

Biochemistry

This Biochemistry book targeted mainly to 2nd Semester B. Pharmacy students. The main objective of this book is to attract B. Pharmacy students and make them understand the basic biochemical process which can be applied in Medicinal Chemistry and Pharmacology. Thus, the book is aimed to eliminate the inadequacy in teaching and learning Biochemistry by providing detailed information about the basic biomolecules & their metabolic process.

Salient Features:

- As per the PCI revised syllabus, the coverage is complete for 2nd semester B. Pharm.
- The content of this book is innovative and presented in 5 units with a simple and uniform pattern of explanation along with all biochemical reactions.
- To make learning comfortable and magnetize attention we have used well labeled diagrams, illustrations, flow charts, simplified and schematic represented biomolecules classification, easy metabolic pathway presentation highlighted with chemical structure, type of reaction, energetic and inhibitors, with a detailed and simplified explanation of all biochemical reactions.
- Highlighted structural changes in every biochemical reaction and Metabolic pathway illustration for easy revision.
- Easy remembrance of enzyme name from the reason behind the naming.
- Inclusion of probable questions including multiple choice questions with key, short answers and long answers.

About the Authors

G. Saravanan, M. Pharm., Ph.D., is Professor of Department of Pharmaceutical Chemistry, MNR College of Pharmacy, Sangareddy, Gt. Hyderabad. He received his B. Pharm., Degree from J.K.K.M.M.R.F. College of Pharmacy, B. Komarapalayam, M. Pharm., from G.L. Baid Metha College of Pharmacy, Chennai and Ph.D., from Jawaharlal Nehru Technological University, Hyderabad. He has been teaching Pharmaceutical Biochemistry, Medicinal Chemistry, Pharmaceutical Organic Chemistry, Chemistry of Natural Products and Pharmaceutical Inorganic Chemistry and performing research work in synthetic medicinal chemistry on novel heterocyclic bio-active compounds for fifteen years. He was a college topper in B. Pharm., and got distinction in M. Pharm. He has received best paper award six times. In 2018, he received best teacher award & best researcher award from MNR Educational Trust, Hyderabad. He also secured best achiever award in the year 2019 from Association of Pharmacy Professionals, Bhopal. His book on the title of "Pharmaceutical Biochemistry - A Comprehensive Approach" is well appreciated in the academic community nationally. He is the author/coauthor of over 100 papers, which includes the original research articles and presentation in various conferences and symposiums. He became the editorial board member of the International journal "Anti-infective Agents" published by Bentham science publishers. He is a life member of Association of Pharmaceutical Teachers of India (APTI), Indian Pharmacy Graduates Association (IPGA) and Association of Pharmacy Professionals (APP) and a recognized research guide for Ph.D. scholars in Osmania University.

V. Alagarsamy, M. Pharm., Ph.D., FIC, FRSC, is Professor and Principal of MNR College of Pharmacy & Director of MNR Foundation for Research & Innovations, Gt. Hyderabad. For his research work, he has collaborated with various research laboratories/organizations like National Cancer Institute, USA; Rega Institute for Medical Research, Belgium; Southern Research Institute, USA; and Sudbury Regional Hospital, Ontario, Canada. He is a recipient of young scientist award from the Department of Science and Technology, New Delhi. He is the author/coauthor of over 200 papers, which includes the original research articles and presentations in various conferences and symposiums, having one patent for his credit on bioactive heterocyclic molecule. He is the co-editor of the International journal "Anti-infective Agents", published by Bentham Science Publishers. His Books on the title of "Text Book of Medicinal Chemistry", "Pharmaceutical Chemistry of Natural Products", "Pharmaceutical Inorganic Chemistry", "Organic Chemistry - A Comprehensive Approach", "Pharmaceutical Organic Chemistry" and "Practical Pharmaceutical Inorganic Chemistry" are well appreciated in the academic community nationally and received international recognition too. His research activities are supported by the funding agencies like CSIR, DST and DSIR. Prof. Alagarsamy is a member of All India Board of Pharmaceutical Education (AIB-P.E), AICTE, New Delhi and a member of board of studies (Pharmacy) in Osmania University, Hyderabad and is a doctoral committee member and a recognized research guide for PhD scholars in various universities. His academic and research contributions are appreciated by awarding him the Best Researcher Award & Best Principal Award. Recently Dr. Alagarsamy has been named among top 2% scientists in the world in the field of Pharmacy by The Stanford University, USA.

Inspirational Journey of Scientist Alagarsamy: <https://youtu.be/qj4REUXNPI>



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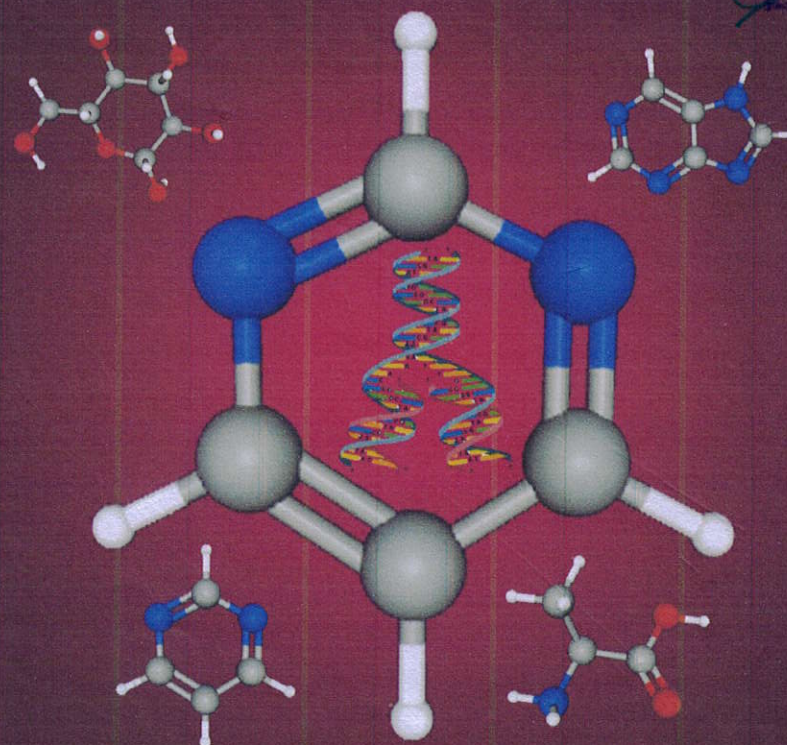


Biochemistry

G. Saravanan
V. Alagarsamy



Biochemistry



G. Saravanan | V. Alagarsamy



Biochemistry

As per latest PCI syllabus B.Pharm, 2nd Sem

A handwritten signature in blue ink, appearing to read "Y. Arora", is written over the printed name of the Principal.

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Biochemistry

As per latest PCI syllabus B.Pharm, 2nd Sem

Dr. G. Saravanan

M. Pharm., Ph.D.

Professor

Department of Pharmaceutical Chemistry,
MNR College of Pharmacy,
Sangareddy, Hyderabad, TS, India.

Dr. V. Alagarsamy

M. Pharm, PhD, FIC, FRSC

Professor and Principal,
MNR College of Pharmacy,
Sangareddy - 502 294,
Hyderabad, TS, India.



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Biochemistry

by *G. Saravanan and V. Alagarsamy*

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Preface

The branch of science dealing with the study of all the life processes such as control and coordination within a living organism is called Biochemistry. A sub-discipline of both chemistry and biology, biochemistry may be divided into three fields: structural biology, enzymology and metabolism. Over the last decades of the 20th century, biochemistry has become successful at explaining living processes through these three disciplines. Much of biochemistry deals with the structures, functions, and interactions of biological macromolecules, such as proteins, nucleic acids, carbohydrates, and lipids. They provide the structure of cells and perform many of the functions associated with life. The findings of biochemistry are applied primarily in medicine, nutrition, and agriculture. Biochemistry covers a range of scientific disciplines, including genetics, microbiology, forensics and medicine.

Biochemistry is essential to understand the following concepts. a) The chemical processes which transform diet into compounds that are characteristics of the cells of a particular species; b) The catalytic functions of enzymes; c) Utilizing the potential energy obtained from the oxidation of foodstuff consumed for the various energy-requiring processes of the living cell; d) The properties and structure of substances that constitute the framework of tissues and cells; e) To solve fundamental problems in medicine and biology.

The vast academic experience helped us to realize the need of the B. Pharm., students for a book that can help them to easily understand the subject. Many of our students also insisted us publish a book after getting themselves inspired of learning biochemistry with at most ease and simplicity from our clear and illustrative lecture notes. The main object of this book is to attract the B. Pharm., students, so that they feel an urge to explore and understand the basics of biochemistry.

This book is an effect of our vision to discover the best book on biochemistry especially for B. pharmacy second semester students, which consists of five units as per revised PCI syllabus. Unit - 1 deal with the biomolecules and bioenergetic basics. In this part, each biomolecule is discussed in a simplified manner with clear definition, classification, properties, and significance. For easy understanding and revision, classifications of biomolecules were schematically represented, and properties and biological significance were given point by point. Unit - 2 to Unit - 4 deals with biomolecules metabolism. One of the major highlights of this book is the presentation of metabolism of biomolecules which clearly distinguish this book from the rest of the available books on the market. Metabolic pathways were represented both in structural form and theoretical form along with the type of reaction, name of the enzyme responsible, and energetic aspects. The changes that take place in each biochemical reactions are highlighted in the structure for an easy understanding of the reaction. Detailed explanation was given for every reaction of various metabolic pathways with the reasoning of enzyme name and energetic calculation. In the applicable places, regulation, inhibitors, and metabolic disorders of biochemical reactions were also discussed. Unit - 5 deals with enzyme including classification, mechanism of action, inhibition, kinetics, co-enzymes, isoenzymes and applications in a student-friendly manner. Probable questions including multiple-choice questions with key, short answers, and long answers are given at end of each chapter add colors to this book. Hence, this book facilitates the students to understand the subject more easily and interestingly. We welcome suggestions and constructive criticism from all corners of the academic community.

Dr. G. Saravanan & Dr. V. Alagarsamy

Acknowledgement

A warm response to Prof. V. Alagarsamy's earlier Books on the "Text Book of Medicinal Chemistry", "Pharmaceutical Chemistry of Natural Products" (Published by Elsevier), Pharmaceutical Inorganic Chemistry, Organic Chemistry – A Comprehensive Approach and Pharmaceutical Organic Chemistry (Published by Pharma Book Syndicate) prompted us to author Pharmaceutical Biochemistry – A Comprehensive Approach. The success of this book made us to write this book on "Biochemistry", covering entire syllabus prescribed by the Pharmacy Council of India (PCI) for B. Pharm., second semester students.

We wish to place on record our heartfelt thanks to everyone who has made this book possible, especially our beloved teachers from the first standard to the doctoral program. We dedicate this book to the many hundreds of budding graduates and pharmacy students, whom we have taught over the years, and our teachers who have encouraged us to convert our class notes into textbook to reach a wide range of academic community.

We are immensely grateful to Prof. K. Chinnaswamy and Dr. B. Suresh (Pro-Chancellor, JSS University; Ex-President, Pharmacy Council of India) for their constant support and inspiration extended to us to author this book.

We gratefully acknowledge the constant and continuous encouragement and moral support extended by Shri. M. N. Raju, Chairman, and Mr. M. Ravi Varma, Vice-Chairman, MNR Educational Trust, Hyderabad, for our entire academic and research pursuit, is a great motivation for us in taking up this new challenge.

We thank all the faculty members of the Faculty of Technology, Osmania University, Hyderabad for their constant support in all our academic activities.

We thank Mr. Anil Shah, Managing Director, PharmaMed Press for recognizing and inviting us to write this book. The friendly interaction experienced with the Pharma Book Syndicate, Mr. Naresh (Production Manager), and his team offered cordial support, which always made us furnish our input to make this Book one of the Best. Getting such a cooperative and energetic team encourages the authors to continue their writing always. We thank them wholeheartedly for accepting all views while designing the book and helping us reach this target.

Individually Dr. Saravanan expresses his sincere thanks to his grandfather (Mr. R. Narayanasamy), grandmother (Ms. N. Janaki), father (Mr. V. Govindaraj), mother (Ms. G. Nagathilagam), father-in-law (Mr. T. R. Raja), mother-in-law (Ms. R. Rajathi), uncle (Mr. N. Manikandan & Mr. N. Thirupathi Vasagan), brother (Mr. G. Veeraputhiran), and cousin (Mr. R. Ramanarayanan & Mr. R. Lakshmana Kumar) for their kind encouragement and moral support throughout his career. The stimulation he got from his wife (Ms. R. Murugalakshmi) to reach this target is more than enzymes, and the patience and cooperation extended by his children (S. Veeraeshwaran and S. Veerakanishka), made him think of the goal without any diversion. He also expresses his sincere thanks to his friends especially Dr. T. Panneer Selvam, Dr. P. Dinesh Kumar, Dr. C. R. Prakash, Dr. K. Selvaraj, Dr. P. Parasuraman, and Dr. N. Kiruthiga for their support in his career.

Most of all, we thank The Almighty God for his endless blessings, knowledge, and strength to make this book possible.

G. Saravanan

sarachem1981@gmail.com

WhatsApp: +91-9963023257

V. Alagarsamy

drvalagarsamy@gmail.com

WhatsApp: +91-7674893936

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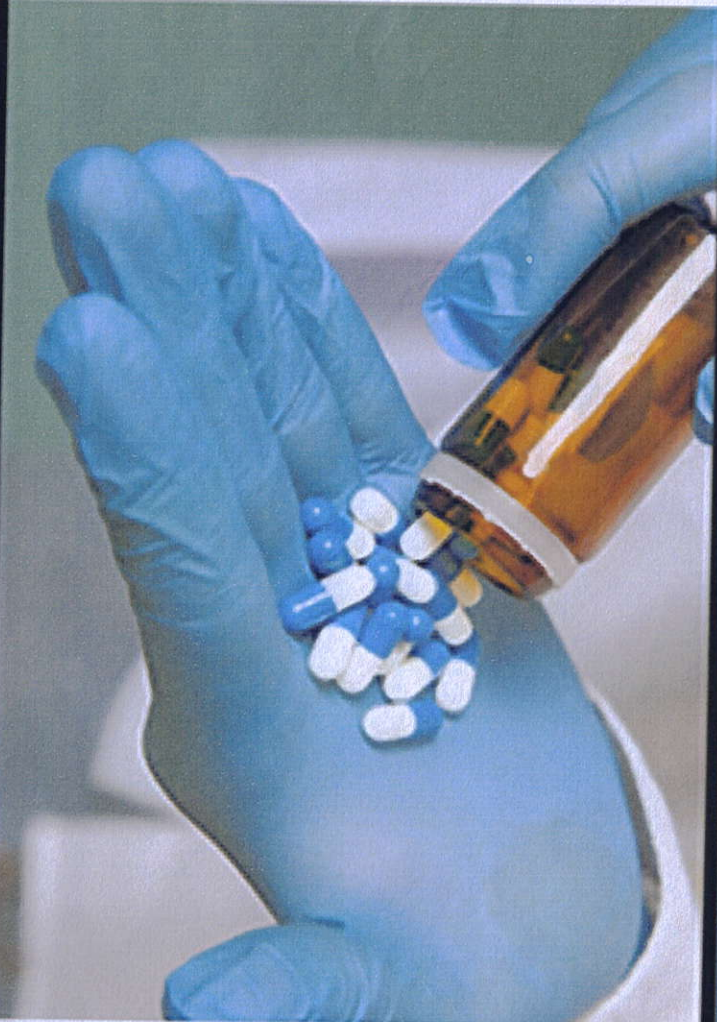
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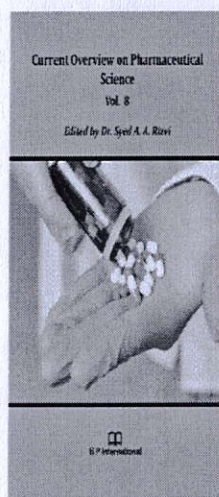
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Editor(s)

Dr. Syed A. A. Rizvi [MD, PhD (Pharmaceutics), PhD (Chemistry), MPH, MBA, MS, MSc, BSc, BSN]
Professor,
College of Biomedical Sciences, Larkin University, 18301 N Miami Ave Miami, FL 33169, United States.

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This book covers key areas of Pharmaceutical Science. The contributions by the authors include pharmacokinetic medication interaction, anticoccidials, antibiotics, anti-diarrhoeal activity, ethyl acetate extracts, herbal products, cancer, hypertension, diabetes, allopathic drugs, natural products, complementary and alternative therapies, pelvic chronic pain, vulvar pain, vulvodynia systemic treatment, in situ gel of nanoparticles, adrenergic agents, hepatoprotective constituents, Siddha medicine, and polyherbal formulation. This book contains various materials suitable for students, researchers and academicians in the field of Pharmaceutical Science.

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Exploring the Plant Based Extracts for Treatment of Diabetic Caused by Steroids

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Current Overview on Pharmaceutical Science Vol. 8, 1 March 2023, Page 96-108

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Biography of author(s)



Dr. Meruva Sathish Kumar

MNR College of Pharmacy, Fasalwadi, Sangareddy-502294, India.

Research and Academic Experience: He has 12 YEARS of Research and Academic Experience.

Research Area: Pharmaceutical Analysis.

Number of Published papers: He has 42 Published papers in national and international journals.

Special Award: He achieved best poster award in International National Conference.

Any other remarkable point(s): Working as Editorial Members for Journal.

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A Novel Method for Simultaneous Estimation of Clobetasol, Neomycin, Chlorhexidine and Miconazole by Using RP-HPLC

Meruva Sathish Kumar ^{a*}, S. Marakatham ^b, S. V. S. Saibaba ^c,
P. Shyam Sundar ^a and S. Siva Prasad ^a

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ABSTRACT

In this chapter, a novel method has been developed for simultaneous estimation of Clobetasol, Neomycin, Chlorhexidine and Miconazole in bulk and marketed formulations. Chromatography was carried out using a Waters 2695 HPLC system equipped with a Hamilt syringe, an auto sampler, and a 2996 photodiode array detector. The best outcomes were achieved using phosphate buffer (20 Mm), pH 6.6 adjusted with diluted orthophosphoric acid, Acetonitrile taken in Gradient Program at flow rate of 1 ml/m, and detection at 239 nm. For all four drugs, the retention time was less than 9 minutes. The method was demonstrated to be linear, precise, and accurate in accordance with ICH guidelines.

