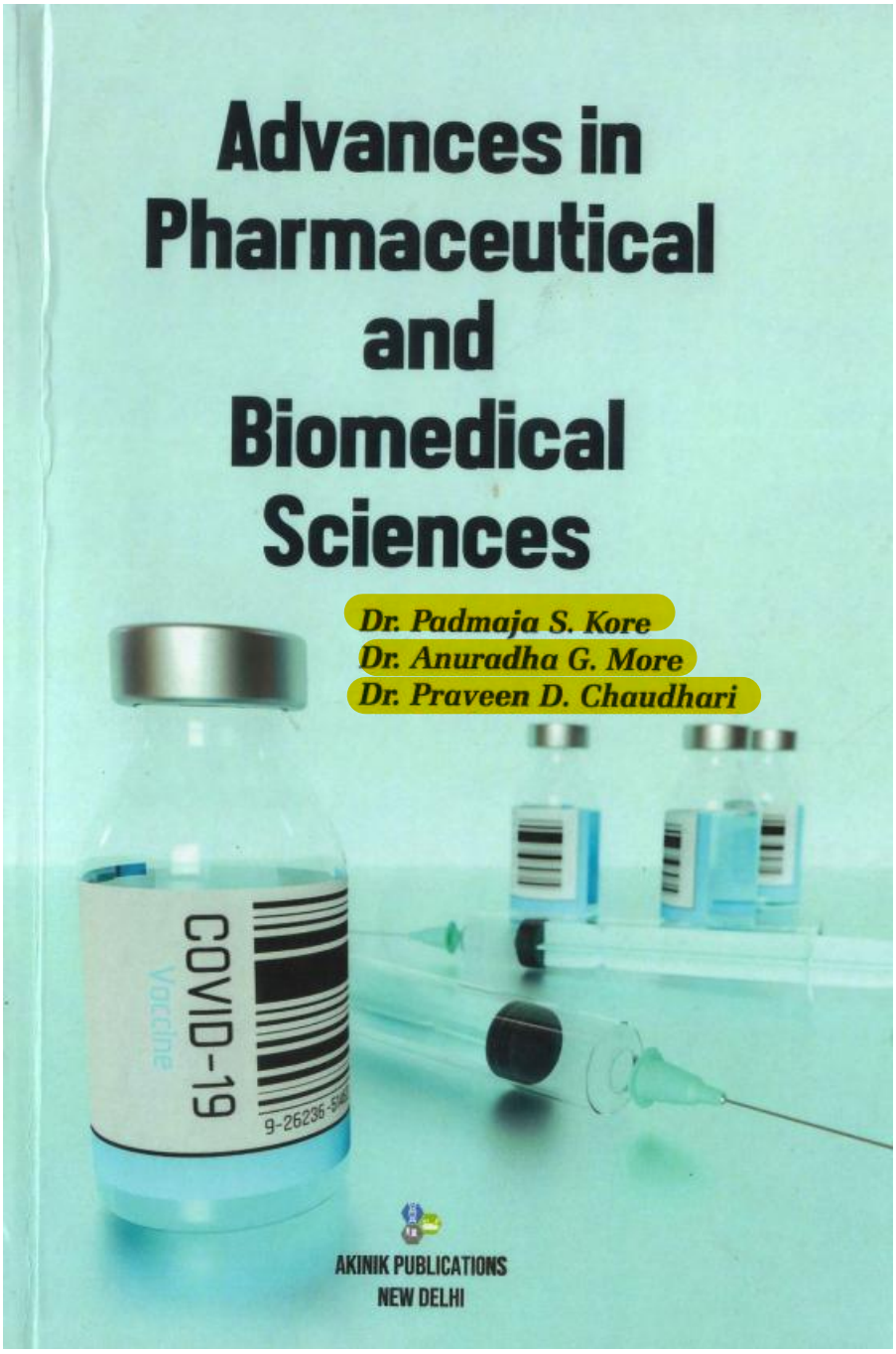

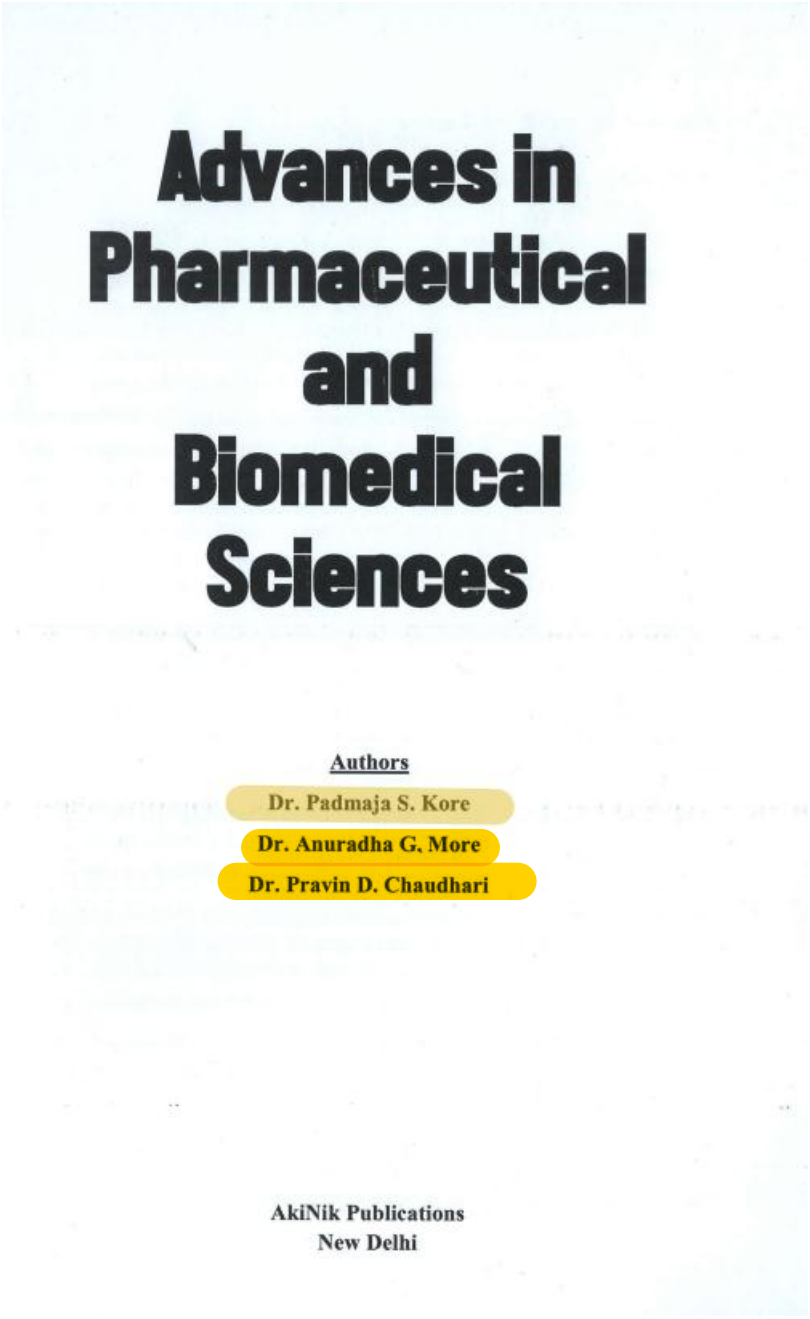
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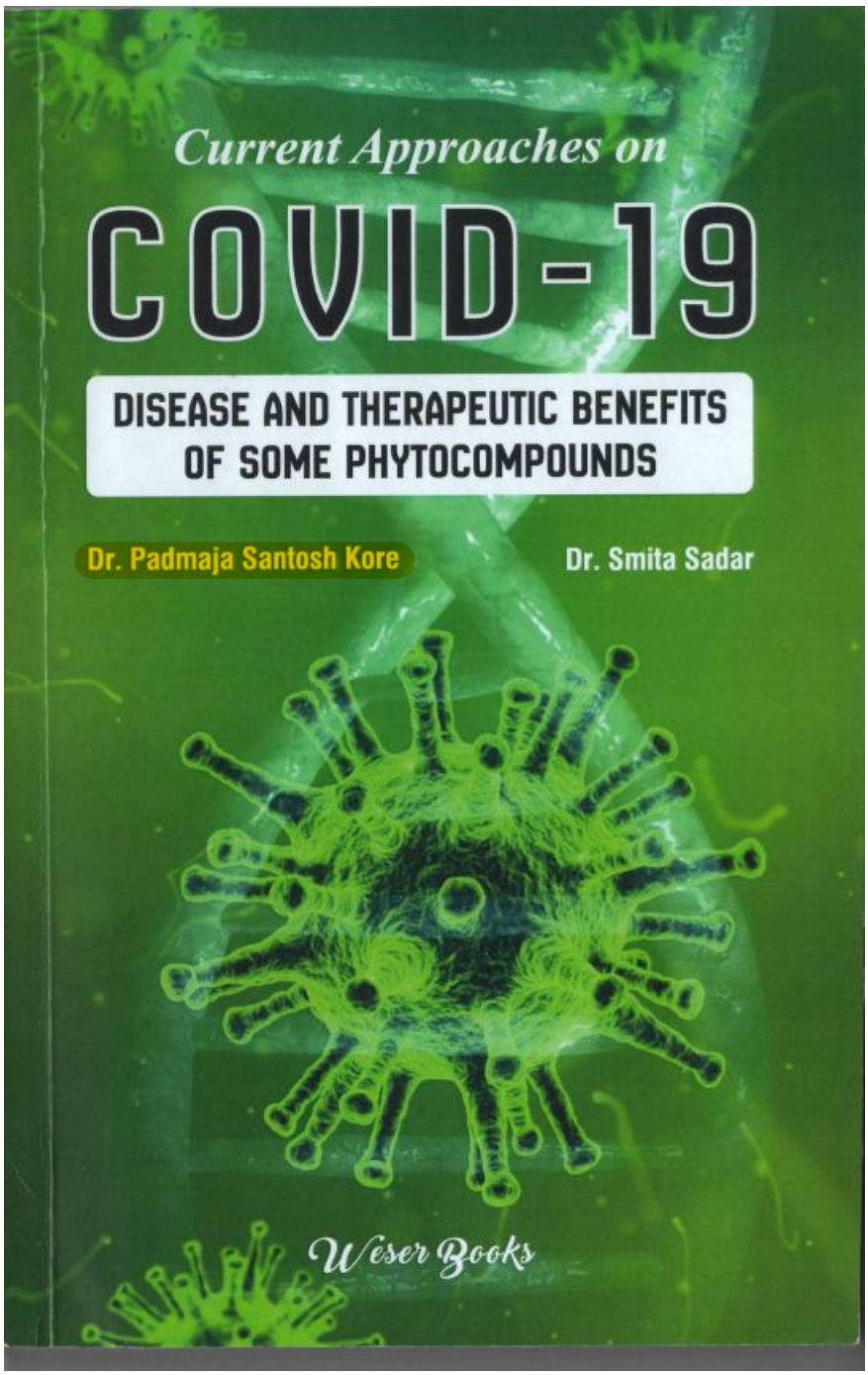

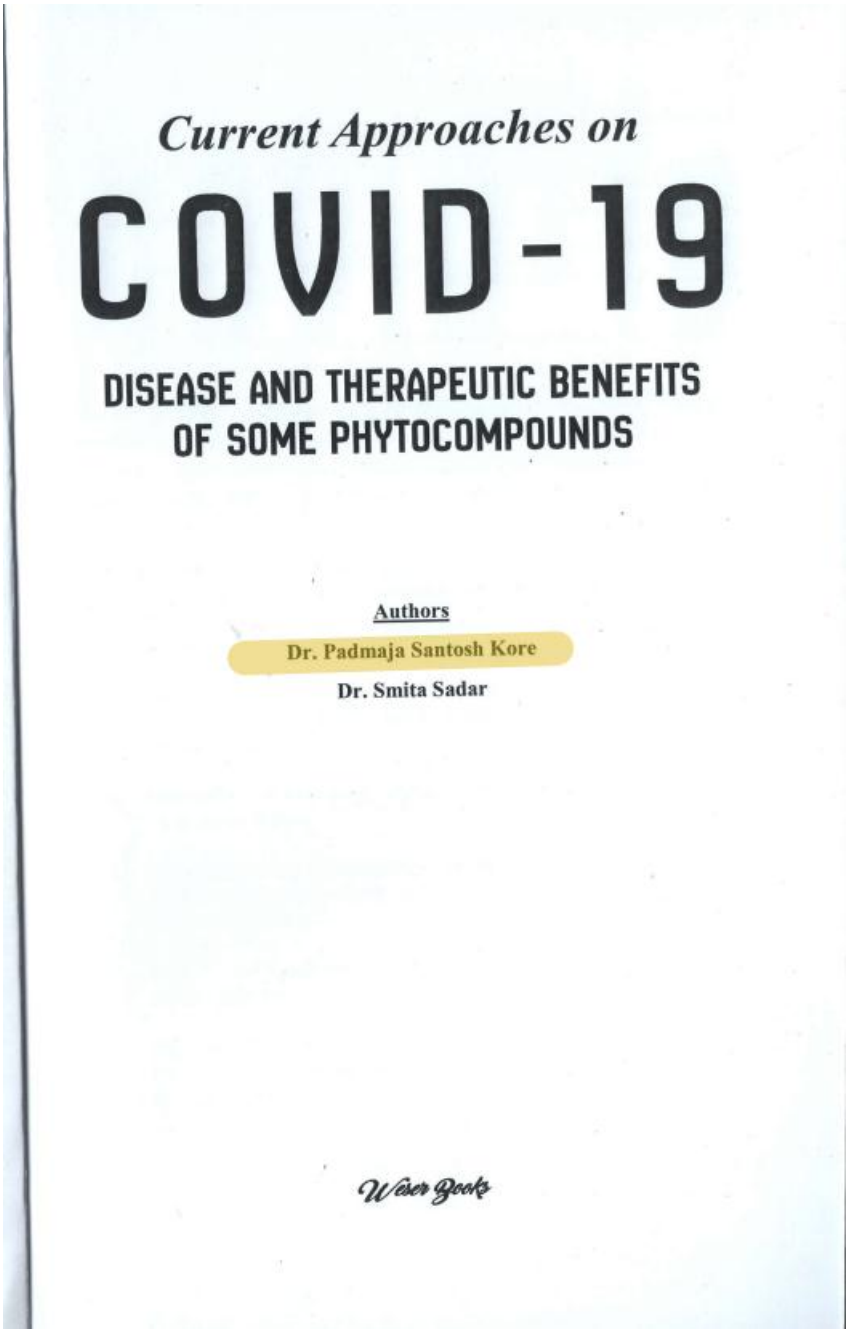

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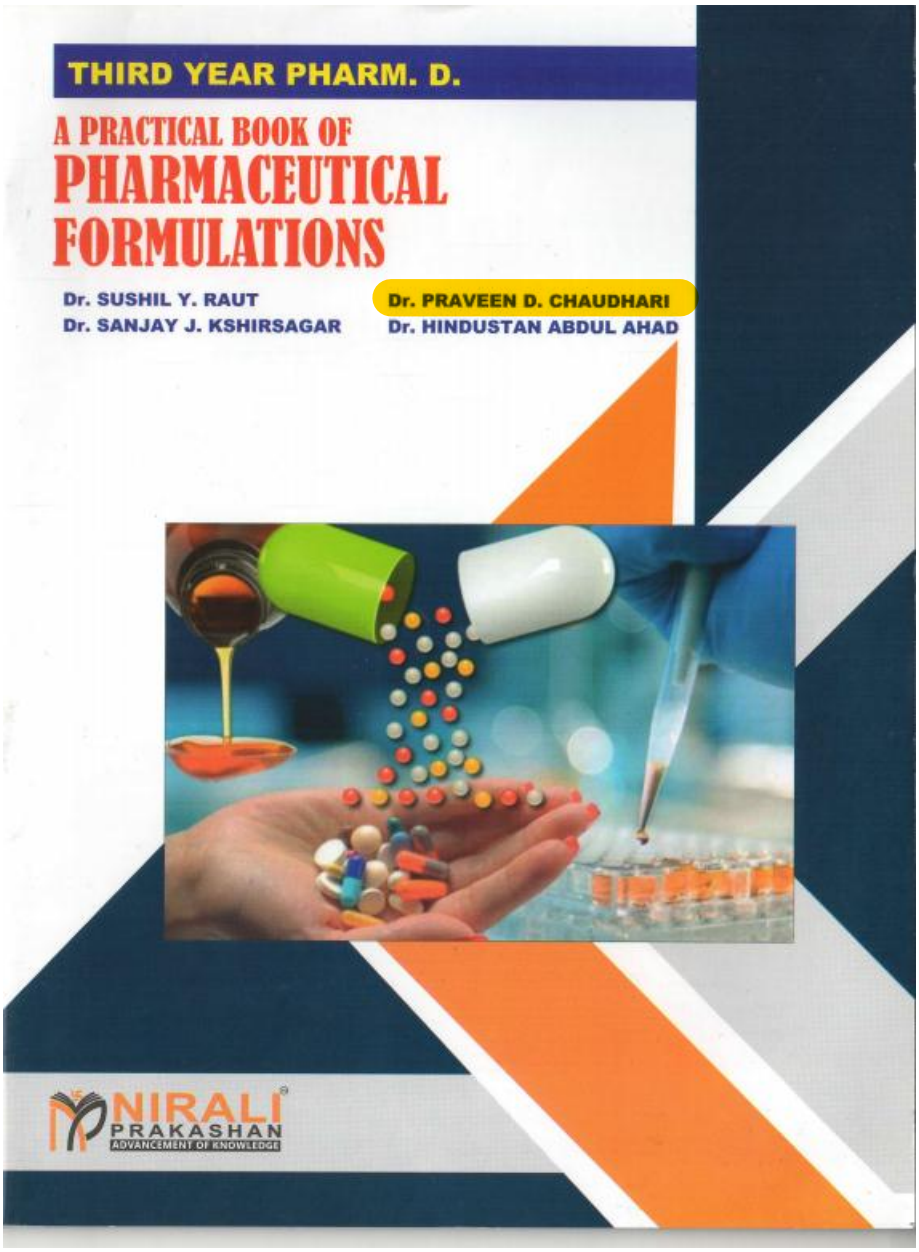

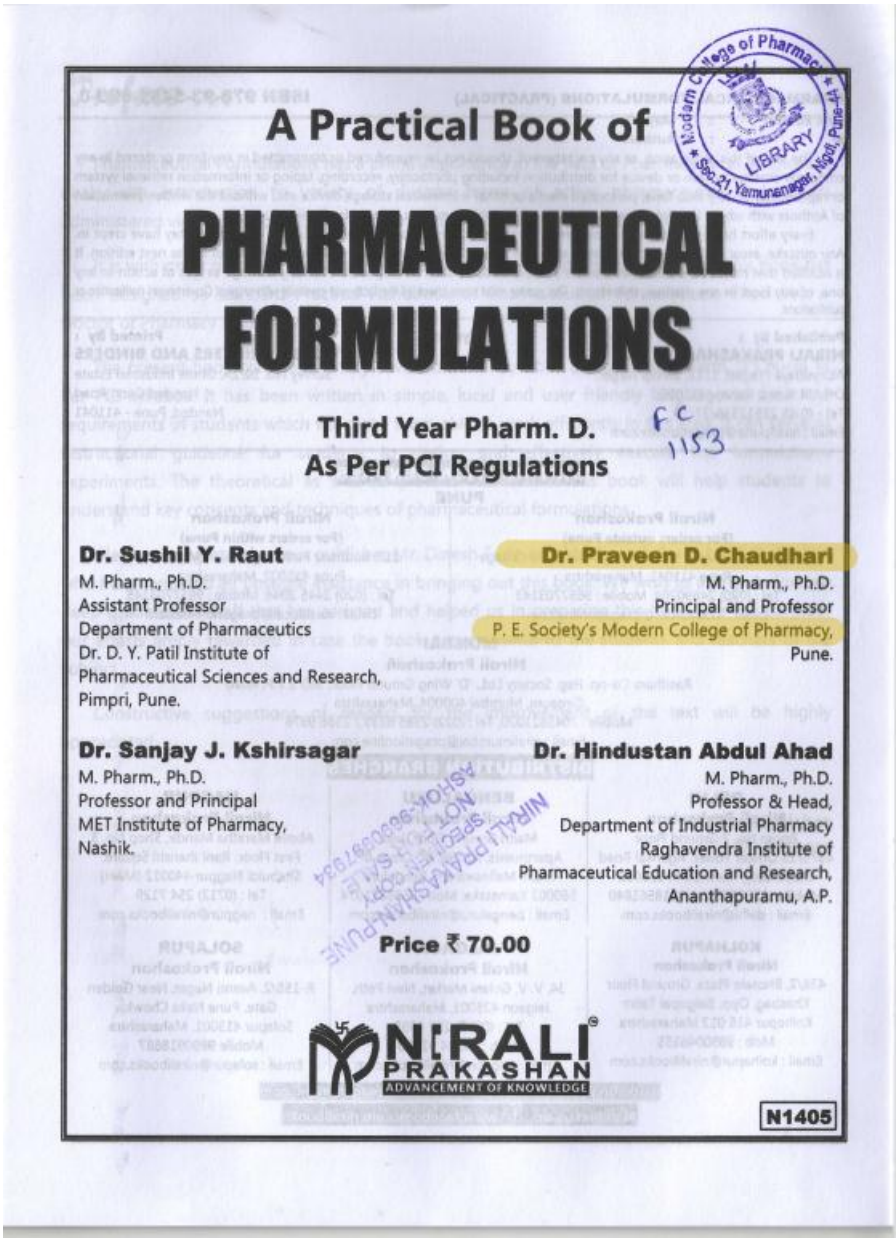
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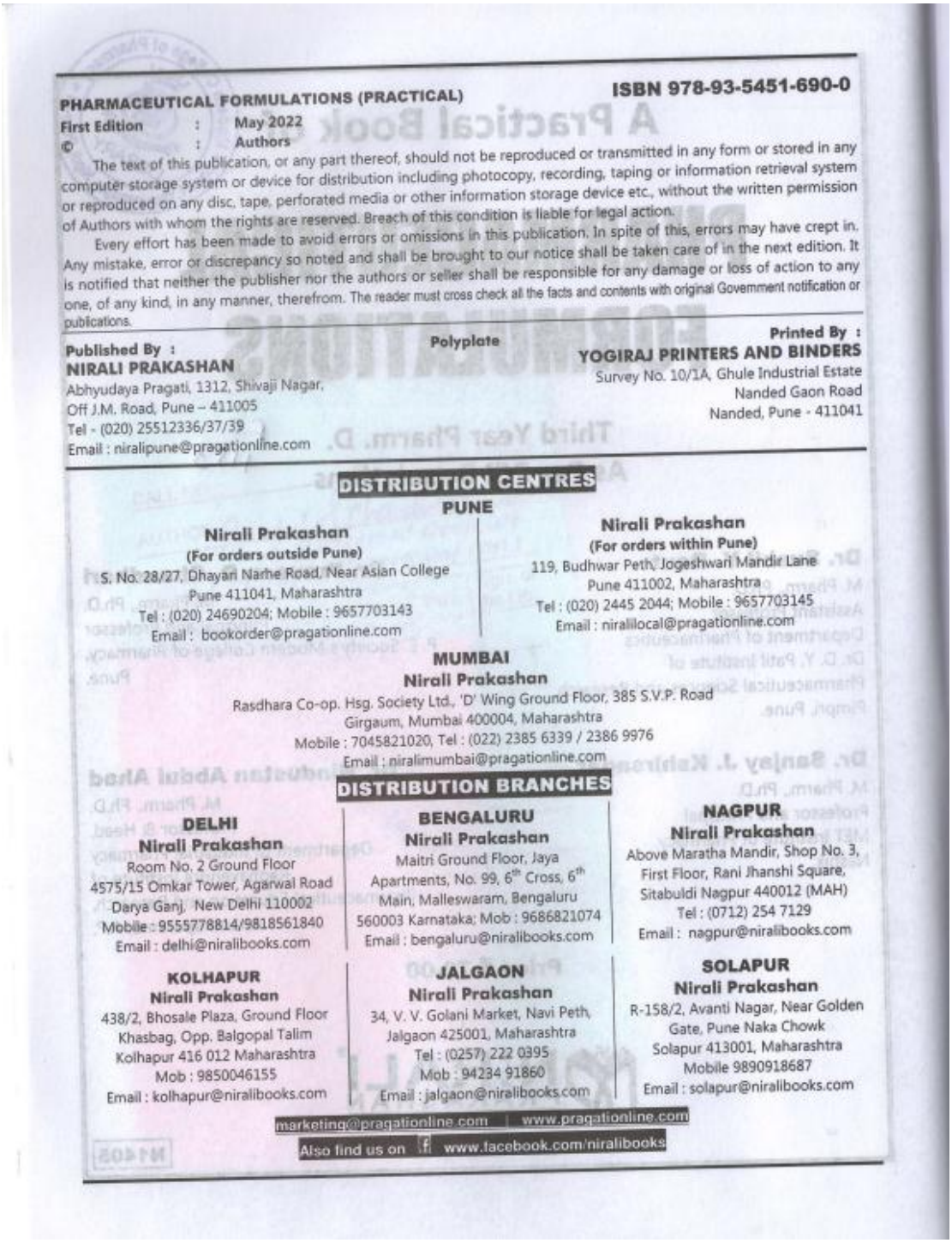

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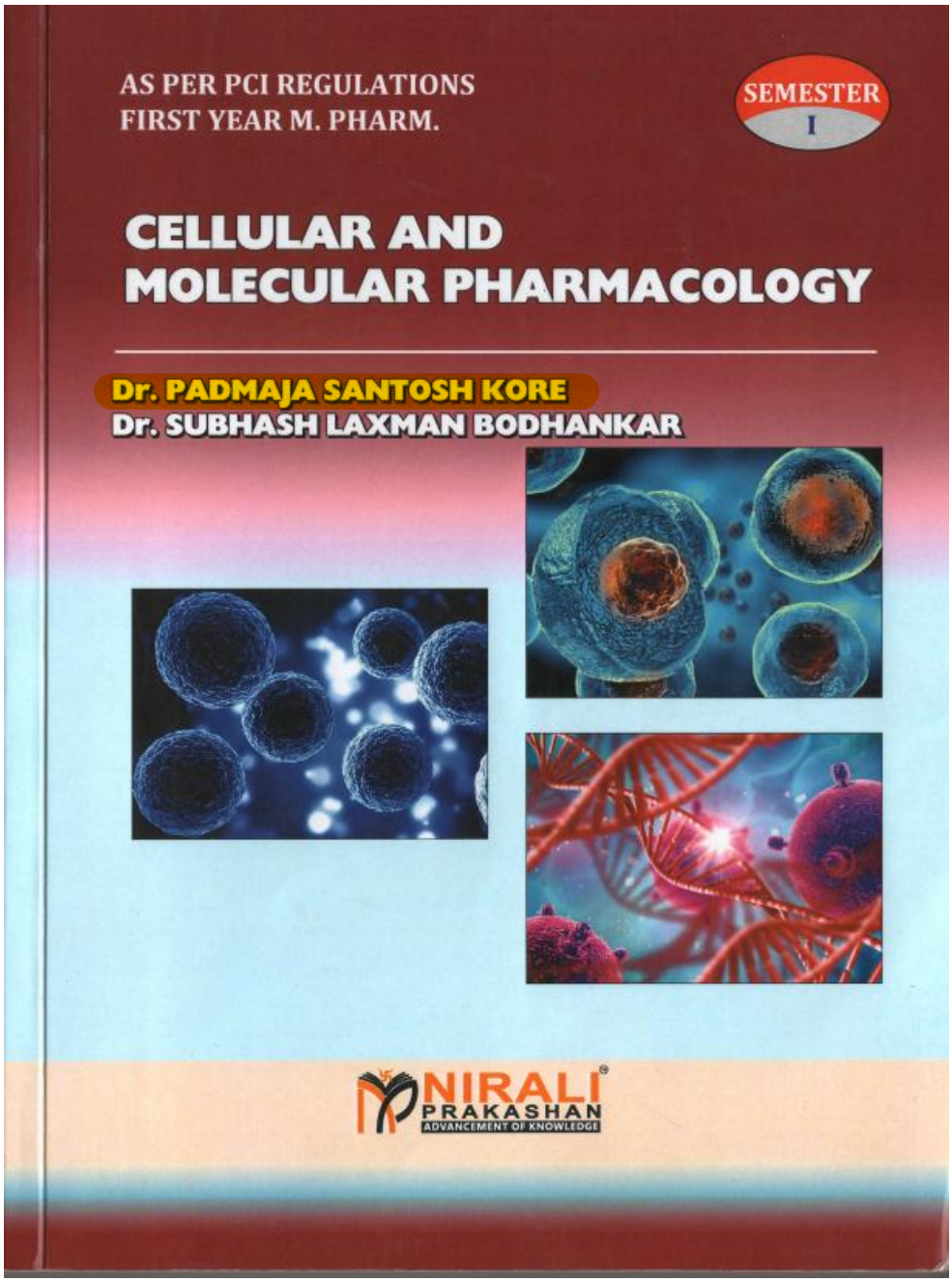

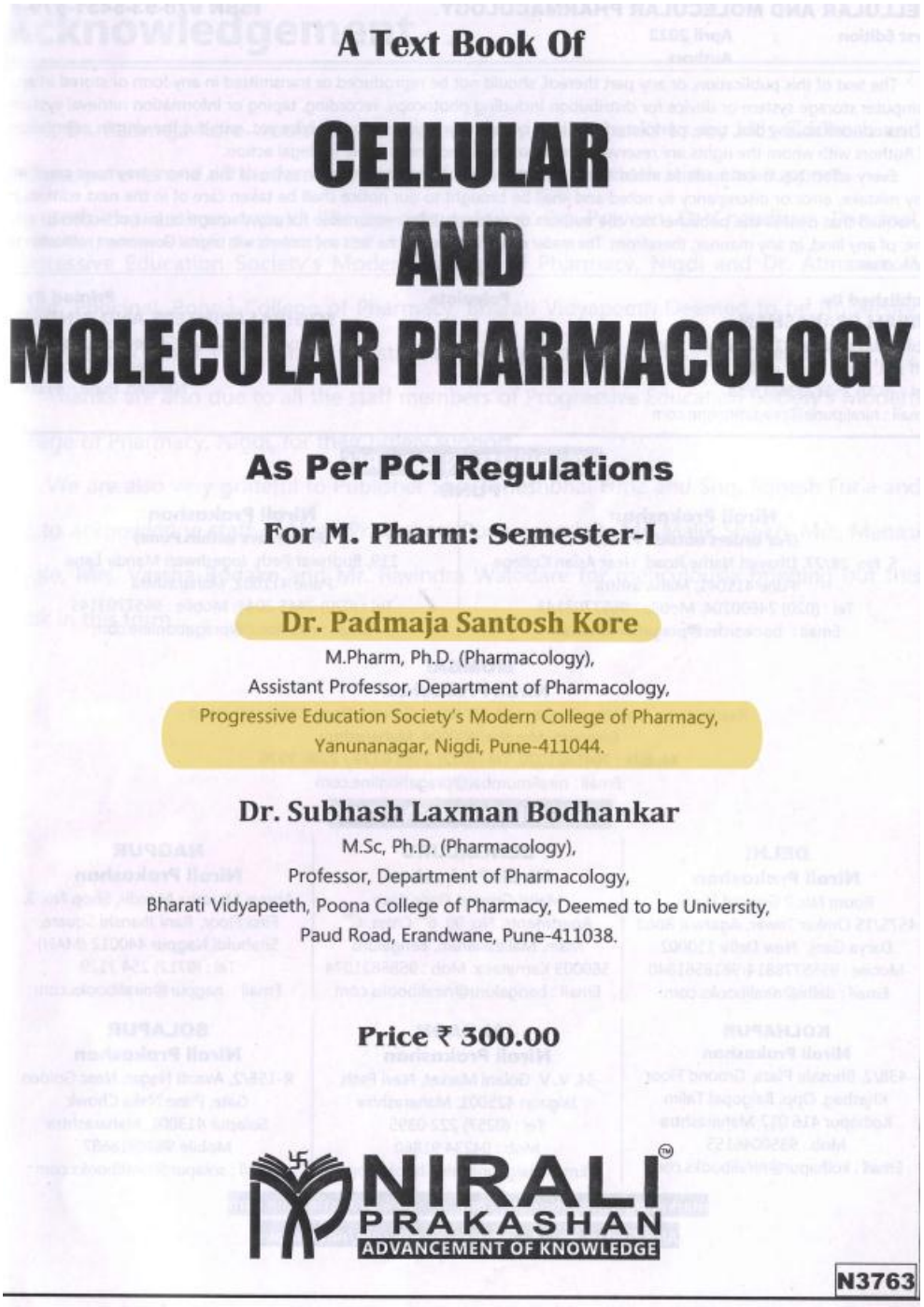

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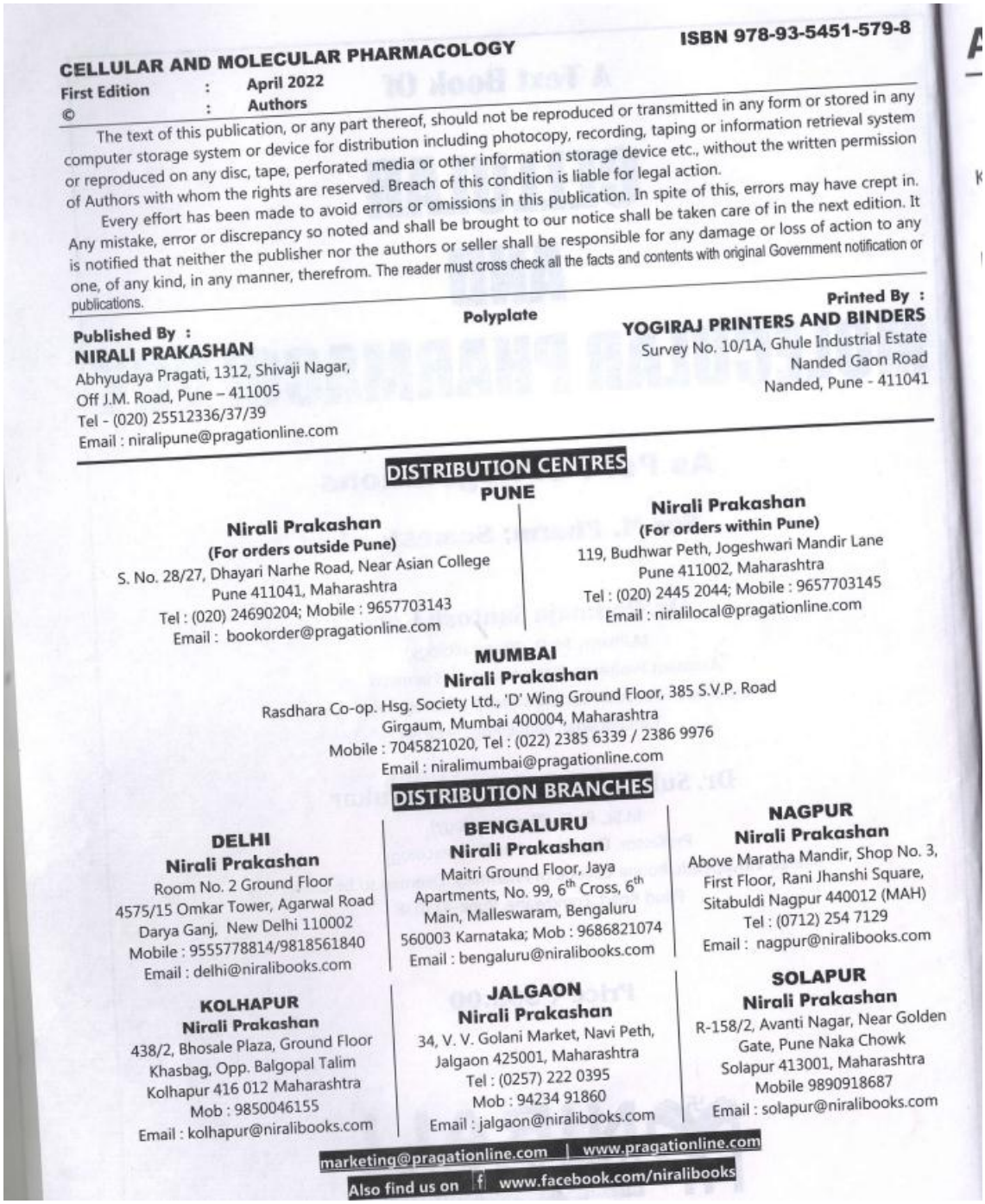

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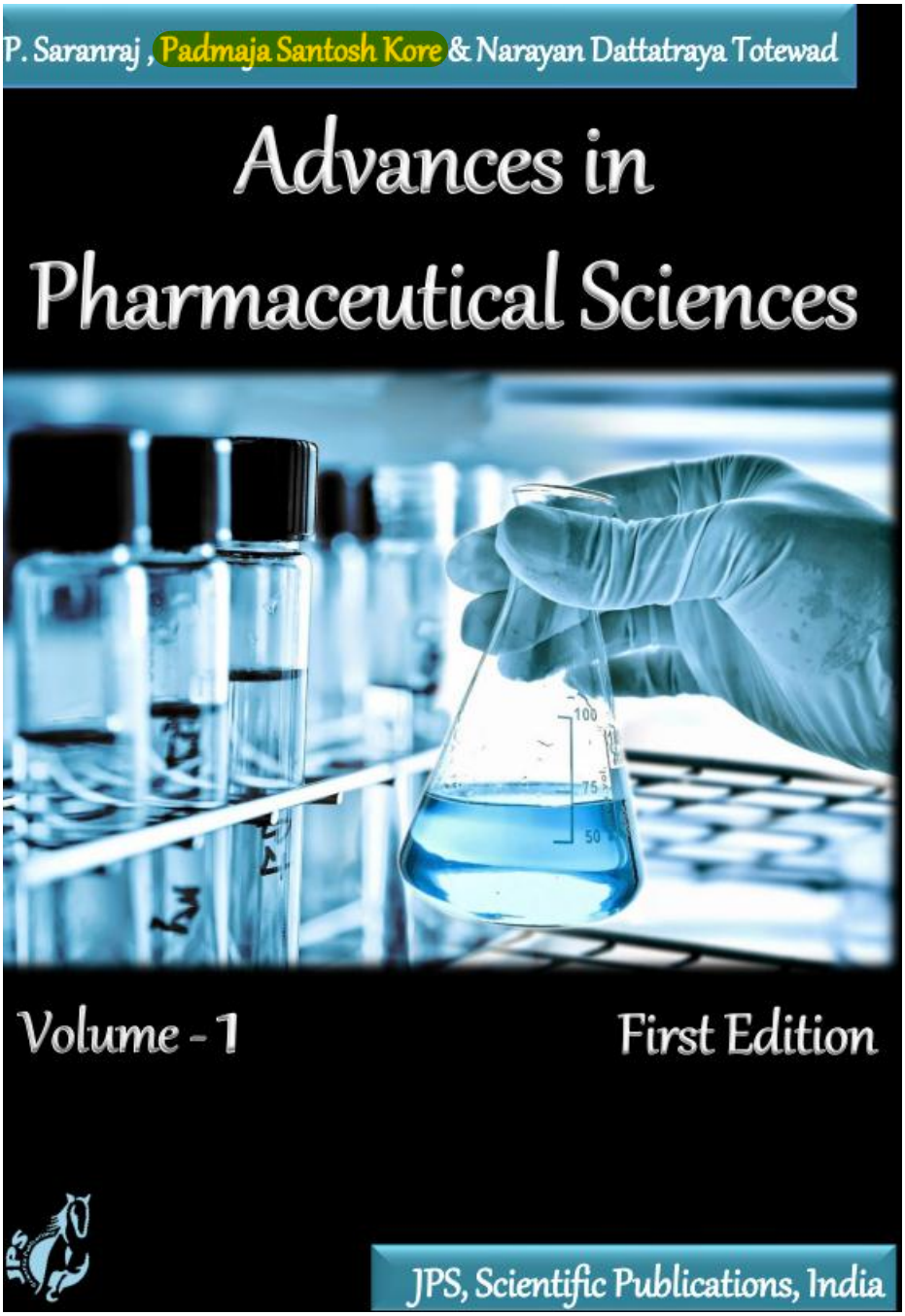

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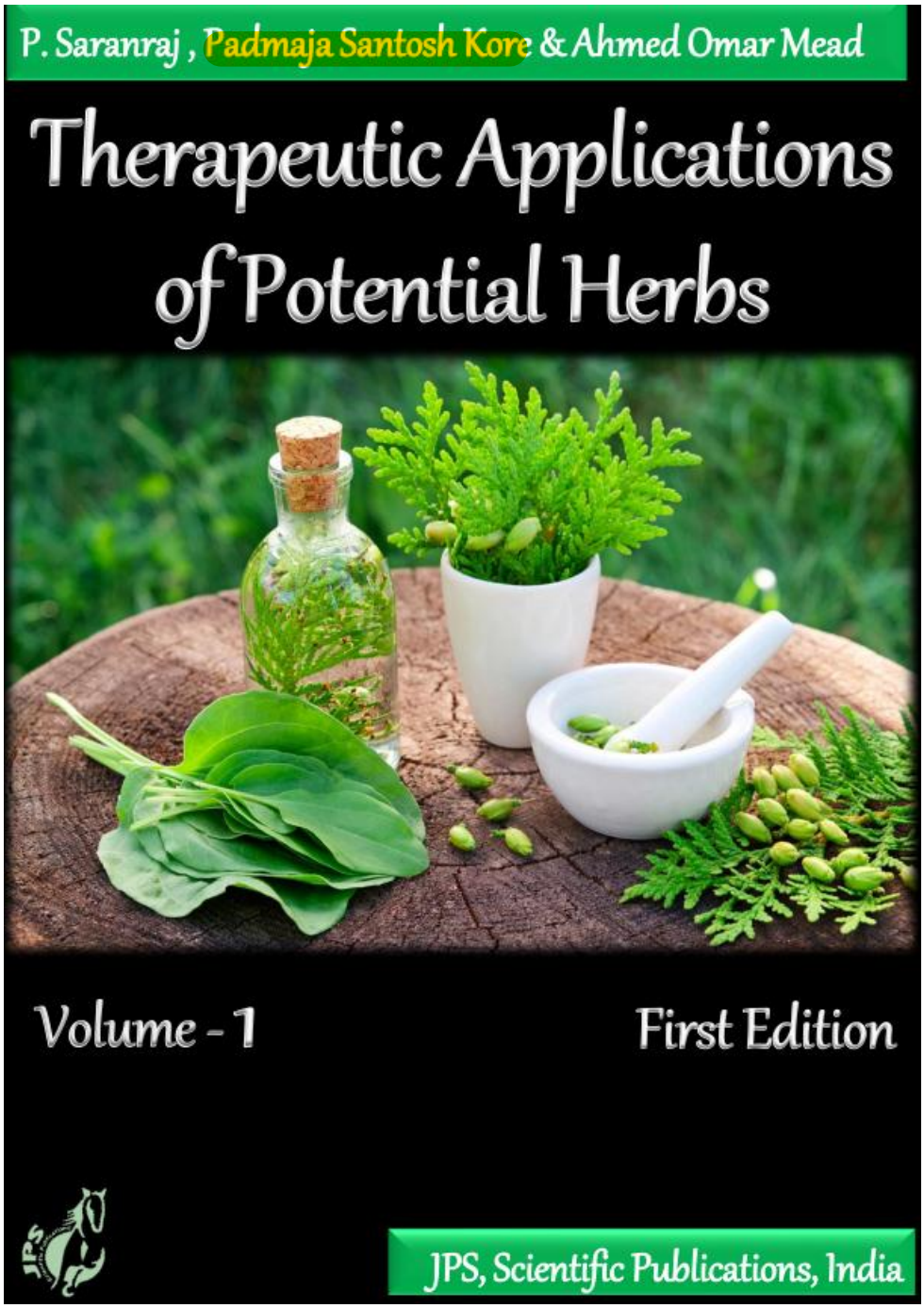

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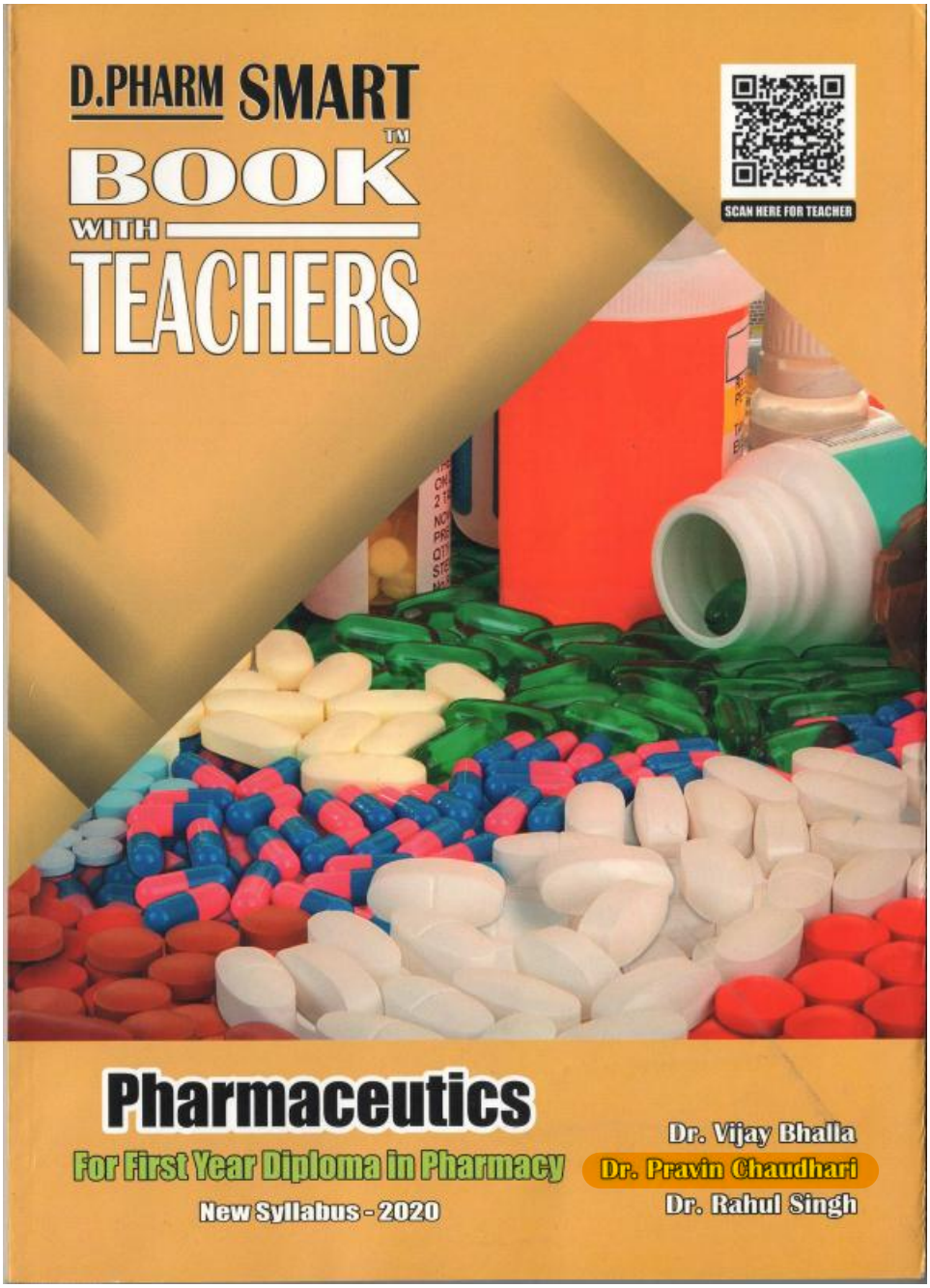

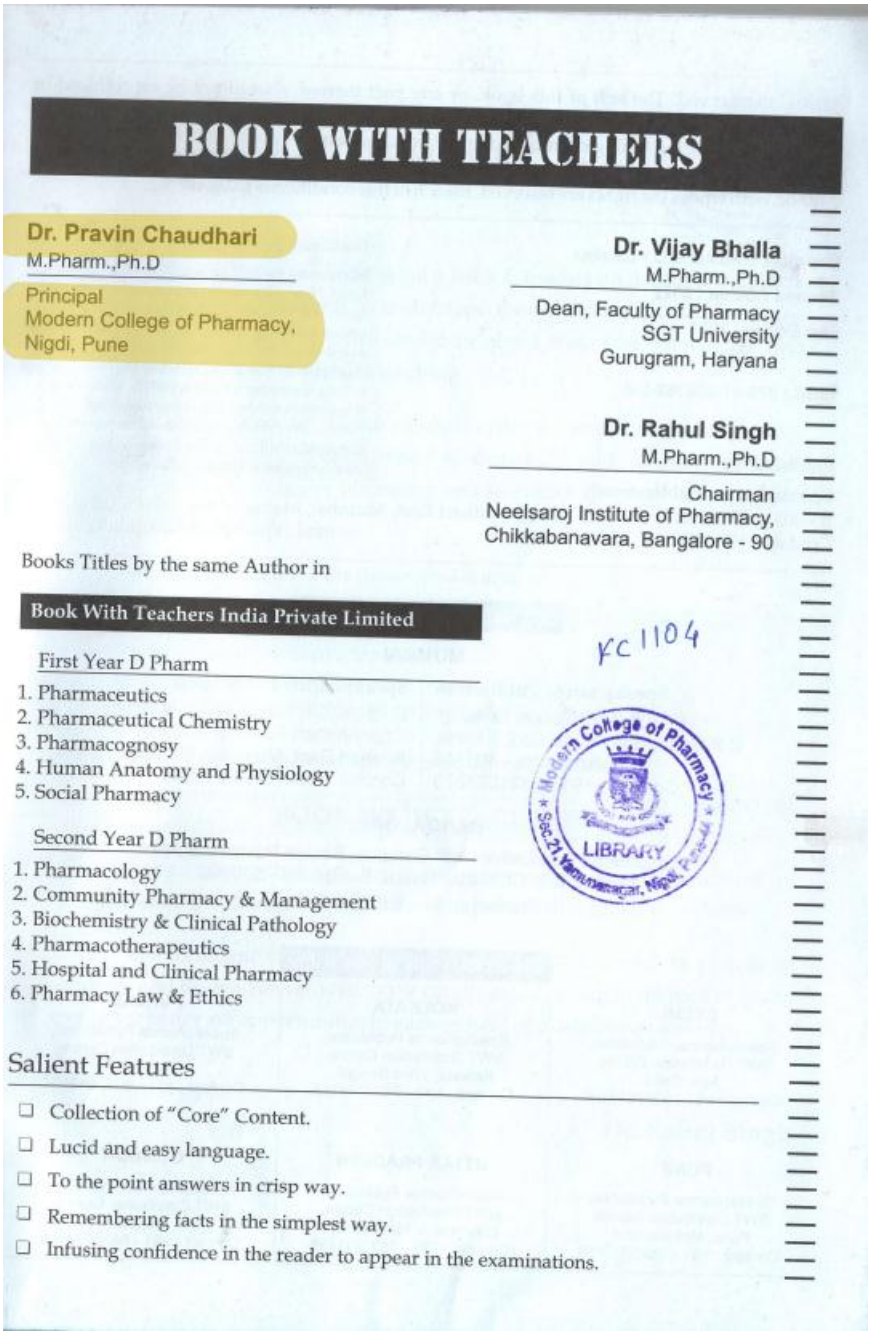

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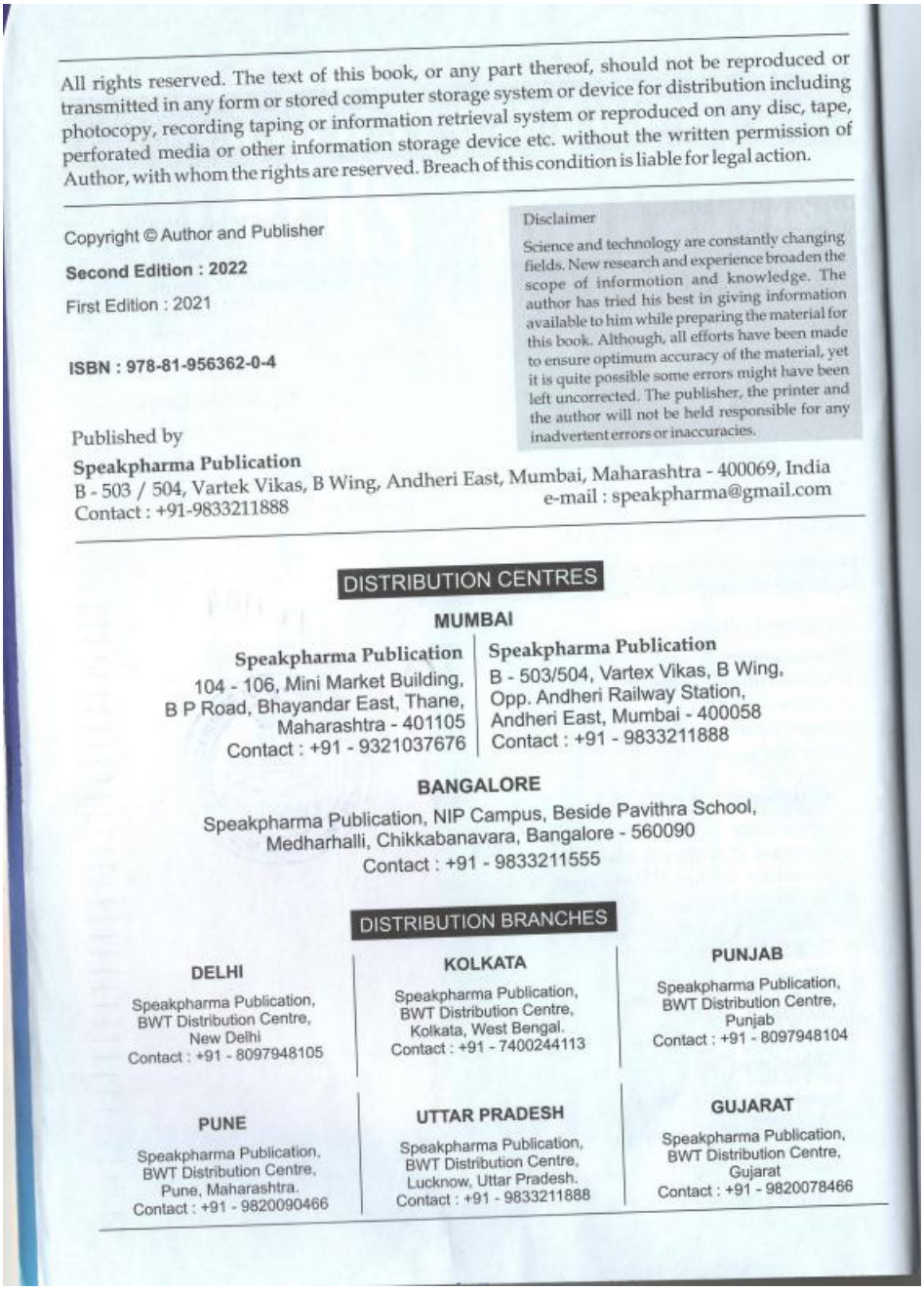

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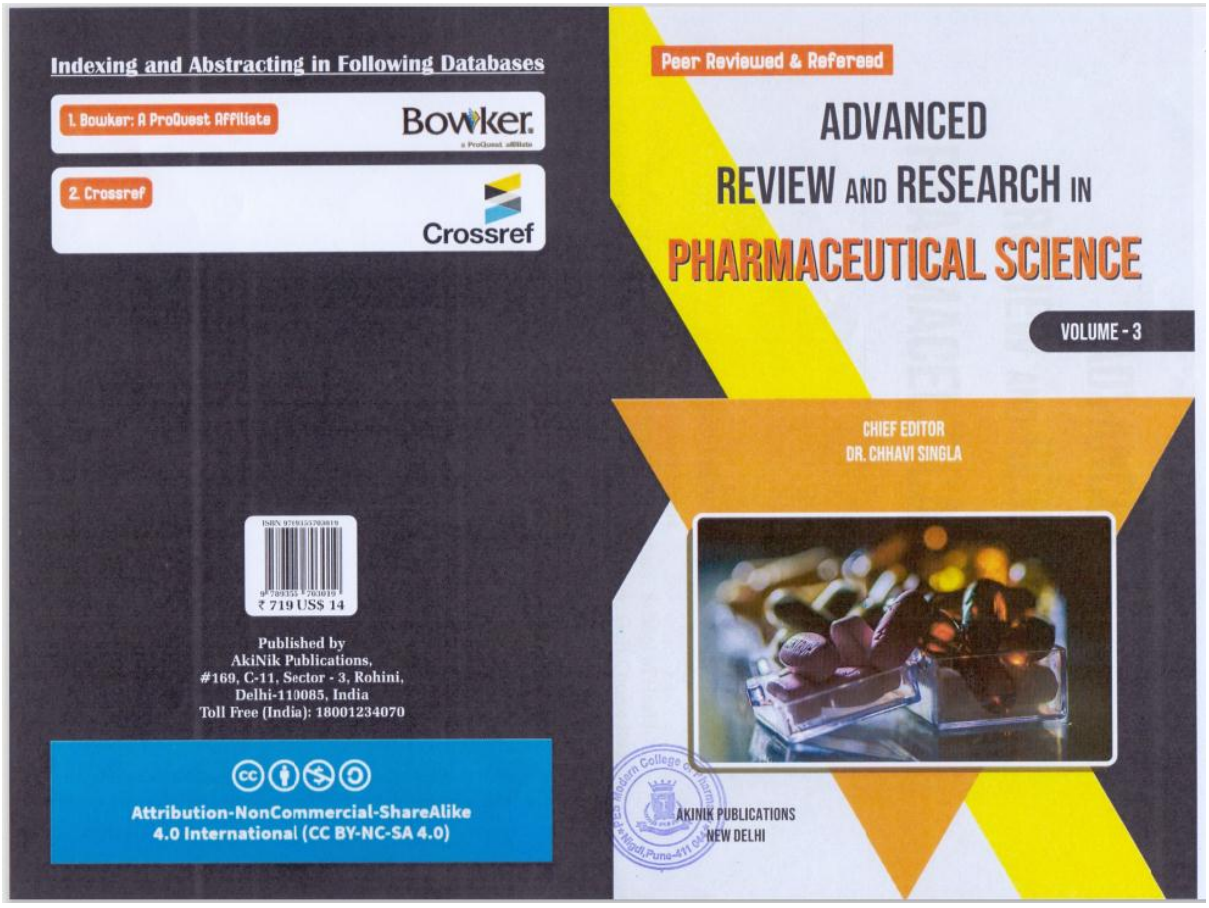
PHARMACEUTICS

INDEX

Chapter 4 A Review on Meta-Analysis of Randomized Controlled Trials on the Clinical Effectiveness and Safety of Remdesivir in Patients with Covid 19 Caused by SARS-COV-2



ADVANCED REVIEW AND RESEARCH IN PHARMACEUTICAL SCIENCE

Volume - 3

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Professor and Principal, Department of Pharmacy, School of Health Sciences, Sushant University Erstwhile Ansal University, Golf Course Road, Gurgaon, Haryana, India

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Contents

Chapter - 4

A Review on Meta-Analysis of Randomized Controlled Trials on the Clinical Effectiveness and Safety of Remdesivir in Patients with Covid 19 Caused by SARS-COV-2

Authors

Mayur S. Tekade
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Pallavi M. Patil
Progressive Education Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune, Maharashtra, India

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Chapter - 4

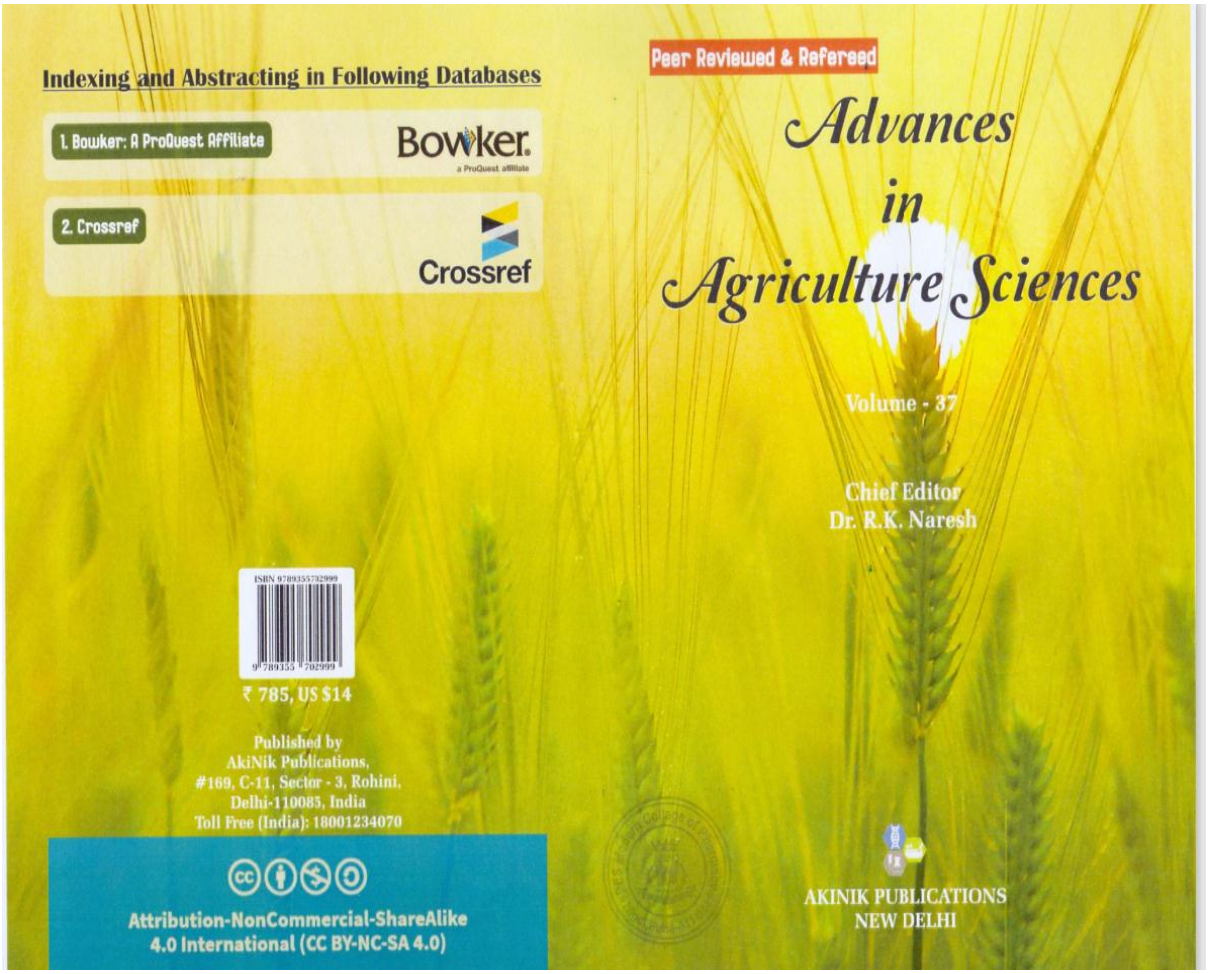
A Review on Meta-Analysis of Randomized Controlled Trials on the Clinical Effectiveness and Safety of Remdesivir in Patients with Covid 19 Caused by SARS-COV-2

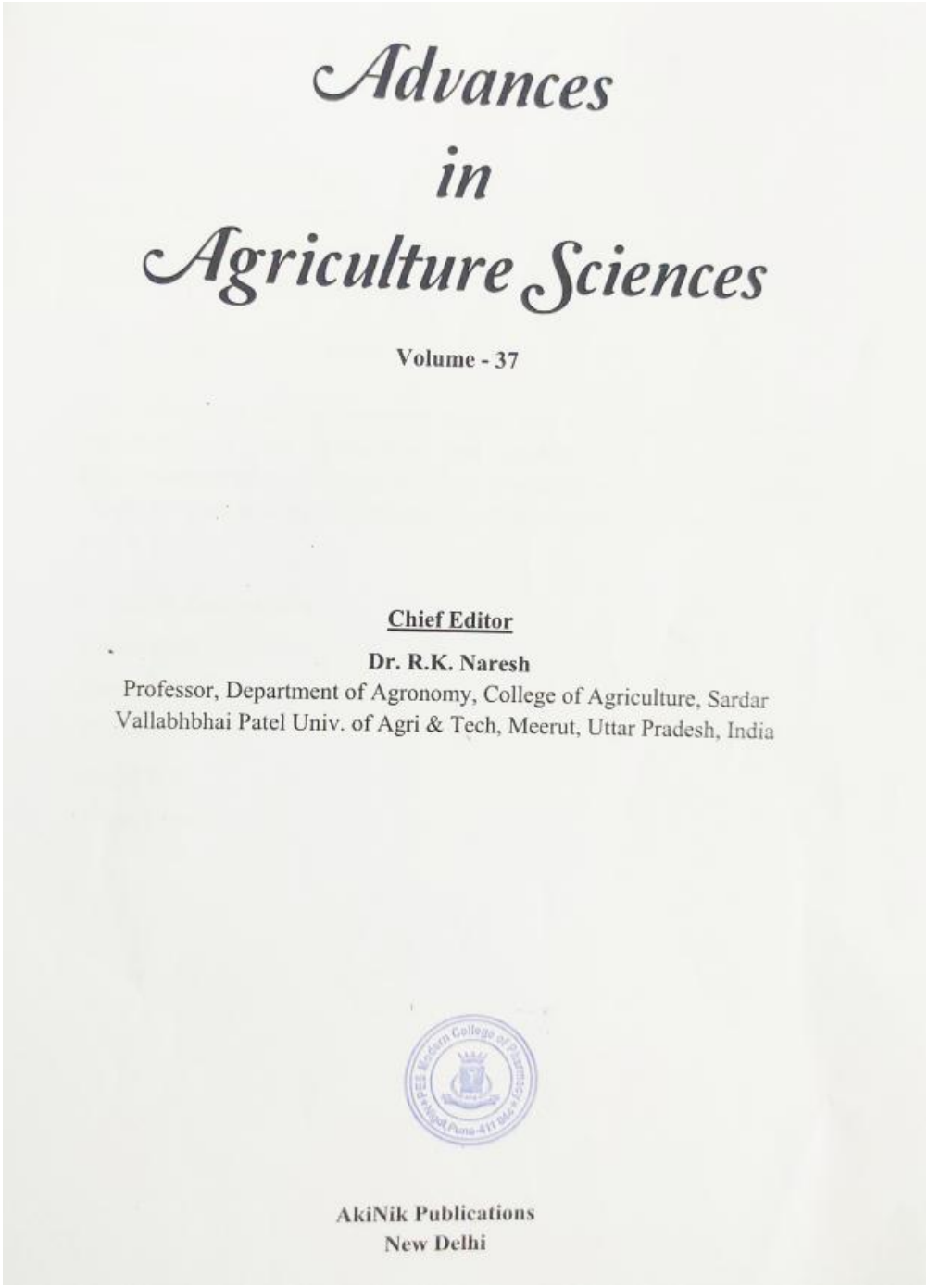
Mayur S. Tekade and Pallavi M. Patil

Abstract

To offer updated information on the clinical efficacy of remdesivir in treating coronavirus illness, we conducted a systematic review and network meta-analysis of randomized controlled trials (RCTs) (COVID-19). Relevant articles published up to 18 November 2020 were searched in PubMed, Embase, Cochrane Library, ClinicalTrials.gov, and the WHO International Clinical Trials Registry Platform. With a total of 7324 patients, 52 RCTs were searched and four studies were included in the analysis. Remdesivir has no benefit in terms of mortality when compared to p=0.30, control group (OR=0.92 (95 percent CI 0.79 to 1.07), control group (OR=0.92 (95 percent CI 0.79 to 1.07), control group (OR=0.92 (95 percent CI 0. evidence of moderate grade) Rates that are much higher. Improvement in clinical outcomes (OR=1.52 (95 percent CI 1.24 to 1.87), p0.0001, poor quality) and a shorter time for clinical trials. p=0.0002, improvement (HR=1.28 (95 percent CI 1.12 to 1.46), HR=1.28 (95 percent CI 1.12 to 1.46), with remdesivir, a very low quality) was noticed versus. This is the control group. The chance of death was shown to be significantly reduced. (RR=0.75) of severe adverse events (95 percent CI 0.62 to 0.90), However, no difference was discovered (p=0.0003, low quality); however, no difference was detected (p=0.0003, low quality). In the possibility of respiratory illness. From a cost-benefit standpoint, we believe it should not be recommended for use, particularly in low and moderate-income areas. Countries with a lower middle income. Remdesivir may be useful in COVID-19 patients who are hospitalized in improving early clinical outcomes, lowering early death, and avoiding the use of high-flow supplemental oxygen and invasive mechanical ventilation. Remdesivir was well tolerated as well, with no major SAEs as compared to placebo, however, clinical investigations suggest that constant

Chapter 2 Review on Agrochemicals on Human Bodies"





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Contents

Chapter - 2

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Chapter - 2

Review on Agrochemicals on Human Bodies

Pallavi M. Patil, Samiksha Agarkar and Mayur S. Tekade

Abstract

Using gas chromatography-mass spectrometry, we created a rapid, reliable, and repeatable technique for identifying the urine metabolites of typical pesticides in a single analytical run (GCMS). Colorectal cancer is caused by a variety of environmental and hereditary causes, including pesticides (CRC). The goal of this research was to look at how organochlorine and organophosphorus insecticides might affect CRC patients. Organophosphorus pesticides are linked to illnesses such as cancer according to mounting research. In the province of Mazandaran in northern Iran, pesticides are abused on crops. Selected ion monitoring (SIM) gas chromatography-mass spectrometry was employed to build a method to assess free and total (free and bound) malondialdehyde (MDA) in fresh human plasma or rat liver microsomes. The biological samples and the dideuterated internal standard 3-hydroxy[1,3-2H2]-2-propenal were mixed before analysis (dMDA). Numerous pesticides have established negative effects, some of which could harm the thyroid. Comparatively speaking, very little research has looked into the connection between the risk of thyroid cancer and the presence of pesticide constituents.

Keywords: GC-MS, organophosphorus, ion-monitoring, thyroid, cancer

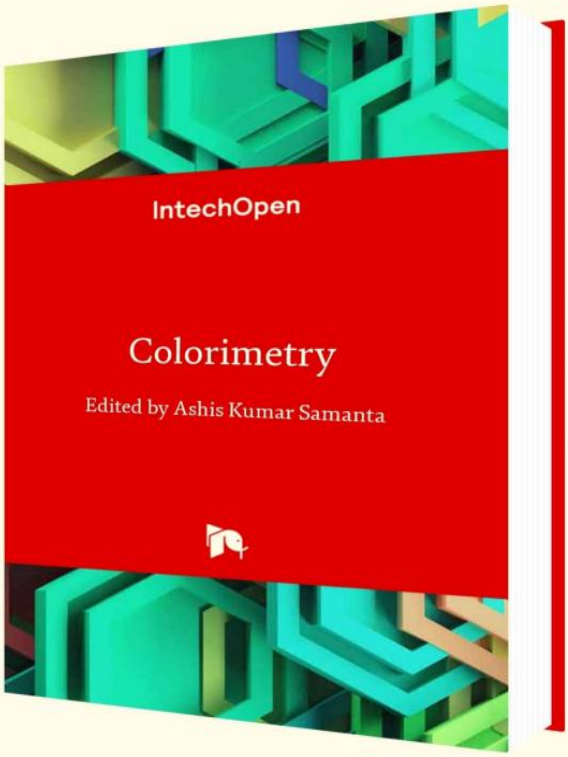
Introduction

We came up with the conclusion that agrochemicals may contribute to a wide range of cancers using all these cases. To minimise the severity of such pesticides, we examined the agrochemicals using a variety of methods, such as Gas Chromatography-Mass Spectrometry and ion monitoring (SIM). These methods were used to examine a few agricultural pesticides and insecticides in compliance with WHO criteria [1, 2].

Case 1:

Gas Chromatography-Mass Spectrometry Analysis of Pyrethroid, Organophosphate, and Carbamate Metabolites in Human Urine (GCMS).

Chapter 7 A Digital Image-Based Colorimetric Technique Use for Quantification of Green Active Pharmaceuticals Obtained from Natural Sources



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Chapter

A Digital Image-Based Colorimetric Technique Use for Quantification of Green Active Pharmaceuticals Obtained from Natural Sources

Vitthal V. Chopade and Jayashri V. Chopade

Abstract

Colorimetry is the determination of colors, as name indicates. This method can use for to find out the concentration of compound (solute) in a colored solution in terms of chemical analysis (solvent). We frequently need to quantify the quantity of a specific component in a combination or the concentration of a solution during scientific activity. The trick is to determine the color differences between various combinations and their absolute values. This is more instructive and scientifically valuable than relying on subjective judgments like the color of the solution. Colorimetry is the measurement of colors, as the name implies. It is the measurement of the concentration of a certain compound (solute) in a colored solution in terms of chemical analysis (solvent). We frequently need to quantify the quantity of a specific component in a combination or the concentration of a solution during scientific activity. The trick is to determine the color differences between various combinations and their absolute values. This is more instructive and scientifically valuable than relying on subjective judgments like the color of the solution. Colorimetry is used in a digital image-based (DIB) approach for determining active medicinal components. A computerized scanner with a controlled light intensity was connected to the detector. Different histograms were used to transform the photos. The colorimetric analysis of digital images provided for an easy-to-use and ecologically friendly method.

Keywords: colorimeter, digital image based (DIB) colorimetric analysis, quantification of color, UV-vis spectrophotometer, reflectance spectrophotometer, green active pharmaceuticals

1. Introduction

When a light of occurrence with intensity (Io) passes from a solution, a portion of the light is revealed (Ir), a portion is absorbed (Ia), and the rest is transmitted (It), Thus,

$$Ir + Ia + It = Io$$

Chapter 5 Study on the development and evaluation of novel Modified release prllet-based system for delivery of Desloratidine and Pesudoephedtrine Hydrochloride

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Chapter 5
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Study on the Development and Evaluation of a Novel Modified Release Pellet-based System for the Delivery of Desloratadine and Pseudoephedrine Hydrochloride

Sachin U. Kushare[1], Atul A. Phatak[1*] and Praveen D. Chaudhari[1]

DOI: 10.9734/bpi/tprd/v6

ABSTRACT

Modified-release multiple unit dosage form (MRMUD) of desloratadine and pseudoephedrine hydrochloride with different release profiles were prepared. The MRMUD system consisting the immediate-release pellets of desloratadine and sustained release pellets of pseudoephedrine hydrochloride was formulated by using solution layering technique. A 3^2 full-factorial design was employed to optimize the sustained release formulation where in polymer ratio (Ethyl cellulose: hydroxyl propyl methyl cellulose) (X1) and % polymer coating (X2) were taken as independent variables and amount of drug release, in 0.1N HCl (Y1), after 10 hrs (Y2) were taken as the dependent variables. Optimization studies were carried out using the Design Expert Software. Formulations were evaluated for *in vitro* release studies; the release data were evaluated by the model dependent (curve fitting) method using the PCP Disso software. The *in vitro* drug release followed Hixson-Crowell model and the drug release mechanism was found to be anomalous or non-fickian type. It was found that proper combination of ethyl cellulose and hydroxy propyl methyl cellulose polymer, % polymer coating and process parameters could provide sustained release of pseudoephedrine hydrochloride for a period of 12 hrs. The statistical approach for formulation optimization is a useful tool, particularly in simultaneously evaluating several variables. The observed responses were in close agreement with the predicted values of the optimized formulations, demonstrating the feasibility of the optimization procedure in developing sustained release formulation.

Keywords: MRMUD; desloratadine; pseudoephedrine hydrochloride ethyl cellulose; HPMC; solution layering technique.