The findings showed that the linearity ranges between 1.25 and 300 µg/ml. The LOQ values were discovered to be 0.05, 0.23, 0.11, and 1.20. The sample solution injected after 24 hr did not show any appreciable change.

The developed method was simple, specific, and sensitive because the excipients did not interfere with the determination of the main components. The proposed technique can be used for routine analysis of Clobetasol, Neomycin, Chlorhexidine, and Miconazole in combined dosage form, that are available in variable concentrations.

Keywords: Clobetasol; neomycin; chlorhexidine and miconazole; reverse phase HPLC; PDA detector.

^a MNR College of Pharmacy, Fasalwadi, Sangareddy-502294, India.

^b Malla Reddy Institute of Pharmaceutical Sciences, Maisammagudda-500100, India.

^c KVK College of Pharmacy, Surmaiguda, Hayath Nagar-50151, India.

*Corresponding author: E-mail: sathishmeruva85@gmail.com;


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1. INTRODUCTION [1-12]

Clobetasol is consists of [17-(2'-Chloroacetyl)-9-fluoro-11-hydroxy-10,13,16-trimethyl-3-oxo-6,7,8,11,12,14,15,16-octahydrocyclopenta[a]phenanthren-17-yl] propanoate is a corticosteroid of the glucocorticoid class used to treat various skin disorders including eczema and psoriasis. It is also very powerful for contact dermatitis caused by exposure to poison ivy/oak. Neomycin (2*RS*,3*S*,4*S*,5*R*)-5-amino-2-(aminomethyl)-6-((2*R*,3*S*,4*R*,5*S*)-5-((1*R*,2*R*,5*R*,6*R*)-3,5-diamino-2-((2*R*,3*S*,4*R*,5*S*)-3-amino-6-(aminomethyl)-4,5-dihydroxytetrahydro-2*H*-pyran-2-yloxy)-6-hydroxycyclohexyloxy)-4-hydroxy-2-(hydroxymethyl)tetrahydrofuran-3-yloxy) tetrahydro-2*H*-pyran-3,4-diol. Neomycin is typically used as a topical preparation, such as Neosporin. It can also be administered orally, where it is typically given in combination with other antibiotics to treat hypercholesterolemia and hepatic encephalopathy. Chlorhexidine *N,N'*1,6-Hexanediylbis[*N*-(4-chlorophenyl) (imidocarbonimidic diamide)] is a disinfectant and antiseptic that is used for skin disinfection before surgery and to sterilize surgical instruments. It's also used to clean wounds, prevent dental plaque, treat yeast infections in the mouth, and keep urinary catheters from becoming clogged. Miconazole (*RS*)-1-(2-(2,4-Dichlorobenzoyloxy)-2-(2,4-dichlorophenyl)ethyl)-1*H*-imidazole is an antifungal medication used to treat ring worm, pityriasis versicolor, and yeast infections of the skin or vagina [1]. As a cream or ointment, it is applied to the skin or vagina.

Aim of the work was to develop new, simple and accurate RP-HPLC-PDA method for the simultaneous determination of Clobetasol, Neomycin, Chlorhexidine and Miconazole in bulk and marketed formulation. The method was validated as per ICH guidelines.

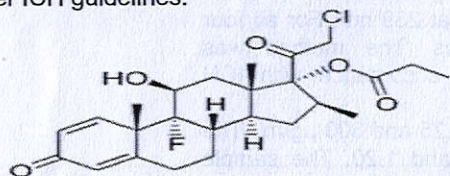


Fig. 1. Structure of clobetasol propionate

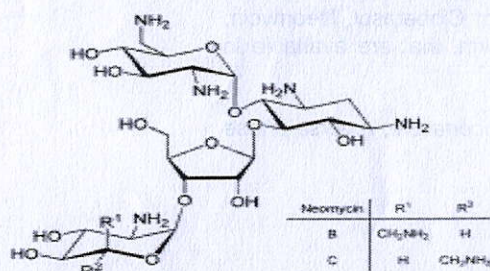


Fig. 2. Structure of neomycin

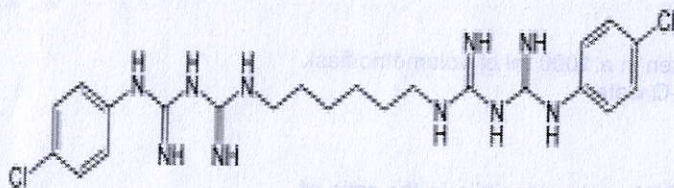


Fig. 3. Structure of chlorhexidine

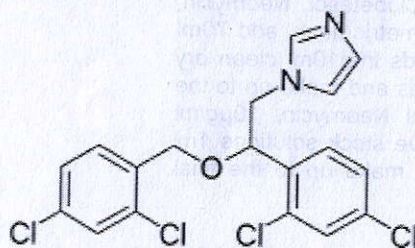


Fig. 4. Structure of miconazole

2. MATERIALS AND METHODS [13-15]

2.1 Instrumentation

Chromatography was performed with Water's 2695 HPLC system provided with Hamilton Syringe, auto sampler and 2996 Photodiode array detector. Online degasser was equipped within the HPLC system which degasses the mobile phase and prevents the pressure fluctuations; along with this a column compartment was present in order to control the temperature. The HPLC system operates with Empower2 software and it is used for analysis, data acquisition followed by reporting the data.

2.2 Materials and Chemicals

Pharmaceutically pure sample of Clobetasol, Neomycin, Chlorhexidine and Miconazole were obtained from spectrum pharma research solutions, Hyderabad as gift samples along with their analytical reports. The chemicals required for the preparation of mobile phase i.e. orthophosphoric acid, HPLC grade acetonitrile, methanol were obtained from Merck, Mumbai. Millipore water (HPLC grade) used for the preparation of buffer and solutions was obtained from Milli-Q water purification system. Commercial cream of four derm (Label Claim: 5g cream contains 0.05%w/w Clobetasol, 0.5%w/w Neomycin, 0.2%w/w Chlorhexidine and 2%w/w Miconazole) were procured from local drug store.

2.3 Preparation of Buffer: (0.1%OPA)

1ML of Ortho phosphoric acid solution was taken in a 1000 ml of volumetric flask and volume was made up to 1000 ml with milli-Q water

2.4 Preparation of Mobile Phase

Mobile phase was prepared by mixing 0.1% OPA and acetonitrile in the ratio of 65:35

2.5 Preparation of standard stock solution

Accurately weighed and transferred 5mg&2mg&10mg of Clobetasol, Neomycin, Miconazole. working Standards into 100ml clean dry volumetric flask, add 70ml of diluent, and 32.5mg of Chlorhexidine working Standards into 10ml clean dry volumetric flask add 7ml of diluent sonicated for 30 minutes and make up to the final volume with diluents (5µg/ml Clobetasol & 2µg/ml Neomycin, 10µg/ml Miconazole and 325 µg/ml Chlorhexidine) .From the above stock solutions 1ml was pipetted out in to a 10ml Volumetric flask and then make up to the final volume with diluent.

2.6 Preparation of Working Standard Solutions

Aliquot of 0.25 ml, 0.5 ml, 0.75 ml, 1 ml, 1.25 ml and 1.5 ml were pipette out from stock solution into 10 ml volumetric flask separate and volume was made up to 10 ml with diluent. This gives the solutions of 5 µg/ml, 10 µg/ml, 15 µg/ml, 20 µg/ml, 25 µg/ml and 30 µg/ml respectively for Chlorhexidine, 1.25 µg/ml, 2.5 µg/ml, 3.75 µg/ml, 5 µg/ml, 6.25 µg/ml and 7.5 µg/ml respectively for Clobetasol, 12.5 µg/ml, 25 µg/ml, 37.5 µg/ml, 50 µg/ml, 62.5 µg/ml and 75 µg/ml respectively for Neomycin and 50 µg/ml, 100 µg/ml, 150 µg/ml, 200 µg/ml, 250 µg/ml and 300 µg/ml respectively for Miconazole.

2.7 Preparation of Sample Solution

5g cream contains 0.05%w/w Clobetasol, 0.5%w/w Neomycin, 0.2%w/w Chlorhexidine and 2%w/w Miconazole was transferred into a 100 mL volumetric flask, 50mL of diluent added and sonicated for 25 min, further the volume made up with diluent and filtered. From the filtered solution 1ml was pipetted out into a 10 ml volumetric flask and made upto 10ml with diluent.

And From above filtered solution 1ml was pipetted out into a 10 ml volumetric flask and made upto 10ml with diluent.

3. RESULTS AND DISCUSSION

3.1 System Suitability

This test was performed to ensure the validity of the analytical procedure. Data from six injections of 10 µL of the working standard solutions of Clobetasol, Neomycin, Chlorhexidine and Miconazole were used for the evaluation of the

system suitability. From the result obtained the % RSD of all the six injections was within the limit. Theoretical plates were found to be more than 5000 and the peak tailing was less than 1.2 which shows that it is within the range. Purity angle for the drug peaks was less than the purity threshold which implies that no interference was there at the retention time of main peak. Results of all these Clobetasol meters were shown in the following Table 1.

Table 1. System suitability of clobetasol, neomycin, chlorhexidine and miconazole

STD. Sol.	Parameters (n=6)			
	R _t	Resolution	Tailing	Theoretical Plates
Clobetasol	2.191	-	1.38	5152
Neomycin	2.967	5.7	1.31	6942
Chlorhexidine	4.917	10.7	1.24	8905
Miconazole	5.595	2.9	1.33	7970

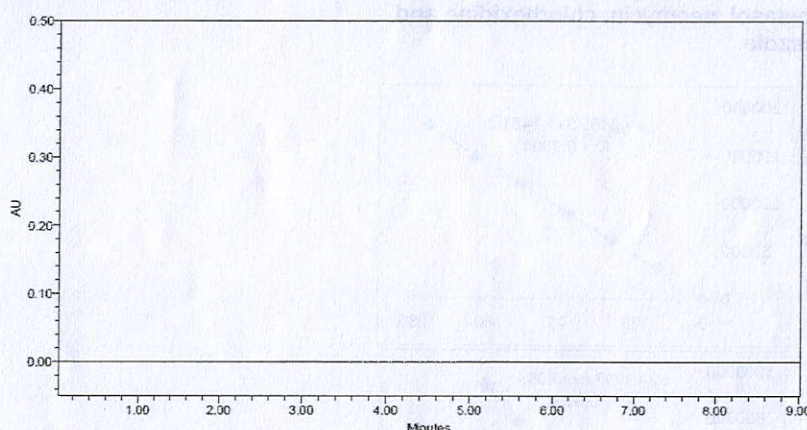


Fig. 5. Blank chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

3.2 Linearity

By appropriate aliquots of the standard Clobetasol, Neomycin, Chlorhexidine and Miconazole solutions with the mobile phase, six working solutions ranging between 1.25-7.5 µg/mL, 12.5-75 µg/mL, 5-30 µg/mL and 50-300 µg/mL were prepared and injected (n=3). The peak areas were plotted against the concentration of Clobetasol, Neomycin, Chlorhexidine and Miconazole to obtain the calibration curve and the results were shown Fig. 5-10. The linearity were represented by a linear regression equation as follows: y (Clobetasol) = $8797.x + 1157$ ($r^2=0.999$), y (Neomycin) = $2365.x + 1481$ ($r^2=0.999$), y (Chlorhexidine) = $4360.x + 1550$ ($r^2=0.999$) and y (Miconazole) = $3097.x + 8663$ ($r^2=0.999$).

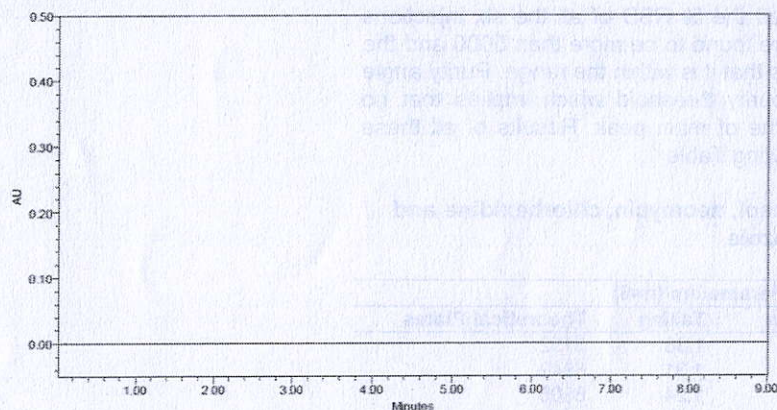


Fig. 6. Placebo chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

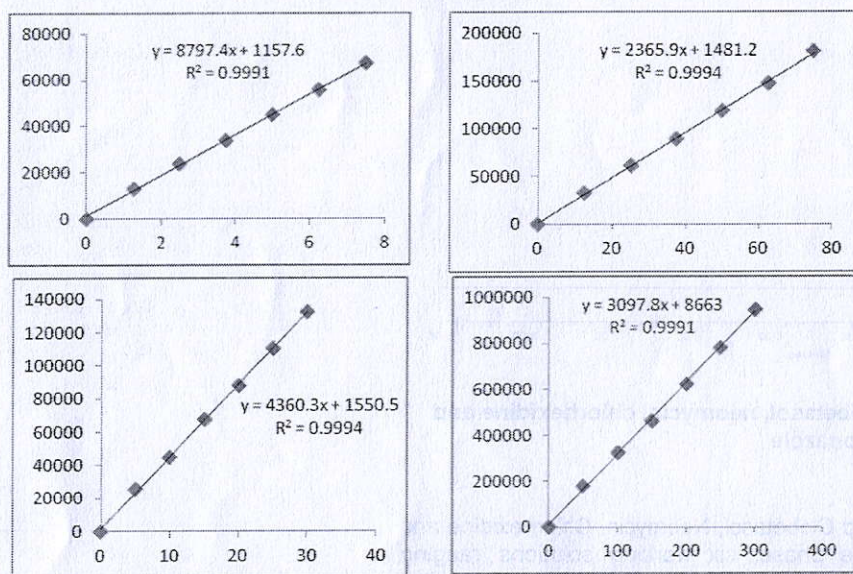


Fig. 7. Calibration curve for phenylephrine, chlorpheniramine, paracetamol and dextromethorphan

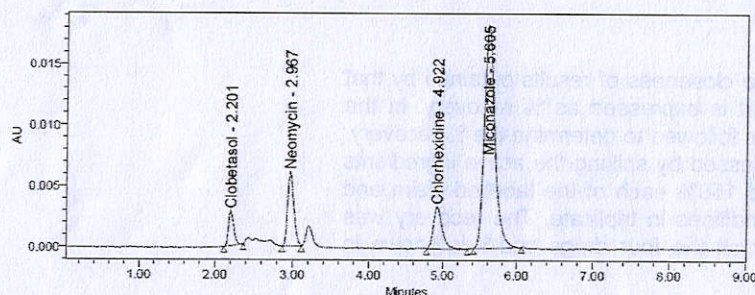


Fig. 8. Linearity 25% chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

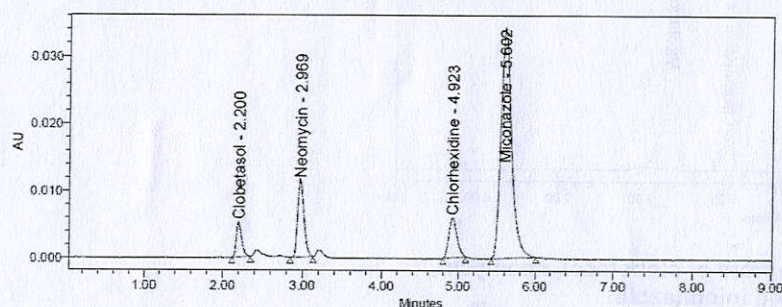


Fig. 9. Linearity 50% chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

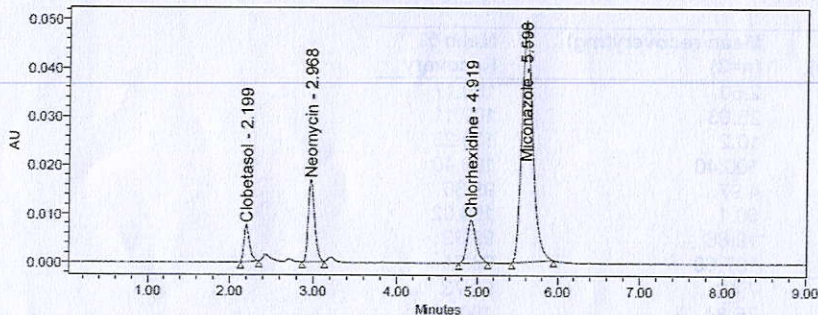


Fig. 10. Linearity 75% chromatogram of Clobetasol, Neomycin, Chlorhexidine and Miconazole

3.3 Accuracy

The accuracy of an analytical method is the closeness of results obtained by that method to the true value for the sample. It is expressed as % recovery. In the present study standard addition method was followed to determine the % recovery. And it is determined by. Accuracy was assessed by spiking the active ingredients at different concentrations 50%, 100% and 150% each of the labelled claim and injected in developed chromatographic conditions in triplicate. The recovery was found to be between 98.84 –100.85% for all the four drugs and it is shown in Table 2.

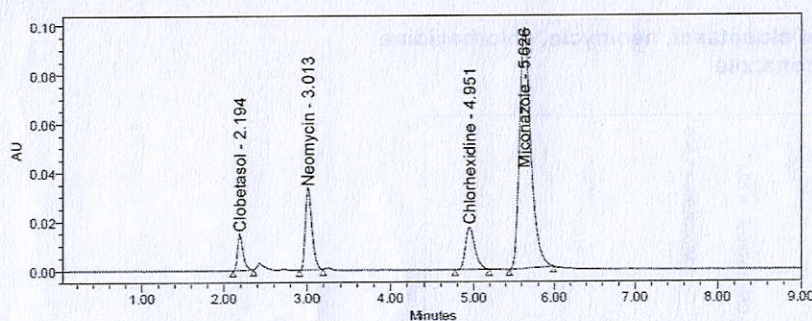


Fig. 11. Accuracy 50% chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

Table 2. Recovery studies of clobetasol, neomycin, chlorhexidine and miconazole

Recovery level (%)	Standard added	Amount added (mg)	Mean recovery(mg) (n=3)	Mean % Recovery
50	Clobetasol	2.5	2.50	100.17
	Neomycin	25	25.03	100.11
	Chlorhexidine	10	10.2	100.23
	Miconazole	100	100.40	100.40
100	Clobetasol	5	4.97	99.36
	Neomycin	50	50.1	100.02
	Chlorhexidine	20	19.86	99.32
	Miconazole	200	197.69	98.84
150	Clobetasol	7.5	7.48	99.73
	Neomycin	75	75.34	100.45
	Chlorhexidine	30	30.26	100.85
	Miconazole	300	297.21	99.07

3.4 Precision

Repeatability and intermediate precision were determined in accordance with ICH guidelines. The samples (n=6) were assayed on the day of analysis and also

the consequent day. Six replicate injections in same concentration were analyzed on two different days with different analyst and column for verifying the variation in the precision and the % RSD for Clobetasol, Neomycin, Chlorhexidine and Miconazole were found to be within acceptable limit of ≤ 2 . Both the repeatability and intermediate precision were carried out with three different concentrations. No significant difference was observed in the precision results carried out on two consecutive days and the results were shown in Figs.15, 16.

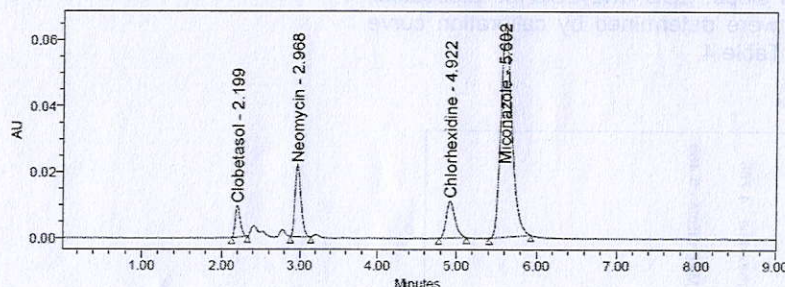


Fig. 12. Repeatability chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

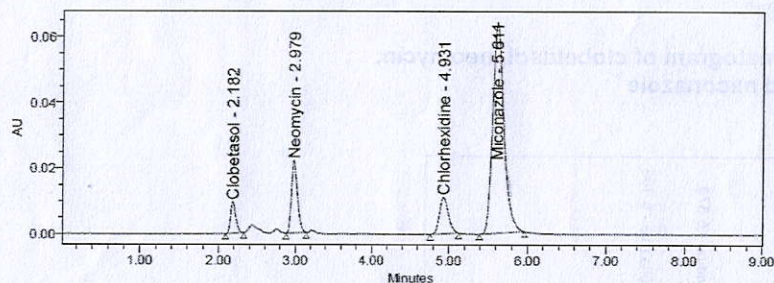


Fig. 13. Intermediate precision chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

3.5 Robustness

The robustness of the method was performed by changing the chromatographic conditions. The change in the % organic strength ($\pm 5\%$), column temperature ($\pm 5^\circ\text{C}$) and the flow rate ($\pm 0.1\text{mL}$) did not bring any significant changes in the chromatography pattern. and the %RSD were also within the acceptance limits, showing that the method is robust and results were shown.

3.6 LOD and LOQ

Limit of detection (LOD) and limit of quantification (LOQ) of Clobetasol, Neomycin, Chlorhexidine and Miconazole were determined by calibration curve method. Solutions of Clobetasol, Neomycin, Chlorhexidine and Miconazole were prepared in linearity range and injected ($n=3$). The graph was plotted against average peak areas and concentration. The LOD and LOQ were calculated by using the equations, $LOD = (3.3 \times Syx)/b$ and $LOQ = (10.0 \times Syx)/b$, Where Syx is residual variance due to regression; b is slope. LOD and LOQ of Clobetasol, Neomycin, Chlorhexidine and Miconazole were determined by calibration curve method and the results were shown in the Table 4.

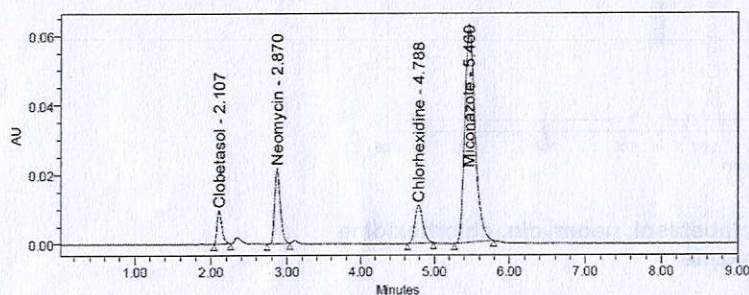


Fig. 14. Robustness (Flow minus) chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

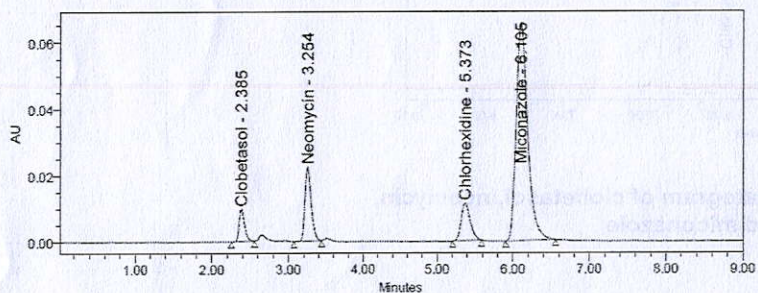


Fig. 15. Robustness (Flow Plus) chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

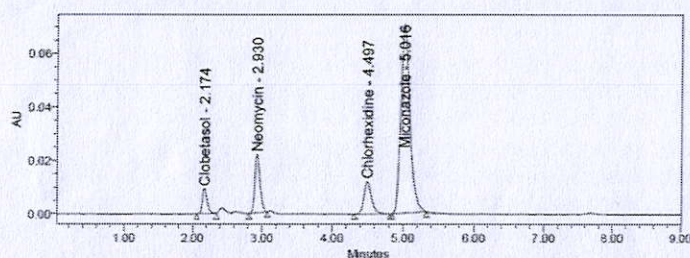


Fig. 16. Robustness (Mobile phase minus) chromatogram of clobetasol, neomycin chlorhexidine and miconazole

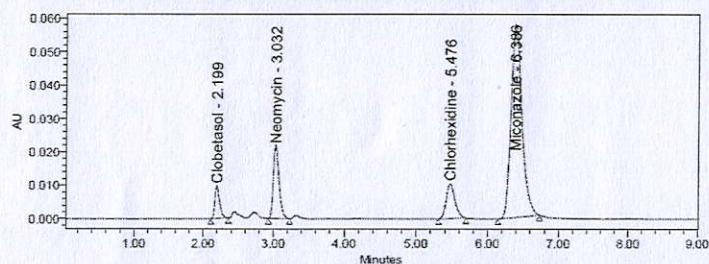


Fig. 17. Robustness (mobile phase plus) chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

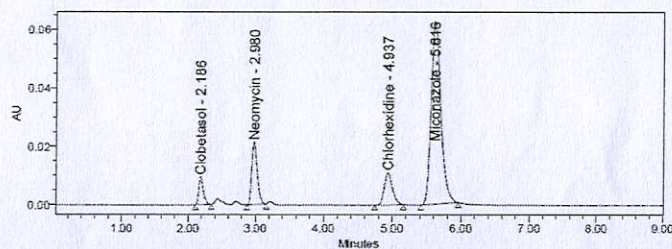
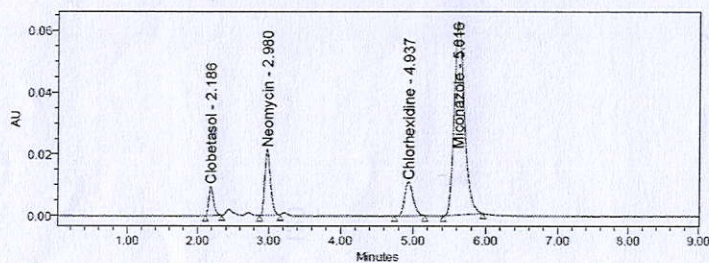


Fig. 18. Robustness (Temperature minus) chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

Table 3. Robustness studies of clobetasol, neomycin, chlorhexidine and miconazole

Clobetasolmeters		%RSD of peak area response				Mean tailing factor				Mean retention time in min			
		Clobetasol	Neomycin	Chlorhexidine	Miconazole	Clobetasol	Neomycin	Chlorhexidine	Miconazole	Clobetasol	Neomycin	Chlorhexidine	Miconazole
Flow rate	+0.1	0.9	0.5	0.7	0.6	1.36	1.31	1.24	1.34	2.11	2.9	4.8	5.5
	std	1.0	0.1	0.8	0.5	1.34	1.30	1.23	1.33	2.2	3.0	4.9	5.6
% Organic phase	-0.1	1.0	0.3	0.7	1.1	1.34	1.32	1.23	1.37	2.4	3.3	5.4	6.1
	+5	0.4	0.5	0.9	0.3	1.30	1.33	1.20	1.32	2.2	3.0	5.5	6.4
Column	std	1.0	0.1	0.8	0.5	1.34	1.30	1.23	1.33	2.2	3.0	4.9	5.6
	-5	1.4	0.9	2.1	0.6	1.39	1.25	1.29	1.36	2.2	2.9	4.5	5.0
Temperature	+5	0.4	0.2	1.3	0.5	1.31	1.28	1.21	1.31	2.2	3.0	4.9	5.6
	std	1.0	0.1	0.8	0.5	1.34	1.30	1.23	1.33	2.2	3.0	4.9	5.6
	-5	1.0	0.4	1.3	0.4	1.36	1.29	1.21	1.31	2.2	3.0	4.9	5.6

*n=6 for each parameter meter

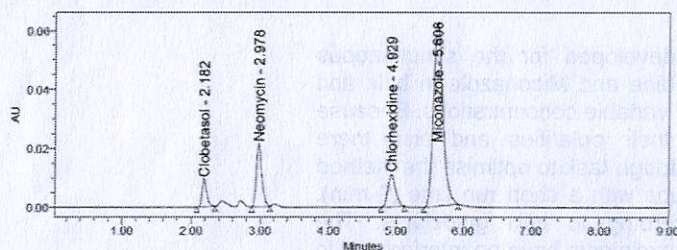


Fig. 19. Robustness studies of Clobetasol, Neomycin, Chlorhexidine and Miconazole

Table 4. LOD and LOQ values of clobetasol, neomycin, chlorhexidine and miconazole

Drug	LOD	LOQ
Clobetasol	0.02	0.05
Neomycin	0.08	0.23
Chlorhexidine	0.04	0.11
Miconazole	0.40	1.20

3.7 Assay

Content of Clobetasol, Neomycin, Chlorhexidine and Miconazole was found in the cream (FOURDERM) by the proposed method and results were shown in Table 5 and Fig.20.

Table 5. Analysis of marketed formulation by proposed method

Marketed formulation	Ingredients	Label Claim	% amount Found
Fourderm	Clobetasol	0.05%w/w	99.75
	Neomycin	0.5%w/w	100.19
	Chlorhexidine	0.2%w/w	100.13
	Miconazole	2 %w/w	99.44

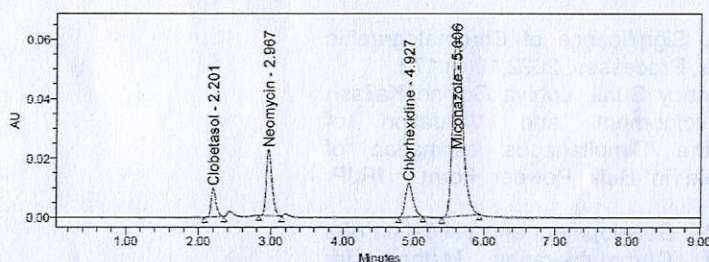


Fig. 20. Assay chromatogram of clobetasol, neomycin, chlorhexidine and miconazole

4. CONCLUSION

A novel RP-HPLC-PDA method has been developed for the simultaneous estimation of Clobetasol, Neomycin, Chlorhexidine and Miconazole in bulk and cream in which the active agents are present in variable concentrations. Because of the wide variability among the drugs, their polarities and also their concentrations in the dosage form it became a tough task to optimise the method which gave good resolution for all the four drugs with a short run time (9 min). The developed method was validated according to ICH guidelines. The developed method was simple, specific as the excipients have no interference in the determination of main components, precise, accurate, and sensitive. The proposed method can be used for routine analysis of Clobetasol, Neomycin, Chlorhexidine and Miconazole in combined dosage form which are present in variable concentrations. The developed method can be also applied in the quality control of these drugs in marketed formulations.

ACKNOWLEDGEMENT

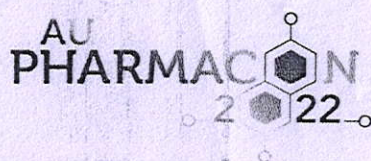
I thank Dr. M. Sridhar and Mrs.S.Marakatham Department of Pharmaceutical Analysis for supporting me to do this research work. I thank my guide Dr.P.Shanmuganidyan for his immense support.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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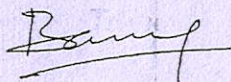
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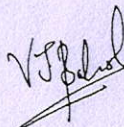
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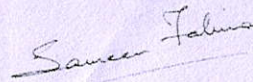
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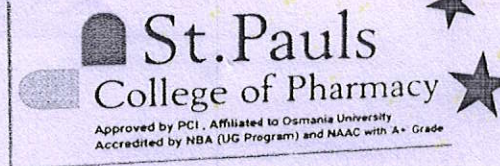


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Preparation, characterization, and evaluation of Celecoxib loaded during

APP 11TH ANNUAL INTERNATIONAL CONVENTION

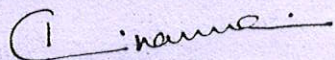
"Academia-Industry Interaction in Pharmaceutical Innovations: Paradigm Shifts and Direction for the Future"

organized by APP Haryana State Branch and APP Switzerland International Branch

in collaboration with APP IP-DRA & MolPharm Divisions and APP Hyderabad Local Branch

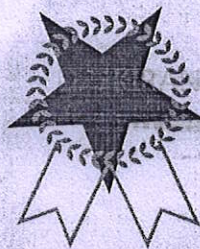
at St. Pauls College of Pharmacy, Turkayamjal, Abdullapurmet, Ranga Reddy, Hyderabad, Telangana

in celebration of 'Vijay Diwas 2022' on 16th-17th day of December 2022.



DR. KIRANMAI MANDAVA
Convener & Principal

St. Pauls College of Pharmacy
Turkayamjal, Ranga Reddy, Telangana





DR. RAJIV DAHIYA
Organizing Chairman & President APP
School of Pharmacy, FMS, UWI-St. Augustine
Trinidad & Tobago, West Indies



APP: Always for the Pharmacy Profession & Professionals...


PRINCIPAL
MNR COLLEGE OF PHARMACY

**TWO DAYS "NATIONAL CONFERENCE ON
PHARMACY AND PHARMACEUTICAL SCIENCES"
(NCPPS- 2022)**



APTI

ORGANIZED BY

CMR COLLEGE OF PHARMACY

Approved by AICTE & PCI, New Delhi, Affiliated to JNTU Hyderabad, B. Pharmacy Program Accredited by NBA
KANDLAKOYA (V), MEDCHAL, HYDERABAD, TELANGANA - 501401.



in Association with

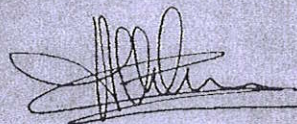
Association of Pharmaceutical Teachers of India (APTI)
Telangana State Branch



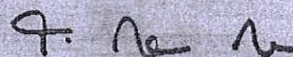
nirf NATIONAL
INSTITUTIONAL
RANKING
FRAMEWORK

CERTIFICATE

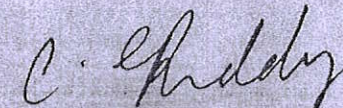
This is to certify that Prof./Dr./Mr./Ms. P. SUBHASH CHANDRA BOSE of
MNR COLLEGE OF PHARMACY Presented a Poster / Oral entitled
PREPARATION AND INVIVO EVALUATION OF PRAVASTATIN MICROSPHERES in the
TWO DAYS "NATIONAL CONFERENCE ON PHARMACY AND PHARMACEUTICAL
SCIENCES" [NCPPS-2022] organized by **CMR College of Pharmacy, Hyderabad**
on 29th & 30th December, 2022.



Dr. Krishna Mohan Chinnala
President
APTI, Telangana State Branch



Dr. T. Rama Rao
Convener



Dr. Ch. Gopal Reddy
Secretary & Correspondent

MALLA REDDY INSTITUTE OF PHARMACEUTICAL SCIENCES

Maisammaguda, Dhulapally, Post: Via Kompally, Secunderabad - 500100

INTERNATIONAL CONFERENCE

On

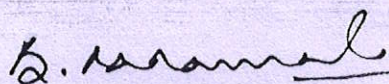
Current Trends in Pharmaceutical Sciences

Theme: Pharmacist's Role in Rare Diseases

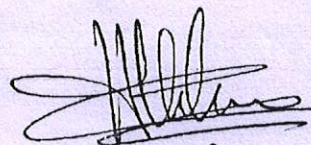


Certificate

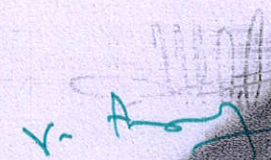
This is to certify that Dr./ Mr./ Ms./Mrs. P. Subhash Chandra Bose
has participated and presented Oral/Poster entitled Formulation and Evaluation of Lansoprazole micro sponges
in the International Conference On Current Trends in Pharmaceutical Sciences (ICCTPS – 2023) on 15th & 16th Feb 2023 at MRIPS.