1. INTRODUCTION

The single-unit oral dosage forms (capsules or tablets) and multiple-unit dosage forms like pelletized dosage forms have closely similar drug release profiles but the pellets offer several added therapeutic advantages [1,2]. The pellets spread uniformly throughout the gastrointestinal tract. They are also found to empty gradually from the stomach with less intra and inter individual variations, thus giving better predictability for an administered dose. In contrast, the gastric emptying of a single unit dosage form is at random and with inherently large inter and intrasubject variations [3]. With the use of pellets, the risk of high local drug concentrations and toxicity associated with the intake of locally restricted tablets can also be avoided [4]. Premature drug release from enteric-coated tablets in the stomach, potentially resulting in drug degradation or gastric mucosal irritation, can also be reduced with the coated pellets owing to their rapid transit time. Use of a mixed polymer coating was reported to show improved performance of enteric-coated pellets, in which the ratio of polymers in the mixture was the determining factor for drug release rate [5,6,7,8,9]. The risk of dose dumping from pellets is equally divided, and it is less likely that the pellets are disrupted [10]. Furthermore, modified-release profiles

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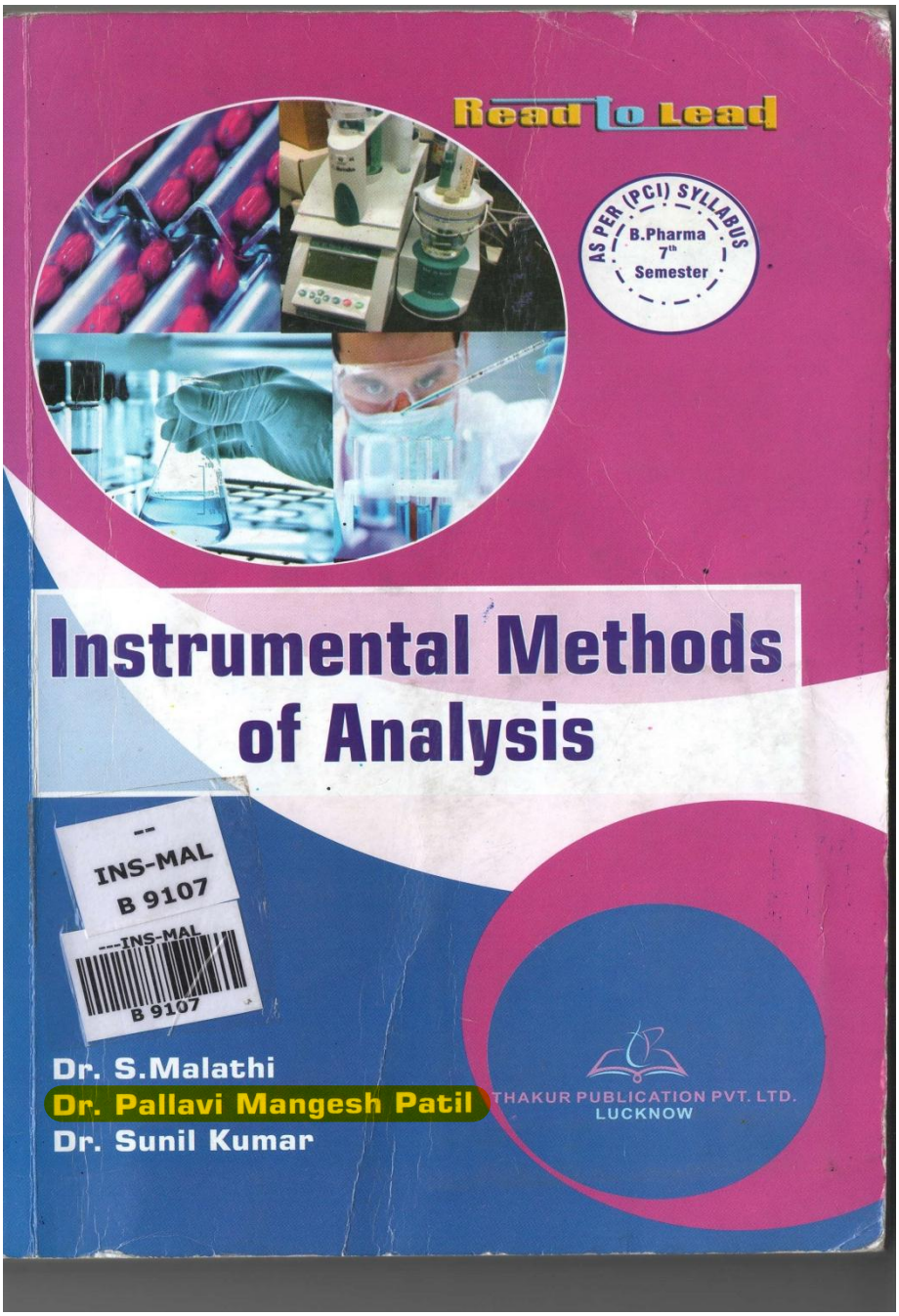
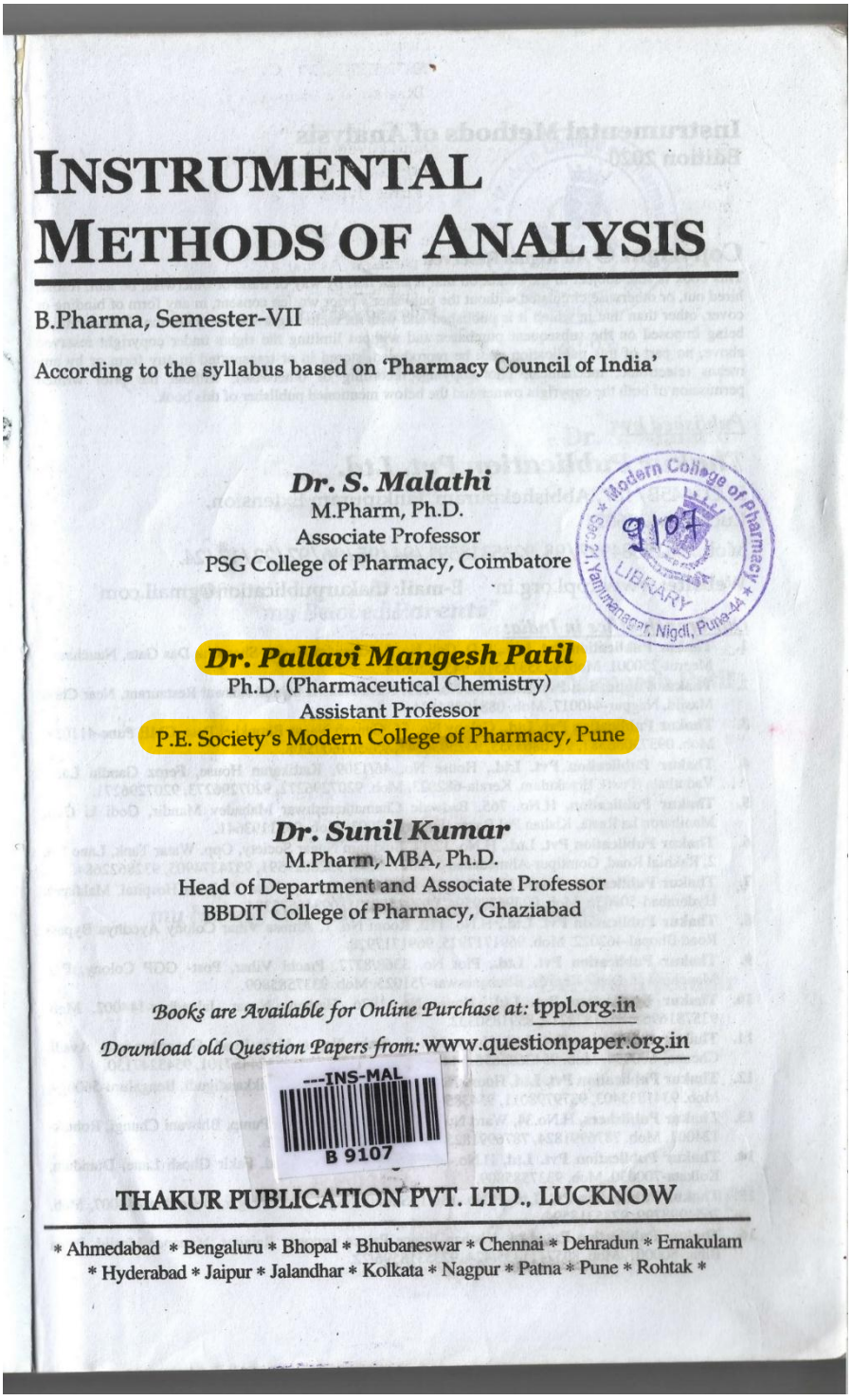
ACADEMIC YEAR 2020-21

INDEX

Instrumental Method of Analysis





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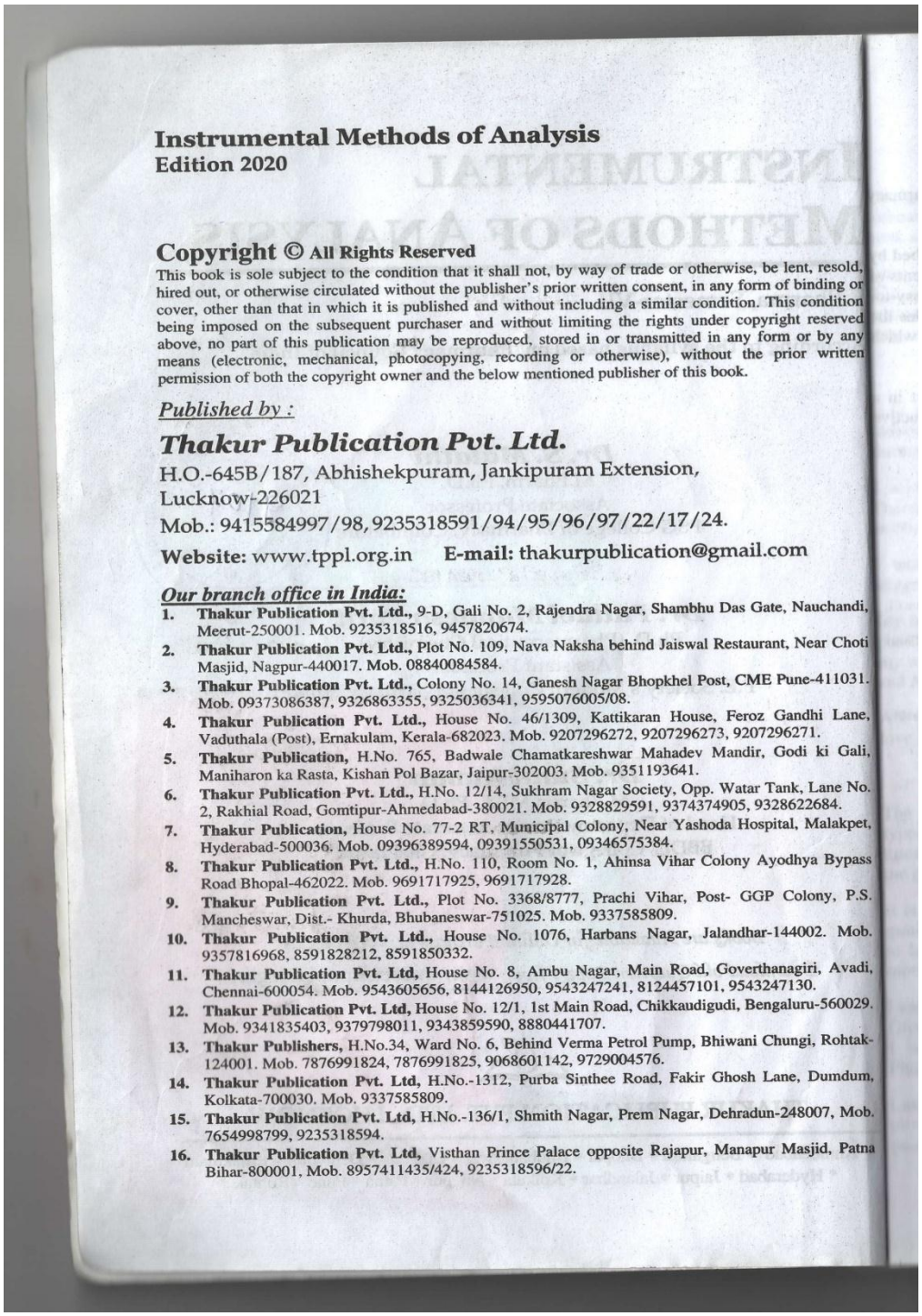

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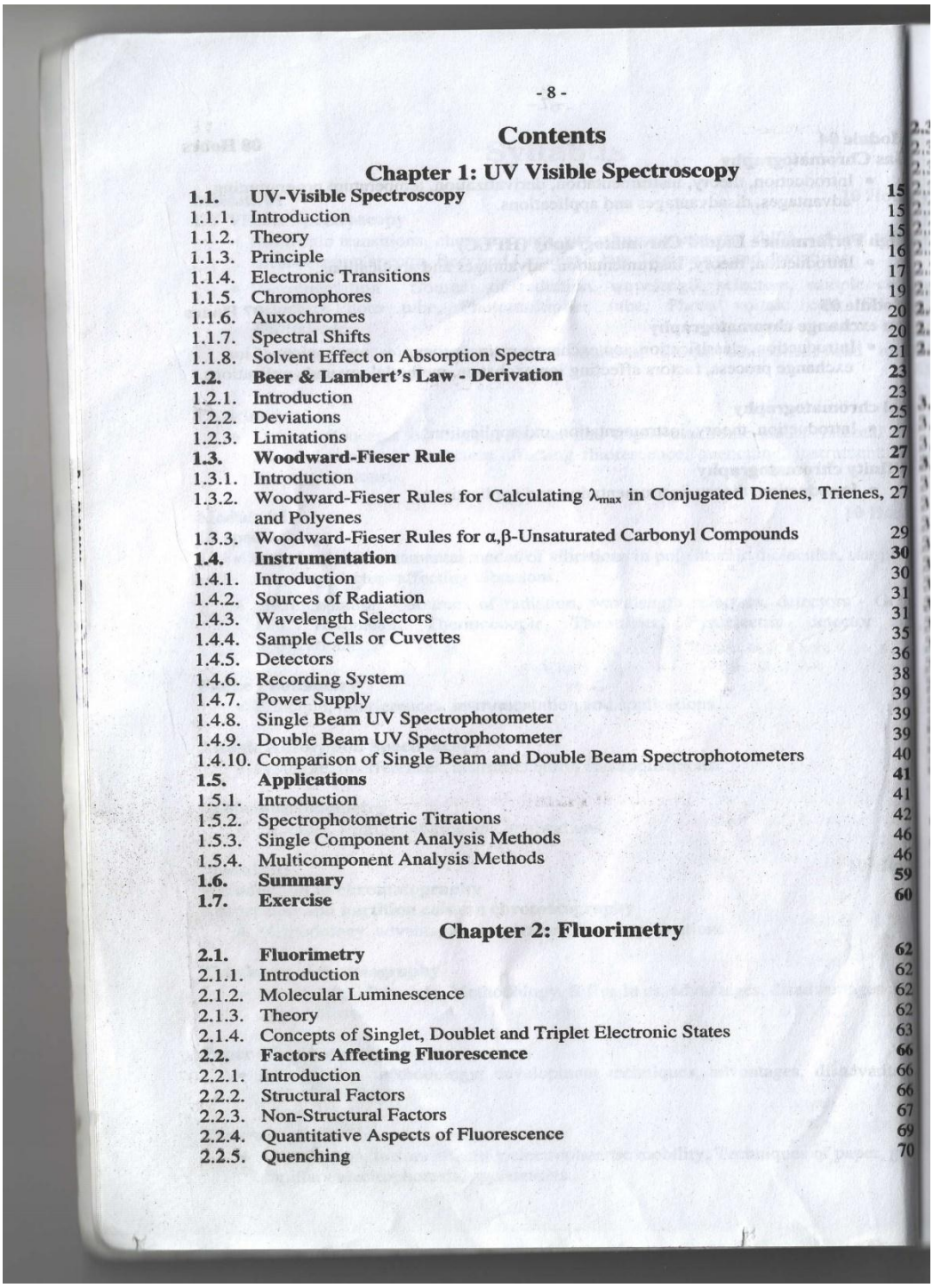
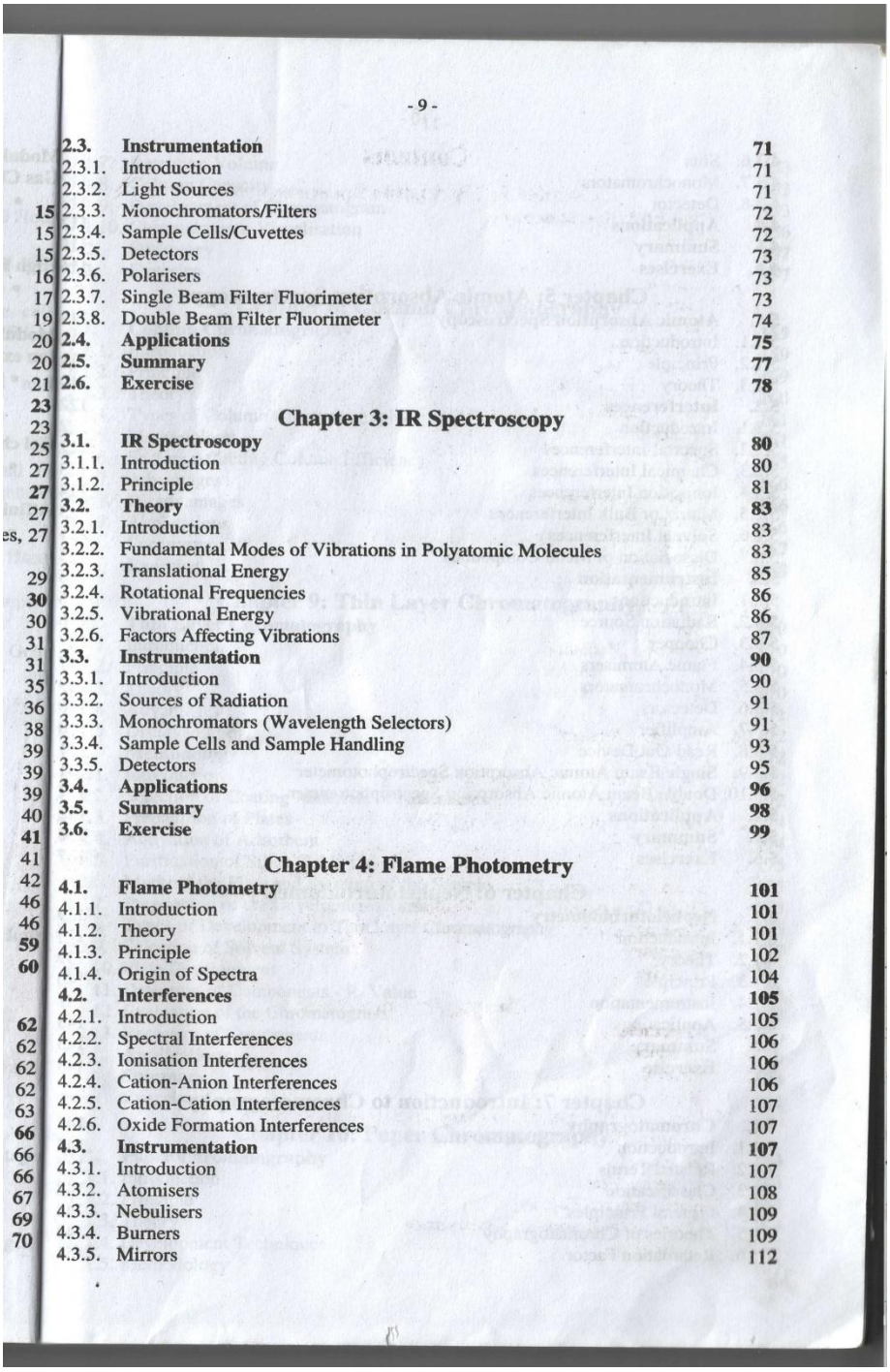


Contents

Chapter 1: UV Visible Spectroscopy

Chapter 2: Fluorimetry



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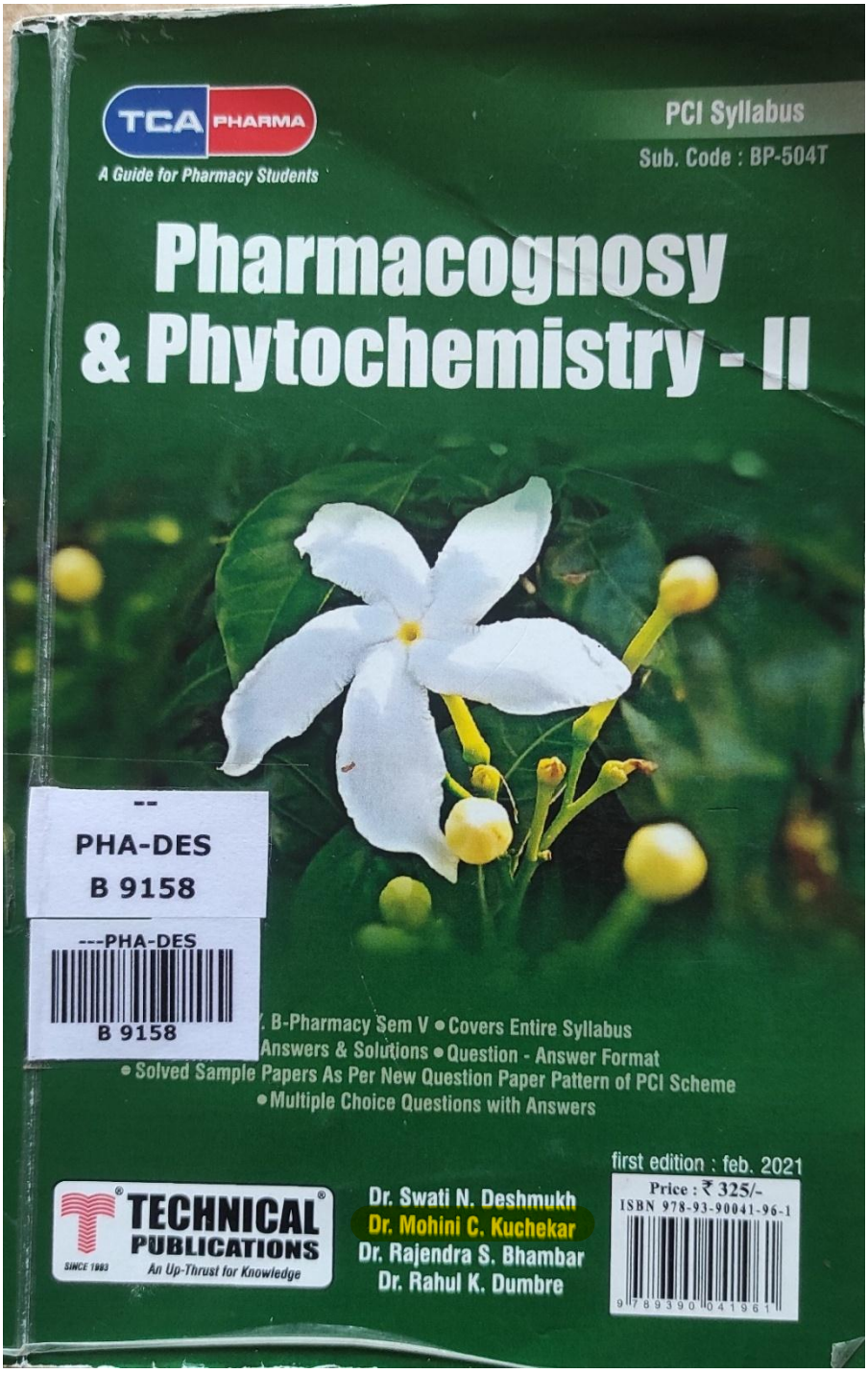

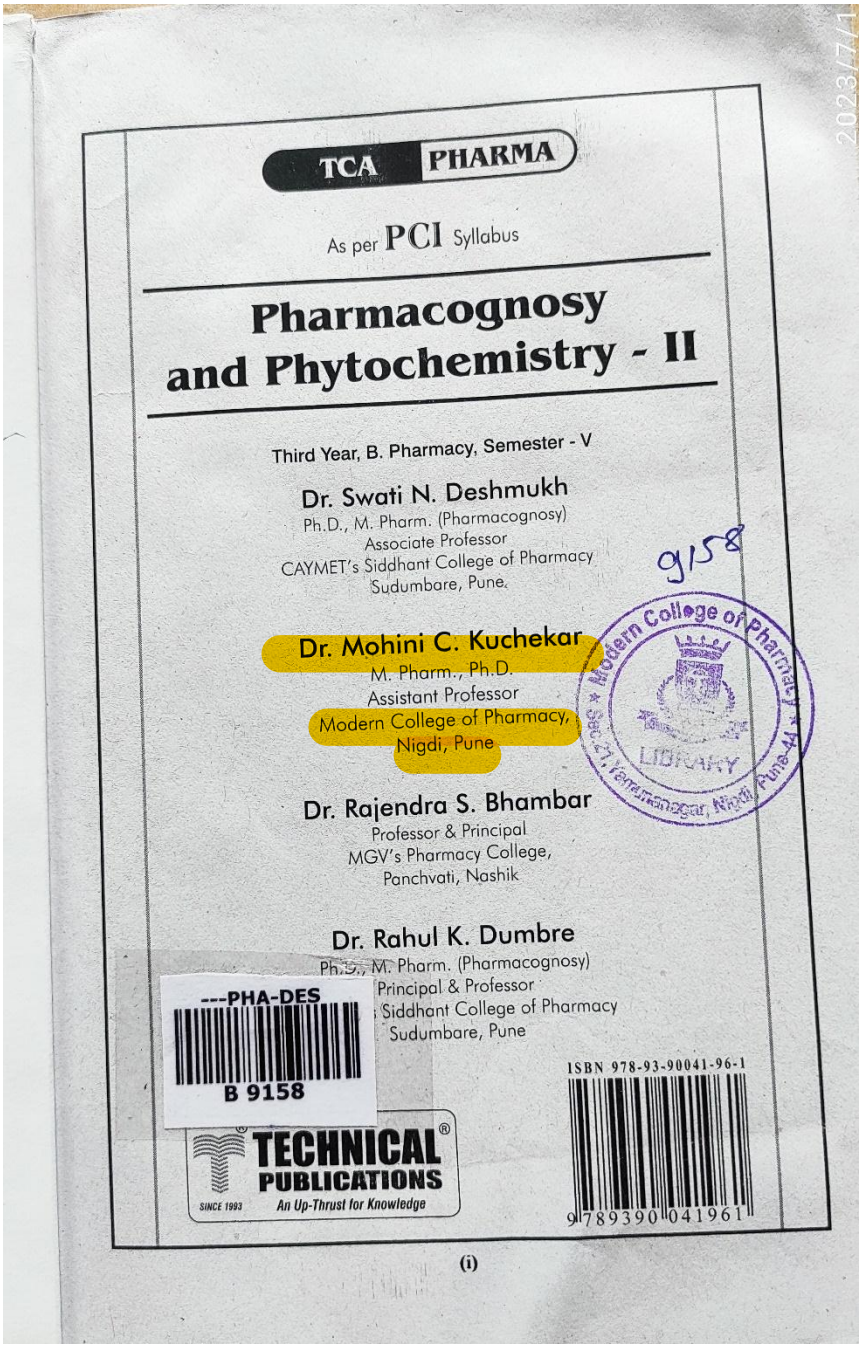

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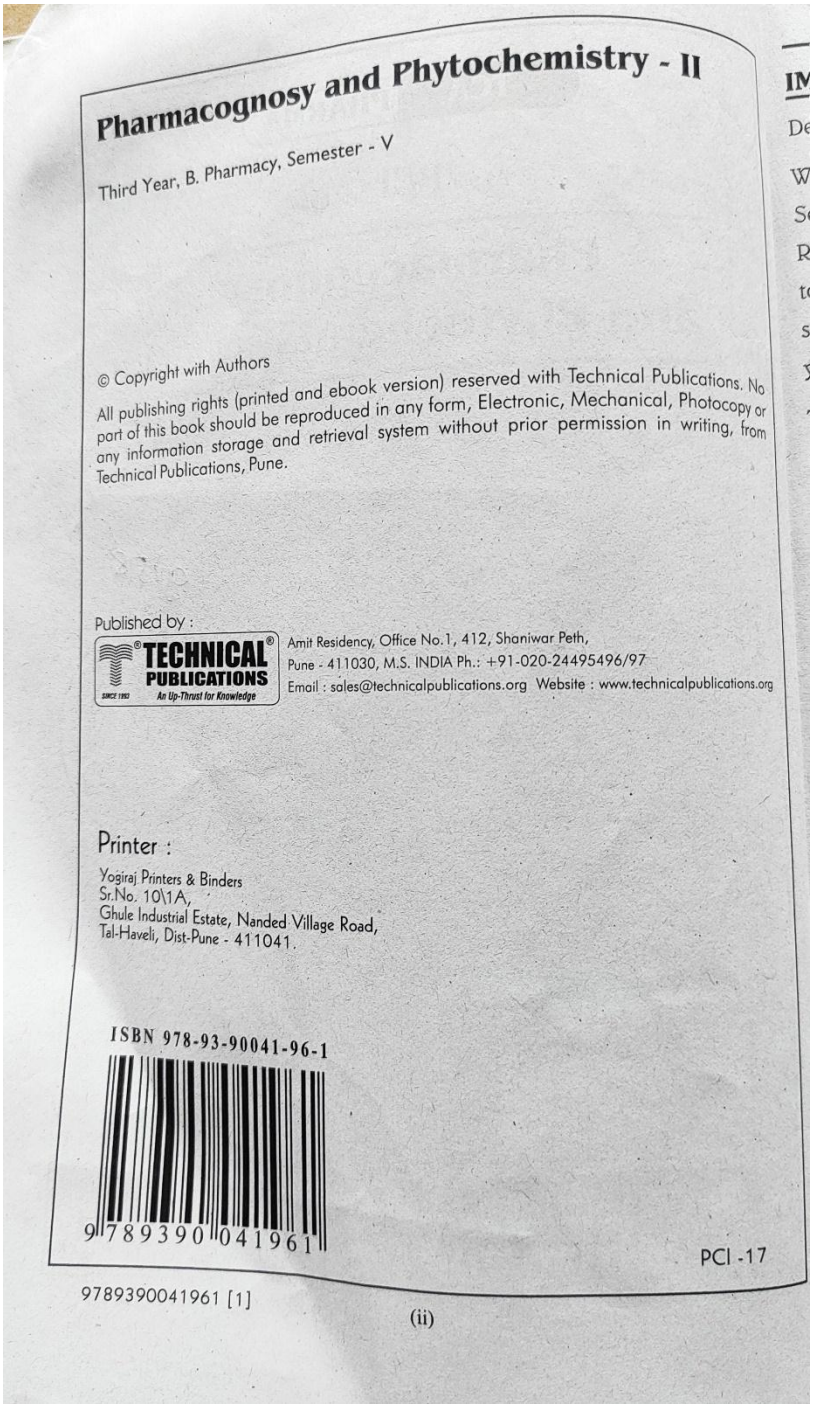

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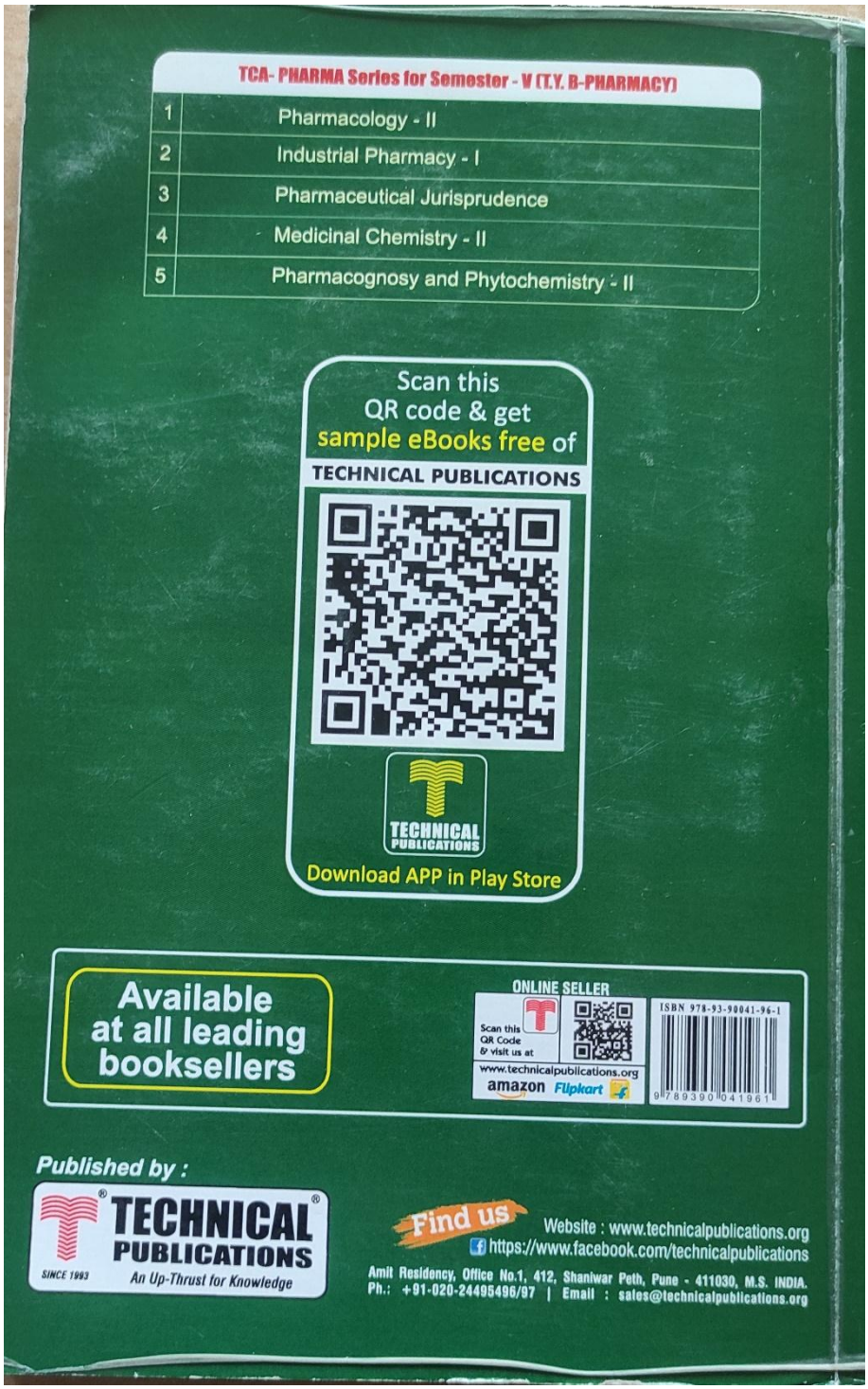
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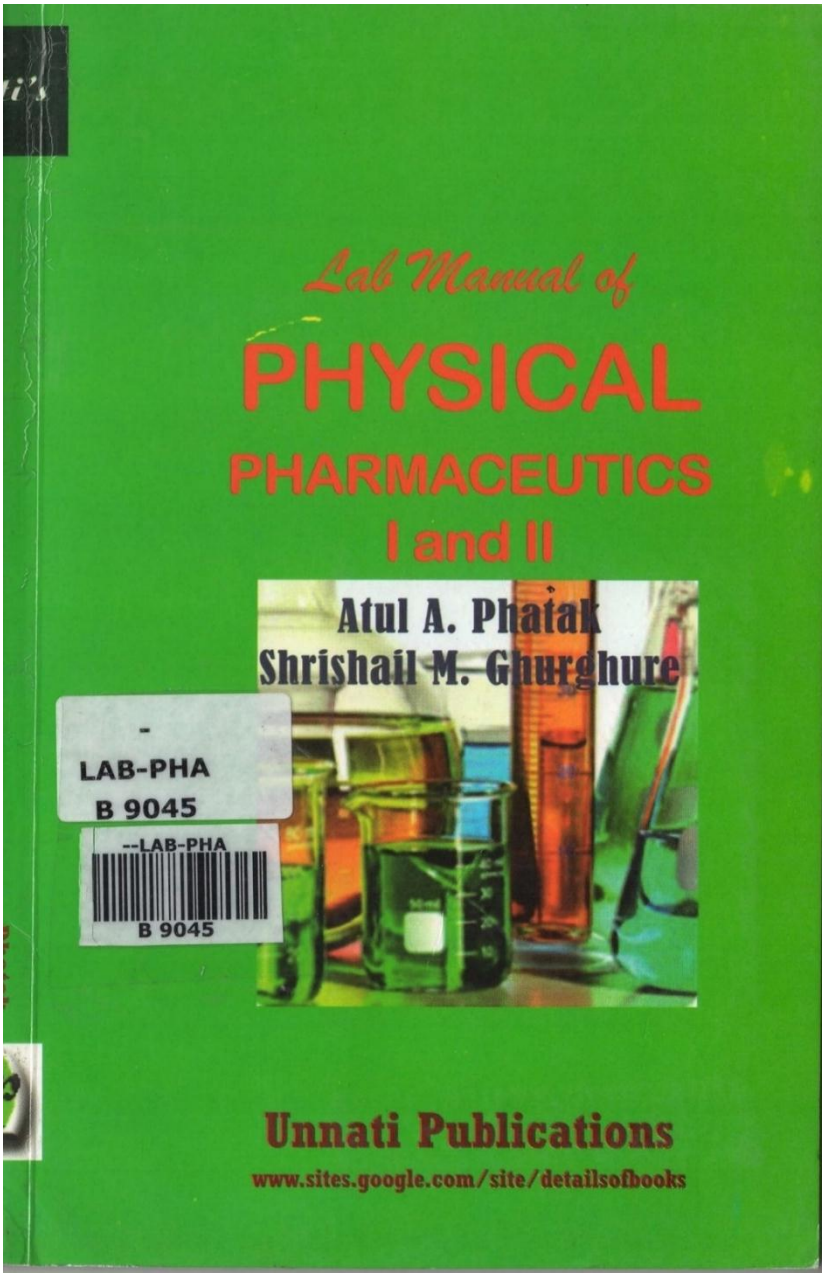

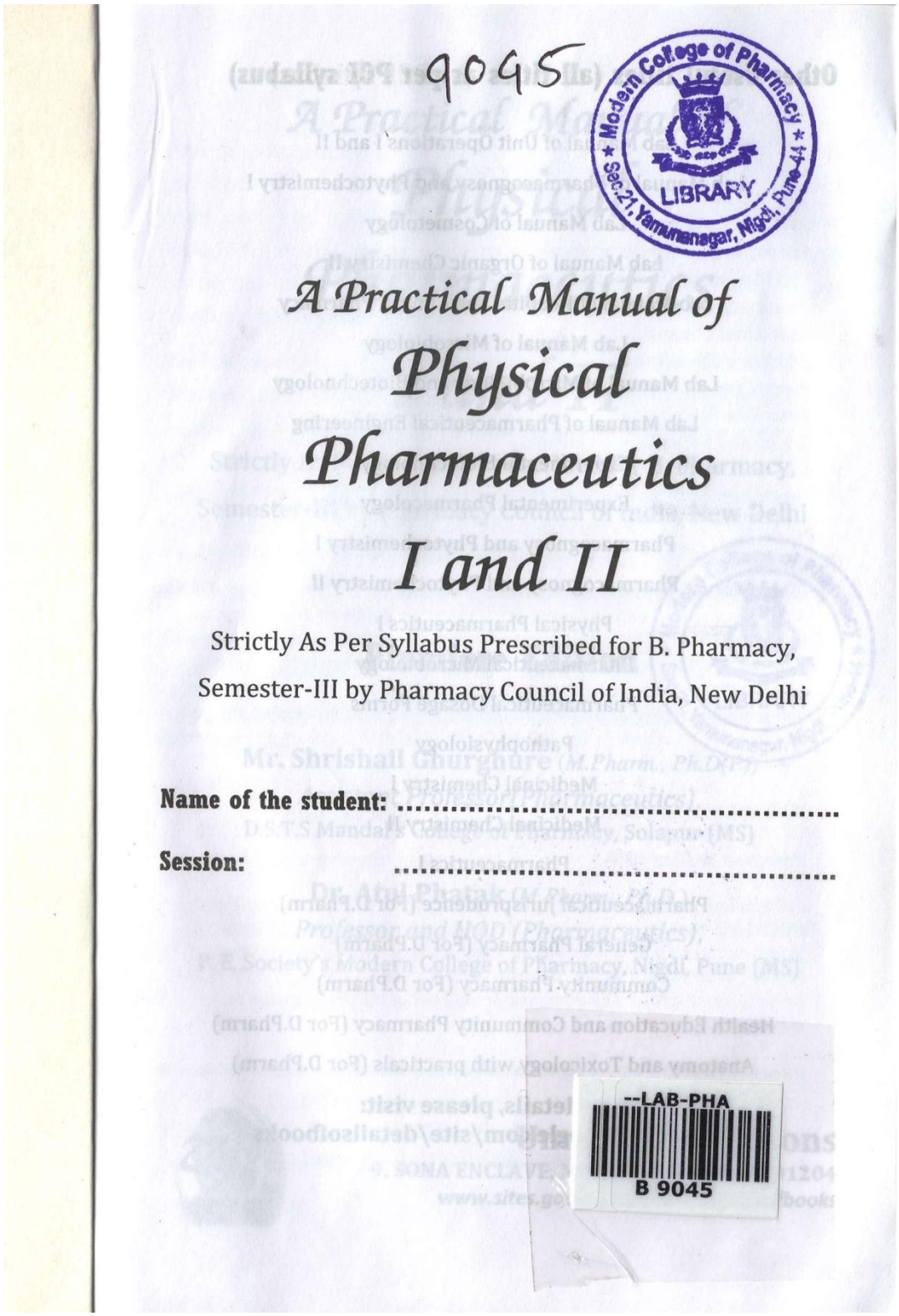
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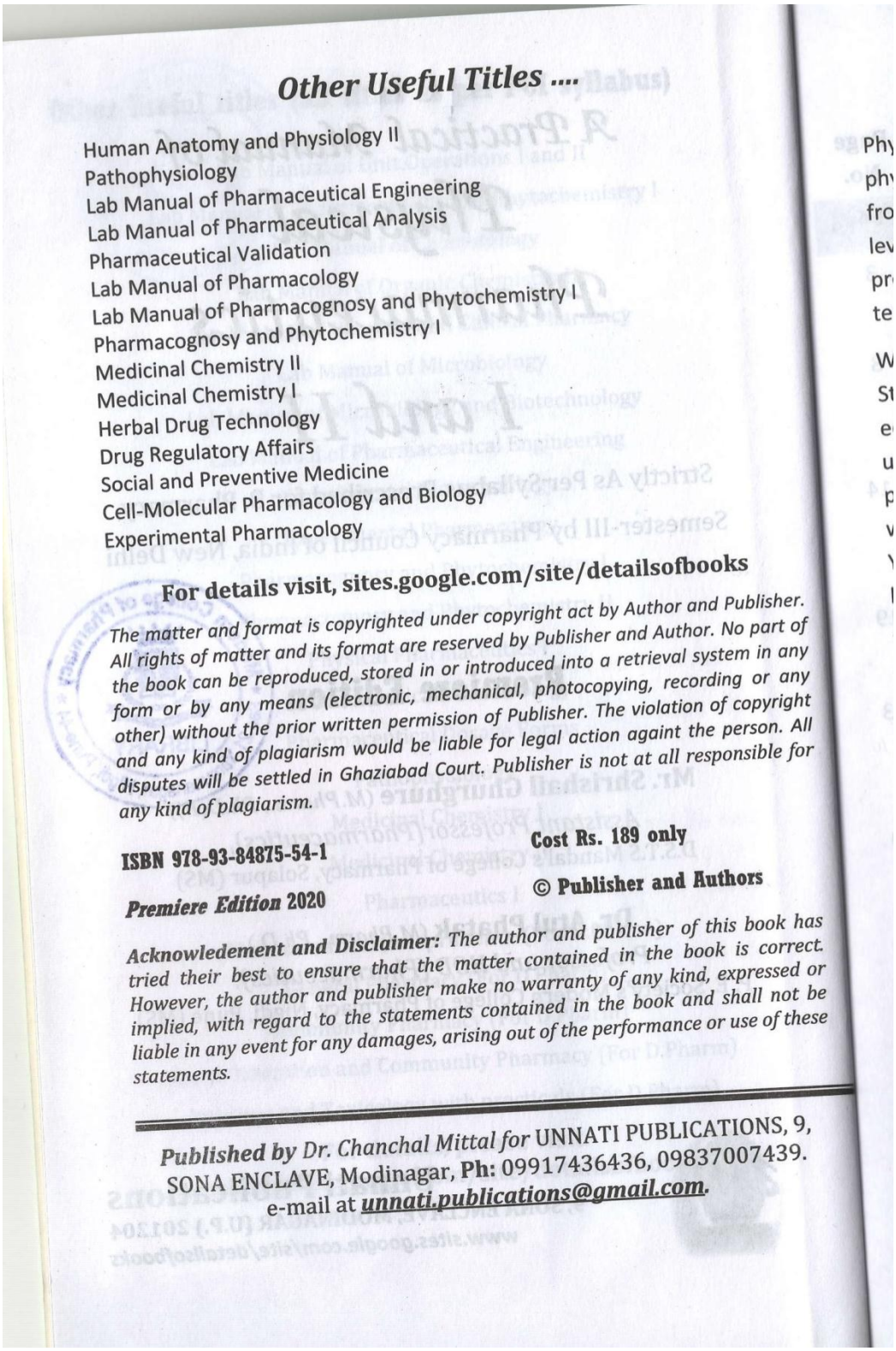

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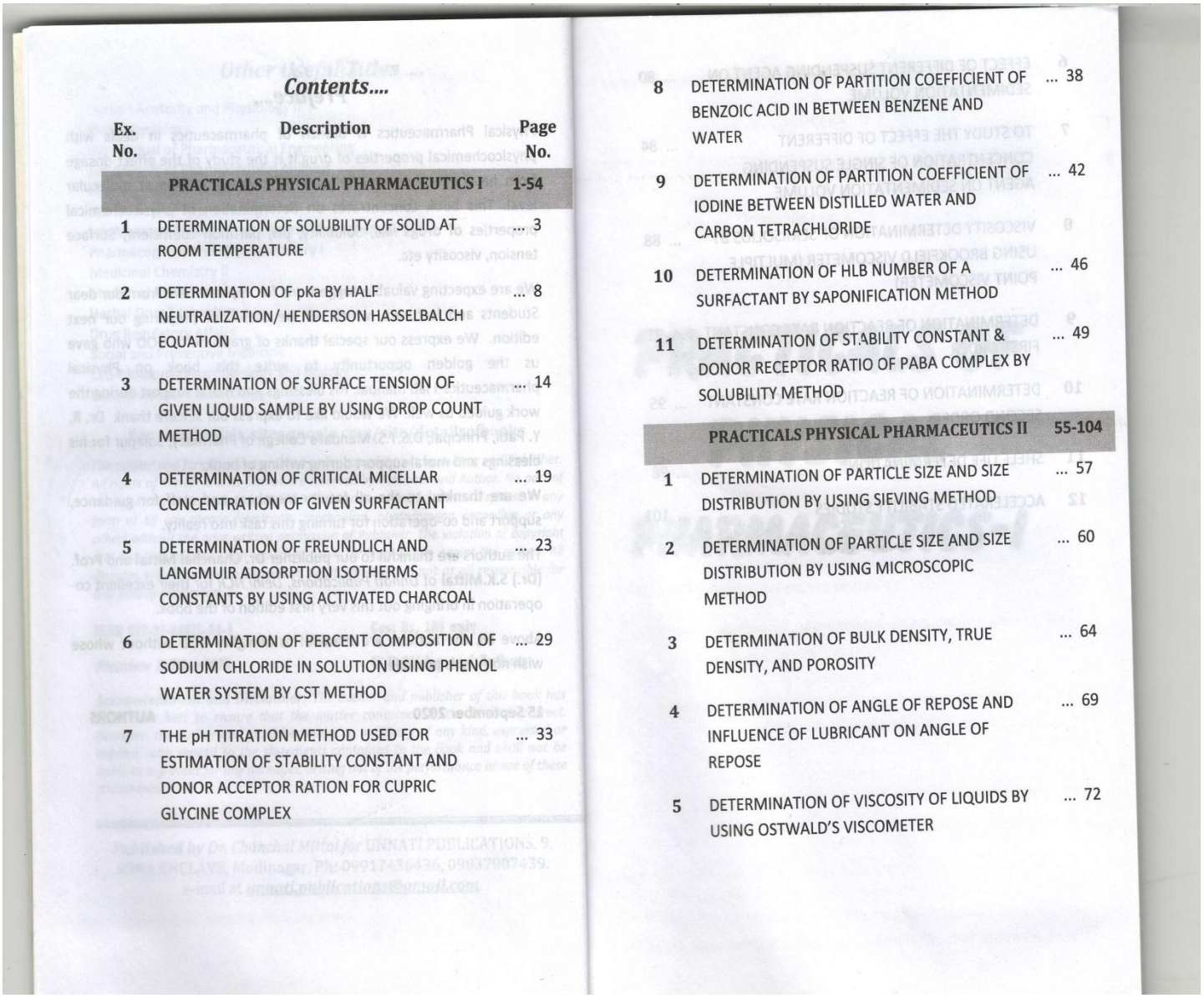

Contents....

Lab Manual Physical Pharmaceutics I and II

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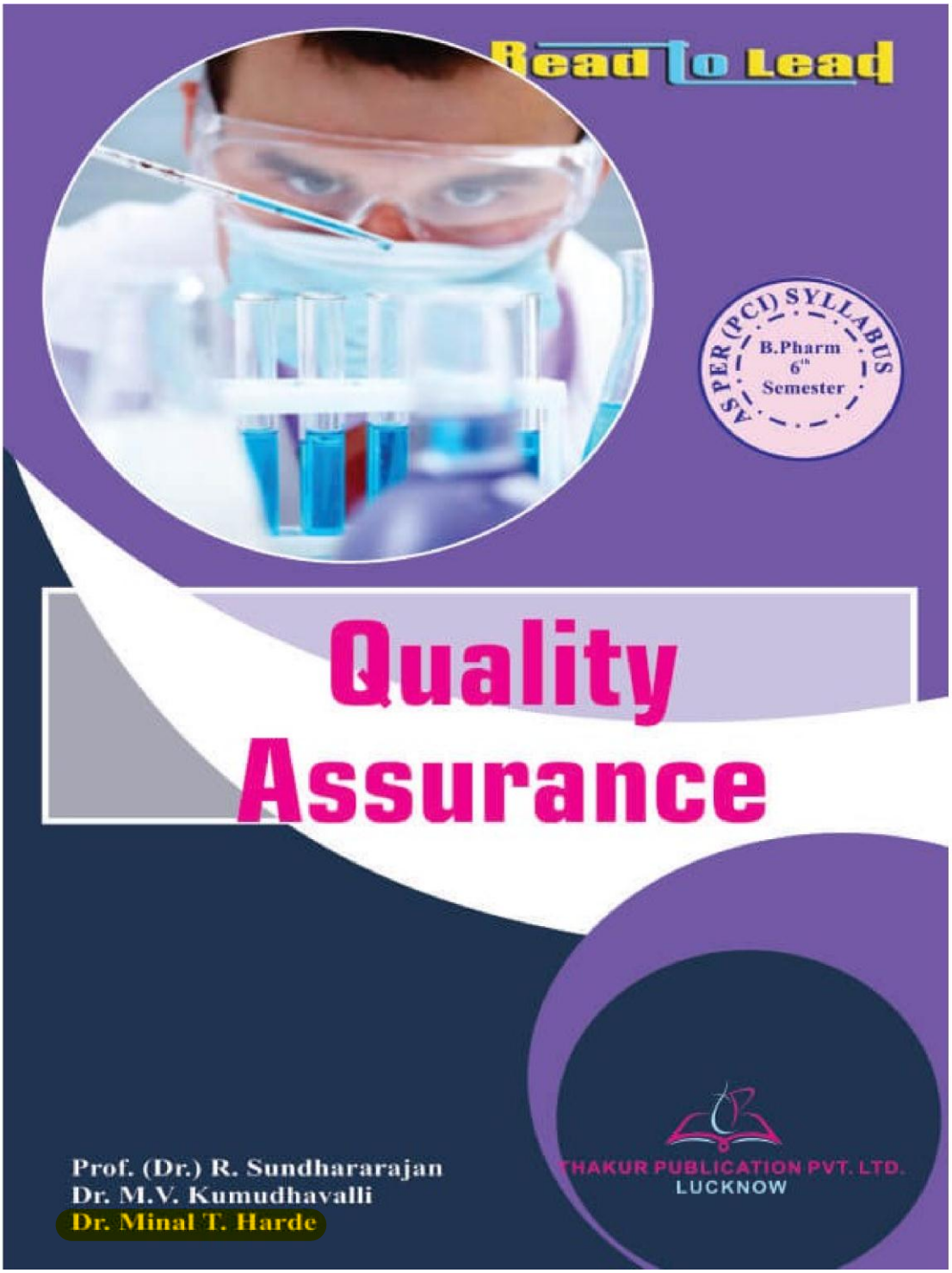

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About the Author

Prof. (Dr.) R. Sundhararajan (M.Pharm, Ph.D) is presently working as **Principal, Mohamed Sathak A.J.College of Pharmacy, Chennai**. He is a very good academician with **25 years** of teaching experience. He did his graduate from Annamalai University and Post Graduate from Birla Institute of Technology, Pilani, Rajasthan. He was awarded the **Doctorate Degree in Pharmaceutical Sciences** by **The Tamil Nadu Dr. M.G.R. Medical University, Chennai**. He has contributed many research and review articles in National and International journals. He has nearly 40 papers in both National and International Journals. He has attended 35 conferences and short term courses. He has guided more than 50 projects at both undergraduate and post graduate level. He is life member in IPGA and IPA. He is an active examiner for various Universities like TNMGRMU, SRM University, SRMC University, Annamalai University, Prist University, Vel's University and Kerala University of Health Sciences. He is also Ph.D thesis evaluator, co-guide and doctoral committee member and external examiner for Ph.D exam at TNMGRMU, Annamalai University, Vel's University and Prist University.

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Dr. Minal T. Harde (M. Pharm., PhD) is currently working as **Assistant Professor** at **Modern College of Pharmacy, Nigdi, Pune**. She has around **14 years** of professional experience and has published more than 35 research papers in National and International Journal of repute, and presented 20 research papers in various conventions and conferences. She has published 4 books. She is approved PG guide of Savitribai Phule Pune University, Pune and has guided 14 PG students. She has received 3 research grants from various funding agencies like S.P.P.U and UGC. She was awarded as outstanding faculty of the year award in 2018. She is a life member of APTI.

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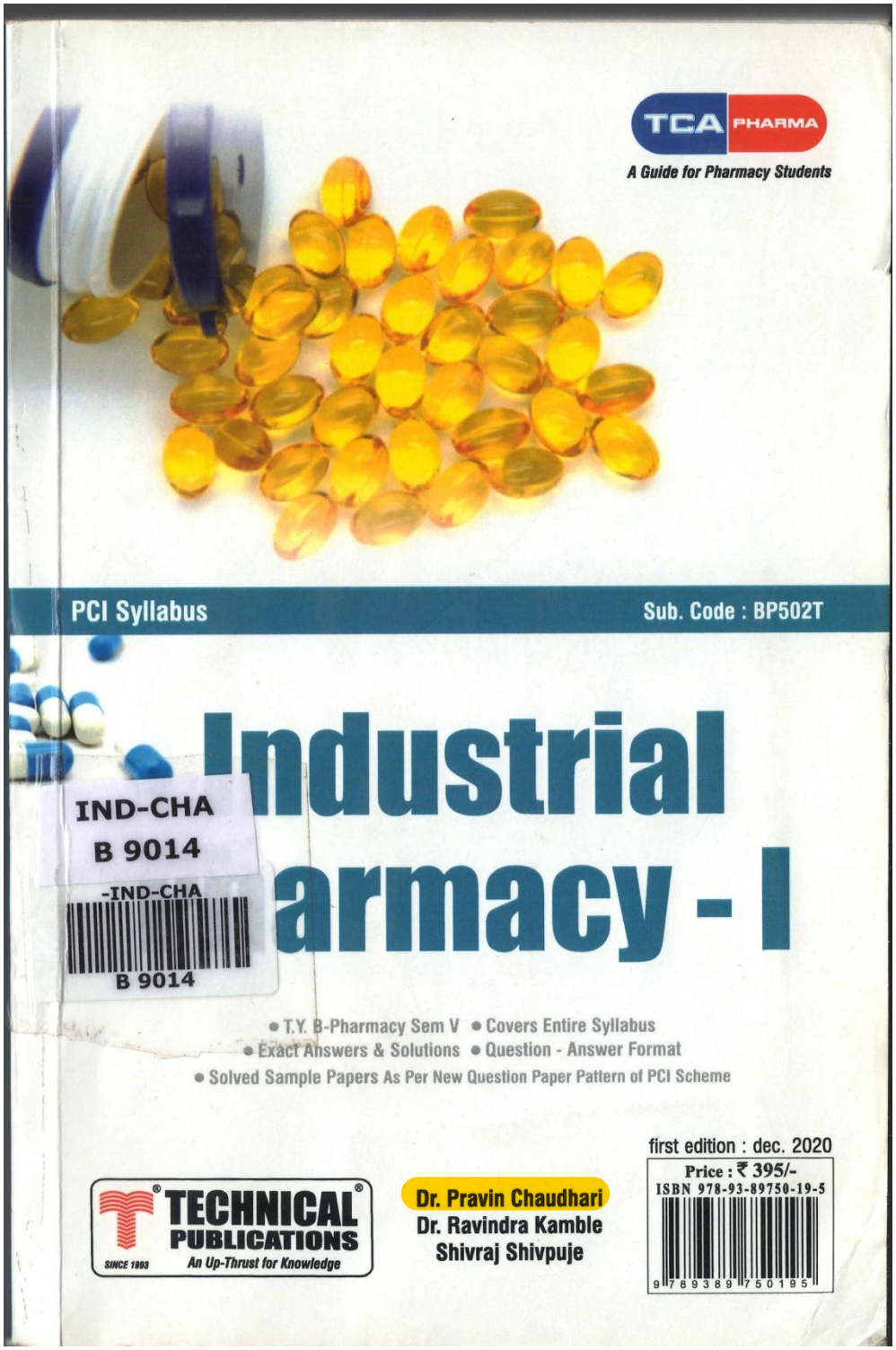

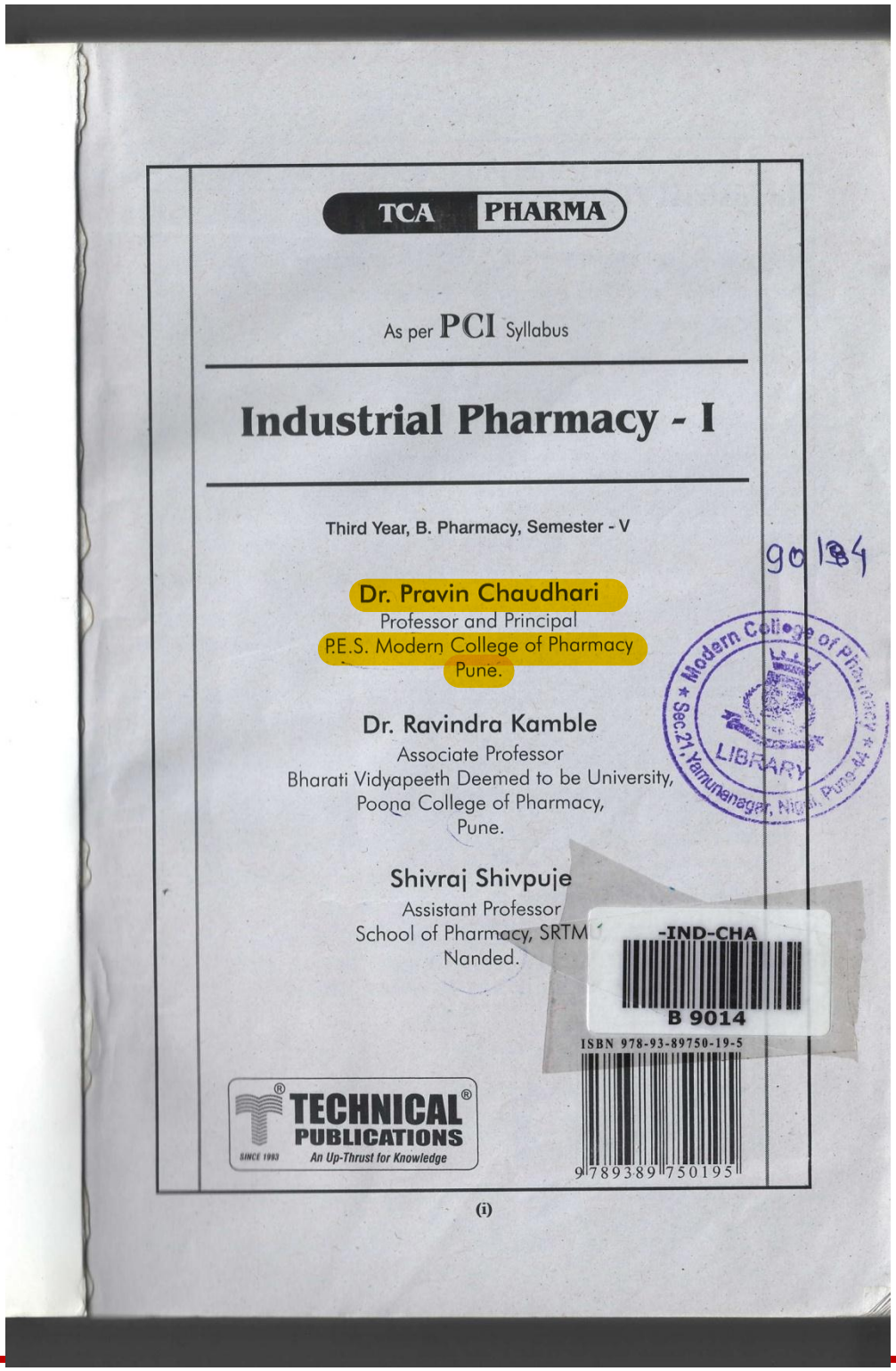

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TABLE OF CONTENTS

Unit - I

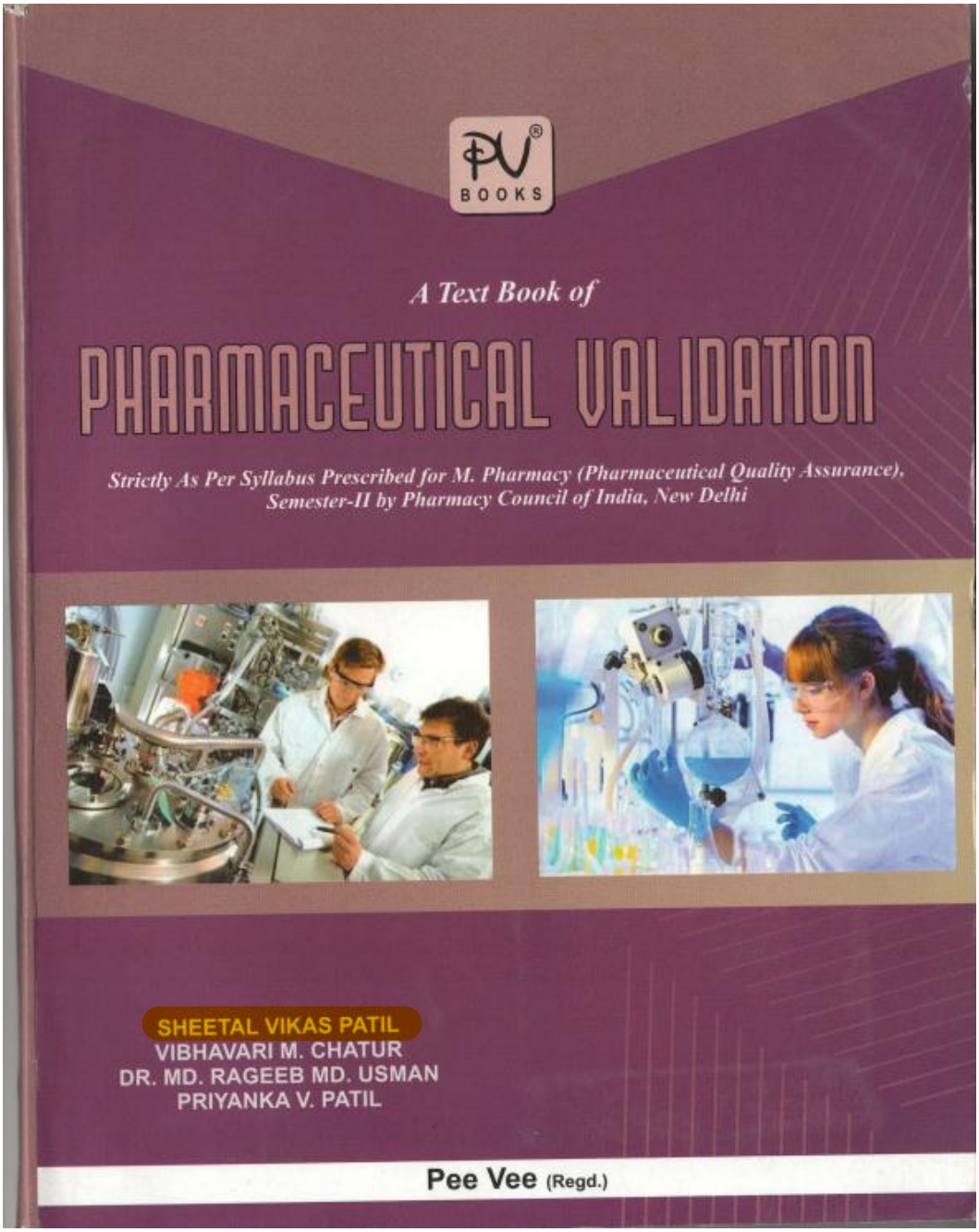
Unit - II

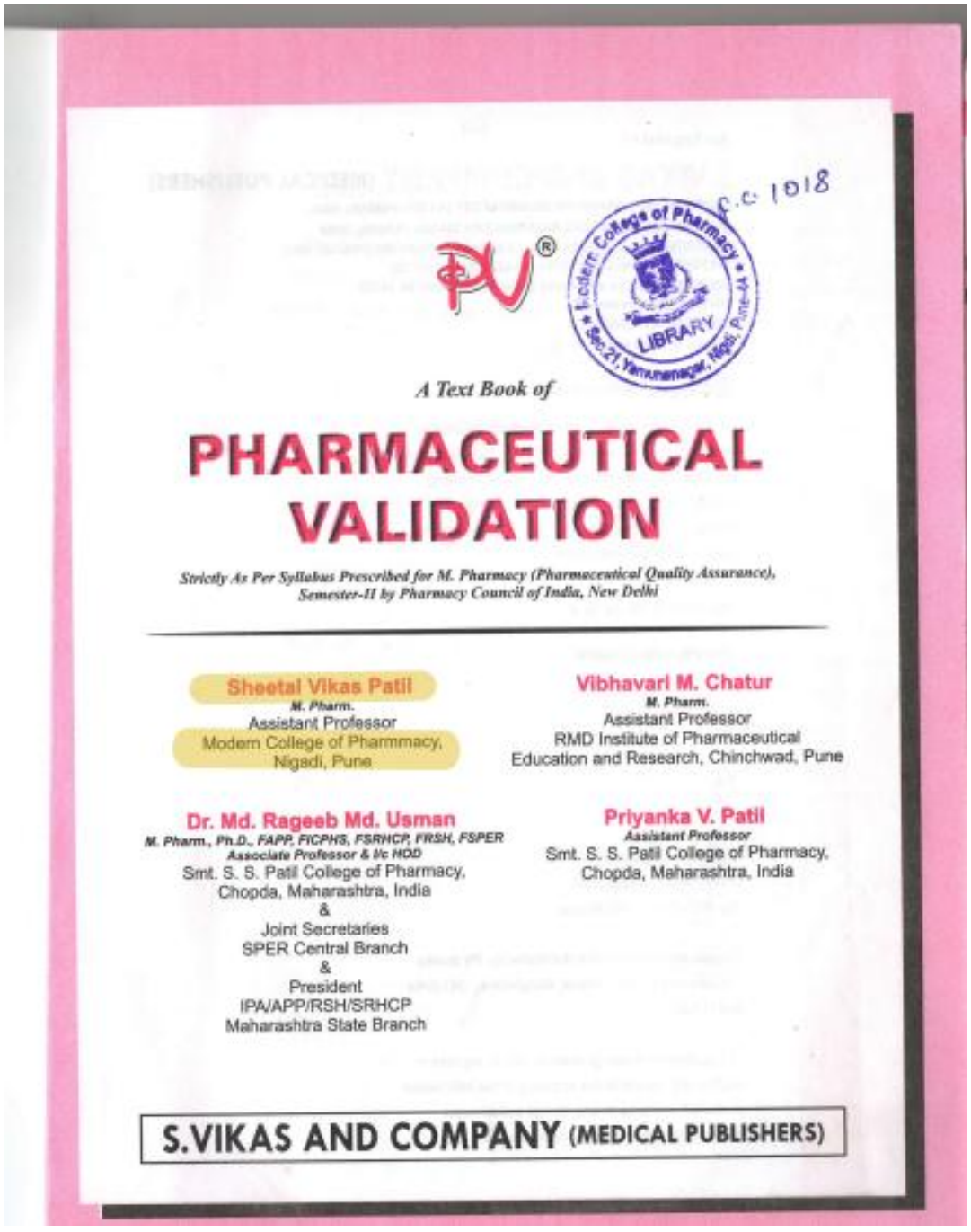
Unit - III

Unit - IV

Unit - V

Pharmaceutical Validation (M.PHARM) SEM -II

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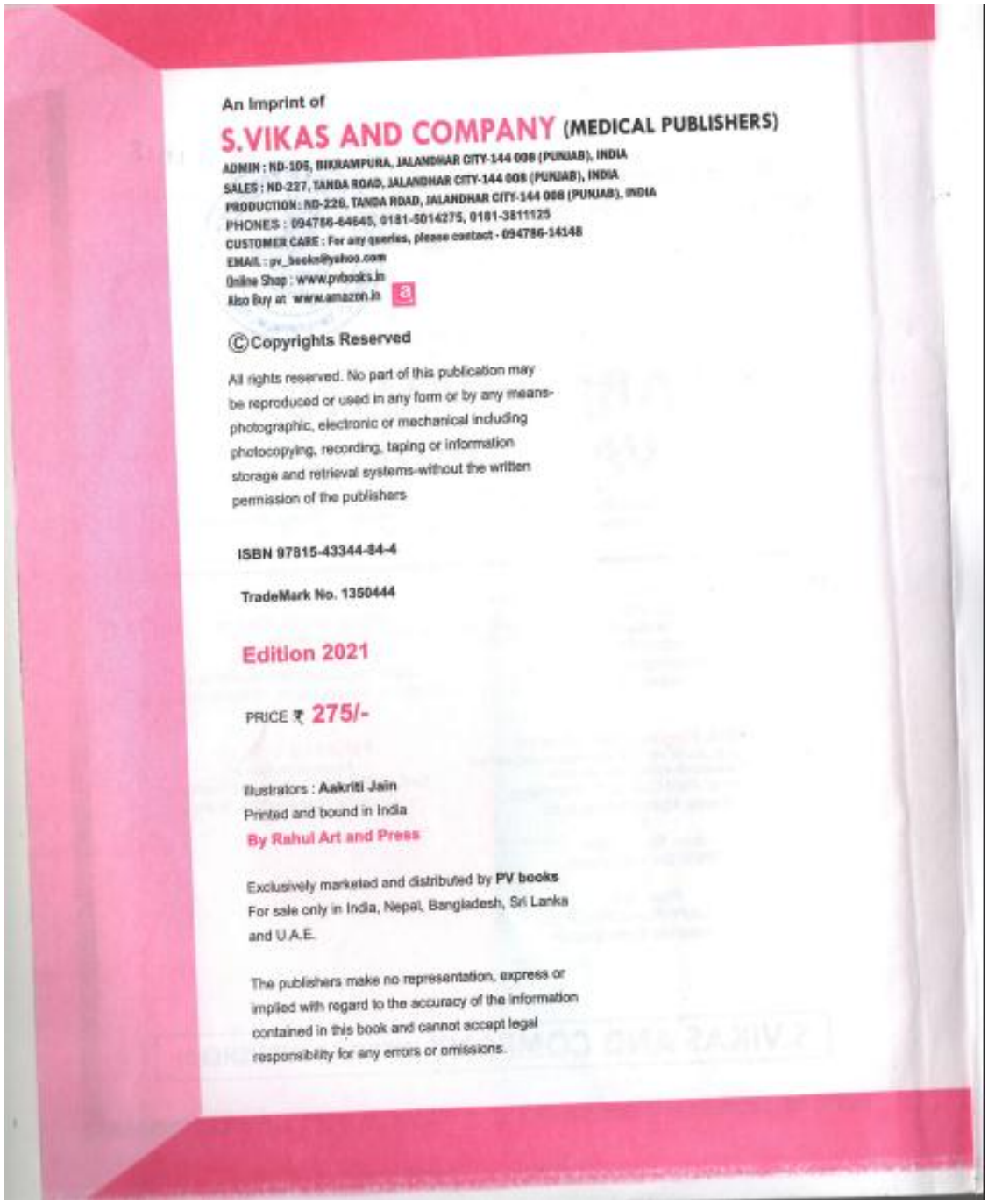

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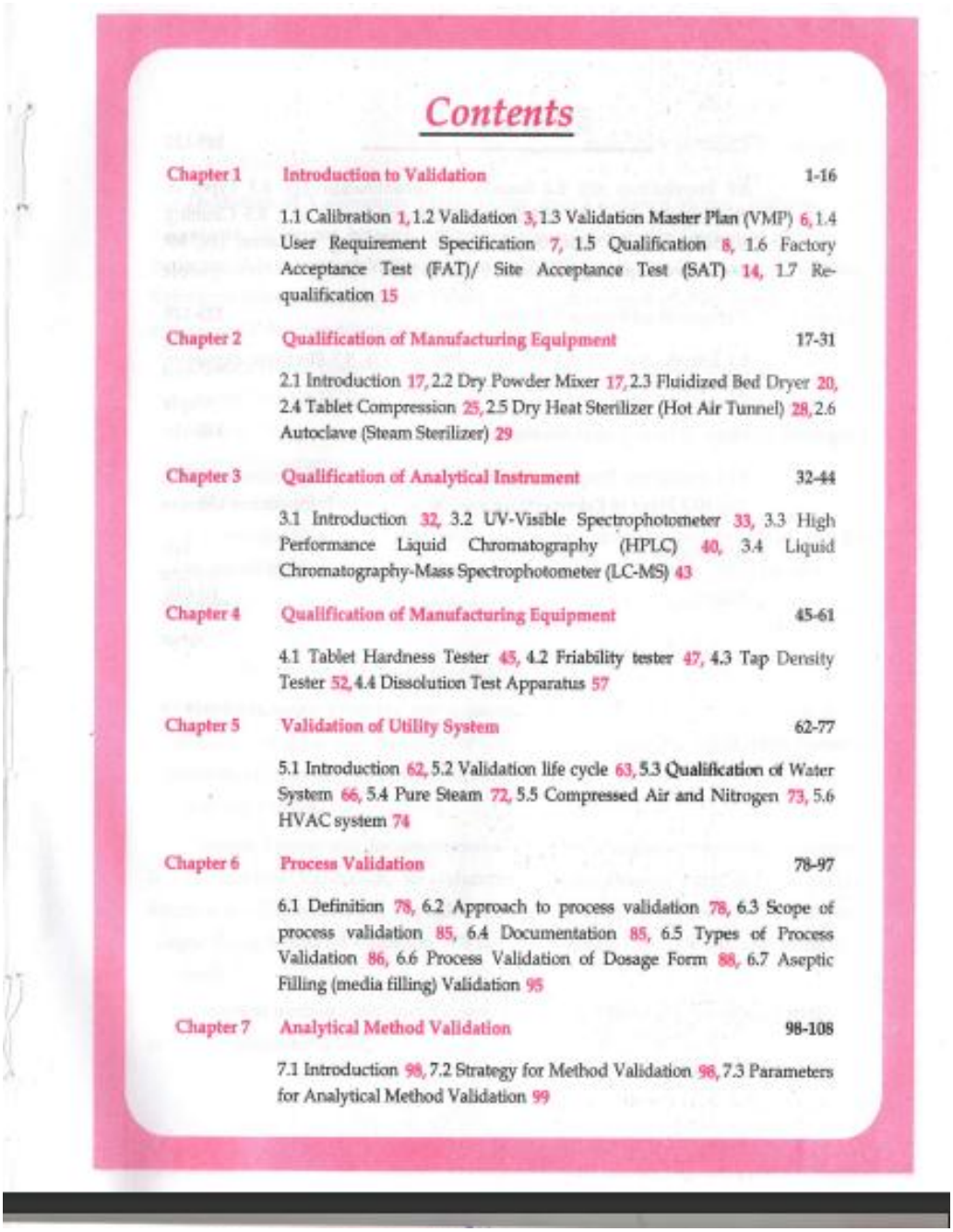
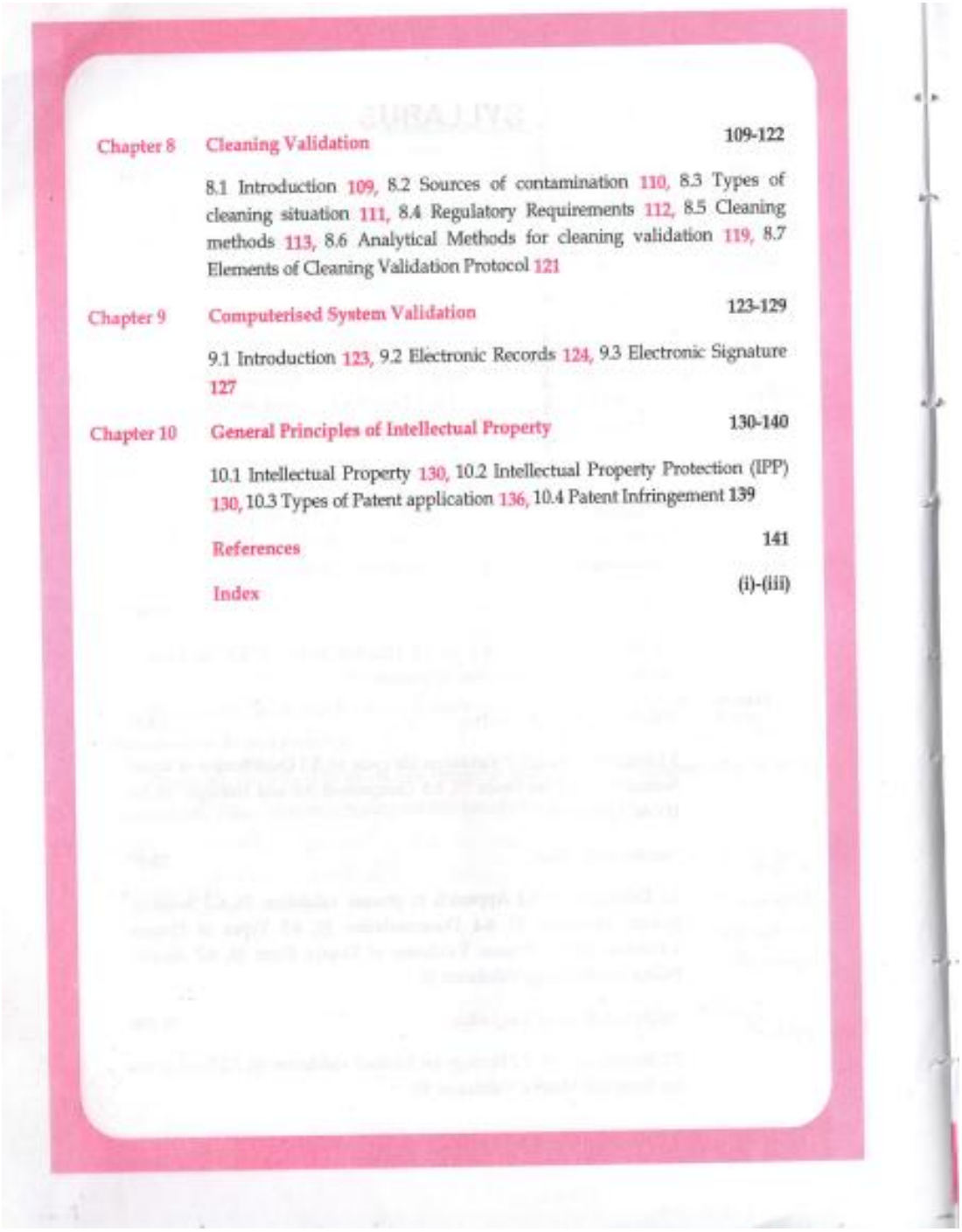


Contents



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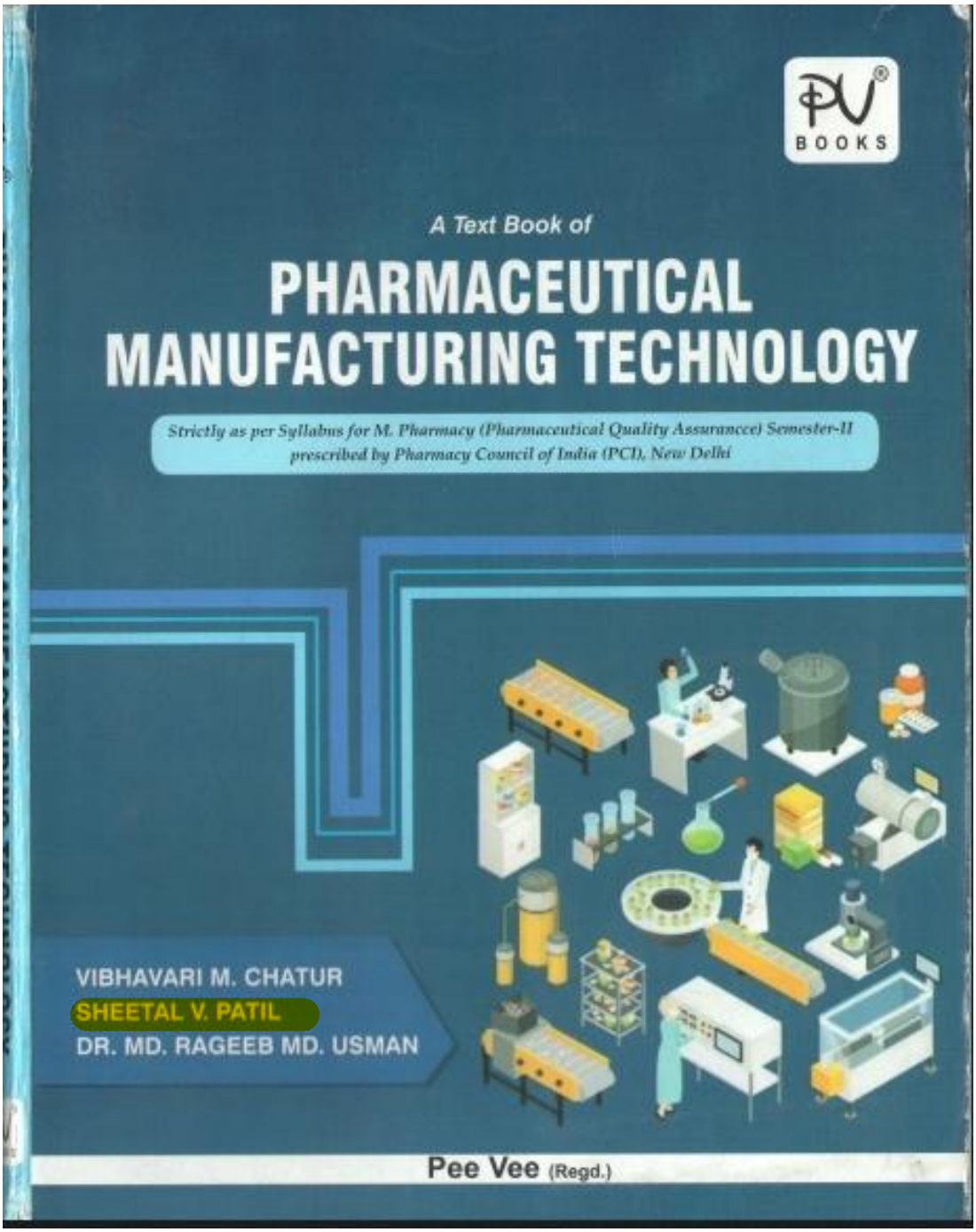

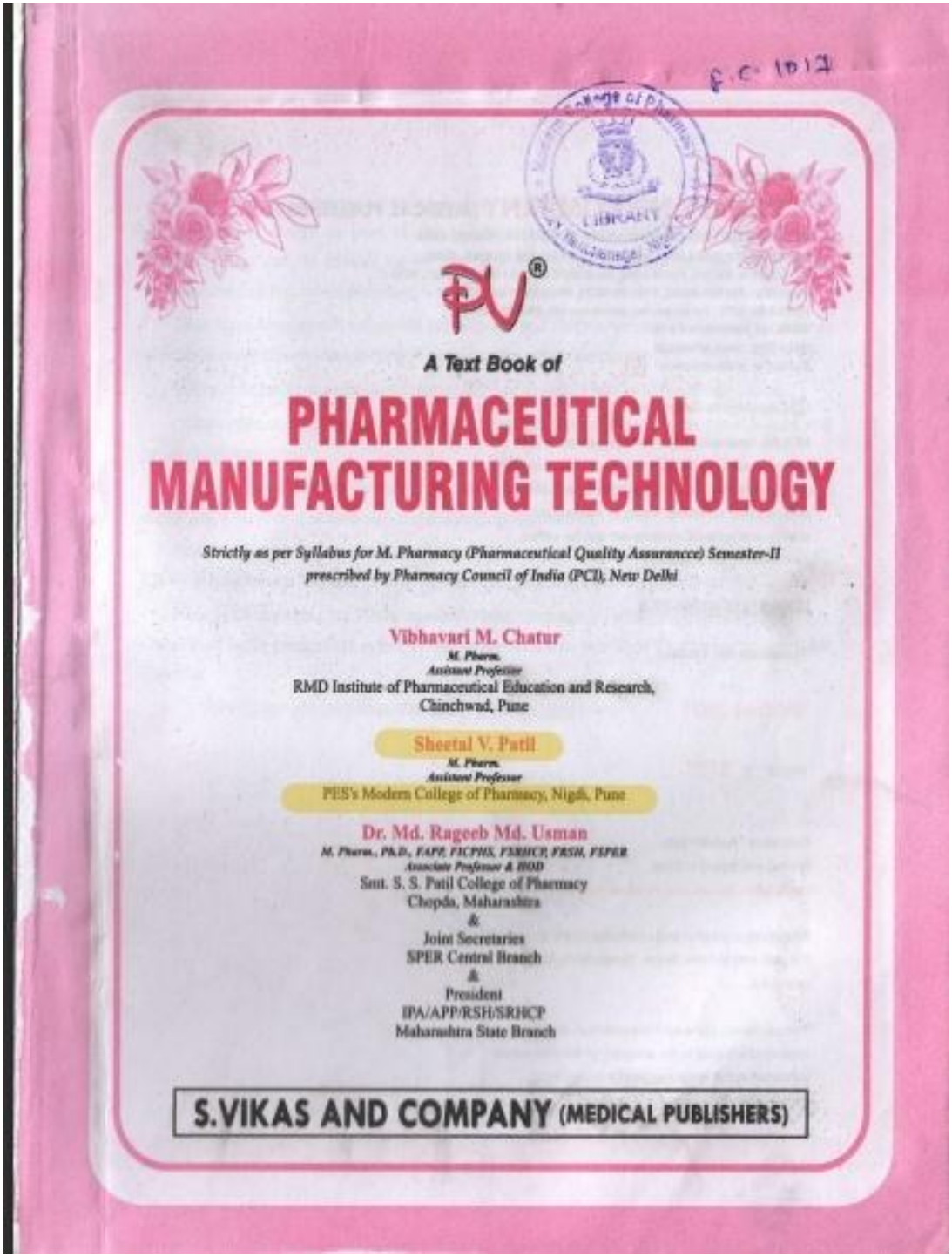

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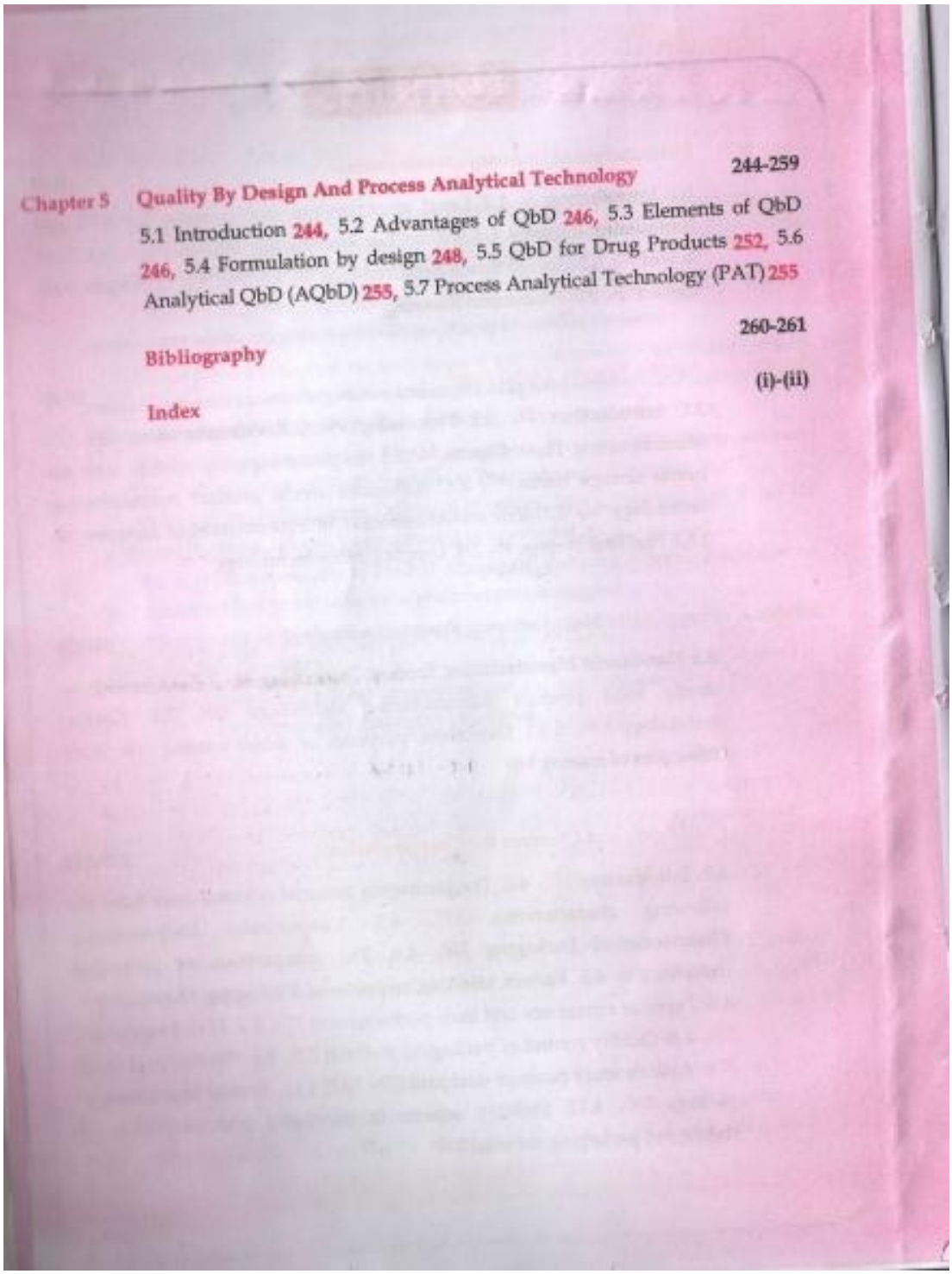

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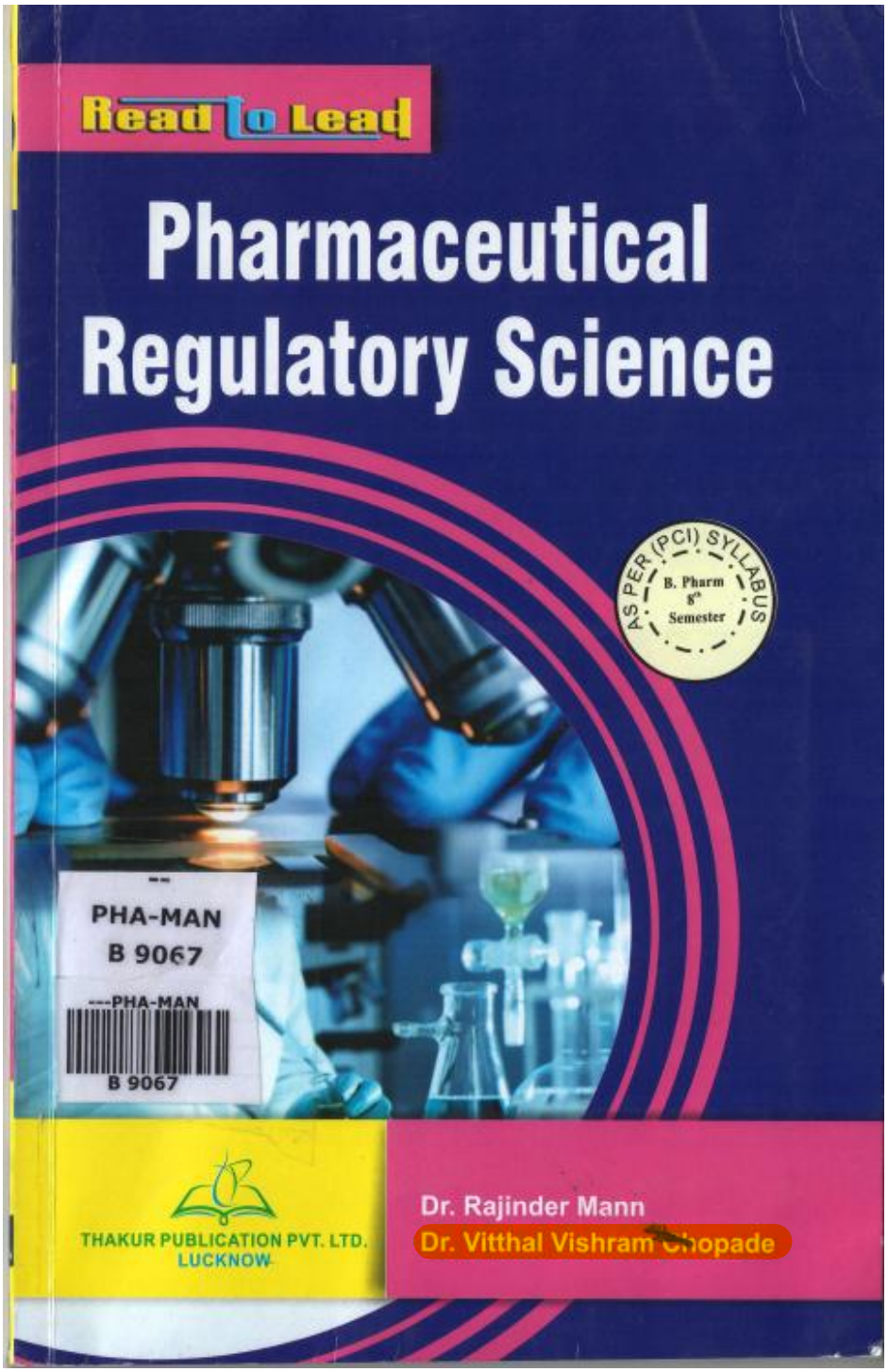