Dr. B. Rajkamal
Convenor



Dr. Krishna Mohan Chinnala
President, APTI, TS.


PRINCIPAL
MNR COLLEGE OF PHARMACY



THREE DAY NATIONAL CONFERENCE
ON
RECENT ADVANCEMENTS IN PHARMACEUTICAL RESEARCH
at

RBVRR WOMEN'S COLLEGE OF PHARMACY
Approved by AICTE & PCI, Approved under Section 2 (f) by UGC,
Affiliated to Osmania University,
Barkatpura, Hyderabad-500027(T.S), India



NBA

Accredited for
B. Pharmacy
Course

CERTIFICATE OF APPRECIATION

This is to certify that Ms./Mr./Dr. Saravanan Govindaraj of MNR college of pharmacy has actively presented in oral/poster entitled Anti-Tubercular potency of Various Tetrahydro Thiazolopyridine Carbonitriles in National conference held at RBVRR Women's College of Pharmacy from 22nd - 24th September, 2022.

M. Sumakanth

Prof. M. Sumakanth
Convener

RBVRR Women's College of Pharmacy

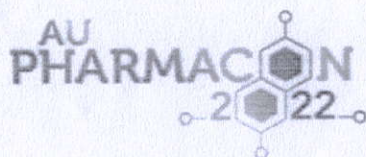
K. Muthyam Reddy

Prof. K. Muthyam Reddy
Patron

RBVRR Women's College of Pharmacy

[Signature]

PRINCIPAL
MNR COLLEGE OF PHARMACY



CERTIFICATE OF PRESENTATION

This is to certify that

✓
Dr./Mr./Mrs./Ms. SARAVANAN GOVINDRAJ

has Presented a Poster/Oral paper entitled

Antimicrobial Activity of Novel Schiff and Mannich
bases of Benzimidazole analogs at

AU PHARMACON-2022,

6th National Conference on

Trending Research and Innovations in Pharmaceutical Sciences

held on 22nd - 23rd July 2022,

Sponsored by

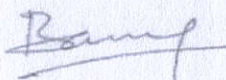
Science and Engineering Research Board (SERB),

Department of Science & Technology, Government of India

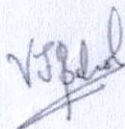
and in Association with

Indian Pharmaceutical Association (IPA), Warangal Branch

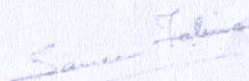
at School of Pharmacy, Anurag University, Hyderabad, Telangana, India.



Dr. G. Baba Shankar Rao
Convener
TRIPS-2022



Dr. Vasudha Bakshi
Organizing Secretary
TRIPS-2022



Dr. S. Sameen Fatima
Registrar,
AU



Antiviral Research Society

(Reg. No: 144/2016 (TN Society Registration Act))

E-mail: antiviralresearch2016@gmail.com | Mobile: +91 93842 18275 | Website: antiviral.in

PRESENTATION CERTIFICATE

This is to certify that

Dr. Saravanan Govindaraj, MNR College of Pharmacy

has actively participated and presented a paper (Oral) entitled

“Design, Synthesis, and Anti-HIV activity of Novel *N*-substituted-5-phenyl-[1,2,4]triazolo[1,5-*c*]quinazolin-2-amine Derivatives”

at International Conference on HIV/AIDS organized by Antiviral Research Society on 1st & 2nd December 2022.

A handwritten signature in black ink, appearing to be "P. Selvam", with a horizontal line drawn underneath it.

Dr. P. Selvam, M.Pharm., Ph.D., FNABS., FISNS
(President - Antiviral Research Society)

A handwritten signature in green ink, appearing to be "R. Aravind", with a horizontal line drawn underneath it.

PRINCIPAL
MNR COLLEGE OF PHARMACY



Bharath

INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Declared as Deemed-to-be-University, u/s 3 of the UGC Act, 1956)



FACULTY OF PHARMACY

PHARMABIST- 2022

INTERNATIONAL CONFERENCE ON "PHARMAINNOVATIONS 2022"

Certificate Of Appreciation

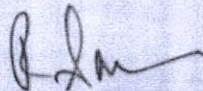
This certificate is awarded to Prof / Dr / Mr / Mrs / Ms Saravanan Govindasaj of

MNR College of Pharmacy, Sangareddy, Telangana

has participated / Presented (~~Oral~~ / ~~Poster~~ / ~~ePoster~~) Ref No PHBIST-PAG-05 entitled Novel Benzimidazoles-

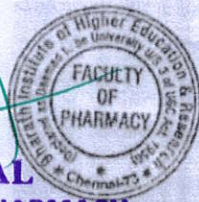
A Potent Anti-Inflammatory Agent

and secured I / II / III Prize in Two Day International Conference on "PHARMAINNOVATIONS 2022" held at Faculty of Pharmacy, Bharath institute of Higher Education and Research, Selaiyur, Chennai -73 on 12 & 13 September 2022.


Dr. R. Saravanan.
Co Convenor.


Dr. E. Karthikeyan.
Co Convenor.


PRINCIPAL
MNR COLLEGE OF PHARMACY




Dr. R. Srinivasan.
Convenor & Dean-FOP, BIHER.

MRIPALA REDDY INSTITUTE OF PHARMACEUTICAL SCIENCES

Maisammaguda, Dhulapally, Post: Via Kompally, Secunderabad - 500100

INTERNATIONAL CONFERENCE

On

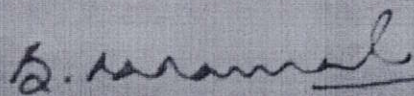
Current Trends in Pharmaceutical Sciences

Theme: Pharmacist's Role in Rare Diseases

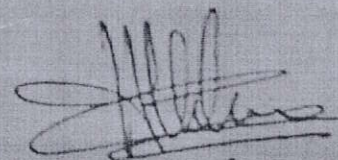


Certificate

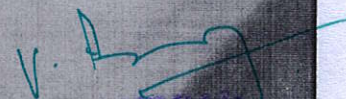
This is to certify that Dr./ Mr./ Ms./Mrs. M. SATHISH KUMAR [MNRBCOP]
has participated and presented Oral/Poster entitled Method development and Validation for the
estimation of Metoprolol by RP-HPLC Method in the International Conference On Current Trends
in Pharmaceutical Sciences (ICCTPS – 2023) on 15th & 16th Feb 2023 at MRIPS.



Dr. B. Rajkamal
Convenor

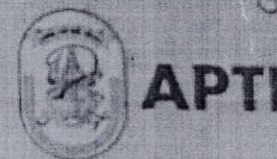


Dr. Krishna Mohan Chinnala
President, APTI, TS.


PRINCIPAL
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**TWO DAYS "NATIONAL CONFERENCE ON
PHARMACY AND PHARMACEUTICAL SCIENCES"
(NCPPS- 2022)**



ORGANIZED BY

CMR COLLEGE OF PHARMACY

Approved by AICTE & PCI, New Delhi, Affiliated to JNTU Hyderabad, B. Pharmacy Program Accredited by NBA
KANDLA KOYA (V), MEDCHAL, HYDERABAD, TELANGANA - 501401.



in Association with

Association of Pharmaceutical Teachers of India (APTI)
Telangana State Branch



CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms. MERUVA SATHISH KUMAR of
MNR COLLEGE OF PHARMACY Presented a Poster / Oral entitled

DEVELOPMENT & VALIDATION OF UV- SPECTROPHOTOMETRIC METHOD OF TERTINIB BULK in the
PH. DOSAGE FORMS
TWO DAYS "NATIONAL CONFERENCE ON PHARMACY AND PHARMACEUTICAL
SCIENCES" [NCPPS-2022] organized by CMR College of Pharmacy, Hyderabad
on 29th & 30th December, 2022.

Dr. Krishna Mohan Chinnala
President
APTI, Telangana State Branch

Dr. T. Rama Rao
Convener

PRINCIPAL
MNR COLLEGE OF PHARMACY

Dr. Ch. Gopal Reddy
Secretary & Correspondent

**TWO DAYS "NATIONAL CONFERENCE ON
PHARMACY AND PHARMACEUTICAL SCIENCES"
(NCPPS- 2022)**



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KANDLAKOYA (V), MEDCHAL, HYDERABAD, TELANGANA - 501401.



in Association with

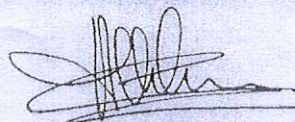
Association of Pharmaceutical Teachers of India (APTI)
Telangana State Branch



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INSTITUTIONAL
RANKING
FRAMEWORK

CERTIFICATE

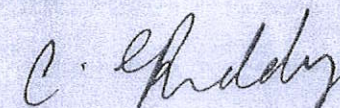
This is to certify that Prof./Dr./Mr./Ms. SIVAPRASAD SAGILI of
MNR college of pharmacy, Sangareddy Presented a Poster / Oral entitled
"Formulation and characterization of Rimantadine Niosomes" in the
TWO DAYS "NATIONAL CONFERENCE ON PHARMACY AND PHARMACEUTICAL
SCIENCES" [NCPPS-2022] organized by **CMR College of Pharmacy, Hyderabad**
on 29th & 30th December, 2022.



Dr. Krishna Mohan Chinnala
President
APTI, Telangana State Branch



Dr. T. Rama Rao
Convener



Dr. Ch. Gopal Reddy
Secretary & Correspondent

PRINCIPAL
MNR COLLEGE OF PHARMACY

VISHNU INSTITUTE OF PHARMACEUTICAL EDUCATION & RESEARCH

Narsapur, Medak, Telangana

NAAC A+, NBA Accredited, NIRF Ranking -67th (2022)



AUSHADH- 2K23

CERTIFICATE OF PARTICIPATION

International Conference on
"Emergence of Nutraceuticals as Pharmaceuticals : Challenges and Promises"
17th March 2023

This is to certify Dr/ Mr / Mrs / Ms. M.T. SULTHANA
has presented a paper Oral / E-Poster in Offline mode at International Conference on "Emergence of Nutraceuticals as Pharmaceuticals : Challenges and Promises" (Aushadh 2023) held on 17th March 2023, at Vishnu Institute of Pharmaceutical Education and Research, Narsapur, Telangana.

CO-CONVENER

Dr. SVVNSM. Lakshmi
HOD. Pharmacognosy

CO-CONVENER

Dr. K. Vanitha
HOD. Pharmaceutics

CO-CONVENER

Dr. V.V.S. Rajendra Prasad
Dean R & D

CONVENER

Dr. D. Santosha
Associate Professor

CONFERENCE CHAIR

Dr. A. Ramesh
Principal, VIPER

PRINCIPAL
MNR COLLEGE OF PHARMACY



Certificate Of Participation



This is to certify that

PREETHY ANI TOSE

has participated in the
Pharma Paper & Poster Presentation

on 25th November 2022,

organized by **Panacea**

at **Birla Institute Of Technology & Science, Pilani
Hyderabad Campus.**

Agarwal

Dr. Sajeli Begum
(H.O.D Pharmacy Department)

V. Anand
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WORKHOLE TO THE FUTURE



TWO DAYS "NATIONAL CONFERENCE ON
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in Association with

Association of Pharmaceutical Teachers of India (APTI)
Telangana State Branch



NIRF
NATIONAL
INSTITUTIONAL
RANKING
FRAMEWORK

CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms. **PREETHY ANI JOSE** of

MNR COLLEGE OF PHARMACY

Presented a Poster / Oral entitled
AUTOMATION AND DIGITALIZATION: ADVANCEMENT IN QUALITY MANUFACTURING in the
TWO DAYS "NATIONAL CONFERENCE ON PHARMACY AND PHARMACEUTICAL
SCIENCES" [NCPPS-2022] organized by **CMR College of Pharmacy, Hyderabad**
on 29th & 30th December, 2022.

Dr. Krishna Mohan Chinnala
President
APTI, Telangana State Branch

Dr. T. Rama Rao
Convener

Dr. Ch. Gopal Reddy
Principal & Correspondent
PRINCIPAL
MNR COLLEGE OF PHARMACY

MALLA REDDY INSTITUTE OF PHARMACEUTICAL SCIENCES

Maisammaguda, Dhulapally, Post: Via Kompally, Secunderabad - 500100



INTERNATIONAL CONFERENCE

On

Current Trends in Pharmaceutical Sciences

Theme: Pharmacist's Role in Rare Diseases



Certificate

This is to certify that Dr./ Mr./ Ms./Mrs. Preethy Ani Jose
has participated and presented Oral/Poster entitled "Herbal Based Nano Technology
for Anti-diabetic therapy-A review" in the International Conference On Current Trends
in Pharmaceutical Sciences (ICCTPS – 2023) on 15th & 16th Feb 2023 at MRIPS.

Dr. B. Rajkamal
Convenor

Dr. Krishna Mohan Chinnala
President, APTI, TS.

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CHILKUR BALAJI COLLEGE OF PHARMACY

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R.V.S. Nagar, Aziz Nagar (V), Moinabad (M), R. R. Dist., Telangana, India, 500075



Certificate

ONE DAY NATIONAL SEMINAR

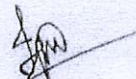
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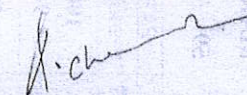
"CURRENT PRACTICES IN DRUG DELIVERY TECHNOLOGY, QUALITY ASSURANCE AND
REGULATORY AFFAIRS IN PHARMACEUTICAL INDUSTRY"

4th March 2023

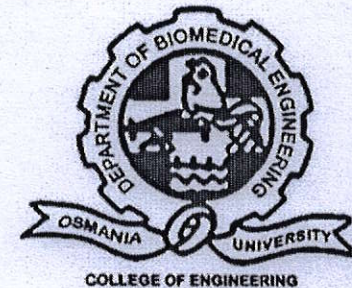
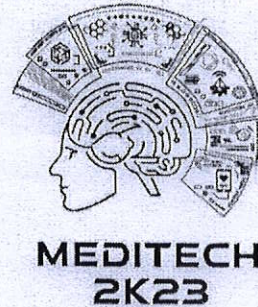
This is to certify that Dr./Mr./Mrs./Ms M.T. Smithana, Professor
from MNR College of Pharmacy has Participated as Delegate/ Poster/ Oral Presentation
in One Day National Seminar held on 4th March 2023 at Chilkur Balaji College of Pharmacy.

Title of the Paper : Plant Based Phytochemicals as promising Anti SARS-Cov-2 Agents:
An insilico Approach


Mrs.T.Indira Priyadarshini
Co-ordinator


Dr.Chandrasekhara Rao Baru
Convenor

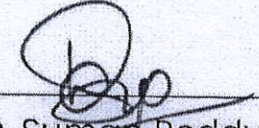
PRINCIPAL
MNR COLLEGE OF PHARMACY.



CERTIFICATE OF PARTICIPATION

This is to certify that Dr. M.T. SULTHANA, PROFESSOR
of MNR COP has successfully participated in the poster presentation
at Meditech 2k23, a National-level technical symposium organised by the Department of
Biomedical Engineering, University College of Engineering (Autonomous), Osmania University, held
during the 5th and 6th of May 2023


Dr. K.E. Ch.Vidya Sagar
Assistant Professor Dept BME


Dr. D. Suman Reddy
HOD, BME Dept OUCE


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MNR COLLEGE OF PHARMACY

CHINNALA REDDY INSTITUTE OF PHARMACEUTICAL SCIENCES

Maisammaguda, Dhulapally, Post: Via Kompally, Secunderabad - 500100



INTERNATIONAL CONFERENCE

On

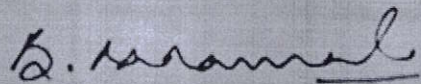
Current Trends in Pharmaceutical Sciences

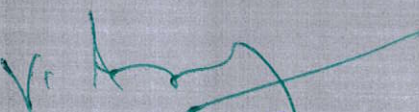
Theme: Pharmacist's Role in Rare Diseases

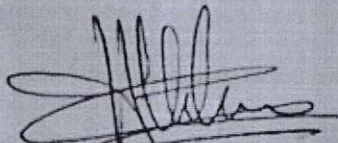


Certificate

This is to certify that Dr./ ☒ Mr./ ☐ Ms./Mrs. Ramgopal Appani.
has participated and presented Oral/Poster entitled Design, synthesis and Antifungal activity of
some novel hydrazone derivatives. in the International Conference On Current Trends
in Pharmaceutical Sciences (ICCTPS – 2023) on 15th & 16th Feb 2023 at MRIPS.


Dr. B. Rajkamal
Convenor


PRINCIPAL
MNR COLLEGE OF PHARMACY


Dr. Krishna Mohan Chinnala
President, APTI, TS.



HMWSSB

HYDERABAD METROPOLITAN
WATER SUPPLY & SEWERAGE BOARD



BHAGIRADHA
CHEMICALS



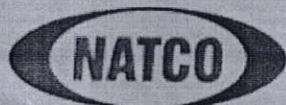
deccan
Fine Chemicals Pvt. Ltd.



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Natco Pharma Limited



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(Autonomous)
OSMANIA UNIVERSITY, HYDERABAD, T.S.



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A National Level Teacher Cultural Fair

PARTICIPATION CERTIFICATE

This is to certify that Mr./ Ms. RAMGOPAL APPANI
- MNR COLLEGE OF PHARMACY -
has presented/ attended at TechnoSmania 2k23 held during 25th, 26th &
27th April, 2023, organized by University College Of Technology,
Osmania University, Hyderabad, T.S. in DESIGN, SYNTHESIS AND
PHARMACOLOGICAL EVALUATION OF NEW SERIES OF
competition. HYDRAZONE DERIVATIVES (ORAL)

Jyothi

Dr.T. JYOTHI
CONVENER

V. A.
MNR COLLEGE OF PHARMACY

Chintha Sailu

Prof. CHINTHA SAILU
PRINCIPAL, UCT, OU

**TWO DAYS "NATIONAL CONFERENCE ON
PHARMACY AND PHARMACEUTICAL SCIENCES"
(NCPPS- 2022)**



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in Association with

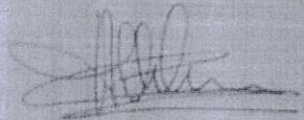
Association of Pharmaceutical Teachers of India (APTI)
Telangana State Branch

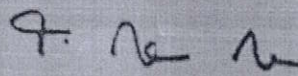


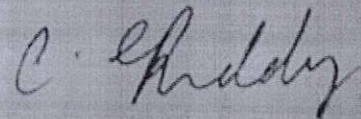
nirf NATIONAL
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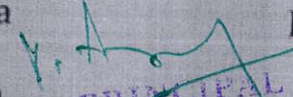
CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms. Ramgopal Appani of
MNR college of Pharmacy, Sangareddy. Presented a Poster / Oral entitled
Design, Synthesis and Analgesic activity of some novel hydrazone derivatives. in the
**TWO DAYS "NATIONAL CONFERENCE ON PHARMACY AND PHARMACEUTICAL
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on 29th & 30th December, 2022.


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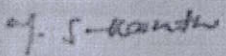
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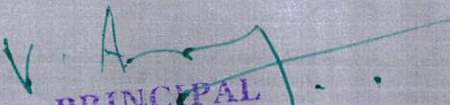
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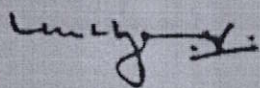
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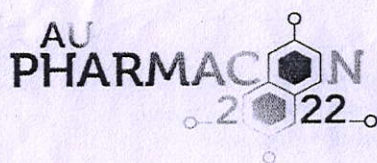
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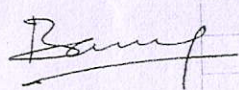
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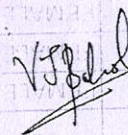
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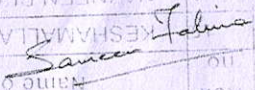
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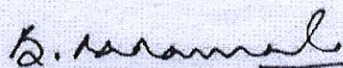
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Theme: Pharmacist's Role in Rare Diseases



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Targeting Spike protein in the International Conference On Current Trends
in Pharmaceutical Sciences (ICCTPS – 2023) on 15th & 16th Feb 2023 at MRIPS.



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Convenor



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"Recent Approaches in Herbal Drugs/Cosmeceuticals" held on 13 December, 2022

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Dr. C.V.S. Subrahmanyam
Chief Coordinator

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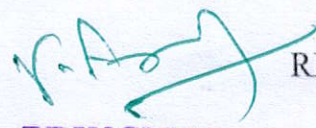
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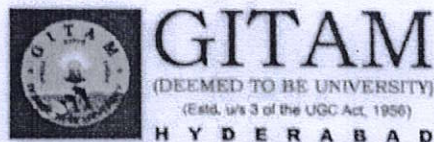
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Theme: Data Science, Artificial intelligence, Flexible Production

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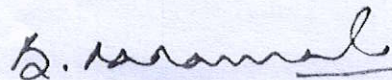
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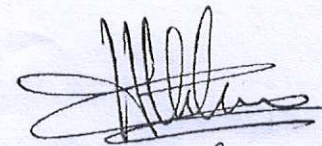


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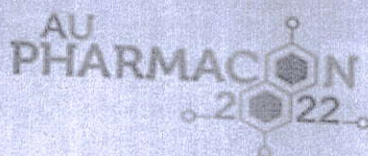


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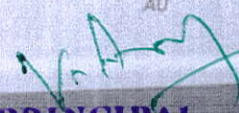
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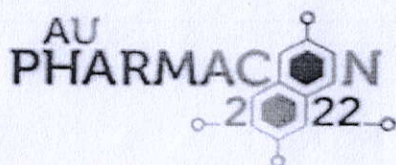
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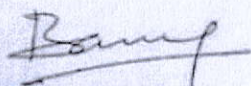
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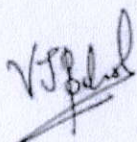
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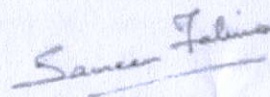
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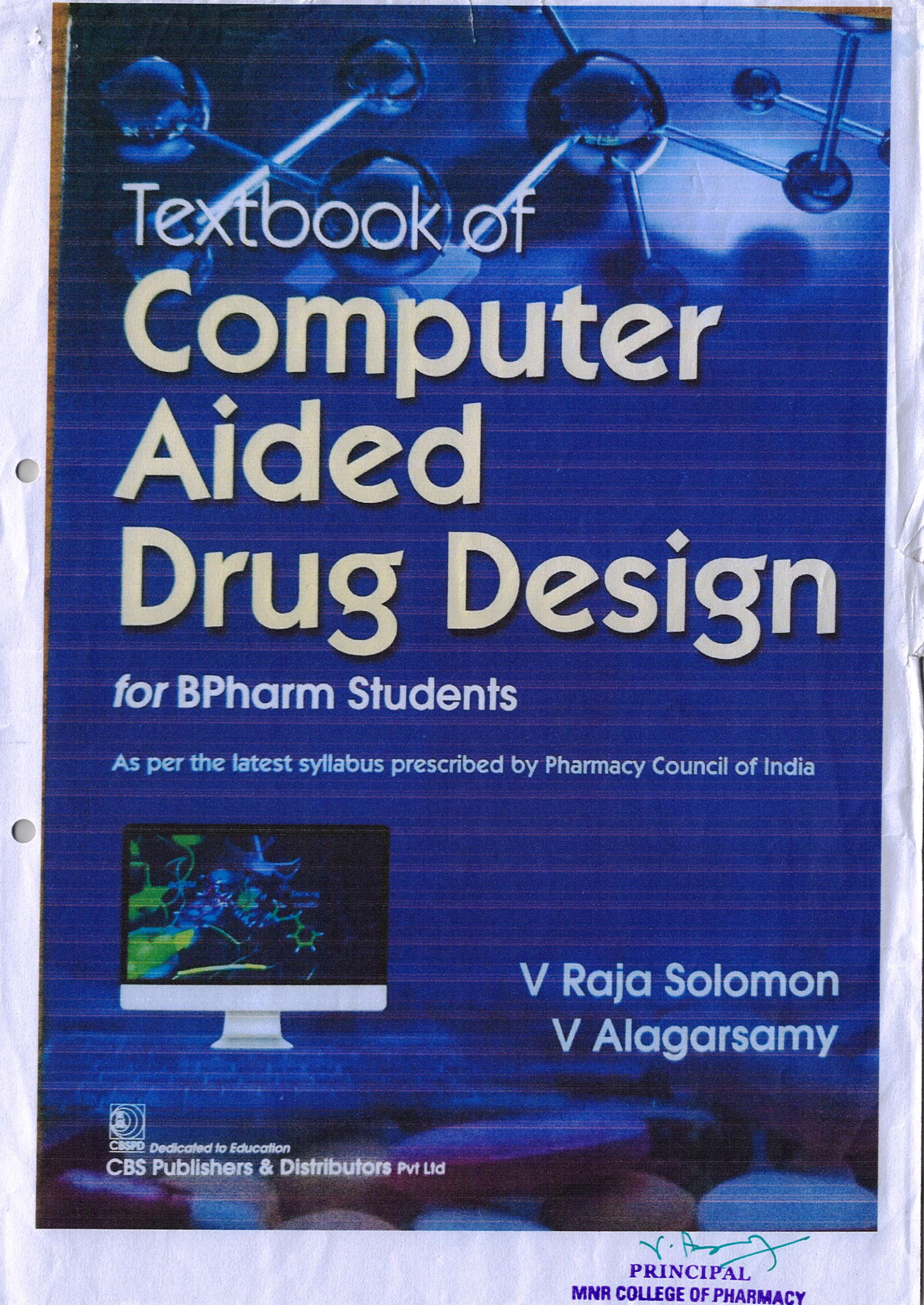
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Textbook of Computer Aided Drug Design

for BPharm Students

As per the latest syllabus prescribed by Pharmacy Council of India



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Textbook of Computer Aided Drug Design

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V Raja Solomon MPharm, PhD

Scientist
Department of Chemistry
University of Saskatchewan
Saskatoon, Saskatchewan, Canada

V Alagarsamy MPharm, PhD, FIC, DOMH

Professor and Principal
MNR College of Pharmacy, Sangareddy
Greater Hyderabad, Telangana
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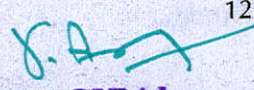
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Textbook of Computer Aided Drug Design for BPharm Students

is much-awaited textbook in the drug design course in pharmacy. Targeted mainly at the BPharm students, this book will also be helpful for students of MPharm, BSc and MSc in chemistry and pharmaceutical chemistry courses. The book provides complete information for learning and teaching the subject of computer-aided drug design.

Salient Features

- ✓ Content of the book is innovative and presented in five units, in a detailed form as per the requirements of the students, and in compliance with the latest syllabus prescribed by Pharmacy Council of India (PCI).
- ✓ Book has covered the entire subject of computer-aided drug design, starting from introduction to drug discovery and development, stages of drug discovery and development to molecular modeling.
- ✓ Drug discovery and development methods are explained in a stepwise and simplified manner.
- ✓ Principles of computer-aided drug design, though difficult to remember, are described in a student-friendly manner that is easy to understand and reproduce well in examinations.
- ✓ Includes flowcharts and schematic representations of drug design for easy assimilation.

The subject is well explained with modern concepts of drug discovery and development.

V Raja Solomon received his B.Pharm from SB College of Pharmacy, affiliated to The Tamil Nadu Dr MGR Medical University, Chennai, India, and M.Pharm with a specialization in medicinal and pharmaceutical chemistry from the Shri GS Institute of Technology & Science, Indore, affiliated with Rajiv Gandhi Technical University, Bhopal, India, under the direction of Prof SC Chaturvedi. He completed his PhD in the field of medicinal chemistry at the CSIR-Central Drug Research Institute (CSIR-CDRI), Lucknow, India, under Prof SB Katti. He moved to the Prof Hoyun Lee research group at Health Science North Research Institute, Sudbury, Ontario, Canada for his postdoctoral studies. He has received the prestigious Postdoctoral Research Award from the Ontario Government, Ministry of Research and Innovation. He has received a prestigious foreign researcher award from Japan Society for the Promotion of Science (JSPS) and worked for two years at Nagoya City University with Prof Naoki Miyata. He worked as a research associate at the University of Sydney, NSW, Australia, with Prof Jane Hanrahan for three years. He also worked as a research scientist at the Department of Medical Imaging, University of Saskatchewan, Saskatoon, SK, Canada. He is the author/co-author of over 75 papers, 3 review articles, 3 book chapters, and 1 patent, including the original research articles and presentations in various national and international conferences and symposiums. His research interest includes QSAR and molecular modeling, drug design, cancer drug discovery, synthetic organic chemistry, medicinal chemistry and radiochemistry.

V Alagarsamy MPharm, PhD, FIC, DOMH is Professor and Principal, MNR College of Pharmacy and Director, MNR Foundation for Research and Innovations, Gr. Hyderabad. He has been teaching medicinal chemistry and pharmaceutical chemistry of natural products and performing research work in synthetic medicinal chemistry on novel heterocyclic bioactive compounds for more than two decades. He is the author/co-author of over 200 papers, including the original research articles and presentations in various conferences and symposiums, having one patent for his credit on bioactive heterocyclic molecule. He is the coeditor of the international journal *Antiinfective Agents* published by Bentham Science Publishers. His books *Textbook of Medicinal Chemistry*, *Pharmaceutical Chemistry of Natural Products*, *Pharmaceutical Inorganic Chemistry*, *Organic Chemistry: A Comprehensive Approach*, *Pharmaceutical Organic Chemistry* and *Practical Pharmaceutical Inorganic Chemistry* are well appreciated in the academic community nationally and have also received international recognition. He is a member of All India Board of Pharmaceutical Education (AIBPE), AICTE, New Delhi, and a member of board of studies (pharmacy) in Osmania University, Hyderabad, and is a doctoral committee member and a recognized research guide for PhD scholars in various universities. Recently, he has been named among top 2% scientists in the world in the field of pharmacy by Stanford University, USA.



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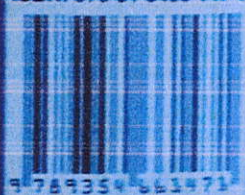
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V. Raja Solomon
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Pharmaceutical Biochemistry - A Comprehensive Approach

For 2nd Semester B. Pharm & 1st Year PharmD as per PCI Revised Syllabus
Pharmaceutical biochemistry is a branch of biochemistry in the field of pharmacy. Targeted mainly to B. Pharmacy & PharmD students, this book will also be useful for medical, dental, nursing and other paramedical students. The main objective of this book is to attract the undergraduate pharmacy students and make them to understand the basic biochemical process which can be applied in Medicinal Chemistry and Pharmacology. Thus, the book is aimed to eliminate the deficiency in teaching and learning of Pharmaceutical Biochemistry by providing detailed information about the biomolecules and its metabolic process.

Salient Features:

- As per PCI revised syllabus; the coverage is complete with the basics as well as 2nd semester B. Pharm and 1st year PharmD portion.
- The content of this book is innovative and presented in 12 chapters with simple and uniform pattern of explanation along with all biochemical reaction.
- To make the learning comfortable and maximize attention we have used well labelled diagrams, illustration, flow charts, simplified and chemical represented biomolecule classification. We have also provided metabolic pathway in a easy to understand manner highlighted with chemical structure, type of reaction, energetic and inhibitors and detailed and amplified explanation of all biochemical reactions.
- Highlighted structural changes in each and every step of biochemical reaction and metabolic pathway illustration where structural change is included for easy revision.
- Easy remembrance of enzyme name from reason behind naming.
- Student friendly schematic representation of principles for biochemical tests and flow chart representation of procedure for biochemical tests.

About the Authors

G. Saravanan, M. Pharm, Ph.D., is Professor of Department of Pharmaceutical Chemistry, MNR College of Pharmacy, Sivakasi, Tamil Nadu, India. He has been teaching Pharmaceutical Chemistry, Medicinal Chemistry, Pharmacology, Chemistry of Natural Products and Pharmaceutical Inorganic Chemistry and performing research work in synthetic medicinal chemistry on novel heterocyclic bioactive compounds for fifteen years. He was a college topper in B. Pharm, and got distinction in M. Pharm. He has received best paper award six times. In 2018, he received best teacher award & best researcher award from Prof. G. Saravanan, Hyderabad. He also secured best research award in the year 2019 from Association of Pharmacy Professors, Hyderabad. He has published over 100 papers, which includes the original research articles and presentation in various conferences and symposiums. He is a life member of Association of Pharmaceutical Professors of India (APPI), Pharmacy Graduate Association (PGA) and Association of Pharmacy Professors (APPI) and a recognized research guide for Ph.D. scholars in Osmania University.

V. Alagarsamy, M. Pharm, PhD, FIC, is Professor and Principal of MNR College of Pharmacy & Director of MNR Foundation for Research & Innovations, G. Hyderabad. For his research work, he has collaborated with various research laboratories/organizations like National Cancer Institute, USA; Rega Institute for Medical Research, Belgium; Southern Research Institute, USA; and Sudbury Regional Hospital, Ontario, Canada. He is a recipient of young scientist award from the Department of Science and Technology, New Delhi. He is the author/co-author of over 200 papers, which includes the original research articles and presentation in various conferences and symposiums. He has published over 100 papers, which includes the original research articles and presentation in various conferences and symposiums. He is a life member of Association of Pharmaceutical Professors of India (APPI), Pharmacy Graduate Association (PGA) and Association of Pharmacy Professors (APPI) and a recognized research guide for Ph.D. scholars in Osmania University.

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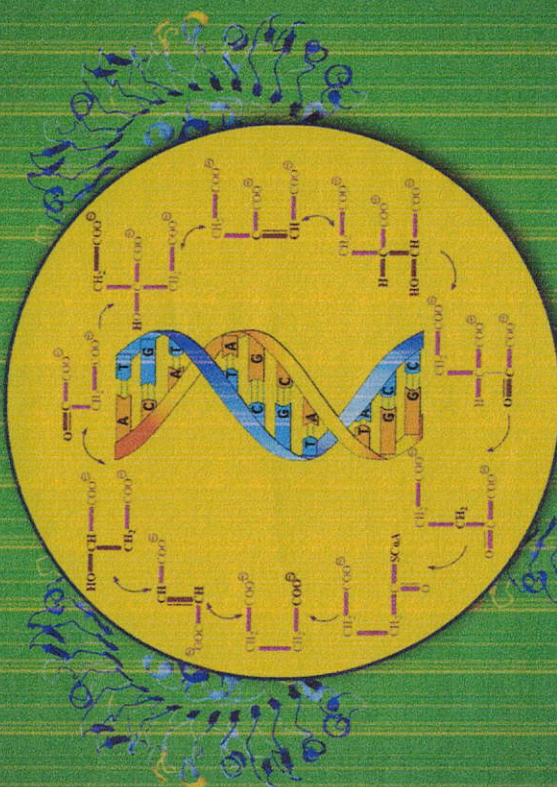
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Pharmaceutical Biochemistry

-A Comprehensive Approach



G. Saravanan | V. Alagarsamy

V. Alagarsamy
PRINCIPAL
MNR COLLEGE OF PHARMACY

Pharmaceutical Biochemistry - A Comprehensive Approach
by *G. Saravanan and V. Alagarsamy*

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Dr. G. Saravanan

M. Pharm., Ph.D.,
Professor
Department of Pharmaceutical Chemistry,
MNR College of Pharmacy,
Sangareddy, Hyderabad, TS, India.