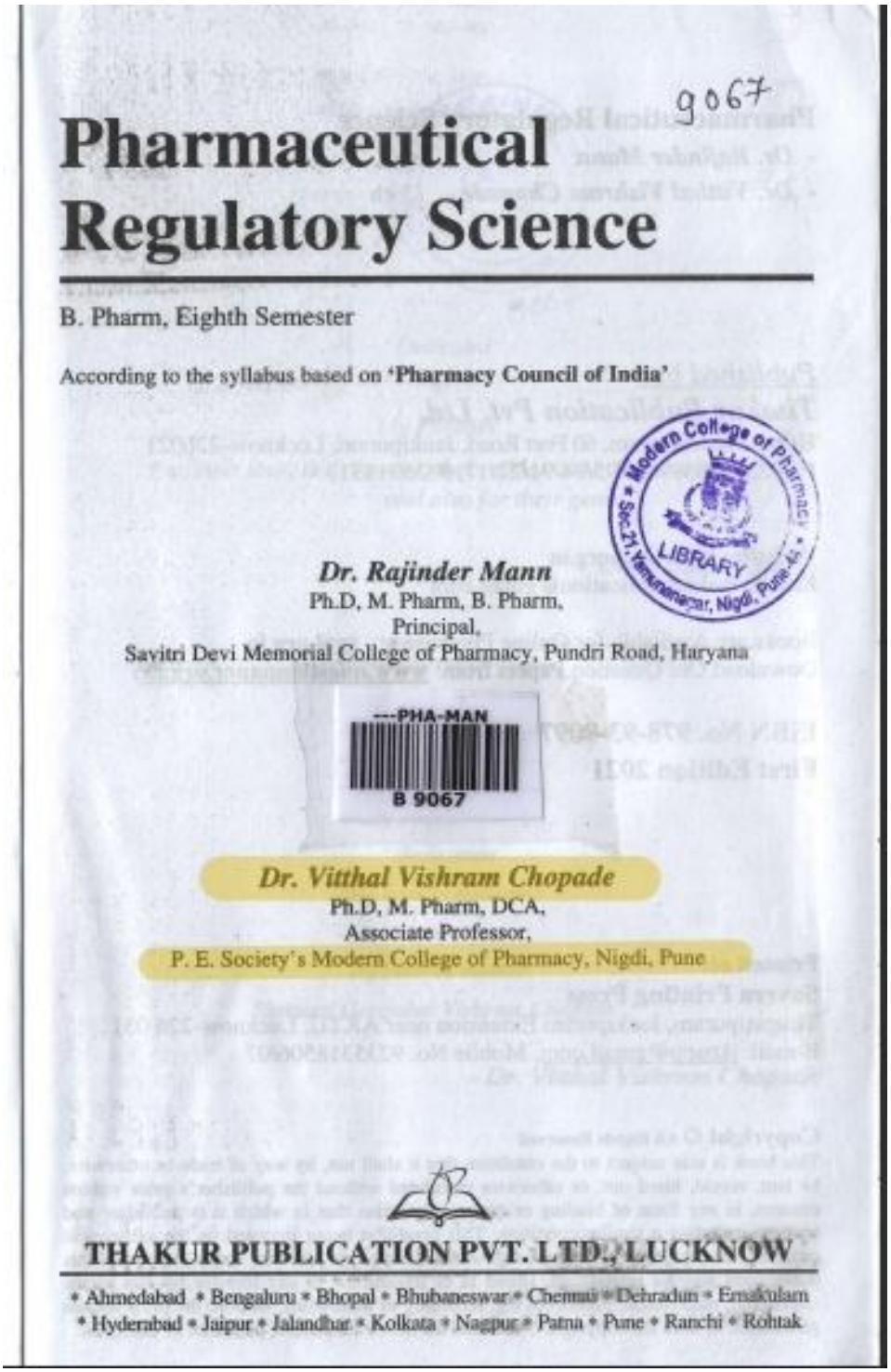

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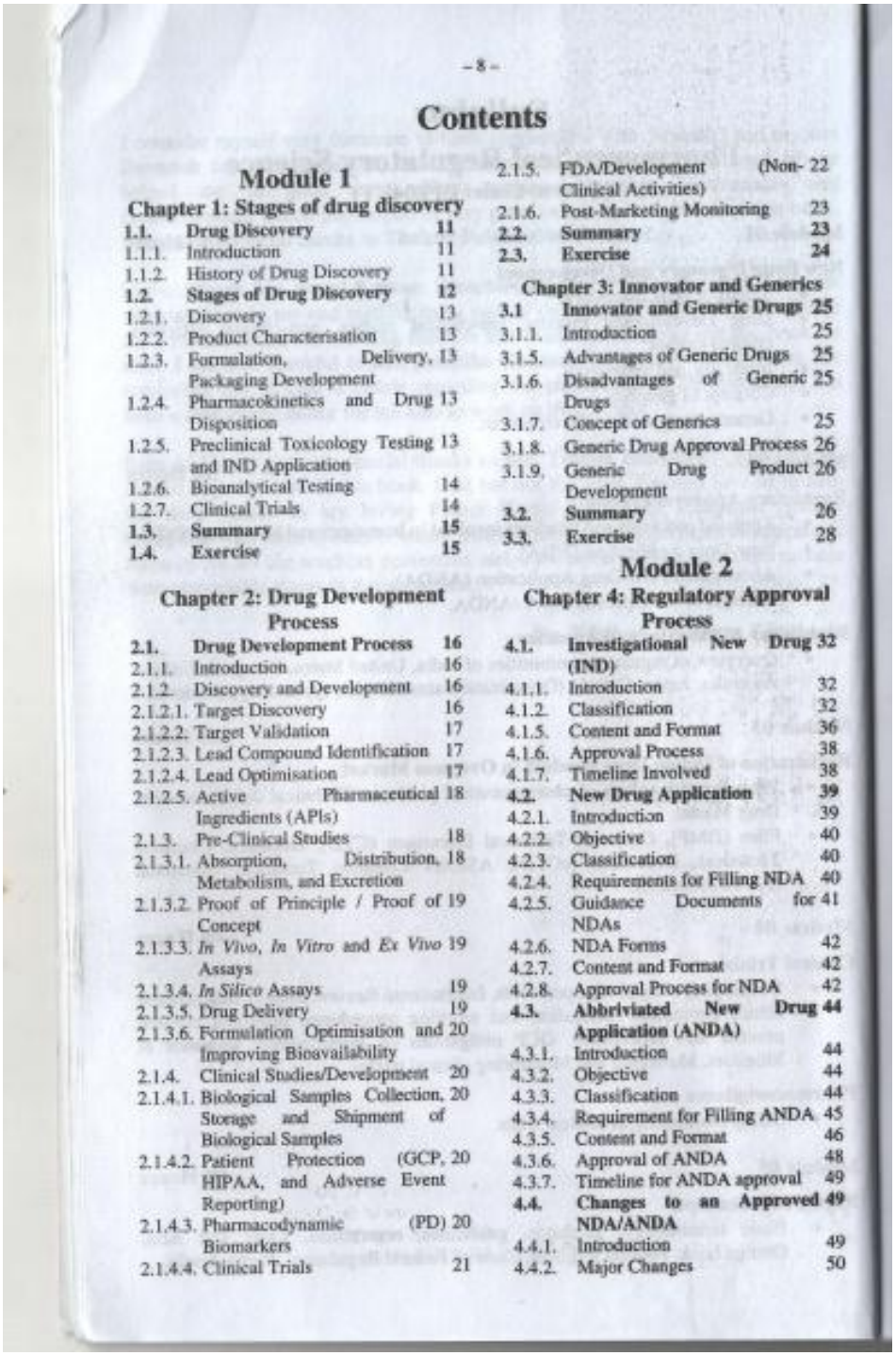

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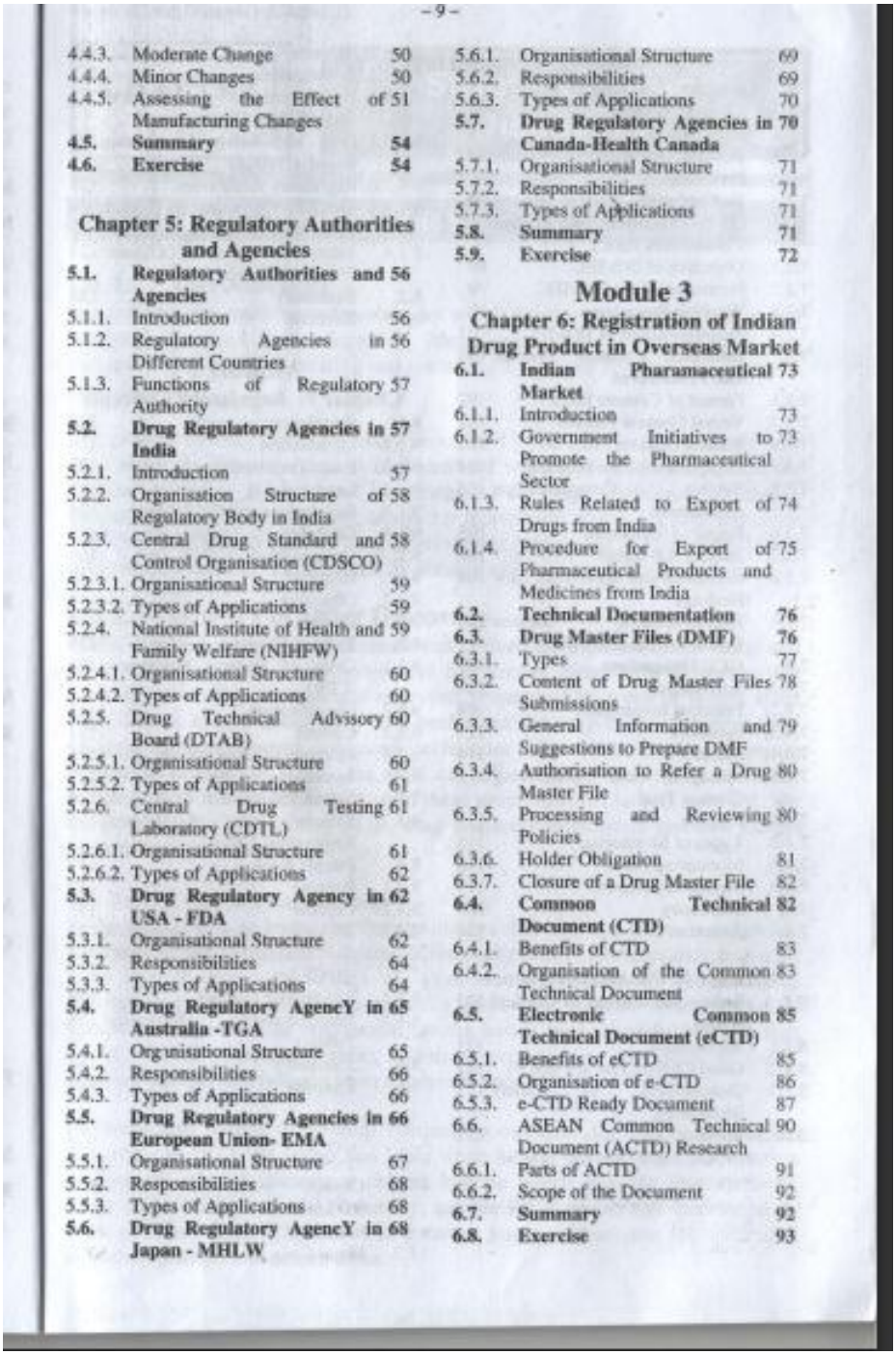

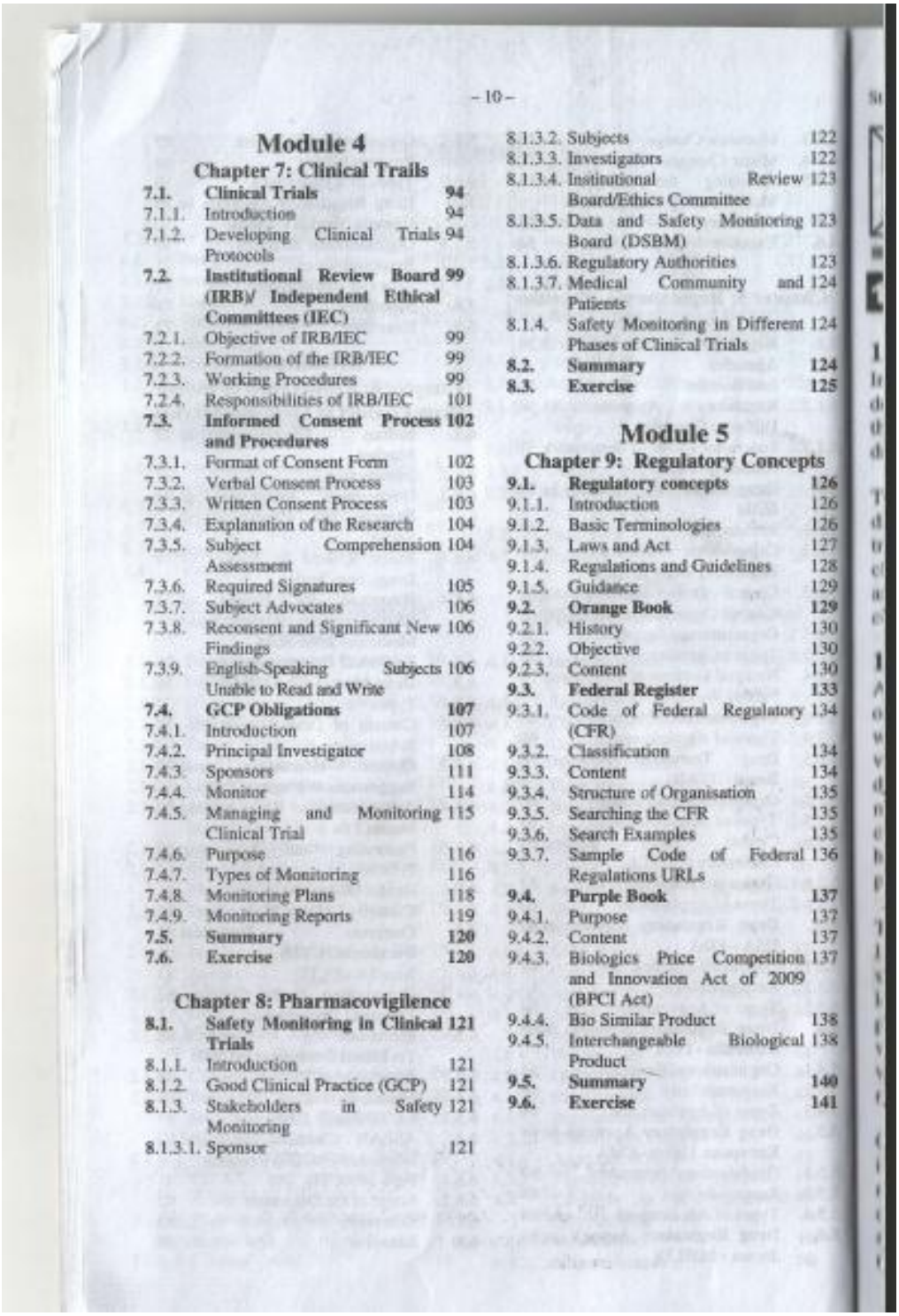

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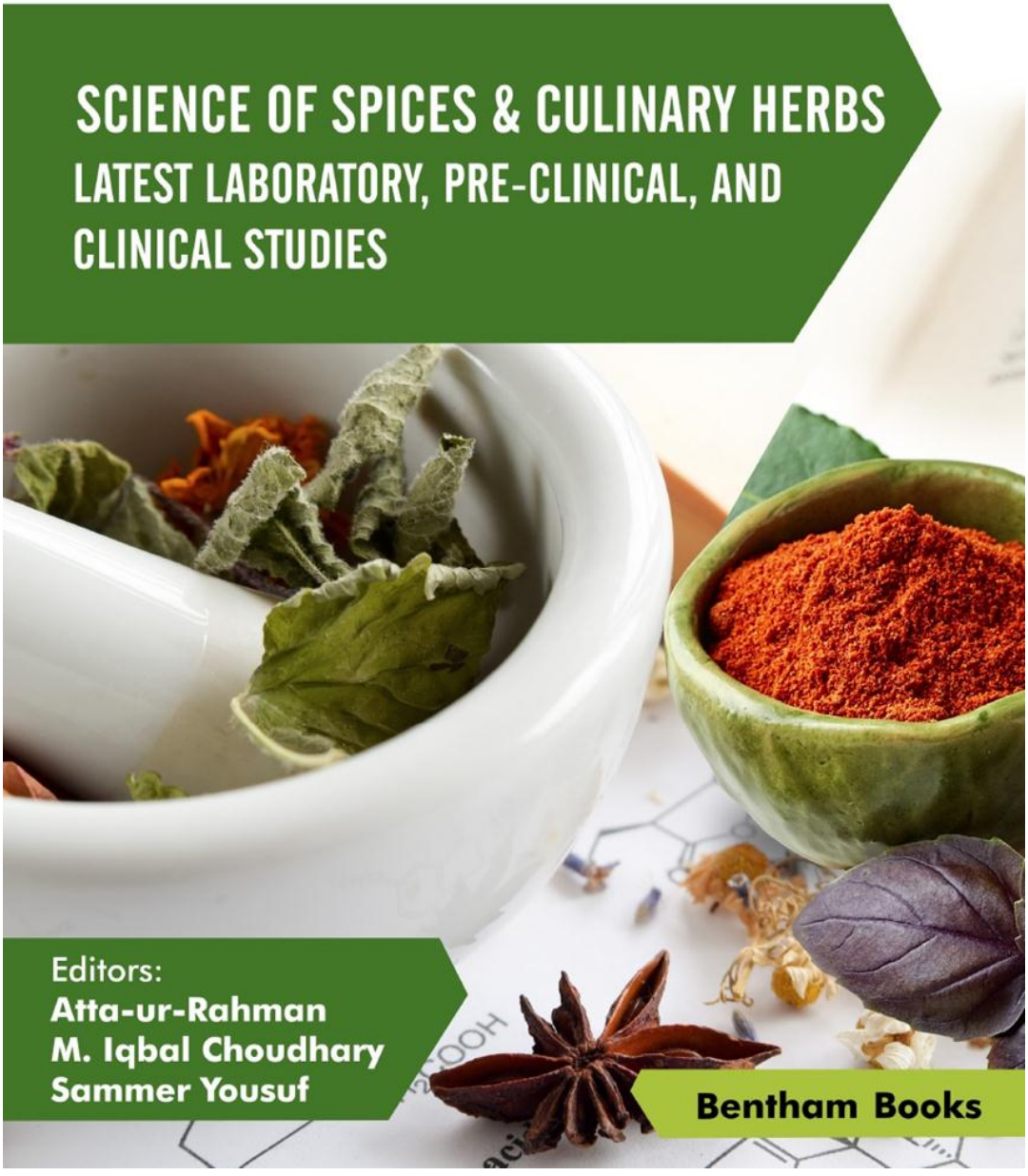
Chapter 7: Clinical Trails

Chapter 8: Pharmacovigilence

Module 5

Chapter 9: Regulatory Concepts

Chapter 1 Origanum Majorana: The Fragrance of Health



Science of Spices & Culinary Herbs, 2020, *Vol. 3*, 1-12

CHAPTER 1

Origanum Majorana: The Fragrance of Health

Bhushan P. Pimple*, **Amrita M. Kulkarni** and **Ruchita B. Bhor**

P. E. Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune, India411044

Abstract: *Origanum majorana* Linn (*Majorana hortensis*) is an aromatic herb of Lamiaceae. The plant is native to Mediterranean and European parts, but can be cultivated easily in all tropical regions. The leaves and flowers are characterized by a pleasant aromatic odour that increases its scope for perfumery and food industries. Besides its culinary & perfumery importance, *O. majorana* has therapeutic relevance in the management of diabetes, hypertension, polycystic ovarian syndrome (PCOS), gastric ulcers, leukemia, breast adenocarcinoma, free radical scavenging, etc. The proposed chapter focuses on traditional uses, culinary and perfumery applications, recent advancements in phytochemistry and pharmacotherapeutics of *Origanum majorana*.

Keywords: *Origanum majorana*, Sweet majorana, Hyperglycemia, Hypertension, Adenocarcinoma.

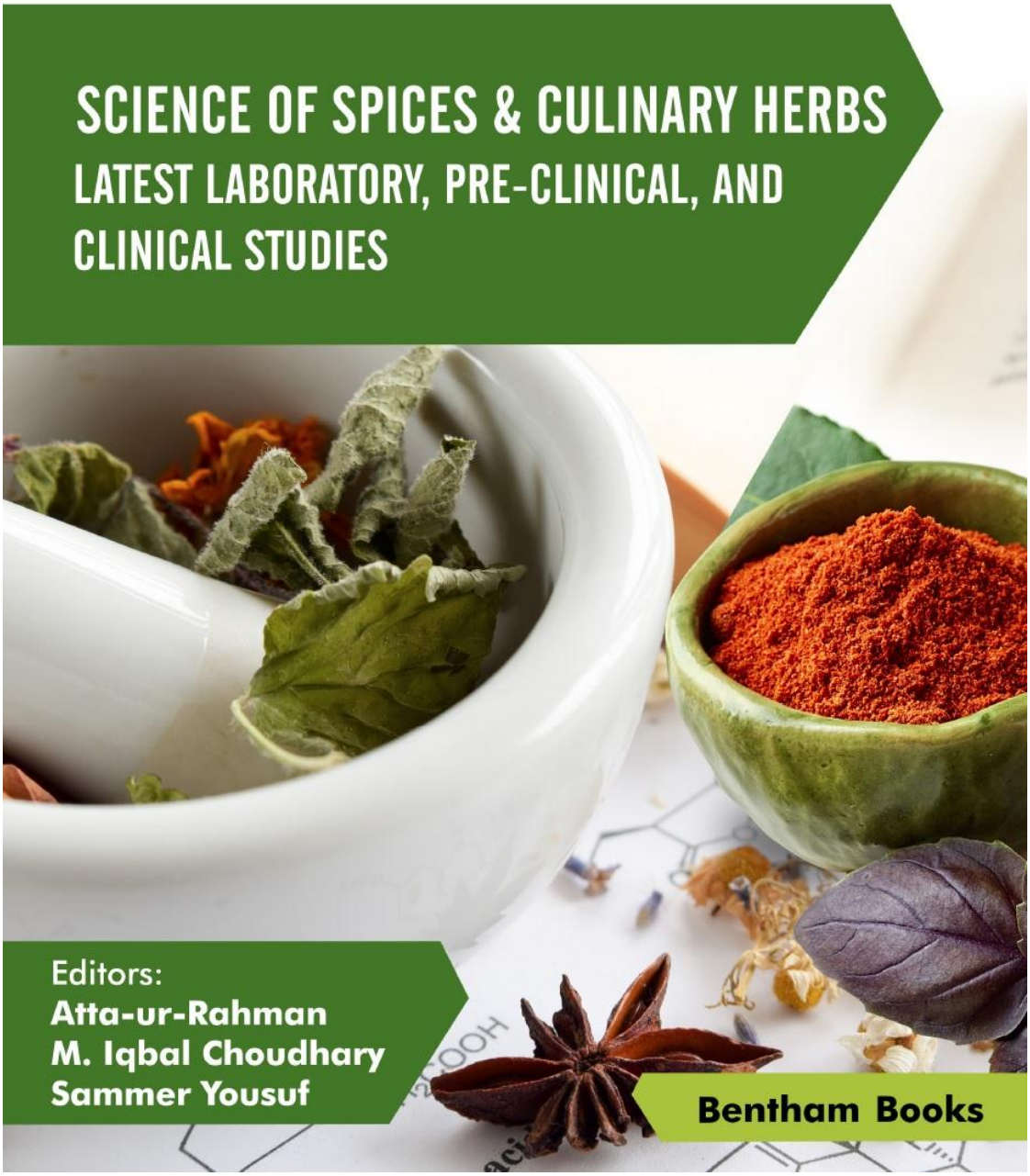
INTRODUCTION

Traditional Claims [1 - 9]

1. Decoction of fresh aerial parts of *Origanum majorana* was consumed to relieve flatulence in Colombia.
2. *Origanum majorana* was used as a constituent in many herbal mixtures in Eastern Cuba for treating diabetes, catarrh, stomach pains and as a sedative.
3. Majorana is still used as a traditional herb for cough, stomach aches and as a carminative in Jordan.
4. *Origanum* spp. were used to produce sedation and for treating insomnia in Italy.
5. Infusion of majorana leaves is a traditional application for hypertension in Morocco.
6. In Cyprus, leaves of *Origanum majorana* in the form of infusion or inhalation were used to treat diabetes, hypertension, diarrhoea, migraine, stomach ache, cough, dysmenorrhea, asthma, bronchitis.

* **Corresponding author Bhushan P. Pimple:** Head, Department of Pharmacognosy, P.E. Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune, Maharashtra, India 411 044; E-mail: bhushanppimple@rediffmail.com

Chapter 2 Piper nigrum (Black pepper): A Flavor for Health



24 Science of Spices & Culinary Herbs, 2020, Vol. 2, 24-38

CHAPTER 2

Piper nigrum (Black pepper): A Flavor for Health

Bhushan P. Pimple, Amrita M. Kulkarni and Ruchita B. Bhor

P. E. Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune, India

Abstract: *Piper nigrum* is an indigenous extensive vine of Piperaceae. It is predominantly cultivated in the humid and subtropical climate of Western Ghats of India, mainly in Konkan and Kerala. The berries of black pepper are developed on axillary catkins. The berries are warty and turn brownish-black on ripening and are strongly aromatic and pungent. The tolerable aroma of the black piper is exploited in culinary preparations across the globe. Traditionally, it is used as a stimulant, antipyretic, analgesic, antiviral, and as a bioavailability enhancer. Consequently, the manifold use of black pepper has augmented its commercial and medicinal importance. Principle ingredients are alkaloids such as piperine, piperlongumine, and piperlonguminine. Recent research proves its beneficial role in the management of hyperlipidemia, obesity, cardiovascular complications, diabetes, *etc*. The proposed chapter will specifically highlight the phytochemical and pharmacological advancements in the research related to *Piper nigrum*.

Keywords: Black pepper, Bioavailability enhancer, *Piper nigrum*.

INTRODUCTION (FIGS. 1 - 3)

Vernacular Names

Hindi: *Pipar, piplamul*

Marathi: *Pimpli*

Tamil: *Kandam, Iippilli, pppili, thippili*

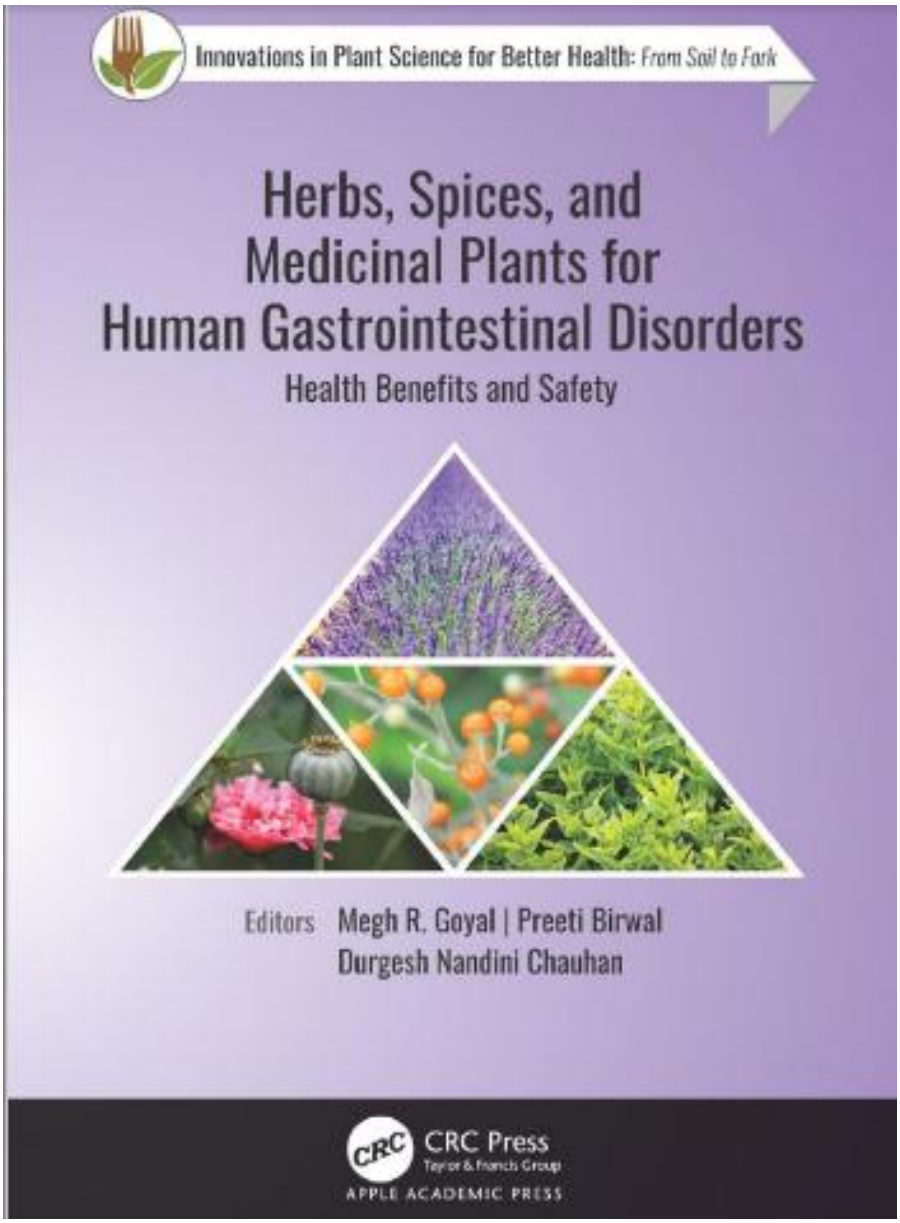
Telugu: *Pippallu*

Urdu: *Pippal*

Gujarati: *Pipli*

* **Corresponding author Bhushan P. Pimple:** Department of Pharmacognosy, P.E. Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune, Maharashtra, India; Tel: +919970830030; E-mail: bhushanppimple@rediffmail.com

Chapter 2 Therapeutic Activities of Nutmeg (Myristica fragrance)



Contents

CHAPTER 2

Therapeutic Activities of Nutmeg (*Myristica fragrans*)

BHUSHAN PRAKASH PIMPLE, AMRITA MILIND KULKARNI, and RUCHITA BALU BHOR

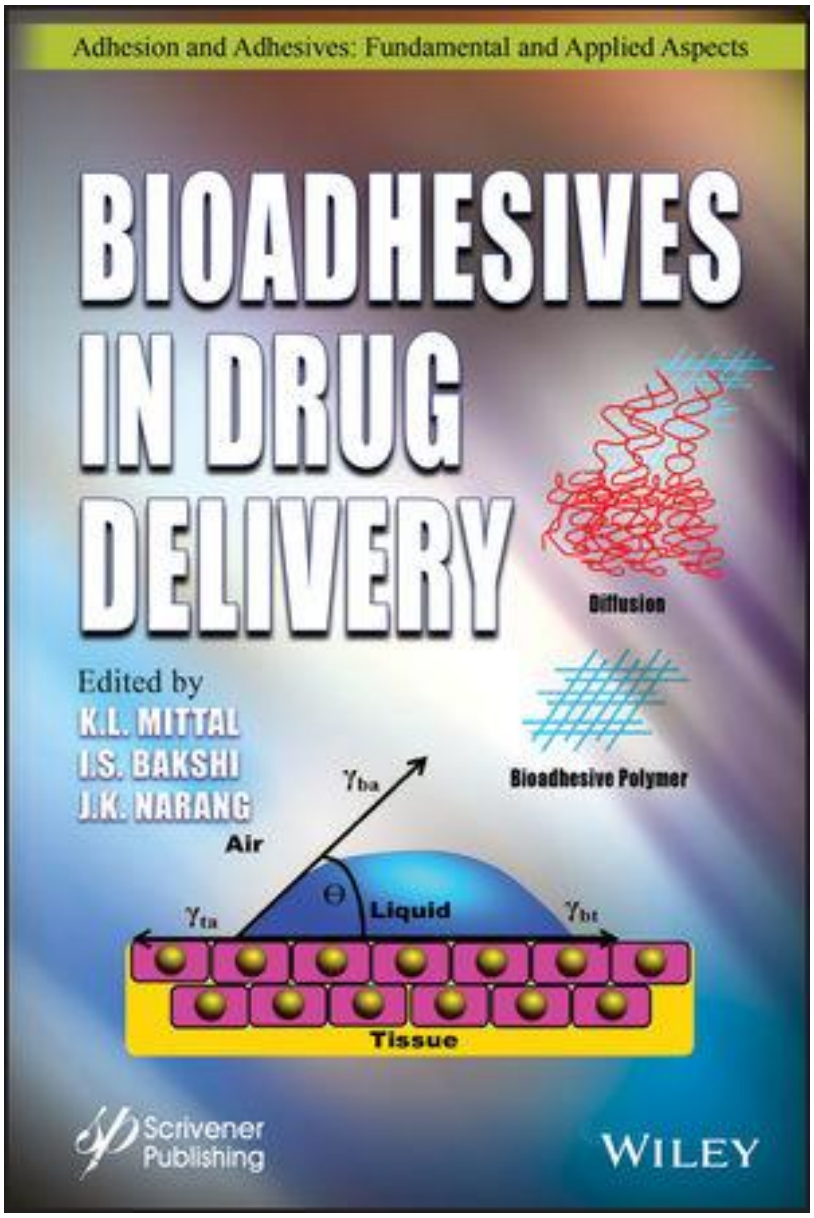
ABSTRACT

Main phytochemicals in nutmeg (*Myristica fragrans* Houtt) are: myristicin, trimyristin, myristic acid, alpha-pinene, beta-pinene, etc. In the traditional system of medicine, nutmeg is preferably used to treat insomnia, depression, intestinal worms, and oligospermia. etc. Nutmeg extract has been scientifically proven to exhibit antimicrobial activity in GI flora thereby suppressing the levels of tumorigenic uremic toxins. Furthermore, methanol extract of nutmeg is effective in *H. pylori*-induced gastritis and DSS-induced colitis. This chapter focuses on the traditional claims and therapeutic benefits related to GI disorder of *Myristica fragrans*.

2.1 INTRODUCTION

Myristica fragrans Houtt (nutmeg) is widely distributed in western India (i.e., Kerala and Konkan) and is also cultivated in Srilanka and Indonesia.[16] The plant reaches up to 15 m of height. The seeds have hard testa lined with thin papery mace.[15] Kernel and mace of the seed are rich in essential oils (Fig. 2.1). Both the mace and kernel are normally used in culinary preparation owing to their aromatic principles. Table 2.1 presents traditional claims of nutmeg in different countries. Phytoconstituents in *M. fragrans* are listed in Table 2.2.

Chapter 10 Nasal bioadhesive drug delivery system and their application



10

Nasal Bioadhesive Drug Delivery Systems and Their Applications

Ravindra V. Badhe[1]* and Sonali S. Nipate[2]

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[2]P. E. Societies' Modern College of Pharmacy, Nigdi, Pune, Maharashtra, India

Abstract

The major challenges faced by the formulation scientists for the oral delivery of low dose and bio-macromolecular medicaments are their high first-pass hepatic clearance and low absorption, respectively. These challenges lead to the development of many alternative drug delivery routes in addition to most common Injection route. The examples of major alternative drug delivery systems are Transdermal (microneedle, iontophoresis, patches, and sprays), Intraocular, Sublingual, Rectal suppositories, Vaginal, Pulmonary (powders and aerosols) and Intranasal (drops, sprays, solutions, gels and powders).

Intranasal drug delivery is a well-known drug delivery route and has been extensively explored for the delivery of low dose drugs like drugs acting on Central Nervous System (CNS), hormones, nicotine substitutes, etc. Intranasal route has very large mucosal surface area facilitating rapid absorption of drugs. It bypasses the first-pass hepatic clearance of the drugs and the administration of the formulation is done through easily accessible non-invasive route (nasal cavity). Thus, it can facilitate local, systemic and CNS drug delivery and holds the advantages like fast action, low dose of drug required, high patient compliance and it is self-administrable.

In this chapter, the advancement in intranasal drug delivery formulations is discussed with focus on the role of mucoadhesive materials in them.

Keywords: Intranasal drug delivery, mucoadhesive materials, fast acting drug delivery systems, bio-adhesive, CNS delivery, Blood Brain Barrier (BBB)

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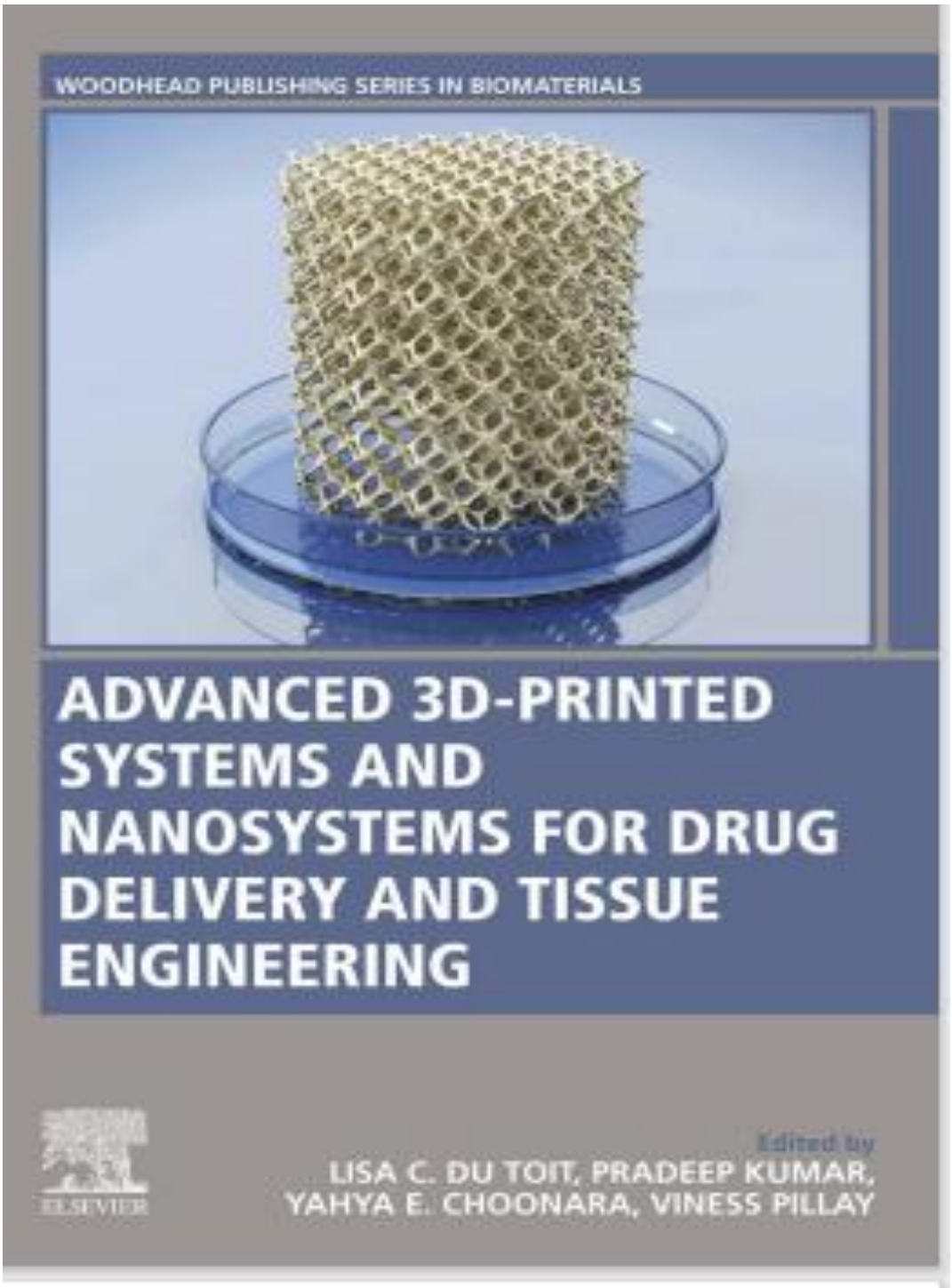
Chapter 5 Cellulosic material as bioinks for 3D printing applications



Cellulosic materials as bioinks for 3D printing applications

5

Ravindra V. Badhe [1], Sonali S. Nipate [2]
[1]Dr. D. Y. Patil Institute of Pharmaceutical Sciences and Research, Pimpri-Chinchwad, Maharashtra, India; [2]P. E. Societies' Modern College of Pharmacy, Pune, Maharashtra, India

1. Introduction

Regenerative medicine (RM) is a branch of biomedical engineering with research spanning from *in vitro* techniques like organoid development, functional tissue development, organ-on-chip to *in vivo* therapeutic techniques like skin printing, artificial pancreas, and bone fracture healing. It is based on three main pillars: biomaterial and 3D scaffold development, biochemical signals, and stem cell/differentiated cell interaction with scaffold [1,2]. Each pillar is very important to develop a successful regenerative therapy or technique. The biodegradable and biocompatible 3D scaffolds are generally developed from biopolymers. The important characteristics which need to be possessed by biopolymer for developing a 3D scaffold are, it should mimic extracellular matrix (ECM) by supporting (biocompatible) the seeded cells, biodegrading (*in vivo*/*in vitro*) in specific time without leaving harmful by-products and should have sufficient mechanical strengths [3–9].

The most convenient way to construct 3D scaffolds using various biomaterials is additive manufacturing (AM). AM is also known as 3D printing, and it is the most upcoming technology having versatile applications involving designing and production of 3D structures developed for motor vehicles, consumer products, medical, and aerospace. 3D printing technology is widely being used in motor vehicle and consumer product industries. The advantages of this technology, like affordability and freedom in designing of medical product, equipment, or tool, were noted by the researchers. This technology delivers the product of highest quality of safety, precision, and care; thus nowadays this technique is extensively studied for biomedical applications [10,11].

In medicine, AM is being explored for 3D printing of metallic, polymeric, ceramic-based prosthetics, implants, and formulations. Whereas in RM, it is used together with a 3D bioprinter or bioplotter for top-down and bottom-up approach of tissue regeneration. For both approaches specialized bioinks are used which are carefully developed using natural, composite (natural–natural, natural–synthetic or synthetic–synthetic cross-linked or non-cross-linked blends) or synthetic biopolymers. Bottom-up approach uses cell-laden bioinks to construct 3D architecture, whereas top-down approach uses biomaterials to construct 3D structure on which cells are seeded (Fig. 5.1).

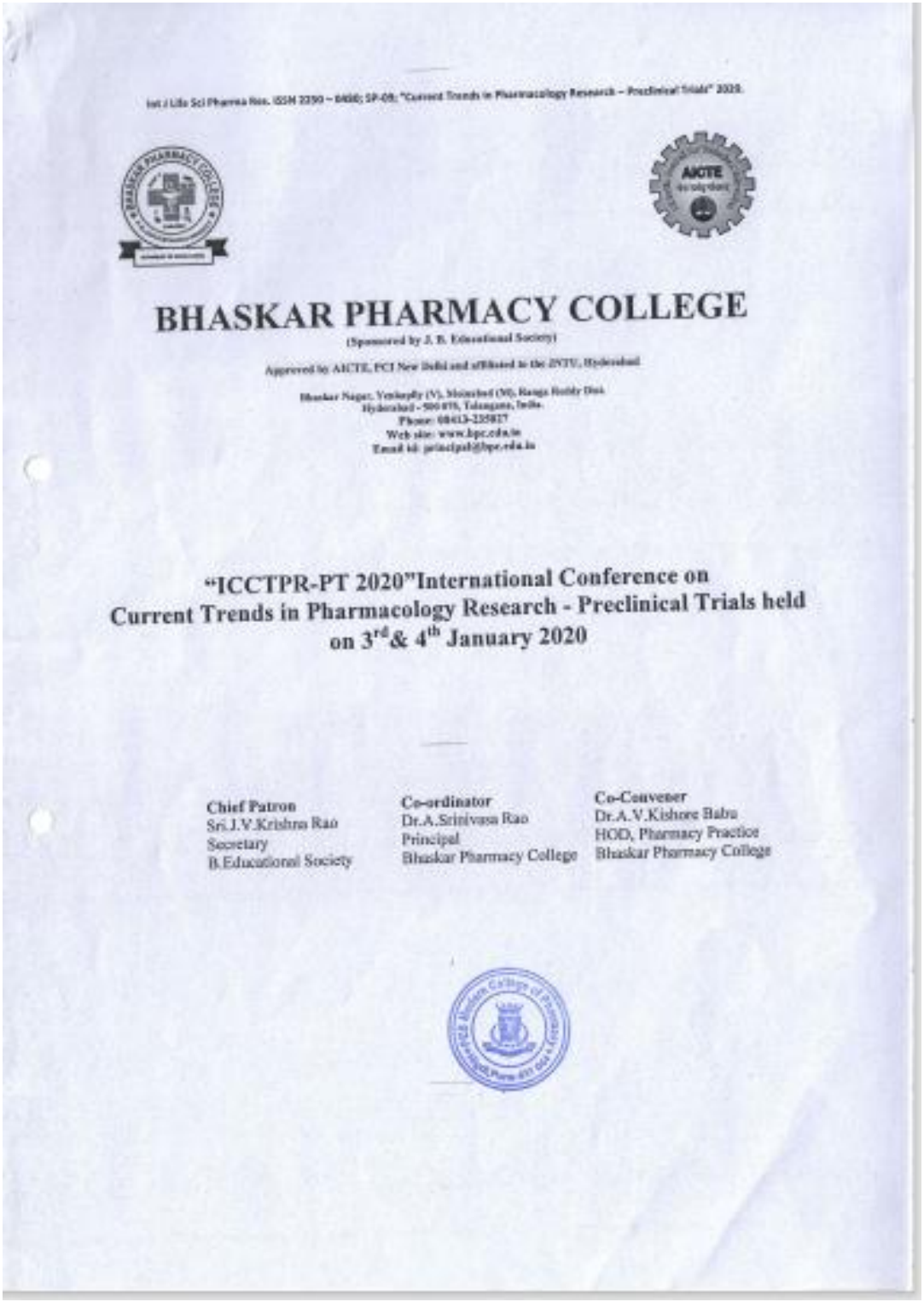
The casting of 3D scaffolds for RM can be done using techniques such as laser-assisted bioprinting, stereolithography, inkjet bioprinting, extrusion-based bioprinting,

Advanced 3D-Printed Systems and Nanosystems for Drug Delivery and Tissue Engineering

ACADEMIC YEAR 2019-20

INDEX

Nutritive Values Dermacosmetic Properties and Medicinal Properties of Spiruling



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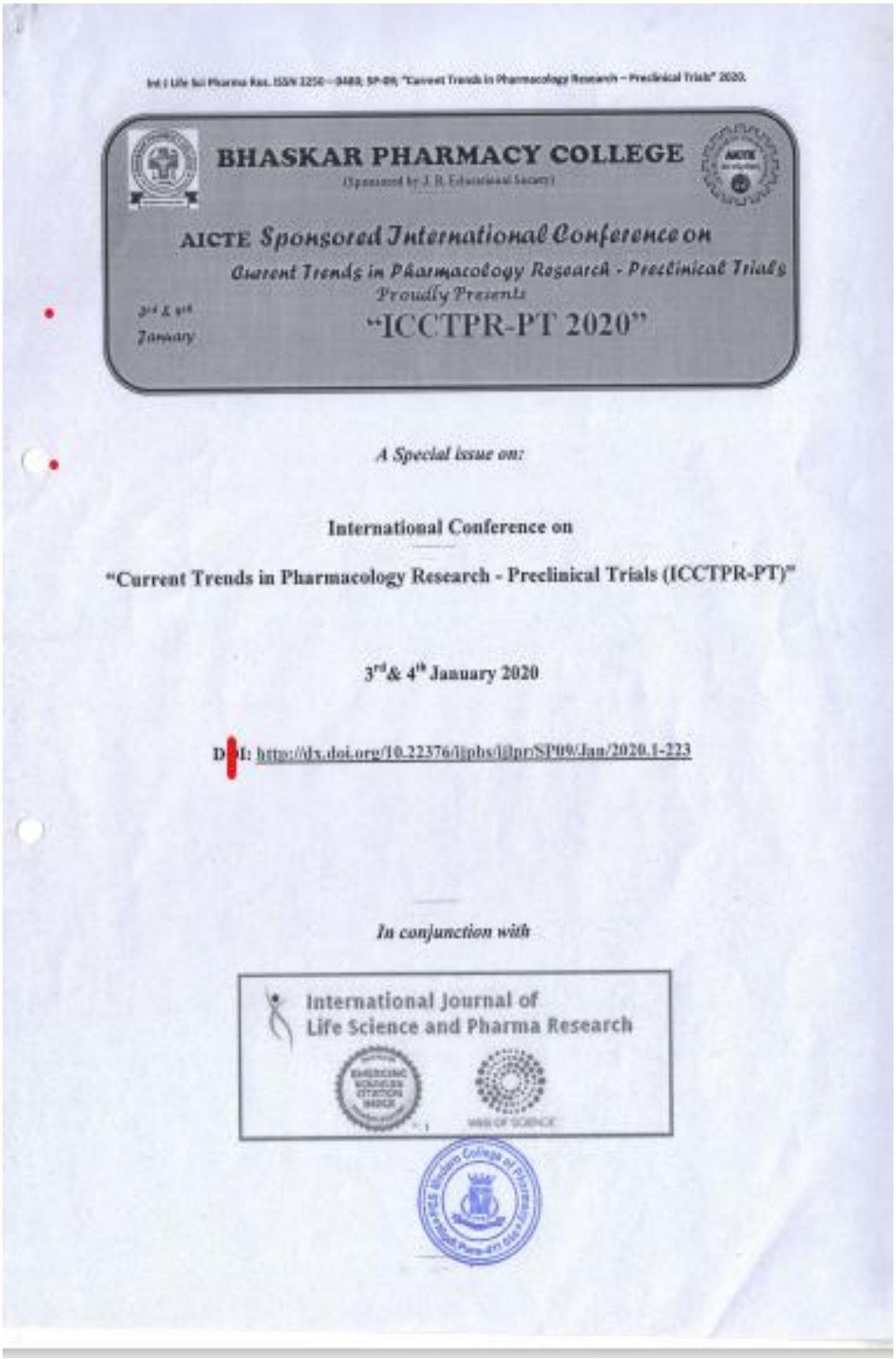

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SP-19

NUTRITIVE VALUES, DERMACOSMETIC PROPERTIES AND MEDICINAL PROPERTIES OF SPIRULINA

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ABSTRACT

Spirulina, blue green free-floating filamentous microalgae that grows in alkaline water bodies. From the past 400 years, *Spirulina* was consumed as food. *Spirulina* is a well-known source of valuable food supplements, such as proteins, vitamins, amino acids, minerals, fatty acids, etc.The antioxidant, anti-inflammatory, antidiabetic activities of *Spirulina* were demonstrated in a large number of preclinical studies. It boosts the immunity and increases resistance to various infections. Thus, these multi beneficiary actions of spirulina make it an important natural product for the improvement of health of humans. In this review article an efforts are made to compile all the nutritive values, dermacosmetic properties and medicinal properties of *Spirulina* to serve as an easy source of literature.keywords: Anti-inflammatory, antidiabetic, dermacosmetic

INTRODUCTION:

Spirulina the blue green algae belong to the two genera namely Spirulina and Arthrospira, which consists of 15 different species.[1] *Spirulina Platensis* is the most commonly available, it is filamentous, multicellular, blue-green microalgae.[2] Spirulina is found to be magnificent source of macro and micro nutrients as per the chemical analysis. It is rich in proteins, vitamins, essential amino acids, essential fatty acids and dietary minerals. These loaded nutrients make spirulina an excellent beneficial for health, also a potential immunomodulant, anticancer, antioxidant, antiviral and antibacterial. It has positive effects in malnutrition, hyperlipidaemia, obesity, diabetes, heavy metal and chemical induced toxicity, inflammation, anaemia and damage caused due to radiation.[3-6]

Morphology of Spirulina:

Spirulina and *Arthrospira*are non-heterocyst, unbranched filamentous, genera of order *Nostocles* and family Osillatoriaceae. On observation under microscope, presence of two filaments in a single unit and absence of cellular septation are major points that differentiate *Spirulina* from *Athrospira*.[7]*Spirulina Plantesisis* a photoautotrophic, alkaliphilic cyanobacterium and filamentous which belongs to Oscillatoriaceae and division Cyanophyta.[8]

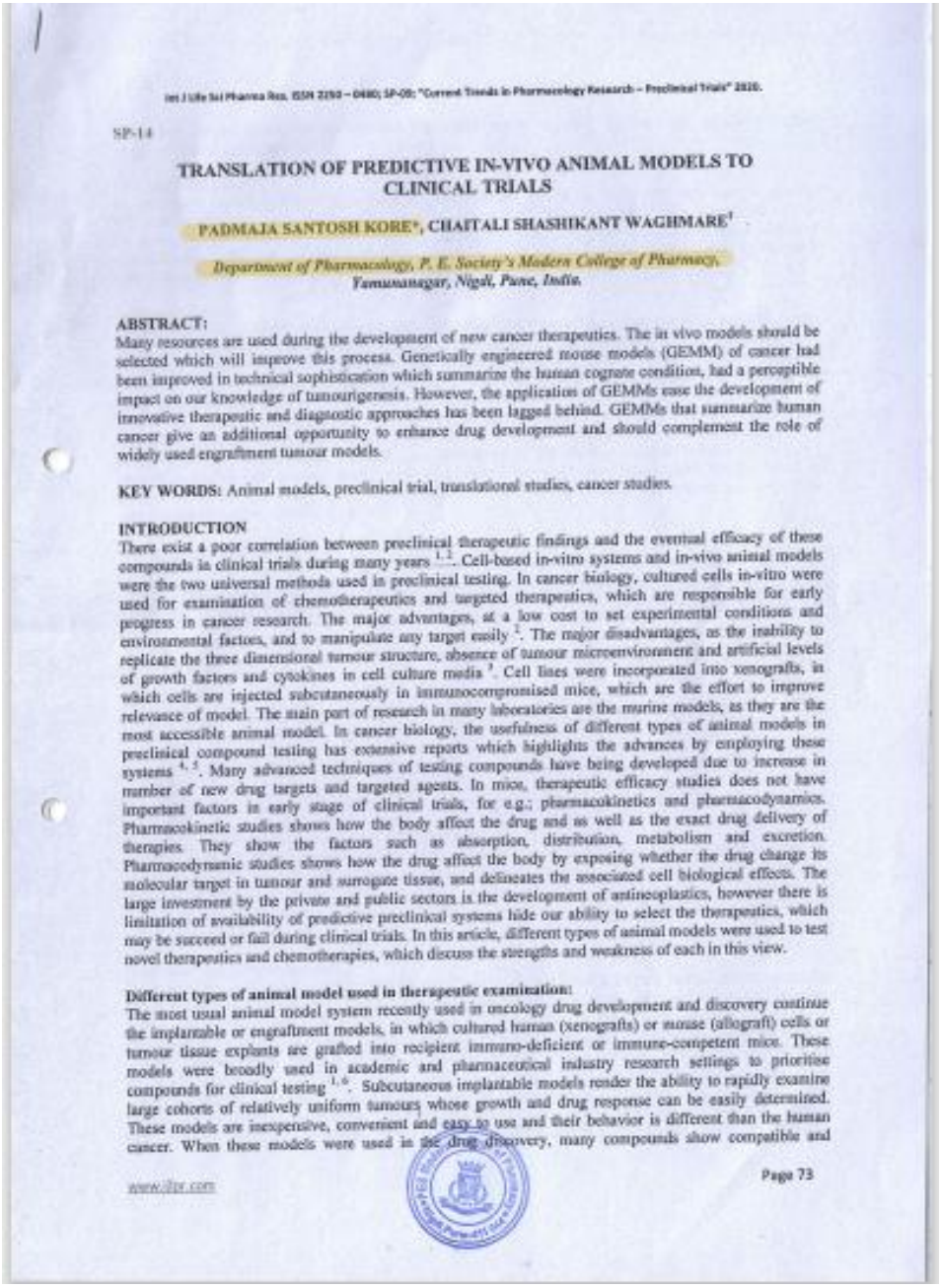
Chemical composition of Spirulina:

Spirulina is rich in carbohydrates, protein, lipids, vitamins, minerals, pigments, and enzymes; however, it has achieved a great value in food, pharmaceutical and cosmetic industries. Branched polysaccharide structurally similar to the glycogen forms the major polymeric component of *S. Platensis*[9]Anionic polysaccharide that is higher in molecular weight are been isolated from spirulina which have antiviral and immunomodulation activities.[10] Spirulina content 50 to 70% proteins, which is higher than meat, eggs, dried milk, grains and soybeans. It contains all the essential amino acids like leucine, valine and isoleucine.[3,11] Major protein in spirulina are phycobiliproteins, phycocyanin C and allophycocyanin. These proteins have significant health beneficial effects. 15 to 25% of dries weight of spirulina content phycocyanin. Phycocyanin is considered as the safe and natural food colorant used in chewing gums, confectionaries and dairy products.[12-15]The chromophore phycocyanobilin (PCB) present in spirulina is used as a supplement and is employed for various preventive and curative therapy in many diseases mediated by NADPH oxidase hyperactivity like cardiovascular diseases, diabetes, metabolic syndrome, allergic reaction, rheumatoid arthritis, cancer, Parkinson's and Alzheimer's diseases.[16]

Nutritive value of spirulina

Spirulina is one of the richest sources of proteins, it has five times greater protein content than meat. Spirulina compeises essential as well as non-essential amino acids, it contains highest amount of beta-

Translation of predictive in-vivo animal models to clinical trials



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SP-14

TRANSLATION OF PREDICTIVE IN-VIVO ANIMAL MODELS TO CLINICAL TRIALS

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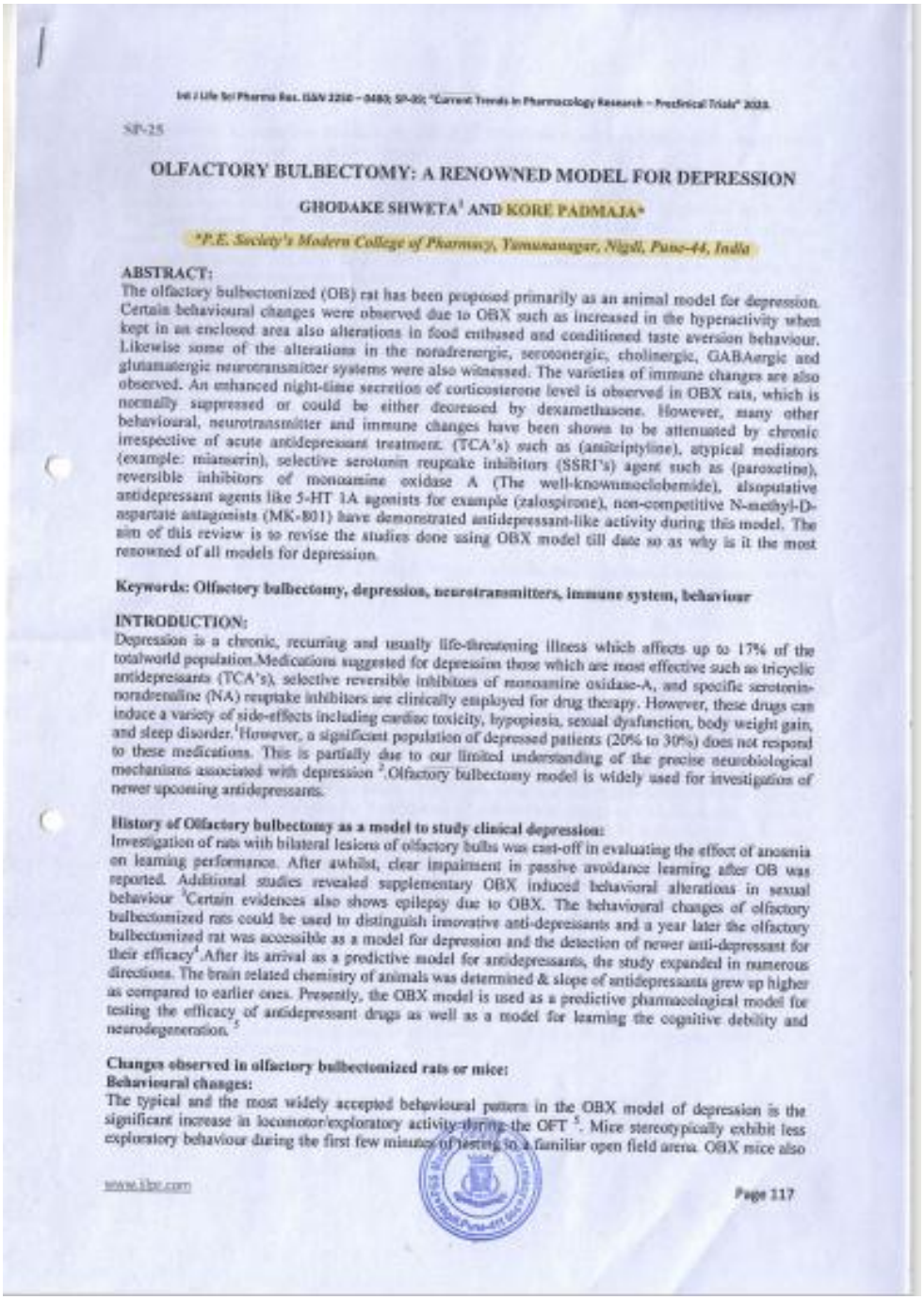
ABSTRACT:
Many resources are used during the development of new cancer therapeutics. The in vivo models should be selected which will improve this process. Genetically engineered mouse models (GEMM) of cancer had been improved in technical sophistication which summarize the human cognate condition, had a perceptible impact on our knowledge of tumourigenesis. However, the application of GEMMs ease the development of innovative therapeutic and diagnostic approaches has been lagged behind. GEMMs that summarize human cancer give an additional opportunity to enhance drug development and should complement the role of widely used engraftment tumour models.

KEY WORDS: Animal models, preclinical trial, translational studies, cancer studies.

INTRODUCTION
There exist a poor correlation between preclinical therapeutic findings and the eventual efficacy of these compounds in clinical trials during many years [1, 2]. Cell-based in-vitro systems and in-vivo animal models were the two universal methods used in preclinical testing. In cancer biology, cultured cells in-vitro were used for examination of chemotherapeutics and targeted therapeutics, which are responsible for early progress in cancer research. The major advantages, at a low cost to set experimental conditions and environmental factors, and to manipulate any target easily [3]. The major disadvantages, as the inability to replicate the three dimensional tumour structure, absence of tumour microenvironment and artificial levels of growth factors and cytokines in cell culture media [3]. Cell lines were incorporated into xenografts, in which cells are injected subcutaneously in immunocompromised mice, which are the effort to improve relevance of model. The main part of research in many laboratories are the murine models, as they are the most accessible animal model. In cancer biology, the usefulness of different types of animal models in preclinical compound testing has extensive reports which highlights the advances by employing these systems [4, 5]. Many advanced techniques of testing compounds have being developed due to increase in number of new drug targets and targeted agents. In mice, therapeutic efficacy studies does not have important factors in early stage of clinical trials, for e.g.; pharmacokinetics and pharmacodynamics. Pharmacokinetic studies shows how the body affect the drug and as well as the exact drug delivery of therapies. They show the factors such as absorption, distribution, metabolism and excretion. Pharmacodynamic studies shows how the drug affect the body by exposing whether the drug change its molecular target in tumour and surrogate tissue, and delineates the associated cell biological effects. The large investment by the private and public sectors is the development of antineoplastics, however there is limitation of availability of predictive preclinical systems hide our ability to select the therapeutics, which may be succeed or fail during clinical trials. In this article, different types of animal models were used to test novel therapeutics and chemotherapies, which discuss the strengths and weakness of each in this view.

Different types of animal model used in therapeutic examination:
The most usual animal model system recently used in oncology drug development and discovery continue the implantable or engraftment models, in which cultured human (xenografts) or mouse (allograft) cells or tumour tissue explants are grafted into recipient immuno-deficient or immune-competent mice. These models were broadly used in academic and pharmaceutical industry research settings to prioritise compounds for clinical testing [1, 6]. Subcutaneous implantable models render the ability to rapidly examine large cohorts of relatively uniform tumours whose growth and drug response can be easily determined. These models are inexpensive, convenient and easy to use and their behavior is different than the human cancer. When these models were used in the drug discovery, many compounds show compatible and

Olfactory Bulbectomy: A renowned model for depression



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SP-25

OLFACTORY BULBECTOMY: A RENOWNED MODEL FOR DEPRESSION

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ABSTRACT:
The olfactory bulbectomized (OB) rat has been proposed primarily as an animal model for depression. Certain behavioural changes were observed due to OBX such as increased in the hyperactivity when kept in an enclosed area also alterations in food enhused and conditioned taste aversion behaviour. Likewise some of the alterations in the noradrenergic, serotonergic, cholinergic, GABAergic and glutamatergic neurotransmitter systems were also witnessed. The varieties of immune changes are also observed. An enhanced night-time secretion of corticosterone level is observed in OBX rats, which is normally suppressed or could be either decreased by dexamethasone. However, many other behavioural, neurotransmitter and immune changes have been shown to be attenuated by chronic irrespective of acute antidepressant treatment. (TCA's) such as (amitriptyline), atypical mediators (example: mianserin), selective serotonin reuptake inhibitors (SSRI's) agent such as (paroxetine), reversible inhibitors of monoamine oxidase A (The well-knownmoclobemide), alsoputative antidepressant agents like 5-HT 1A agonists for example (zalospirone), non-competitive N-methyl-D-aspartate antagonists (MK-801) have demonstrated antidepressant-like activity during this model. The aim of this review is to revise the studies done using OBX model till date so as why is it the most renowned of all models for depression.

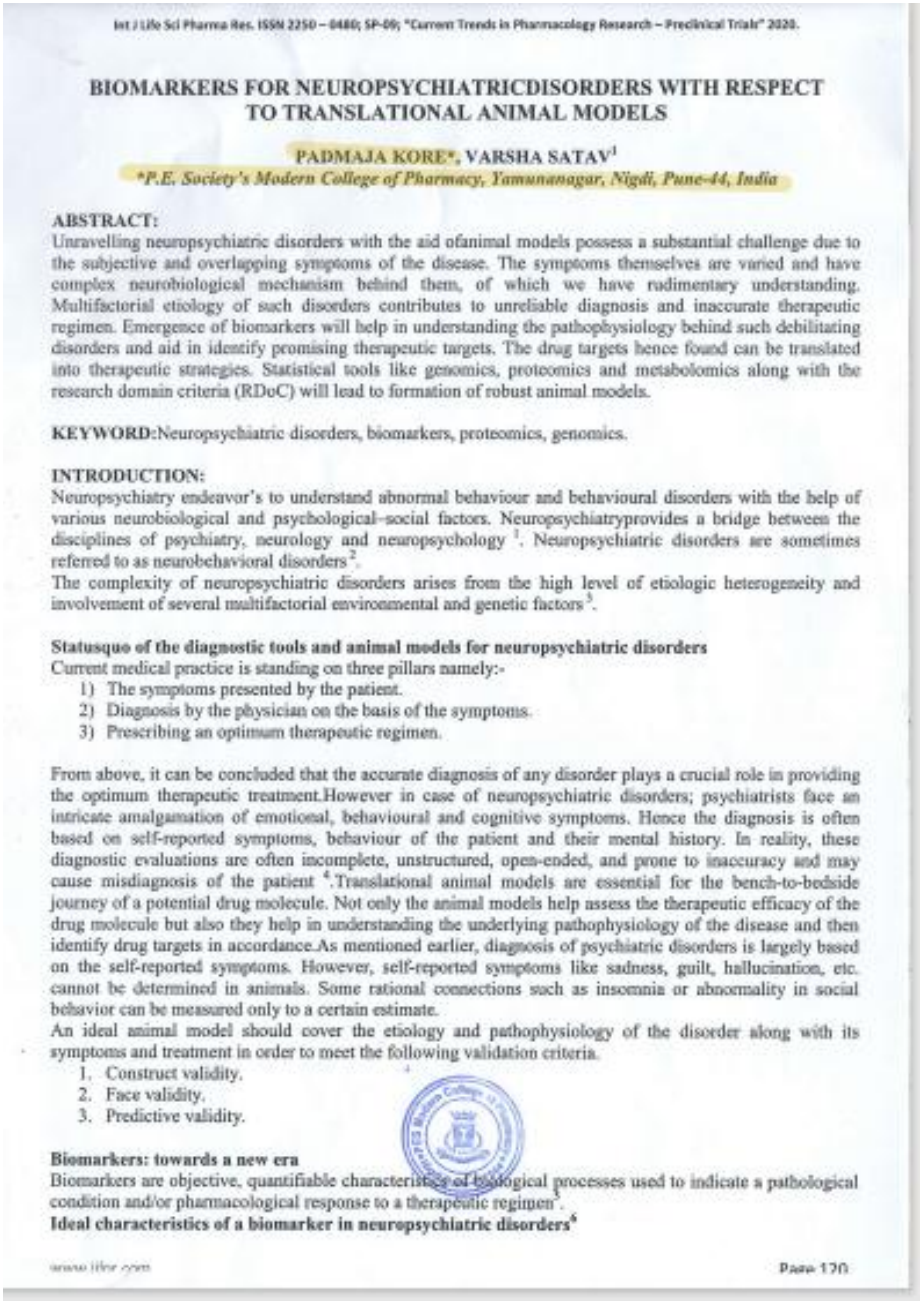
Keywords: Olfactory bulbectomy, depression, neurotransmitters, immune system, behaviour

INTRODUCTION:
Depression is a chronic, recurring and usually life-threatening illness which affects up to 17% of the totalworld population.Medications suggested for depression those which are most effective such as tricyclic antidepressants (TCA's), selective reversible inhibitors of monoamine oxidase-A, and specific serotonin-noradrenaline (NA) reuptake inhibitors are clinically employed for drug therapy. However, these drugs can induce a variety of side-effects including cardiac toxicity, hypopiesia, sexual dysfunction, body weight gain, and sleep disorder.[1]However, a significant population of depressed patients (20% to 30%) does not respond to these medications. This is partially due to our limited understanding of the precise neurobiological mechanisms associated with depression [2].Olfactory bulbectomy model is widely used for investigation of newer upcoming antidepressants.

History of Olfactory bulbectomy as a model to study clinical depression:
Investigation of rats with bilateral lesions of olfactory bulbs was cast-off in evaluating the effect of anosmia on learning performance. After awhilst, clear impairment in passive avoidance learning after OB was reported. Additional studies revealed supplementary OBX induced behavioral alterations in sexual behaviour [3]Certain evidences also shows epilepsy due to OBX. The behavioural changes of olfactory bulbectomized rats could be used to distinguish innovative anti-depressants and a year later the olfactory bulbectomized rat was accessible as a model for depression and the detection of newer anti-depressant for their efficacy[4].After its arrival as a predictive model for antidepressants, the study expanded in numerous directions. The brain related chemistry of animals was determined & slope of antidepressants grew up higher as compared to earlier ones. Presently, the OBX model is used as a predictive pharmacological model for testing the efficacy of antidepressant drugs as well as a model for learning the cognitive debility and neurodegeneration. [5]

Changes observed in olfactory bulbectomized rats or mice:
Behavioural changes:
The typical and the most widely accepted behavioural pattern in the OBX model of depression is the significant increase in locomotor/exploratory activity during the OFT [5]. Mice stereotypically exhibit less exploratory behaviour during the first few minutes of testing to a familiar open field arena. OBX mice also

Biomarkers for neuropsychiatric disorder with respect to traditional animal house



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BIOMARKERS FOR NEUROPSYCHIATRICDISORDERS WITH RESPECT TO TRANSLATIONAL ANIMAL MODELS

PADMAJA KORE*, VARSHA SATAV[1]
*P.E. Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune-44, India

ABSTRACT:
Unravelling neuropsychiatric disorders with the aid ofanimal models possess a substantial challenge due to the subjective and overlapping symptoms of the disease. The symptoms themselves are varied and have complex neurobiological mechanism behind them, of which we have rudimentary understanding. Multifactorial etiology of such disorders contributes to unreliable diagnosis and inaccurate therapeutic regimen. Emergence of biomarkers will help in understanding the pathophysiology behind such debilitating disorders and aid in identify promising therapeutic targets. The drug targets hence found can be translated into therapeutic strategies. Statistical tools like genomics, proteomics and metabolomics along with the research domain criteria (RDoC) will lead to formation of robust animal models.

KEYWORD: Neuropsychiatric disorders, biomarkers, proteomics, genomics.

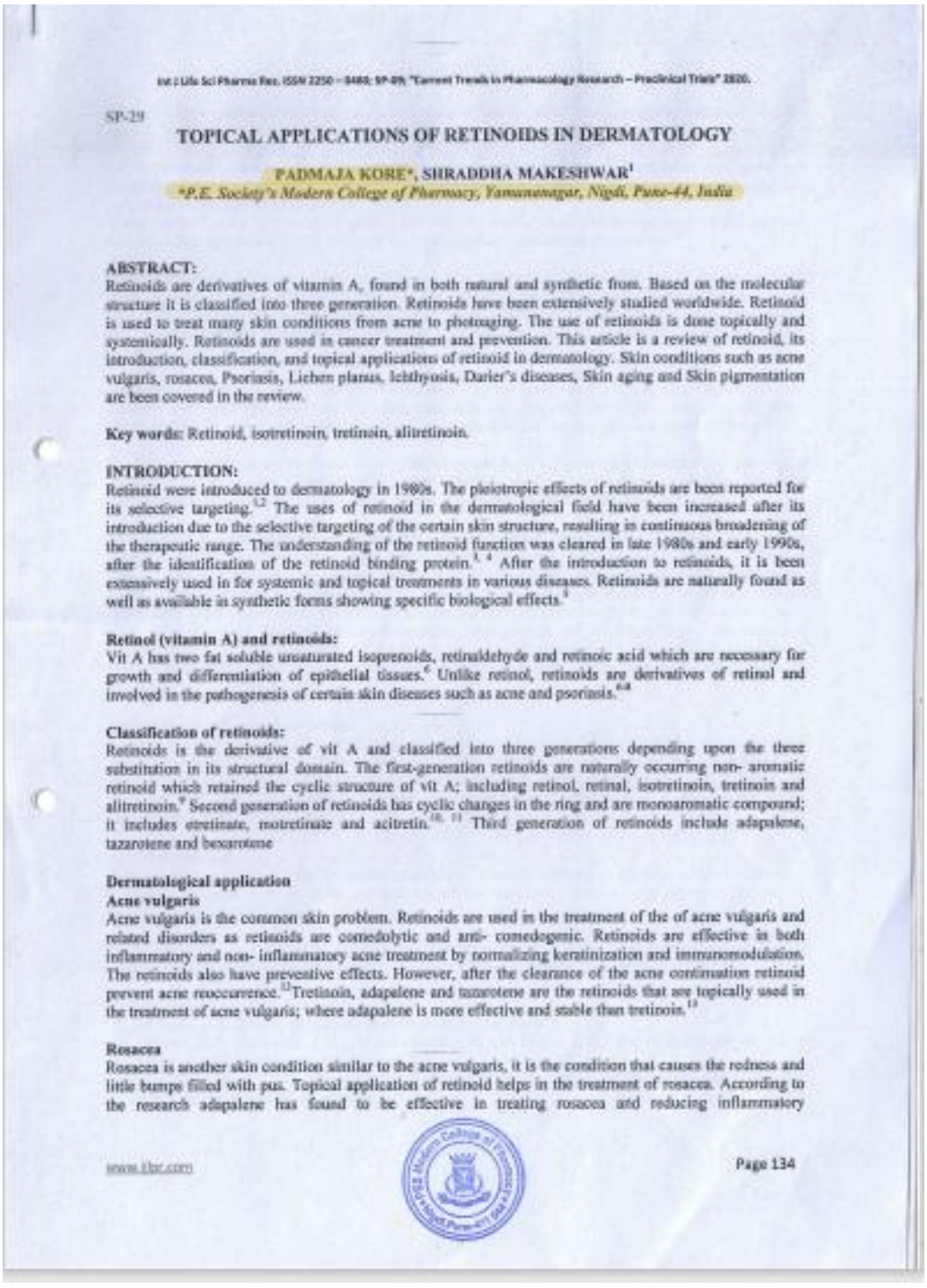
INTRODUCTION:
Neuropsychiatry endeavor's to understand abnormal behaviour and behavioural disorders with the help of various neurobiological and psychological–social factors. Neuropsychiatryprovides a bridge between the disciplines of psychiatry, neurology and neuropsychology [1]. Neuropsychiatric disorders are sometimes referred to as neurobehavioral disorders[2].
The complexity of neuropsychiatric disorders arises from the high level of etiologic heterogeneity and involvement of several multifactorial environmental and genetic factors[3].

Statusquo of the diagnostic tools and animal models for neuropsychiatric disorders
Current medical practice is standing on three pillars namely:-
1) The symptoms presented by the patient.
2) Diagnosis by the physician on the basis of the symptoms.
3) Prescribing an optimum therapeutic regimen.

From above, it can be concluded that the accurate diagnosis of any disorder plays a crucial role in providing the optimum therapeutic treatment.However in case of neuropsychiatric disorders; psychiatrists face an intricate amalgamation of emotional, behavioural and cognitive symptoms. Hence the diagnosis is often based on self-reported symptoms, behaviour of the patient and their mental history. In reality, these diagnostic evaluations are often incomplete, unstructured, open-ended, and prone to inaccuracy and may cause misdiagnosis of the patient [4].Translational animal models are essential for the bench-to-bedside journey of a potential drug molecule. Not only the animal models help assess the therapeutic efficacy of the drug molecule but also they help in understanding the underlying pathophysiology of the disease and then identify drug targets in accordance.As mentioned earlier, diagnosis of psychiatric disorders is largely based on the self-reported symptoms. However, self-reported symptoms like sadness, guilt, hallucination, etc. cannot be determined in animals. Some rational connections such as insomnia or abnormality in social behavior can be measured only to a certain estimate.
An ideal animal model should cover the etiology and pathophysiology of the disorder along with its symptoms and treatment in order to meet the following validation criteria.
1. Construct validity.
2. Face validity.
3. Predictive validity.

Biomarkers: towards a new era
Biomarkers are objective, quantifiable characteristics of biological processes used to indicate a pathological condition and/or pharmacological response to a therapeutic regimen[5].
Ideal characteristics of a biomarker in neuropsychiatric disorders[6]

Topical applications of retinoid in dermatology



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SP-29

TOPICAL APPLICATIONS OF RETINOIDS IN DERMATOLOGY

PADMAJA KORE*, SHRADDHA MAKESHWAR[1]
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ABSTRACT:
Retinoids are derivatives of vitamin A, found in both natural and synthetic from. Based on the molecular structure it is classified into three generation. Retinoids have been extensively studied worldwide. Retinoid is used to treat many skin conditions from acne to photoaging. The use of retinoids is done topically and systemically. Retinoids are used in cancer treatment and prevention. This article is a review of retinoid, its introduction, classification, and topical applications of retinoid in dermatology. Skin conditions such as acne vulgaris, rosacea, Psoriasis, Lichen planus, Ichthyosis, Darier's diseases, Skin aging and Skin pigmentation are been covered in the review.

Key words: Retinoid, isotretinoin, tretinoin, alitretinoin.

INTRODUCTION:
Retinoid were introduced to dermatology in 1980s. The pleiotropic effects of retinoids are been reported for its selective targeting.[1,2] The uses of retinoid in the dermatological field have been increased after its introduction due to the selective targeting of the certain skin structure, resulting in continuous broadening of the therapeutic range. The understanding of the retinoid function was cleared in late 1980s and early 1990s, after the identification of the retinoid binding protein.[3, 4] After the introduction to retinoids, it is been extensively used in for systemic and topical treatments in various diseases. Retinoids are naturally found as well as available in synthetic forms showing specific biological effects.[5]

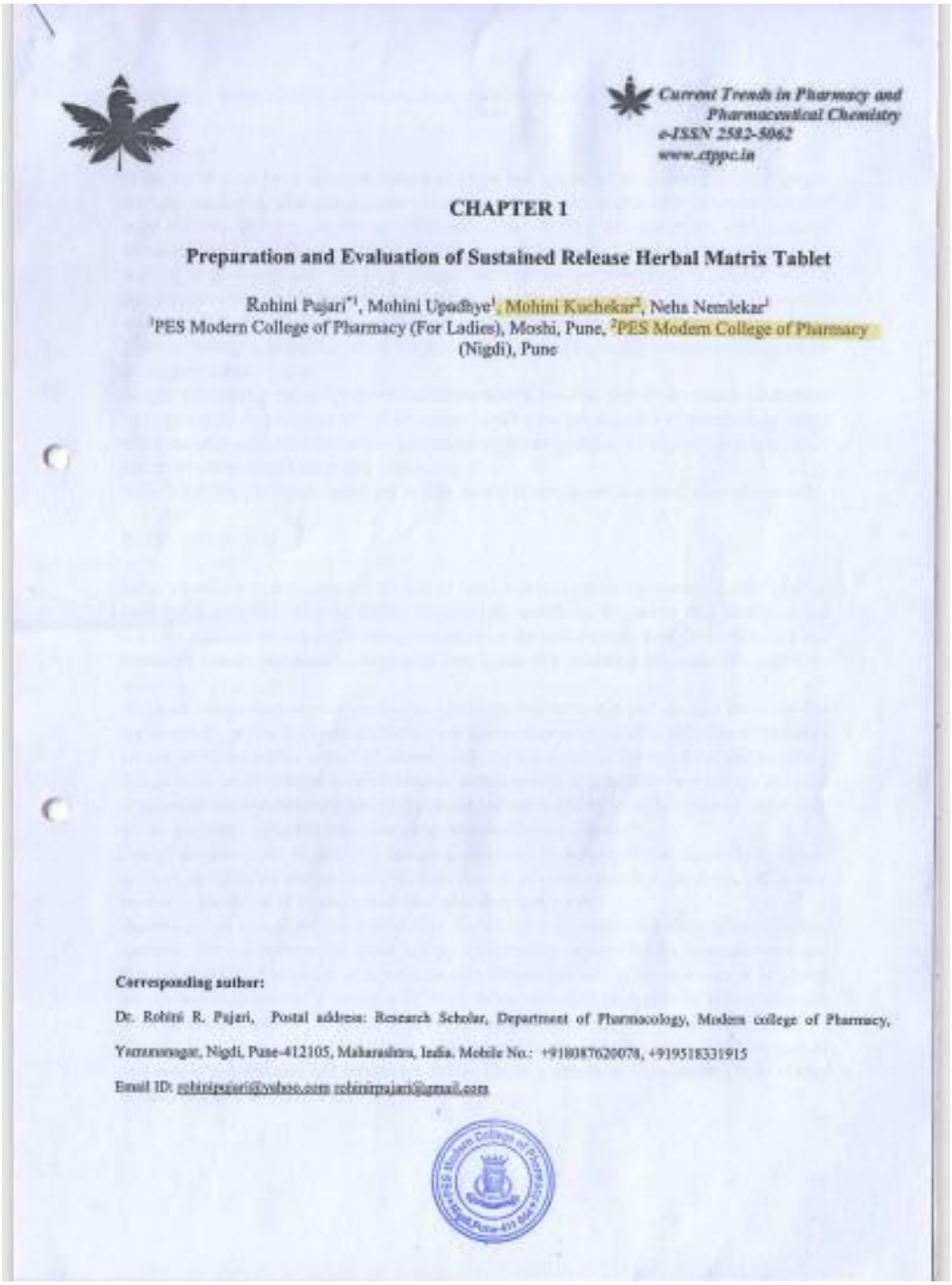
Retinol (vitamin A) and retinoids:
Vit A has two fat soluble unsaturated isoprenoids, retinaldehyde and retinoic acid which are necessary for growth and differentiation of epithelial tissues.[6] Unlike retinol, retinoids are derivatives of retinol and involved in the pathogenesis of certain skin diseases such as acne and psoriasis.[6,8]

Classification of retinoids:
Retinoids is the derivative of vit A and classified into three generations depending upon the three substitution in its structural domain. The first-generation retinoids are naturally occurring non- aromatic retinoid which retained the cyclic structure of vit A; including retinol, retinal, isotretinoin, tretinoin and alitretinoin.[9] Second generation of retinoids has cyclic changes in the ring and are monoaromatic compound; it includes etretinate, motretinate and acitretin.[10, 11] Third generation of retinoids include adapalene, tazarotene and bexarotene

Dermatological application
Acne vulgaris
Acne vulgaris is the common skin problem. Retinoids are used in the treatment of the of acne vulgaris and related disorders as retinoids are comedolytic and anti- comedogenic. Retinoids are effective in both inflammatory and non- inflammatory acne treatment by normalizing keratinization and immunomodulation. The retinoids also have preventive effects. However, after the clearance of the acne continuation retinoid prevent acne reoccurrence.[12]Tretinoin, adapalene and tazarotene are the retinoids that are topically used in the treatment of acne vulgaris; where adapalene is more effective and stable than tretinoin.[13]

Rosacea
Rosacea is another skin condition similar to the acne vulgaris, it is the condition that causes the redness and little bumps filled with pus. Topical application of retinoid helps in the treatment of rosacea. According to the research adapalene has found to be effective in treating rosacea and reducing inflammatory

Preparation and evaluation of sustained-release herbal matrix tablet



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CHAPTER 1

Preparation and Evaluation of Sustained Release Herbal Matrix Tablet

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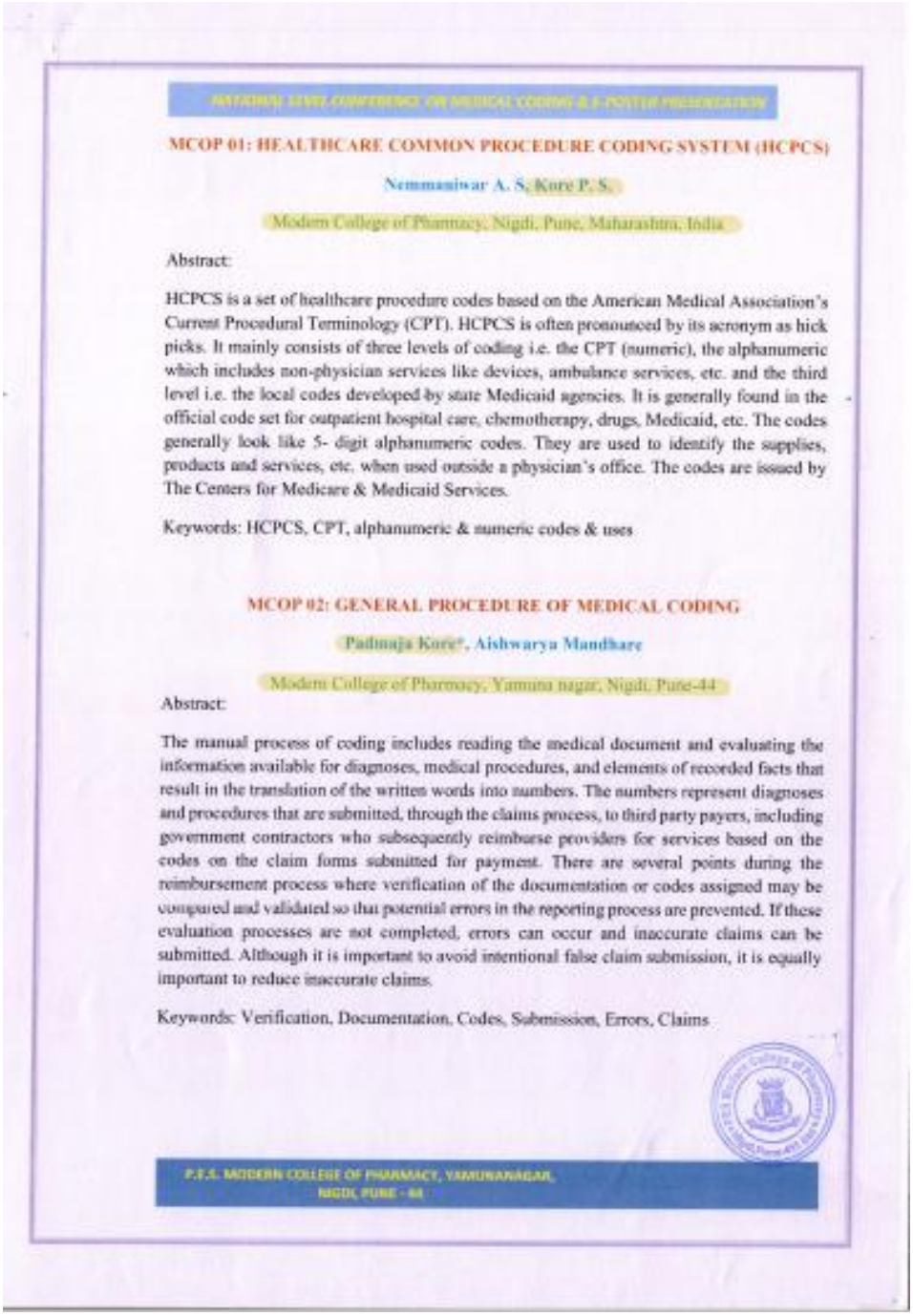
Email ID: rohinipujari@yahoo.com rohinipujari@gmail.com

Healthcare common procedure coding system (HCPCS)



NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 01: HEALTHCARE COMMON PROCEDURE CODING SYSTEM (HCPCS)

Nemmaniwar A. S., Kore P. S.,

Modern College of Pharmacy, Nigdi, Pune, Maharashtra, India

Abstract:

HCPCS is a set of healthcare procedure codes based on the American Medical Association's Current Procedural Terminology (CPT). HCPCS is often pronounced by its acronym as hick picks. It mainly consists of three levels of coding i.e. the CPT (numeric), the alphanumeric which includes non-physician services like devices, ambulance services, etc. and the third level i.e. the local codes developed by state Medicaid agencies. It is generally found in the official code set for outpatient hospital care, chemotherapy, drugs, Medicaid, etc. The codes generally look like 5- digit alphanumeric codes. They are used to identify the supplies, products and services, etc. when used outside a physician's office. The codes are issued by The Centers for Medicare & Medicaid Services.