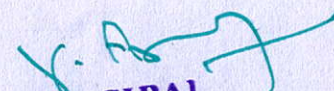
Dr. V. Alagarsamy

M. Pharm, PhD, FIC, DOMH.
Professor and Principal,
MNR College of Pharmacy,
Sangareddy - 502 294,
Hyderabad, TS, India.



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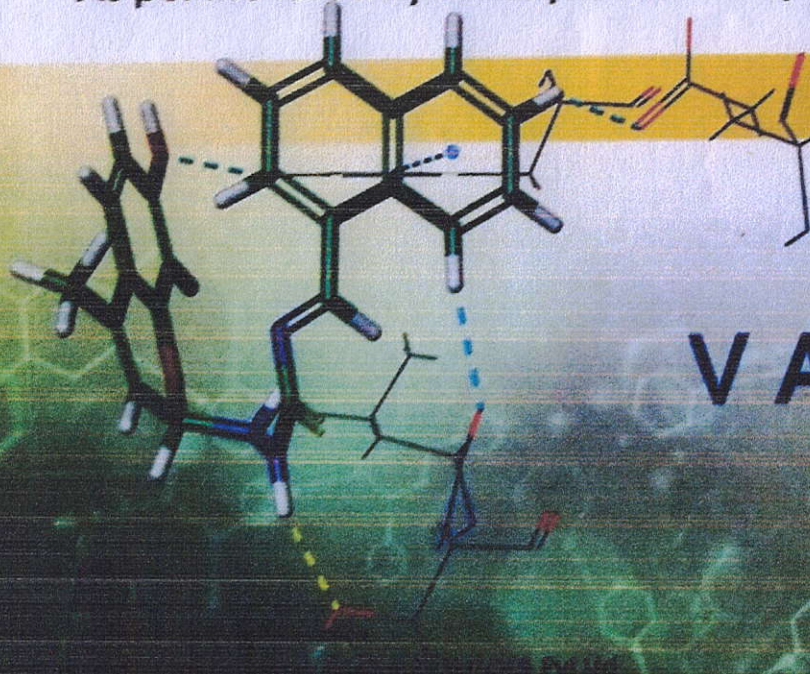
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V Alagarsamy M Pharm PhD FIC DOMH

Principal

MNR College of Pharmacy, Sangareddy
Greater Hyderabad

Director

MNR Foundation of Research and Innovations
Sangareddy, Greater Hyderabad



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Director

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Sangareddy, Greater Hyderabad



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V Alagarsamy MPharm, PhD, FIC, DOMH

is Professor and Principal, MNR College of Pharmacy, and MNR Foundation for Research and Innovation, Gr. Hyderabad, Telangana. He received his BPharm from Coimbatore Medical College, BPharm from Madurai Medical College, MPharm from LM College of Pharmacy, Ahmedabad, and PhD from The MS University, Baroda. He has been teaching medicinal chemistry and conducting research work in synthetic medicinal chemistry on novel heterocyclic bioactive compounds for more than two decades. For his research work he has been collaborated with various research laboratories/organizations like National Cancer Institute, USA; Rega Institute for Medical Research, Belgium; Southern Research Institute, USA; and Sudbury Regional Hospital, Ontario, Canada. He is a recipient of young scientist project from Department of Science and Technology, New Delhi. He is the author/co-author of over 200 papers, which include the original research articles and presentations in various conferences and symposiums, having one patent for his credit on bioactive heterocyclic molecule. He is the co-editor of the international journal *Antiinfective Agents*, published by Bentham Science Publishers. His books *Textbook of Medicinal Chemistry*, *Pharmaceutical Chemistry of Natural Products*, *Pharmaceutical Inorganic Chemistry*, *Organic Chemistry: A Comprehensive Approach*, *Pharmaceutical Organic Chemistry* and *Practical Pharmaceutical Inorganic Chemistry* are well appreciated in the academic community nationally and received international recognition too. His research activities are supported by the funding agencies like CSIR, DST and DSIR.



Prof Alagarsamy is a member of All India Board of Pharmaceutical Education (AIB-PE), AICTE, New Delhi, and a member of board of studies (pharmacy) in Osmania University, Hyderabad, and is a doctoral committee member and a recognized research guide for PhD scholars in various universities. Recently, he has been named among top 2% scientists in the world in the field of pharmacy by Stanford University, USA.



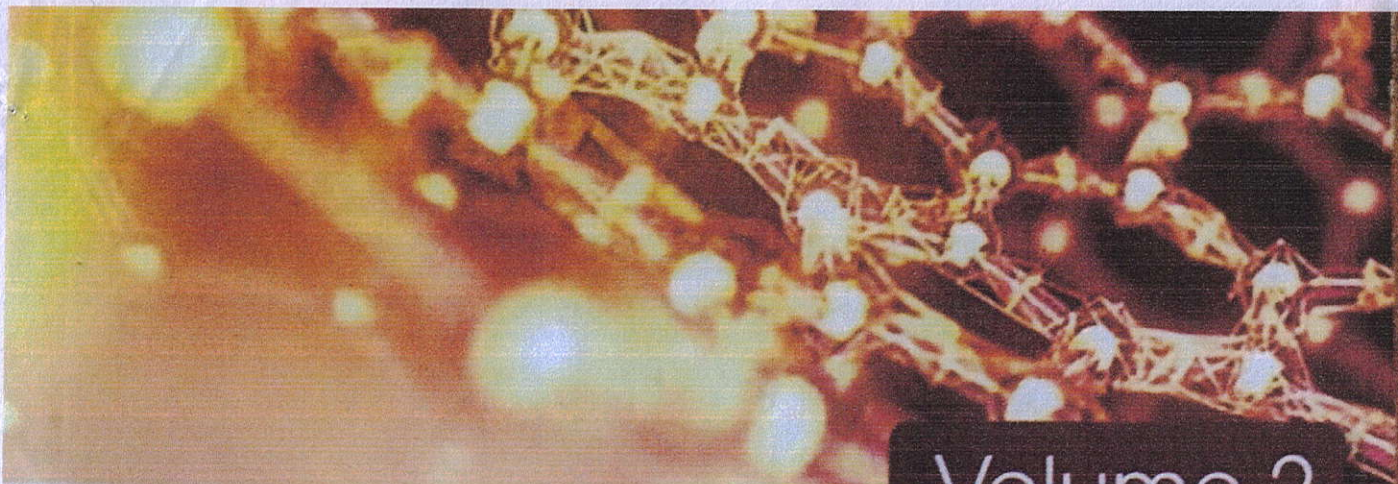
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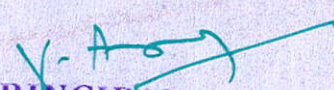
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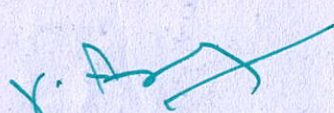
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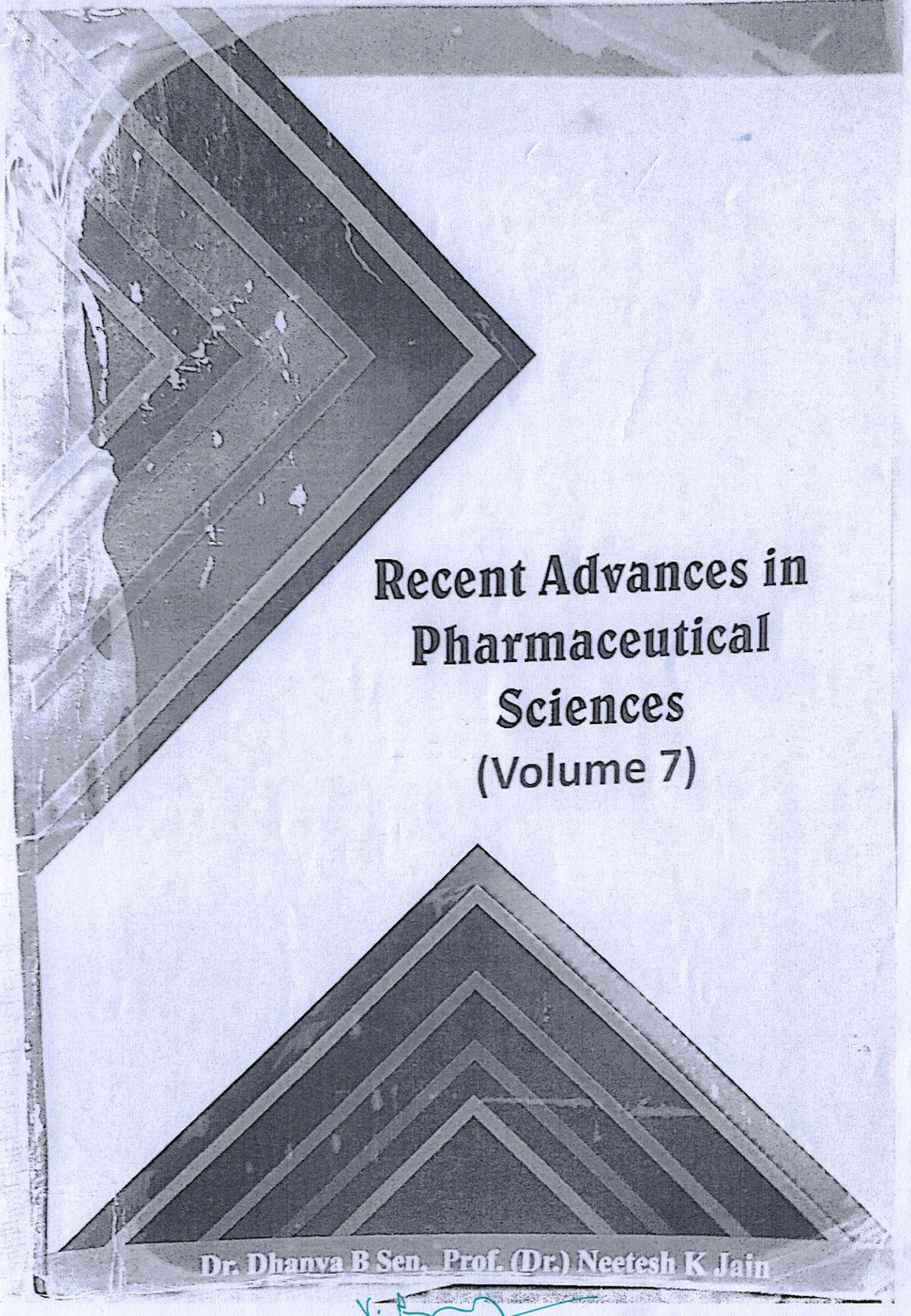


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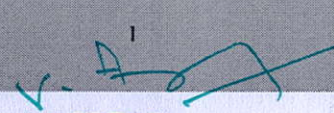
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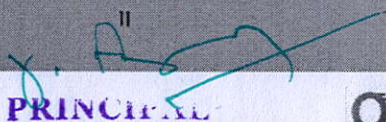

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Dr. Dhanya B Sen

Dr. Dhanya B Sen

Department of Pharmacy, Sumandeep Vidyapeeth Deemed to be University, Piparia, Vadodara-391760, Gujarat, India.

Dr. Dhanya B Sen is presently working as an Associate Professor, Department of Pharmacy, Sumandeep Vidyapeeth Deemed to be University, Piparia, Vadodara-391760, Gujarat, India. She has earned PhD degree in Pharmaceutical Sciences from Sumandeep Vidyapeeth Deemed to be University, Vadodara, Gujarat in the year 2015. She has completed her UG (2006) and PG (2008) from College of Pharmacy, SRIPMS, Coimbatore under The Tamil Nadu Dr. M.G.R. Medical University, Chennai. She has 14 years of teaching and research experience. Dr. Dhanya has published more than 40 research and review articles in various national and international journals and published 6 book chapters. She has guided/guiding more than 10 PG students and 3 students for their PhD degree. Her research interest is Analytical Method Development and Validation of Pharmaceuticals, Stability studies etc.



Prof. (Dr.) Neetesh K Jain

Prof. (Dr.) Neetesh K Jain Dean, Faculty of Pharmacy

Director, Drug & Disease Information Center (DDIC)

Oriental University, Indore

Prof. (Dr.) Neetesh Kumar Jain having total 15 years of experience in Academic and Research. Currently he is working as Professor & Dean in Faculty of Pharmacy, Oriental University, Indore and Director, Drug & Disease Information Center (DDIC), Indore.

He has strong academic and research background, as he has 09 Patents, published more than 179 Research papers in National and International journals, presented more than 201 Research papers in National and International conferences and published 08 books and 16 book chapters with reputed publishers of globe.

In addition to that, He also received many prestigious awards i.e. Eminent Professor Award, Inspirational Associate Professor Award, Visionary Principal Award, Inspirational Leadership Award, Young Scientist Award, Distinguish Professor Award, Young Talent Award, Award for Excellency in Research, Outstanding Research in Pharmacy in Central India, Academician of the Year-2018, Academic Brilliance Awards-18, Excellent Teacher Award for efforts made by him to bridging the gap between Indian & global standards and his research contribution in the field of Medical and Pharmaceutical sciences. He is approved Ph.D supervisor in Oriental University, Indore and Awarded 04-Ph.D, Submitted-03 and having 8 Ph.D research scholars under his guidance. He has guided more than 65 PG Research Scholars.



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A Practical Guide to
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Etiopathogenesis and Pharmacotherapy
of Diseases

Dr. Vinyas Mayasa
Mrs. Avusali Sai Jyothi
Mrs. Durgam Ramya sree
Mrs. Vadduri Swathi

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AUTHORS

Dr. Vinyas Mayasa M.Pharm, Ph.D

Associate Professor, MNR College of Pharmacy
Sangareddy, Telangana, India

Mrs. Sai Jyothi M.Pharm,

Assistant Professor, MNR College of Pharmacy
Sangareddy, Telangana, India

Mrs. Ramyasree Durgam, M.Pharm,

Assistant Professor, MNR College of Pharmacy
Sangareddy, Telangana, India

Mrs. Vadduri Swathi M.Pharm,

Associate Professor, MNR College of Pharmacy
Sangareddy, Telangana, India

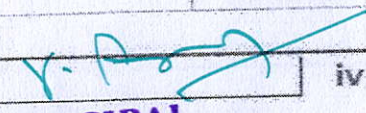
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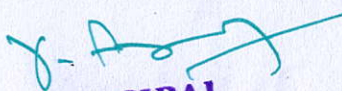
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About Authors:



Dr. Vinyas Mayasa is an Associate Professor in Department of Pharmacology, MNR College of Pharmacy, Osmania University, Hyderabad. He has specialization in Plant protease inhibitors, Diabetes Mellitus, Nanoparticles, toxicology evaluation of Herbal drugs, and more. He has completed his Ph. D from KLE University's College of Pharmacy, Belagavi, Karnataka, India. He has 8 years of experience in academic, industry and research. He has published 30 national and International papers journals and advising many M. Pharmacy students. He is the editorial and review board for many national and International Journals.

Mrs. Avusali Sai Jyothi is an Assistant Professor in Department of Pharmacology, MNR College of Pharmacy, Osmania University, Hyderabad. She has 4 years of experience in teaching in Pharmacology and Toxicology, pharmacotherapeutics, Human and Physiology.



Mrs. Durgam Ramya sree is an Assistant Professor in Department of Pharmacology, MNR College of Pharmacy, Osmania University, Hyderabad. She is GPAT and NIPER qualified. Currently pursuing PhD in Anurag Universty, Telangana. She has 9 years of experience in teaching in, Clinical Pharmacology, pharmaco-therapeutics, Human and Physiology, Pathophysiology, Social and Preventive Pharmacy. She has guided many M. Pharmacy research projects.

Mrs. Vadduri Swathi is an Associate Professor in Department of Pharmaceutics, MNR College of Pharmacy, Osmania University, Hyderabad. She has guided 12 M. Pharm students. She has one patent. She has 10 years of teaching experience in Physical Pharmaceutics, Industrial Pharmacy, Cosmetics and Pharmaceutics. She is currently pursuing Ph. D in GITAM University, Vizag. Her research is on Novel Drug Delivery Systems. Vadduri Swathi received Best Teacher Award in the 2014 from MNR Educational Trust. He has been teaching Pharmacotherapeutics, Pharmacology and Toxicology, Human Anatomy and Physiology, Advanced Pharmacology and more.



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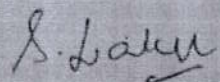
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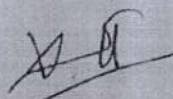
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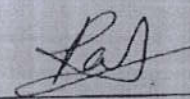
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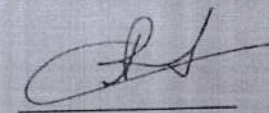
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Spzhit

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School of Pharmacy, University of Puerto Rico

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Turkayamjal, Ranga Reddy, Telangana

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CONVENER & VICE PRINCIPAL
St. Pauls College of Pharmacy
Turkayamjal, Ranga Reddy, Telangana

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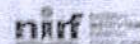
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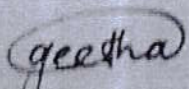
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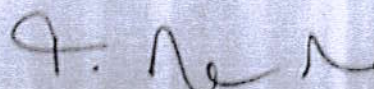
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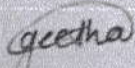
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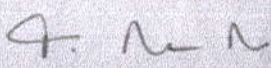


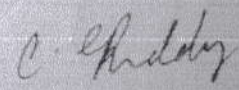
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Pharmacognosy and Phytochemistry - II

Vishakha S Kulkarni | V. Alagarsamy



V. Alagarsamy

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Pharmacognosy and Phytochemistry – II

As per PCI Revised B.Pharm Syllabus

Third Year (SEM V)

Vishakha S Kulkarni

Professor

Department of Pharmacognosy

MNR College of Pharmacy

Sangareddy, Hyderabad

V. Alagarsamy

Professor & Principal

MNR College of Pharmacy

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- The inclusion of actual images of crude drugs to identify and remember.
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- Isolation methods are explained stepwise and in a simplified manner.
- The inclusion of flow diagrams for analytical techniques for easy understanding.
- Phytochemical analysis explained with modern concepts of Pharmacognosy.
- The PCI syllabus frames the chapters and topics.

About the Authors

Vishakha S. Kulkarni M. Pharm., PhD, is working as Professor, Department of Pharmacognosy, MNR College of Pharmacy, Sangareddy, Gr. Hyderabad. She is a recipient of a Gold medal for her work at PG level. She has completed her PhD from North Maharashtra University in 2014. She has 15 years of teaching and research experience in pharmacognosy and traditional medicine. Her extended area of interest is Quality Control and standardisation of conventional medicines, ethnobotany, phytopharmacy and phytopharmacology of herbal medicines. She received grants from Mumbai University under Minor Research Project. She is a recipient of the Best Teacher Award, and she has been appointed as Medical Scientist for COVID 19 RAKSHA kit project by the Dept. of AYUSH (GOT). She has published research papers in National and International journals and presented scientific papers in several conferences.

V. Alagarsamy PhD, FIC, DOMH, is Professor and Principal of MNR College of Pharmacy Gr. Hyderabad. He has been teaching Medicinal Chemistry & Pharmaceutical Chemistry of Natural Products and performing research work in synthetic, medicinal chemistry on novel heterocyclic bio-active compounds for more than two decades. He is a recipient of a young scientist project from the Department of Science and Technology, New Delhi. He is the author/co-author of over 200 papers, including the original research articles and presentations in various conferences and symposiums. He has one patent for his credit on the bioactive heterocyclic molecule. He is the co-editor of the international journal "Anti-infective Agents", published by Bentham Science Publishers. His Books on the title of "Text Book of Medicinal Chemistry," "Pharmaceutical Chemistry of Natural Products," "Pharmaceutical Inorganic Chemistry," "Organic Chemistry - A Comprehensive Approach", "Pharmaceutical Organic Chemistry", and "Practical Pharmaceutical Inorganic Chemistry" are well appreciated in the academic community nationally and received international recognition too. His research activities are supported by the funding agencies like CSIR, DST and DSIR. Prof. Alagarsamy is a member of the All India Board of Pharmaceutical Education (AIB-PE), AICTE, New Delhi, and the board of studies (Pharmacy) in Osmania University, Hyderabad and is a doctoral committee member and a recognised research guide for PhD scholars in various universities. Recently, Dr. Alagarsamy has been named among the top 2% of scientists in the world in Pharmacy by Stanford University, USA.

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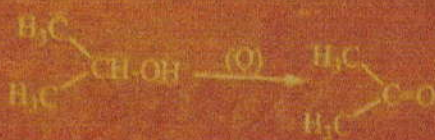
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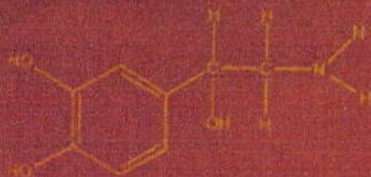
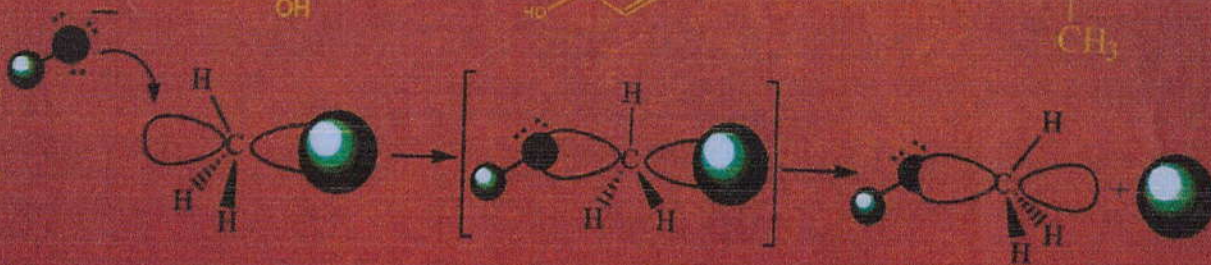
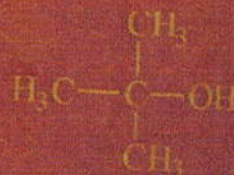
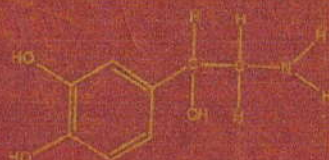
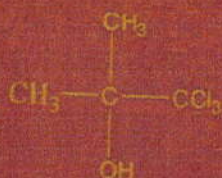
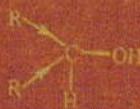
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Organic Chemistry

- A Comprehensive Approach



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Organic Chemistry

A Comprehensive Approach



Dr. V. Alagarsamy

M. Pharm, PhD, FIC, DOMH.

Professor and Principal,
MNR College of Pharmacy,
Sangareddy - 502 294,
Gr. Hyderabad, TS, India.



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Organic Chemistry - A Comprehensive Approach

Organic Chemistry - A Comprehensive Approach is a much awaited great work in the Chemistry and Pharmacy. Targeted mainly to Pharm-D & M. Pharmacy and B. Pharmacy students, this book will also be useful for B.Sc., as well as M.Sc., chemistry and pharmaceutical chemistry students. The main objective of this book is to attract the undergraduate and post graduate students, so that they understand the basic principles of Organic Chemistry. Thus the book is aimed to eliminate the inadequacy in teaching and learning of Organic Chemistry by providing enormous information about the Organic compounds.

Salient Features

- The content of the book is innovative and presented in 53 chapters, in a detailed form as per the needs of the students.
- The book has covered the entire organic chemistry, starts from origin of organic chemistry to recent developments in organic chemistry like nano chemistry, green chemistry.
- Describing all the aspects of Organic compounds of all type in easy to understand manner is the first of its kind.
- For each chapter, a brief introduction of the individual chapter, Importance, Detailed discussion of the Basic Theory, Preparations, Reactions, Test for identification and Uses and Applications in pharmacy are discussed which reflects the title of the book, "Organic Chemistry - A Comprehensive Approach".
- The principles of Organic Chemistry, which is difficult to remember by the students is described in a student friendly manner which is easy to understand and able to reproduce well in examinations.
- Presentation with simple and similar pattern of explanation along with chemical reactions of all compounds helps to reproduce well in examinations.
- To help the students to learn and magnetize the attention we have used color in equations and diagrams.
- Interesting facts about great scientists and organic compounds and their discovery are given under each chapter to inspire the readers.
- The coverage is complete when compared to the all University syllabus in India, AICTE and the PCI syllabi.

About the Author

Dr. V. Alagarsamy, M. Pharm., PhD, FIC, DOMH, is Professor and Principal of MNR College of Pharmacy, Sangareddy, Gr. Hyderabad. He received his D.Pharm from Coimbatore Medical College, B.Pharm degree from Madurai Medical College, M.Pharm from LM College of Pharmacy, Ahmedabad, PhD from The MS University of Baroda. He has been teaching Pharmaceutical Organic Chemistry, Pharmaceutical Inorganic Chemistry, Chemistry of Natural Products & Medicinal Chemistry and performing research work in synthetic medicinal chemistry on novel heterocyclic bio-active compounds for two decades. For his research work, he has collaborated with various research laboratories/organizations like National Cancer Institute, USA; Rega Institute for Medical Research, Belgium; Southern Research Institute, USA; and Sudbury Regional Hospital, Ontario, Canada. He is a recipient of young scientist award from the Department of Science and Technology, New Delhi. He is the author/coauthor of over 150 papers, which includes the original research articles and presentations in various conferences and symposium. He became the co-editor of the International journal "Antimicrobial Agents", published by Bentham Science Publishers. His Books on the title of "Text Book of Medicinal Chemistry," "Pharmaceutical Chemistry of Natural Products," "Pharmaceutical Inorganic Chemistry" and "Practical Pharmaceutical Inorganic Chemistry" are well appreciated in the academic community. His research activities are supported by the funding agencies like CSIR, DST and DSIR. Dr. V. Alagarsamy is a member of All India Board of Pharmaceutical Education (AIB-PE), AICTE, New Delhi and he was a member of board of studies (Pharmacy) in Osmania University, Hyderabad and is a doctoral committee member and a recognized research guide for PhD scholars in various universities.



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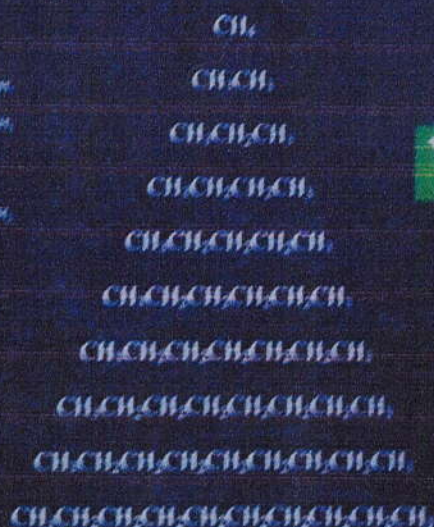
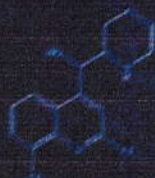
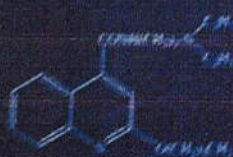
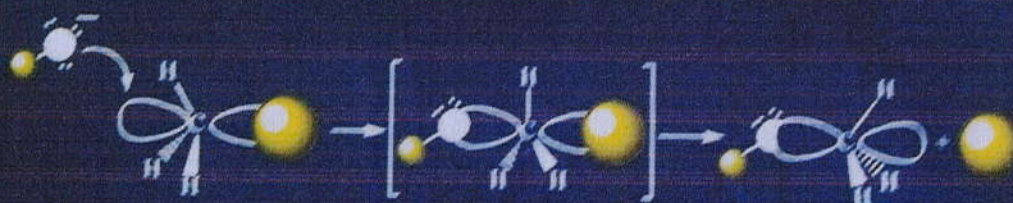


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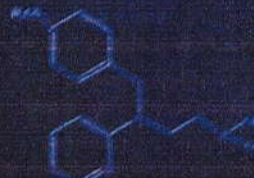


Pharmaceutical Organic Chemistry

For B.Pharm. 2nd, 3rd and 4th Semesters as per PCI Revised Syllabus



V. Alagarsamy



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Pharmaceutical Organic Chemistry

Dr. V. Alagarsamy

M. Pharm, PhD, FIC, DOMH.

Professor and Principal,
MNR College of Pharmacy,
Sangareddy - 502 294,
Gr. Hyderabad, TS, India.



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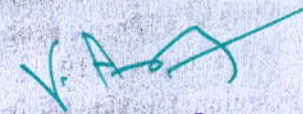
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Pharmaceutical Organic Chemistry

For B.Pharm. 2nd, 3rd and 4th Semesters as per PCI Revised Syllabus

Pharmaceutical Organic Chemistry is a much awaited great work in the field of Chemistry and Pharmacy. Targeted mainly to B. Pharmacy students, this book will also be useful for Pharm-D, M. Pharmacy, B.Sc. as well as M.Sc. chemistry and pharmaceutical chemistry students. The main objective of this book is to attract the undergraduate Pharmacy students and make them to understand the basic principles of Organic Chemistry which can be applied in Pharmaceutical Chemistry and Medicinal Chemistry. Thus the book is aimed to eliminate the inadequacy in teaching and learning of Organic Chemistry by providing detailed information about the Organic compounds.

Salient Features:

- As per PCI Revised syllabus the coverage is complete with the basics as well as B. Pharm. 2nd, 3rd and 4th Semesters portion.
- The content of this book is innovative and presented in 31 chapters with simple and uniform pattern of explanation along with all chemical reactions.
- The book has covered the entire Pharmaceutical organic chemistry, starts from origin of organic chemistry to Heterocyclic chemistry and Stereochemistry.
- In each chapter, a brief introduction of the individual chapter, Importance, Detailed discussion of the Basic Theory, Preparations, Reactions, Test for identification and Applications of each class of compounds in Pharmacy are described which reflects the title of the book "Pharmaceutical Organic Chemistry".
- The principles of Organic Chemistry, which is difficult to remember by the students is described in a student friendly manner and shall be reproduced well in examinations.
- To make the learning comfortable and magnetize the attention we have used color in equations and diagrams.
- To inspire the readers, Interesting facts about great scientists and organic compounds and their discovery are given under each chapter.

About the Author



Dr. V. Alagarsamy, M. Pharm., PhD, FIC, DOMH, is Professor and Principal of MNR College of Pharmacy, Sangareddy, Gr. Hyderabad. He received his D.Pharm. from Coimbatore Medical College, B.Pharm., degree from Madurai Medical College, M.Pharm., from LM College of Pharmacy, Ahmedabad, PhD from The MS University of Baroda. He has been teaching Pharmaceutical Organic Chemistry, Pharmaceutical Inorganic Chemistry, Chemistry of Natural Products and Medicinal Chemistry and performing research work in synthetic medicinal chemistry on novel heterocyclic bio-active compounds for two decades. For his research work, he has collaborated with various research laboratories/organizations like National Cancer Institute, USA,

Rega Institute for Medical Research, Belgium; Southern Research Institute, USA; and Sudbury Regional Hospital, Ontario, Canada. He is a recipient of young scientist award from the Department of Science and Technology, New Delhi. He is the author/coauthor of over 160 papers, which includes the original research articles and presentations in various conferences and symposiums. He has also patented his Research findings. He became the co-editor of the International journal "Antimicrobial Agents", published by Bentham Science Publishers. His Books on the title of "Text Book of Medicinal Chemistry," "Pharmaceutical Chemistry of Natural Products," "Pharmaceutical Inorganic Chemistry," "Organic Chemistry - A Comprehensive Approach" and "Practical Pharmaceutical Inorganic Chemistry" are well appreciated in the academic community. His research activities are supported by the funding agencies like CSIR, DST and DSIR. Dr. V. Alagarsamy is a member of All India Board of Pharmaceutical Education (AIB-PE), AICTE, New Delhi and a member of board of studies (Pharmacy) in Osmania University, Hyderabad and is a doctoral committee member and a recognized research guide for PhD scholars in various universities.



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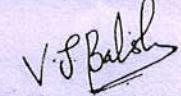
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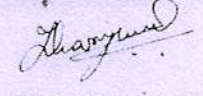
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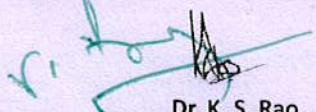
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Paper code: PP-036 Title of the paper: Preparation and Evaluation of
Fluvastatin Sodium Microspheres


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a 10th National Level Conference held at Geethanjali College of Pharmacy on 13th & 14th November, 2019
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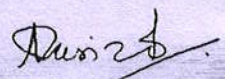
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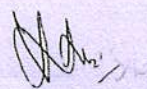
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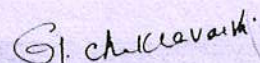
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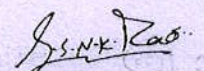
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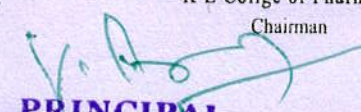
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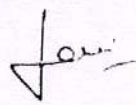


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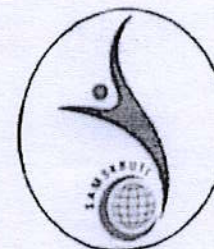
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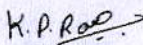
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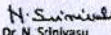
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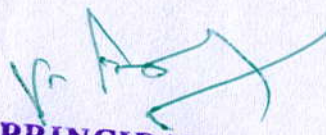
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Science, Technology and Research (VFSTR), Guntur, Andhra Pradesh, India.

Title of the paper : Synthesis, Characterization and Antimicrobial Activities of Novel Isoxazole
Substituted Schiff and Mannich Bases of 5-Nitroisatin Analogs


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Convener, RAMSSD-2019


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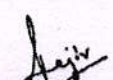
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71st Indian Pharmaceutical Congress

Theme: Healthcare System - Role of Regulators

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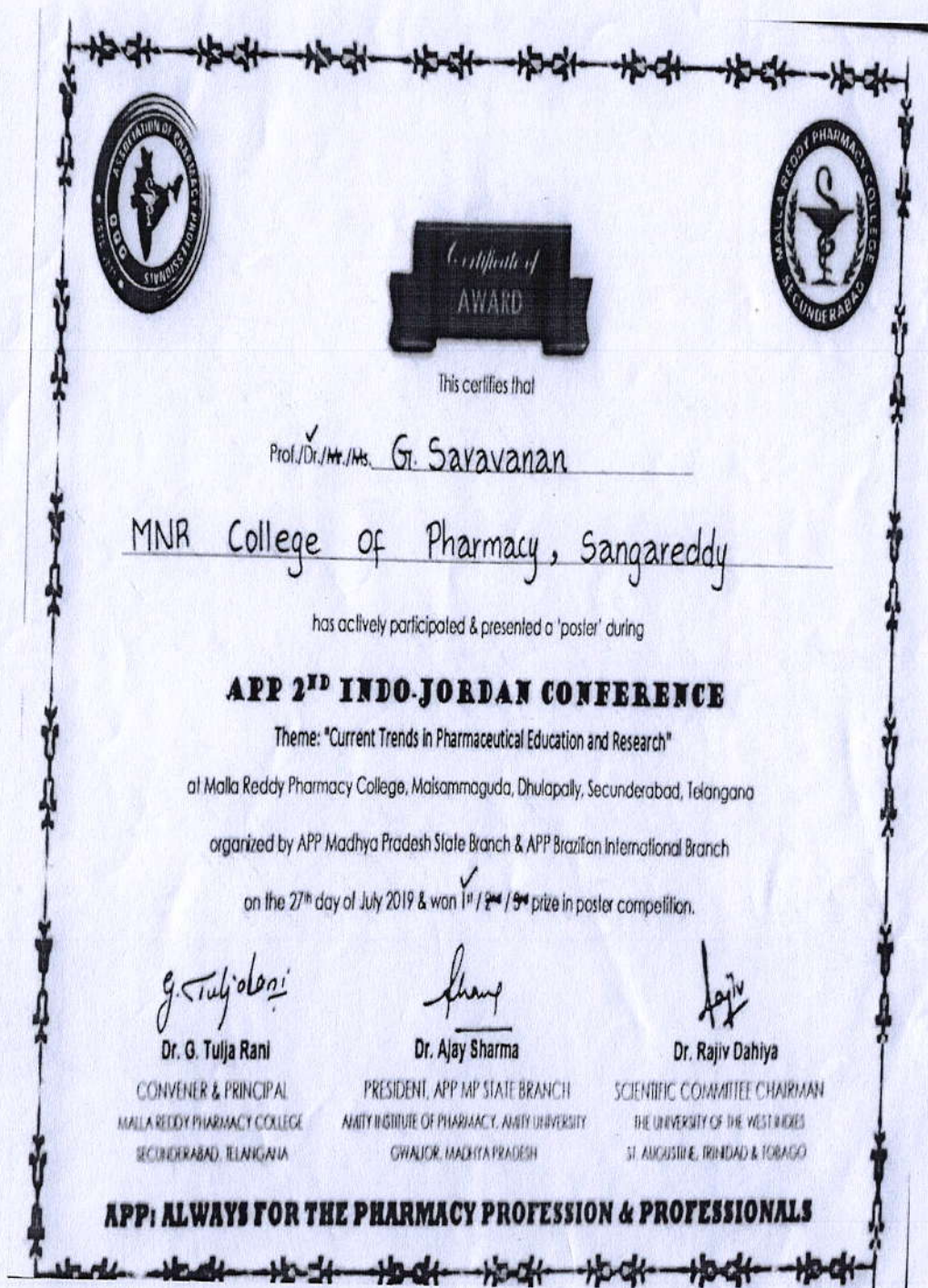
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Best Poster Award (First Prize) during 2nd Indo-Jordan International Conference on
"Current Trends in Pharmaceutical Education & Research", 27th July, 2019, Malla
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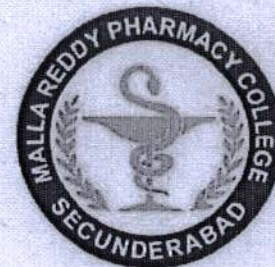
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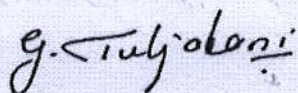
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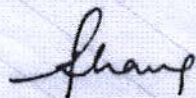
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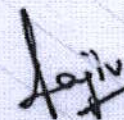
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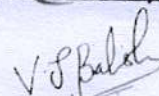
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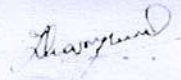
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Anurag Group of Institutions, Hyderabad, Telangana, India.