Keywords: HCPCS, CPT, alphanumeric & numeric codes & uses

MCOP 02: GENERAL PROCEDURE OF MEDICAL CODING

Padmaja Kore*, Aishwarya Mandhare

Modern College of Pharmacy, Yamuna nagar, Nigdi, Pune-44

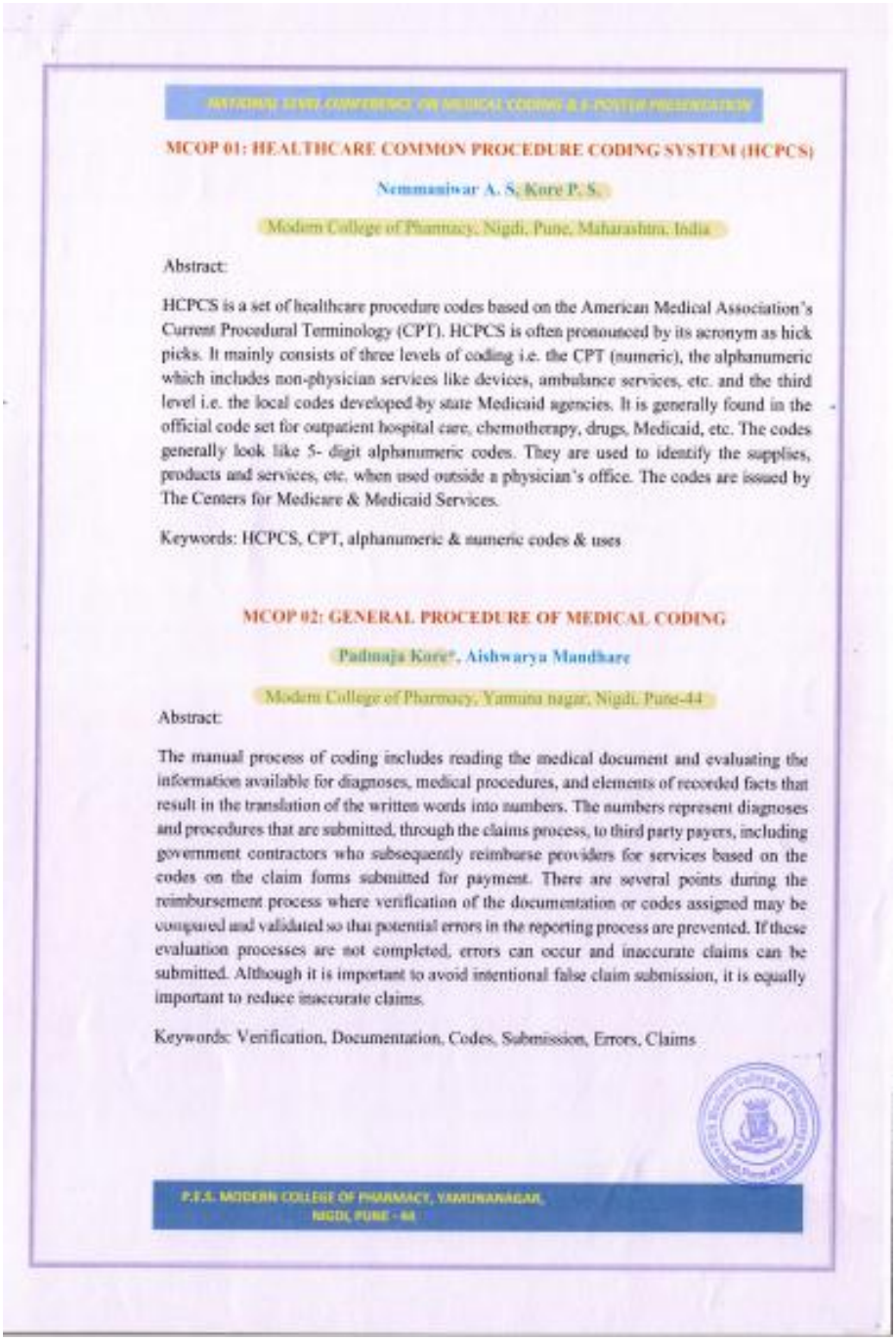
Abstract:

The manual process of coding includes reading the medical document and evaluating the information available for diagnoses, medical procedures, and elements of recorded facts that result in the translation of the written words into numbers. The numbers represent diagnoses and procedures that are submitted, through the claims process, to third party payers, including government contractors who subsequently reimburse providers for services based on the codes on the claim forms submitted for payment. There are several points during the reimbursement process where verification of the documentation or codes assigned may be compared and validated so that potential errors in the reporting process are prevented. If these evaluation processes are not completed, errors can occur and inaccurate claims can be submitted. Although it is important to avoid intentional false claim submission, it is equally important to reduce inaccurate claims.

Keywords: Verification, Documentation, Codes, Submission, Errors, Claims

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR,
NIGDI, PUNE - 44

General procedure of medical coding



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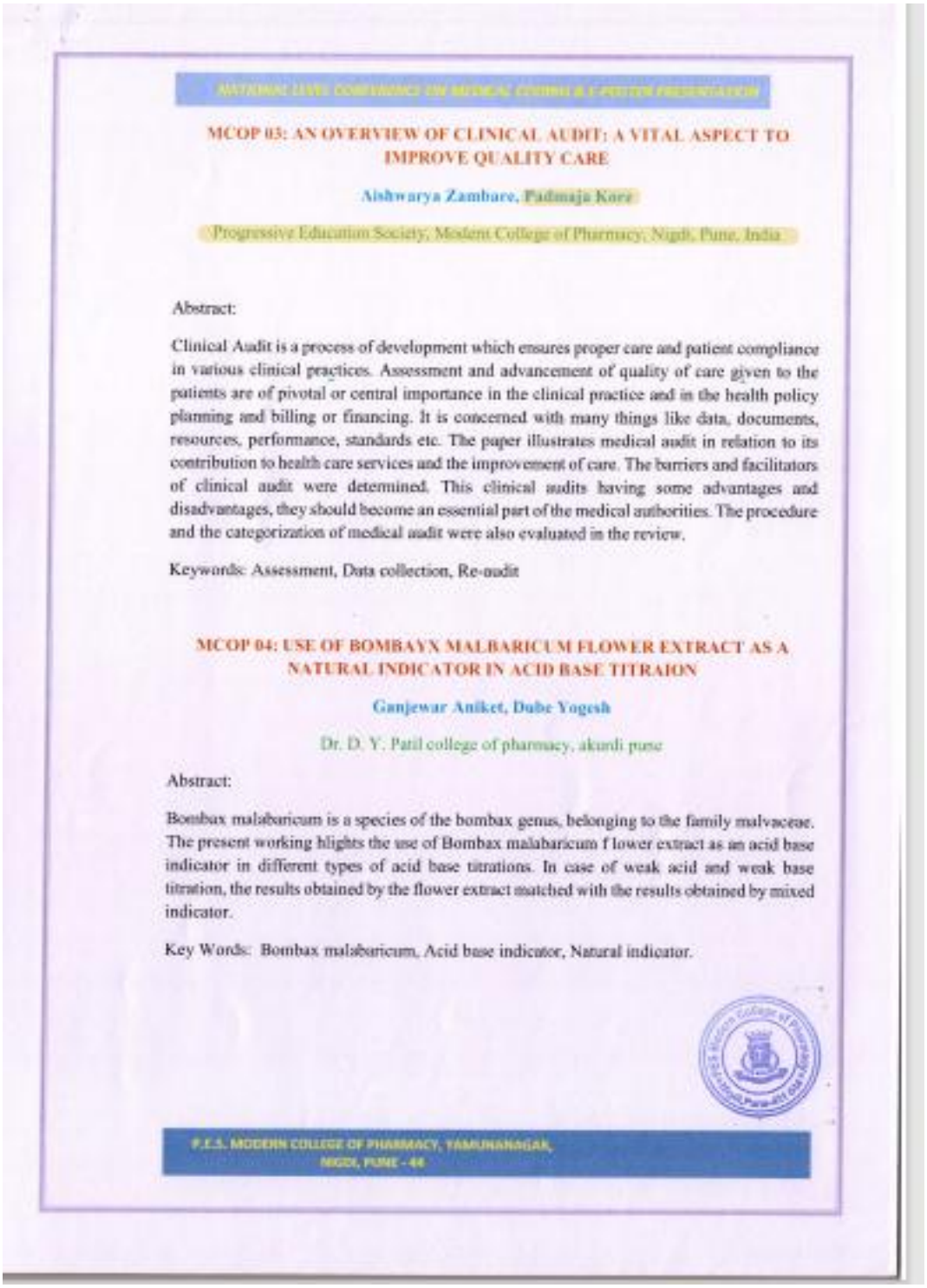
P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

An overview of clinical audit: a vital aspect to improve quality care



MCOP 03: AN OVERVIEW OF CLINICAL AUDIT: A VITAL ASPECT TO IMPROVE QUALITY CARE

Aishwarya Zambare, Padmaja Kore

Progressive Education Society, Modern College of Pharmacy, Nigdi, Pune, India

Abstract:

Clinical Audit is a process of development which ensures proper care and patient compliance in various clinical practices. Assessment and advancement of quality of care given to the patients are of pivotal or central importance in the clinical practice and in the health policy planning and billing or financing. It is concerned with many things like data, documents, resources, performance, standards etc. The paper illustrates medical audit in relation to its contribution to health care services and the improvement of care. The barriers and facilitators of clinical audit were determined. This clinical audits having some advantages and disadvantages, they should become an essential part of the medical authorities. The procedure and the categorization of medical audit were also evaluated in the review.

Keywords: Assessment, Data collection, Re-audit

MCOP 04: USE OF BOMBAYX MALBARICUM FLOWER EXTRACT AS A NATURAL INDICATOR IN ACID BASE TITRAION

Ganjewar Aniket, Dube Yogesh

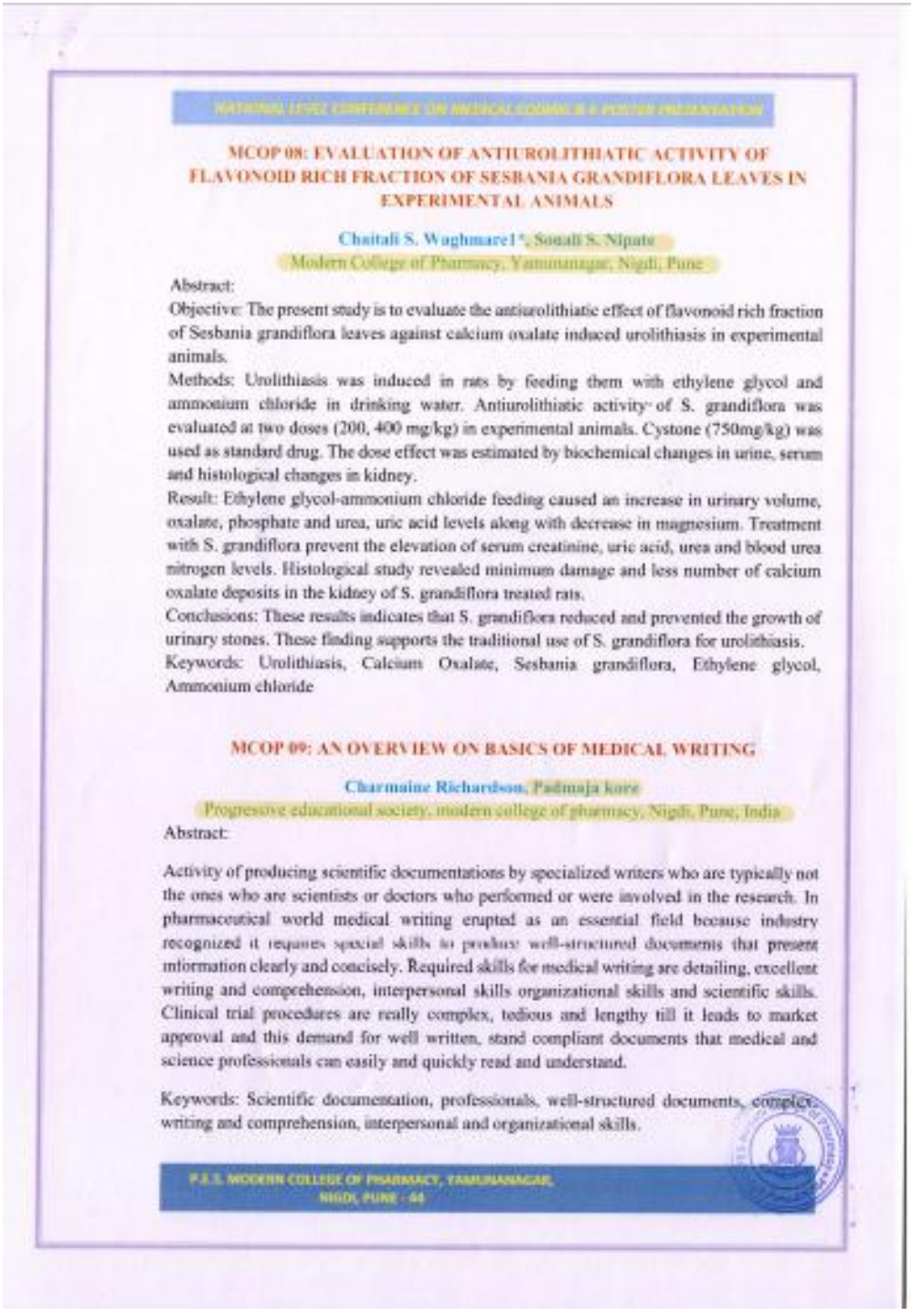
Dr. D. Y. Patil college of pharmacy, akurdi pune

Abstract:

Bombax malabaricum is a species of the bombax genus, belonging to the family malvaceae. The present working hlights the use of Bombax malabaricum f lower extract as an acid base indicator in different types of acid base titrations. In case of weak acid and weak base titration, the results obtained by the flower extract matched with the results obtained by mixed indicator.

Key Words: Bombax malabaricum, Acid base indicator, Natural indicator.

Evaluation of antiurolithiatic activity of flavonoid rich fraction of sesbania grandiflora leaves in experimental animals



MCOP 08: EVALUATION OF ANTIUROLITHIATIC ACTIVITY OF FLAVONOID RICH FRACTION OF SESBANIA GRANDIFLORA LEAVES IN EXPERIMENTAL ANIMALS

Chaitali S. Waghmare1*, Sonali S. Nipate
Modern College of Pharmacy, Yamunanagar, Nigdi, Pune

Abstract:
Objective: The present study is to evaluate the antiurolithiatic effect of flavonoid rich fraction of Sesbania grandiflora leaves against calcium oxalate induced urolithiasis in experimental animals.
Methods: Urolithiasis was induced in rats by feeding them with ethylene glycol and ammonium chloride in drinking water. Antiurolithiatic activity of S. grandiflora was evaluated at two doses (200, 400 mg/kg) in experimental animals. Cystone (750mg/kg) was used as standard drug. The dose effect was estimated by biochemical changes in urine, serum and histological changes in kidney.
Result: Ethylene glycol-ammonium chloride feeding caused an increase in urinary volume, oxalate, phosphate and urea, uric acid levels along with decrease in magnesium. Treatment with S. grandiflora prevent the elevation of serum creatinine, uric acid, urea and blood urea nitrogen levels. Histological study revealed minimum damage and less number of calcium oxalate deposits in the kidney of S. grandiflora treated rats.
Conclusions: These results indicates that S. grandiflora reduced and prevented the growth of urinary stones. These finding supports the traditional use of S. grandiflora for urolithiasis.
Keywords: Urolithiasis, Calcium Oxalate, Sesbania grandiflora, Ethylene glycol, Ammonium chloride

MCOP 09: AN OVERVIEW ON BASICS OF MEDICAL WRITING

Charmaine Richardson, Padmaja kore
Progressive educational society, modern college of pharmacy, Nigdi, Pune, India

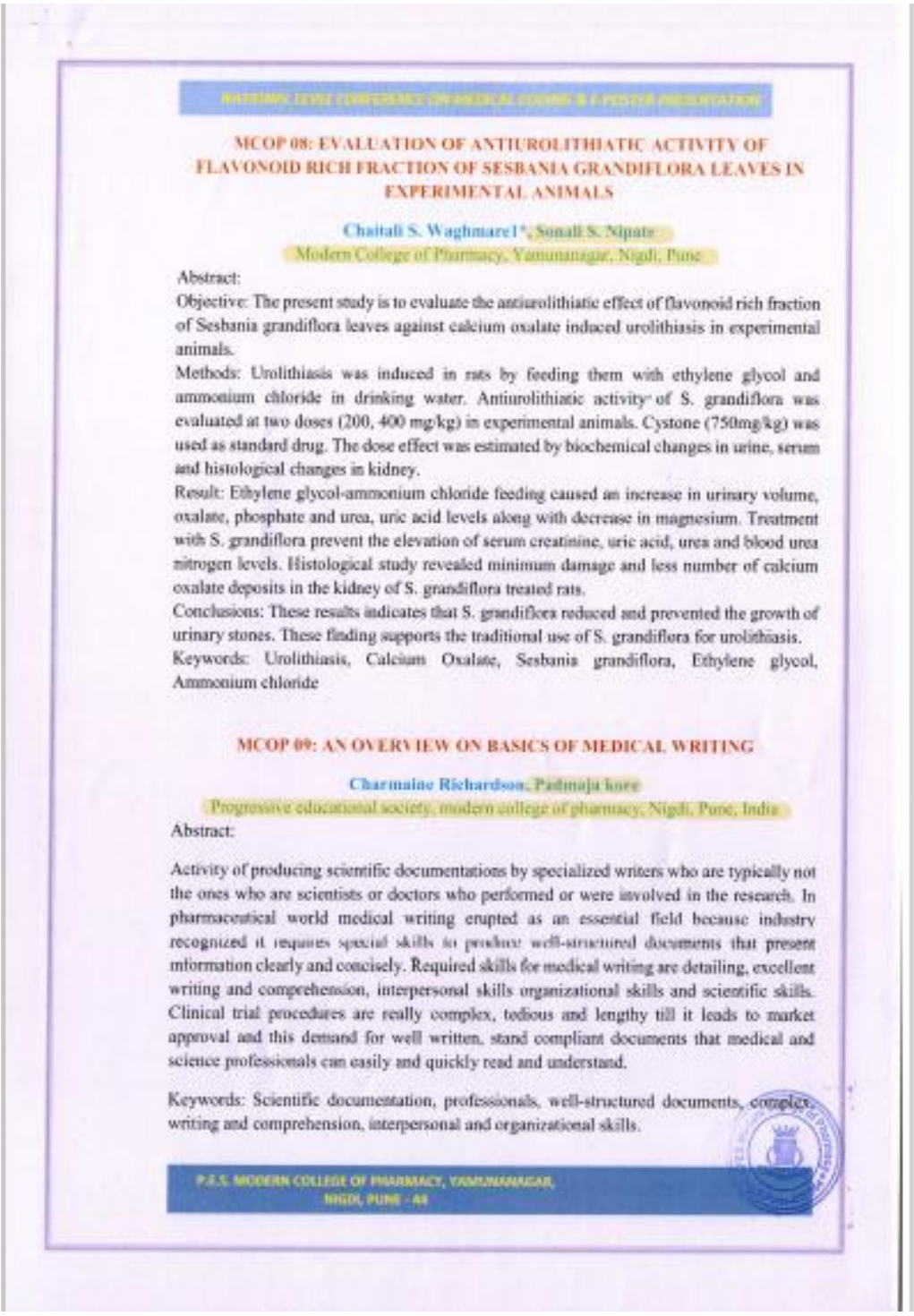
Abstract:

Activity of producing scientific documentations by specialized writers who are typically not the ones who are scientists or doctors who performed or were involved in the research. In pharmaceutical world medical writing erupted as an essential field because industry recognized it requires special skills to produce well-structured documents that present information clearly and concisely. Required skills for medical writing are detailing, excellent writing and comprehension, interpersonal skills organizational skills and scientific skills. Clinical trial procedures are really complex, tedious and lengthy till it leads to market approval and this demand for well written, stand compliant documents that medical and science professionals can easily and quickly read and understand.

Keywords: Scientific documentation, professionals, well-structured documents, complex, writing and comprehension, interpersonal and organizational skills.

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

An overview on basics of medical writing



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Keywords: Scientific documentation, professionals, well-structured documents, complex, writing and comprehension, interpersonal and organizational skills.

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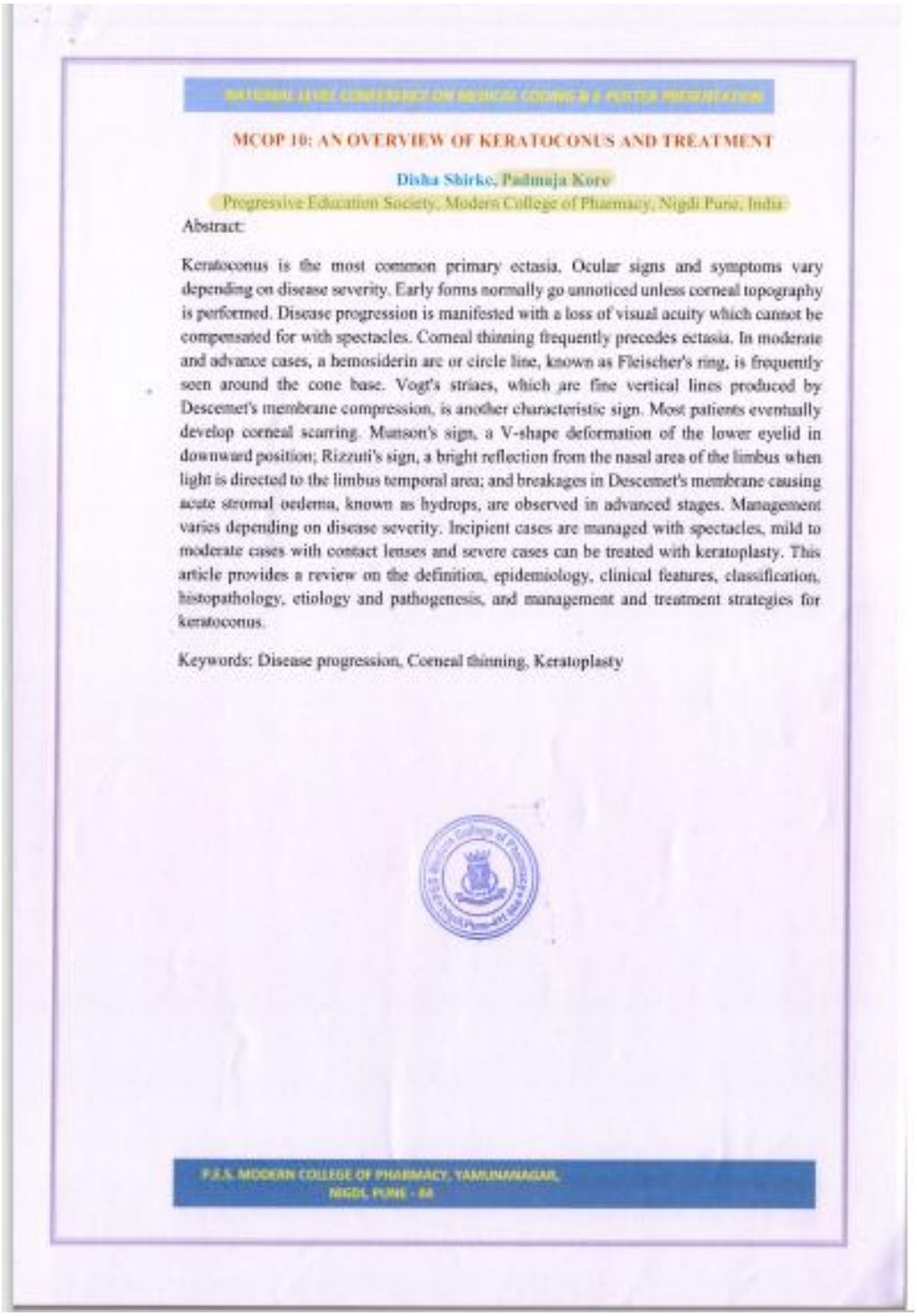
An overview of keratoconus and treatment



MCOP 10: AN OVERVIEW OF KERATOCONUS AND TREATMENT

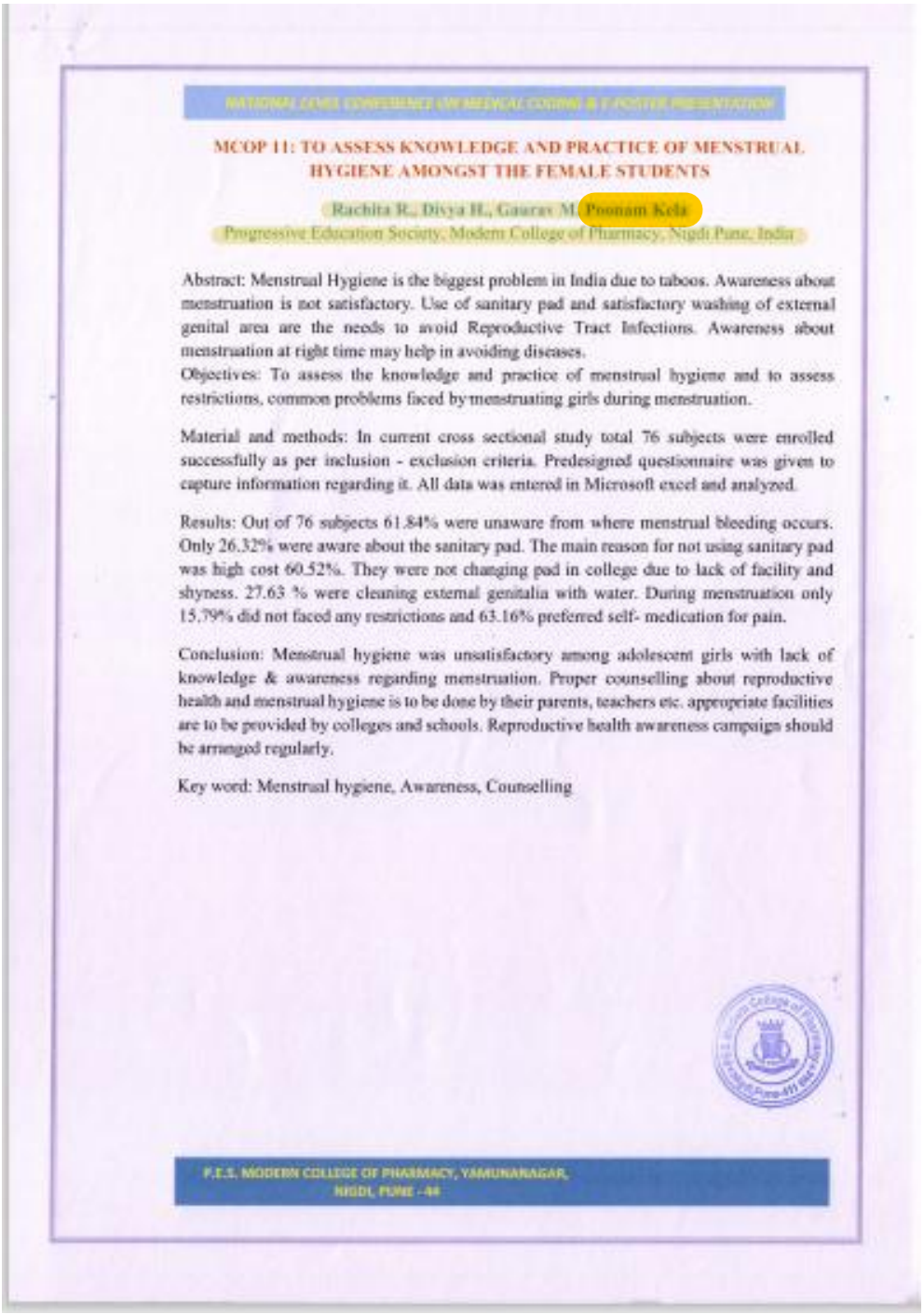
Disha Shirke, Padmaja Kore
Progressive Education Society, Modern College of Pharmacy, Nigdi Pune, India

Abstract:

Keratoconus is the most common primary ectasia. Ocular signs and symptoms vary depending on disease severity. Early forms normally go unnoticed unless corneal topography is performed. Disease progression is manifested with a loss of visual acuity which cannot be compensated for with spectacles. Corneal thinning frequently precedes ectasia. In moderate and advance cases, a hemosiderin arc or circle line, known as Fleischer's ring, is frequently seen around the cone base. Vogt's striaes, which are fine vertical lines produced by Descemet's membrane compression, is another characteristic sign. Most patients eventually develop corneal scarring. Munson's sign, a V-shape deformation of the lower eyelid in downward position; Rizzuti's sign, a bright reflection from the nasal area of the limbus when light is directed to the limbus temporal area; and breakages in Descemet's membrane causing acute stromal oedema, known as hydrops, are observed in advanced stages. Management varies depending on disease severity. Incipient cases are managed with spectacles, mild to moderate cases with contact lenses and severe cases can be treated with keratoplasty. This article provides a review on the definition, epidemiology, clinical features, classification, histopathology, etiology and pathogenesis, and management and treatment strategies for keratoconus.

Keywords: Disease progression, Corneal thinning, Keratoplasty

To assess knowledge and practice of menstrual hygiene amongst the female students



NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 11: TO ASSESS KNOWLEDGE AND PRACTICE OF MENSTRUAL HYGIENE AMONGST THE FEMALE STUDENTS

Rachita R., Divya R., Gaurav M., Poonam Kela
Progressive Education Society, Modern College of Pharmacy, Nigdi Pune, India

Abstract: Menstrual Hygiene is the biggest problem in India due to taboos. Awareness about menstruation is not satisfactory. Use of sanitary pad and satisfactory washing of external genital area are the needs to avoid Reproductive Tract Infections. Awareness about menstruation at right time may help in avoiding diseases.
Objectives: To assess the knowledge and practice of menstrual hygiene and to assess restrictions, common problems faced by menstruating girls during menstruation.

Material and methods: In current cross sectional study total 76 subjects were enrolled successfully as per inclusion - exclusion criteria. Predesigned questionnaire was given to capture information regarding it. All data was entered in Microsoft excel and analyzed.

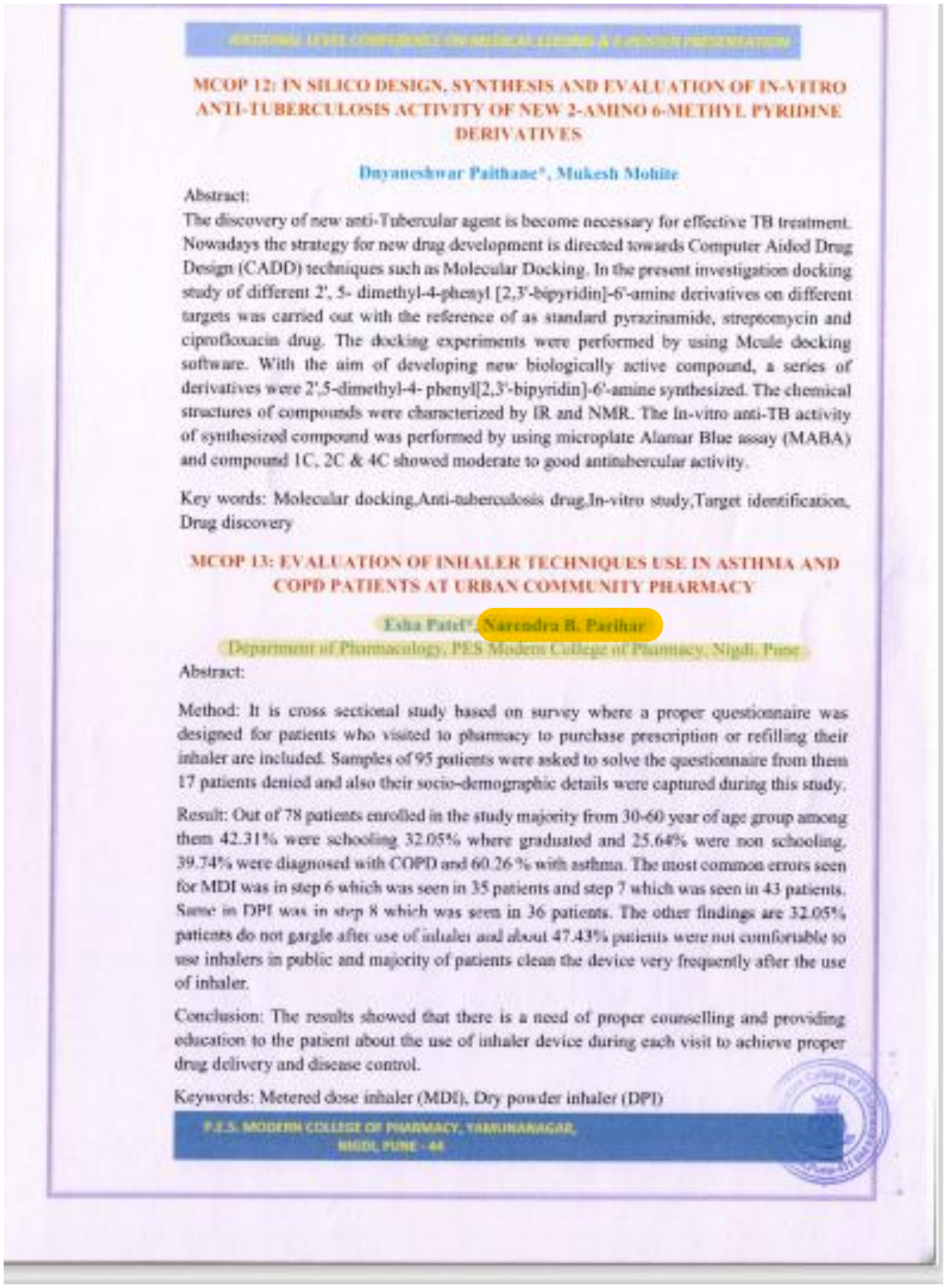
Results: Out of 76 subjects 61.84% were unaware from where menstrual bleeding occurs. Only 26.32% were aware about the sanitary pad. The main reason for not using sanitary pad was high cost 60.52%. They were not changing pad in college due to lack of facility and shyness. 27.63 % were cleaning external genitalia with water. During menstruation only 15.79% did not faced any restrictions and 63.16% preferred self- medication for pain.

Conclusion: Menstrual hygiene was unsatisfactory among adolescent girls with lack of knowledge & awareness regarding menstruation. Proper counselling about reproductive health and menstrual hygiene is to be done by their parents, teachers etc. appropriate facilities are to be provided by colleges and schools. Reproductive health awareness campaign should be arranged regularly.

Key word: Menstrual hygiene, Awareness, Counselling

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE -44

Evaluation of inhaler techniques use in asthma and COPD patients at urban



MCOP 12: IN SILICO DESIGN, SYNTHESIS AND EVALUATION OF IN-VITRO ANTI-TUBERCULOSIS ACTIVITY OF NEW 2-AMINO 6-METHYL PYRIDINE DERIVATIVES

Dnyaneshwar Paithane*, Mukesh Mohite

Abstract:

The discovery of new anti-Tubercular agent is become necessary for effective TB treatment. Nowadays the strategy for new drug development is directed towards Computer Aided Drug Design (CADD) techniques such as Molecular Docking. In the present investigation docking study of different 2', 5- dimethyl-4-phenyl [2,3'-bipyridin]-6'-amine derivatives on different targets was carried out with the reference of as standard pyrazinamide, streptomycin and ciprofloxacin drug. The docking experiments were performed by using Mcule docking software. With the aim of developing new biologically active compound, a series of derivatives were 2',5-dimethyl-4- phenyl[2,3'-bipyridin]-6'-amine synthesized. The chemical structures of compounds were characterized by IR and NMR. The In-vitro anti-TB activity of synthesized compound was performed by using microplate Alamar Blue assay (MABA) and compound 1C, 2C & 4C showed moderate to good antitubercular activity.

Key words: Molecular docking,Anti-tuberculosis drug,In-vitro study,Target identification, Drug discovery

MCOP 13: EVALUATION OF INHALER TECHNIQUES USE IN ASTHMA AND COPD PATIENTS AT URBAN COMMUNITY PHARMACY

Esha Patel*, Narendra B. Parihar

Department of Pharmacology, PES Modern College of Pharmacy, Nigdi, Pune

Abstract:

Method: It is cross sectional study based on survey where a proper questionnaire was designed for patients who visited to pharmacy to purchase prescription or refilling their inhaler are included. Samples of 95 patients were asked to solve the questionnaire from them 17 patients denied and also their socio-demographic details were captured during this study.

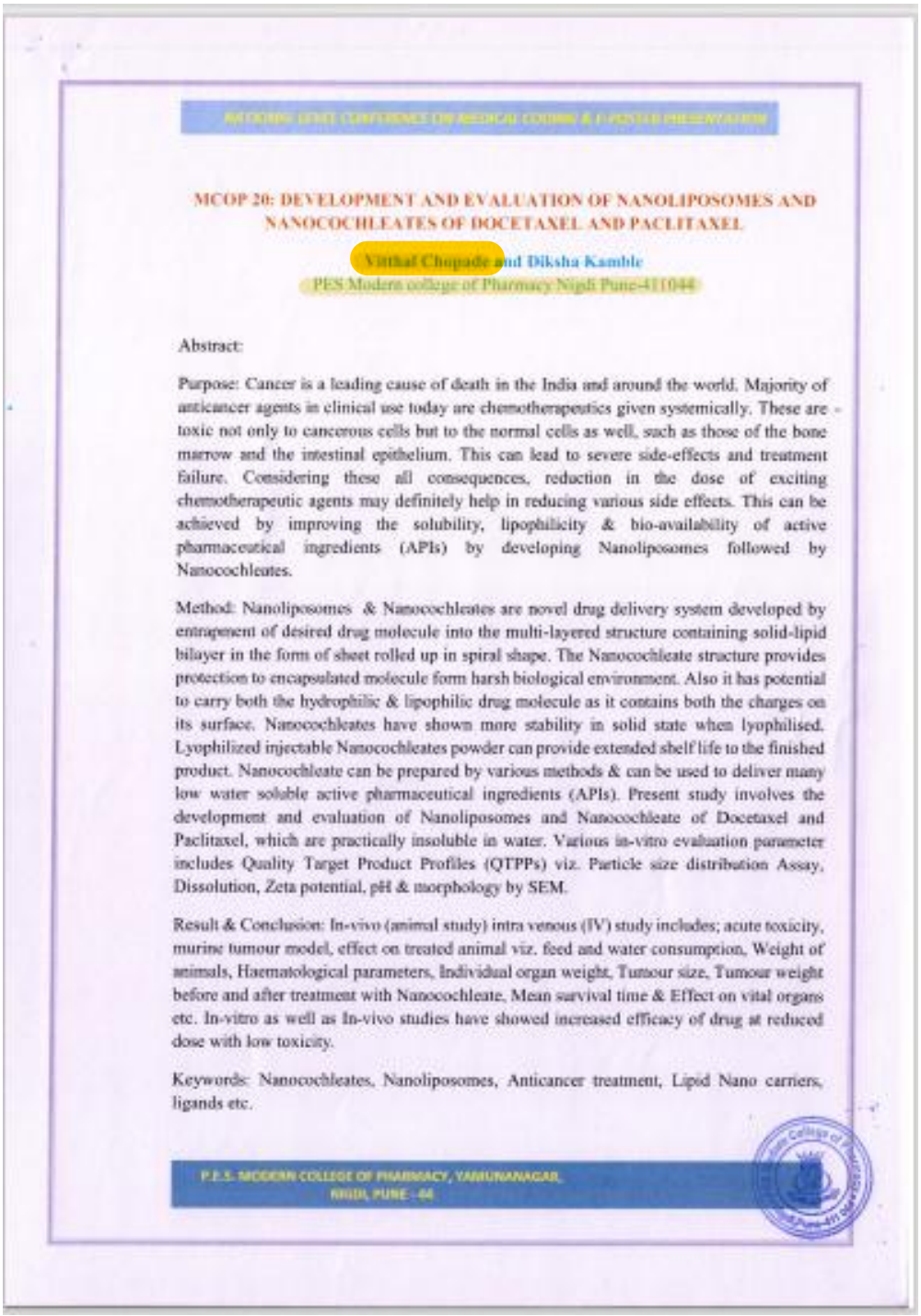
Result: Out of 78 patients enrolled in the study majority from 30-60 year of age group among them 42.31% were schooling 32.05% where graduated and 25.64% were non schooling. 39.74% were diagnosed with COPD and 60.26 % with asthma. The most common errors seen for MDI was in step 6 which was seen in 35 patients and step 7 which was seen in 43 patients. Same in DPI was in step 8 which was seen in 36 patients. The other findings are 32.05% patients do not gargle after use of inhaler and about 47.43% patients were not comfortable to use inhalers in public and majority of patients clean the device very frequently after the use of inhaler.

Conclusion: The results showed that there is a need of proper counselling and providing education to the patient about the use of inhaler device during each visit to achieve proper drug delivery and disease control.

Keywords: Metered dose inhaler (MDI), Dry powder inhaler (DPI)

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Development and evaluation of nanoliposomes and nanocochleates of docetaxel and paclitaxel.



MCOP 20: DEVELOPMENT AND EVALUATION OF NANOLIPOSOMES AND NANOCOCHLEATES OF DOCETAXEL AND PACLITAXEL

Vitthal Chopade and Diksha Kamble
PES Modern college of Pharmacy Nigdi Pune-411044

Abstract:

Purpose: Cancer is a leading cause of death in the India and around the world. Majority of anticancer agents in clinical use today are chemotherapeutics given systemically. These are toxic not only to cancerous cells but to the normal cells as well, such as those of the bone marrow and the intestinal epithelium. This can lead to severe side-effects and treatment failure. Considering these all consequences, reduction in the dose of exciting chemotherapeutic agents may definitely help in reducing various side effects. This can be achieved by improving the solubility, lipophilicity & bio-availability of active pharmaceutical ingredients (APIs) by developing Nanoliposomes followed by Nanocochleates.

Method: Nanoliposomes & Nanocochleates are novel drug delivery system developed by entrapment of desired drug molecule into the multi-layered structure containing solid-lipid bilayer in the form of sheet rolled up in spiral shape. The Nanocochleate structure provides protection to encapsulated molecule form harsh biological environment. Also it has potential to carry both the hydrophilic & lipophilic drug molecule as it contains both the charges on its surface. Nanocochleates have shown more stability in solid state when lyophilised. Lyophilized injectable Nanocochleates powder can provide extended shelf life to the finished product. Nanocochleate can be prepared by various methods & can be used to deliver many low water soluble active pharmaceutical ingredients (APIs). Present study involves the development and evaluation of Nanoliposomes and Nanocochleate of Docetaxel and Paclitaxel, which are practically insoluble in water. Various in-vitro evaluation parameter includes Quality Target Product Profiles (QTPPs) viz. Particle size distribution Assay, Dissolution, Zeta potential, pH & morphology by SEM.

Result & Conclusion: In-vivo (animal study) intra venous (IV) study includes; acute toxicity, murine tumour model, effect on treated animal viz. feed and water consumption, Weight of animals, Haematological parameters, Individual organ weight, Tumour size, Tumour weight before and after treatment with Nanocochleate, Mean survival time & Effect on vital organs etc. In-vitro as well as In-vivo studies have showed increased efficacy of drug at reduced dose with low toxicity.

Keywords: Nanocochleates, Nanoliposomes, Anticancer treatment, Lipid Nano carriers, ligands etc.

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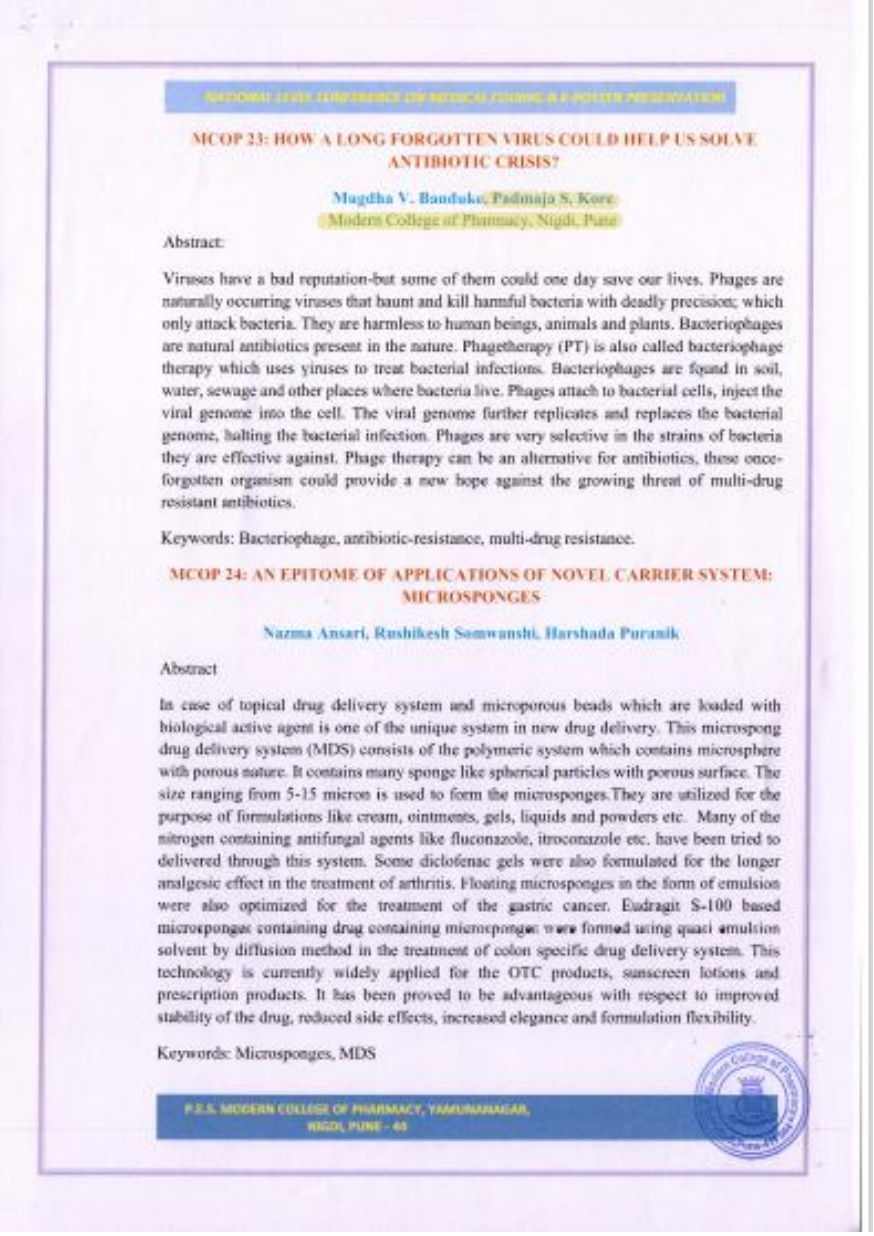
How a long forgotten virus could help us solve antibiotic crisis?



MCOP 23: HOW A LONG FORGOTTEN VIRUS COULD HELP US SOLVE ANTIBIOTIC CRISIS?

Mugdha V. Bandoke, Padmaja S. Kore.
Modern College of Pharmacy, Nigdi, Pune

Abstract:

Viruses have a bad reputation-but some of them could one day save our lives. Phages are naturally occurring viruses that haunt and kill harmful bacteria with deadly precision; which only attack bacteria. They are harmless to human beings, animals and plants. Bacteriophages are natural antibiotics present in the nature. Phagetherapy (PT) is also called bacteriophage therapy which uses yiruses to treat bacterial infections. Bacteriophages are found in soil, water, sewage and other places where bacteria live. Phages attach to bacterial cells, inject the viral genome into the cell. The viral genome further replicates and replaces the bacterial genome, halting the bacterial infection. Phages are very selective in the strains of bacteria they are effective against. Phage therapy can be an alternative for antibiotics, these once-forgotten organism could provide a new hope against the growing threat of multi-drug resistant antibiotics.

Keywords: Bacteriophage, antibiotic-resistance, multi-drug resistance.

MCOP 24: AN EPITOME OF APPLICATIONS OF NOVEL CARRIER SYSTEM: MICROSPONGES

Nazma Ansari, Rushikesh Somwanshi, Harshada Puranik

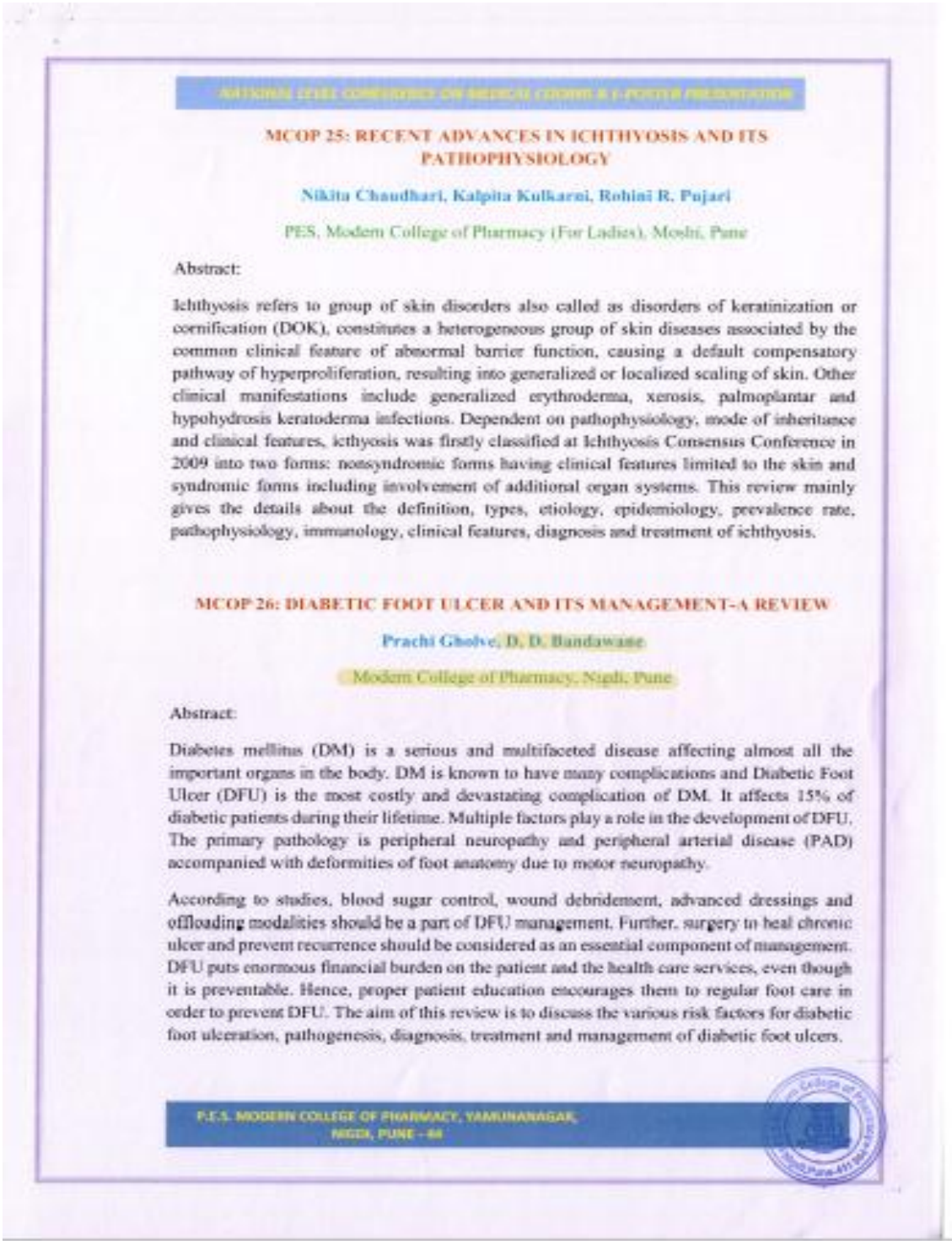
Abstract

In case of topical drug delivery system and microporous beads which are loaded with biological active agent is one of the unique system in new drug delivery. This microspong drug delivery system (MDS) consists of the polymeric system which contains microsphere with porous nature. It contains many sponge like spherical particles with porous surface. The size ranging from 5-15 micron is used to form the microsponges.They are utilized for the purpose of formulations like cream, ointments, gels, liquids and powders etc. Many of the nitrogen containing antifungal agents like fluconazole, itroconazole etc. have been tried to delivered through this system. Some diclofenac gels were also formulated for the longer analgesic effect in the treatment of arthritis. Floating microsponges in the form of emulsion were also optimized for the treatment of the gastric cancer. Eudragit S-100 based microsponges containing drug containing microsponges were formed using quasi emulsion solvent by diffusion method in the treatment of colon specific drug delivery system. This technology is currently widely applied for the OTC products, sunscreen lotions and prescription products. It has been proved to be advantageous with respect to improved stability of the drug, reduced side effects, increased elegance and formulation flexibility.

Keywords: Microsponges, MDS

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Diabetic foot ulcer and its management-a review



MCOP 25: RECENT ADVANCES IN ICHTHYOSIS AND ITS PATHOPHYSIOLOGY

Nikita Chaudhari, Kalpita Kulkarni, Rohini R. Pujari

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

Abstract:

Ichthyosis 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, ichthyosis was firstly classified at Ichthyosis Consensus Conference in 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 ichthyosis.

MCOP 26: DIABETIC FOOT ULCER AND ITS MANAGEMENT-A REVIEW

Prachi Gholve, D. D. Bandawane

Modern College of Pharmacy, Nigdi, Pune

Abstract:

Diabetes mellitus (DM) is a serious and multifaceted disease affecting almost all the important organs in the body. DM is known to have many complications and Diabetic Foot Ulcer (DFU) is the most costly and devastating complication of DM. It affects 15% of diabetic patients during their lifetime. Multiple factors play a role in the development of DFU. The primary pathology is peripheral neuropathy and peripheral arterial disease (PAD) accompanied with deformities of foot anatomy due to motor neuropathy.

According to studies, blood sugar control, wound debridement, advanced dressings and offloading modalities should be a part of DFU management. Further, surgery to heal chronic ulcer and prevent recurrence should be considered as an essential component of management. DFU puts enormous financial burden on the patient and the health care services, even though it is preventable. Hence, proper patient education encourages them to regular foot care in order to prevent DFU. The aim of this review is to discuss the various risk factors for diabetic foot ulceration, pathogenesis, diagnosis, treatment and management of diabetic foot ulcers.

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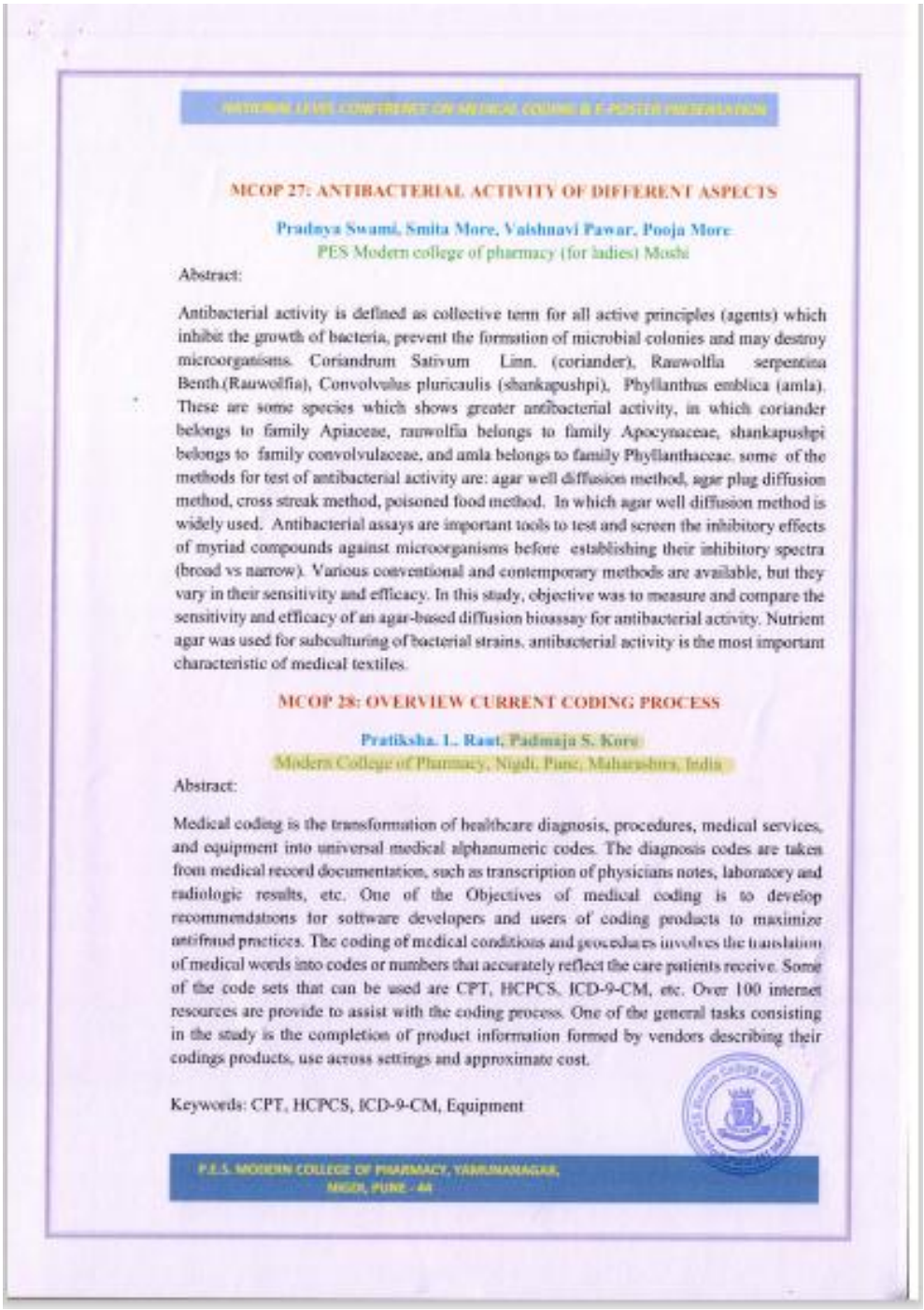
Overview current coding process



NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 27: ANTIBACTERIAL ACTIVITY OF DIFFERENT ASPECTS

Pradnya Swami, Smita More, Vaishnavi Pawar, Pooja More
PES Modern college of pharmacy (for ladies) Moshi

Abstract:

Antibacterial activity is defined as collective term for all active principles (agents) which inhibit the growth of bacteria, prevent the formation of microbial colonies and may destroy microorganisms. Coriandrum Sativum Linn. (coriander), Rauwolfia serpentina Benth.(Rauwolfia), Convolvulus pluricaulis (shankapushpi), Phyllanthus emblica (amla). These are some species which shows greater antibacterial activity, in which coriander belongs to family Apiaceae, rauwolfia belongs to family Apocynaceae, shankapushpi belongs to family convolvulaceae, and amla belongs to family Phyllanthaceae. some of the methods for test of antibacterial activity are: agar well diffusion method, agar plug diffusion method, cross streak method, poisoned food method. In which agar well diffusion method is widely used. Antibacterial assays are important tools to test and screen the inhibitory effects of myriad compounds against microorganisms before establishing their inhibitory spectra (broad vs narrow). Various conventional and contemporary methods are available, but they vary in their sensitivity and efficacy. In this study, objective was to measure and compare the sensitivity and efficacy of an agar-based diffusion bioassay for antibacterial activity. Nutrient agar was used for subculturing of bacterial strains. antibacterial activity is the most important characteristic of medical textiles.

MCOP 28: OVERVIEW CURRENT CODING PROCESS

Pratiksha. L. Raut, Padmaja S. Kore
Modern College of Pharmacy, Nigdi, Pune, Maharashtra, India

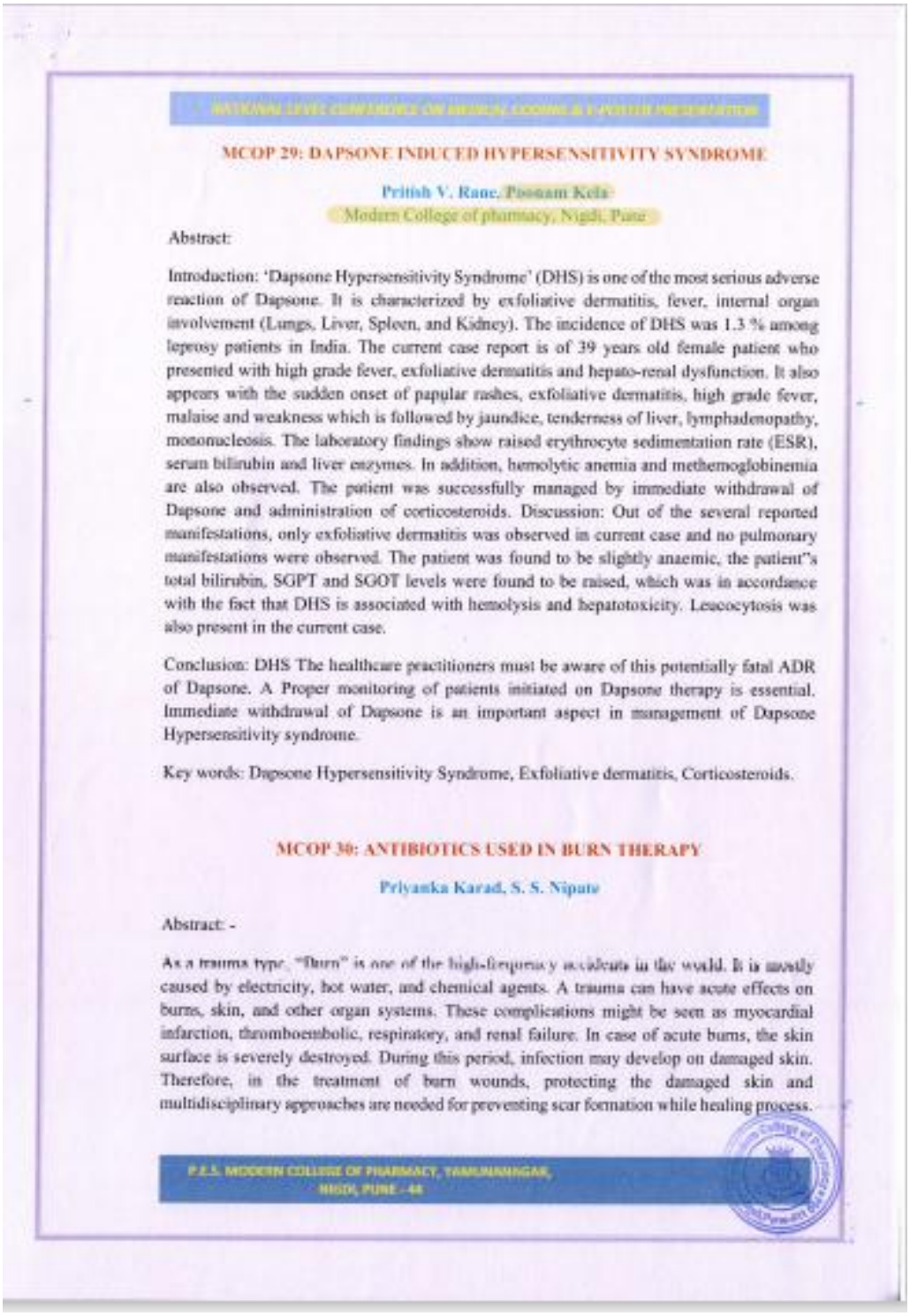
Abstract:

Medical coding is the transformation of healthcare diagnosis, procedures, medical services, and equipment into universal medical alphanumeric codes. The diagnosis codes are taken from medical record documentation, such as transcription of physicians notes, laboratory and radiologic results, etc. One of the Objectives of medical coding is to develop recommendations for software developers and users of coding products to maximize antifraud practices. The coding of medical conditions and procedures involves the translation of medical words into codes or numbers that accurately reflect the care patients receive. Some of the code sets that can be used are CPT, HCPCS, ICD-9-CM, etc. Over 100 internet resources are provide to assist with the coding process. One of the general tasks consisting in the study is the completion of product information formed by vendors describing their codings products, use across settings and approximate cost.

Keywords: CPT, HCPCS, ICD-9-CM, Equipment

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Dapsone induced hypersensitivity syndrome



NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 29: DAPSONE INDUCED HYPERSENSITIVITY SYNDROME

Pritish V. Rane, Poonam Kela
Modern College of pharmacy, Nigdi, Pune

Abstract:

Introduction: 'Dapsone Hypersensitivity Syndrome' (DHS) is one of the most serious adverse reaction of Dapsone. It is characterized by exfoliative dermatitis, fever, internal organ involvement (Lungs, Liver, Spleen, and Kidney). The incidence of DHS was 1.3 % among leprosy patients in India. The current case report is of 39 years old female patient who presented with high grade fever, exfoliative dermatitis and hepato-renal dysfunction. It also appears with the sudden onset of papular rashes, exfoliative dermatitis, high grade fever, malaise and weakness which is followed by jaundice, tenderness of liver, lymphadenopathy, mononucleosis. The laboratory findings show raised erythrocyte sedimentation rate (ESR), serum bilirubin and liver enzymes. In addition, hemolytic anemia and methemoglobinemia are also observed. The patient was successfully managed by immediate withdrawal of Dapsone and administration of corticosteroids. Discussion: Out of the several reported manifestations, only exfoliative dermatitis was observed in current case and no pulmonary manifestations were observed. The patient was found to be slightly anaemic, the patient"s total bilirubin, SGPT and SGOT levels were found to be raised, which was in accordance with the fact that DHS is associated with hemolysis and hepatotoxicity. Leucocytosis was also present in the current case.

Conclusion: DHS The healthcare practitioners must be aware of this potentially fatal ADR of Dapsone. A Proper monitoring of patients initiated on Dapsone therapy is essential. Immediate withdrawal of Dapsone is an important aspect in management of Dapsone Hypersensitivity syndrome.

Key words: Dapsone Hypersensitivity Syndrome, Exfoliative dermatitis, Corticosteroids.

MCOP 30: ANTIBIOTICS USED IN BURN THERAPY

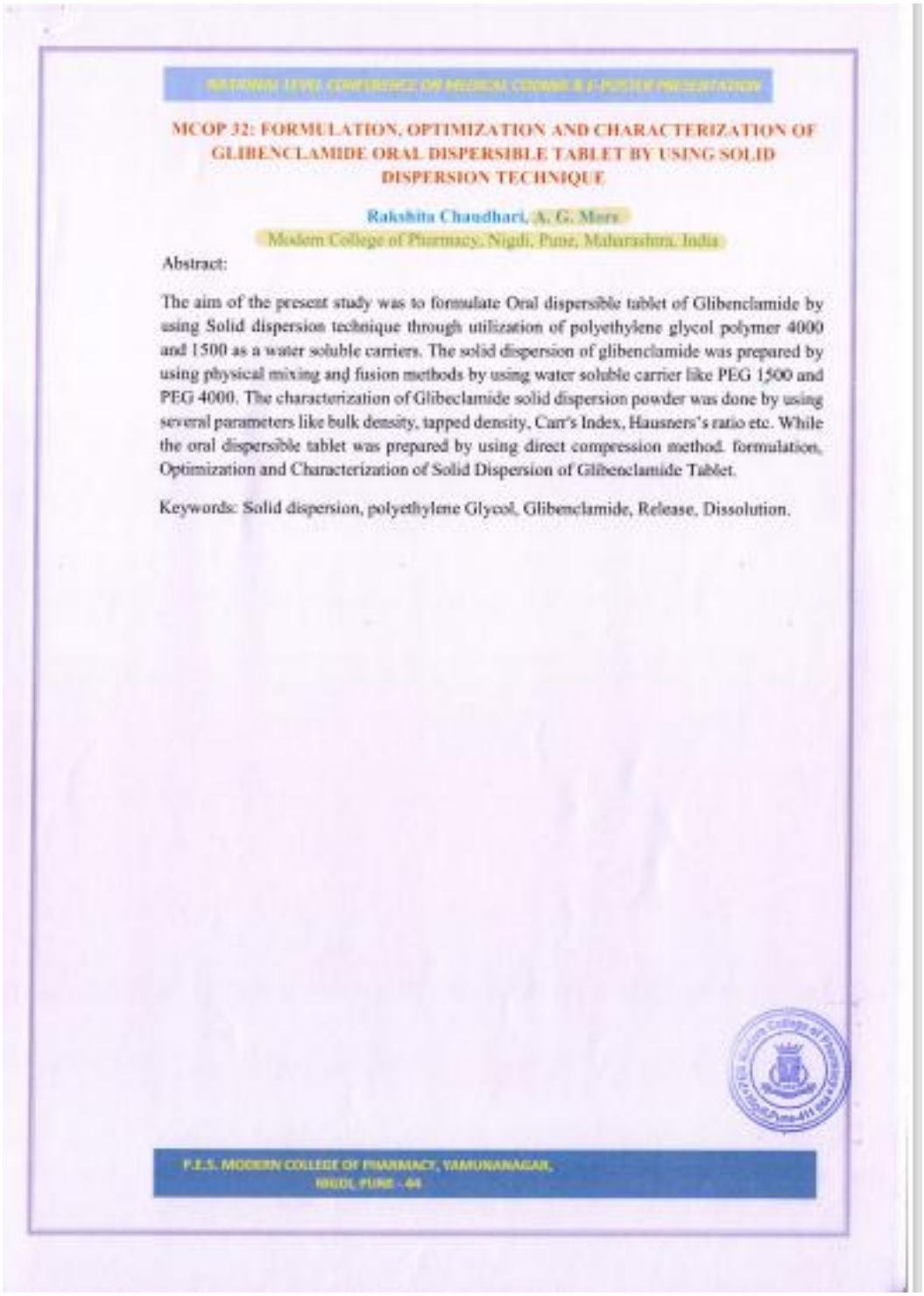
Priyanka Karad, S. S. Nipate

Abstract: -

As a trauma type, "Burn" is one of the high-frequency accidents in the world. It is mostly caused by electricity, hot water, and chemical agents. A trauma can have acute effects on burns, skin, and other organ systems. These complications might be seen as myocardial infarction, thromboembolic, respiratory, and renal failure. In case of acute burns, the skin surface is severely destroyed. During this period, infection may develop on damaged skin. Therefore, in the treatment of burn wounds, protecting the damaged skin and multidisciplinary approaches are needed for preventing scar formation while healing process.

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Formulation, optimization and characterization of glibenclamide oral dispersible tablet by using solid dispersion technique



MCOP 32: FORMULATION, OPTIMIZATION AND CHARACTERIZATION OF GLIBENCLAMIDE ORAL DISPERSIBLE TABLET BY USING SOLID DISPERSION TECHNIQUE

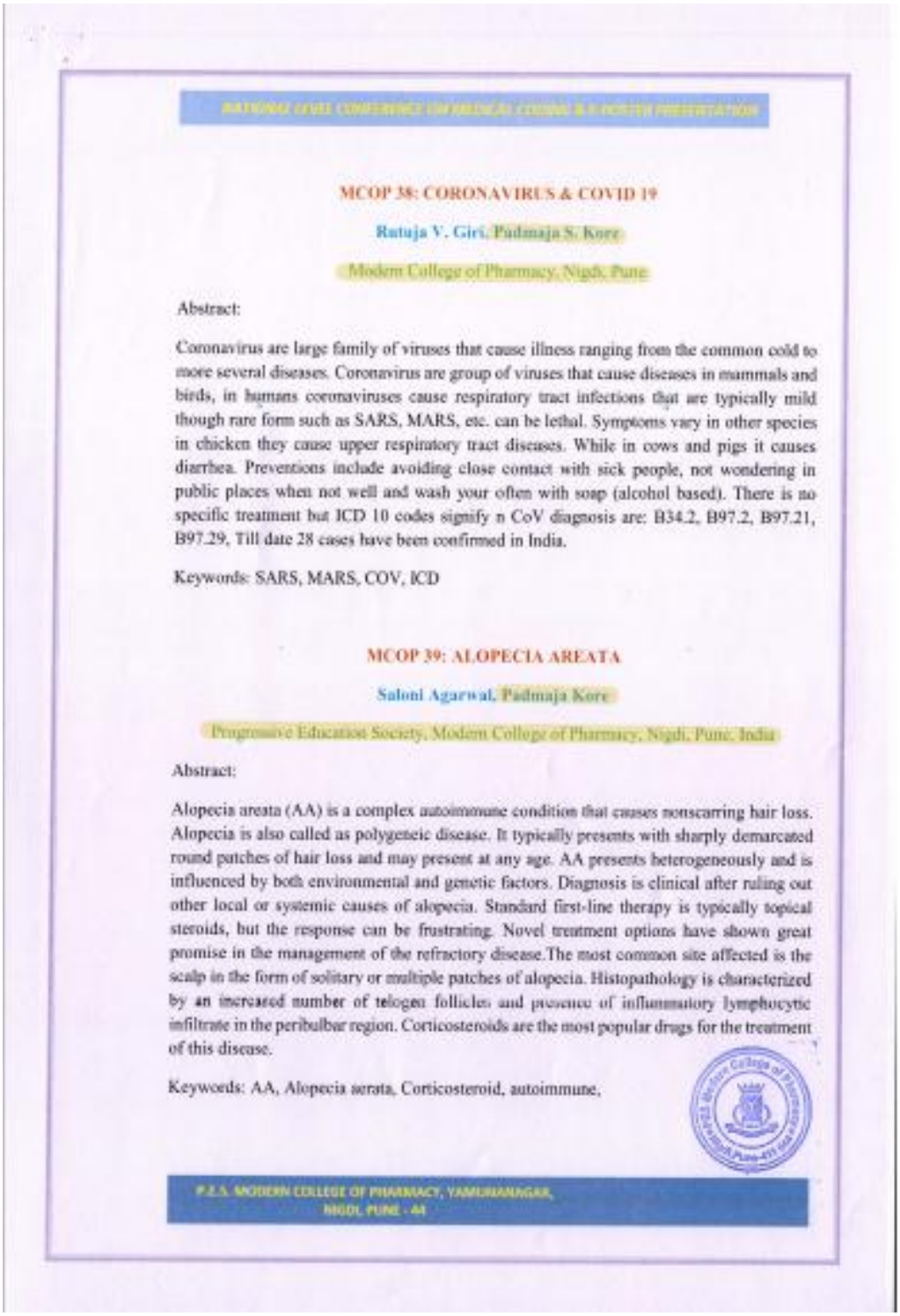
Rakshita Chaudhari, A. G. More
Modern College of Pharmacy, Nigdi, Pune, Maharashtra, India

Abstract:

The aim of the present study was to formulate Oral dispersible tablet of Glibenclamide by using Solid dispersion technique through utilization of polyethylene glycol polymer 4000 and 1500 as a water soluble carriers. The solid dispersion of glibenclamide was prepared by using physical mixing and fusion methods by using water soluble carrier like PEG 1500 and PEG 4000. The characterization of Glibeclamide solid dispersion powder was done by using several parameters like bulk density, tapped density, Carr's Index, Hausners's ratio etc. While the oral dispersible tablet was prepared by using direct compression method. formulation, Optimization and Characterization of Solid Dispersion of Glibenclamide Tablet.

Keywords: Solid dispersion, polyethylene Glycol, Glibenclamide, Release, Dissolution.

Coronavirus &Covid 19



MCOP 38: CORONAVIRUS & COVID 19

Rutuja V. Giri, Padmaja S. Kore

Modern College of Pharmacy, Nigdi, Pune

Abstract:

Coronavirus are large family of viruses that cause illness ranging from the common cold to more several diseases. Coronavirus are group of viruses that cause diseases in mammals and birds, in humans coronaviruses cause respiratory tract infections that are typically mild though rare form such as SARS, MARS, etc. can be lethal. Symptoms vary in other species in chicken they cause upper respiratory tract diseases. While in cows and pigs it causes diarrhea. Preventions include avoiding close contact with sick people, not wondering in public places when not well and wash your often with soap (alcohol based). There is no specific treatment but ICD 10 codes signify n CoV diagnosis are: B34.2, B97.2, B97.21, B97.29, Till date 28 cases have been confirmed in India.

Keywords: SARS, MARS, COV, ICD

MCOP 39: ALOPECIA AREATA

Saloni Agarwal, Padmaja Kore

Progressive Education Society, Modern College of Pharmacy, Nigdi, Pune, India

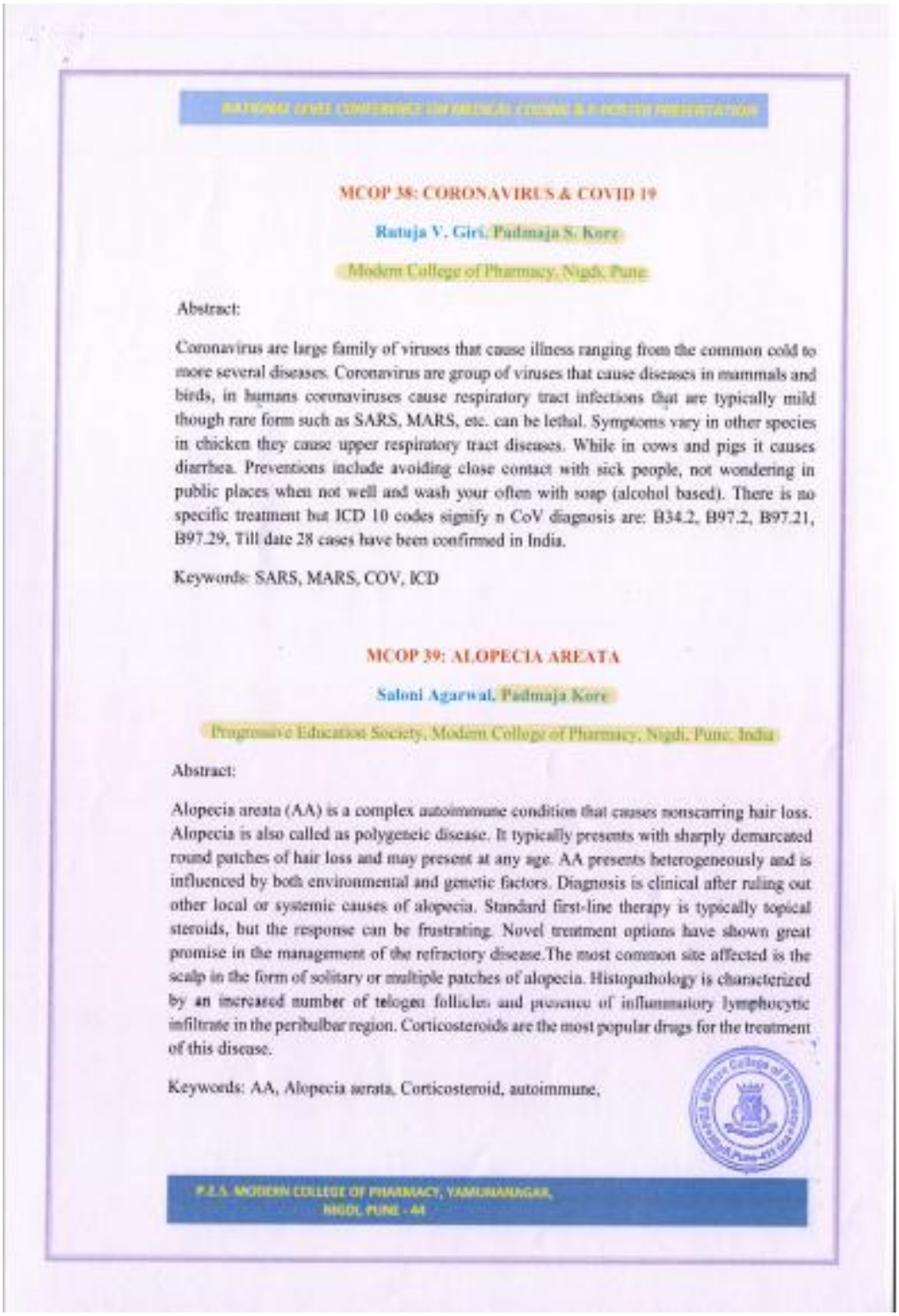
Abstract:

Alopecia areata (AA) is a complex autoimmune condition that causes nonscarring hair loss. Alopecia is also called as polygeneic disease. It typically presents with sharply demarcated round patches of hair loss and may present at any age. AA presents heterogeneously and is influenced by both environmental and genetic factors. Diagnosis is clinical after ruling out other local or systemic causes of alopecia. Standard first-line therapy is typically topical steroids, but the response can be frustrating. Novel treatment options have shown great promise in the management of the refractory disease.The most common site affected is the scalp in the form of solitary or multiple patches of alopecia. Histopathology is characterized by an increased number of telogen follicles and presence of inflammatory lymphocytic infiltrate in the peribulbar region. Corticosteroids are the most popular drugs for the treatment of this disease.

Keywords: AA, Alopecia aerata, Corticosteroid, autoimmune,

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Alopecia Areata



MCOP 38: CORONAVIRUS & COVID 19

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Modern College of Pharmacy, Nigdi, Pune

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MCOP 39: ALOPECIA AREATA

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Progressive Education Society, Modern College of Pharmacy, Nigdi, Pune, India

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Keywords: AA, Alopecia aerata, Corticosteroid, autoimmune,

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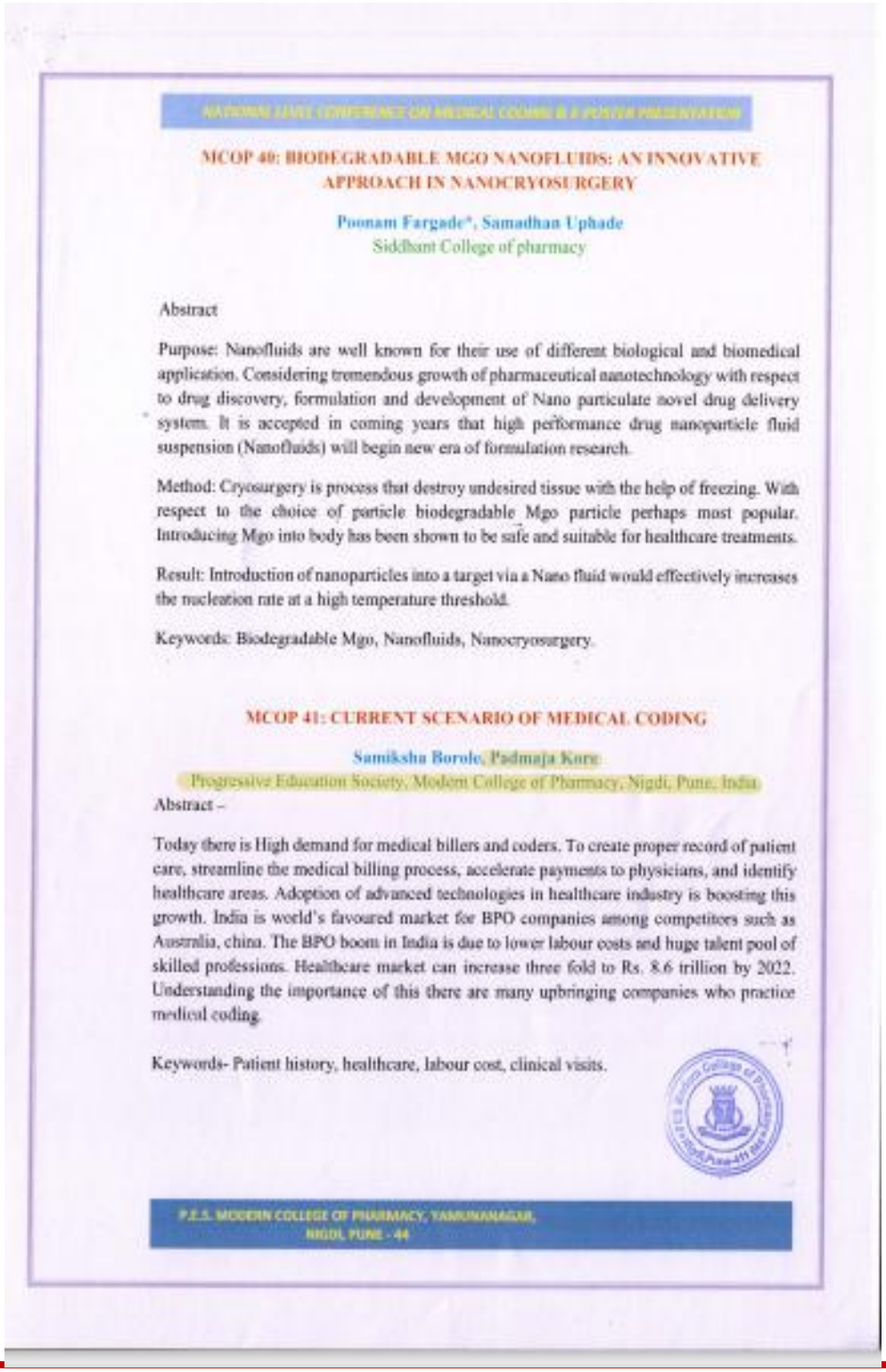
Current scenario of medical coding



NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 40: BIODEGRADABLE MGO NANOFLUIDS: AN INNOVATIVE APPROACH IN NANOCRYOSURGERY

Poonam Fargade*, Samadhan Uphade
Siddhant College of pharmacy

Abstract

Purpose: Nanofluids are well known for their use of different biological and biomedical application. Considering tremendous growth of pharmaceutical nanotechnology with respect to drug discovery, formulation and development of Nano particulate novel drug delivery system. It is accepted in coming years that high performance drug nanoparticle fluid suspension (Nanofluids) will begin new era of formulation research.

Method: Cryosurgery is process that destroy undesired tissue with the help of freezing. With respect to the choice of particle biodegradable Mgo particle perhaps most popular. Introducing Mgo into body has been shown to be safe and suitable for healthcare treatments.

Result: Introduction of nanoparticles into a target via a Nano fluid would effectively increases the nucleation rate at a high temperature threshold.

Keywords: Biodegradable Mgo, Nanofluids, Nanocryosurgery.

MCOP 41: CURRENT SCENARIO OF MEDICAL CODING

Samiksha Borole, Padmaja Kore
Progressive Education Society, Modern College of Pharmacy, Nigdi, Pune, India

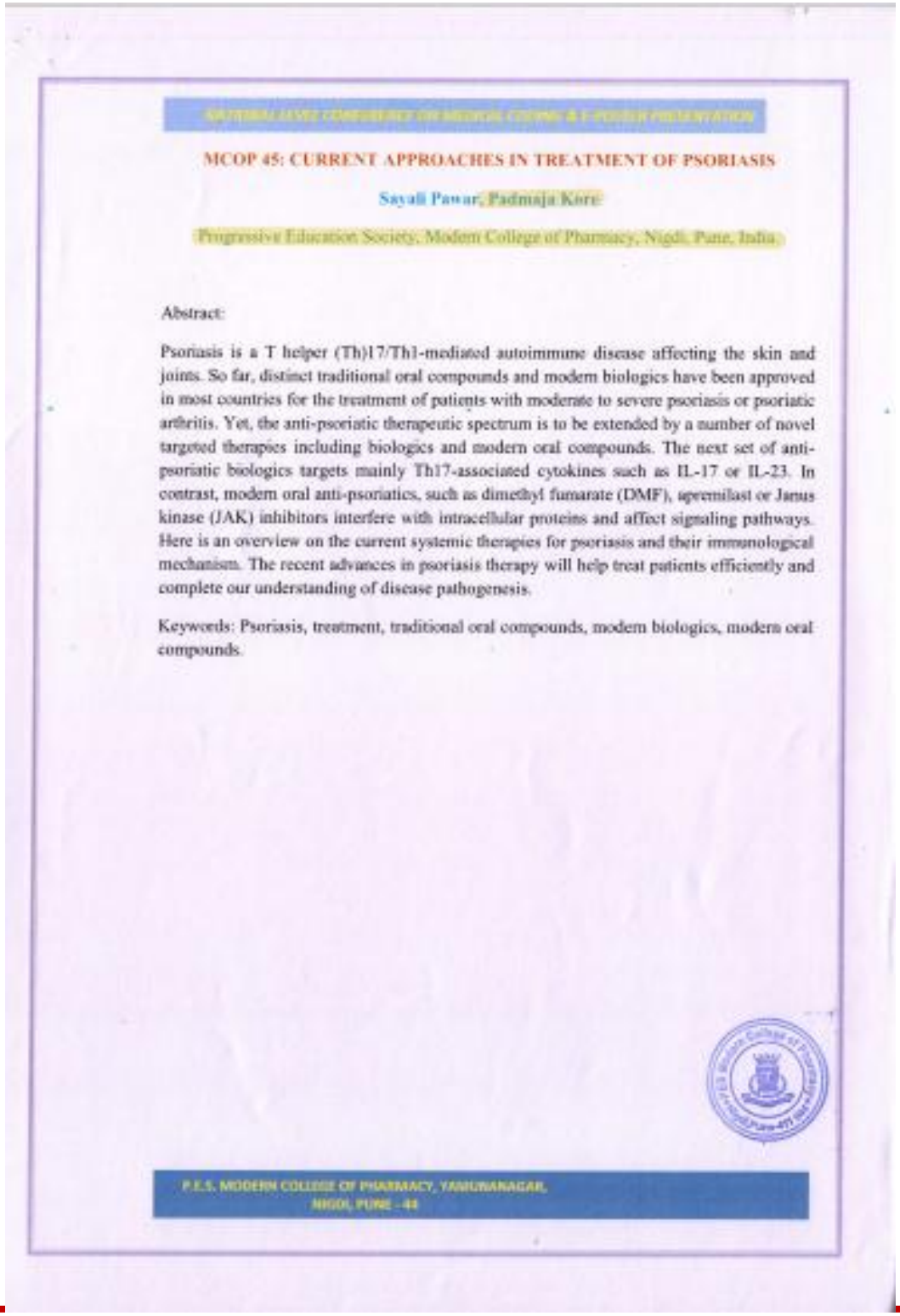
Abstract –

Today there is High demand for medical billers and coders. To create proper record of patient care, streamline the medical billing process, accelerate payments to physicians, and identify healthcare areas. Adoption of advanced technologies in healthcare industry is boosting this growth. India is world's favoured market for BPO companies among competitors such as Australia, china. The BPO boom in India is due to lower labour costs and huge talent pool of skilled professions. Healthcare market can increase three fold to Rs. 8.6 trillion by 2022. Understanding the importance of this there are many upbringing companies who practice medical coding.

Keywords- Patient history, healthcare, labour cost, clinical visits.

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Current approaches in treatment of psoriasis



MCOP 45: CURRENT APPROACHES IN TREATMENT OF PSORIASIS

Sayali Pawar, Padmaja Kore

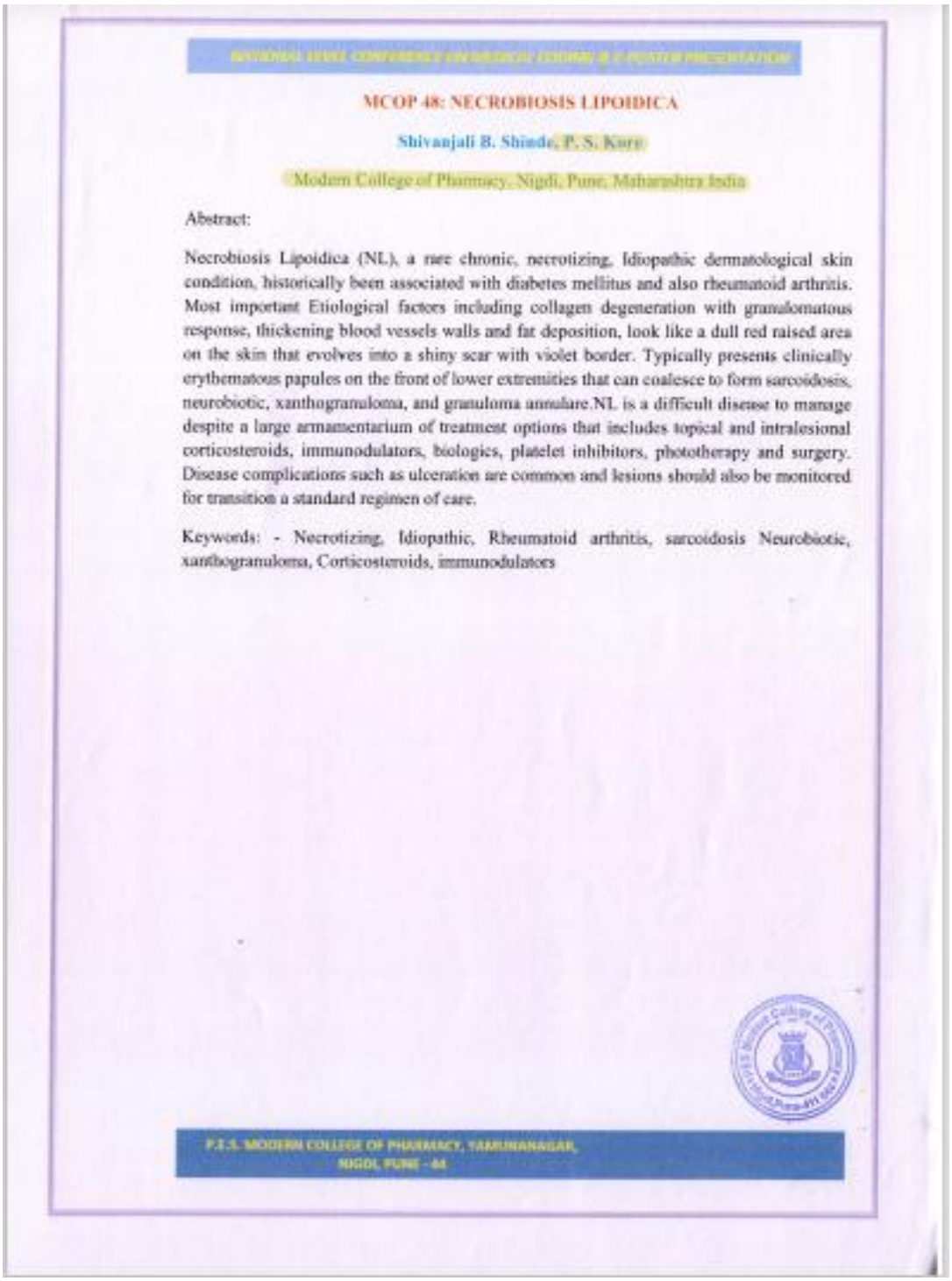
Progressive Education Society, Modern College of Pharmacy, Nigdi, Pune, India.

Abstract:

Psoriasis is a T helper (Th)17/Th1-mediated autoimmune disease affecting the skin and joints. So far, distinct traditional oral compounds and modern biologics have been approved in most countries for the treatment of patients with moderate to severe psoriasis or psoriatic arthritis. Yet, the anti-psoriatic therapeutic spectrum is to be extended by a number of novel targeted therapies including biologics and modern oral compounds. The next set of anti-psoriatic biologics targets mainly Th17-associated cytokines such as IL-17 or IL-23. In contrast, modern oral anti-psoriatics, such as dimethyl fumarate (DMF), apremilast or Janus kinase (JAK) inhibitors interfere with intracellular proteins and affect signaling pathways. Here is an overview on the current systemic therapies for psoriasis and their immunological mechanism. The recent advances in psoriasis therapy will help treat patients efficiently and complete our understanding of disease pathogenesis.

Keywords: Psoriasis, treatment, traditional oral compounds, modern biologics, modern oral compounds.

Necrobiosis lipoidica



MCOP 48: NECROBIOSIS LIPOIDICA

Shivanjali B. Shinde, P. S. Kore

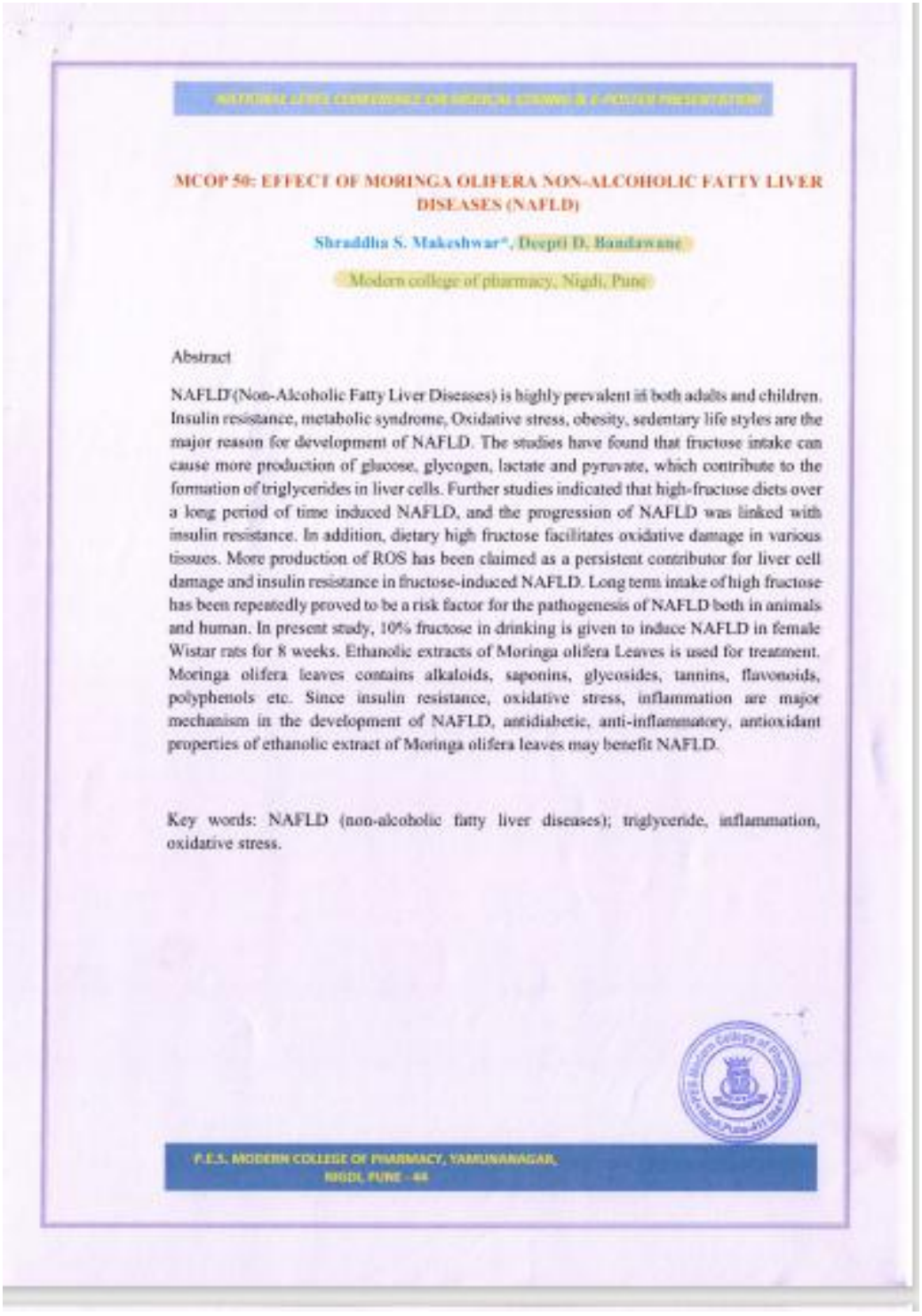
Modern College of Pharmacy, Nigdi, Pune, Maharashtra India

Abstract:

Necrobiosis Lipoidica (NL), a rare chronic, necrotizing, Idiopathic dermatological skin condition, historically been associated with diabetes mellitus and also rheumatoid arthritis. Most important Etiological factors including collagen degeneration with granulomatous response, thickening blood vessels walls and fat deposition, look like a dull red raised area on the skin that evolves into a shiny scar with violet border. Typically presents clinically erythematous papules on the front of lower extremities that can coalesce to form sarcoidosis, neurobiotic, xanthogranuloma, and granuloma annulare.NL is a difficult disease to manage despite a large armamentarium of treatment options that includes topical and intralesional corticosteroids, immunodulators, biologics, platelet inhibitors, phototherapy and surgery. Disease complications such as ulceration are common and lesions should also be monitored for transition a standard regimen of care.

Keywords: - Necrotizing, Idiopathic, Rheumatoid arthritis, sarcoidosis Neurobiotic, xanthogranuloma, Corticosteroids, immunodulators

Effect Of Moringa Olifera Non-Alcoholic Fatty Liver Diseases (NAFLD)



MCOP 50: EFFECT OF MORINGA OLIFERA NON-ALCOHOLIC FATTY LIVER DISEASES (NAFLD)

Shraddha S. Makeshwar*, Deepti D. Bandawane

Modern college of pharmacy, Nigdi, Pune

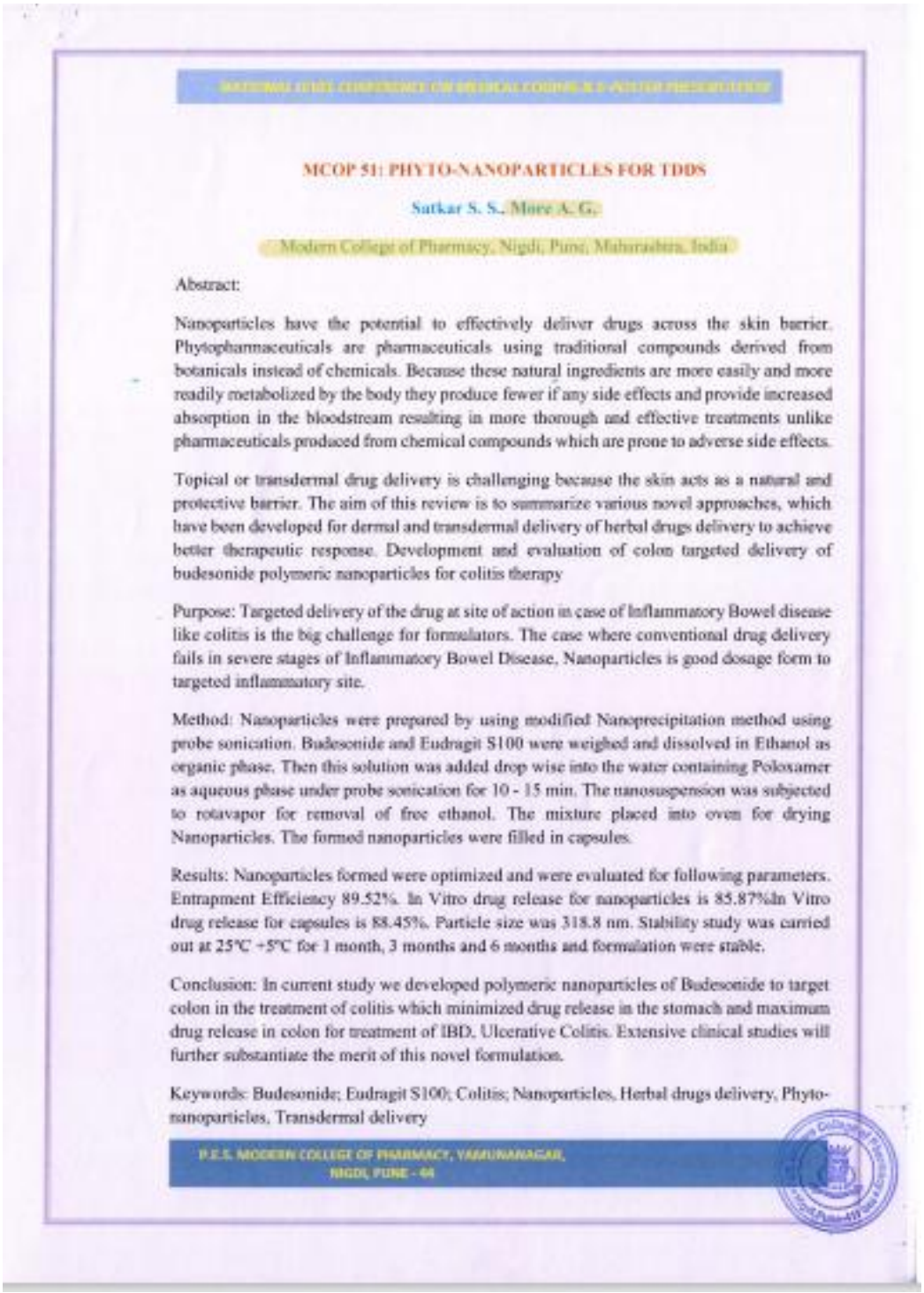
Abstract

NAFLD (Non-Alcoholic Fatty Liver Diseases) is highly prevalent in both adults and children. Insulin resistance, metabolic syndrome, Oxidative stress, obesity, sedentary life styles are the major reason for development of NAFLD. The studies have found that fructose intake can cause more production of glucose, glycogen, lactate and pyruvate, which contribute to the formation of triglycerides in liver cells. Further studies indicated that high-fructose diets over a long period of time induced NAFLD, and the progression of NAFLD was linked with insulin resistance. In addition, dietary high fructose facilitates oxidative damage in various tissues. More production of ROS has been claimed as a persistent contributor for liver cell damage and insulin resistance in fructose-induced NAFLD. Long term intake of high fructose has been repeatedly proved to be a risk factor for the pathogenesis of NAFLD both in animals and human. In present study, 10% fructose in drinking is given to induce NAFLD in female Wistar rats for 8 weeks. Ethanolic extracts of Moringa olifera Leaves is used for treatment. Moringa olifera leaves contains alkaloids, saponins, glycosides, tannins, flavonoids, polyphenols etc. Since insulin resistance, oxidative stress, inflammation are major mechanism in the development of NAFLD, antidiabetic, anti-inflammatory, antioxidant properties of ethanolic extract of Moringa olifera leaves may benefit NAFLD.

Key words: NAFLD (non-alcoholic fatty liver diseases); triglyceride, inflammation, oxidative stress.

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Phyto-Nanoparticles For TDDS



MCOP 51: PHYTO-NANOPARTICLES FOR TDDS

Satkar S. S., More A. G.

Modern College of Pharmacy, Nigdi, Pune, Maharashtra, India

Abstract:

Nanoparticles have the potential to effectively deliver drugs across the skin barrier. Phytopharmaceuticals are pharmaceuticals using traditional compounds derived from botanicals instead of chemicals. Because these natural ingredients are more easily and more readily metabolized by the body they produce fewer if any side effects and provide increased absorption in the bloodstream resulting in more thorough and effective treatments unlike pharmaceuticals produced from chemical compounds which are prone to adverse side effects.

Topical or transdermal drug delivery is challenging because the skin acts as a natural and protective barrier. The aim of this review is to summarize various novel approaches, which have been developed for dermal and transdermal delivery of herbal drugs delivery to achieve better therapeutic response. Development and evaluation of colon targeted delivery of budesonide polymeric nanoparticles for colitis therapy

Purpose: Targeted delivery of the drug at site of action in case of Inflammatory Bowel disease like colitis is the big challenge for formulators. The case where conventional drug delivery fails in severe stages of Inflammatory Bowel Disease. Nanoparticles is good dosage form to targeted inflammatory site.

Method: Nanoparticles were prepared by using modified Nanoprecipitation method using probe sonication. Budesonide and Eudragit S100 were weighed and dissolved in Ethanol as organic phase. Then this solution was added drop wise into the water containing Poloxamer as aqueous phase under probe sonication for 10 - 15 min. The nanosuspension was subjected to rotavapor for removal of free ethanol. The mixture placed into oven for drying Nanoparticles. The formed nanoparticles were filled in capsules.

Results: Nanoparticles formed were optimized and were evaluated for following parameters. Entrapment Efficiency 89.52%. In Vitro drug release for nanoparticles is 85.87%In Vitro drug release for capsules is 88.45%. Particle size was 318.8 nm. Stability study was carried out at 25°C +5°C for 1 month, 3 months and 6 months and formulation were stable.

Conclusion: In current study we developed polymeric nanoparticles of Budesonide to target colon in the treatment of colitis which minimized drug release in the stomach and maximum drug release in colon for treatment of IBD, Ulcerative Colitis. Extensive clinical studies will further substantiate the merit of this novel formulation.

Keywords: Budesonide; Eudragit S100; Colitis; Nanoparticles, Herbal drugs delivery, Phyto-nanoparticles, Transdermal delivery

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

An overview on anti-fraud software

NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 52: AN OVERVIEW ON ANTI-FRAUD SOFTWARE

Tiwari Shrusti, Padmaja S. Kore

Progressive educational society, modern college of pharmacy, Nigdi, Pune, India

Abstract:

Automated coding product can incooperate patient data generated from a variety of sources and analyse it. It can also evaluate record specific information. Both of these aspects can help to prevent fraud in reimbursement claim. It should be need that some basics texts to code maping product may not provide antifraud feature and may contribute to it if not properly designed. Thus sophistication of the antifraud tools and software varies across products and can include basic tools such as post payment data audits, or more complex data mining techniques and machine learning. ANN can predict the potential for fraud in a specific claim on the data in the claim and in the EHR. This system can be used for pre-payment or post payment fraud detection. Three mechanisms help the system deal with prepayment fraud detection include- data profiling, advanced analytic models and rank scoring. Since the antifraud software use combination of three systems described above, it continues to learn about the characteristics patterns of legitimate and illegitimate claim behavior becoming more increasingly accurate in its detections over time.

Keywords: EHR, ANN, data profiling, advanced analytic models, rank scoring, NLP.

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Future & New Trends in Medical Coding & Billing

NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 53: FUTURE & NEW TRENDS IN MEDICAL CODING & BILLING

Shweta Ghodake*, Padmaja Kore

Modern College of Pharmacy, Yamuna nagar, Nigdi, Pune

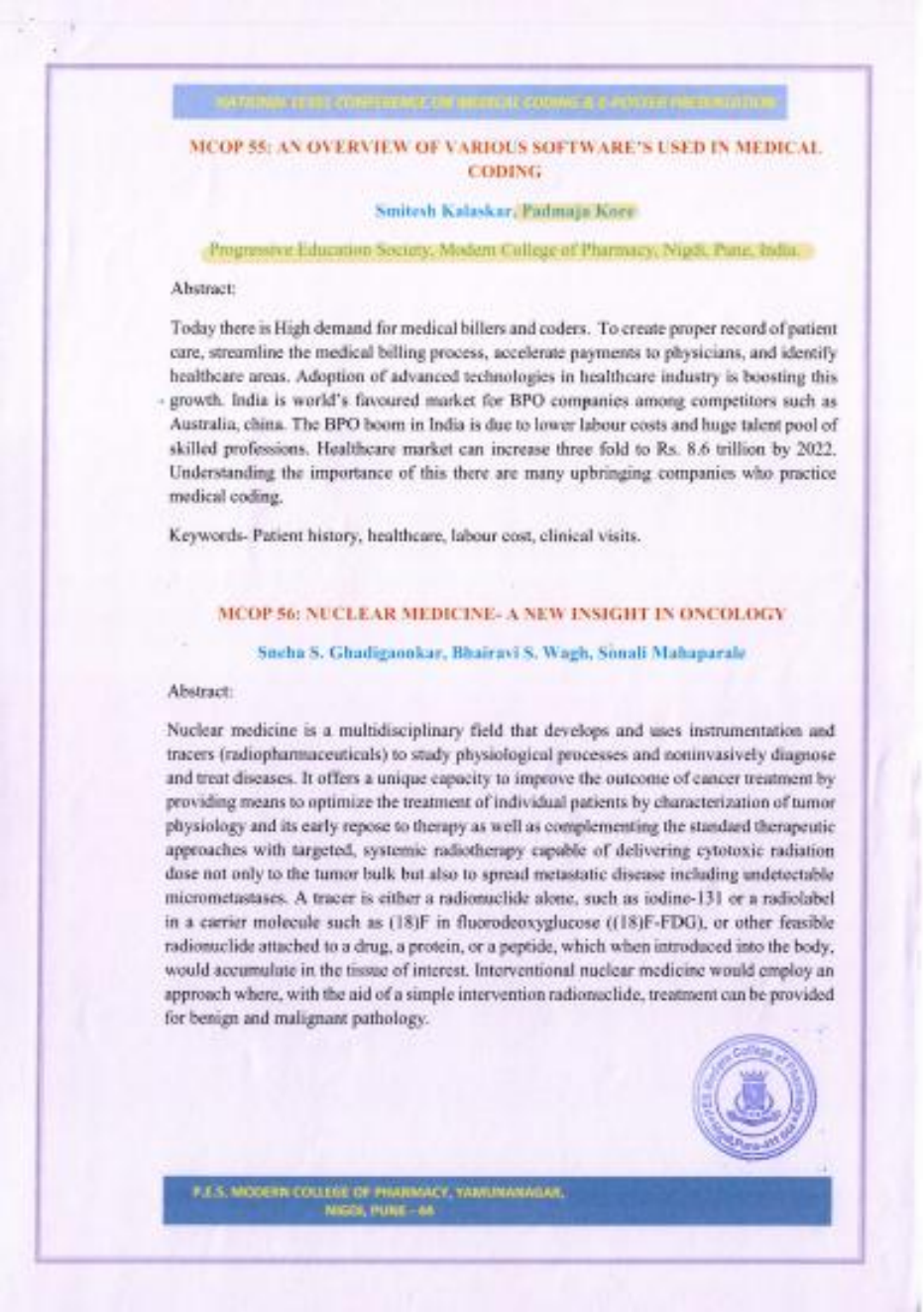
Abstract:

Medical coding is the translation of medical reports into a short code used within the healthcare industry. This helps summarize otherwise cumbersome medical reports into efficient, data-friendly codes. Medical coding involves communicating with physicians, nurses, and other healthcare professionals to categorize the services a patient has received. Medical billing and coding are two closely related aspects of the modern health care industry. Both practices are involved in the immensely important reimbursement cycle, which ensures that health care providers are paid for the services they perform. Medical coding is the never ending process in healthcare system and upcoming new trends can minimize the errors that can sometimes be risky for patients in maintaining their records. New trends such as block chain, outsourcing of billing and computer-assisted coding (CAC) are creeping into recent trends in medical administration. For anyone dealing with medical coding and billing aspect, it is important to embrace these changes. If adopted, these changes can also benefit your revenue cycle in no time.

Keywords: Medical, coding, billing, healthcare.

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

An overview of various software's used in medical coding



NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POWER PRESENTATION

MCOP 55: AN OVERVIEW OF VARIOUS SOFTWARE'S USED IN MEDICAL CODING

Smitesh Kalaskar, Padmaja Kore

Progressive Education Society, Modern College of Pharmacy, Nigdi, Pune, India.

Abstract:

Today there is High demand for medical billers and coders. To create proper record of patient care, streamline the medical billing process, accelerate payments to physicians, and identify healthcare areas. Adoption of advanced technologies in healthcare industry is boosting this growth. India is world's favoured market for BPO companies among competitors such as Australia, china. The BPO boom in India is due to lower labour costs and huge talent pool of skilled professions. Healthcare market can increase three fold to Rs. 8.6 trillion by 2022. Understanding the importance of this there are many upbringing companies who practice medical coding.

Keywords- Patient history, healthcare, labour cost, clinical visits.

MCOP 56: NUCLEAR MEDICINE- A NEW INSIGHT IN ONCOLOGY

Sneha S. Ghadigaonkar, Bhairavi S. Wagh, Sonali Mahaparale

Abstract:

Nuclear medicine is a multidisciplinary field that develops and uses instrumentation and tracers (radiopharmaceuticals) to study physiological processes and noninvasively diagnose and treat diseases. It offers a unique capacity to improve the outcome of cancer treatment by providing means to optimize the treatment of individual patients by characterization of tumor physiology and its early repose to therapy as well as complementing the standard therapeutic approaches with targeted, systemic radiotherapy capable of delivering cytotoxic radiation dose not only to the tumor bulk but also to spread metastatic disease including undetectable micrometastases. A tracer is either a radionuclide alone, such as iodine-131 or a radiolabel in a carrier molecule such as (18)F in fluorodeoxyglucose ((18)F-FDG), or other feasible radionuclide attached to a drug, a protein, or a peptide, which when introduced into the body, would accumulate in the tissue of interest. Interventional nuclear medicine would employ an approach where, with the aid of a simple intervention radionuclide, treatment can be provided for benign and malignant pathology.

P.E.S. MODERN COLLEGE OF PHARMACY, YAMUNANAGAR, NIGDI, PUNE - 44

Trends in healthcare & automated coding

NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 57: TYPE 1 DIABETES MELLITUS: AN OVERVIEW OF ITS CONVENTIONAL AND MODERNIZED MANAGEMENT

Snehal Kumbhar, Snehal Shinde, Rohini R. Pujari

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

Abstract:

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 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.

MCOP 58: TRENDS IN HEALTHCARE & AUTOMATED CODING

S. R. Ranaware, P.S. Kore

Modern College of Pharmacy, Nigdi, Pune, Maharashtra, India

Abstract:

Several major trends in healthcare have an impact on use of automated coding and potential fraud and abuse. Some automated coding system provide more detailed information including pictures and anatomical references so that coding can be more accurate. Automated coding system may complement existing compliance system by providing more detail to combat fraud. It analyses aggregated detail important in case of fraudulent. Auto generation of ICD & CPD codes is applicable to both professional fee abstracting for many physician & for facility billing. Automated coding provides the potential for increased efficiency &accuracy. Healthcare organizations are already required to have compliance evaluation mechanism which may be provided by automated coding.

Keywords: fraudulent, ICD & CPD, combat fraud, facility billing, compliance evaluation

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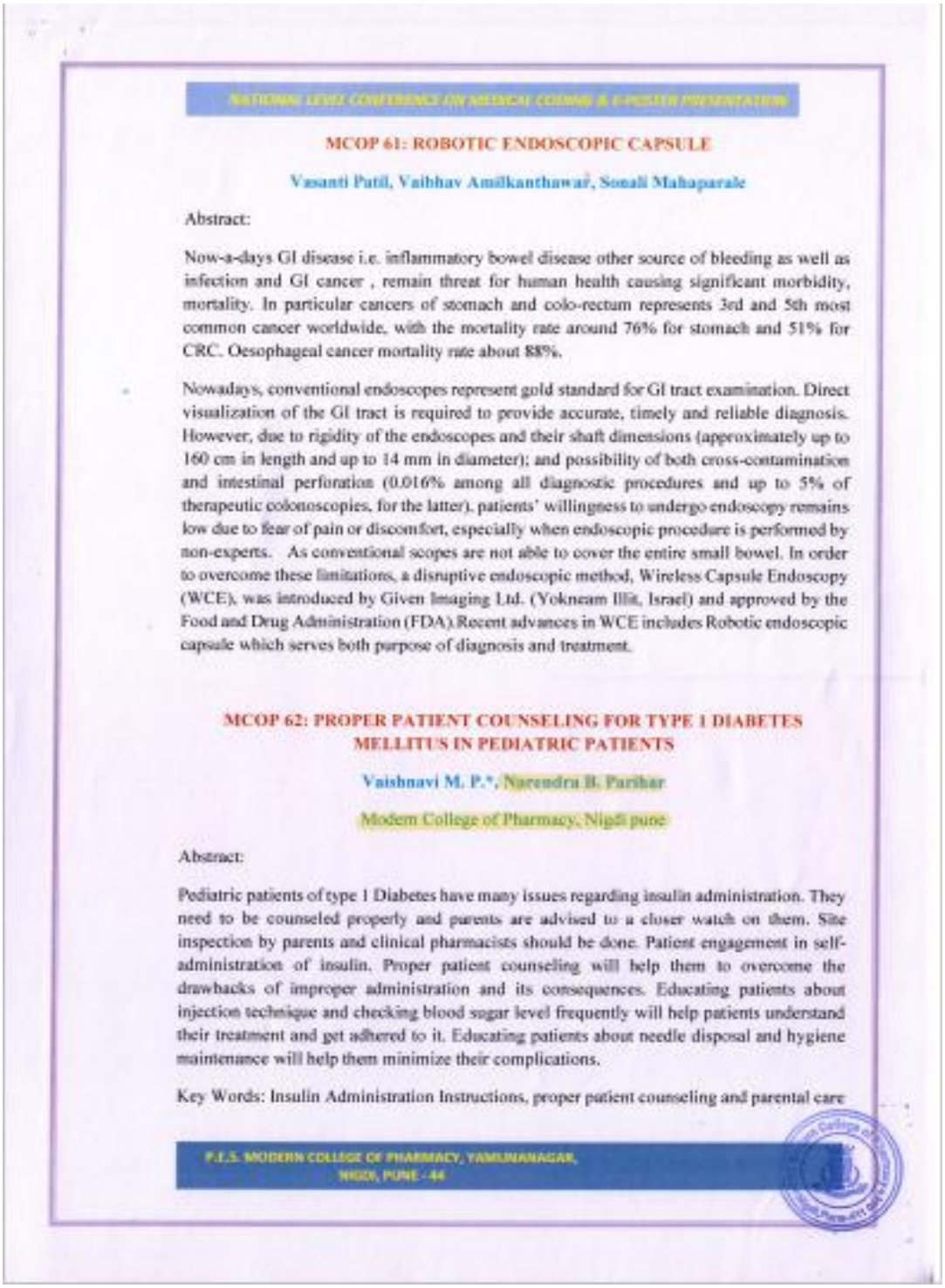
Proper Patient Counseling For Type 1 Diabetes Mellitus In Pediatric Patients



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MCOP 61: ROBOTIC ENDOSCOPIC CAPSULE

Vasanti Patil, Vaibhav Amilkanthawar, Sonali Mahaparale

Abstract:

Now-a-days GI disease i.e. inflammatory bowel disease other source of bleeding as well as infection and GI cancer , remain threat for human health causing significant morbidity, mortality. In particular cancers of stomach and colo-rectum represents 3rd and 5th most common cancer worldwide, with the mortality rate around 76% for stomach and 51% for CRC. Oesophageal cancer mortality rate about 88%.

Nowadays, conventional endoscopes represent gold standard for GI tract examination. Direct visualization of the GI tract is required to provide accurate, timely and reliable diagnosis. However, due to rigidity of the endoscopes and their shaft dimensions (approximately up to 160 cm in length and up to 14 mm in diameter); and possibility of both cross-contamination and intestinal perforation (0.016% among all diagnostic procedures and up to 5% of therapeutic colonoscopies, for the latter), patients' willingness to undergo endoscopy remains low due to fear of pain or discomfort, especially when endoscopic procedure is performed by non-experts. As conventional scopes are not able to cover the entire small bowel. In order to overcome these limitations, a disruptive endoscopic method, Wireless Capsule Endoscopy (WCE), was introduced by Given Imaging Ltd. (Yokneam Illit, Israel) and approved by the Food and Drug Administration (FDA).Recent advances in WCE includes Robotic endoscopic capsule which serves both purpose of diagnosis and treatment.

MCOP 62: PROPER PATIENT COUNSELING FOR TYPE 1 DIABETES MELLITUS IN PEDIATRIC PATIENTS

Vaishnavi M. P.*, Narendra B. Parihar

Modern College of Pharmacy, Nigdi pune

Abstract:

Pediatric patients of type 1 Diabetes have many issues regarding insulin administration. They need to be counseled properly and parents are advised to a closer watch on them. Site inspection by parents and clinical pharmacists should be done. Patient engagement in self-administration of insulin. Proper patient counseling will help them to overcome the drawbacks of improper administration and its consequences. Educating patients about injection technique and checking blood sugar level frequently will help patients understand their treatment and get adhered to it. Educating patients about needle disposal and hygiene maintenance will help them minimize their complications.

Key Words: Insulin Administration Instructions, proper patient counseling and parental care

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Types of medical coding

NATIONAL LEVEL CONFERENCE ON MEDICAL CODING & E-POSTER PRESENTATION

MCOP 63: ORGAN ON A CHIP (MICROFLUIDIC 3D MODELS)

Vaishnavi Bhosale*, Mukesh Mohite

Dr. D. Y. Patil College of Pharmacy, Akurdi, Pune

Abstract:

In the drug development process, the accurate prediction of drug efficacy and toxicity is important in order to reduce the cost, labor, and effort involved. For this, conventional 2D cell culture models are used in the early phase of drug development. However, the differences between the in vitro and the in vivo systems have caused the failure of drugs in the later phase of the drug development process. Therefore, there is a need for a novel in vitro model system that can provide accurate information for evaluating the drug efficacy and toxicity through a closer recapitulation of the in vivo system. Recently, the idea of using micro technology for mimicking the microscale tissue environment (lung, heart, gut, placenta, liver) has become widespread, leading to the development of 'organ-on-a-chip'. These systems integrate micro engineering, microfluidic technologies, and biomimetic principles to create key aspects of living organs faithfully, including critical microarchitecture, spatiotemporal cell-cell interactions, and extracellular microenvironments. These microfluidic 3D models can help replace animal models, to study the interaction of pathogens and organ cells and also the mechanisms of viral attacks, help to pinpoint whether the dose is effective and safer

Keywords: Microfluidic, etiology, recapitulation, microfabrication

MCOP 64: TYPES OF MEDICAL CODING

Vaishnavi S. Inde, Padmaja S. Kore

Modern college of pharmacy Nigdi, Pune

Abstract:

Medical coding refers to changing over the health care diagnosis medical services and equipment into combination of alphanumeric medical codes .This transformation ensure [illegible] and helps administrations to look at the prevalence and effectiveness of treatment for better efficiency this codes are divided into three broad categories namely- ICD (international classification of diseases), CPT (current procedure terminology), HCPCS (healthcare common procedure coding system).

Keywords: Medical coding, ICD, CPT, HCPCS, Coding.

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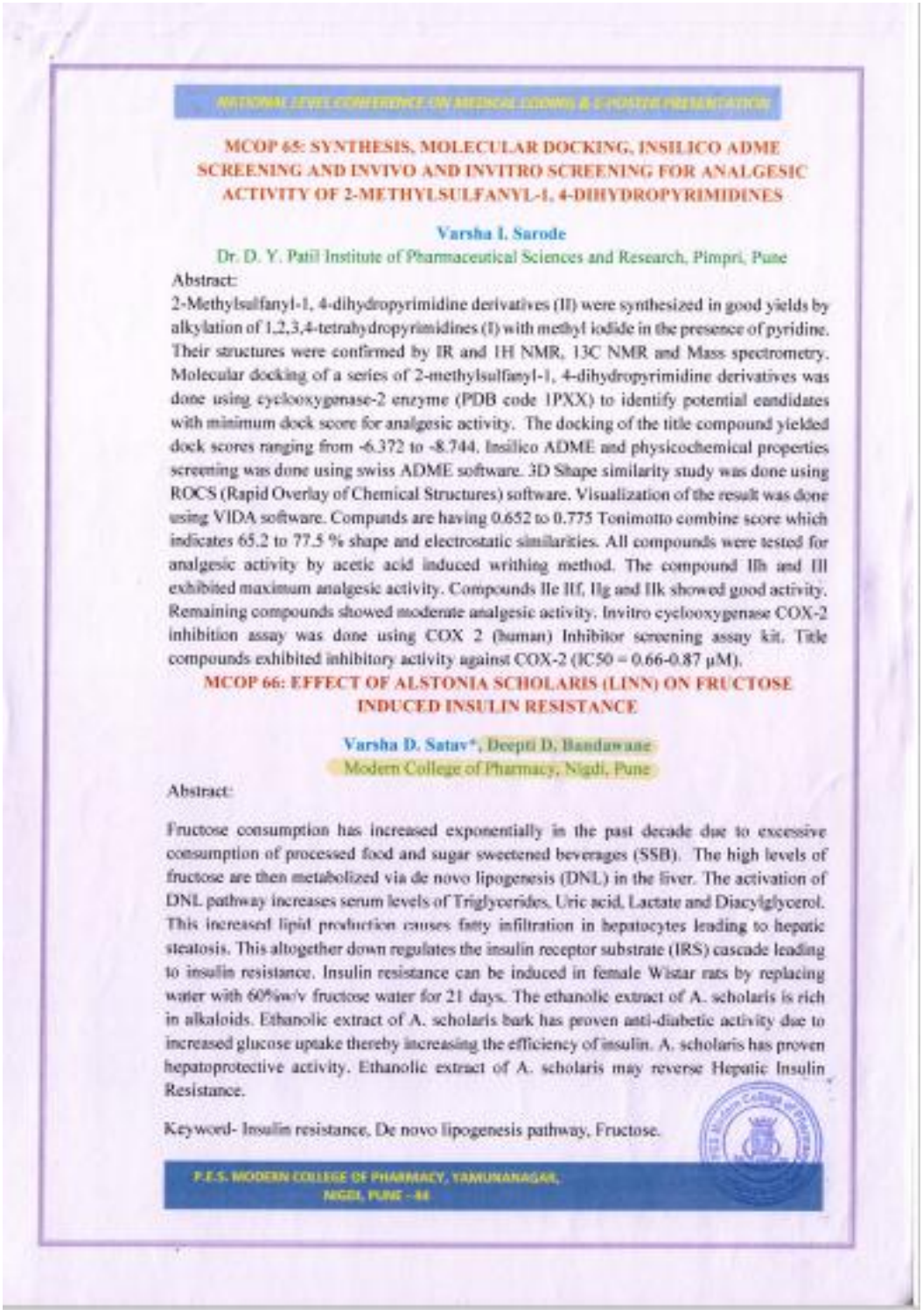
Effect of alstoniascholaris (linn) on fructose induced insulin resistance



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MCOP 65: SYNTHESIS, MOLECULAR DOCKING, INSILICO ADME SCREENING AND INVIVO AND INVITRO SCREENING FOR ANALGESIC ACTIVITY OF 2-METHYLSULFANYL-1, 4-DIHYDROPYRIMIDINES

Varsha I. Sarode
Dr. D. Y. Patil Institute of Pharmaceutical Sciences and Research, Pimpri, Pune

Abstract:
2-Methylsulfanyl-1, 4-dihydropyrimidine derivatives (II) were synthesized in good yields by alkylation of 1,2,3,4-tetrahydropyrimidines (I) with methyl iodide in the presence of pyridine. Their structures were confirmed by IR and 1H NMR, 13C NMR and Mass spectrometry. Molecular docking of a series of 2-methylsulfanyl-1, 4-dihydropyrimidine derivatives was done using cyclooxygenase-2 enzyme (PDB code 1PXX) to identify potential candidates with minimum dock score for analgesic activity. The docking of the title compound yielded dock scores ranging from -6.372 to -8.744. Insilico ADME and physicochemical properties screening was done using swiss ADME software. 3D Shape similarity study was done using ROCS (Rapid Overlay of Chemical Structures) software. Visualization of the result was done using VIDA software. Compunds are having 0.652 to 0.775 Tonimotto combine score which indicates 65.2 to 77.5 % shape and electrostatic similarities. All compounds were tested for analgesic activity by acetic acid induced writhing method. The compound IIh and IIl exhibited maximum analgesic activity. Compounds IIe IIf, IIg and IIk showed good activity. Remaining compounds showed moderate analgesic activity. Invitro cyclooxygenase COX-2 inhibition assay was done using COX 2 (human) Inhibitor screening assay kit. Title compounds exhibited inhibitory activity against COX-2 (IC50 = 0.66-0.87 μM).

MCOP 66: EFFECT OF ALSTONIA SCHOLARIS (LINN) ON FRUCTOSE INDUCED INSULIN RESISTANCE

Varsha D. Satav*, Deepti D. Bandawane
Modern College of Pharmacy, Nigdi, Pune

Abstract:

Fructose consumption has increased exponentially in the past decade due to excessive consumption of processed food and sugar sweetened beverages (SSB). The high levels of fructose are then metabolized via de novo lipogenesis (DNL) in the liver. The activation of DNL pathway increases serum levels of Triglycerides, Uric acid, Lactate and Diacylglycerol. This increased lipid production causes fatty infiltration in hepatocytes leading to hepatic steatosis. This altogether down regulates the insulin receptor substrate (IRS) cascade leading to insulin resistance. Insulin resistance can be induced in female Wistar rats by replacing water with 60%w/v fructose water for 21 days. The ethanolic extract of A. scholaris is rich in alkaloids. Ethanolic extract of A. scholaris bark has proven anti-diabetic activity due to increased glucose uptake thereby increasing the efficiency of insulin. A. scholaris has proven hepatoprotective activity. Ethanolic extract of A. scholaris may reverse Hepatic Insulin Resistance.

Keyword- Insulin resistance, De novo lipogenesis pathway, Fructose.

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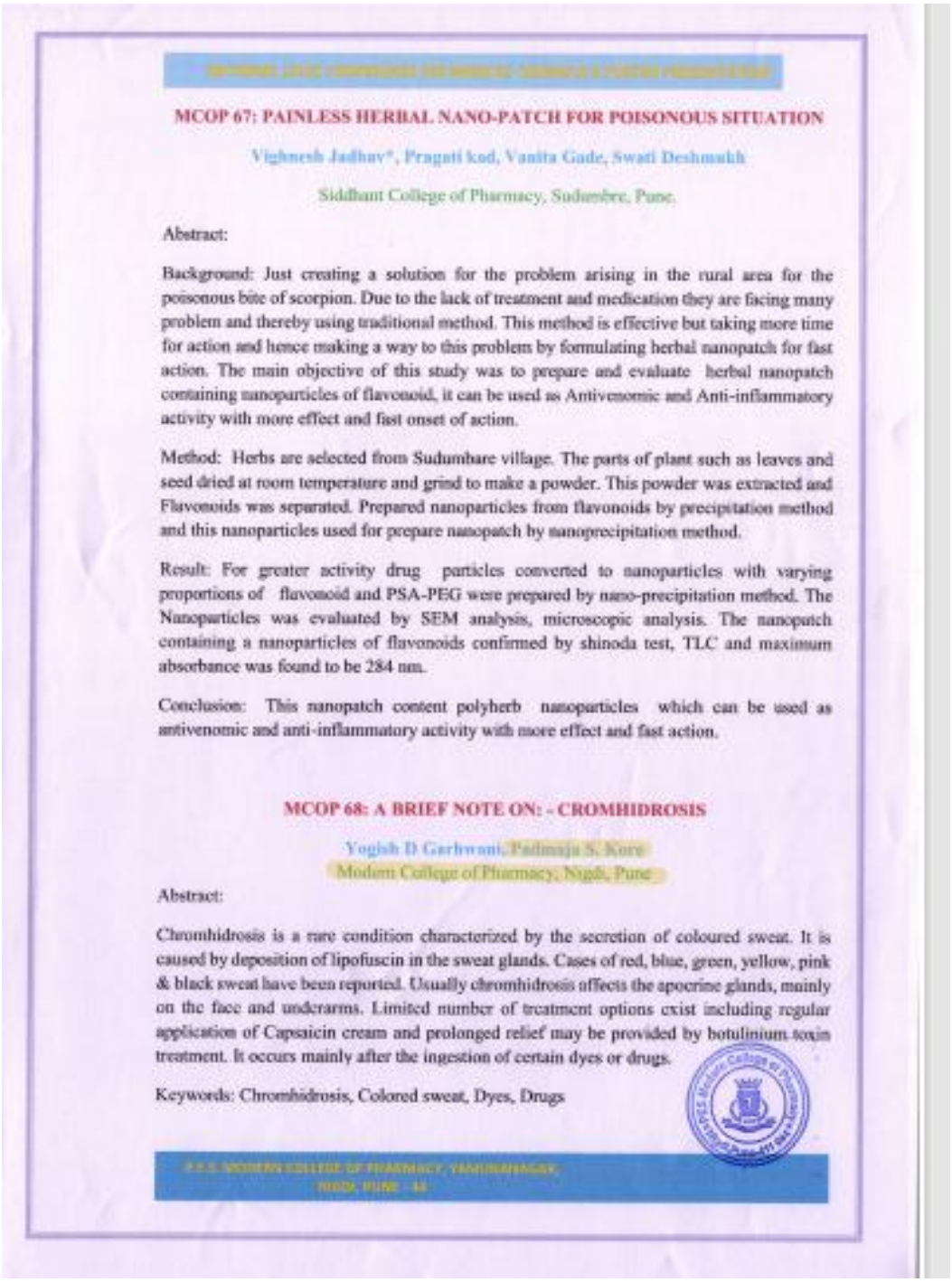
Brief Note on Cromhidrosis



MCOP 67: PAINLESS HERBAL NANO-PATCH FOR POISONOUS SITUATION

Vighnesh Jadhav*, Pragati kod, Vanita Gade, Swati Deshmukh

Siddhant College of Pharmacy, Sudumbre, Pune.

Abstract:

Background: Just creating a solution for the problem arising in the rural area for the poisonous bite of scorpion. Due to the lack of treatment and medication they are facing many problem and thereby using traditional method. This method is effective but taking more time for action and hence making a way to this problem by formulating herbal nanopatch for fast action. The main objective of this study was to prepare and evaluate herbal nanopatch containing nanoparticles of flavonoid, it can be used as Antivenomic and Anti-inflammatory activity with more effect and fast onset of action.

Method: Herbs are selected from Sudumbare village. The parts of plant such as leaves and seed dried at room temperature and grind to make a powder. This powder was extracted and Flavonoids was separated. Prepared nanoparticles from flavonoids by precipitation method and this nanoparticles used for prepare nanopatch by nanoprecipitation method.

Result: For greater activity drug particles converted to nanoparticles with varying proportions of flavonoid and PSA-PEG were prepared by nano-precipitation method. The Nanoparticles was evaluated by SEM analysis, microscopic analysis. The nanopatch containing a nanoparticles of flavonoids confirmed by shinoda test, TLC and maximum absorbance was found to be 284 nm.

Conclusion: This nanopatch content polyherb nanoparticles which can be used as antivenomic and anti-inflammatory activity with more effect and fast action.

MCOP 68: A BRIEF NOTE ON: - CROMHIDROSIS

Yogish D Garhwani, Padmaja S. Kore

Modern College of Pharmacy, Nigdi, Pune

Abstract:

Chromhidrosis is a rare condition characterized by the secretion of coloured sweat. It is caused by deposition of lipofuscin in the sweat glands. Cases of red, blue, green, yellow, pink & black sweat have been reported. Usually chromhidrosis affects the apocrine glands, mainly on the face and underarms. Limited number of treatment options exist including regular application of Capsaicin cream and prolonged relief may be provided by botulinium toxin treatment. It occurs mainly after the ingestion of certain dyes or drugs.

Keywords: Chromhidrosis, Colored sweat, Dyes, Drugs

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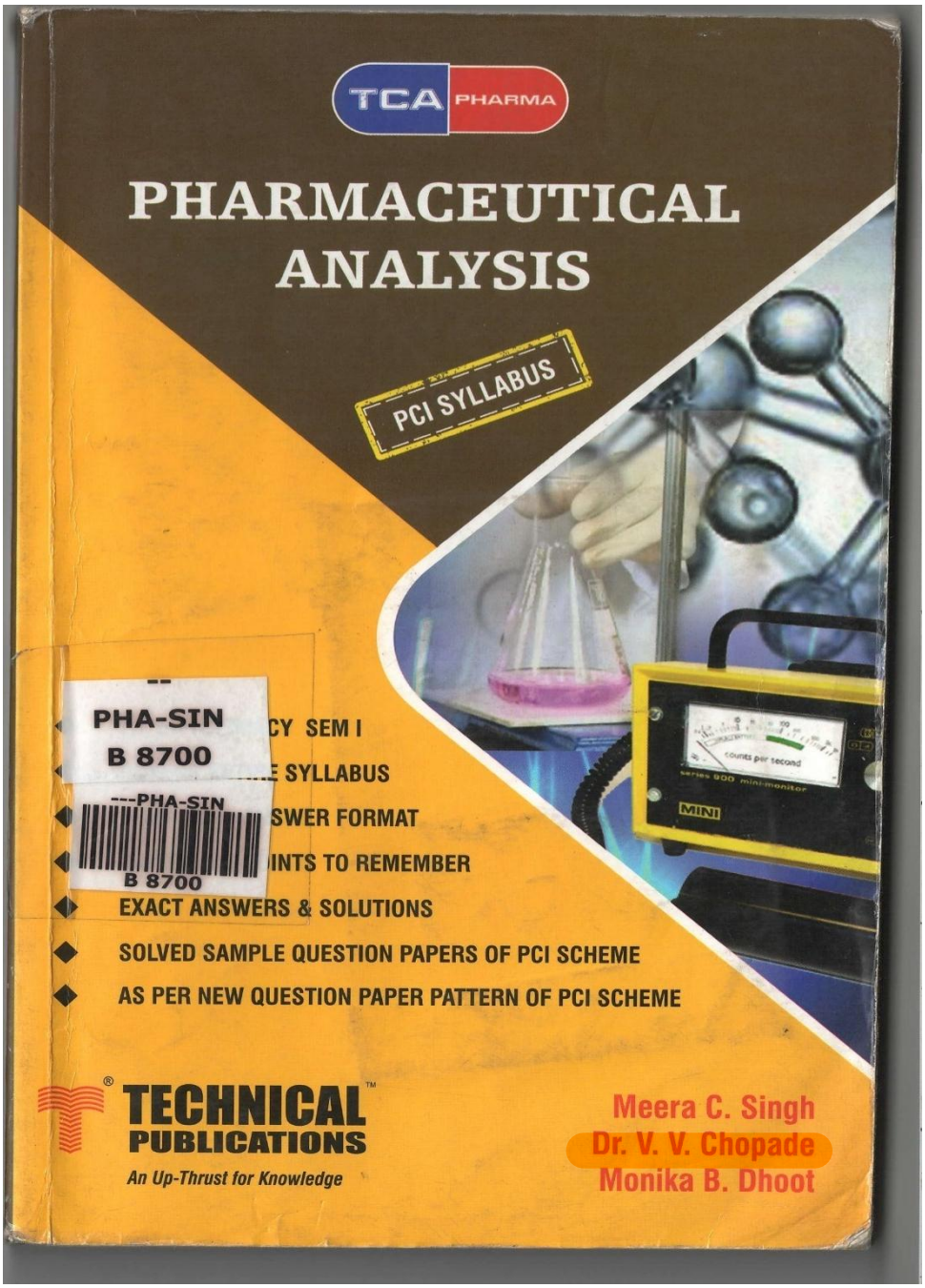
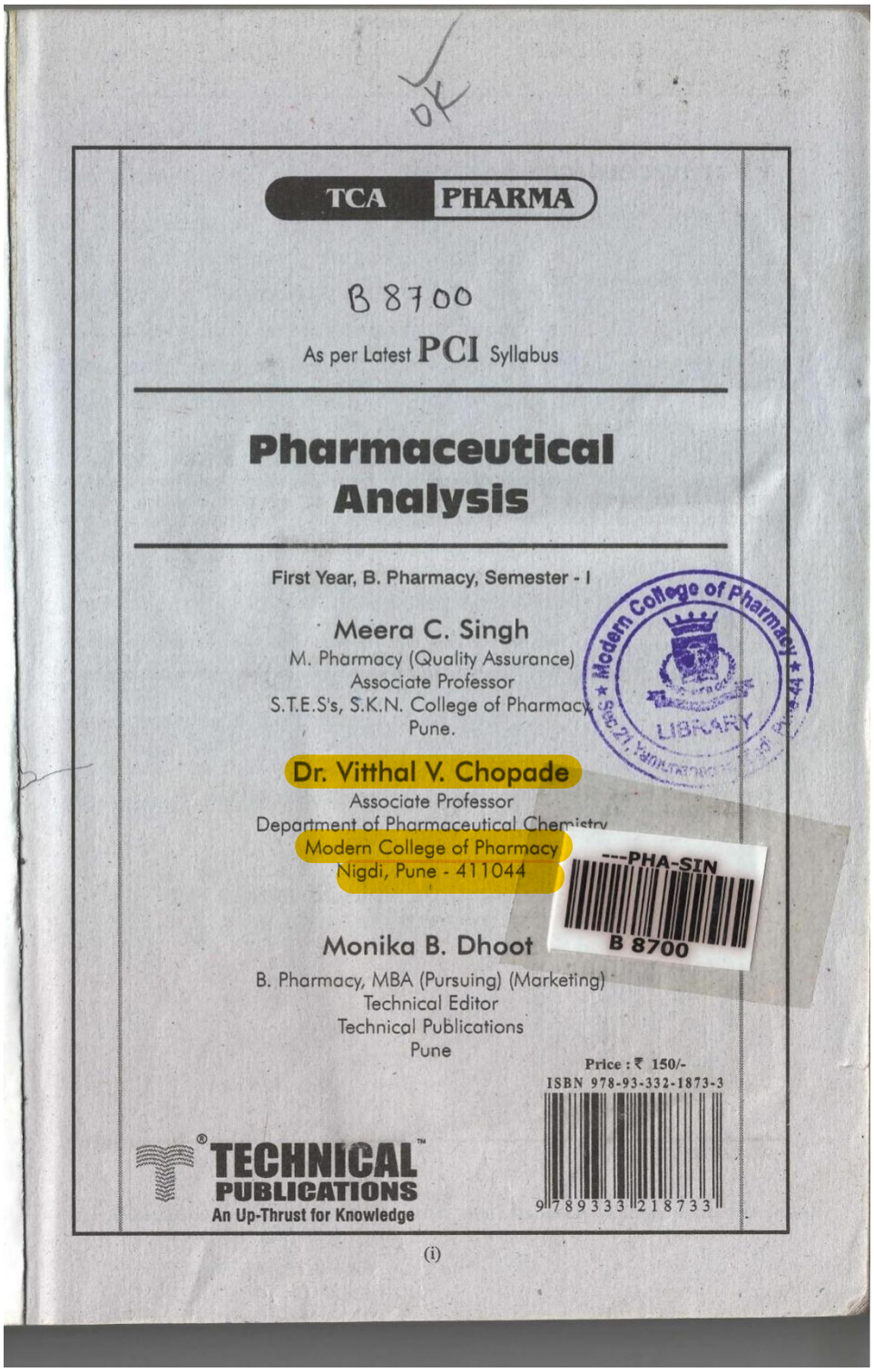
INDEX

Pharmaceutical Analysis





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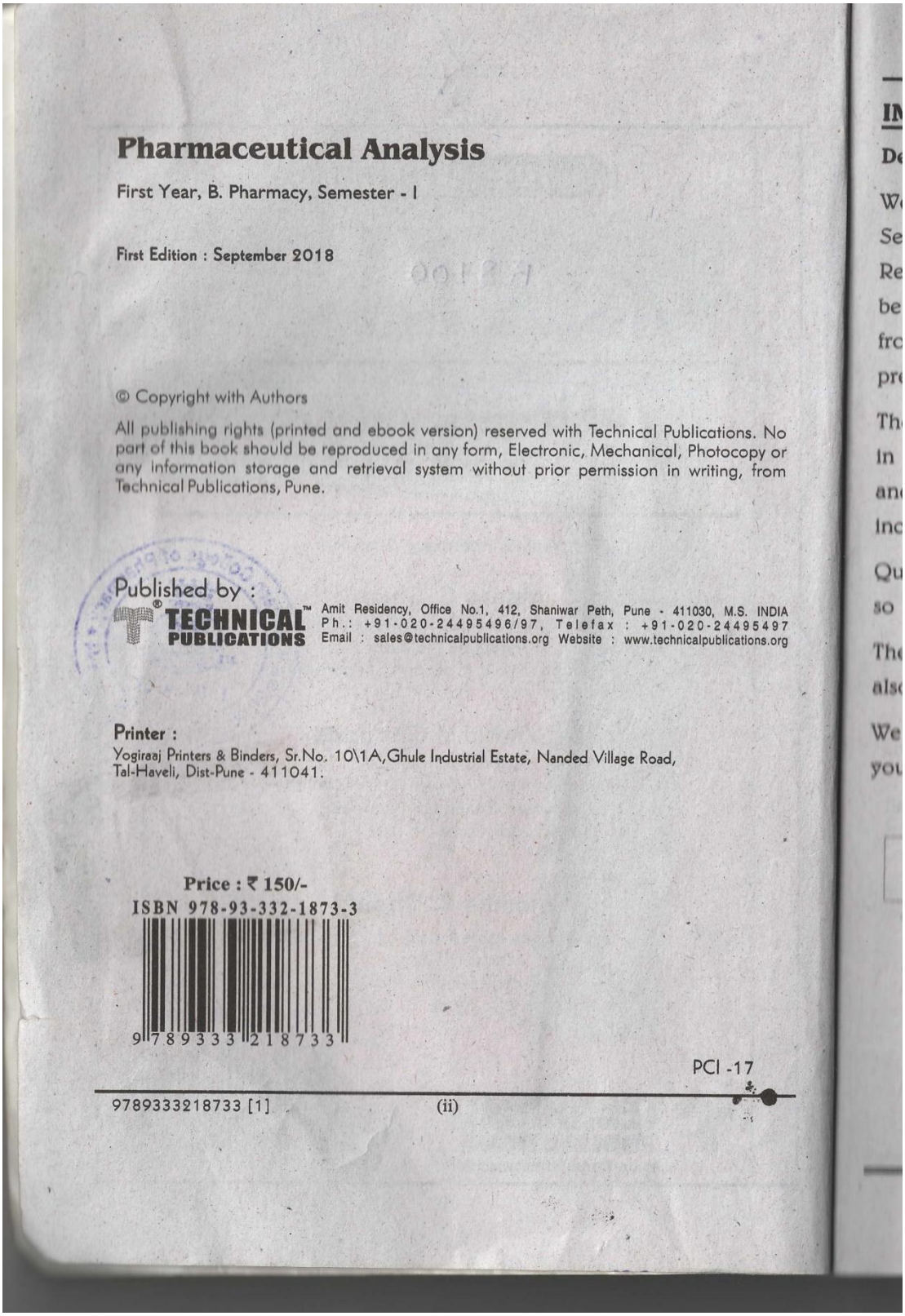

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PCI -17

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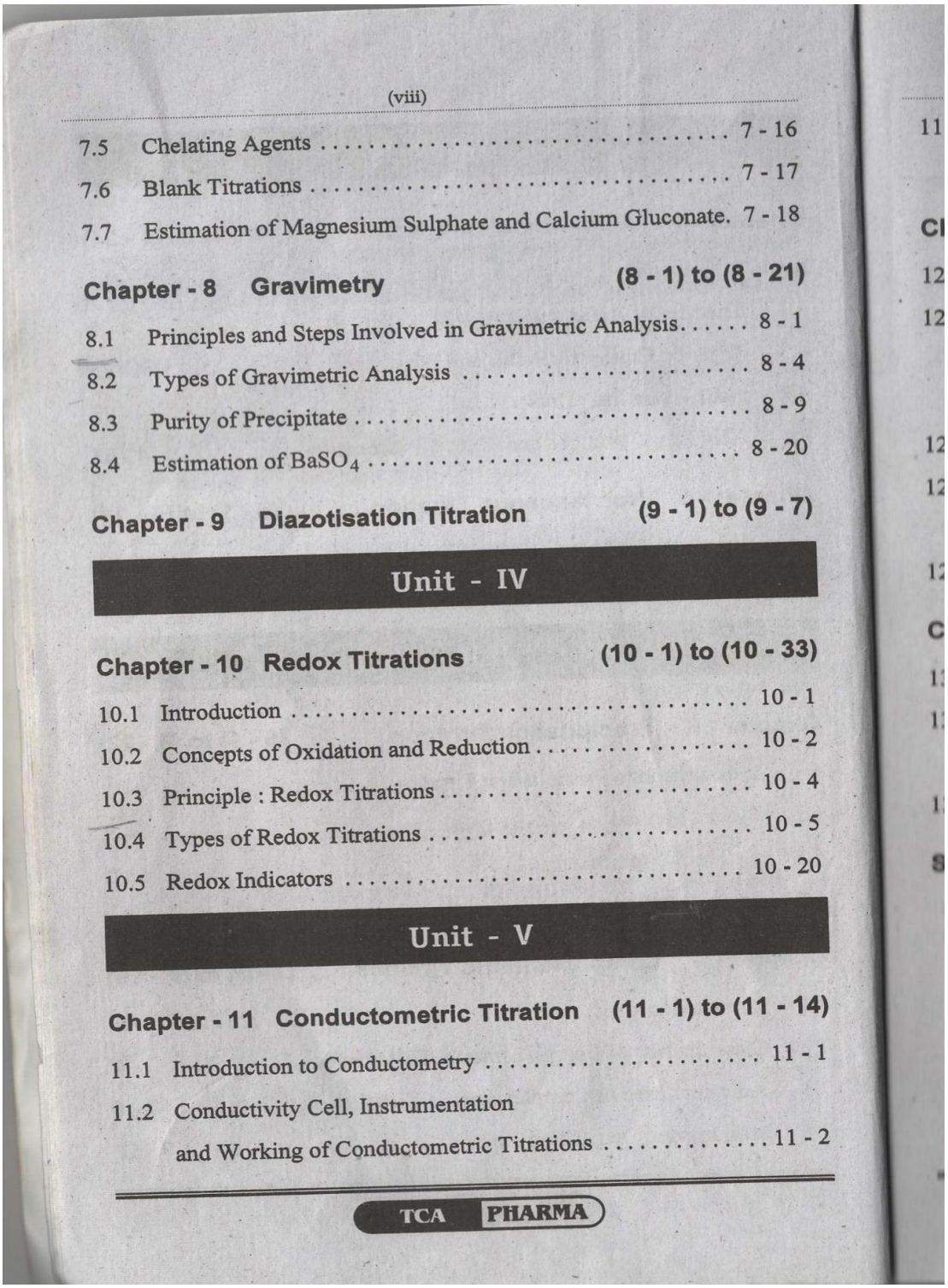
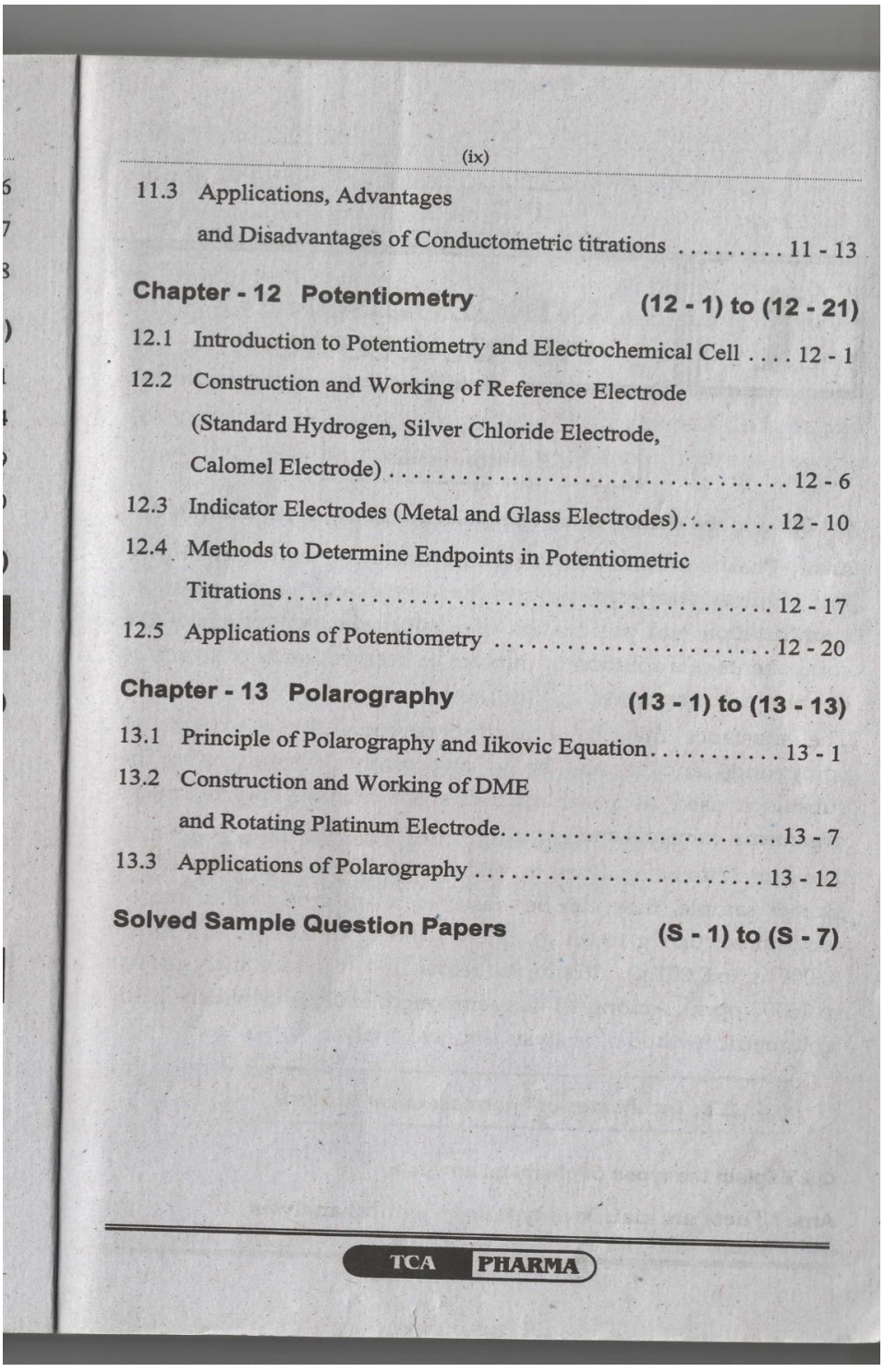
TABLE OF CONTENTS

Unit - I

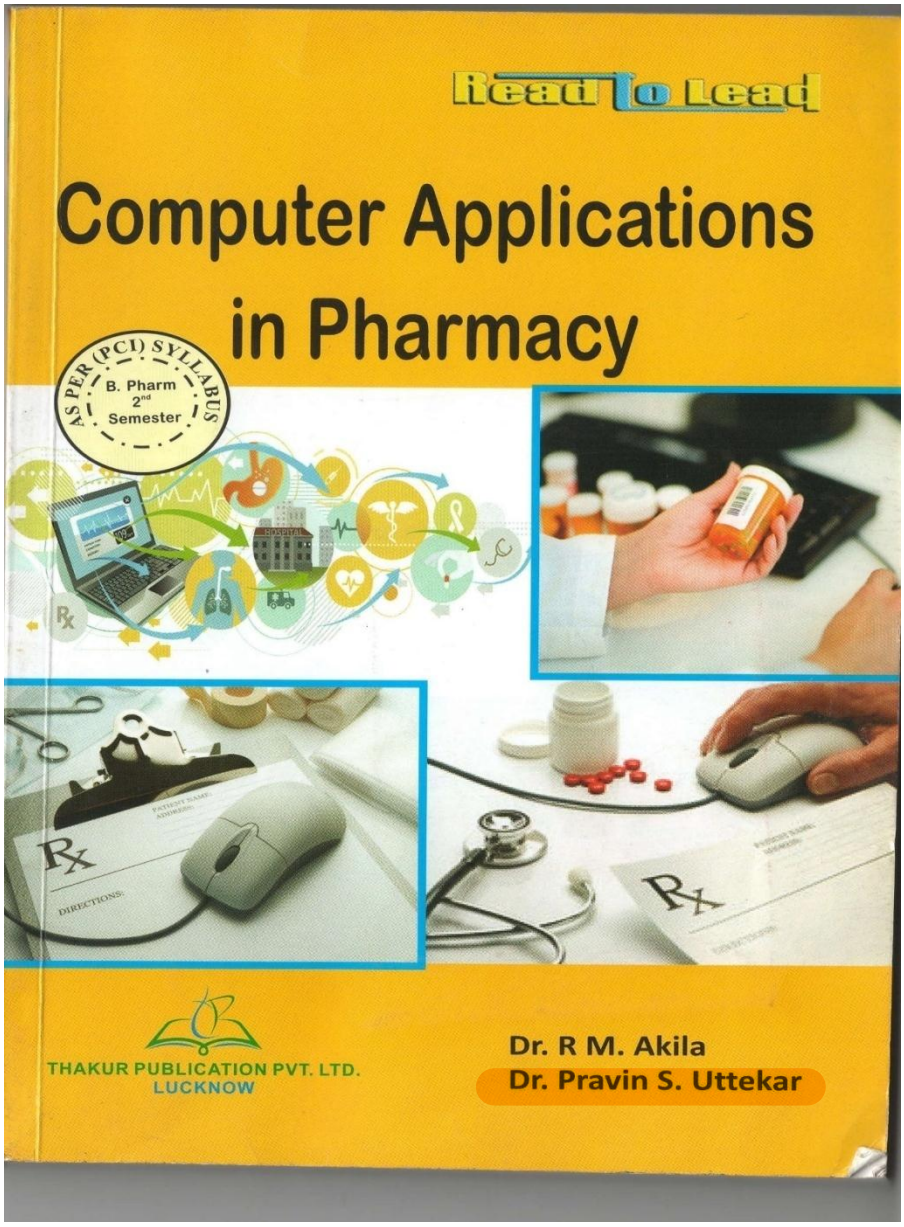
Unit - II

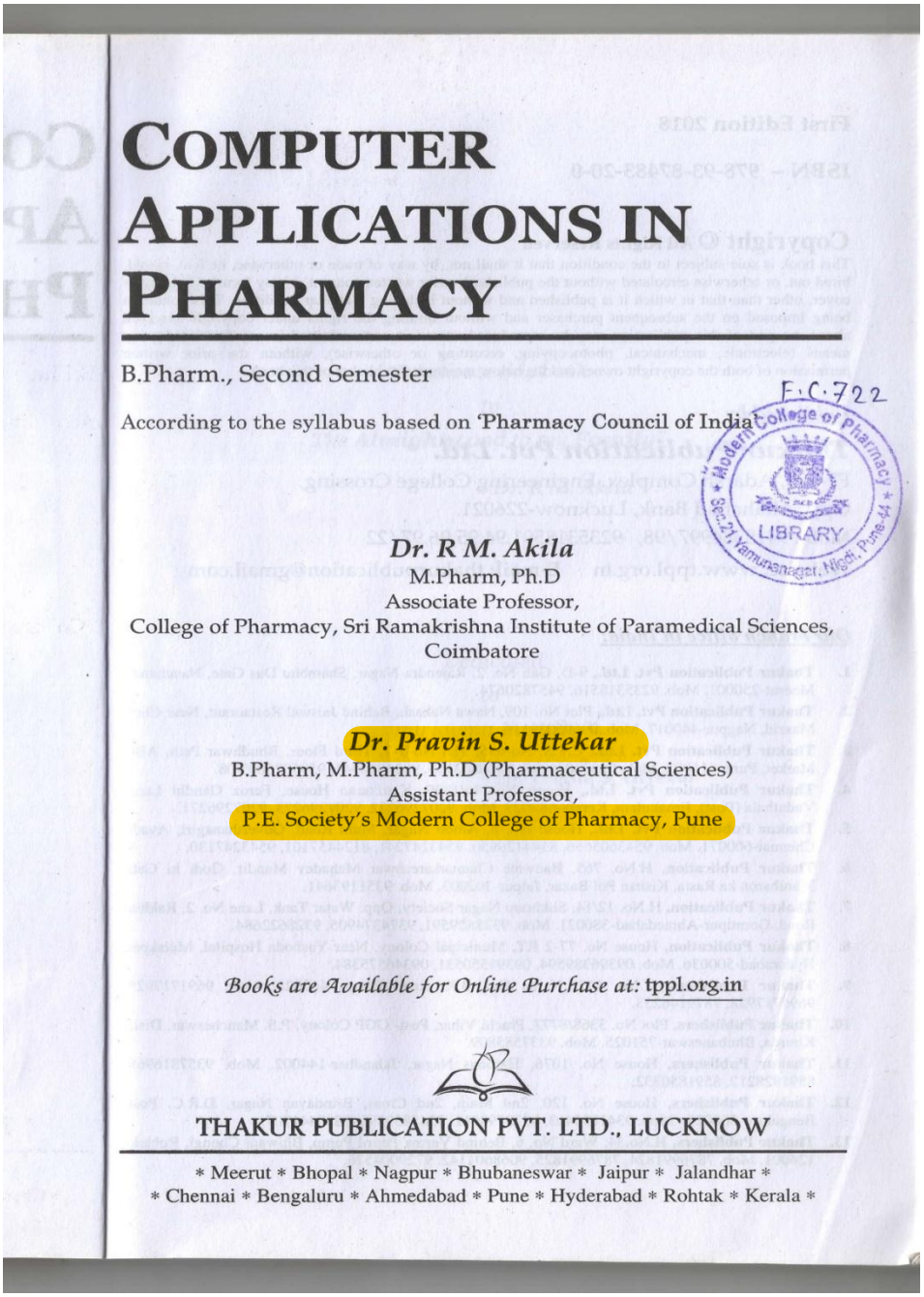
Unit - III





Computer Application in Pharmacy





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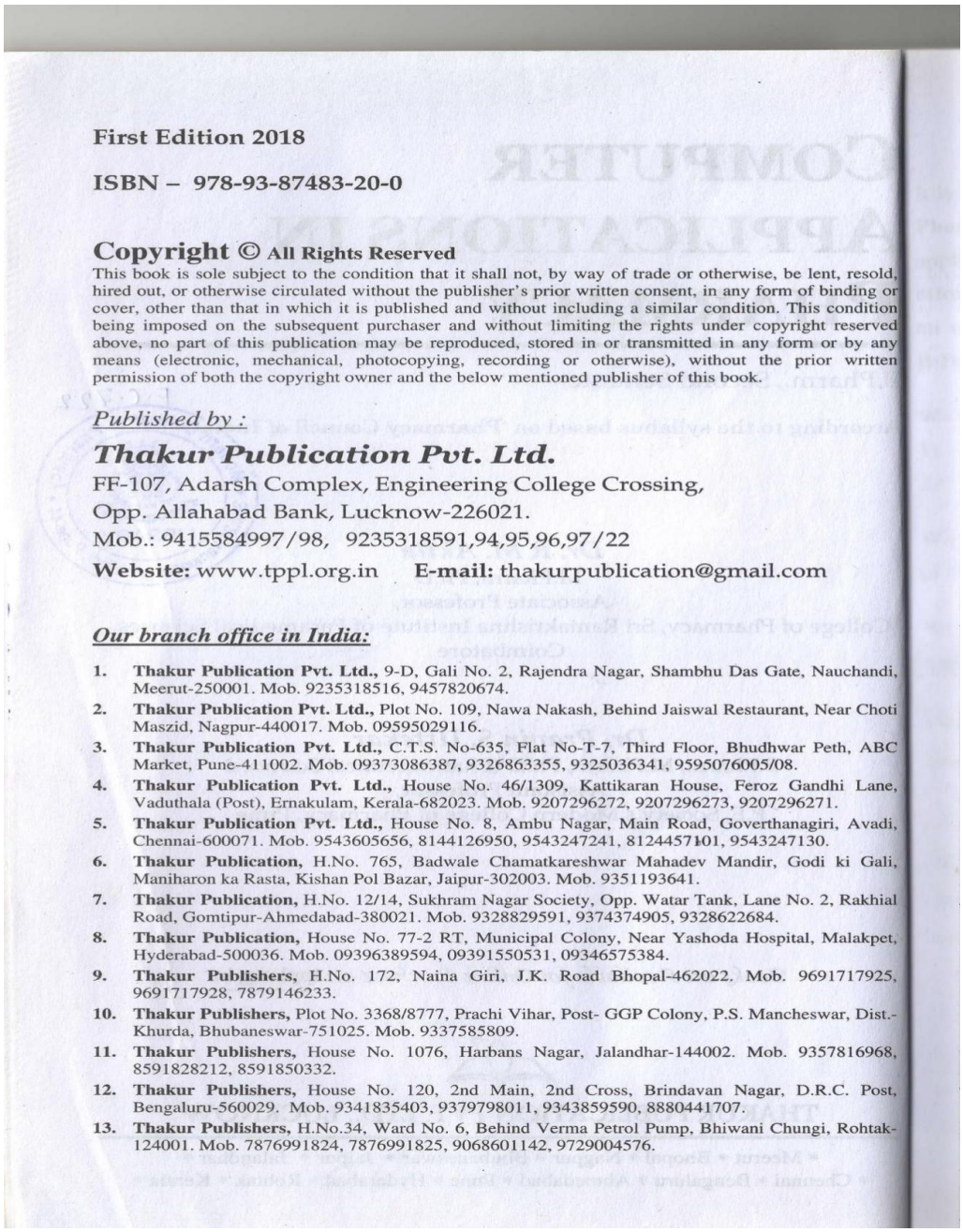

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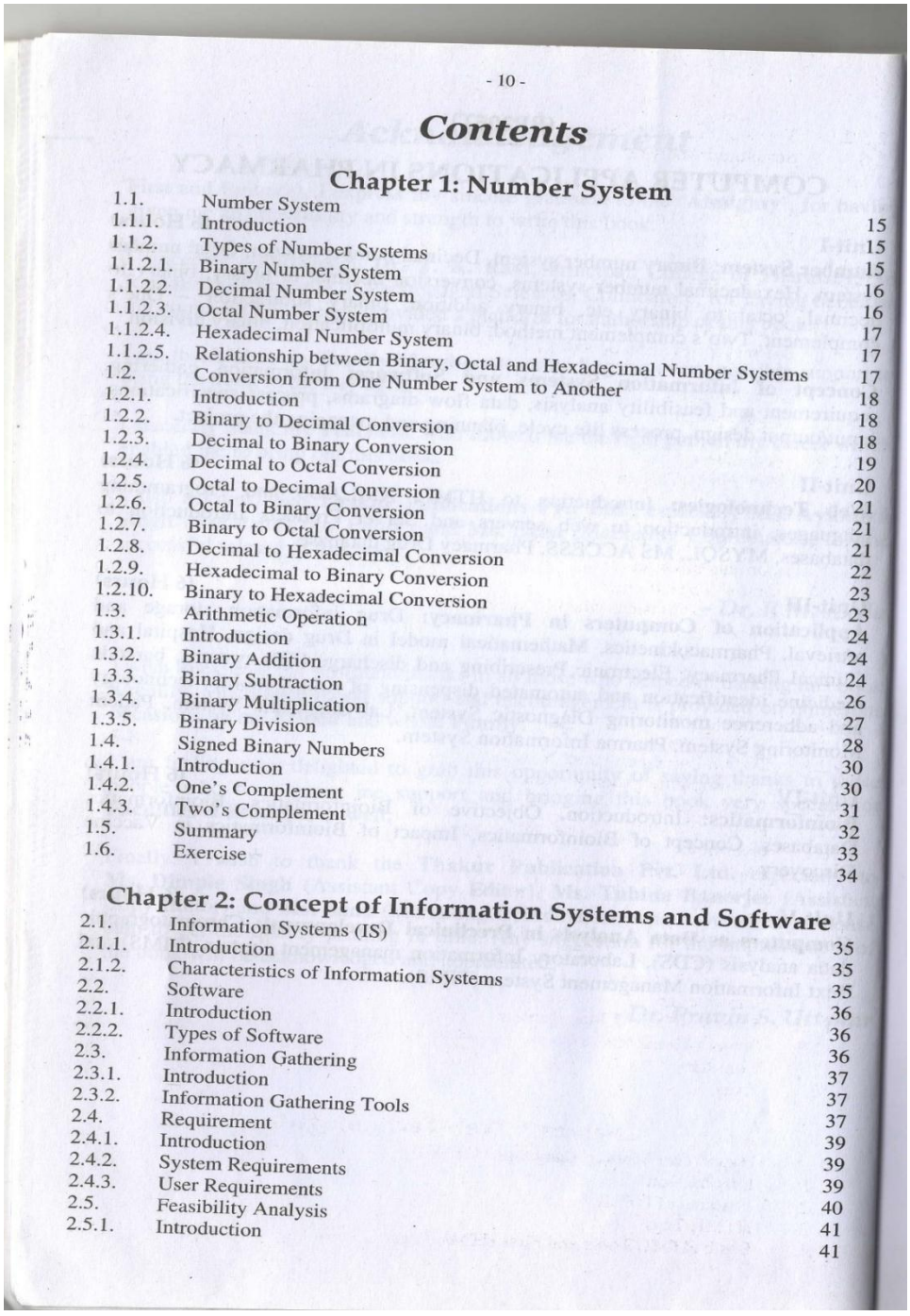
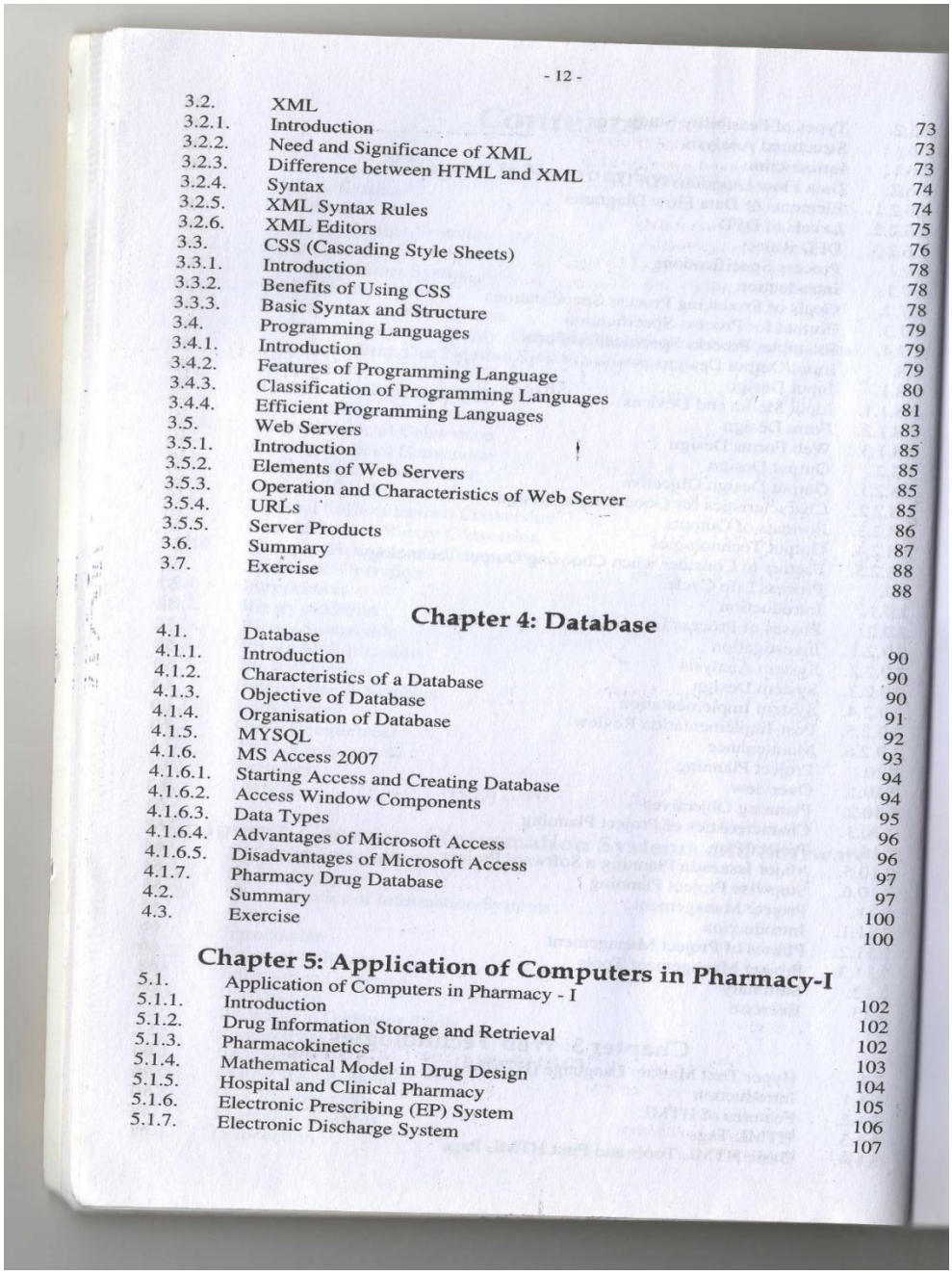


Contents

Chapter 1: Number System

Chapter 2: Concept of Information Systems and Software



Chapter 9: Chromatographic Data Analysis

Chapter 10: Laboratory & Text Information Management System

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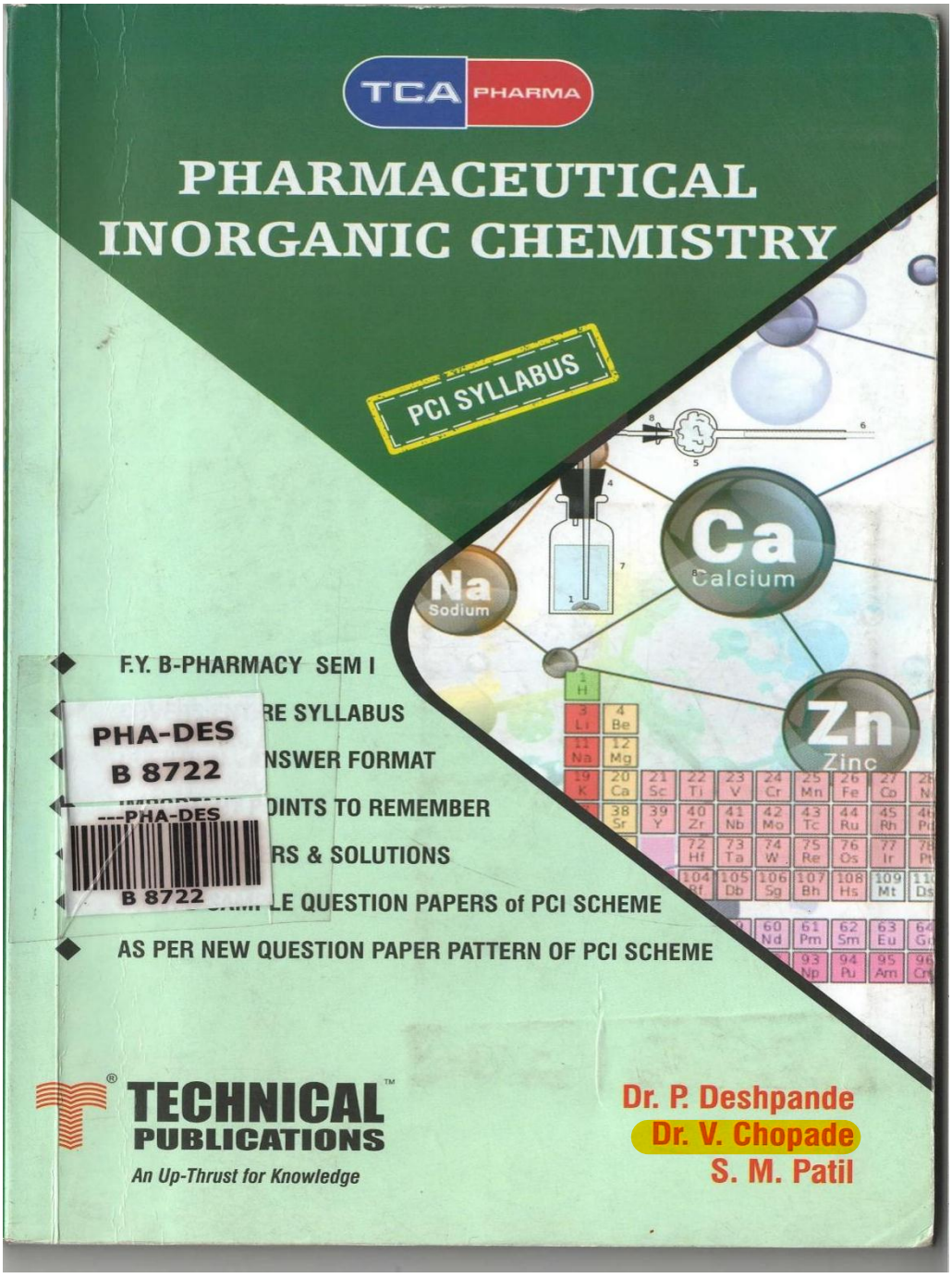

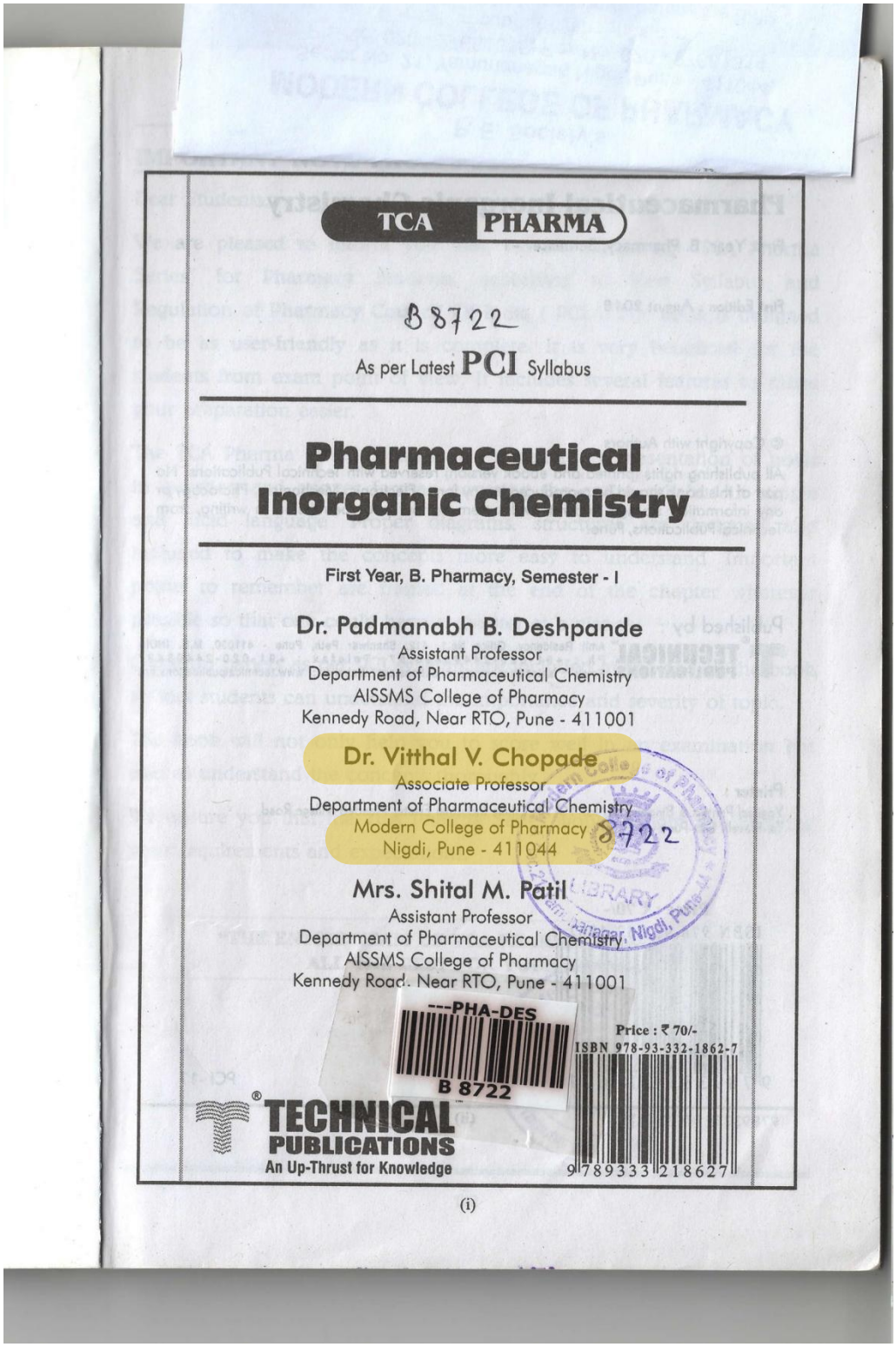

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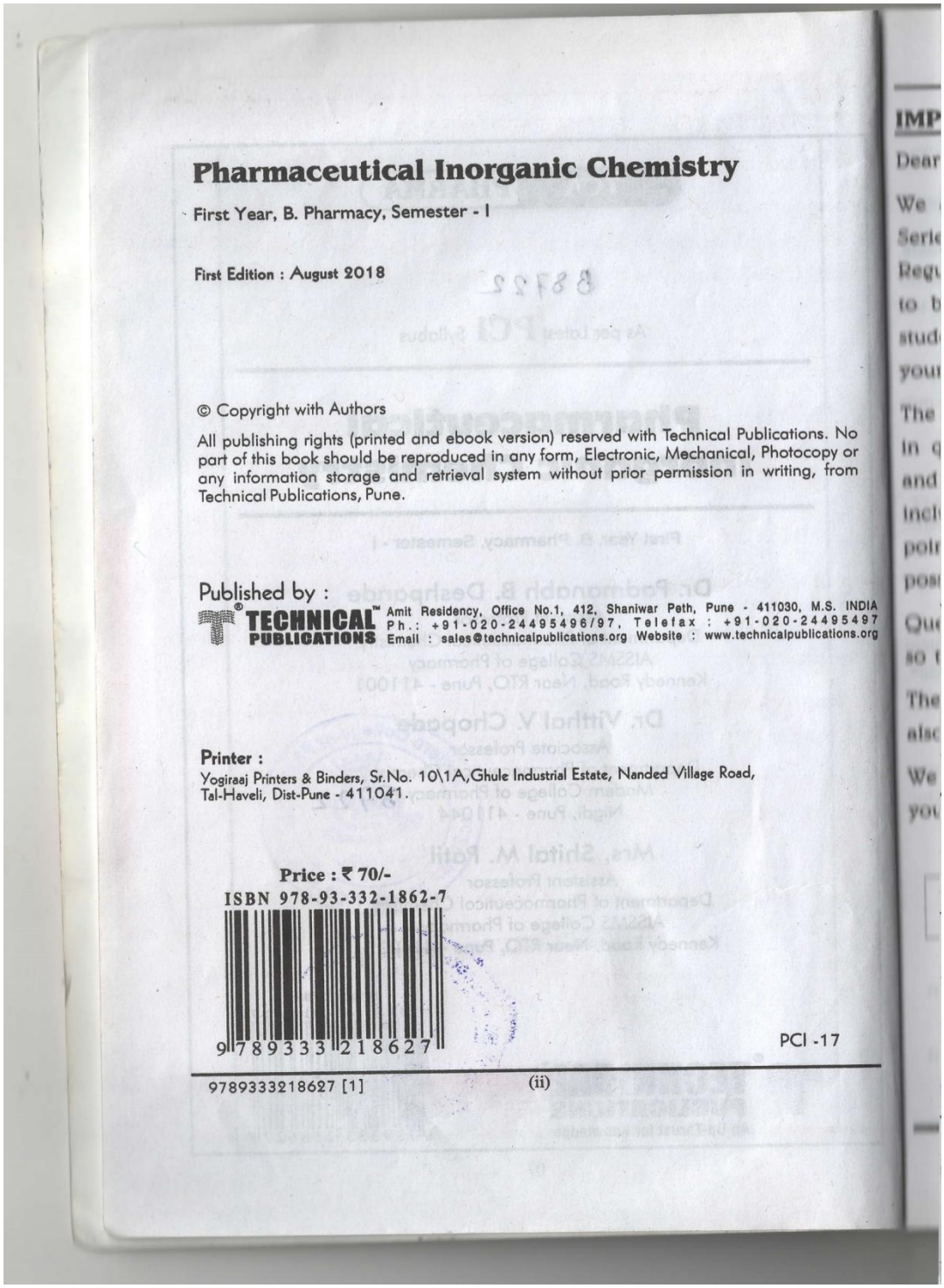

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TABLE OF CONTENTS

Unit - I

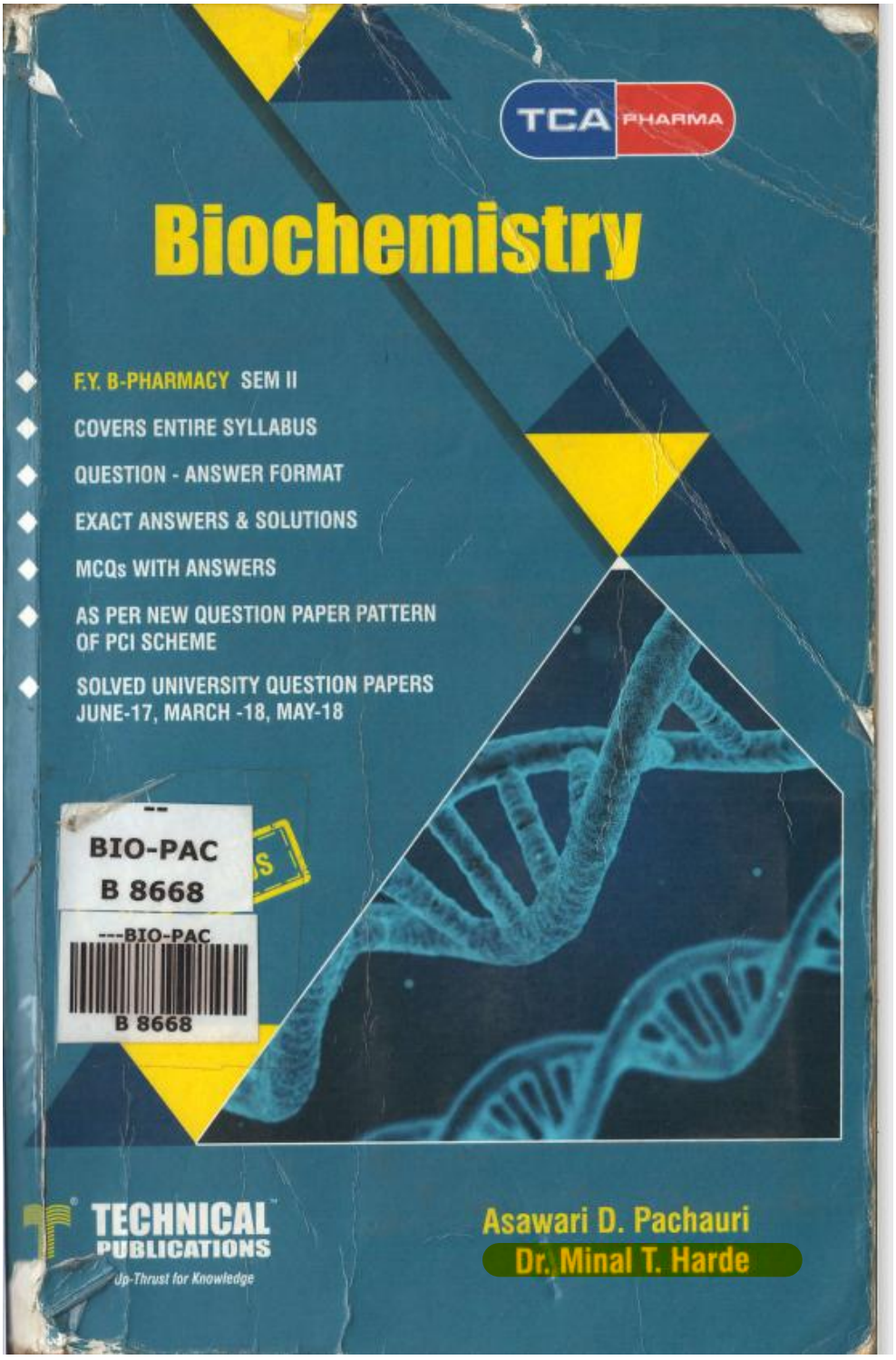
Unit - II

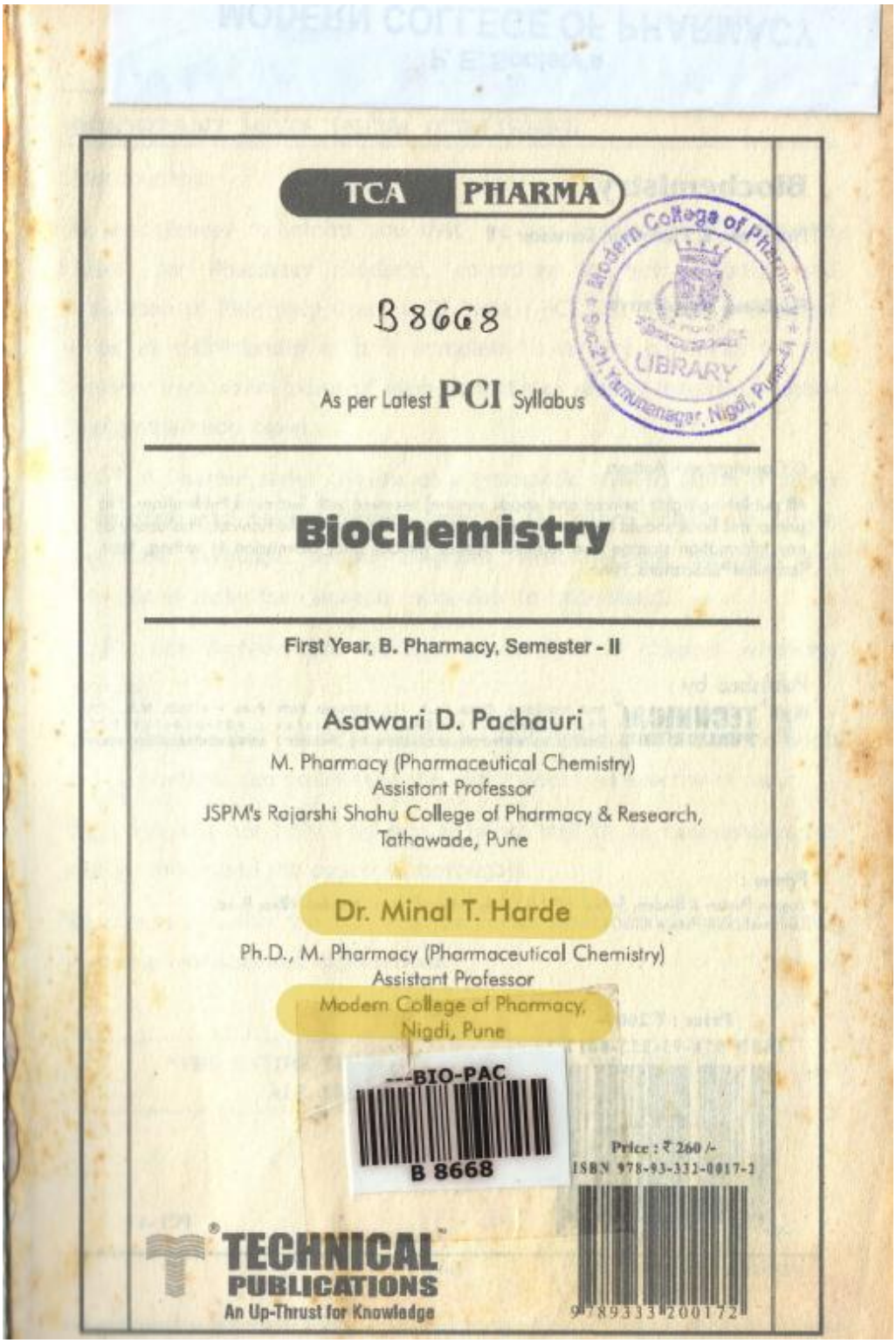
Unit - III

Unit - IV

Unit - V

Biochemistry

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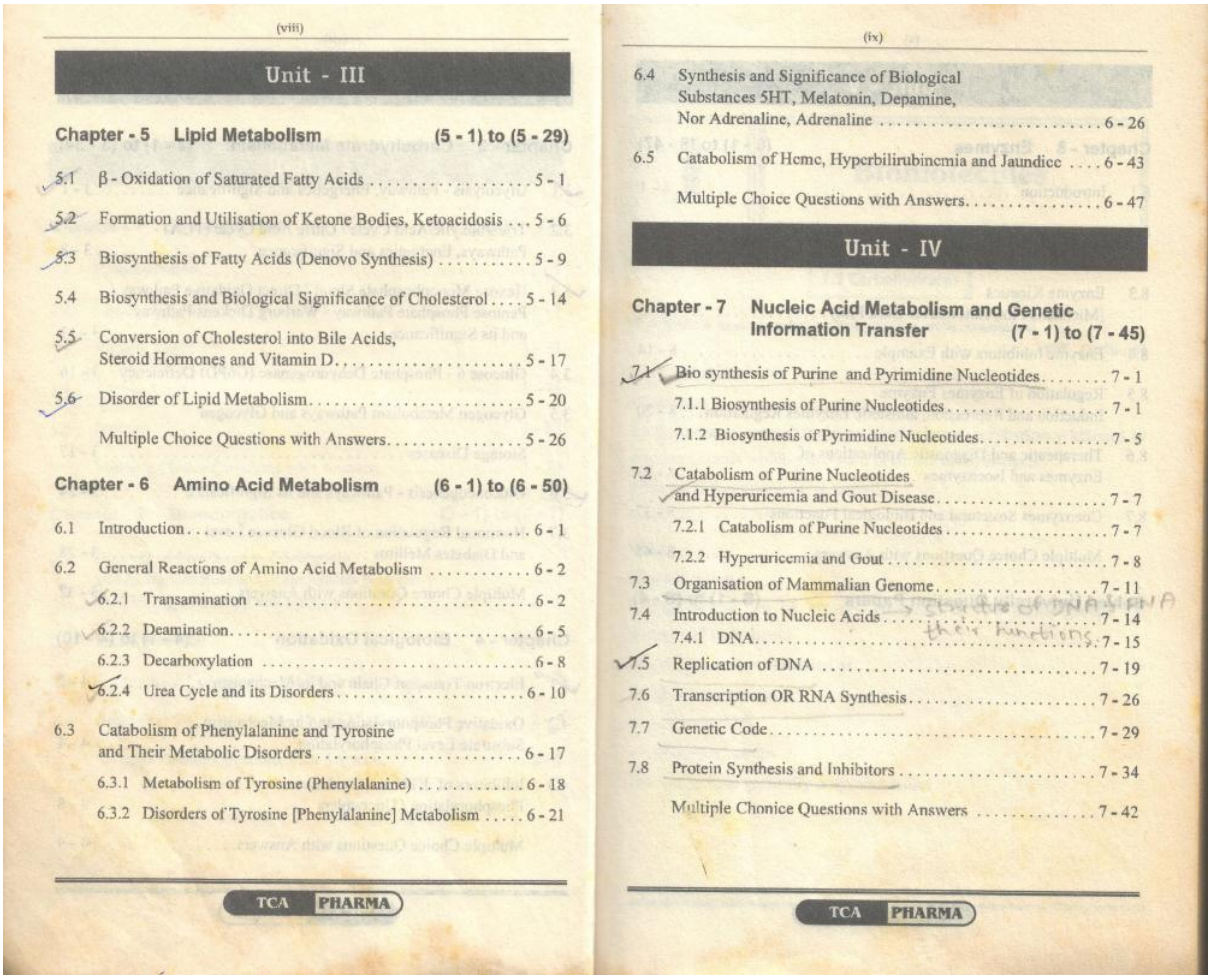
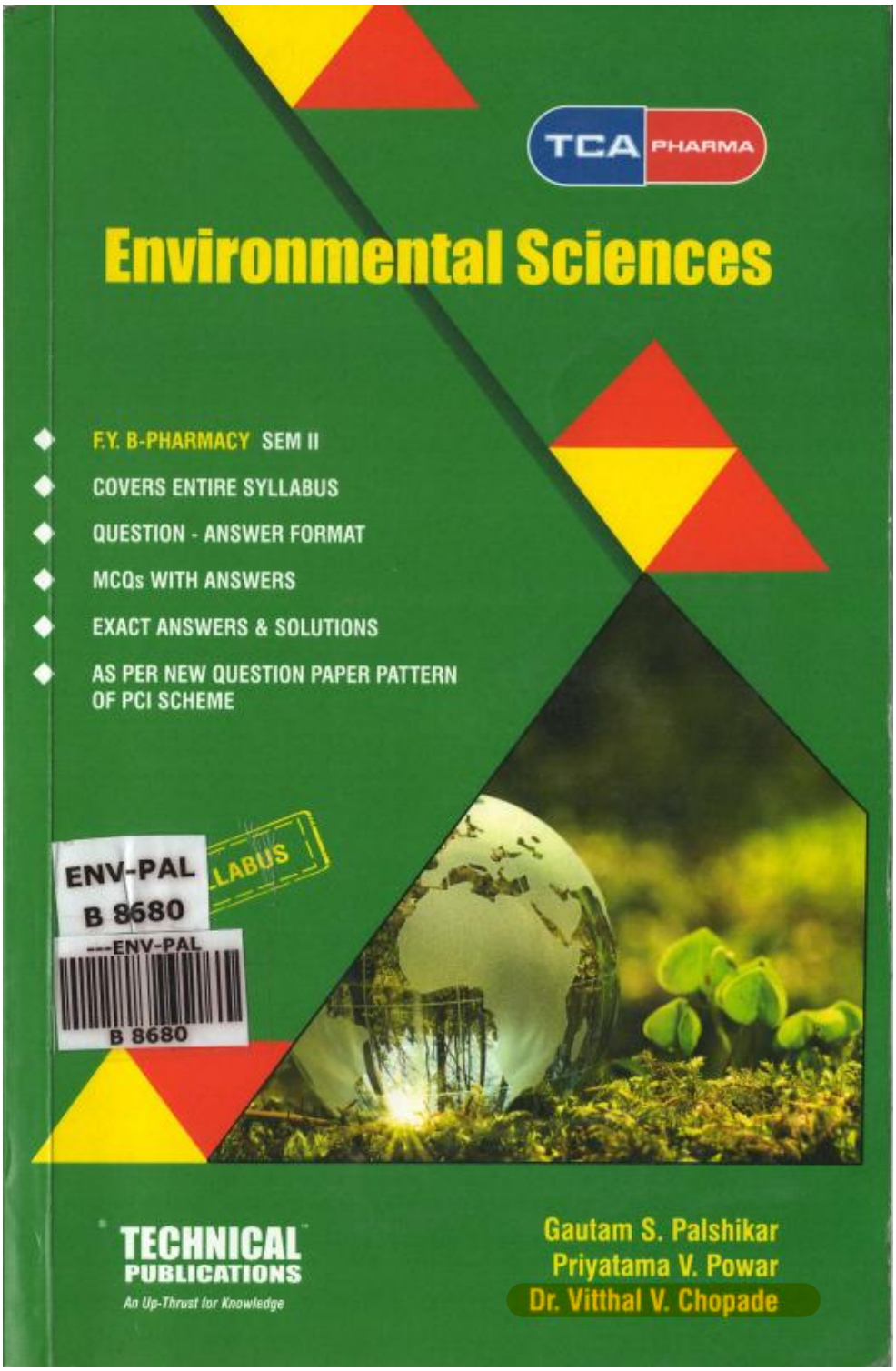
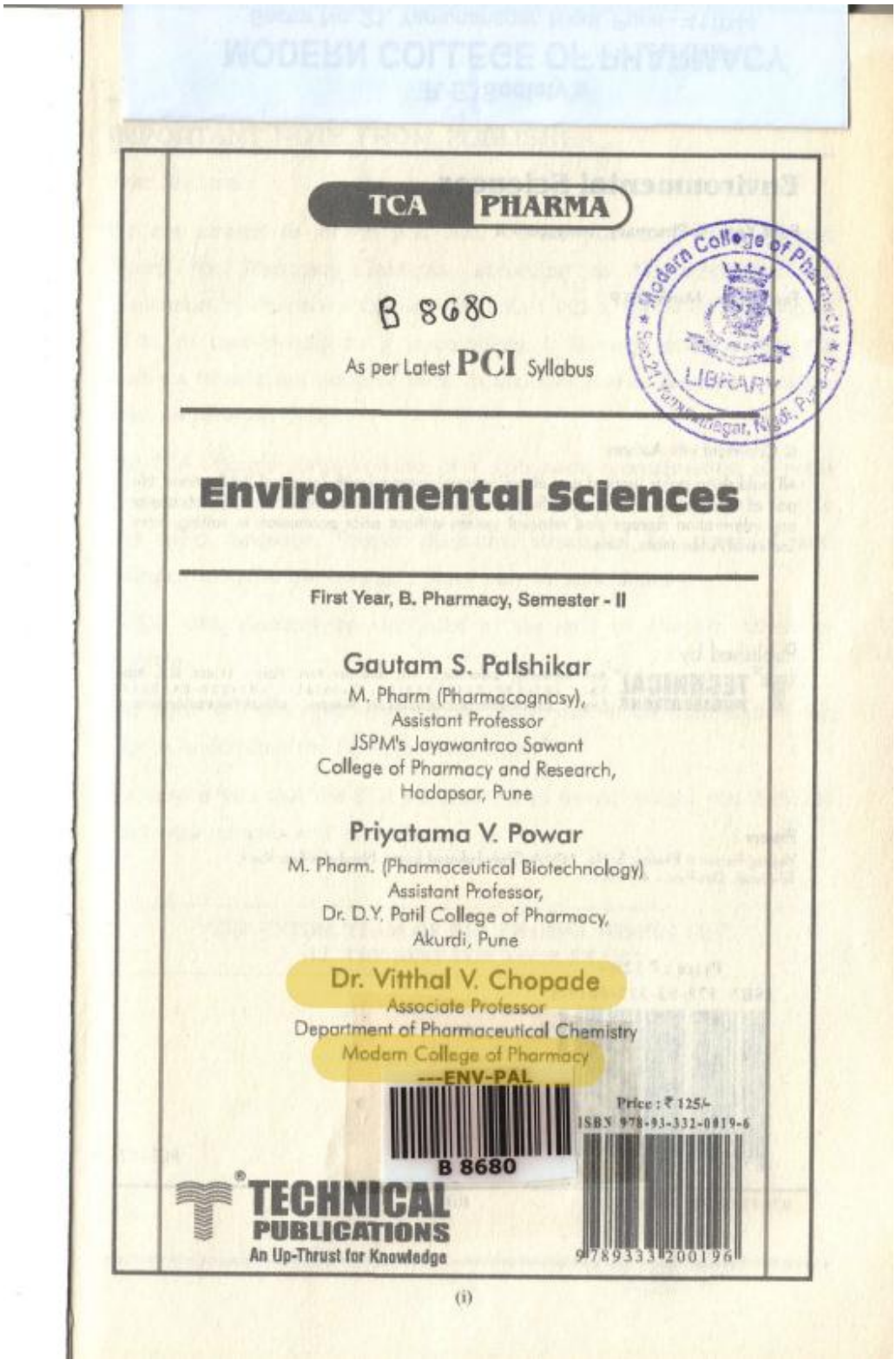
Unit - II



Unit - V

Environmental Science





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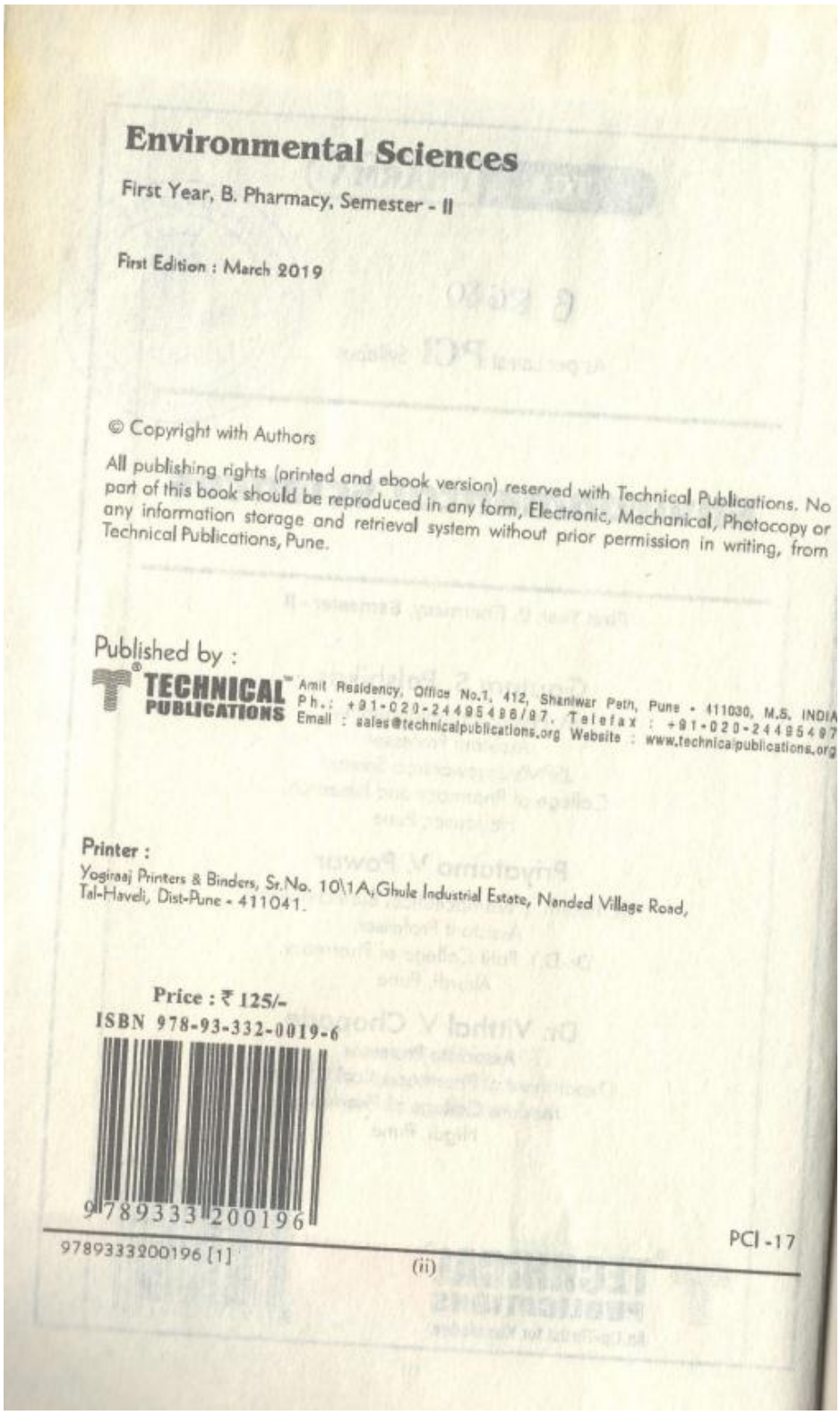

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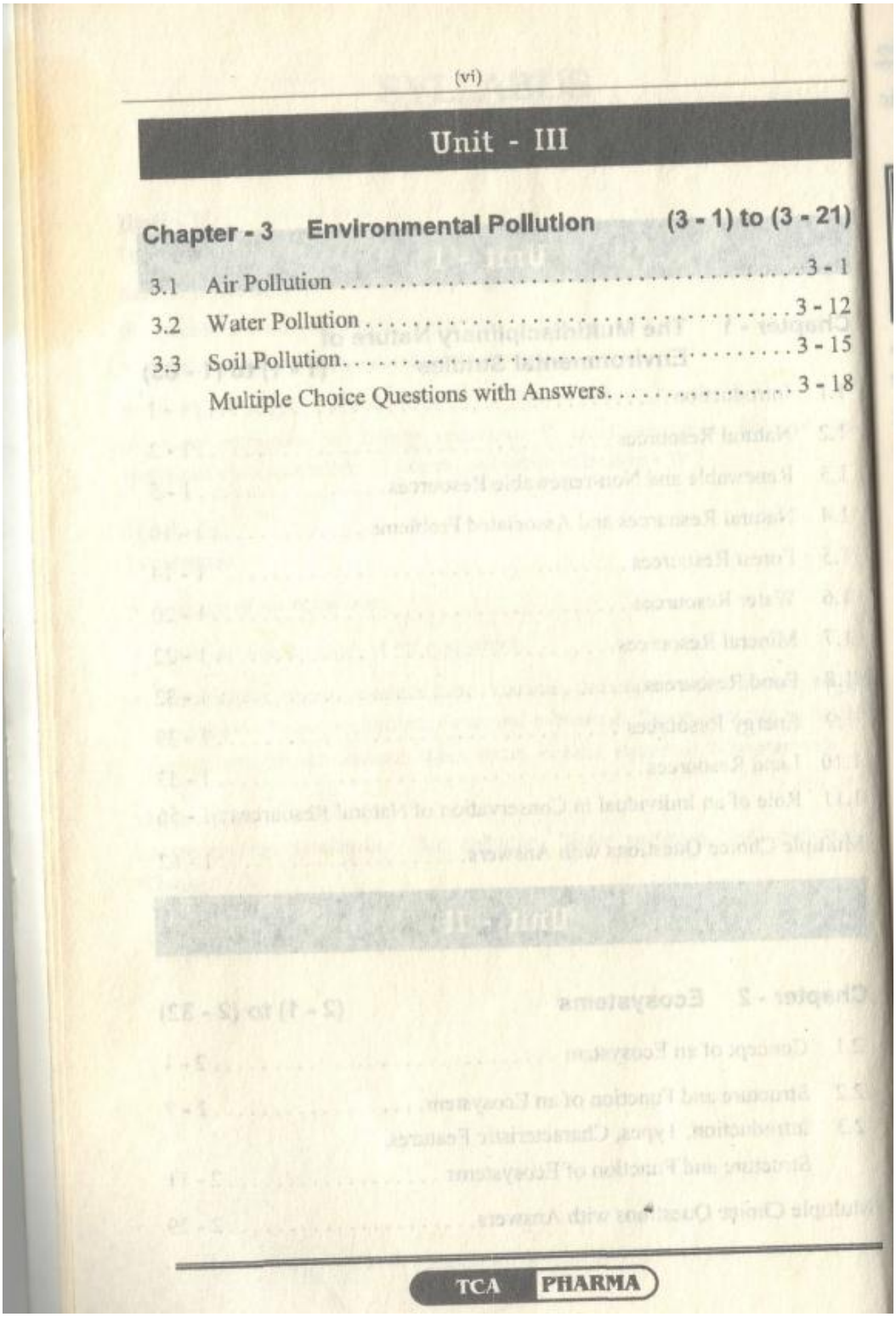
TABLE OF CONTENTS

Unit - I

Unit - II



Unit - III

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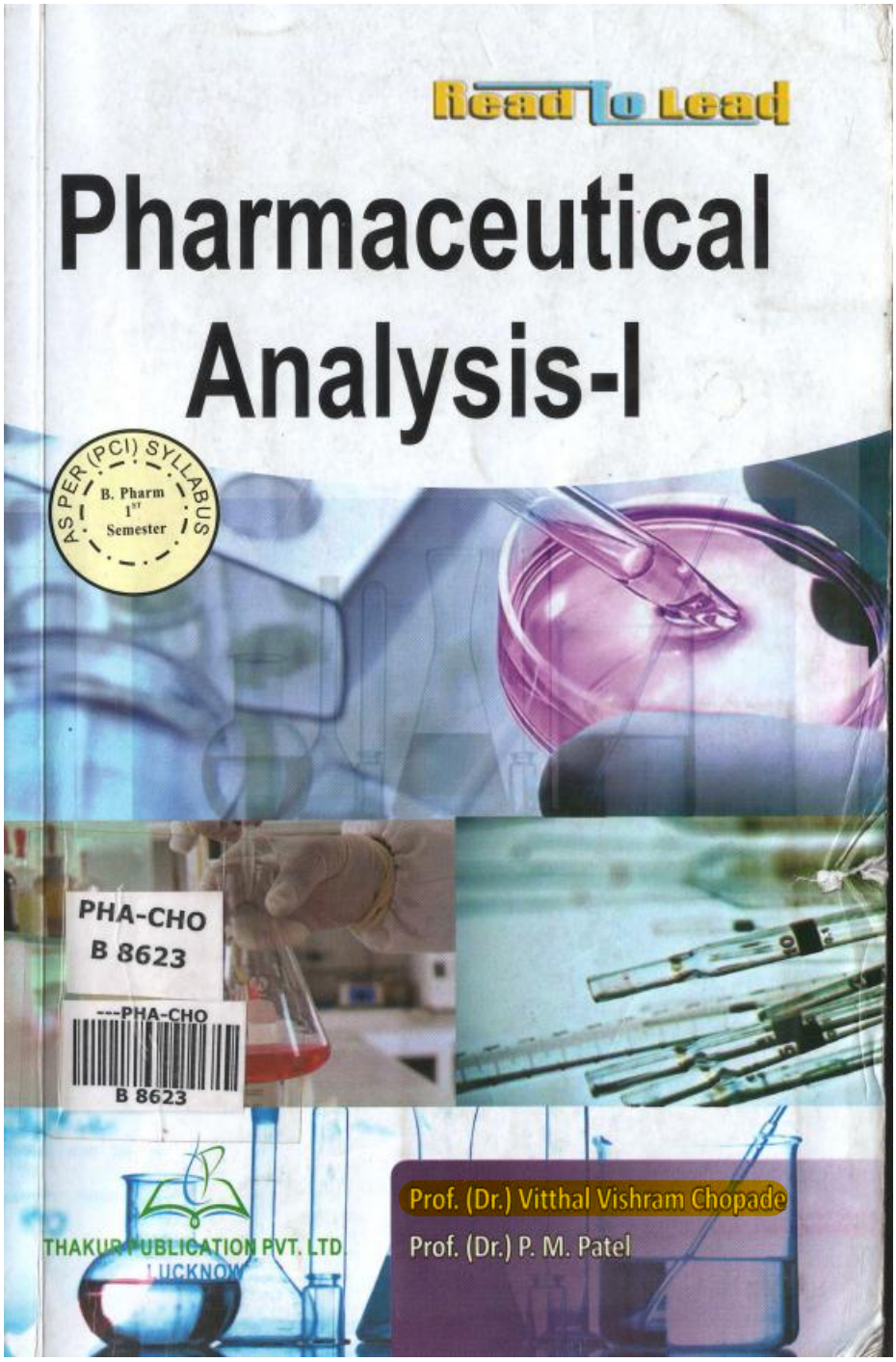

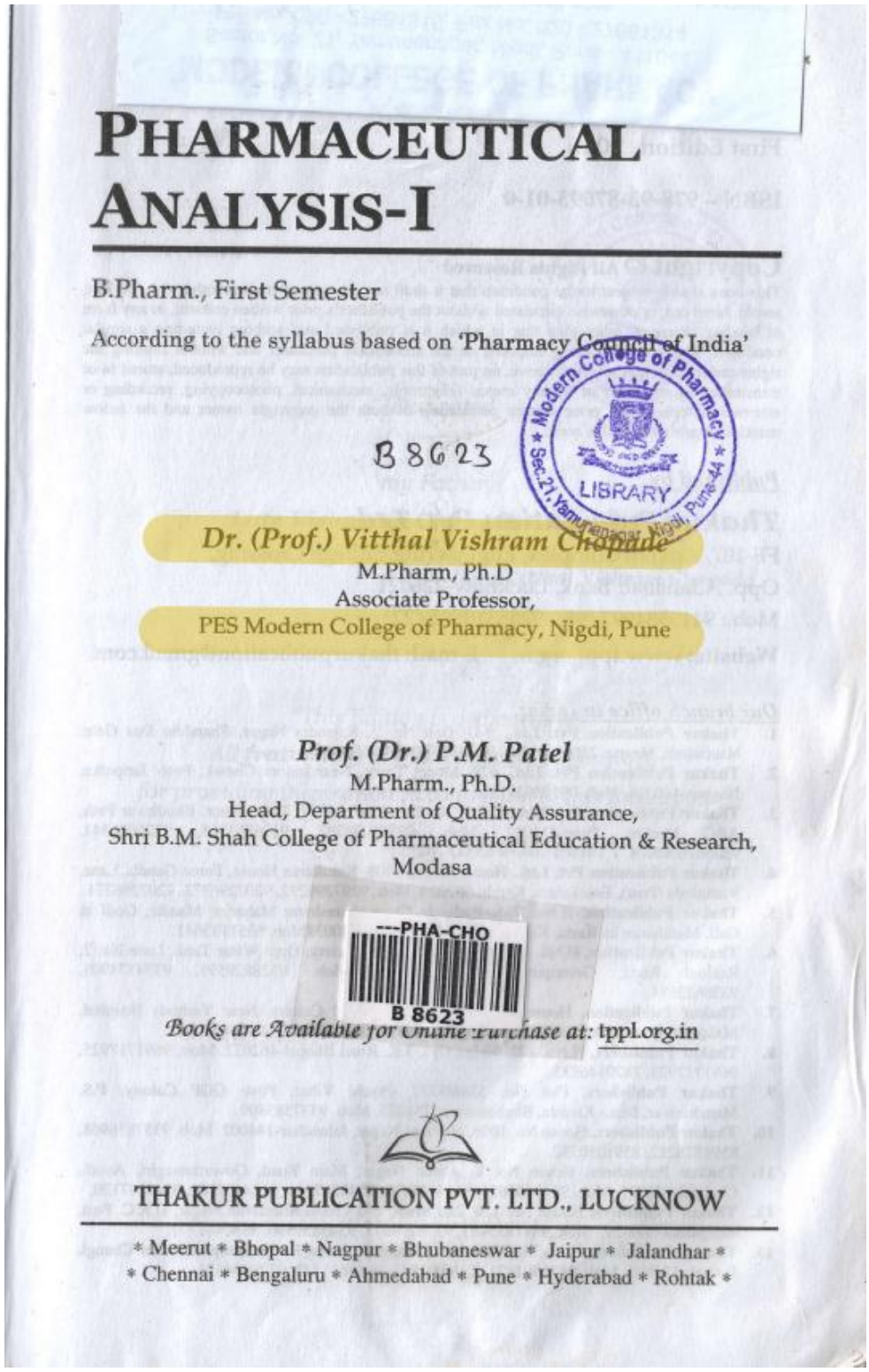

PHARMACEUTICAL ANALYSIS-I

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According to the syllabus based on 'Pharmacy Council of India'

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Contents

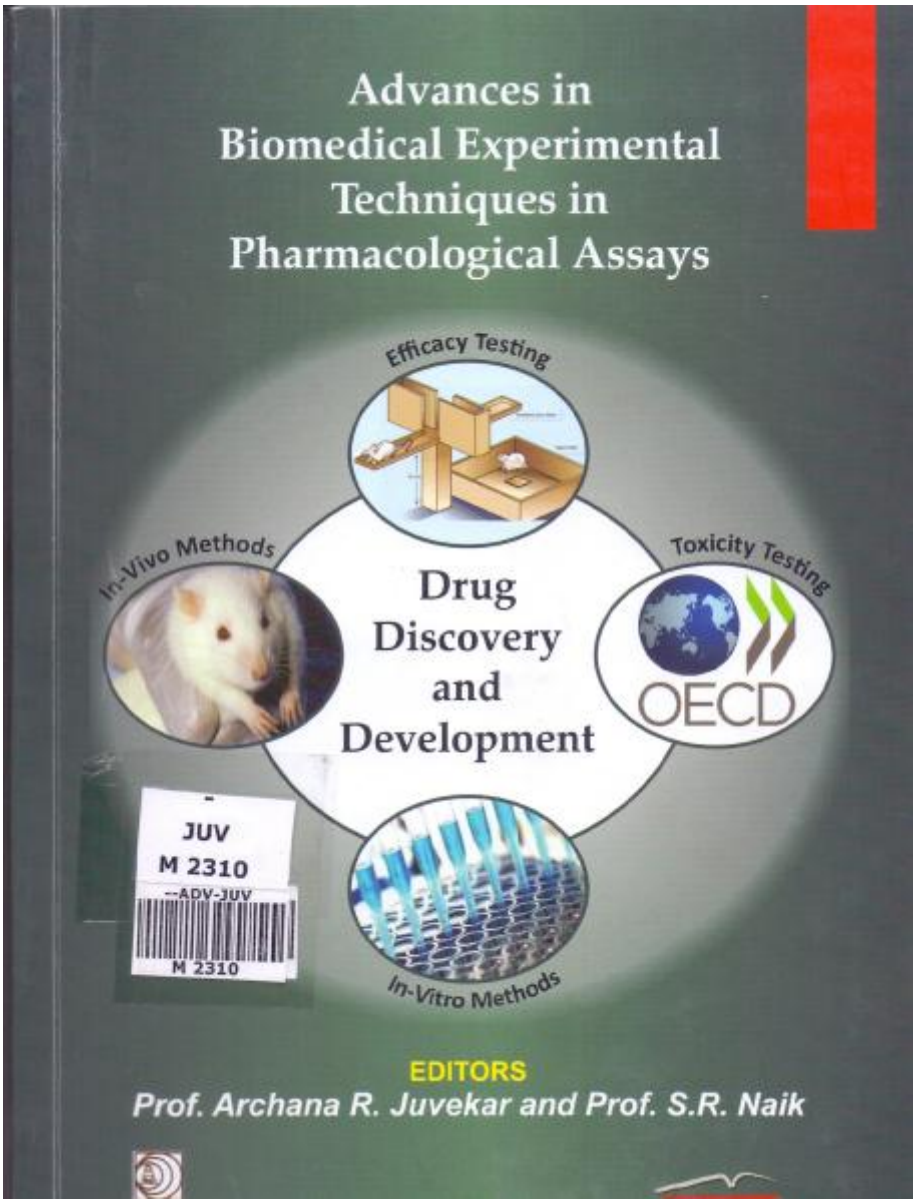
Chapter 1: Pharmaceutical Analysis and Errors

Chapter 6: Gravimetry and Diazotisation Titration

Chapter 7: Redox Titrations

Chapter 10: Polarography

Chapter 12 Anti-diarrhoeal screening (in vivo and in vitro methods)



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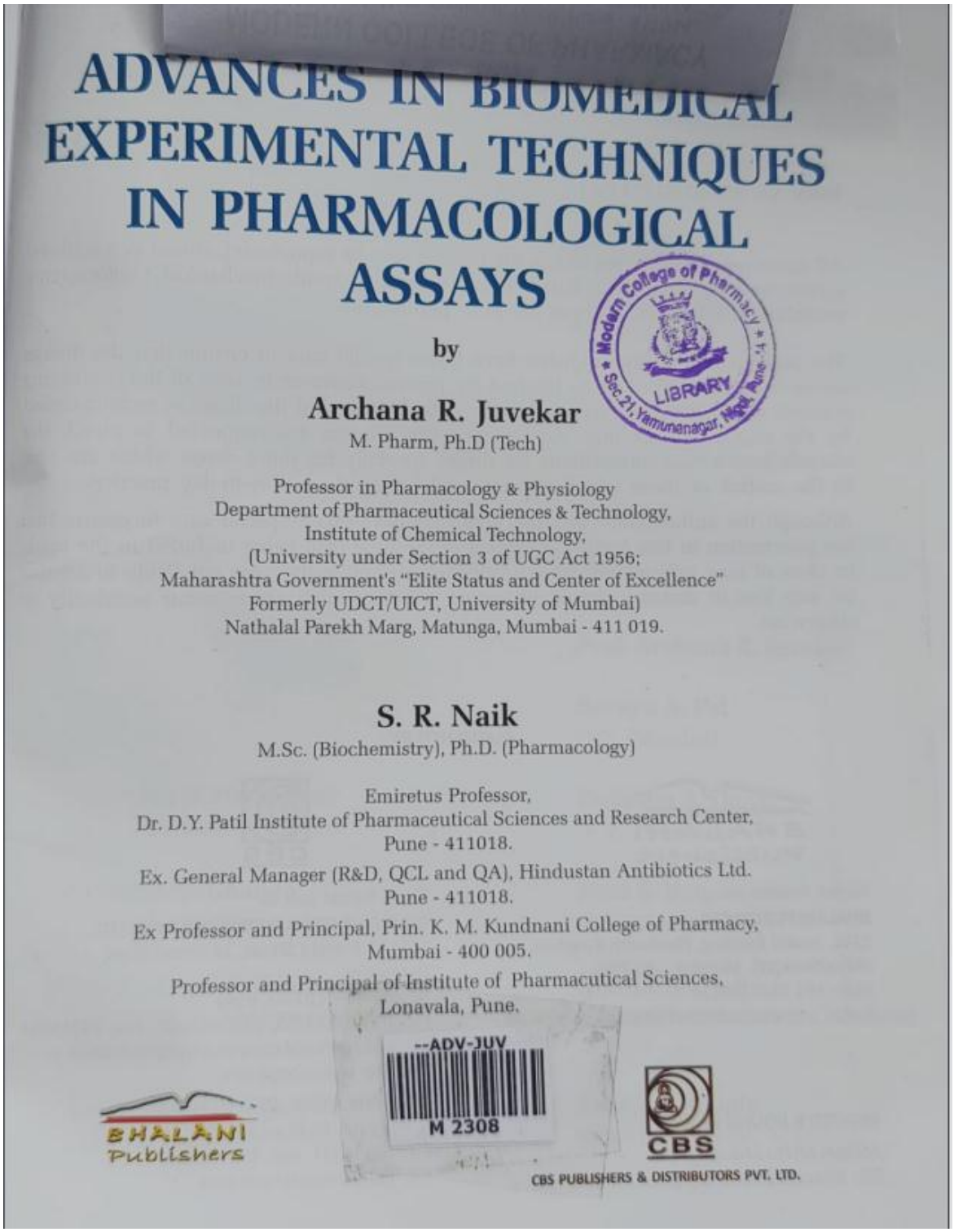

ADVANCES IN BIOMEDICAL EXPERIMENTAL TECHNIQUES IN PHARMACOLOGICAL ASSAYS

by

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CONTENTS

ANTI-DIARROHEAL SCREENING (*in-vivo* and *in-vitro*) METHODS

INTRODUCTION:

Diarrhoea is characterized by alteration in secretion, absorption of water and electrolytes and alteration in motility of gastrointestinal tract. The pathophysiology includes change in active ion transport by either decreased sodium absorption or increased chloride secretion; change in intestinal motility; increase in luminal osmolarity and increase in tissue hydrostatic pressure. These mechanisms have been related to four broad clinical diarrhoeal groups: secretory, osmotic, exudative, and altered intestinal transit (Dipiro et al., 2010).

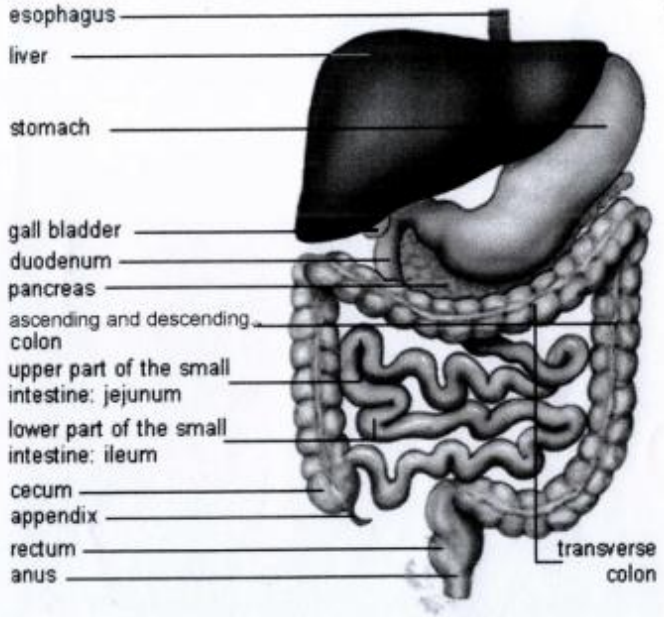
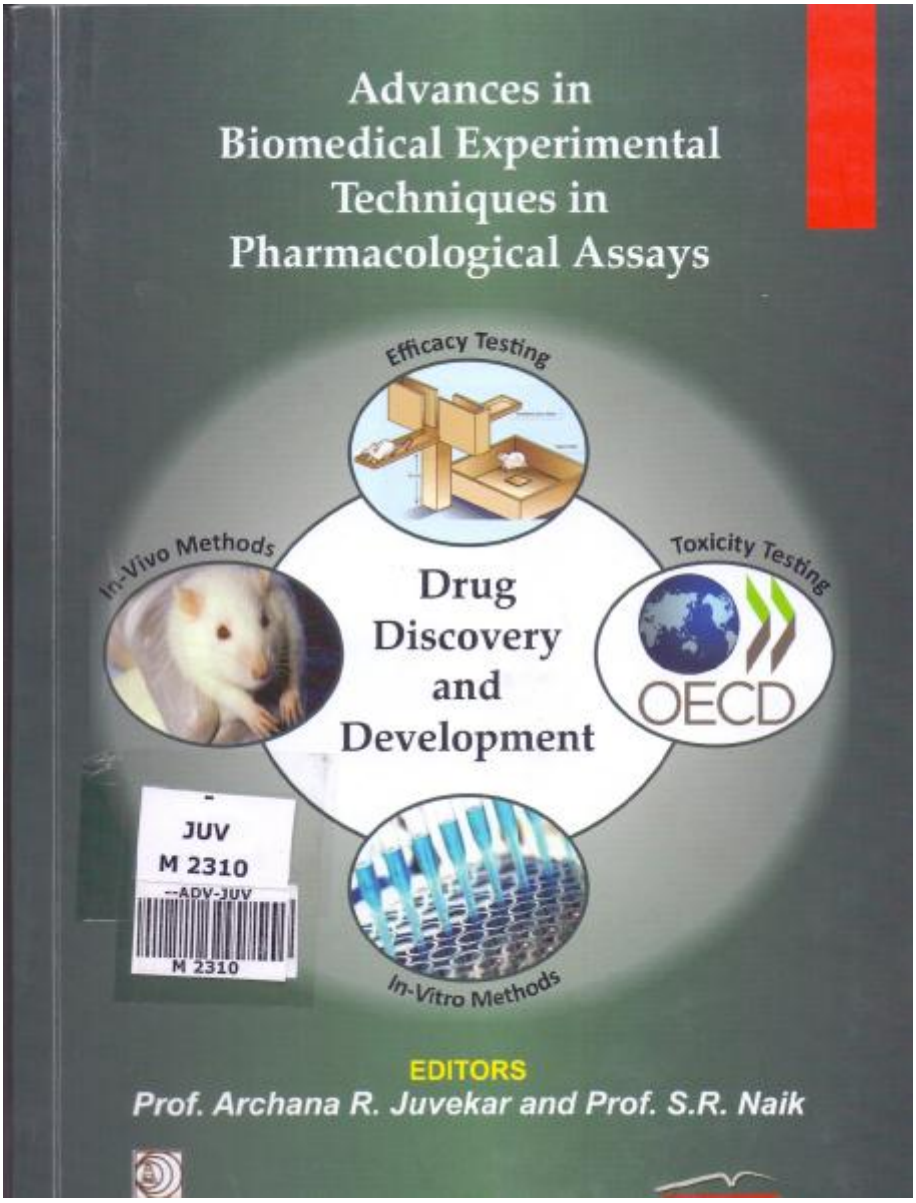
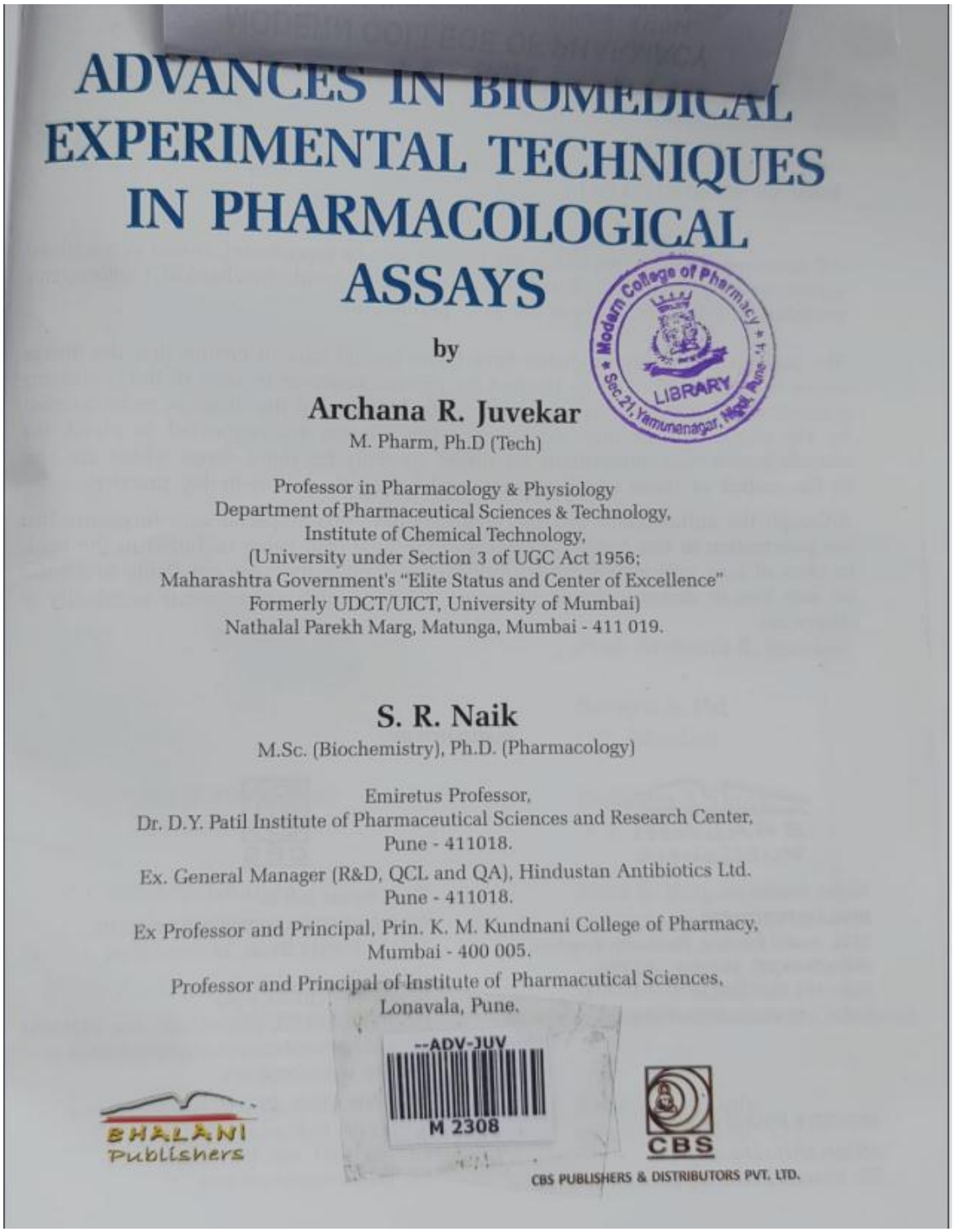


Fig. 12.1: Human gastrointestinal tract (Dipiro et al., 2010).

Water and electrolytes are absorbed as well as secreted in the intestine. Jejunum allows freely permeable salt and water which are passively absorbed secondary to absorption of nutrients (glucose, amino acids, etc). In the ileum and colon, active Na^+K^+ATPase mediated salt absorption occurs, primarily in the mature cells lining villous tips. In addition, glucose facilitated Na^+ absorption takes place in the ileum

Chapter 9 Screening methods for drugs acting on renal system





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CONTENTS

9 SCREENING METHODS FOR DRUGS ACTING ON RENAL SYSTEM

INTRODUCTION

Diuretics are the drugs that inhibit the reabsorption of water from the tubules and thereby increase the volume of the urine. As the diuretics increase the rate of urination, they provide means for forced diuresis. Different types of diuretics include thiazide diuretics, loop diuretics, potassium sparing diuretics, carbonic anhydrase inhibitors, osmotic agents, xanthenes, vasopressin type 2 receptors antagonists and arginine vasopressin V_2 receptor antagonists.

Three main steps of urine formation include glomerular filtration, tubular reabsorption and tubular secretion. As shown in **Fig. 9.1**, most of the diuretics act on tubule portion of the nephrone and thereby inhibits reabsorption of sodium and other electrolytes.

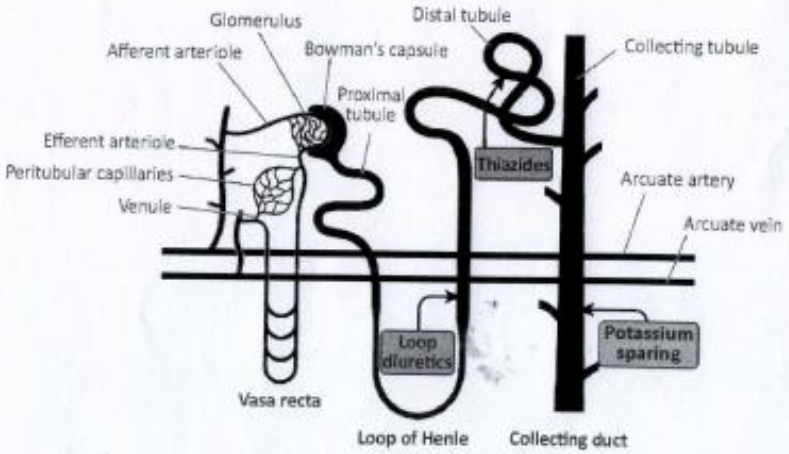


Fig. 9.1: Sites of action of diuretics.

Proximal tubule is the site responsible for tubular reabsorption and secretion. It is involved in reabsorption of filtered glucose, amino acids, filtered sodium bicarbonate and sodium chloride. It is the site of secretion of drugs like penicillin, thiazide diuretics and loop diuretics.

Loop of Henle is an important site for reabsorption of filtered sodium chloride through Na^+, K^+, $2Cl^-$ Symporter and also contributes in formation of concentrated urine by transporting the sodium chloride to the surrounding interstitium.

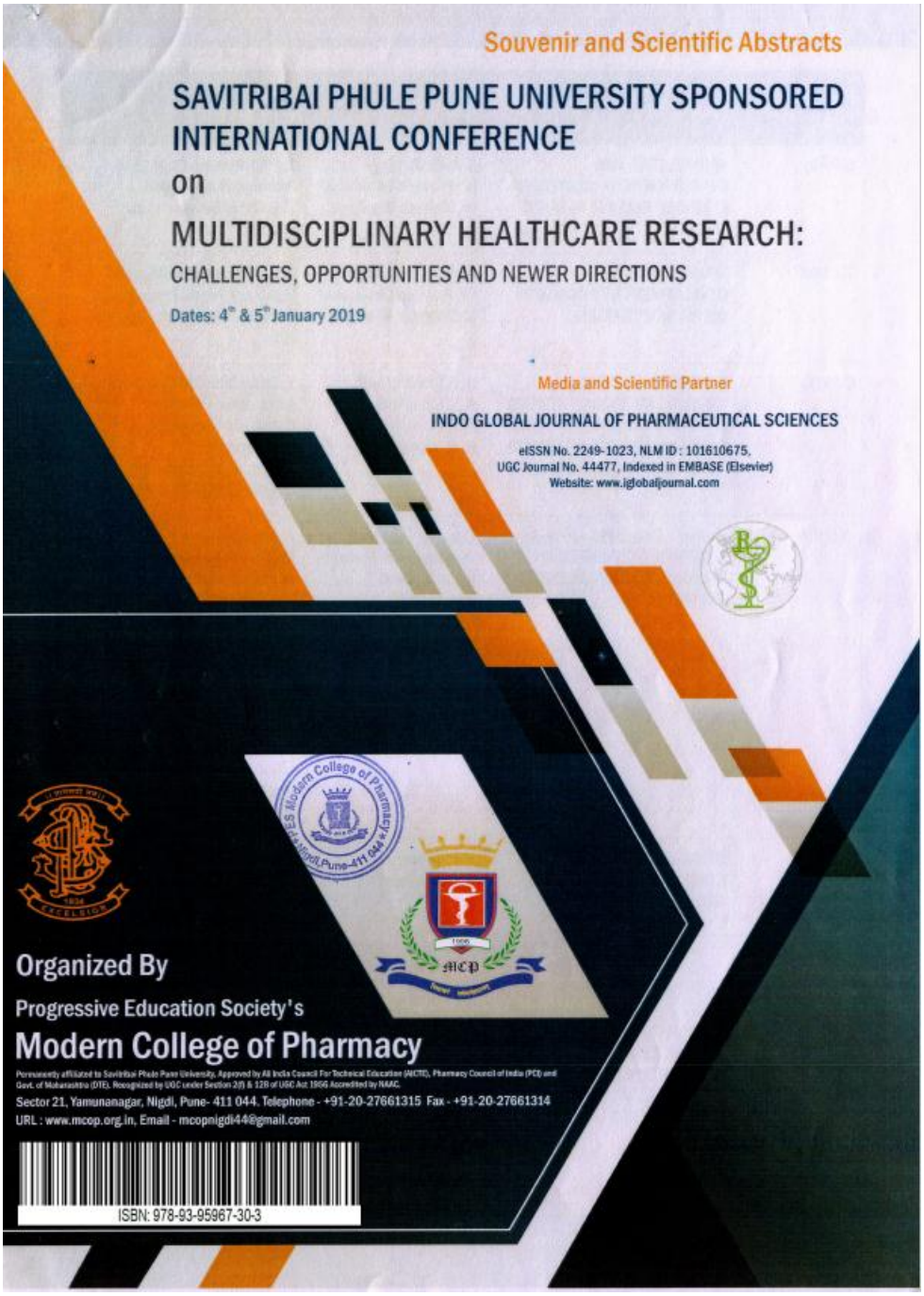
Early portion of distal tubule is responsible for reabsorption of filtered sodium chloride through Na^+, Cl^- symporter. Collecting duct is responsible for adjustment of final composition and volume of urine through the actions of aldosterone and antidiuretic hormone. Aldosterone, a mineralocorticoid promotes reabsorption of sodium whereas antidiuretic hormone promotes reabsorption of water from the collecting duct.

Each class of diuretics acts on different site of tubular portion to achieve diuretic effect. Diuretics like thiazides act on early portion of distal tubule whereas loop diuretics act on thick ascending limb of loop of Henle. Potassium sparing diuretics act on collecting tubule and carbonic anhydrase inhibitors act on proximal tubule.

Table 9.1: Sites of action and mechanism of action of diuretics

Class of Diuretics	Site of action	Examples	Mechanism of action
Thiazide diuretics	Distal tubule	Hydrochor-thiazide, Chlorthiazide Indapamide	Inhibit reabsorption of Na^+ and Cl^- by inhibiting Na^+, Cl^- symporter in early portion of distal tubule
Loop diuretics	Loop of Henle	Furosemide Ethacrynic acid Bumetanide Torsemide	Inhibit reabsorption of Na^+ by inhibiting membrane bound Na^+, K^+, $2Cl^-$ symporter
Potassium sparing diuretics	Collecting tubule	Amiloride Spironolactone	Amiloride inhibit reabsorption of Na^+ by blocking the exchange of sodium for potassium in

Formulation and development of guaifenesin extended release bi-layer tablets



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Title: FORMULATION AND DEVELOPMENT OF GUAIFENESIN EXTENDED RELEASE BI-LAYER TABLETS

Sweety. R. Singh[1], Dr. Praveen Chaudhari[1], Mr.Mahesh Bhadgale[2]
1. P.E.S Modern College of Pharmacy, Nigdi, Pune, India.
2. Callidus Research Labs, Pvt.Ltd.

Abstract:

Purpose: Extended release formulations has significant advantage over immediate release to the patients. Extended release dosage forms are administered to patients in much fewer daily doses and achieve more therapeutic effect in few daily doses. Thus main objective was to develop Guaifenesin Extended Release Bi-layer tablets. Method: The formulation comprises of two portion: i) immediate release formulation of guaifenesin and ii) an extended release formulation of guaifenesin. The formulation comprised of MCC and SSG for immediate release whereas HPMC E10M and carbopol were used for extended release layer. The total weight ratio of HPMC E10M to Carbopol were experimented at 2:1 , 3:1, 4:1, 6:1, 5.25:1, 5.5:1.Result:The formulated bi-layer tablets were evaluated for thickness, hardness, friability, weight variation, in-vitro drug release. The bi-layer tablet showed an initial burst effect to provide the initial loading dose and which then sustained itself for 12hrs. Formulation T6 was selected as best formulation of the drug release as the formulation matched with the marketed formulation (Mucinex). The stability studies, water by K.F, dissolution was carried which reflected that the formulation was enough feasible. The entire formulation was carried out by QBD approach, DOE software was applied so as to get better optimized formulation amongst all. Conclusion: Hence from DOE results, friability above 200N was more feasible for the formulation and T6 was considered best as its dissolution profile matched with the innovator product. Thus 5.5:1(110mg: 20mg) of HMC E10M: Carbopol respectively was considered as optimized.

Scientific Oral Presentation Code: O-PH02

Title: FORMULATION AND DEVELOPMENT OF RITONAVIR DISPERSIBLE TABLETS

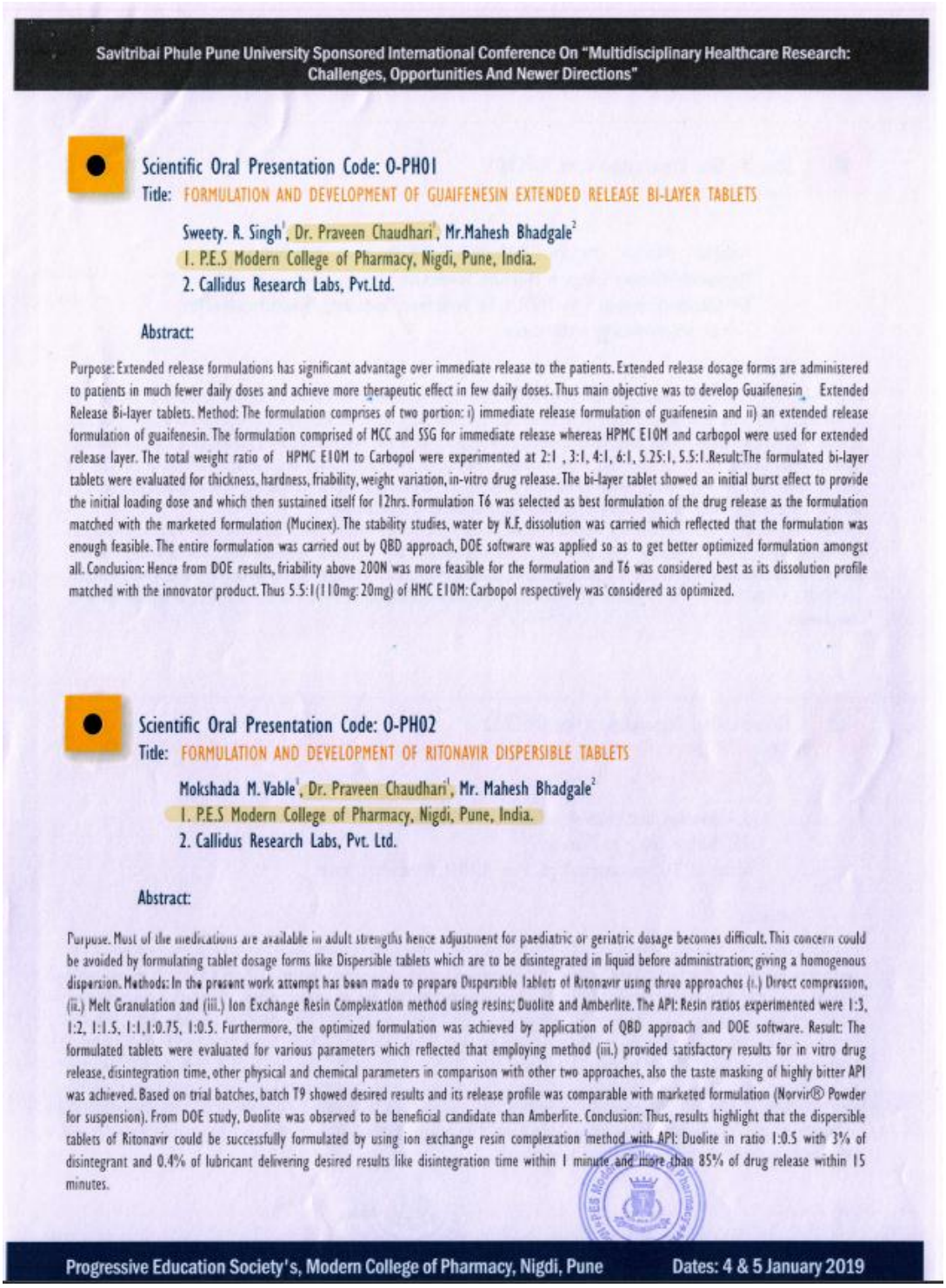
Mokshada M. Vable[1], Dr. Praveen Chaudhari[1], Mr. Mahesh Bhadgale[2]
1. P.E.S Modern College of Pharmacy, Nigdi, Pune, India.
2. Callidus Research Labs, Pvt. Ltd.

Abstract:

Purpose. Most of the medications are available in adult strengths hence adjustment for paediatric or geriatric dosage becomes difficult. This concern could be avoided by formulating tablet dosage forms like Dispersible tablets which are to be disintegrated in liquid before administration; giving a homogenous dispersion. Methods: In the present work attempt has been made to prepare Dispersible tablets of Ritonavir using three approaches (i.) Direct compression, (ii.) Melt Granulation and (iii.) Ion Exchange Resin Complexation method using resins; Duolite and Amberlite. The API: Resin ratios experimented were 1:3, 1:2, 1:1.5, 1:1,1:0.75, 1:0.5. Furthermore, the optimized formulation was achieved by application of QBD approach and DOE software. Result: The formulated tablets were evaluated for various parameters which reflected that employing method (iii.) provided satisfactory results for in vitro drug release, disintegration time, other physical and chemical parameters in comparison with other two approaches, also the taste masking of highly bitter API was achieved. Based on trial batches, batch T9 showed desired results and its release profile was comparable with marketed formulation (Norvir® Powder for suspension). From DOE study, Duolite was observed to be beneficial candidate than Amberlite. Conclusion: Thus, results highlight that the dispersible tablets of Ritonavir could be successfully formulated by using ion exchange resin complexation method with API: Duolite in ratio 1:0.5 with 3% of disintegrant and 0.4% of lubricant delivering desired results like disintegration time within 1 minute and more than 85% of drug release within 15 minutes.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Formulation and development of ritonavir dispersible tablets



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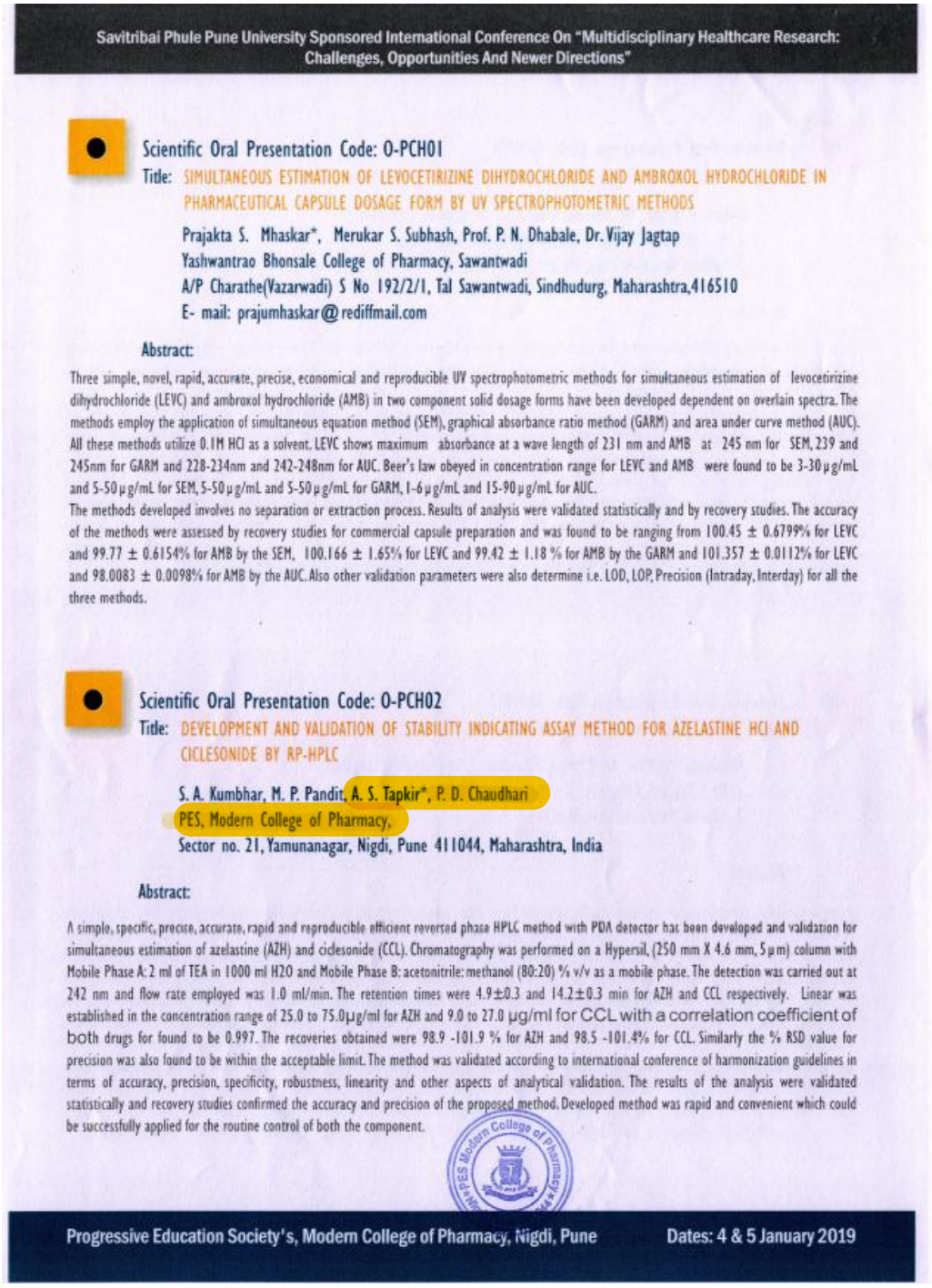
2. Callidus Research Labs, Pvt. Ltd.

Abstract:

Purpose. Most of the medications are available in adult strengths hence adjustment for paediatric or geriatric dosage becomes difficult. This concern could be avoided by formulating tablet dosage forms like Dispersible tablets which are to be disintegrated in liquid before administration; giving a homogenous dispersion. Methods: In the present work attempt has been made to prepare Dispersible Tablets of Ritonavir using three approaches (i.) Direct compression, (ii.) Melt Granulation and (iii.) Ion Exchange Resin Complexation method using resins; Duolite and Amberlite. The API: Resin ratios experimented were 1:3, 1:2, 1:1.5, 1:1,1:0.75, 1:0.5. Furthermore, the optimized formulation was achieved by application of QBD approach and DOE software. Result: The formulated tablets were evaluated for various parameters which reflected that employing method (iii.) provided satisfactory results for in vitro drug release, disintegration time, other physical and chemical parameters in comparison with other two approaches, also the taste masking of highly bitter API was achieved. Based on trial batches, batch T9 showed desired results and its release profile was comparable with marketed formulation (Norvir® Powder for suspension). From DOE study, Duolite was observed to be beneficial candidate than Amberlite. Conclusion: Thus, results highlight that the dispersible tablets of Ritonavir could be successfully formulated by using ion exchange resin complexation method with API: Duolite in ratio 1:0.5 with 3% of disintegrant and 0.4% of lubricant delivering desired results like disintegration time within 1 minute and more than 85% of drug release within 15 minutes.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Development and validation of stability indicating assay method for azelastine HCL and ciclesonide by RP-HPLC



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Oral Presentation Code: O-PCH01

Title: SIMULTANEOUS ESTIMATION OF LEVOCETIRIZINE DIHYDROCHLORIDE AND AMBROXOL HYDROCHLORIDE IN PHARMACEUTICAL CAPSULE DOSAGE FORM BY UV SPECTROPHOTOMETRIC METHODS

Prajakta S. Mhaskar*, Merukar S. Subhash, Prof. P. N. Dhabale, Dr. Vijay Jagtap
Yashwantrao Bhonsale College of Pharmacy, Sawantwadi
A/P Charathe(Vazarwadi) S No 192/2/1, Tal Sawantwadi, Sindhudurg, Maharashtra,416510
E- mail: prajumhaskar@rediffmail.com

Abstract:

Three simple, novel, rapid, accurate, precise, economical and reproducible UV spectrophotometric methods for simultaneous estimation of levocetirizine dihydrochloride (LEVC) and ambroxol hydrochloride (AMB) in two component solid dosage forms have been developed dependent on overlain spectra. The methods employ the application of simultaneous equation method (SEM), graphical absorbance ratio method (GARM) and area under curve method (AUC). All these methods utilize 0.1M HCl as a solvent. LEVC shows maximum absorbance at a wave length of 231 nm and AMB at 245 nm for SEM, 239 and 245nm for GARM and 228-234nm and 242-248nm for AUC. Beer's law obeyed in concentration range for LEVC and AMB were found to be 3-30 µg/mL and 5-50 µg/mL for SEM, 5-50 µg/mL and 5-50 µg/mL for GARM, 1-6 µg/mL and 15-90 µg/mL for AUC.
The methods developed involves no separation or extraction process. Results of analysis were validated statistically and by recovery studies. The accuracy of the methods were assessed by recovery studies for commercial capsule preparation and was found to be ranging from 100.45 ± 0.6799% for LEVC and 99.77 ± 0.6154% for AMB by the SEM, 100.166 ± 1.65% for LEVC and 99.42 ± 1.18 % for AMB by the GARM and 101.357 ± 0.0112% for LEVC and 98.0083 ± 0.0098% for AMB by the AUC. Also other validation parameters were also determine i.e. LOD, LOP, Precision (Intraday, Interday) for all the three methods.

Scientific Oral Presentation Code: O-PCH02

Title: DEVELOPMENT AND VALIDATION OF STABILITY INDICATING ASSAY METHOD FOR AZELASTINE HCl AND CICLESONIDE BY RP-HPLC

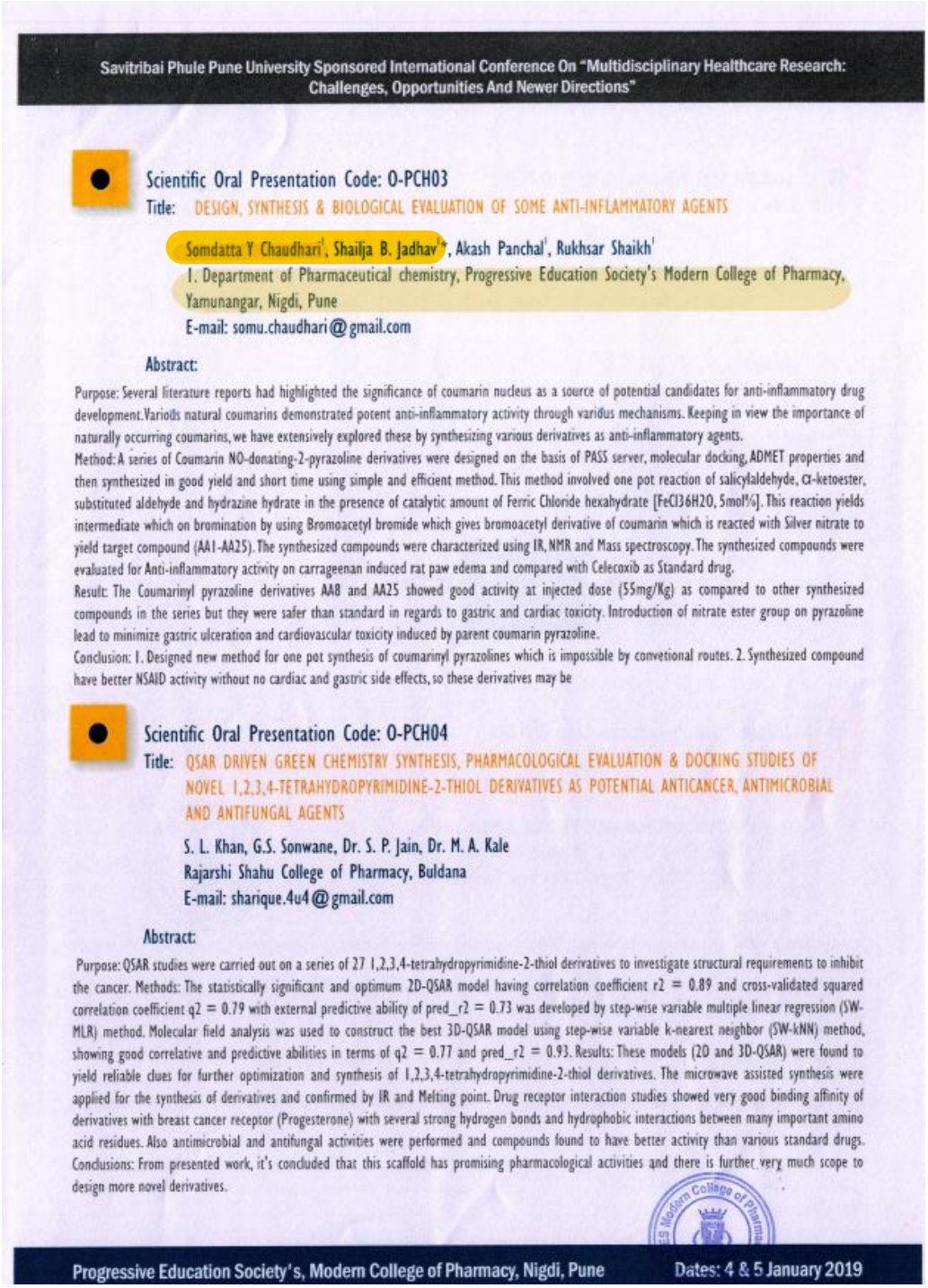
S. A. Kumbhar, M. P. Pandit, A. S. Tapkir*, P. D. Chaudhari
PES, Modern College of Pharmacy,
Sector no. 21, Yamunanagar, Nigdi, Pune 411044, Maharashtra, India

Abstract:

A simple, specific, precise, accurate, rapid and reproducible efficient reversed phase HPLC method with PDA detector has been developed and validation for simultaneous estimation of azelastine (AZH) and ciclesonide (CCL). Chromatography was performed on a Hypersil, (250 mm X 4.6 mm, 5 µm) column with Mobile Phase A: 2 ml of TEA in 1000 ml H2O and Mobile Phase B: acetonitrile: methanol (80:20) % v/v as a mobile phase. The detection was carried out at 242 nm and flow rate employed was 1.0 ml/min. The retention times were 4.9±0.3 and 14.2±0.3 min for AZH and CCL respectively. Linear was established in the concentration range of 25.0 to 75.0µg/ml for AZH and 9.0 to 27.0 µg/ml for CCL with a correlation coefficient of both drugs for found to be 0.997. The recoveries obtained were 98.9 -101.9 % for AZH and 98.5 -101.4% for CCL. Similarly the % RSD value for precision was also found to be within the acceptable limit. The method was validated according to international conference of harmonization guidelines in terms of accuracy, precision, specificity, robustness, linearity and other aspects of analytical validation. The results of the analysis were validated statistically and recovery studies confirmed the accuracy and precision of the proposed method. Developed method was rapid and convenient which could be successfully applied for the routine control of both the component.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Design, synthesis & biological evaluation of some anti-inflammatory agents



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Oral Presentation Code: O-PCH03

Title: DESIGN, SYNTHESIS & BIOLOGICAL EVALUATION OF SOME ANTI-INFLAMMATORY AGENTS

Somdatta Y Chaudhari[1], Shailja B. Jadhav[1]*, Akash Panchal[1], Rukhsar Shaikh[1]

1. Department of Pharmaceutical chemistry, Progressive Education Society's Modern College of Pharmacy, Yamunangar, Nigdi, Pune

E-mail: somu.chaudhari@gmail.com

Abstract:

Purpose: Several literature reports had highlighted the significance of coumarin nucleus as a source of potential candidates for anti-inflammatory drug development. Variods natural coumarins demonstrated potent anti-inflammatory activity through varidus mechanisms. Keeping in view the importance of naturally occurring coumarins, we have extensively explored these by synthesizing various derivatives as anti-inflammatory agents.

Method: A series of Coumarin NO-donating-2-pyrazoline derivatives were designed on the basis of PASS server, molecular docking, ADMET properties and then synthesized in good yield and short time using simple and efficient method. This method involved one pot reaction of salicylaldehyde, α-ketoester, substituted aldehyde and hydrazine hydrate in the presence of catalytic amount of Ferric Chloride hexahydrate [FeCl36H20, 5mol%]. This reaction yields intermediate which on bromination by using Bromoacetyl bromide which gives bromoacetyl derivative of coumarin which is reacted with Silver nitrate to yield target compound (AA1-AA25). The synthesized compounds were characterized using IR, NMR and Mass spectroscopy. The synthesized compounds were evaluated for Anti-inflammatory activity on carrageenan induced rat paw edema and compared with Celecoxib as Standard drug.

Result: The Coumarinyl pyrazoline derivatives AA8 and AA25 showed good activity at injected dose (55mg/Kg) as compared to other synthesized compounds in the series but they were safer than standard in regards to gastric and cardiac toxicity. Introduction of nitrate ester group on pyrazoline lead to minimize gastric ulceration and cardiovascular toxicity induced by parent coumarin pyrazoline.

Conclusion: 1. Designed new method for one pot synthesis of coumarinyl pyrazolines which is impossible by convetional routes. 2. Synthesized compound have better NSAID activity without no cardiac and gastric side effects, so these derivatives may be

Scientific Oral Presentation Code: O-PCH04

Title: QSAR DRIVEN GREEN CHEMISTRY SYNTHESIS, PHARMACOLOGICAL EVALUATION & DOCKING STUDIES OF NOVEL 1,2,3,4-TETRAHYDROPYRIMIDINE-2-THIOL DERIVATIVES AS POTENTIAL ANTICANCER, ANTIMICROBIAL AND ANTIFUNGAL AGENTS

S. L. Khan, G.S. Sonwane, Dr. S. P. Jain, Dr. M. A. Kale

Rajarshi Shahu College of Pharmacy, Buldana

E-mail: sharique.4u4@gmail.com

Abstract:

Purpose: QSAR studies were carried out on a series of 27 1,2,3,4-tetrahydropyrimidine-2-thiol derivatives to investigate structural requirements to inhibit the cancer. Methods: The statistically significant and optimum 2D-QSAR model having correlation coefficient r2 = 0.89 and cross-validated squared correlation coefficient q2 = 0.79 with external predictive ability of pred_r2 = 0.73 was developed by step-wise variable multiple linear regression (SW-MLR) method. Molecular field analysis was used to construct the best 3D-QSAR model using step-wise variable k-nearest neighbor (SW-kNN) method, showing good correlative and predictive abilities in terms of q2 = 0.77 and pred_r2 = 0.93. Results: These models (2D and 3D-QSAR) were found to yield reliable clues for further optimization and synthesis of 1,2,3,4-tetrahydropyrimidine-2-thiol derivatives. The microwave assisted synthesis were applied for the synthesis of derivatives and confirmed by IR and Melting point. Drug receptor interaction studies showed very good binding affinity of derivatives with breast cancer receptor (Progesterone) with several strong hydrogen bonds and hydrophobic interactions between many important amino acid residues. Also antimicrobial and antifungal activities were performed and compounds found to have better activity than various standard drugs. Conclusions: From presented work, it's concluded that this scaffold has promising pharmacological activities and there is further very much scope to design more novel derivatives.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Molecular docking, synthesis and biological evaluation of some 2-(5- h/chloro-((morpholino1-yl-methyl)-2-oxoindolin-3- ylidene)-n-substituted hydrazinecarbothioamides

Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Oral Presentation Code: O-PCH05

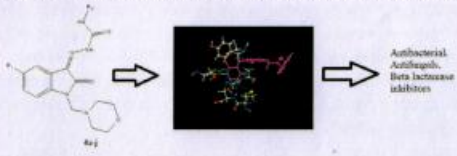
Title: MOLECULAR DOCKING, SYNTHESIS AND BIOLOGICAL EVALUATION OF SOME 2-(5-H/CHLORO-((MORPHOLINO-1-YL-METHYL)-2-OXOINDOLIN-3-YLIDENE)-N-SUBSTITUTED HYDRAZINECARBOTHIOAMIDES

Bhushan D. Varpe*, Amol A. Kulkarni, Maruti V. Pise, Vrushali A. Kulkarni, Shailaja. B. jadhav
Progressive Education Society's, Modern College of Pharmacy, Yamunanagar, Nigdi, Pune

Abstract:

A series of various 2-(5-H/chloro-((morpholino-1-yl-methyl)-2-oxoindolin-3-ylidene)-N-substituted hydrazine carbothioamides 4a–j were docked, synthesized and tested for antifungal, antibacterial and β-Lactamase inhibitory activity. All the synthesized compounds were tested against six bacterial and two fungal strains and found to exhibit moderate to potential antifungal activity. Compound 4b, 4g and 4i exhibited potential antifungal activity against the tested fungal strains. The compounds were evaluated for their β-Lactamase inhibitory activity using potassium clavulanate as a standard. All synthesized compounds showed moderate to potential β-Lactamase inhibitory activity and compound 4b exhibited highest activity. Results of docking study supported the antifungal, antibacterial and β-Lactamase inhibitory activity of the synthesized compounds.

Graphical abstract:



Scientific Oral Presentation Code: O-PCH06

Title: RATIONALE DESIGN, SYNTHESIS, CYTOTOXICITY EVALUATION, AND MOLECULAR DOCKING STUDIES OF 3-CHLORO-4-ARYL-1-(PHENAZIN-7-YL) AZETIDIN-2-ONES ANALOGUES

M.A. Kale[1], G.M. Sonwane*[2], S.L. Khan[2], S.P. Jain[2]
1. Government College of Pharmacy, Aurangabad
2. Rajashri Shahu College of Pharmacy, Buldhana

Abstract:

Purpose: To design newer 2-phenazinamine derivatives as Bcr-Abl tyrosine kinase inhibitors by, molecular docking studies followed by wet lab studies and to evaluate their anticancer potential.

Method: Wet lab experiments for synthesizing 2-phenazinamine derivatives followed by computational chemistry were done by using Autodock 4.2 to confirm target enzyme. 2D structures of ligands were drawn by using Chemdraw 2D Ultra 8.0 and were converted into 3D. These were optimised by using semi-empirical method called MOPAC. The protein structure was downloaded as PDB file from RCSC protein data bank. PYMOL was used for studying the binding interactions. OSIRIS property explorer was utilized online to predict the molecular properties of the designed compounds.

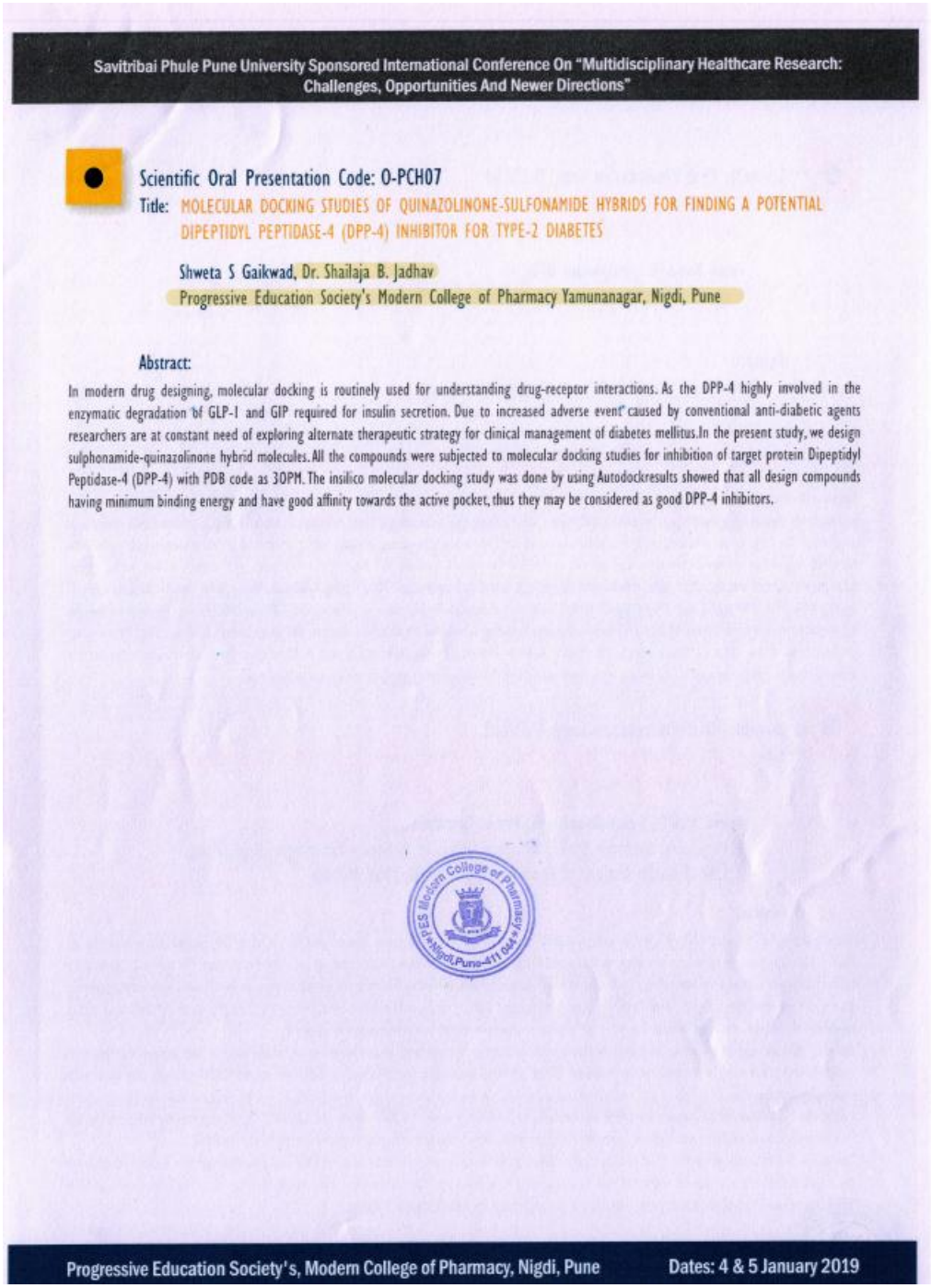
All the derivatives were tested for invitro anticancer activity on K562 human chronic myelogenous leukemia cell line by employing MTT assay method.

Results: Docking studies showed binding interactions of some derivatives with > 30% higher binding energy values than the standard doxorubicin. These compounds 4a-e were evaluated further for anticancer activities. Compounds 4c were observed to possess good lipophilicity and were found to exhibit better activity than other compounds in the series, although less than standard doxorubicin.

Conclusion: Molecular docking studies confirm the target protein for inhibition compare to standard marketed drug doxorubicine which helps for better anticancer activity for the synthesized 3-chloro-4-aryl-1-(phenazin-7-yl) azetidin-2-ones derivatives of phenazinamines as compared to standard doxorubicin.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Molecular docking studies of quinazolinone-sulfonamide hybrids for finding a potential dipeptidyl peptidase-4 (dpp-4) inhibitor for type-2 diabetes



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Oral Presentation Code: O-PCH07

Title: MOLECULAR DOCKING STUDIES OF QUINAZOLINONE-SULFONAMIDE HYBRIDS FOR FINDING A POTENTIAL DIPEPTIDYL PEPTIDASE-4 (DPP-4) INHIBITOR FOR TYPE-2 DIABETES

Shweta S Gaikwad, Dr. Shailaja B. Jadhav

Progressive Education Society's Modern College of Pharmacy Yamunanagar, Nigdi, Pune

Abstract:

In modern drug designing, molecular docking is routinely used for understanding drug-receptor interactions. As the DPP-4 highly involved in the enzymatic degradation of GLP-1 and GIP required for insulin secretion. Due to increased adverse event caused by conventional anti-diabetic agents researchers are at constant need of exploring alternate therapeutic strategy for clinical management of diabetes mellitus.In the present study, we design sulphonamide-quinazolinone hybrid molecules. All the compounds were subjected to molecular docking studies for inhibition of target protein Dipeptidyl Peptidase-4 (DPP-4) with PDB code as 3OPM. The insilico molecular docking study was done by using Autodockresults showed that all design compounds having minimum binding energy and have good affinity towards the active pocket, thus they may be considered as good DPP-4 inhibitors.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Evaluation of protective activity of gentisic acid against 5-flurouracil induced toxicities in laboratory animals

Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Oral Presentation Code: O-COL01

Title: EVALUATION OF PROTECTIVE ACTIVITY OF GENTISIC ACID AGAINST 5-FLUROURACIL INDUCED TOXICITIES IN LABORATORY ANIMALS

Pujari Rohini R.*, Bandawane D. D.
Progressive Education Society's Modern College of Pharmacy Yamunanagar, Nigdi, Pune

Abstract:

Purpose: Cancer is a leading cause of morbidity and mortality worldwide. Chemotherapy is the widely treatment modality but is associated with several multiple organ toxicities. The crucial need arises for a drug that can improve immune system of patient and ameliorate chemotherapy toxicity without having any negative impact on efficacy of chemotherapeutic agent. Natural products have been used worldwide thousands of years to treat various forms of diseases including cancer. Phenolic acids have shown the potential as effective agents for cancer prevention and immunomodulation. However, none of these phytoconstituents have been studied for their ability to protect toxicity of chemotherapeutic agents in animal models or clinical studies. 2,5-Dihydroxybenzoic acid or gentisic acid is an active metabolite of salicylic acid degradation. It is documented to possess a broad spectrum of biological activity such as anti-inflammatory, antirheumatic, antibiotic, anticarcinogenic, antimutagenic, antiatherogenic, skeletal muscle relaxant and antioxidant properties. The focus of the proposed study was preclinical evaluation of naturally occurring phenolic acid gentisic acid for its protective role against the toxicities induced by the most commonly used anticancer agent 5-Flurouracil. Methods: In light of this initial acute oral toxicity studies on laboratory animals was carried out and the results showed that the drug is found to be safe upto 2000 mg/kg. Results: Based on these results the four doses (3 mg/kg, 30 mg/kg, 100 mg/kg and 300mg/kg) of gentisic acid were evaluated for protective activity against 5-Flurouracil (35 mg/kg) induced multiple organ toxicities. The results revealed that 5-Flurouracil treatment caused severe toxicity to different organs like brain, kidney, liver and lungs by the virtue of alterations in biomarkers of these organs and cellular damage observed in histopathological studies. Conclusion: These alterations in the level of biomarkers and cellular damage to the organs were significantly and dose dependently ameliorated by the gentisic acid.

Scientific Oral Presentation Code: O-COL02

Title: IN VITRO ANTIOXIDANT AND ANTICHOLINESTERASE POTENTIAL OF FLOWERS OF NYCTANTHES ARBORTRISTIS LINN.: A THERAPEUTIC LEAD FOR ALZHEIMER'S DISEASE

Arvind Naik[1,2]*, Deepti Bandawane[1], Pravin Chaudhari[2]
1. Progressive Education Society's Modern College of Pharmacy, Yamunangar, Nigdi, Pune
2. LSHGCT Gahlot Institute of pharmacy, Koparkhairane, Navi Mumbai

Abstract:

Purpose: Alzheimer's disease (AD) is a primary degenerative disease of the central nervous system. Increased level of the enzyme acetylcholinesterase (AChE) plays a key role in hydrolysis of the neurotransmitter Acetylcholine which worsens the condition of cognitive dysfunction. The chemical inhibition of AChE is a potent strategy for addressing signal related neuropathology and natural products are potential sources of compounds with such properties. Among the pathologic hypotheses of Alzheimer's disease, cholinergic deficit and oxidative stress have been implicated as two major hallmarks. Hence, inhibition of cholinesterase and oxidation are the two important strategies in the development of a drug for AD.

Method: Ethanolic extract of flowers of Nyctanthes arbortristis is used in this research to investigate its anticholinesterase and antioxidant potentials. Anticholinesterase activity was measured by modified Ellman method. Antioxidant potentials were evaluated by the DPPH method and nitric oxide scavenging activity.

Result: The IC50 values of the extract for DPPH and nitric oxide scavenging were 278.96 g/ml and 323.68 g/ml, respectively. The tested sample reflects potential antioxidative and anticholinesterase inhibitory effect which may warrant its effectiveness in the treatment of AD.

Conclusion: The ethanolic extract of flowers of Nyctanthes arbortristis showed promising antioxidant activity and anticholinesterase activity. According to the results stated above, it can be concluded that ethanolic extract of flowers of Nyctanthes arbortristis can be used as an accessible source of natural antioxidants and anticholinesterase agents with ensuing health benefits to treat Alzheimer's disease.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

In vitro antioxidant and anticholinesterase potential of owers of nyctanthesarbortristislinn.: a therapeutic lead for alzheimer's disease

Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Oral Presentation Code: O-COL01

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Pujari Rohini R.*, Bandawane D. D.

Progressive Education Society's Modern College of Pharmacy Yamunanagar, Nigdi, Pune

Abstract:

Purpose: Cancer is a leading cause of morbidity and mortality worldwide. Chemotherapy is the widely treatment modality but is associated with several multiple organ toxicities. The crucial need arises for a drug that can improve immune system of patient and ameliorate chemotherapy toxicity without having any negative impact on efficacy of chemotherapeutic agent. Natural products have been used worldwide thousands of years to treat various forms of diseases including cancer. Phenolic acids have shown the potential as effective agents for cancer prevention and immunomodulation. However, none of these phytoconstituents have been studied for their ability to protect toxicity of chemotherapeutic agents in animal models or clinical studies. 2,5-Dihydroxybenzoic acid or gentisic acid is an active metabolite of salicylic acid degradation. It is documented to possess a broad spectrum of biological activity such as anti-inflammatory, antirheumatic, antibiotic, anticarcinogenic, antimutagenic, antiatherogenic, skeletal muscle relaxant and antioxidant properties. The focus of the proposed study was preclinical evaluation of naturally occurring phenolic acid gentisic acid for its protective role against the toxicities induced by the most commonly used anticancer agent 5-Flurouracil. Methods: In light of this initial acute oral toxicity studies on laboratory animals was carried out and the results showed that the drug is found to be safe upto 2000 mg/kg. Results: Based on these results the four doses (3 mg/kg, 30 mg/kg, 100 mg/kg and 300mg/kg) of gentisic acid were evaluated for protective activity against 5-Flurouracil (35 mg/kg) induced multiple organ toxicities. The results revealed that 5-Flurouracil treatment caused severe toxicity to different organs like brain, kidney, liver and lungs by the virtue of alterations in biomarkers of these organs and cellular damage observed in histopathological studies. Conclusion: These alterations in the level of biomarkers and cellular damage to the organs were significantly and dose dependently ameliorated by the gentisic acid.

Scientific Oral Presentation Code: O-COL02

Title: IN VITRO ANTIOXIDANT AND ANTICHOLINESTERASE POTENTIAL OF FLOWERS OF NYCTANTHES ARBORTRISTIS LINN.: A THERAPEUTIC LEAD FOR ALZHEIMER'S DISEASE

Arvind Naik[1,2]*, Deepti Bandawane[1], Pravin Chaudhari[1]

1. Progressive Education Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune

2. LSHGCT Gahlot Institute of pharmacy, Koparkhairane, Navi Mumbai

Abstract:

Purpose: Alzheimer's disease (AD) is a primary degenerative disease of the central nervous system. Increased level of the enzyme acetylcholinesterase (AChE) plays a key role in hydrolysis of the neurotransmitter Acetylcholine which worsens the condition of cognitive dysfunction. The chemical inhibition of AChE is a potent strategy for addressing signal related neuropathology and natural products are potential sources of compounds with such properties. Among the pathologic hypotheses of Alzheimer's disease, cholinergic deficit and oxidative stress have been implicated as two major hallmarks. Hence, inhibition of cholinesterase and oxidation are the two important strategies in the development of a drug for AD.

Method: Ethanolic extract of flowers of Nyctanthes arbortristis is used in this research to investigate its anticholinesterase and antioxidant potentials. Anticholinesterase activity was measured by modified Ellman method. Antioxidant potentials were evaluated by the DPPH method and nitric oxide scavenging activity.

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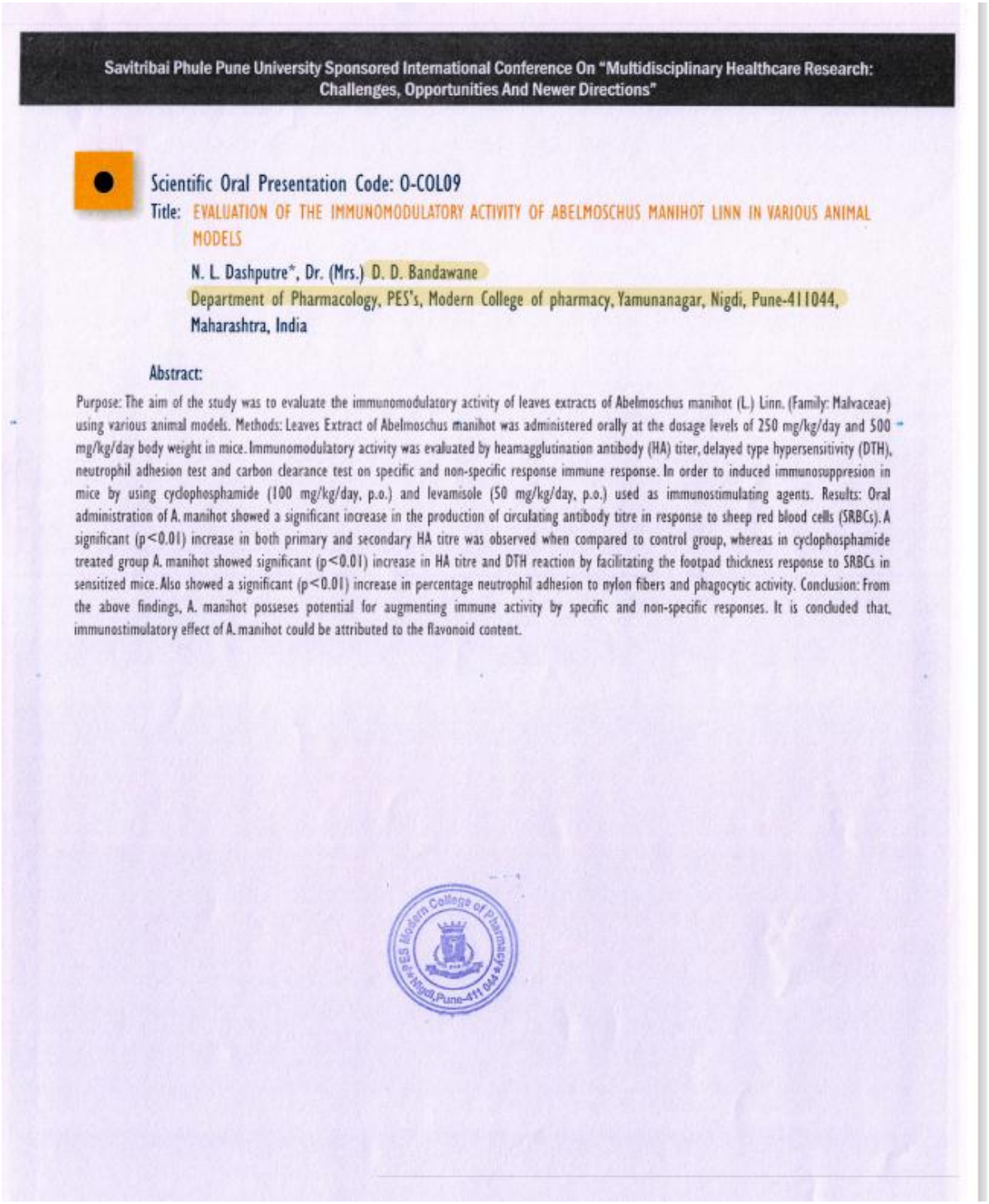
Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Evaluation of the immunomodulatory activity of abelmoschus manihotlinn in various animal models



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Oral Presentation Code: O-COL09

Title: EVALUATION OF THE IMMUNOMODULATORY ACTIVITY OF ABELMOSCHUS MANIHOT LINN IN VARIOUS ANIMAL MODELS

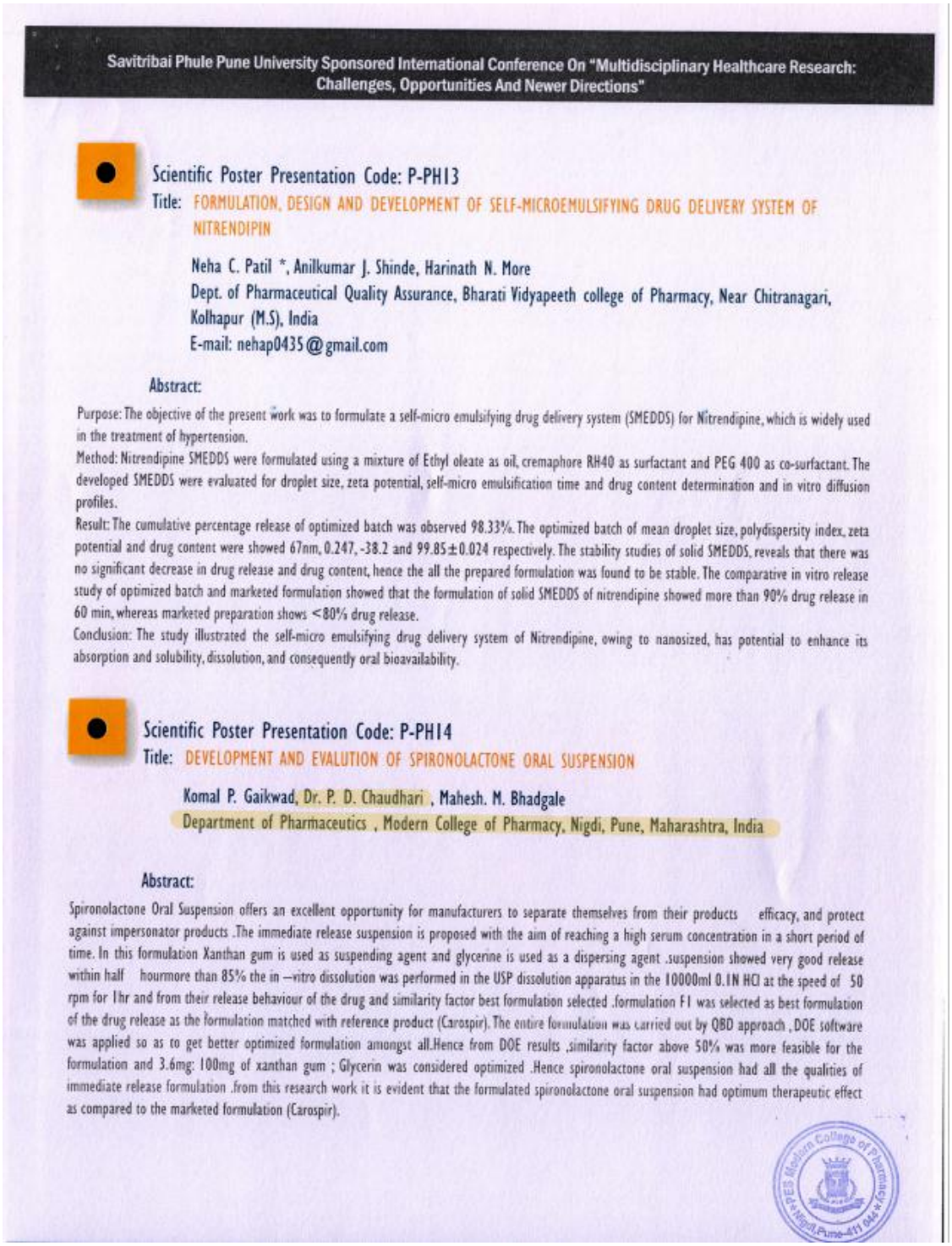
N. L. Dashputre*, Dr. (Mrs.) D. D. Bandawane

Department of Pharmacology, PES's, Modern College of pharmacy, Yamunanagar, Nigdi, Pune-411044, Maharashtra, India

Abstract:

Purpose: The aim of the study was to evaluate the immunomodulatory activity of leaves extracts of Abelmoschus manihot (L.) Linn. (Family: Malvaceae) using various animal models. Methods: Leaves Extract of Abelmoschus manihot was administered orally at the dosage levels of 250 mg/kg/day and 500 mg/kg/day body weight in mice. Immunomodulatory activity was evaluated by heamagglutination antibody (HA) titer, delayed type hypersensitivity (DTH), neutrophil adhesion test and carbon clearance test on specific and non-specific response immune response. In order to induced immunosuppresion in mice by using cyclophosphamide (100 mg/kg/day, p.o.) and levamisole (50 mg/kg/day, p.o.) used as immunostimulating agents. Results: Oral administration of A. manihot showed a significant increase in the production of circulating antibody titre in response to sheep red blood cells (SRBCs). A significant ($p<0.01$) increase in both primary and secondary HA titre was observed when compared to control group, whereas in cyclophosphamide treated group A. manihot showed significant ($p<0.01$) increase in HA titre and DTH reaction by facilitating the footpad thickness response to SRBCs in sensitized mice. Also showed a significant ($p<0.01$) increase in percentage neutrophil adhesion to nylon fibers and phagocytic activity. Conclusion: From the above findings, A. manihot posseses potential for augmenting immune activity by specific and non-specific responses. It is concluded that, immunostimulatory effect of A. manihot could be attributed to the flavonoid content.

Development and evalution of spironolactone oral suspension



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PH13

Title: FORMULATION, DESIGN AND DEVELOPMENT OF SELF-MICROEMULSIFYING DRUG DELIVERY SYSTEM OF NITRENDIPIN

Neha C. Patil *, Anilkumar J. Shinde, Harinath N. More
Dept. of Pharmaceutical Quality Assurance, Bharati Vidyapeeth college of Pharmacy, Near Chitranagari, Kolhapur (M.S), India
E-mail: nehap0435@gmail.com

Abstract:

Purpose: The objective of the present work was to formulate a self-micro emulsifying drug delivery system (SMEDDS) for Nitrendipine, which is widely used in the treatment of hypertension.

Method: Nitrendipine SMEDDS were formulated using a mixture of Ethyl oleate as oil, cremaphore RH40 as surfactant and PEG 400 as co-surfactant. The developed SMEDDS were evaluated for droplet size, zeta potential, self-micro emulsification time and drug content determination and in vitro diffusion profiles.

Result: The cumulative percentage release of optimized batch was observed 98.33%. The optimized batch of mean droplet size, polydispersity index, zeta potential and drug content were showed 67nm, 0.247, -38.2 and 99.85±0.024 respectively. The stability studies of solid SMEDDS, reveals that there was no significant decrease in drug release and drug content, hence the all the prepared formulation was found to be stable. The comparative in vitro release study of optimized batch and marketed formulation showed that the formulation of solid SMEDDS of nitrendipine showed more than 90% drug release in 60 min, whereas marketed preparation shows <80% drug release.

Conclusion: The study illustrated the self-micro emulsifying drug delivery system of Nitrendipine, owing to nanosized, has potential to enhance its absorption and solubility, dissolution, and consequently oral bioavailability.

Scientific Poster Presentation Code: P-PH14

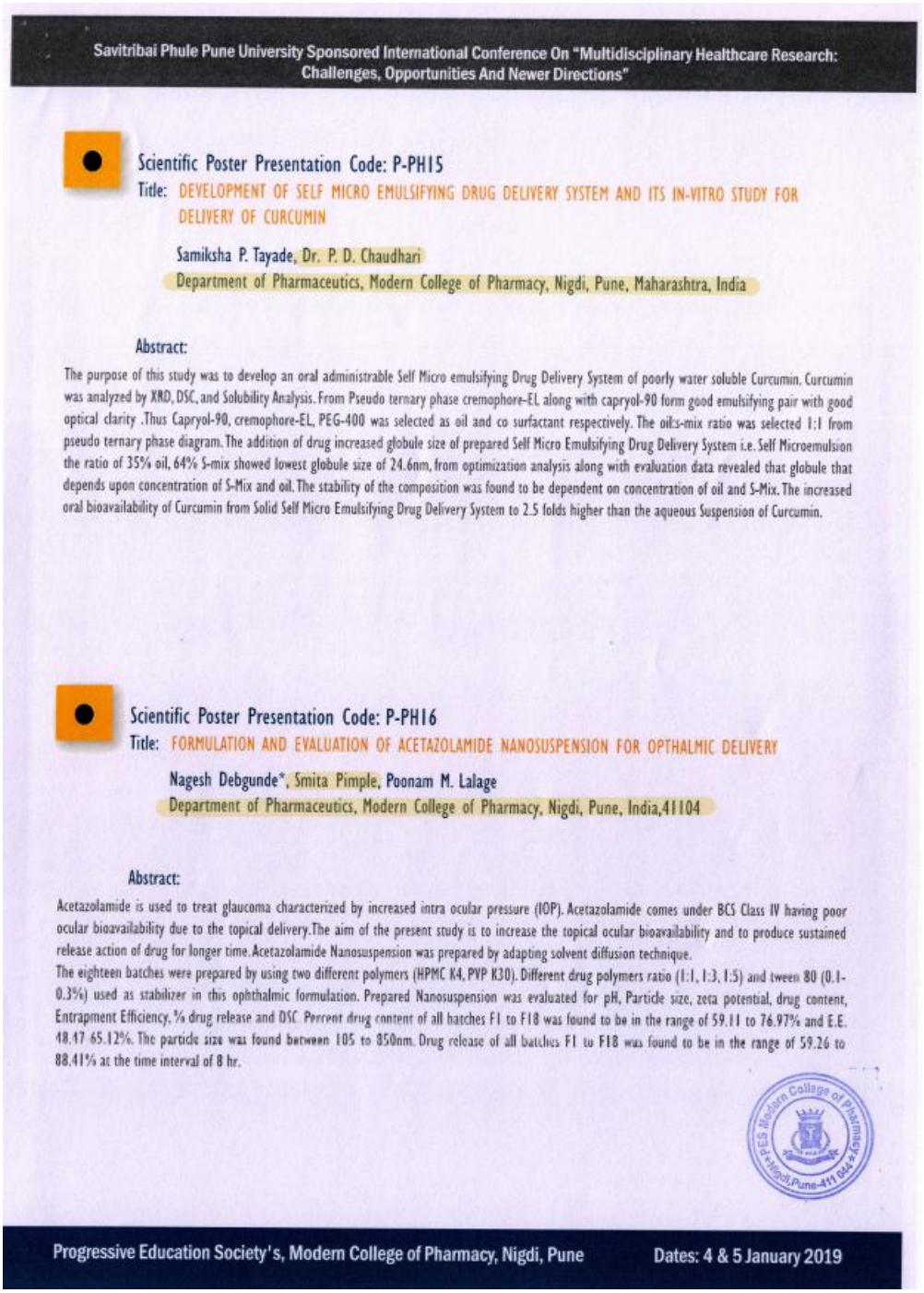
Title: DEVELOPMENT AND EVALUTION OF SPIRONOLACTONE ORAL SUSPENSION

Komal P. Gaikwad, Dr. P. D. Chaudhari , Mahesh. M. Bhadgale
Department of Pharmaceutics , Modern College of Pharmacy, Nigdi, Pune, Maharashtra, India

Abstract:

Spironolactone Oral Suspension offers an excellent opportunity for manufacturers to separate themselves from their products efficacy, and protect against impersonator products .The immediate release suspension is proposed with the aim of reaching a high serum concentration in a short period of time. In this formulation Xanthan gum is used as suspending agent and glycerine is used as a dispersing agent .suspension showed very good release within half hourmore than 85% the in –vitro dissolution was performed in the USP dissolution apparatus in the 10000ml 0.1N HCl at the speed of 50 rpm for 1hr and from their release behaviour of the drug and similarity factor best formulation selected .formulation F1 was selected as best formulation of the drug release as the formulation matched with reference product (Carospir). The entire formulation was carried out by QBD approach , DOE software was applied so as to get better optimized formulation amongst all.Hence from DOE results ,similarity factor above 50% was more feasible for the formulation and 3.6mg: 100mg of xanthan gum ; Glycerin was considered optimized .Hence spironolactone oral suspension had all the qualities of immediate release formulation .from this research work it is evident that the formulated spironolactone oral suspension had optimum therapeutic effect as compared to the marketed formulation (Carospir).

Development of self-micro emulsifying drug delivery system and its in-vitro study for delivery of curcumin



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PH15

Title: DEVELOPMENT OF SELF MICRO EMULSIFYING DRUG DELIVERY SYSTEM AND ITS IN-VITRO STUDY FOR DELIVERY OF CURCUMIN

Samiksha P. Tayade, Dr. P. D. Chaudhari
Department of Pharmaceutics, Modern College of Pharmacy, Nigdi, Pune, Maharashtra, India

Abstract:

The purpose of this study was to develop an oral administrable Self Micro emulsifying Drug Delivery System of poorly water soluble Curcumin. Curcumin was analyzed by XRD, DSC, and Solubility Analysis. From Pseudo ternary phase cremophore-EL along with capryol-90 form good emulsifying pair with good optical clarity .Thus Capryol-90, cremophore-EL, PEG-400 was selected as oil and co surfactant respectively. The oil:s-mix ratio was selected 1:1 from pseudo ternary phase diagram. The addition of drug increased globule size of prepared Self Micro Emulsifying Drug Delivery System i.e. Self Microemulsion the ratio of 35% oil, 64% S-mix showed lowest globule size of 24.6nm, from optimization analysis along with evaluation data revealed that globule that depends upon concentration of S-Mix and oil. The stability of the composition was found to be dependent on concentration of oil and S-Mix. The increased oral bioavailability of Curcumin from Solid Self Micro Emulsifying Drug Delivery System to 2.5 folds higher than the aqueous Suspension of Curcumin.

Scientific Poster Presentation Code: P-PH16

Title: FORMULATION AND EVALUATION OF ACETAZOLAMIDE NANOSUSPENSION FOR OPTHALMIC DELIVERY

Nagesh Debgunde*, Smita Pimple, Poonam M. Lalage
Department of Pharmaceutics, Modern College of Pharmacy, Nigdi, Pune, India,41104

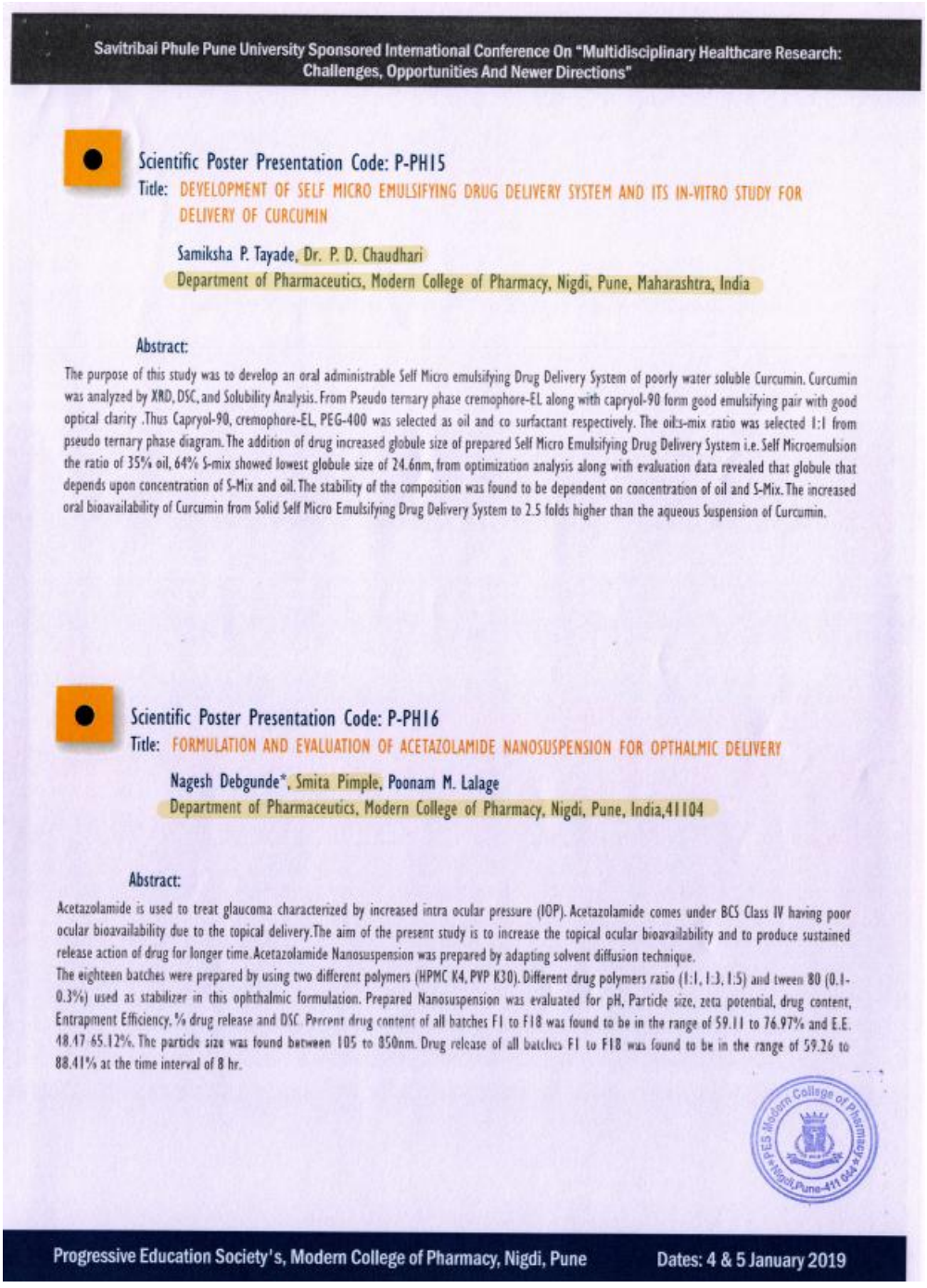
Abstract:

Acetazolamide is used to treat glaucoma characterized by increased intra ocular pressure (IOP). Acetazolamide comes under BCS Class IV having poor ocular bioavailability due to the topical delivery.The aim of the present study is to increase the topical ocular bioavailability and to produce sustained release action of drug for longer time. Acetazolamide Nanosuspension was prepared by adapting solvent diffusion technique.

The eighteen batches were prepared by using two different polymers (HPMC K4, PVP K30). Different drug polymers ratio (1:1, 1:3, 1:5) and tween 80 (0.1-0.3%) used as stabilizer in this ophthalmic formulation. Prepared Nanosuspension was evaluated for pH, Particle size, zeta potential, drug content, Entrapment Efficiency, % drug release and DSC. Percent drug content of all batches F1 to F18 was found to be in the range of 59.11 to 76.97% and E.E. 18.47-65.12%. The particle size was found between 105 to 850nm. Drug release of all batches F1 to F18 was found to be in the range of 59.26 to 88.41% at the time interval of 8 hr.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Formulation and evaluation of acetazolamide nanosuspension for opthalmic delivery



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PH15

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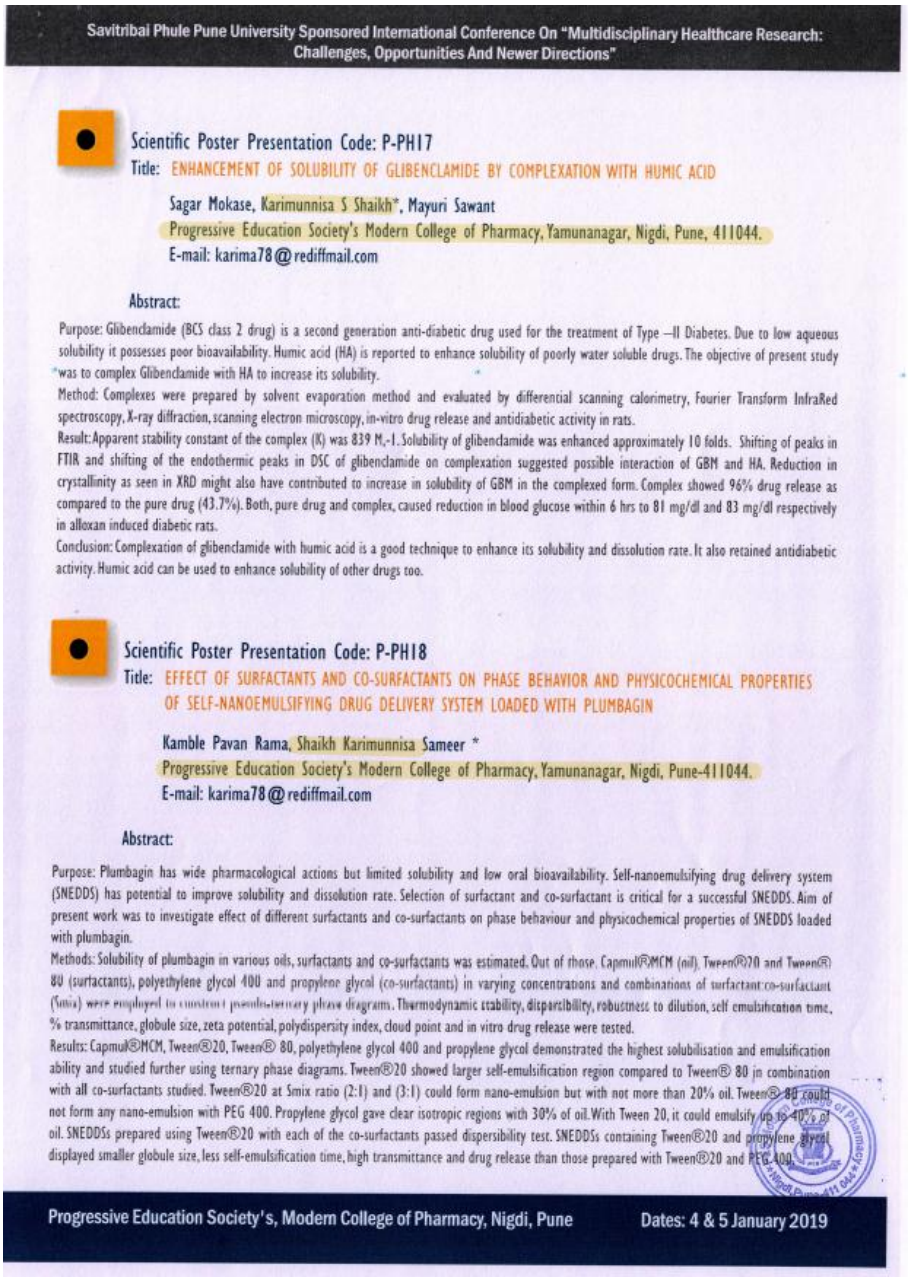
Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Enhancement of solubility of glibenclamide by complexation with humic acid



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PH17

Title: ENHANCEMENT OF SOLUBILITY OF GLIBENCLAMIDE BY COMPLEXATION WITH HUMIC ACID

Sagar Mokase, Karimunnisa S Shaikh*, Mayuri Sawant
Progressive Education Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune, 411044.
E-mail: karima78@rediffmail.com

Abstract:

Purpose: Glibenclamide (BCS class 2 drug) is a second generation anti-diabetic drug used for the treatment of Type –II Diabetes. Due to low aqueous solubility it possesses poor bioavailability. Humic acid (HA) is reported to enhance solubility of poorly water soluble drugs. The objective of present study was to complex Glibenclamide with HA to increase its solubility.

Method: Complexes were prepared by solvent evaporation method and evaluated by differential scanning calorimetry, Fourier Transform InfraRed spectroscopy, X-ray diffraction, scanning electron microscopy, in-vitro drug release and antidiabetic activity in rats.

Result: Apparent stability constant of the complex (K) was 839 M_r1. Solubility of glibenclamide was enhanced approximately 10 folds. Shifting of peaks in FTIR and shifting of the endothermic peaks in DSC of glibenclamide on complexation suggested possible interaction of GBM and HA. Reduction in crystallinity as seen in XRD might also have contributed to increase in solubility of GBM in the complexed form. Complex showed 96% drug release as compared to the pure drug (43.7%). Both, pure drug and complex, caused reduction in blood glucose within 6 hrs to 81 mg/dl and 83 mg/dl respectively in alloxan induced diabetic rats.

Conclusion: Complexation of glibenclamide with humic acid is a good technique to enhance its solubility and dissolution rate. It also retained antidiabetic activity. Humic acid can be used to enhance solubility of other drugs too.

Scientific Poster Presentation Code: P-PH18

Title: EFFECT OF SURFACTANTS AND CO-SURFACTANTS ON PHASE BEHAVIOR AND PHYSICOCHEMICAL PROPERTIES OF SELF-NANOEMULSIFYING DRUG DELIVERY SYSTEM LOADED WITH PLUMBAGIN

Kamble Pavan Rama, Shaikh Karimunnisa Sameer *
Progressive Education Society's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune-411044.
E-mail: karima78@rediffmail.com

Abstract:

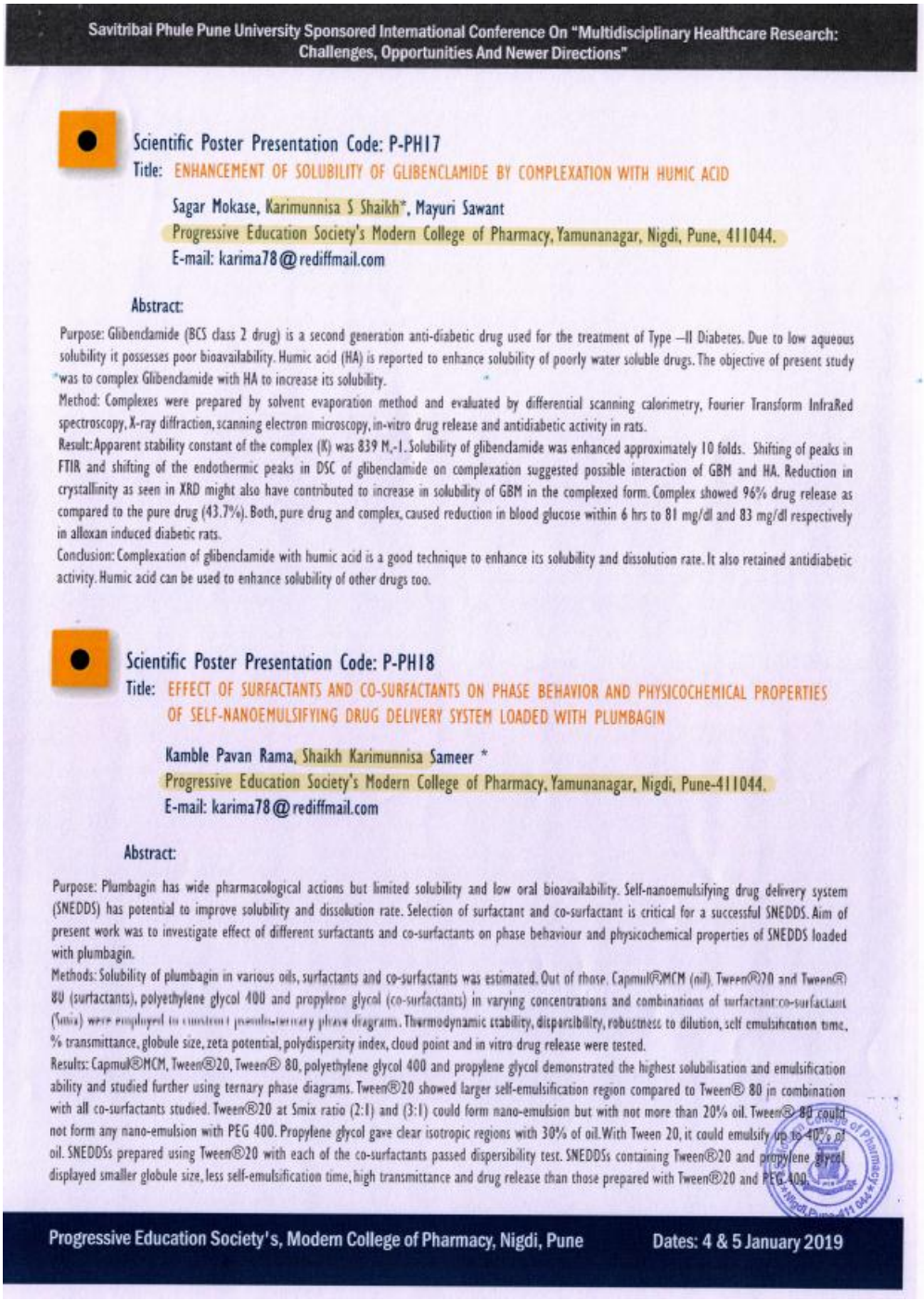
Purpose: Plumbagin has wide pharmacological actions but limited solubility and low oral bioavailability. Self-nanoemulsifying drug delivery system (SNEDDS) has potential to improve solubility and dissolution rate. Selection of surfactant and co-surfactant is critical for a successful SNEDDS. Aim of present work was to investigate effect of different surfactants and co-surfactants on phase behaviour and physicochemical properties of SNEDDS loaded with plumbagin.

Methods: Solubility of plumbagin in various oils, surfactants and co-surfactants was estimated. Out of those, Capmul®MCM (oil), Tween®20 and Tween® 80 (surfactants), polyethylene glycol 400 and propylene glycol (co-surfactants) in varying concentrations and combinations of surfactant:co-surfactant (Smix) were employed to construct pseudo-ternary phase diagrams. Thermodynamic stability, dispersibility, robustness to dilution, self emulsification time, % transmittance, globule size, zeta potential, polydispersity index, cloud point and in vitro drug release were tested.

Results: Capmul®MCM, Tween®20, Tween® 80, polyethylene glycol 400 and propylene glycol demonstrated the highest solubilisation and emulsification ability and studied further using ternary phase diagrams. Tween®20 showed larger self-emulsification region compared to Tween® 80 in combination with all co-surfactants studied. Tween®20 at Smix ratio (2:1) and (3:1) could form nano-emulsion but with not more than 20% oil. Tween® 80 could not form any nano-emulsion with PEG 400. Propylene glycol gave clear isotropic regions with 30% of oil. With Tween 20, it could emulsify up to 40% of oil. SNEDDSs prepared using Tween®20 with each of the co-surfactants passed dispersibility test. SNEDDSs containing Tween®20 and propylene glycol displayed smaller globule size, less self-emulsification time, high transmittance and drug release than those prepared with Tween®20 and PEG 400.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Effect of surfactants and co-surfactants on phase behavior and physicochemical properties of self-nanoemulsifying drug delivery system loaded with plumbagin



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PH17

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Scientific Poster Presentation Code: P-PH18

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Kamble Pavan Rama, Shaikh Karimunnisa Sameer *
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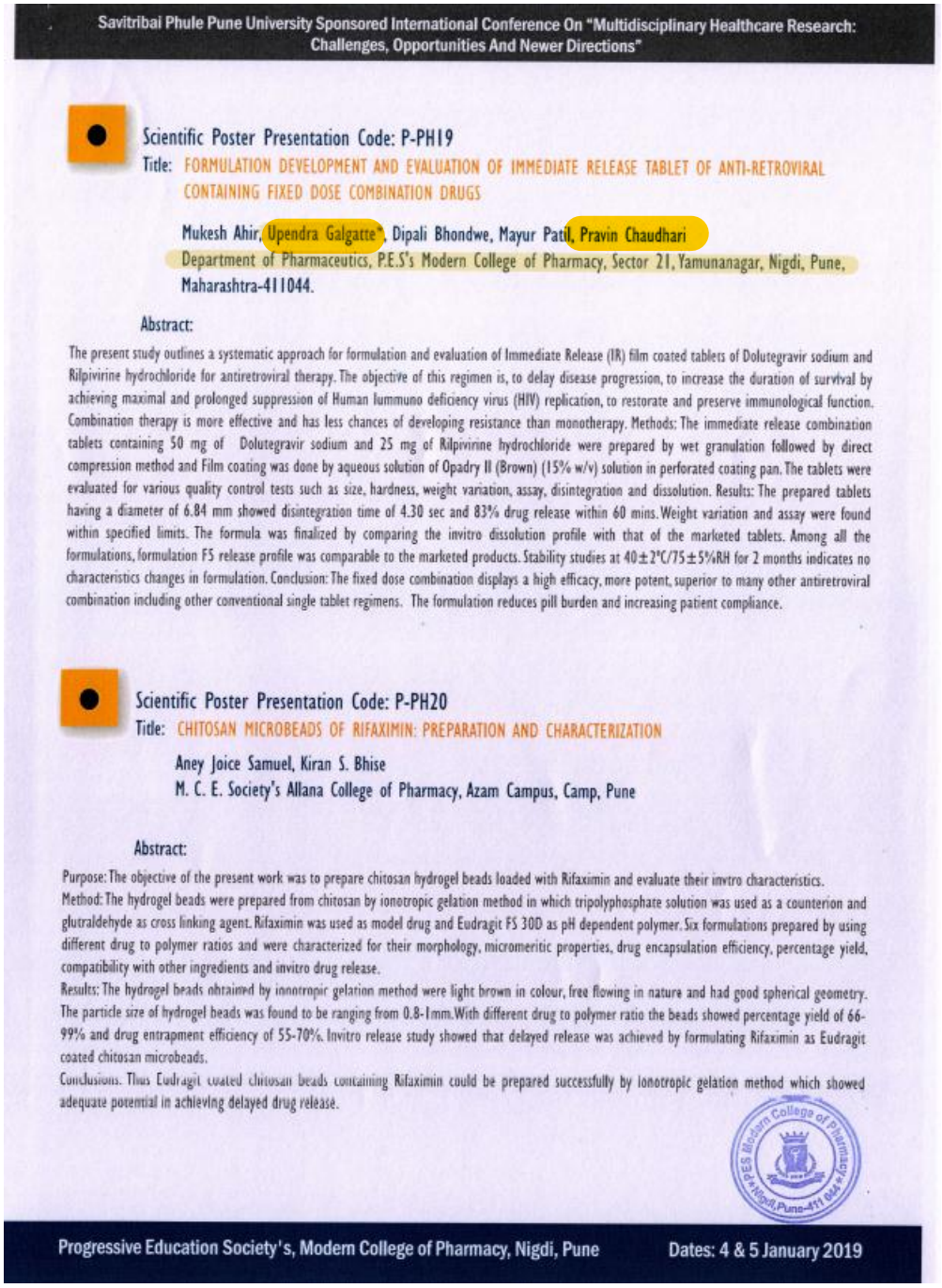
Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Formulation development and evaluation of immediate release tablet of antiretroviral containing fixed dose combination drugs



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PH19

Title: FORMULATION DEVELOPMENT AND EVALUATION OF IMMEDIATE RELEASE TABLET OF ANTI-RETROVIRAL CONTAINING FIXED DOSE COMBINATION DRUGS

Mukesh Ahir, Upendra Galgatte*, Dipali Bhondwe, Mayur Patil, Pravin Chaudhari
Department of Pharmaceutics, P.E.S's Modern College of Pharmacy, Sector 21, Yamunanagar, Nigdi, Pune, Maharashtra-411044.

Abstract:

The present study outlines a systematic approach for formulation and evaluation of Immediate Release (IR) film coated tablets of Dolutegravir sodium and Rilpivirine hydrochloride for antiretroviral therapy. The objective of this regimen is, to delay disease progression, to increase the duration of survival by achieving maximal and prolonged suppression of Human lummuno deficiency virus (HIV) replication, to restorate and preserve immunological function. Combination therapy is more effective and has less chances of developing resistance than monotherapy. Methods: The immediate release combination tablets containing 50 mg of Dolutegravir sodium and 25 mg of Rilpivirine hydrochloride were prepared by wet granulation followed by direct compression method and Film coating was done by aqueous solution of Opadry II (Brown) (15% w/v) solution in perforated coating pan. The tablets were evaluated for various quality control tests such as size, hardness, weight variation, assay, disintegration and dissolution. Results: The prepared tablets having a diameter of 6.84 mm showed disintegration time of 4.30 sec and 83% drug release within 60 mins. Weight variation and assay were found within specified limits. The formula was finalized by comparing the invitro dissolution profile with that of the marketed tablets. Among all the formulations, formulation F5 release profile was comparable to the marketed products. Stability studies at 40±2°C/75±5%RH for 2 months indicates no characteristics changes in formulation. Conclusion: The fixed dose combination displays a high efficacy, more potent, superior to many other antiretroviral combination including other conventional single tablet regimens. The formulation reduces pill burden and increasing patient compliance.

Scientific Poster Presentation Code: P-PH20

Title: CHITOSAN MICROBEADS OF RIFAXIMIN: PREPARATION AND CHARACTERIZATION

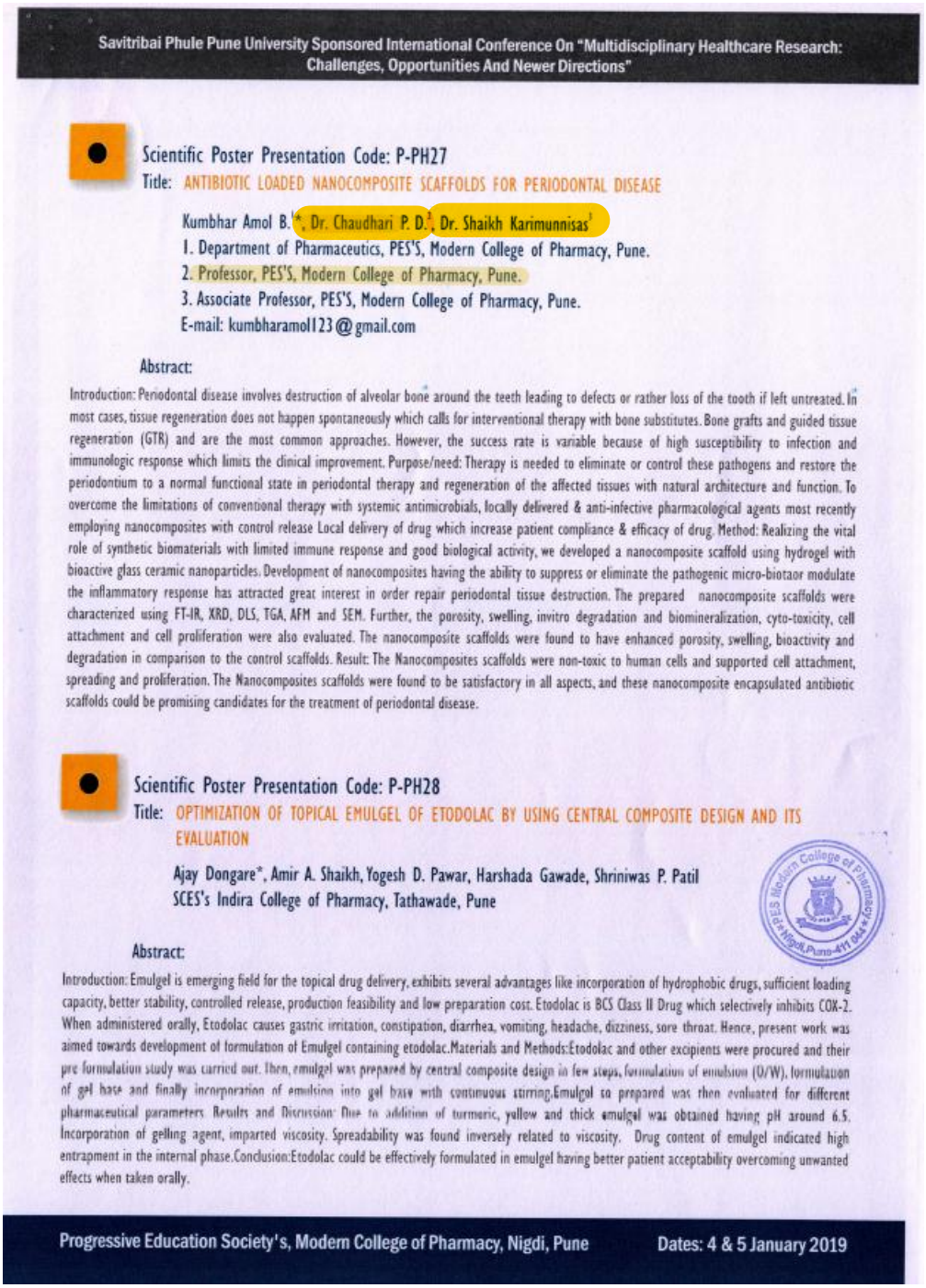
Aney Joice Samuel, Kiran S. Bhise
M. C. E. Society's Allana College of Pharmacy, Azam Campus, Camp, Pune

Abstract:

Purpose: The objective of the present work was to prepare chitosan hydrogel beads loaded with Rifaximin and evaluate their invtro characteristics.
Method: The hydrogel beads were prepared from chitosan by ionotropic gelation method in which tripolyphosphate solution was used as a counterion and glutraldehyde as cross linking agent. Rifaximin was used as model drug and Eudragit FS 30D as pH dependent polymer. Six formulations prepared by using different drug to polymer ratios and were characterized for their morphology, micromeritic properties, drug encapsulation efficiency, percentage yield, compatibility with other ingredients and invitro drug release.
Results: The hydrogel beads obtained by ionotropic gelation method were light brown in colour, free flowing in nature and had good spherical geometry. The particle size of hydrogel beads was found to be ranging from 0.8-1mm. With different drug to polymer ratio the beads showed percentage yield of 66-99% and drug entrapment efficiency of 55-70%. Invitro release study showed that delayed release was achieved by formulating Rifaximin as Eudragit coated chitosan microbeads.
Conclusions. Thus Eudragit coated chitosan beads containing Rifaximin could be prepared successfully by Ionotropic gelation method which showed adequate potential in achieving delayed drug release.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Antibiotic loaded nanocomposite scaffolds for periodontal disease



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PH27

Title: ANTIBIOTIC LOADED NANOCOMPOSITE SCAFFOLDS FOR PERIODONTAL DISEASE

Kumbhar Amol B.[1]*, Dr. Chaudhari P. D.[2], Dr. Shaikh Karimunnisas[3]
1. Department of Pharmaceutics, PES'S, Modern College of Pharmacy, Pune.
2. Professor, PES'S, Modern College of Pharmacy, Pune.
3. Associate Professor, PES'S, Modern College of Pharmacy, Pune.
E-mail: kumbharamol123@gmail.com

Abstract:

Introduction: Periodontal disease involves destruction of alveolar bone around the teeth leading to defects or rather loss of the tooth if left untreated. In most cases, tissue regeneration does not happen spontaneously which calls for interventional therapy with bone substitutes. Bone grafts and guided tissue regeneration (GTR) and are the most common approaches. However, the success rate is variable because of high susceptibility to infection and immunologic response which limits the clinical improvement. Purpose/need: Therapy is needed to eliminate or control these pathogens and restore the periodontium to a normal functional state in periodontal therapy and regeneration of the affected tissues with natural architecture and function. To overcome the limitations of conventional therapy with systemic antimicrobials, locally delivered & anti-infective pharmacological agents most recently employing nanocomposites with control release Local delivery of drug which increase patient compliance & efficacy of drug. Method: Realizing the vital role of synthetic biomaterials with limited immune response and good biological activity, we developed a nanocomposite scaffold using hydrogel with bioactive glass ceramic nanoparticles. Development of nanocomposites having the ability to suppress or eliminate the pathogenic micro-biotaor modulate the inflammatory response has attracted great interest in order repair periodontal tissue destruction. The prepared nanocomposite scaffolds were characterized using FT-IR, XRD, DLS, TGA, AFM and SEM. Further, the porosity, swelling, invitro degradation and biomineralization, cyto-toxicity, cell attachment and cell proliferation were also evaluated. The nanocomposite scaffolds were found to have enhanced porosity, swelling, bioactivity and degradation in comparison to the control scaffolds. Result: The Nanocomposites scaffolds were non-toxic to human cells and supported cell attachment, spreading and proliferation. The Nanocomposites scaffolds were found to be satisfactory in all aspects, and these nanocomposite encapsulated antibiotic scaffolds could be promising candidates for the treatment of periodontal disease.

Scientific Poster Presentation Code: P-PH28

Title: OPTIMIZATION OF TOPICAL EMULGEL OF ETODOLAC BY USING CENTRAL COMPOSITE DESIGN AND ITS EVALUATION

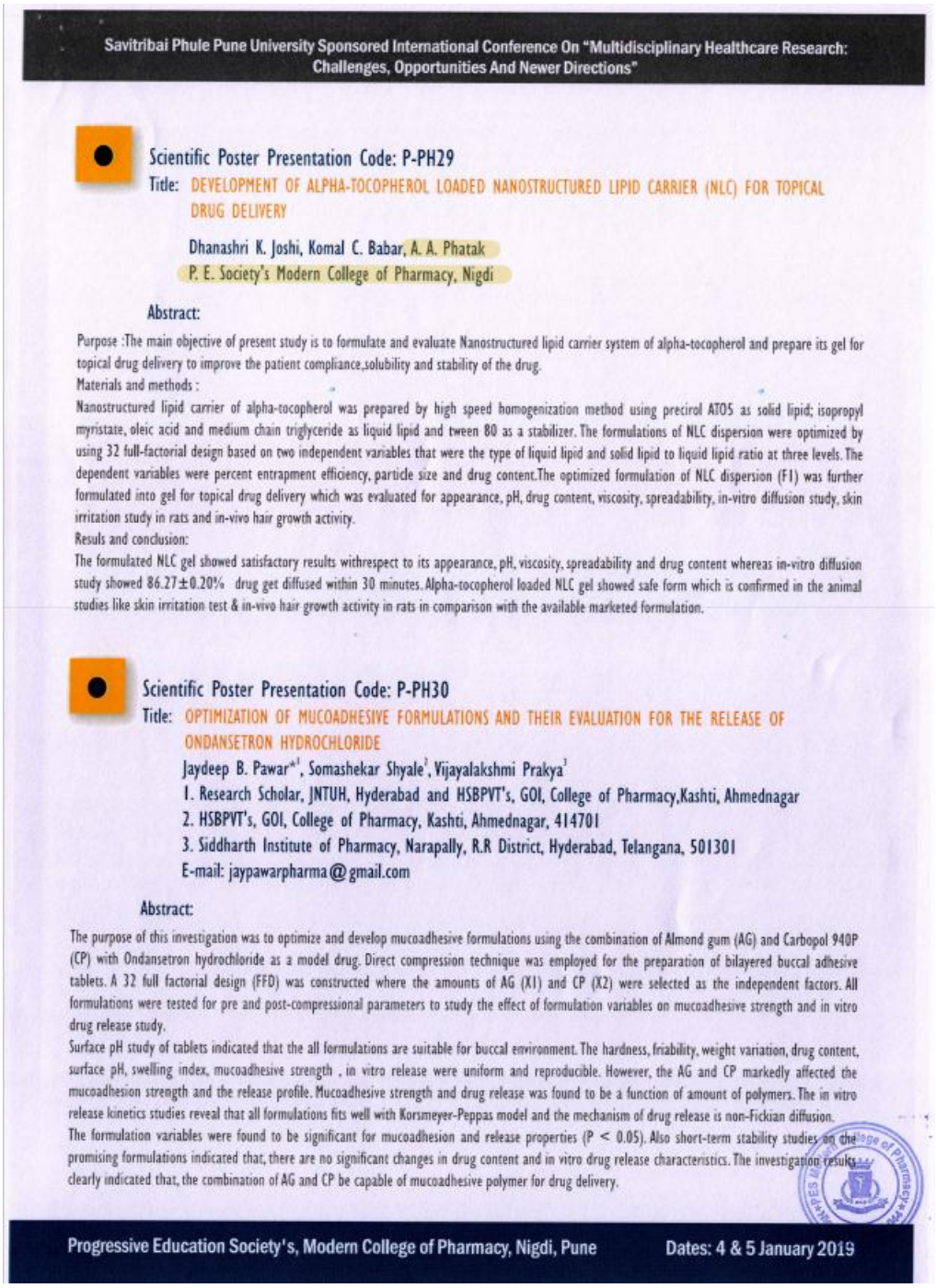
Ajay Dongare*, Amir A. Shaikh, Yogesh D. Pawar, Harshada Gawade, Shriniwas P. Patil
SCES's Indira College of Pharmacy, Tathawade, Pune

Abstract:

Introduction: Emulgel is emerging field for the topical drug delivery, exhibits several advantages like incorporation of hydrophobic drugs, sufficient loading capacity, better stability, controlled release, production feasibility and low preparation cost. Etodolac is BCS Class II Drug which selectively inhibits COX-2. When administered orally, Etodolac causes gastric irritation, constipation, diarrhea, vomiting, headache, dizziness, sore throat. Hence, present work was aimed towards development of formulation of Emulgel containing etodolac.Materials and Methods:Etodolac and other excipients were procured and their pre formulation study was carried out. Then, emulgel was prepared by central composite design in few steps, formulation of emulsion (O/W), formulation of gel base and finally incorporation of emulsion into gel base with continuous stirring.Emulgel so prepared was then evaluated for different pharmaceutical parameters. Results and Discussion: Due to addition of turmeric, yellow and thick emulgel was obtained having pH around 6.5. Incorporation of gelling agent, imparted viscosity. Spreadability was found inversely related to viscosity. Drug content of emulgel indicated high entrapment in the internal phase.Conclusion:Etodolac could be effectively formulated in emulgel having better patient acceptability overcoming unwanted effects when taken orally.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Development of alphatocopherol loaded nanostructured lipid carrier (NLC) for topical drug delivery



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PH29

Title: DEVELOPMENT OF ALPHA-TOCOPHEROL LOADED NANOSTRUCTURED LIPID CARRIER (NLC) FOR TOPICAL DRUG DELIVERY

Dhanashri K. Joshi, Komal C. Babar, A. A. Phatak
P. E. Society's Modern College of Pharmacy, Nigdi

Abstract:

Purpose :The main objective of present study is to formulate and evaluate Nanostructured lipid carrier system of alpha-tocopherol and prepare its gel for topical drug delivery to improve the patient compliance,solubility and stability of the drug.

Materials and methods :

Nanostructured lipid carrier of alpha-tocopherol was prepared by high speed homogenization method using precirol ATO5 as solid lipid; isopropyl myristate, oleic acid and medium chain triglyceride as liquid lipid and tween 80 as a stabilizer. The formulations of NLC dispersion were optimized by using 32 full-factorial design based on two independent variables that were the type of liquid lipid and solid lipid to liquid lipid ratio at three levels. The dependent variables were percent entrapment efficiency, particle size and drug content.The optimized formulation of NLC dispersion (F1) was further formulated into gel for topical drug delivery which was evaluated for appearance, pH, drug content, viscosity, spreadability, in-vitro diffusion study, skin irritation study in rats and in-vivo hair growth activity.

Resuls and conclusion:

The formulated NLC gel showed satisfactory results withrespect to its appearance, pH, viscosity, spreadability and drug content whereas in-vitro diffusion study showed 86.27±0.20% drug get diffused within 30 minutes. Alpha-tocopherol loaded NLC gel showed safe form which is confirmed in the animal studies like skin irritation test & in-vivo hair growth activity in rats in comparison with the available marketed formulation.

Scientific Poster Presentation Code: P-PH30

Title: OPTIMIZATION OF MUCOADHESIVE FORMULATIONS AND THEIR EVALUATION FOR THE RELEASE OF ONDANSETRON HYDROCHLORIDE

Jaydeep B. Pawar*[1], Somashekar Shyale[2], Vijayalakshmi Prakya[3]
1. Research Scholar, JNTUH, Hyderabad and HSBPVT's, GOI, College of Pharmacy,Kashti, Ahmednagar
2. HSBPVT's, GOI, College of Pharmacy, Kashti, Ahmednagar, 414701
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Abstract:

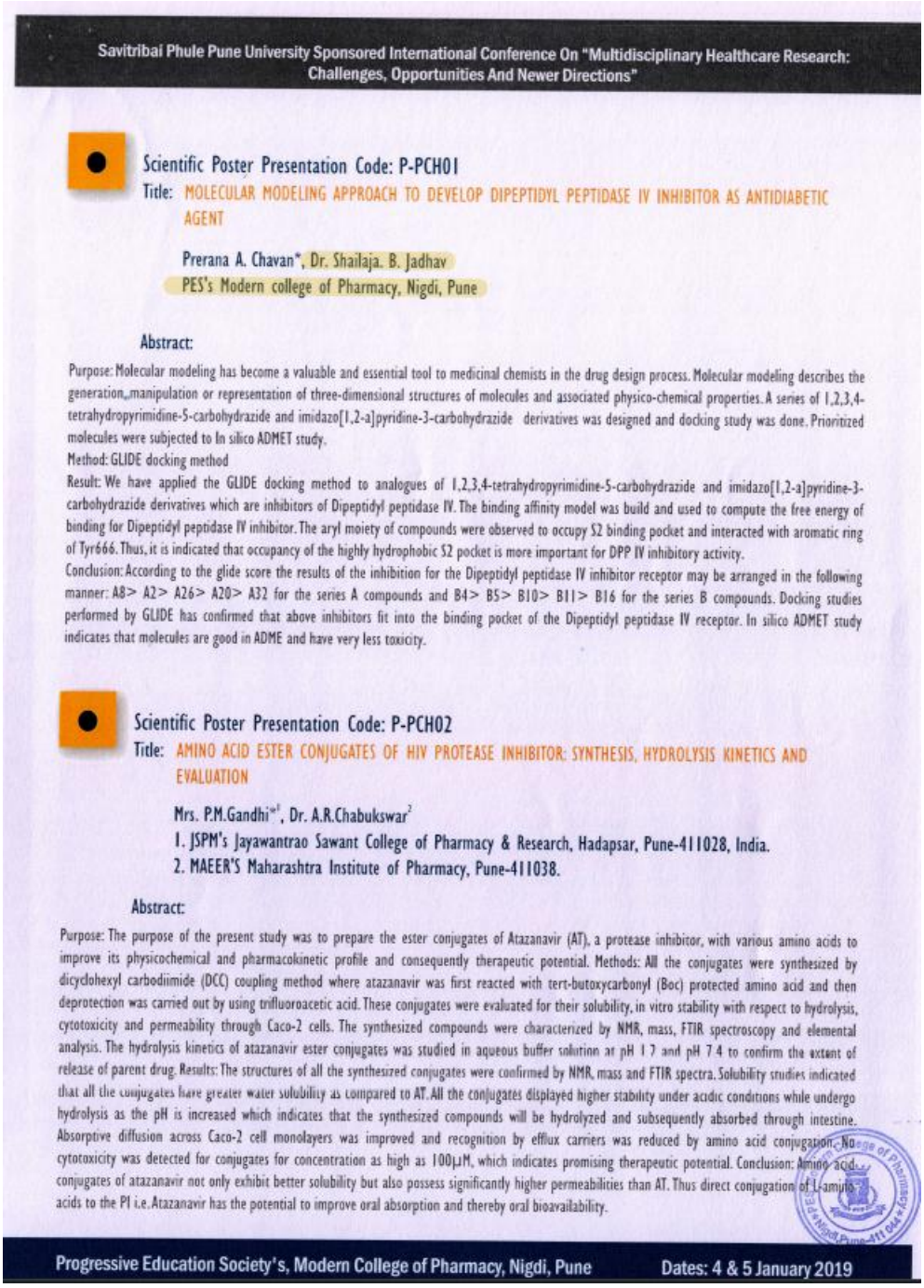
The purpose of this investigation was to optimize and develop mucoadhesive formulations using the combination of Almond gum (AG) and Carbopol 940P (CP) with Ondansetron hydrochloride as a model drug. Direct compression technique was employed for the preparation of bilayered buccal adhesive tablets. A 32 full factorial design (FFD) was constructed where the amounts of AG (X1) and CP (X2) were selected as the independent factors. All formulations were tested for pre and post-compressional parameters to study the effect of formulation variables on mucoadhesive strength and in vitro drug release study.

Surface pH study of tablets indicated that the all formulations are suitable for buccal environment. The hardness, friability, weight variation, drug content, surface pH, swelling index, mucoadhesive strength , in vitro release were uniform and reproducible. However, the AG and CP markedly affected the mucoadhesion strength and the release profile. Mucoadhesive strength and drug release was found to be a function of amount of polymers. The in vitro release kinetics studies reveal that all formulations fits well with Korsmeyer-Peppas model and the mechanism of drug release is non-Fickian diffusion.

The formulation variables were found to be significant for mucoadhesion and release properties ($P < 0.05$). Also short-term stability studies on the promising formulations indicated that, there are no significant changes in drug content and in vitro drug release characteristics. The investigation results clearly indicated that, the combination of AG and CP be capable of mucoadhesive polymer for drug delivery.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Molecular modeling approach to develop dipeptidyl peptidase iv inhibitor as antidiabetic agent



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PCH01

Title: MOLECULAR MODELING APPROACH TO DEVELOP DIPEPTIDYL PEPTIDASE IV INHIBITOR AS ANTIDIABETIC AGENT

Prerana A. Chavan*, Dr. Shailaja. B. Jadhav
PES's Modern college of Pharmacy, Nigdi, Pune

Abstract:

Purpose: Molecular modeling has become a valuable and essential tool to medicinal chemists in the drug design process. Molecular modeling describes the generation,,manipulation or representation of three-dimensional structures of molecules and associated physico-chemical properties. A series of 1,2,3,4-tetrahydropyrimidine-5-carbohydrazide and imidazo[1,2-a]pyridine-3-carbohydrazide derivatives was designed and docking study was done. Prioritized molecules were subjected to In silico ADMET study.

Method: GLIDE docking method

Result: We have applied the GLIDE docking method to analogues of 1,2,3,4-tetrahydropyrimidine-5-carbohydrazide and imidazo[1,2-a]pyridine-3-carbohydrazide derivatives which are inhibitors of Dipeptidyl peptidase IV. The binding affinity model was build and used to compute the free energy of binding for Dipeptidyl peptidase IV inhibitor. The aryl moiety of compounds were observed to occupy S2 binding pocket and interacted with aromatic ring of Tyr666. Thus, it is indicated that occupancy of the highly hydrophobic S2 pocket is more important for DPP IV inhibitory activity.

Conclusion: According to the glide score the results of the inhibition for the Dipeptidyl peptidase IV inhibitor receptor may be arranged in the following manner: A8> A2> A26> A20> A32 for the series A compounds and B4> B5> B10> B11> B16 for the series B compounds. Docking studies performed by GLIDE has confirmed that above inhibitors fit into the binding pocket of the Dipeptidyl peptidase IV receptor. In silico ADMET study indicates that molecules are good in ADME and have very less toxicity.

Scientific Poster Presentation Code: P-PCH02

Title: AMINO ACID ESTER CONJUGATES OF HIV PROTEASE INHIBITOR: SYNTHESIS, HYDROLYSIS KINETICS AND EVALUATION

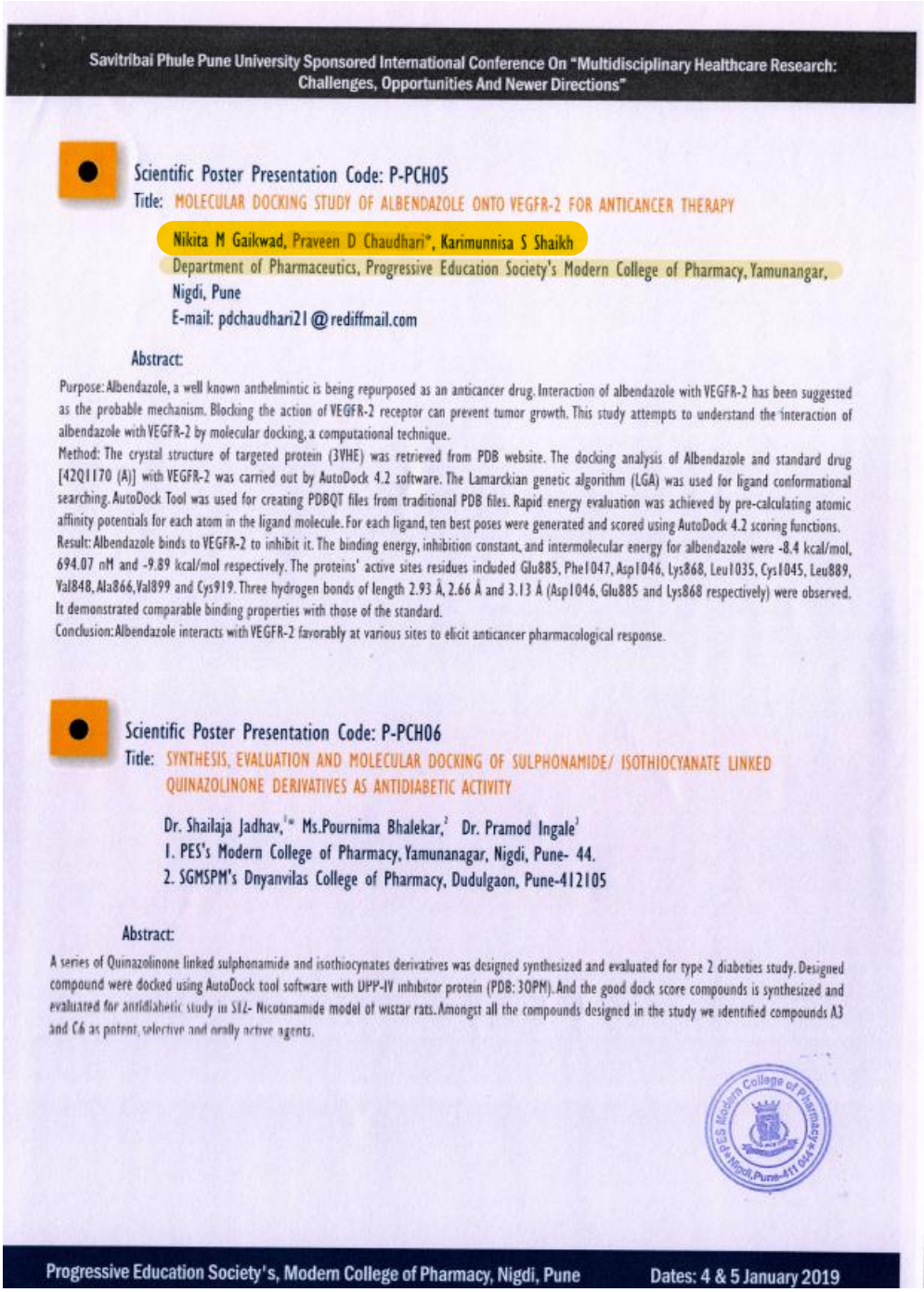
Mrs. P.M.Gandhi*[1], Dr. A.R.Chabukswar[2]
1. JSPM's Jayawantrao Sawant College of Pharmacy & Research, Hadapsar, Pune-411028, India.
2. MAEER'S Maharashtra Institute of Pharmacy, Pune-411038.

Abstract:

Purpose: The purpose of the present study was to prepare the ester conjugates of Atazanavir (AT), a protease inhibitor, with various amino acids to improve its physicochemical and pharmacokinetic profile and consequently therapeutic potential. Methods: All the conjugates were synthesized by dicyclohexyl carbodiimide (DCC) coupling method where atazanavir was first reacted with tert-butoxycarbonyl (Boc) protected amino acid and then deprotection was carried out by using trifluoroacetic acid. These conjugates were evaluated for their solubility, in vitro stability with respect to hydrolysis, cytotoxicity and permeability through Caco-2 cells. The synthesized compounds were characterized by NMR, mass, FTIR spectroscopy and elemental analysis. The hydrolysis kinetics of atazanavir ester conjugates was studied in aqueous buffer solution at pH 1.7 and pH 7.4 to confirm the extent of release of parent drug. Results: The structures of all the synthesized conjugates were confirmed by NMR, mass and FTIR spectra. Solubility studies indicated that all the conjugates have greater water solubility as compared to AT. All the conjugates displayed higher stability under acidic conditions while undergo hydrolysis as the pH is increased which indicates that the synthesized compounds will be hydrolyzed and subsequently absorbed through intestine. Absorptive diffusion across Caco-2 cell monolayers was improved and recognition by efflux carriers was reduced by amino acid conjugation. No cytotoxicity was detected for conjugates for concentration as high as 100μM, which indicates promising therapeutic potential. Conclusion: Amino acid conjugates of atazanavir not only exhibit better solubility but also possess significantly higher permeabilities than AT. Thus direct conjugation of L-amino acids to the PI i.e. Atazanavir has the potential to improve oral absorption and thereby oral bioavailability.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Molecular docking study of albendazole onto vegfr-2 for anticancer therapy



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PCH05

Title: MOLECULAR DOCKING STUDY OF ALBENDAZOLE ONTO VEGFR-2 FOR ANTICANCER THERAPY

Nikita M Gaikwad, Praveen D Chaudhari*, Karimunnisa S Shaikh

Department of Pharmaceutics, Progressive Education Society's Modern College of Pharmacy, Yamunangar, Nigdi, Pune

E-mail: pdchaudhari21@rediffmail.com

Abstract:

Purpose: Albendazole, a well known anthelmintic is being repurposed as an anticancer drug. Interaction of albendazole with VEGFR-2 has been suggested as the probable mechanism. Blocking the action of VEGFR-2 receptor can prevent tumor growth. This study attempts to understand the interaction of albendazole with VEGFR-2 by molecular docking, a computational technique.

Method: The crystal structure of targeted protein (3VHE) was retrieved from PDB website. The docking analysis of Albendazole and standard drug [42Q1170 (A)] with VEGFR-2 was carried out by AutoDock 4.2 software. The Lamarckian genetic algorithm (LGA) was used for ligand conformational searching. AutoDock Tool was used for creating PDBQT files from traditional PDB files. Rapid energy evaluation was achieved by pre-calculating atomic affinity potentials for each atom in the ligand molecule. For each ligand, ten best poses were generated and scored using AutoDock 4.2 scoring functions.

Result: Albendazole binds to VEGFR-2 to inhibit it. The binding energy, inhibition constant, and intermolecular energy for albendazole were -8.4 kcal/mol, 694.07 nM and -9.89 kcal/mol respectively. The proteins' active sites residues included Glu885, Phe1047, Asp1046, Lys868, Leu1035, Cys1045, Leu889, Val848, Ala866, Val899 and Cys919. Three hydrogen bonds of length 2.93 Å, 2.66 Å and 3.13 Å (Asp1046, Glu885 and Lys868 respectively) were observed. It demonstrated comparable binding properties with those of the standard.

Conclusion: Albendazole interacts with VEGFR-2 favorably at various sites to elicit anticancer pharmacological response.

Scientific Poster Presentation Code: P-PCH06

Title: SYNTHESIS, EVALUATION AND MOLECULAR DOCKING OF SULPHONAMIDE/ ISOTHIOCYANATE LINKED QUINAZOLINONE DERIVATIVES AS ANTIDIABETIC ACTIVITY

Dr. Shailaja Jadhav,[1]* Ms.Pournima Bhalekar,[2] Dr. Pramod Ingale[1]

1. PES's Modern College of Pharmacy, Yamunanagar, Nigdi, Pune- 44.

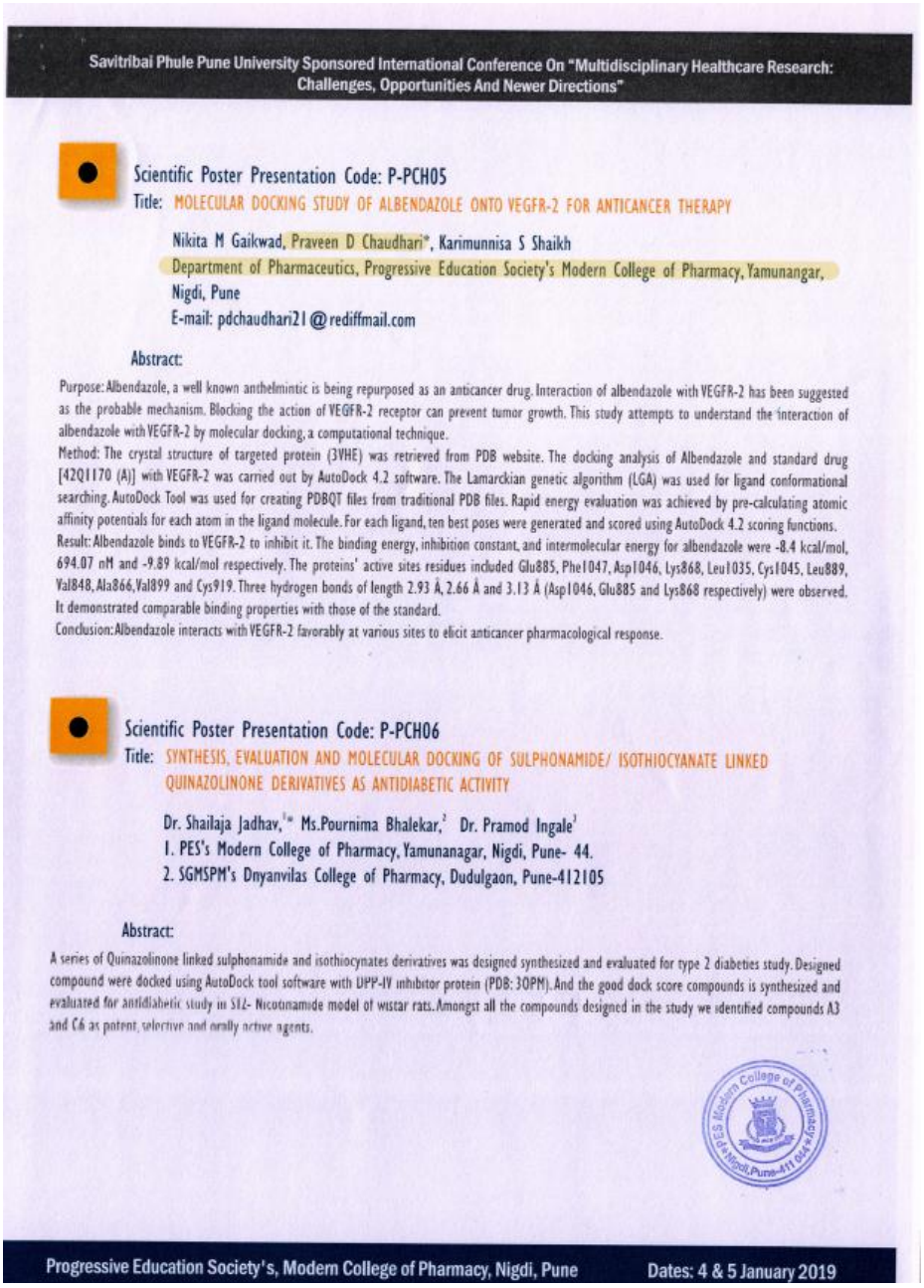
2. SGMSPM's Dnyanvilas College of Pharmacy, Dudulgaon, Pune-412105

Abstract:

A series of Quinazolinone linked sulphonamide and isothiocynates derivatives was designed synthesized and evaluated for type 2 diabetes study. Designed compound were docked using AutoDock tool software with DPP-IV inhibitor protein (PDB: 3OPM). And the good dock score compounds is synthesized and evaluated for antidiabetic study in STZ- Nicotinamide model of wistar rats. Amongst all the compounds designed in the study we identified compounds A3 and C6 as potent, selective and orally active agents.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Synthesis, evaluation and molecular docking of sulphonamide/ isothiocyanate linked quinazolinone derivatives as antidiabetic activity



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PCH05

Title: MOLECULAR DOCKING STUDY OF ALBENDAZOLE ONTO VEGFR-2 FOR ANTICANCER THERAPY

Nikita M Gaikwad, Praveen D Chaudhari*, Karimunnisa S Shaikh
Department of Pharmaceutics, Progressive Education Society's Modern College of Pharmacy, Yamunangar, Nigdi, Pune
E-mail: pdchaudhari21@rediffmail.com

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Purpose: Albendazole, a well known anthelmintic is being repurposed as an anticancer drug. Interaction of albendazole with VEGFR-2 has been suggested as the probable mechanism. Blocking the action of VEGFR-2 receptor can prevent tumor growth. This study attempts to understand the interaction of albendazole with VEGFR-2 by molecular docking, a computational technique.

Method: The crystal structure of targeted protein (3VHE) was retrieved from PDB website. The docking analysis of Albendazole and standard drug [42Q1170 (A)] with VEGFR-2 was carried out by AutoDock 4.2 software. The Lamarckian genetic algorithm (LGA) was used for ligand conformational searching. AutoDock Tool was used for creating PDBQT files from traditional PDB files. Rapid energy evaluation was achieved by pre-calculating atomic affinity potentials for each atom in the ligand molecule. For each ligand, ten best poses were generated and scored using AutoDock 4.2 scoring functions.

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Conclusion: Albendazole interacts with VEGFR-2 favorably at various sites to elicit anticancer pharmacological response.

Scientific Poster Presentation Code: P-PCH06

Title: SYNTHESIS, EVALUATION AND MOLECULAR DOCKING OF SULPHONAMIDE/ ISOTHIOCYANATE LINKED QUINAZOLINONE DERIVATIVES AS ANTIDIABETIC ACTIVITY

Dr. Shailaja Jadhav,[1]* Ms.Pournima Bhalekar,[2] Dr. Pramod Ingale[2]
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Abstract:

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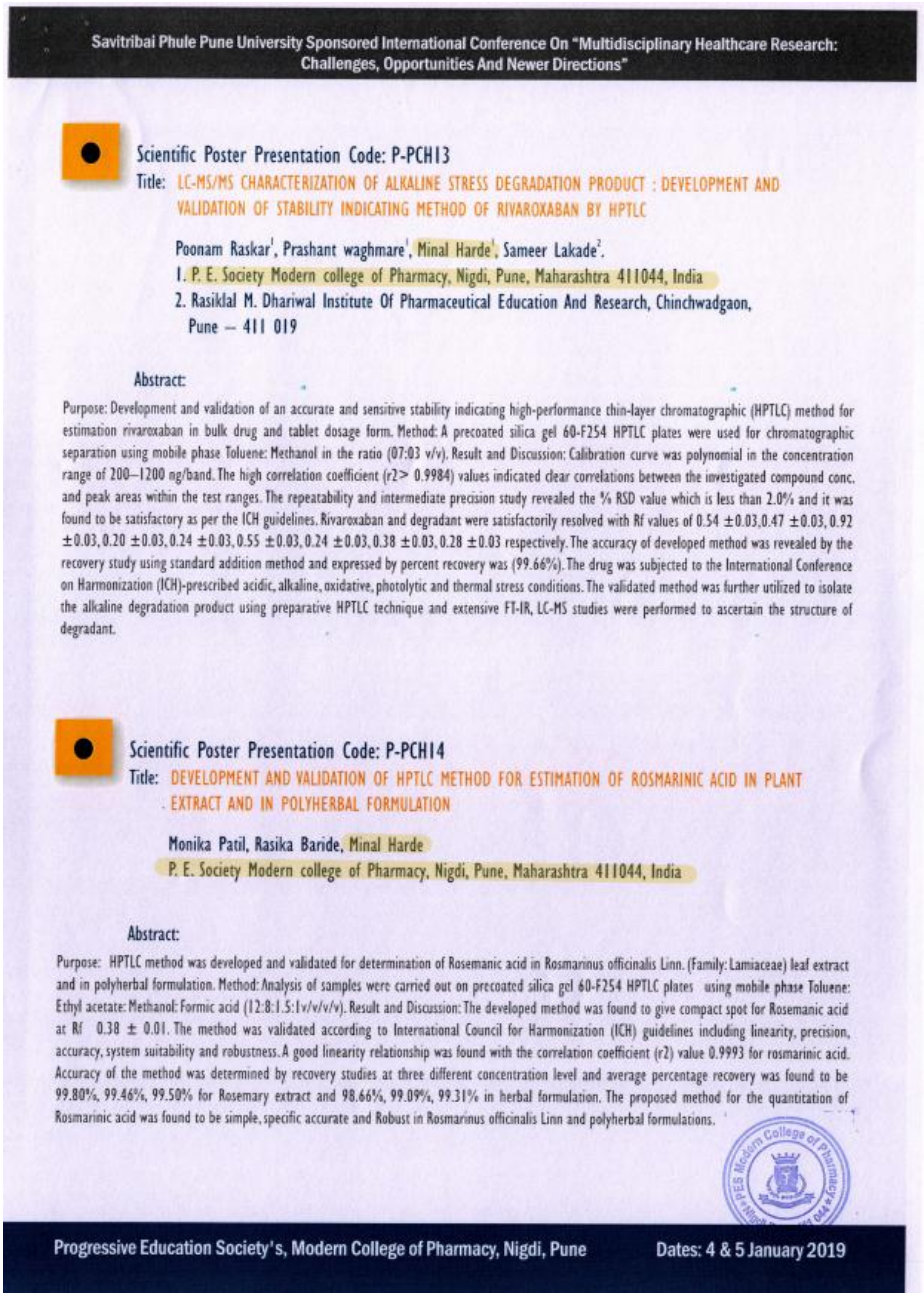
Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Lc-ms/ms characterization of alkaline stress degradation product : development and validation of stability indicating method of rivaroxaban by hptlc



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PCH13

Title: LC-MS/MS CHARACTERIZATION OF ALKALINE STRESS DEGRADATION PRODUCT : DEVELOPMENT AND VALIDATION OF STABILITY INDICATING METHOD OF RIVAROXABAN BY HPTLC

Poonam Raskar[1], Prashant waghmare[1], Minal Harde[1], Sameer Lakade[2].
1. P. E. Society Modern college of Pharmacy, Nigdi, Pune, Maharashtra 411044, India
2. Rasiklal M. Dhariwal Institute Of Pharmaceutical Education And Research, Chinchwadgaon, Pune – 411 019

Abstract:

Purpose: Development and validation of an accurate and sensitive stability indicating high-performance thin-layer chromatographic (HPTLC) method for estimation rivaroxaban in bulk drug and tablet dosage form. Method: A precoated silica gel 60-F254 HPTLC plates were used for chromatographic separation using mobile phase Toluene: Methanol in the ratio (07:03 v/v). Result and Discussion: Calibration curve was polynomial in the concentration range of 200–1200 ng/band. The high correlation coefficient (r2> 0.9984) values indicated clear correlations between the investigated compound conc. and peak areas within the test ranges. The repeatability and intermediate precision study revealed the % RSD value which is less than 2.0% and it was found to be satisfactory as per the ICH guidelines. Rivaroxaban and degradant were satisfactorily resolved with Rf values of 0.54 ±0.03,0.47 ±0.03, 0.92 ±0.03, 0.20 ±0.03, 0.24 ±0.03, 0.55 ±0.03, 0.24 ±0.03, 0.38 ±0.03, 0.28 ±0.03 respectively. The accuracy of developed method was revealed by the recovery study using standard addition method and expressed by percent recovery was (99.66%). The drug was subjected to the International Conference on Harmonization (ICH)-prescribed acidic, alkaline, oxidative, photolytic and thermal stress conditions. The validated method was further utilized to isolate the alkaline degradation product using preparative HPTLC technique and extensive FT-IR, LC-MS studies were performed to ascertain the structure of degradant.

Scientific Poster Presentation Code: P-PCH14

Title: DEVELOPMENT AND VALIDATION OF HPTLC METHOD FOR ESTIMATION OF ROSMARINIC ACID IN PLANT EXTRACT AND IN POLYHERBAL FORMULATION

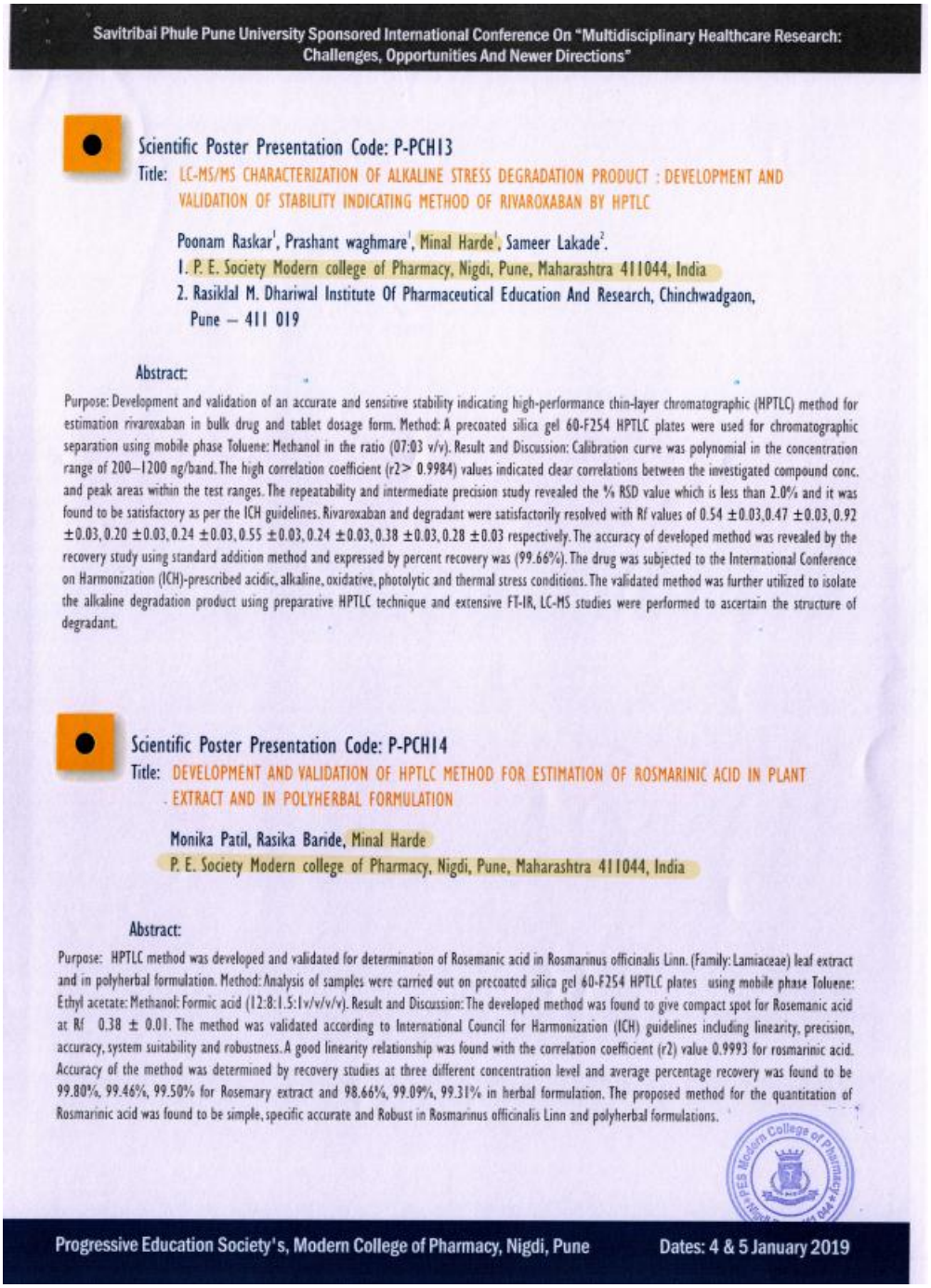
Monika Patil, Rasika Baride, Minal Harde
P. E. Society Modern college of Pharmacy, Nigdi, Pune, Maharashtra 411044, India

Abstract:

Purpose: HPTLC method was developed and validated for determination of Rosemanic acid in Rosmarinus officinalis Linn. (Family: Lamiaceae) leaf extract and in polyherbal formulation. Method: Analysis of samples were carried out on precoated silica gel 60-F254 HPTLC plates using mobile phase Toluene: Ethyl acetate: Methanol: Formic acid (12:8:1.5:1v/v/v/v). Result and Discussion: The developed method was found to give compact spot for Rosemanic acid at Rf 0.38 ± 0.01. The method was validated according to International Council for Harmonization (ICH) guidelines including linearity, precision, accuracy, system suitability and robustness. A good linearity relationship was found with the correlation coefficient (r2) value 0.9993 for rosmarinic acid. Accuracy of the method was determined by recovery studies at three different concentration level and average percentage recovery was found to be 99.80%, 99.46%, 99.50% for Rosemary extract and 98.66%, 99.09%, 99.31% in herbal formulation. The proposed method for the quantitation of Rosmarinic acid was found to be simple, specific accurate and Robust in Rosmarinus officinalis Linn and polyherbal formulations.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Development and validation of hptlc method for estimation of rosmarinic acid in plant extract and in polyherbal formulation



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PCH13

Title: LC-MS/MS CHARACTERIZATION OF ALKALINE STRESS DEGRADATION PRODUCT : DEVELOPMENT AND VALIDATION OF STABILITY INDICATING METHOD OF RIVAROXABAN BY HPTLC

Poonam Raskar[1], Prashant waghmare[1], Minal Harde[1], Sameer Lakade[2].

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Monika Patil, Rasika Baride, Minal Harde

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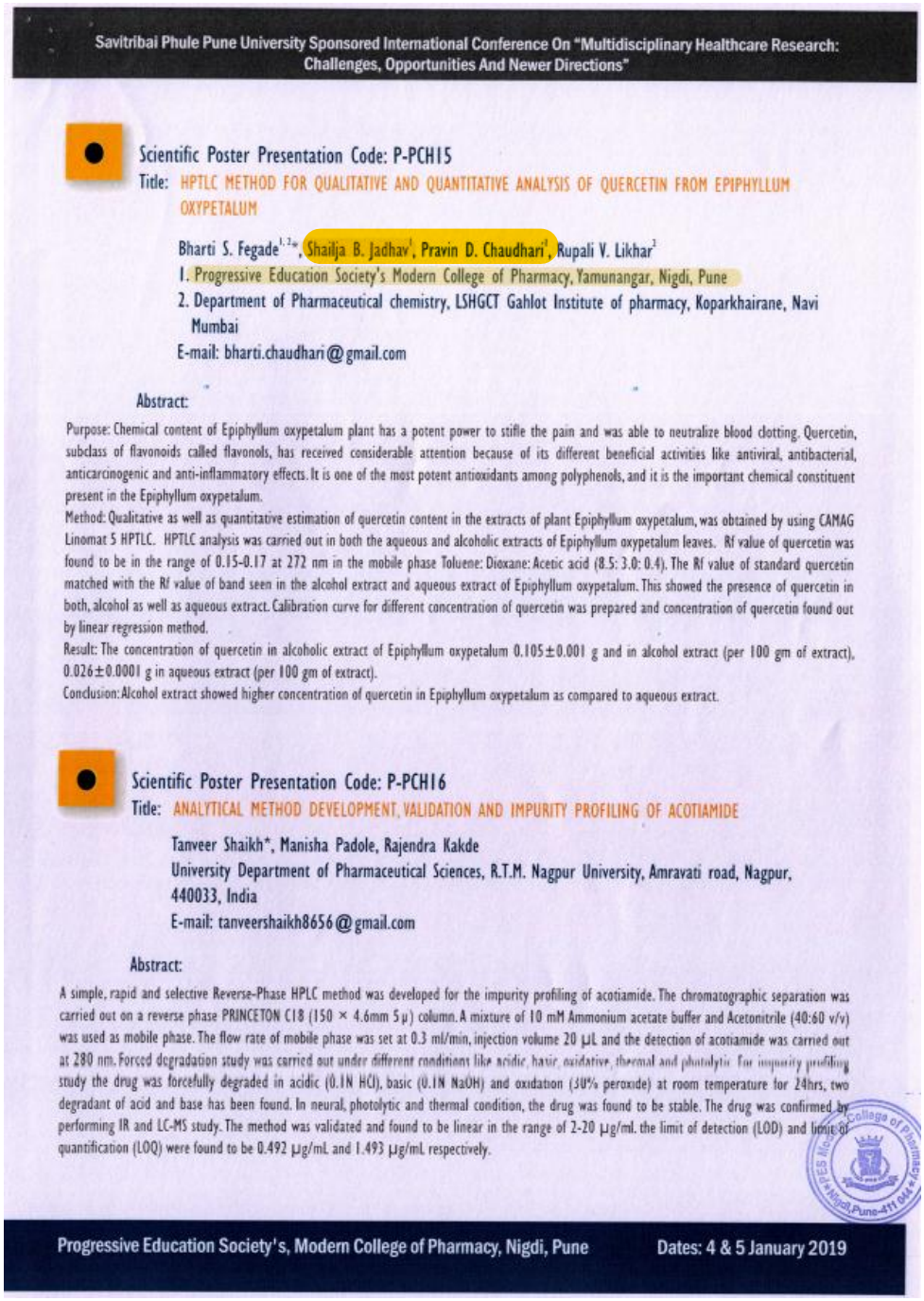
Abstract:

Purpose: HPTLC method was developed and validated for determination of Rosemanic acid in Rosmarinus officinalis Linn. (Family: Lamiaceae) leaf extract and in polyherbal formulation. Method: Analysis of samples were carried out on precoated silica gel 60-F254 HPTLC plates using mobile phase Toluene: Ethyl acetate: Methanol: Formic acid (12:8:1.5:1v/v/v/v). Result and Discussion: The developed method was found to give compact spot for Rosemanic acid at Rf 0.38 ± 0.01. The method was validated according to International Council for Harmonization (ICH) guidelines including linearity, precision, accuracy, system suitability and robustness. A good linearity relationship was found with the correlation coefficient (r2) value 0.9993 for rosmarinic acid. Accuracy of the method was determined by recovery studies at three different concentration level and average percentage recovery was found to be 99.80%, 99.46%, 99.50% for Rosemary extract and 98.66%, 99.09%, 99.31% in herbal formulation. The proposed method for the quantitation of Rosmarinic acid was found to be simple, specific accurate and Robust in Rosmarinus officinalis Linn and polyherbal formulations.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Hptlc method for qualitative and quantitative analysis of quercetin from epiphyllum oxypetalum



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PCH15

Title: HPTLC METHOD FOR QUALITATIVE AND QUANTITATIVE ANALYSIS OF QUERCETIN FROM EPIPHYLLUM OXYPETALUM

Bharti S. Fegade[1,2]*, Shailja B. Jadhav[1], Pravin D. Chaudhari[1], Rupali V. Likhar[2]

1. Progressive Education Society's Modern College of Pharmacy, Yamunangar, Nigdi, Pune

2. Department of Pharmaceutical chemistry, LSHGCT Gahlot Institute of pharmacy, Koparkhairane, Navi Mumbai

E-mail: bharti.chaudhari@gmail.com

Abstract:

Purpose: Chemical content of Epiphyllum oxypetalum plant has a potent power to stifle the pain and was able to neutralize blood clotting. Quercetin, subclass of flavonoids called flavonols, has received considerable attention because of its different beneficial activities like antiviral, antibacterial, anticarcinogenic and anti-inflammatory effects. It is one of the most potent antioxidants among polyphenols, and it is the important chemical constituent present in the Epiphyllum oxypetalum.

Method: Qualitative as well as quantitative estimation of quercetin content in the extracts of plant Epiphyllum oxypetalum, was obtained by using CAMAG Linomat 5 HPTLC. HPTLC analysis was carried out in both the aqueous and alcoholic extracts of Epiphyllum oxypetalum leaves. Rf value of quercetin was found to be in the range of 0.15-0.17 at 272 nm in the mobile phase Toluene: Dioxane: Acetic acid (8.5: 3.0: 0.4). The Rf value of standard quercetin matched with the Rf value of band seen in the alcohol extract and aqueous extract of Epiphyllum oxypetalum. This showed the presence of quercetin in both, alcohol as well as aqueous extract. Calibration curve for different concentration of quercetin was prepared and concentration of quercetin found out by linear regression method.

Result: The concentration of quercetin in alcoholic extract of Epiphyllum oxypetalum 0.105±0.001 g and in alcohol extract (per 100 gm of extract), 0.026±0.0001 g in aqueous extract (per 100 gm of extract).

Conclusion: Alcohol extract showed higher concentration of quercetin in Epiphyllum oxypetalum as compared to aqueous extract.

Scientific Poster Presentation Code: P-PCH16

Title: ANALYTICAL METHOD DEVELOPMENT, VALIDATION AND IMPURITY PROFILING OF ACOTIAMIDE

Tanveer Shaikh*, Manisha Padole, Rajendra Kakde

University Department of Pharmaceutical Sciences, R.T.M. Nagpur University, Amravati road, Nagpur, 440033, India

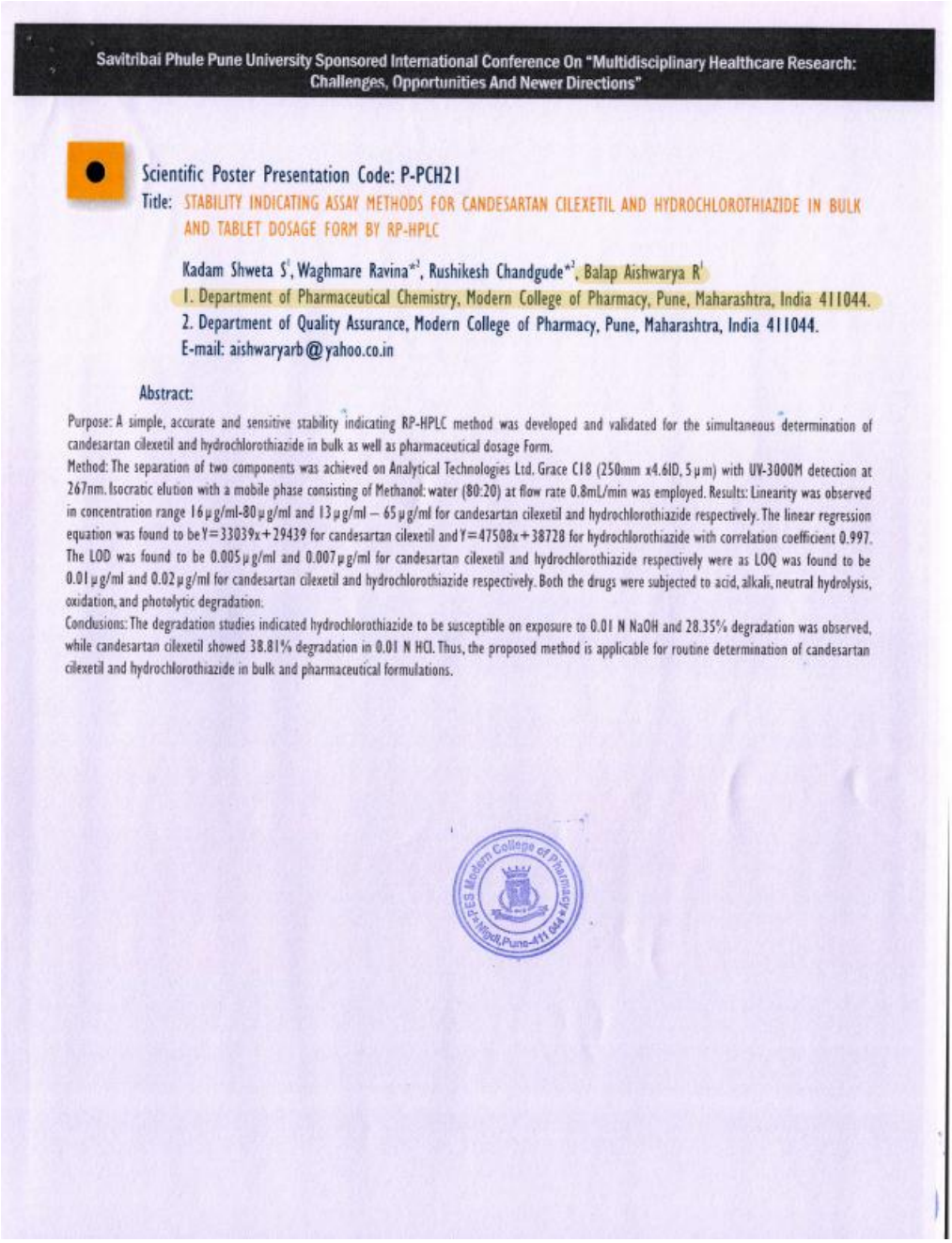
E-mail: tanveershaikh8656@gmail.com

Abstract:

A simple, rapid and selective Reverse-Phase HPLC method was developed for the impurity profiling of acotiamide. The chromatographic separation was carried out on a reverse phase PRINCETON C18 (150 × 4.6mm 5 µ) column. A mixture of 10 mM Ammonium acetate buffer and Acetonitrile (40:60 v/v) was used as mobile phase. The flow rate of mobile phase was set at 0.3 ml/min, injection volume 20 µL and the detection of acotiamide was carried out at 280 nm. Forced degradation study was carried out under different conditions like acidic, basic, oxidative, thermal and photolytic. For impurity profiling study the drug was forcefully degraded in acidic (0.1N HCl), basic (0.1N NaOH) and oxidation (30% peroxide) at room temperature for 24hrs, two degradant of acid and base has been found. In neural, photolytic and thermal condition, the drug was found to be stable. The drug was confirmed by performing IR and LC-MS study. The method was validated and found to be linear in the range of 2-20 µg/ml. the limit of detection (LOD) and limit of quantification (LOQ) were found to be 0.492 µg/mL and 1.493 µg/mL respectively.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Stability indicating assay methods for candesartan cilexetil and hydrochlorothiazide in bulk and tablet dosage form by rp-hplc



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-PCH21

Title: STABILITY INDICATING ASSAY METHODS FOR CANDESARTAN CILEXETIL AND HYDROCHLOROTHIAZIDE IN BULK AND TABLET DOSAGE FORM BY RP-HPLC

Kadam Shweta S[1], Waghmare Ravina*[2], Rushikesh Chandgude*[2], Balap Aishwarya R[1]

1. Department of Pharmaceutical Chemistry, Modern College of Pharmacy, Pune, Maharashtra, India 411044.
2. Department of Quality Assurance, Modern College of Pharmacy, Pune, Maharashtra, India 411044.

E-mail: aishwaryarb@yahoo.co.in

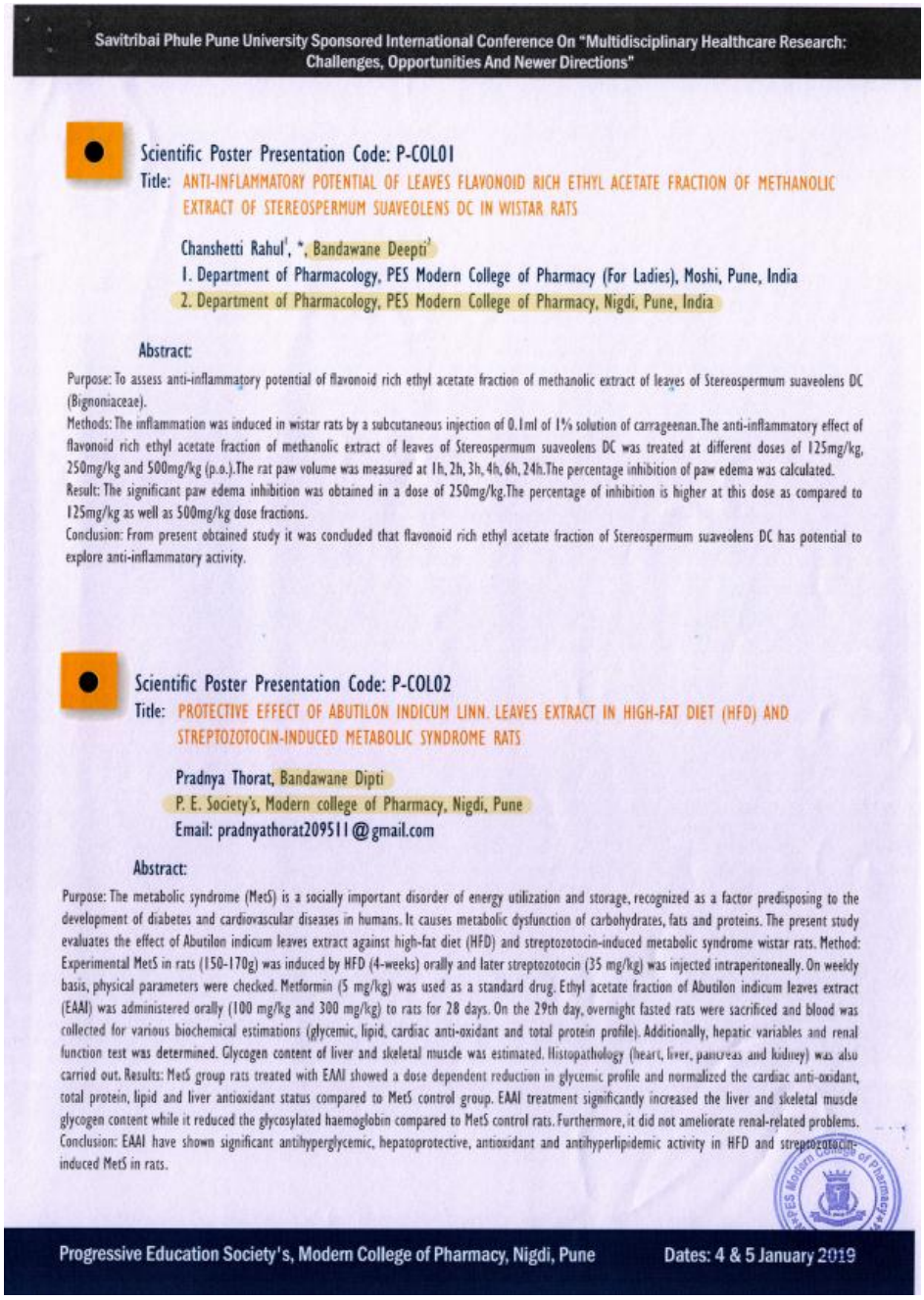
Abstract:

Purpose: A simple, accurate and sensitive stability indicating RP-HPLC method was developed and validated for the simultaneous determination of candesartan cilexetil and hydrochlorothiazide in bulk as well as pharmaceutical dosage Form.

Method: The separation of two components was achieved on Analytical Technologies Ltd. Grace C18 (250mm x4.6ID, 5 µm) with UV-3000M detection at 267nm. Isocratic elution with a mobile phase consisting of Methanol: water (80:20) at flow rate 0.8mL/min was employed. Results: Linearity was observed in concentration range 16 µg/ml-80 µg/ml and 13 µg/ml – 65 µg/ml for candesartan cilexetil and hydrochlorothiazide respectively. The linear regression equation was found to be Y=33039x+29439 for candesartan cilexetil and Y=47508x+38728 for hydrochlorothiazide with correlation coefficient 0.997. The LOD was found to be 0.005 µg/ml and 0.007 µg/ml for candesartan cilexetil and hydrochlorothiazide respectively were as LOQ was found to be 0.01 µg/ml and 0.02 µg/ml for candesartan cilexetil and hydrochlorothiazide respectively. Both the drugs were subjected to acid, alkali, neutral hydrolysis, oxidation, and photolytic degradation.

Conclusions: The degradation studies indicated hydrochlorothiazide to be susceptible on exposure to 0.01 N NaOH and 28.35% degradation was observed, while candesartan cilexetil showed 38.81% degradation in 0.01 N HCl. Thus, the proposed method is applicable for routine determination of candesartan cilexetil and hydrochlorothiazide in bulk and pharmaceutical formulations.

Anti-inflammatory potential of leaves flavonoid rich ethyl acetate fraction of methanolic extract of stereospermum suaveolens DC in wistar rats



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-COL01

Title: ANTI-INFLAMMATORY POTENTIAL OF LEAVES FLAVONOID RICH ETHYL ACETATE FRACTION OF METHANOLIC EXTRACT OF STEREOSPERMUM SUAVEOLENS DC IN WISTAR RATS

Chanshetti Rahul[1], *, Bandawane Deepti[2]
1. Department of Pharmacology, PES Modern College of Pharmacy (For Ladies), Moshi, Pune, India
2. Department of Pharmacology, PES Modern College of Pharmacy, Nigdi, Pune, India

Abstract:

Purpose: To assess anti-inflammatory potential of flavonoid rich ethyl acetate fraction of methanolic extract of leaves of Stereospermum suaveolens DC (Bignoniaceae).

Methods: The inflammation was induced in wistar rats by a subcutaneous injection of 0.1ml of 1% solution of carrageenan. The anti-inflammatory effect of flavonoid rich ethyl acetate fraction of methanolic extract of leaves of Stereospermum suaveolens DC was treated at different doses of 125mg/kg, 250mg/kg and 500mg/kg (p.o.). The rat paw volume was measured at 1h, 2h, 3h, 4h, 6h, 24h. The percentage inhibition of paw edema was calculated.

Result: The significant paw edema inhibition was obtained in a dose of 250mg/kg. The percentage of inhibition is higher at this dose as compared to 125mg/kg as well as 500mg/kg dose fractions.

Conclusion: From present obtained study it was concluded that flavonoid rich ethyl acetate fraction of Stereospermum suaveolens DC has potential to explore anti-inflammatory activity.

Scientific Poster Presentation Code: P-COL02

Title: PROTECTIVE EFFECT OF ABUTILON INDICUM LINN. LEAVES EXTRACT IN HIGH-FAT DIET (HFD) AND STREPTOZOTOCIN-INDUCED METABOLIC SYNDROME RATS

Pradnya Thorat, Bandawane Dipti
P. E. Society's, Modern college of Pharmacy, Nigdi, Pune
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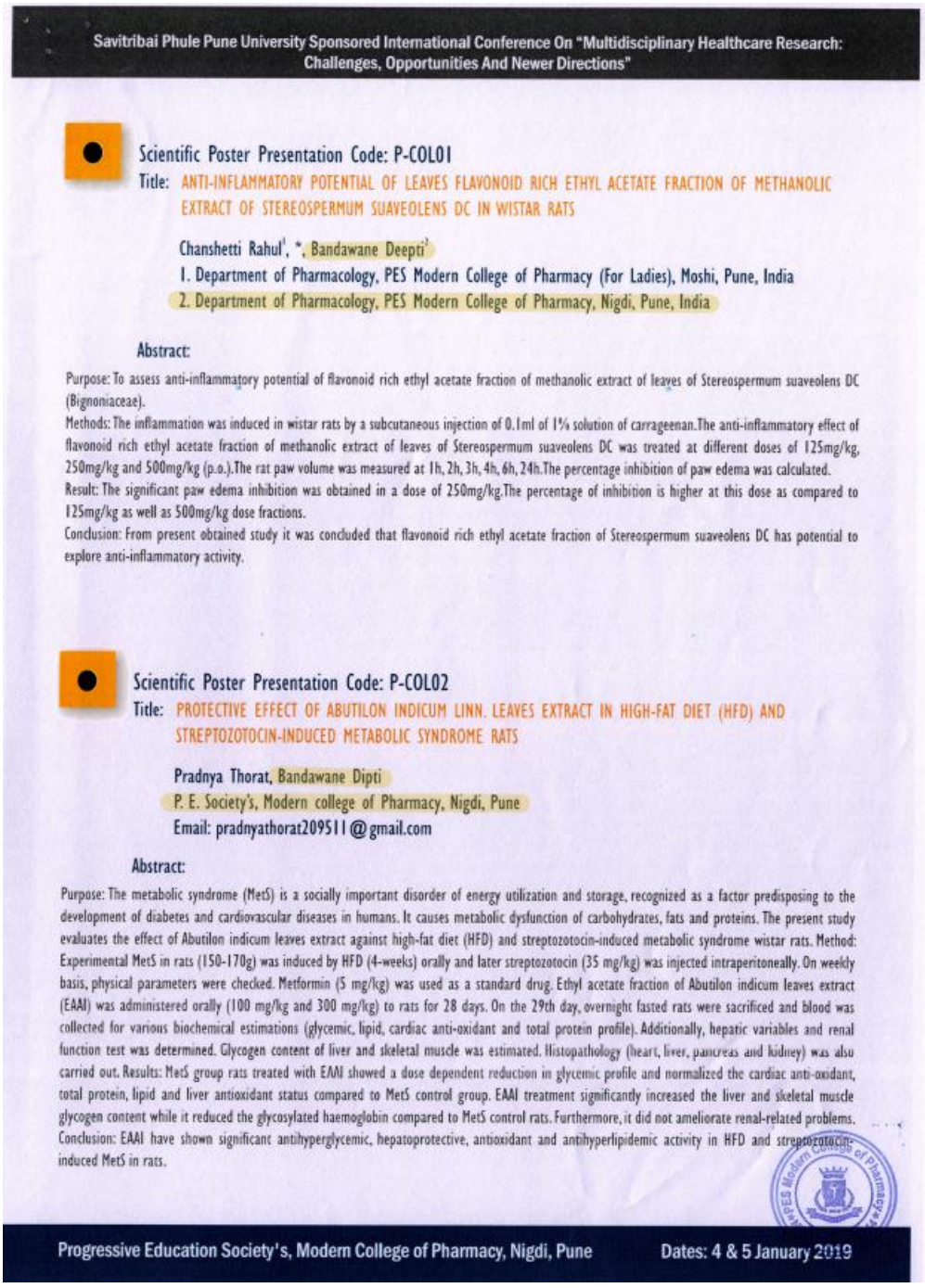
Abstract:

Purpose: The metabolic syndrome (MetS) is a socially important disorder of energy utilization and storage, recognized as a factor predisposing to the development of diabetes and cardiovascular diseases in humans. It causes metabolic dysfunction of carbohydrates, fats and proteins. The present study evaluates the effect of Abutilon indicum leaves extract against high-fat diet (HFD) and streptozotocin-induced metabolic syndrome wistar rats. Method: Experimental MetS in rats (150-170g) was induced by HFD (4-weeks) orally and later streptozotocin (35 mg/kg) was injected intraperitoneally. On weekly basis, physical parameters were checked. Metformin (5 mg/kg) was used as a standard drug. Ethyl acetate fraction of Abutilon indicum leaves extract (EAAI) was administered orally (100 mg/kg and 300 mg/kg) to rats for 28 days. On the 29th day, overnight fasted rats were sacrificed and blood was collected for various biochemical estimations (glycemic, lipid, cardiac anti-oxidant and total protein profile). Additionally, hepatic variables and renal function test was determined. Glycogen content of liver and skeletal muscle was estimated. Histopathology (heart, liver, pancreas and kidney) was also carried out. Results: MetS group rats treated with EAAI showed a dose dependent reduction in glycemic profile and normalized the cardiac anti-oxidant, total protein, lipid and liver antioxidant status compared to MetS control group. EAAI treatment significantly increased the liver and skeletal muscle glycogen content while it reduced the glycosylated haemoglobin compared to MetS control rats. Furthermore, it did not ameliorate renal-related problems. Conclusion: EAAI have shown significant antihyperglycemic, hepatoprotective, antioxidant and antihyperlipidemic activity in HFD and streptozotocin-induced MetS in rats.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Protective effect of abutilon indicum linn. Leaves extract in high-fat diet (hfd) and streptozotocin-induced metabolic syndrome rats



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-COL01

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Chanshetti Rahul[1], *, Bandawane Deepti[2]

1. Department of Pharmacology, PES Modern College of Pharmacy (For Ladies), Moshi, Pune, India

2. Department of Pharmacology, PES Modern College of Pharmacy, Nigdi, Pune, India

Abstract:

Purpose: To assess anti-inflammatory potential of flavonoid rich ethyl acetate fraction of methanolic extract of leaves of Stereospermum suaveolens DC (Bignoniaceae).

Methods: The inflammation was induced in wistar rats by a subcutaneous injection of 0.1ml of 1% solution of carrageenan.The anti-inflammatory effect of flavonoid rich ethyl acetate fraction of methanolic extract of leaves of Stereospermum suaveolens DC was treated at different doses of 125mg/kg, 250mg/kg and 500mg/kg (p.o.).The rat paw volume was measured at 1h, 2h, 3h, 4h, 6h, 24h.The percentage inhibition of paw edema was calculated.

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Scientific Poster Presentation Code: P-COL02

Title: PROTECTIVE EFFECT OF ABUTILON INDICUM LINN. LEAVES EXTRACT IN HIGH-FAT DIET (HFD) AND STREPTOZOTOCIN-INDUCED METABOLIC SYNDROME RATS

Pradnya Thorat, Bandawane Dipti

P. E. Society's, Modern college of Pharmacy, Nigdi, Pune

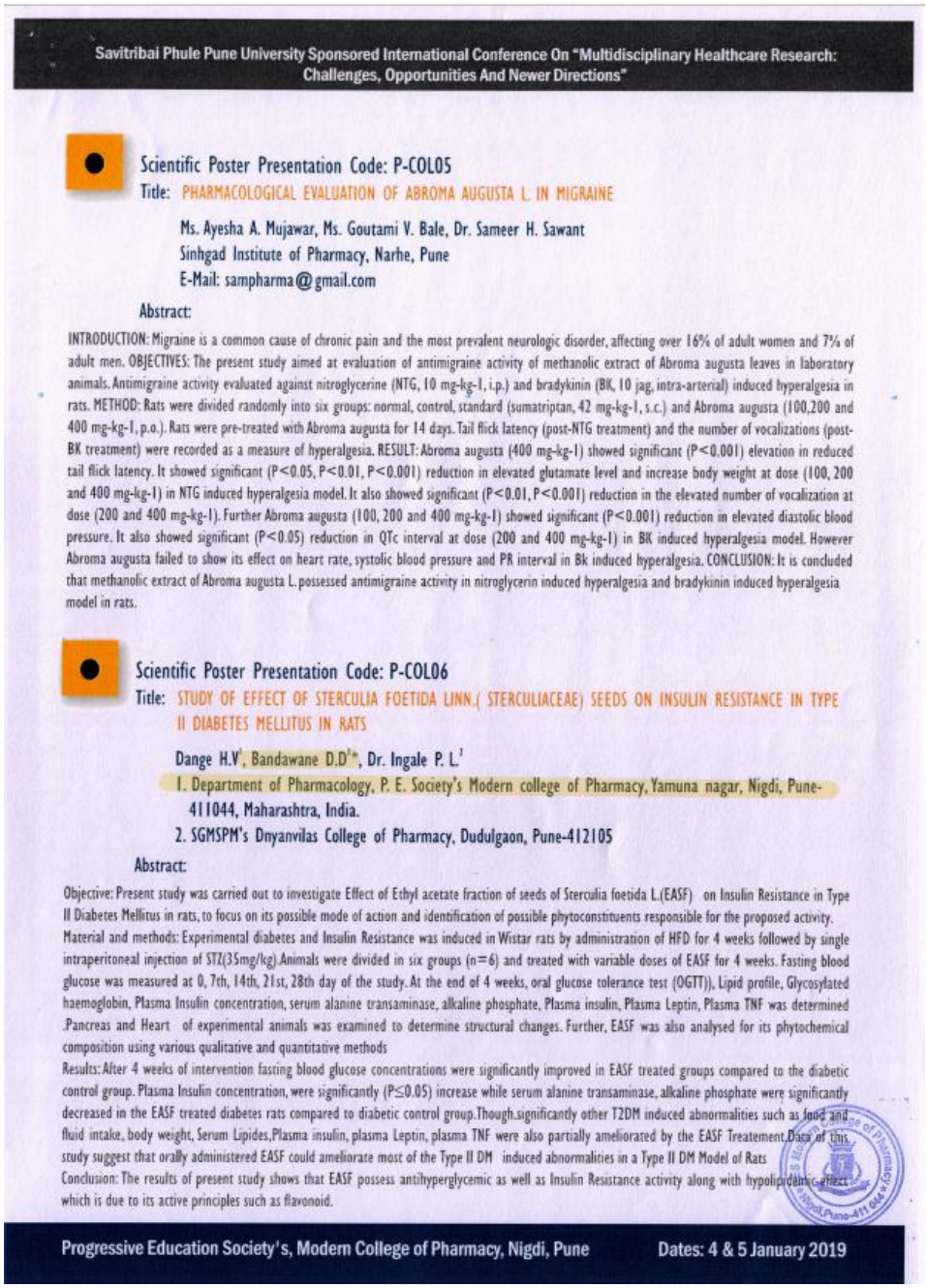
Email: pradnyathorat209511@gmail.com

Abstract:

Purpose: The metabolic syndrome (MetS) is a socially important disorder of energy utilization and storage, recognized as a factor predisposing to the development of diabetes and cardiovascular diseases in humans. It causes metabolic dysfunction of carbohydrates, fats and proteins. The present study evaluates the effect of Abutilon indicum leaves extract against high-fat diet (HFD) and streptozotocin-induced metabolic syndrome wistar rats. Method: Experimental MetS in rats (150-170g) was induced by HFD (4-weeks) orally and later streptozotocin (35 mg/kg) was injected intraperitoneally. On weekly basis, physical parameters were checked. Metformin (5 mg/kg) was used as a standard drug. Ethyl acetate fraction of Abutilon indicum leaves extract (EAAI) was administered orally (100 mg/kg and 300 mg/kg) to rats for 28 days. On the 29th day, overnight fasted rats were sacrificed and blood was collected for various biochemical estimations (glycemic, lipid, cardiac anti-oxidant and total protein profile). Additionally, hepatic variables and renal function test was determined. Glycogen content of liver and skeletal muscle was estimated. Histopathology (heart, liver, pancreas and kidney) was also carried out. Results: MetS group rats treated with EAAI showed a dose dependent reduction in glycemic profile and normalized the cardiac anti-oxidant, total protein, lipid and liver antioxidant status compared to MetS control group. EAAI treatment significantly increased the liver and skeletal muscle glycogen content while it reduced the glycosylated haemoglobin compared to MetS control rats. Furthermore, it did not ameliorate renal-related problems. Conclusion: EAAI have shown significant antihyperglycemic, hepatoprotective, antioxidant and antihyperlipidemic activity in HFD and streptozotocin-induced MetS in rats.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

Study of effect of sterculia foetidalinn (sterculiaceae) seeds on insulin resistance in type ii diabetes mellitus in rats



Savitribai Phule Pune University Sponsored International Conference On "Multidisciplinary Healthcare Research: Challenges, Opportunities And Newer Directions"

Scientific Poster Presentation Code: P-COL05

Title: PHARMACOLOGICAL EVALUATION OF ABROMA AUGUSTA L. IN MIGRAINE

Ms. Ayesha A. Mujawar, Ms. Goutami V. Bale, Dr. Sameer H. Sawant
Sinhgad Institute of Pharmacy, Narhe, Pune
E-Mail: sampharma@gmail.com

Abstract:

INTRODUCTION: Migraine is a common cause of chronic pain and the most prevalent neurologic disorder, affecting over 16% of adult women and 7% of adult men. OBJECTIVES: The present study aimed at evaluation of antimigraine activity of methanolic extract of Abroma augusta leaves in laboratory animals. Antimigraine activity evaluated against nitroglycerine (NTG, 10 mg-kg-1, i.p.) and bradykinin (BK, 10 jag, intra-arterial) induced hyperalgesia in rats. METHOD: Rats were divided randomly into six groups: normal, control, standard (sumatriptan, 42 mg-kg-1, s.c.) and Abroma augusta (100,200 and 400 mg-kg-1, p.o.). Rats were pre-treated with Abroma augusta for 14 days. Tail flick latency (post-NTG treatment) and the number of vocalizations (post-BK treatment) were recorded as a measure of hyperalgesia. RESULT: Abroma augusta (400 mg-kg-1) showed significant ($P<0.001$) elevation in reduced tail flick latency. It showed significant ($P<0.05$, $P<0.01$, $P<0.001$) reduction in elevated glutamate level and increase body weight at dose (100, 200 and 400 mg-kg-1) in NTG induced hyperalgesia model. It also showed significant ($P<0.01$, $P<0.001$) reduction in the elevated number of vocalization at dose (200 and 400 mg-kg-1). Further Abroma augusta (100, 200 and 400 mg-kg-1) showed significant ($P<0.001$) reduction in elevated diastolic blood pressure. It also showed significant ($P<0.05$) reduction in QTc interval at dose (200 and 400 mg-kg-1) in BK induced hyperalgesia model. However Abroma augusta failed to show its effect on heart rate, systolic blood pressure and PR interval in Bk induced hyperalgesia. CONCLUSION: It is concluded that methanolic extract of Abroma augusta L. possessed antimigraine activity in nitroglycerin induced hyperalgesia and bradykinin induced hyperalgesia model in rats.

Scientific Poster Presentation Code: P-COL06

Title: STUDY OF EFFECT OF STERCULIA FOETIDA LINN.(STERCULIACEAE) SEEDS ON INSULIN RESISTANCE IN TYPE II DIABETES MELLITUS IN RATS

Dange H.V[1], Bandawane D.D[1]*, Dr. Ingale P. L.[2]
1. Department of Pharmacology, P. E. Society's Modern college of Pharmacy, Yamuna nagar, Nigdi, Pune-411044, Maharashtra, India.
2. SGMSPM's Dnyanvilas College of Pharmacy, Dudulgaon, Pune-412105

Abstract:

Objective: Present study was carried out to investigate Effect of Ethyl acetate fraction of seeds of Sterculia foetida L.(EASF) on Insulin Resistance in Type II Diabetes Mellitus in rats, to focus on its possible mode of action and identification of possible phytoconstituents responsible for the proposed activity.
Material and methods: Experimental diabetes and Insulin Resistance was induced in Wistar rats by administration of HFD for 4 weeks followed by single intraperitoneal injection of STZ(35mg/kg).Animals were divided in six groups (n=6) and treated with variable doses of EASF for 4 weeks. Fasting blood glucose was measured at 0, 7th, 14th, 21st, 28th day of the study. At the end of 4 weeks, oral glucose tolerance test (OGTT)), Lipid profile, Glycosylated haemoglobin, Plasma Insulin concentration, serum alanine transaminase, alkaline phosphate, Plasma insulin, Plasma Leptin, Plasma TNF was determined .Pancreas and Heart of experimental animals was examined to determine structural changes. Further, EASF was also analysed for its phytochemical composition using various qualitative and quantitative methods
Results: After 4 weeks of intervention fasting blood glucose concentrations were significantly improved in EASF treated groups compared to the diabetic control group. Plasma Insulin concentration, were significantly ($P\leq0.05$) increase while serum alanine transaminase, alkaline phosphate were significantly decreased in the EASF treated diabetes rats compared to diabetic control group.Though significantly other T2DM induced abnormalities such as food and fluid intake, body weight, Serum Lipides,Plasma insulin, plasma Leptin, plasma TNF were also partially ameliorated by the EASF Treatement.Data of this study suggest that orally administered EASF could ameliorate most of the Type II DM induced abnormalities in a Type II DM Model of Rats
Conclusion: The results of present study shows that EASF possess antihyperglycemic as well as Insulin Resistance activity along with hypolipidaemic effect which is due to its active principles such as flavonoid.

Progressive Education Society's, Modern College of Pharmacy, Nigdi, Pune Dates: 4 & 5 January 2019

List of chapter/book along with the links redirecting to the source website

Sr. No.	Name of the teacher	Title of the book/chapters published	Title of the Paper	Title of the proceedings of the conference	Name of the conference	National / International	Year of publication	ISBN number of the proceeding	Affiliating Institute at the time of publication	Name of the publisher	Links
ACADEMIC YEAR 2022-23											
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2	Vittal V. Chopade	Pharmaceutic Organic Chemistry -II	NA	NA	NA	National	2022	978-91-5585-113-0	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Technical Publication	https://www.flipkart.com/pharmaceutical-organic-chemistry-ii-b-pharmacy-pci-syllabus-textbook/p/itmdd0aa1deaa1e2
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5	Pallavi M. Patil, Vitthal V. Chopade	Pharmaceutical Organic Chemistry - III	NA	NA	NA	National	2023	978-93-5585-247-2	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Technical Publication	https://technicalpublications.in/products/9789355852472-1#
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8	Padmaja S.Kore, Anuradha More	The Microbial World: Exploring the Diversity of Bacteria	NA	NA	NA	International	2023	978-1-80433-971-8	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Rubicon Publications	https://www.rubiconpublications.com/books/1686734453-the-microbial-world-exploring-the-diversity-of-bacteria

9	Padmaja S. Kore, Anuradha G. More	The Microbial World: Exploring the Diversity of Bacteria	NA	NA	NA	International	2023	978-1-80433-971-8	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Rubicon Publications	https://www.rubiconpublications.com/books/1686734453-the-microbial-world-exploring-the-diversity-of-bacteria
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BOOK CHAPTERS											
	Kalyani Shrinivas Kakad	Recent Advances in Pharmaceutical Sciences Volume-7	Chapter 4 Quantitative analysis of ursolic acid in the leaves of species of genus tecoma and tabebuia of bignoniaceae family by high-performance thin-layer chromatographic method	NA	NA	National	2022	978-81-952065-9-9	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Innovare Academic Science Pvt Ltd	https://www.akinik.com/products/1695/recent-advances-in-pharmaceutical-sciences
14	Kalyani Shrinivas Kakad	Recent advances in pharmaceutical sciences volume - 8	Chapter 2 Recent Advances in Microfluidics for Drug Screening and Its Applications	NA	NA	National	2022	978-93-5570-434-4	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	AkiNik Publication, New Delhi.	https://www.akinik.com/products/1925/recent-advances-in-pharmaceutical-sciences
15	Ujwala S. Desai	Recent Advances in Pharmaceutical Sciences volume-9	Chapter 9 Review article: ophthalmic niosomal in situ gel	NA	NA	National	2022	978-81-952065-5-1	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Innovare Academic Science Pvt Ltd	https://innovareacademics.in/img/books/Recent_Advances_in_Pharmaceutical_Sciences_Volume_9.pdf

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29	Anuradha G. More	The Microbial World: Exploring the Diversity of Bacteria	Chapter-21 Prevotella amnii	NA	NA	International	2023	978-1-80433-971-8	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Rubicon Publications	https://www.rubiconpublications.com/books/1686734453-the-microbial-world-exploring-the-diversity-of-

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7	P.D.Chaudhari	A practical book of pharmaceutical formulation	NA	NA	NA	National	2022	978-9354516-90-4	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Nirali Prakashan	https://www.amazon.in/-/hi/Dr-Sushil-Y-Raut/dp/B0B25338LB
8	Padmaja Kore	Cellular and molecular pharmacology	NA	NA	NA	National	2022	978-93-5451-579-8	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Nirali Prakashan	https://www.amazon.in/Bodhankar-CELLULAR-MOLECULAR-PHARMACOLOGY-Semester/dp/B09XF7V36D
9	Padmaja Kore	Advances in Pharmaceutical Sciences	NA	NA	NA	National	2022	978-81-951323-7-9	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	JPS Sci. Pub.	https://www.amazon.in/Advances-Pharmaceutical-Sciences-P-Saranraj-ebook/dp/B09Q24D6Z7
10	Padmaja Kore	Therapeutic application of potential herbs Vol-1	NA	NA	NA	National	2022	978-81-951323-2-4	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	JPS Sci.Pub.	https://www.amazon.com/Therapeutic-Applications-Potential-Herbs-Saranraj-ebook/dp/B09TBZZK1T
11	P.D. Chaudhar	Pharmaceutics - For first	NA	NA	NA	National	2022	978-81-956362-0-4	PES Modern College of	Speakpharma Pub.	https://www.amazon.in/-/hi/Dr-Rahul-

	i	year Diploma in pharmacy							Pharmacy, Nigdi, Pune-411 044,		Singh/dp/8195636209
BOOK CHAPTERS											
12	Pallavi M. Patil	Advanced Review and Research in Pharmaceutical Science Vol. 3	Chapter 4 A Review on Meta-Analysis of Randomize controlled Trials on the Clinical Effectiveness and Safety of Remdesivir in Patients with Covid 19 Caused by SARS-COV-2	NA	NA	National	2022	978-93-5570-301-9	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	AkiNik Publication	https://www.akinik.com/products/1684/advanced-review-and-research-in-pharmaceutical-science
13	Pallavi M. Patil	Advances in Agriculture Sciences Vol 37	Chapter 2 Review on Agrochemicals on Human Bodies"	NA	NA	National	2022	978-93-5570-299-9	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	AkiNik Publication	https://www.researchgate.net/publication/364352723_Advances_in_Agriculture_Sciences
14	Vittal V. Chopade	Colorimetry	Chapter 7 A Digital Image-Based Colorimetric Technique Use for Quantification of	NA	NA	International	2022	978-1-83962-941-9, EBOOK (PDF) ISBN 978-183962-940-2	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Open intech London UK	https://www.intechopen.com/chapters/79532

			Green Active Pharmaceuticals Obtained from Natural Sources								
15	Atul Anand Phatak	Trends in Pharmaceutical Research and Development Vol 6	Chapter 5 Study on the development and evaluation of novel Modified release prllet-based system for delivery of Desloratidine and Pesudoephedtrine Hydrochloride	NA	NA	National	2022	978-93-90516-38-4 e book ISBN 978-93-90516-43-8	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Book Publisher International	https://www.bookpi.org/media-promotion/discussion-on-study-on-the-development-and-evaluation-of-a-novel-modified-release-pellet-based-system-for-the-delivery-of-desloratadine-and-pseudoephedrine-hydrochloride/
ACADEMIC YEAR 2020-21											
BOOKS											
1	Pallavi M. Patil	Instrumental Method Of Analysis	NA	NA	NA	National	2020	978-93-90031-65-8	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Thakur Pub.	https://www.amazon.in/INSTRUMENTAL-METHODS-ANALYSIS-Dr-Malathi-ebook/dp/B08D6RP95M

2	Mohini C. Kuchekar	Pharmacognosy and Phytochemistry-II	NA	NA	NA	National	2020	978-93-90041-96-1	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Technical Pub	https://www.amazon.in/Pharmacognosy-Phytochemistry-Prof-Wadekar-Kuchekar/dp/8176602914
3	Atul A. Phatak	Lab manual of physical pharmaceutics I&II	NA	NA	NA	National	2020	978-9384875541	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Unnati pub	https://drive.google.com/file/d/1T0MmgT1ui_my1jbzg6rIytmFTwpxS-Uy/view
4	Minal T. Harde	Quality Assurance	NA	NA	NA	National	2020	978-93-89627-90-9	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Thakur Publication	https://infomedbooks.com/single/106
5	P.D.Chaudhari	Industrial Pharmacy -I	NA	NA	NA	National	2020-21	978-93-89750-19-5	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Technical Pub	https://technicalpublications.in/collections/pharmacy/products/9789389750195-1
6	Shital V. Patil	Pharmaceutical Validation (M.PHARM) SEM -II	NA	NA	NA	National	2021	97815-43344-84-4	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	PV. Publication	https://pvbooks.in/product/pharmaceutical-validation-m-pharm-sem-ii/

7	Shital V. Patil	A textbook of Pharmaceutical Manufacturing technology	NA	NA	NA	National	2021	97815-43345-22-3	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	PV. Publication	https://www.amazon.in/PHARMACEUTICAL-MANUFACTURING-TECHNOLOGY-M-PHARM-SYLLABI/dp/B09DBK59KZ
8	Chopade V.V	Pharmaceutical Regulatory Science	NA	NA	NA	National	2021	978-93-90972-02-9	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Thakur publication	https://www.amazon.in/Pharmaceutical-Regulatory-Science-Rajinder-Vitthal/dp/9390972027
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9	Bhushan P. Pimple	Herbs Spices and Medicinal Plants for Human Gastro-intestinal Disorders Health Benefits and Safety	Chapter 1 Origanum Majorana: The Fragrance of Health	NA	NA	International	2020	978-9811468353	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Bentham Sciences	https://www.amazon.com/Science-Spices-Culinary-Herbs-Pre-clinical/dp/9811468354
10	Bhushan P. Pimple	Science of Spices and Culinary Herbs - Latest Laboratory, Pre-clinical,	Chapter 2 Piper nigrum (Black pepper): A Flavor for	NA	NA	International	2020	978-9811468353	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Bentham Sciences	https://www.amazon.com/Science-Spices-Culinary-Herbs-Pre-clinical/dp/9811468354

		and Clinical Studies Volume-3	Health								
11	Bhushan P. Pimple	Herbs Spices and Medicinal Plants for Human Gastro-intestinal Disorders Health Benefits and Safety	Chapter 2 Therapeutic Activities of Nutmeg (Myristica fragrance)	NA	NA	International	2020	978-1774637142	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	CRC Press Taylor & Fransis	https://www.appleacademicpress.com/herbs-spices-and-medicinal-plants-for-human-gastrointestinal-disorders-health-benefits-and-safety/9781774637142
12	Sonali S Nipate	Bioadhesive in drug delivery	Chapter 10 Nasal bioadhesive drug delivery system and their application	NA	NA	International	2020	978-1-119-64019-6	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	WILEY, Scrivener Publication	https://www.wiley.com/en-gb/Bioadhesives+in+Drug+Delivery-p-9781119640196
13	Sonali S Nipate	Advanced 3D printed systems and nanosystems for drug delivery and tissue engineering	Chapter 5 Cellulosic material as bioinks for 3D printing applications	NA	NA	International	2020	978-0-12-818471-4	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Elsevier	https://books.google.co.in/books/about/Advanced_3D_Printed_Systems_and_Nanosyst.html?id=1n7VDwAAQBAJ&printsec=frontcover&source=kp_read_button&hl=en&newbks=1&newbks_redir=0&gboemv=1&redir_esc=y#v=onepage&q&f=false

ACADEMIC YEAR 2018-19											
BOOKS											
1	V.V.Chopade	Pharmaceutical Analysis	NA	NA	NA	National	Sep-18	978-93-332-1873-3	PES Modern College of Pharmacy, Nigdi, Pune-411 044	Technical Pub.	https://www.tppl.org.in/2020/bpharm-1st-semester-books/3043-pharmaceutical-analysis-i.html
2	P.S.Uttekar	Computer Application in Pharmacy	NA	NA	NA	National	2018	978-93-87483-20-0	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Thakur Pub.	https://www.tppl.org.in/2020/bpharm-2nd-semester-books/3232-computer-applications-in-pharmacy-book-for-bpharm-2-semester-9789387483200.html
3	V.V.Chopade	Pharmaceutical Inorganic Chemistry	NA	NA	NA	National	Aug-18	978-93-332-1862-7	PES Modern College of Pharmacy, Nigdi, Pune-411 044	Technical Pub	https://technicalpublications.in/products/9789333218627-2
4	M.T.Harde	Biochemistry	NA	NA	NA	National	Mar-19	978-93-332-0017-2	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Technical Pub.	https://technicalpublications.in/products/9789333200172-1
5	Chopade V.V.	Environmental Science	NA	NA	NA	National	Mar-19	978-93-332-0019-6	PES Modern College of Pharmacy, Nigdi, Pune-	Technical Pub	https://www.amazon.in/Environmental-Sciences-Gautam-S-Palshikar-

									411 044,		ebook/dp/B0814JF8QH
6	Chopade V.V.	Pharmaceutical Analysis-I	NA	NA	NA	National	2019	978-93-87093-01-0	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Thakur Pub.	https://www.amazon.in/B-PHARMACY-PHARMACEUTICAL-ANALYSIS-SEM-I-SYLLABUS/dp/9333218734
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7	D.D.Bandawane	Advances in Biomedical Experimental Techniques in Pharmacological Assays	Chapter 12 Anti-diarroheal screeing (in vivo and in vitro methods	NA	NA	National	2018	978-93-83794-04-1	PES Modern College of Pharmacy, Nigdi, Pune-411 044,	Bhalani Publisher and CBS Publisher	https://www.amazon.in/Advances-Biomedical-Experimental-Techniques-Pharmacological/dp/B07KXRY5Q7
8	D.D.Bandawane	Advances in Biomedical Experimental Techniques in Pharmacological Assays	Chapter 9 Screening methods for drugs acting on renal system	NA	NA	National	2018	978-93-83794-04-1	PES Modern College of Pharmacy, Nigdi, Pune-411 044	Bhalani Publisher and CBS Publisher	https://www.amazon.in/Advances-Biomedical-Experimental-Techniques-Pharmacological/dp/B07KXRY5Q7