Paper code: PP-374 Title of the paper: Synthesis, Characterization &
Pharmacological Evaluation of Novel Substituted Thiazoloquinazoline.

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Dr. Vasudha Bakshi
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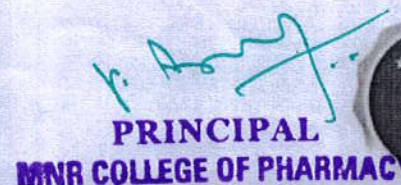
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dihydro benzopyrimidine-2yl amino) Isothioureas in the
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MNR College Of Pharmacy, Sangareddy - 502294, Gtr. Hyderabad

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on the 27th day of July 2019 & won 1st / 2nd / 3rd prize in poster competition.

G. Tulja Rani

Dr. G. Tulja Rani

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(9th and 10th August, 2019)
(Theme: INNOVATIVE EXERTIONS IN PHARMACY)

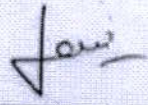
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CERTIFICATE OF PRESENTATION

This is to certify that, Dr./Prof./Mr./Mrs./Miss M.T. Sulthana of
MNR College of Pharmacy has presented a paper titled, Synthesis of novel 4-oxo-N
(4-oxo-3-substituted-3,4-dihydroquinazolin-2-yl)amino)-2-Phenylquinazoline-3 ^(4H)
-carboxamides as ANTIHIV, antitubercular and antibacterial agents in the
Oral / Poster Scientific Session of 4th International Conference on Innovations in Pharmaceutical Sciences (ICIPS - 2019) held on
9th and 10th August at GNITC - School of Pharmacy, Hyderabad, India.

 Dr. T. Rama Rao Organizing Secretary	 Dr. T. Lakshmi Convener	 Dr. M. Ramalinga Reddy Director, GNITC
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has participated and presented a Poster/Oral/Scientific model on METHOD DEVELOPMENT & VALIDATION FOR THE SIMULTANEOUS ESTIMATION OF VELPATASVIR & SOFOSBUVIR IN BULK DOSAGE FORM for AICTE Sponsored International Conference Organized by Bhaskar Pharmacy College, Hyderabad, Telangana, India on 3rd & 4th January, 2020.

A V Kishore Babu

Dr. A.V. Kishore Babu
Scientific Committee
ICCTPR-PT

A. Srinivasa Rao

Dr. A. Srinivasa Rao
Coordinator
ICCTPR-PT

V.S. Venkatesh Rao

Dr. Rao V. S. V. Vadlamudi
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Commonwealth Pharmacists Association

T.V. Narayana

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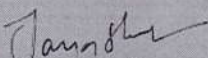
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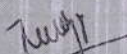
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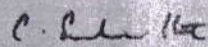
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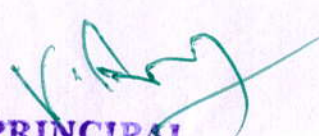
This is to certify that ✓ Dr/Mr/Ms/ P. V. MURAU KRISHNA
has participated/ Presented ✓ Oral/ Poster Analytical Method Development & Validation for the
Simultaneous Estimation of Budesonide & Formoterol in bulk and its dosage form by RP-HPLC.

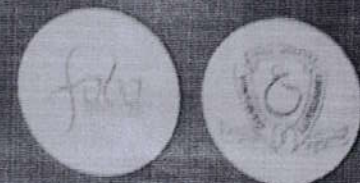
● An Event Organized by Krishna Teja Pharmacy College, Tirupathi.


Dr. V. Jayasankar Reddy
Convener


Dr. P. Jayachandra Reddy
Organizing Secretary


Dr. C. Sucharitha
Chairman


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**Two-Day National Conference
on
Current Status and Future Prospects of Biotechnology**

Organized by
DEPARTMENT OF BIOTECHNOLOGY
Nizam College (Autonomous), Hyderabad, Telangana

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This is to certify that Dr./ Mr./ Ms.

Phani Deepika

of

presented (Oral / Poster) Entitled

Bioremediation for plastic degradation by different Microorganisms

at Two-Day National Conference on "Current Status and Future Prospects of Biotechnology" held during
15-16th November 2019 at Nizam College, Osmania University, Hyderabad.

[Signature]
Convener & Organizing Secretary

[Signature]
PRINCIPAL
MNR COLLEGE OF PHARMACY

[Signature]
Vice - Principal

[Signature]
Principal

2019/11/17 21:54



**National Seminar on
'Pharmaceutical Education & Research Challenges for Emerging Prospects & Trends'
'PERCEPT - 2020'**

13th - 14th March, 2020

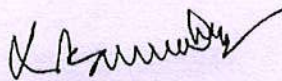
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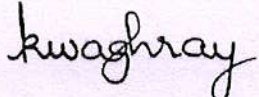
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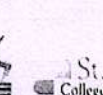
of MNR COLLEGE OF PHARMACY, SANGAREDDY.

has participated as Coordinator/Chairman/Resource Person/Evaluator for Plenary Lecture / Oral/Poster presentation
in a two-day National Seminar on "PERCEPT - 2020" organized by Department of Pharmacy, University College of
Technology, Osmania University, Hyderabad, Telangana State on 13th & 14th March, 2020.

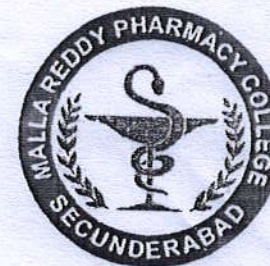

Prof. R. Shyam Sunder
Principal


Prof. A. Ravinder Nath
Organizing Secretary


Prof. Kavita Waghray
Convenor



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This certifies that

Prof./Dr./Mr./Ms. P. SRIKANTH REDDY

FORMULATION AND EVALUATION OF CELECOXIB TABLETS

has actively participated & presented a 'poster' during

APP 2ND INDO-JORDAN CONFERENCE

Theme: "Current Trends in Pharmaceutical Education and Research"

at Malla Reddy Pharmacy College, Maisammaguda, Dhulapally, Secunderabad, Telangana

organized by APP Madhya Pradesh State Branch & APP Brazilian International Branch

in collaboration with APP Drug Design MedChem Division on the 27th day of July 2019.

g. Tulja Rani

Dr. G. Tulja Rani

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MALLA REDDY PHARMACY COLLEGE
SECUNDERABAD, TELANGANA

Sharma

Dr. Ajay Sharma

PRESIDENT, APP MP STATE BRANCH
AMITY INSTITUTE OF PHARMACY, AMITY UNIVERSITY
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Rajiv

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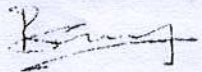
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Warangal City Branch

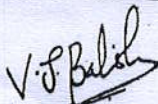
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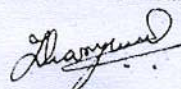
4th International Conference on
"Innovations in Pharma Industry, Education and Research (IPIER 2020)"
27th - 28th February, 2020

This is to certify that Dr./Mr./Mrs./Ms. P. Srikanth Reddy has
presented a Paper Oral/Poster session at 4th International Conference on "Innovations in Pharma
Industry, Education and Research" (IPIER 2020) held on 27th & 28th Feb 2020, at School of Pharmacy,
Anurag Group of Institutions, Hyderabad, Telangana, India.

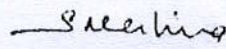
Paper code: _____ Title of the paper: Design and Evaluation of Sumo
triptan Succinate nanospheres.


Dr. G. Baba Shankar Rao
Convener-IPIER 2020


Dr. Vasudha Bakshi
Organizing Secretary, IPIER 2020


Dr. T. V. Narayana
President

Dr. K. S. Rao
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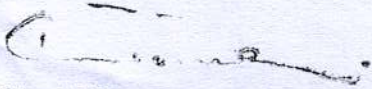

Mrs. S. Neelima

PHARMA VRIDDHI

• • • • 2020 • • • •

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This is to certify that Dr./Mr./Ms. P. SRIKANTH REDDY of
MNR COLLEGE OF PHARMACY has participated/presented a ~~poster~~[✓]/oral presentation
entitled FORMULATION AND EVALUATION OF TELMISARTAN MICROSPHERES
BY SOLVENT EVAPORATION in the two day National Level Conference on **Pharmacy**
TECHNIQUE
and Health Care: A Paradigm Shift from Traditional Knowledge to Modern Techniques
organized by St. Pauls College of Pharmacy, Hyderabad on 19th & 20th February 2020


(Dr. M. Kiranmai)
Co-Convenor


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MNR COLLEGE OF PHARMACY


(Dr. B. Chandra Shekar)
Convenor



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This certifies that

Prof./Dr./Mr./Ms. **P. SRIKANTH REDDY**

**FORMULATION AND EVALUATION OF CEFTRIAXONE
INJECTIONS**

has actively participated & presented a 'poster' during

12TH INDO-MALAYSIAN CONFERENCE

Theme: "Innovations and Updates in Pharmaceutical Sciences"

at Samskruti College of Pharmacy, Ghatkesar, Medchal, Hyderabad, Telangana

organized by APP Telangana State Branch in collaboration with APP Malaysian International Branch

on the 8th day of November 2019.

Dr. D. Venkata Ramana

Dr. Rajiv Dahiya

CONVENER & PRINCIPAL
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GHATKESAR, MEDCHAL, HYDERABAD, TELANGANA

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**DESIGN AND EVALUATION OF MATRIX TYPE OF TRANSDERMAL
PATCH OF METHOTREXATE** has

participated in the 4th International Conference on Innovations in Pharmaceutical Sciences (ICIPS - 2019) held on 9th and 10th

August at GNITC – School of Pharmacy, Hyderabad, India.

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Organizing Secretary

Dr. T. Lakshmi
Convener

Dr. M. Ramalinga Reddy
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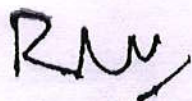


Science and Engineering
Research Board, India

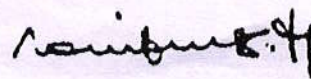
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a 10th National Level Conference held at Geethanjali College of Pharmacy on 13th & 14th November, 2019
Jointly organized by Scientific & Applied Research Center, Hyderabad (SARC) & Teja Educational Society.

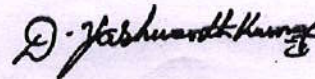

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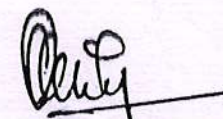
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Secretary
Geethanjali College of Pharmacy



Prof. Dr. M. RAVI KUMAR
Principal - Convener
Geethanjali College of Pharmacy



Dr. D. Yashwanth Kumar
Director
Scientific & Applied Research



Prof. Dr. T. MANGILAL
Chairman - Scientific Services
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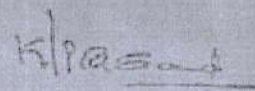
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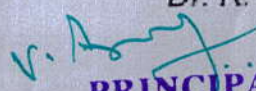
Presentation in **PrANaTi 2k20**, a National Conference

organized by Department of Pharmaceutical Engineering of B V Raju

Institute of Technology, Narsapur held on 25th January 2020.


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Dr. P. Vishnu
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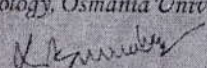
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G. Ravi

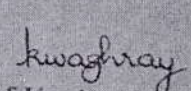
of MNR College of Pharmacy, Sangareddy

has presented Oral/Poster titled Formulation and Evaluation of Vericamazole loaded Nanosponges for topical delivery.

in a two-day National Seminar on "PERCEPT - 2020" organized by Department of Pharmacy, University College of Technology, Osmania University, Hyderabad, Telangana State on 13th & 14th March, 2020.


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Prof. A. Ravinder Nath
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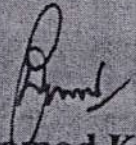
Presented a Scientific Paper Titled

ROLE OF NANOPARTICLES IN DRUG DELIVERY ENCOMPASSING
CANCER THERAPEUTICS

in the AICTE Sponsored

"National Conference on Pharmacoepidemiology & Pharmacoeconomics"

held on 26 - 28 September 2019 at JSS College of Pharmacy, Mysuru


Dr. T. M. Pramod Kumar

Chairperson

Principal, JSS College of Pharmacy, Mysuru


Dr. M. Ramesh

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Professor & Head, Dept. Pharmacy Practice


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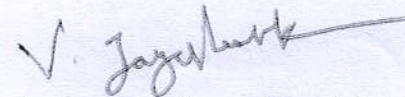
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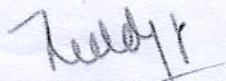
07th & 08th February 2020

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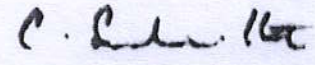
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has participated/ Presented Oral/ Poster ✓ "Concomitant cardiac disease and their
..... Treatment options in India"

An Event Organized by Krishna Teja Pharmacy College, Tirupathi.


Dr. V. Jayasankar Reddy
Convener

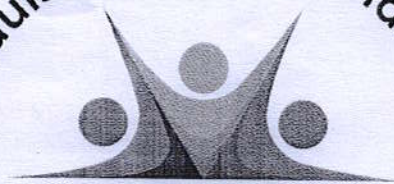

Dr. P. Jayachandra Reddy
Organizing Secretary


PRINCIPAL
MNR COLLEGE OF PHARMACY


Dr. C. Sucharitha
Chairman



St. Pauls College of Pharmacy



PHARMA VRIDDHI

2020

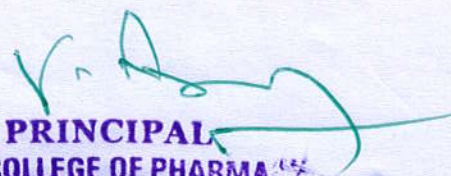
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IN ASSOCIATION WITH

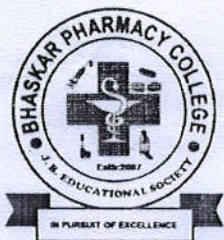


This is to certify that [✓]Dr./Mr./Ms. S. Siva prasad of MNR college of pharmacy has participated/presented a poster/oral presentation entitled Amphenavir nanoparticles by nano precipitation method in the two day National Level Conference on **Pharmacy and Health Care: A Paradigm Shift from Traditional Knowledge to Modern Techniques** organized by St.Pauls College of Pharmacy, Hyderabad on 19th & 20th February 2020


(Dr.M.Kiranmai)
Co-Convenor


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(Dr.B.Chandra Shekar)
Convenor



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Theme: "Current Trends in Pharmacology Research – Preclinical Trails ICCTPR-PT"



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has participated and presented a Poster/Oral/Scientific model on Formulation and in-vitro evaluation of Siquinavir nanoparticles prepared by nano precipitation method.

for AICTE Sponsored International Conference Organized by Bhaskar Pharmacy College, Hyderabad, Telangana, India on 3rd & 4th January, 2020.

A V Kishore Babu

Dr. A.V. Kishore Babu
Scientific Committee
ICCTPR-PT

A. Srinivasa Rao

Dr. A. Srinivasa Rao
Coordinator
ICCTPR-PT

V.V. Venkatesh Rao

Dr. Rao V. S. V. Vadlamudi
President
Commonwealth Pharmacists Association

T.V. Narayana

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Dr. T.V. Narayana
President
Indian Pharmaceutical Association



Certificate

This certifies that

Prof./Dr./Mr./Ms. A. SAI JYOTHI



has actively participated in poster/~~oral presentation~~ or ~~clinical Pharmacy~~ activities at

APP 5TH INDO-US CONFERENCE

Theme: "Modern Trends and Challenges in Pharmaceutical Technology and Sciences"

organized by APP Karnataka State Branch and APP American International Branch

at Pathfinder Institute of Pharmacy Education & Research, Warangal, Telangana

on 3rd & 4th December 2019

Dr. Mohd. Asif Hussain

ORGANIZING SECRETARY & PRINCIPAL
Pathfinder Institute of Pharmacy Education and Research
Warangal, Telangana

Dr. G. Sandeep

CONVENER & VICE-PRINCIPAL
Pathfinder Institute of Pharmacy Education and Research
Warangal, Telangana

Dr. Rajiv Dahiya

FOUNDER PRESIDENT APP
School of Pharmacy, The University of the West Indies
Trinidad & Tobago, West Indies

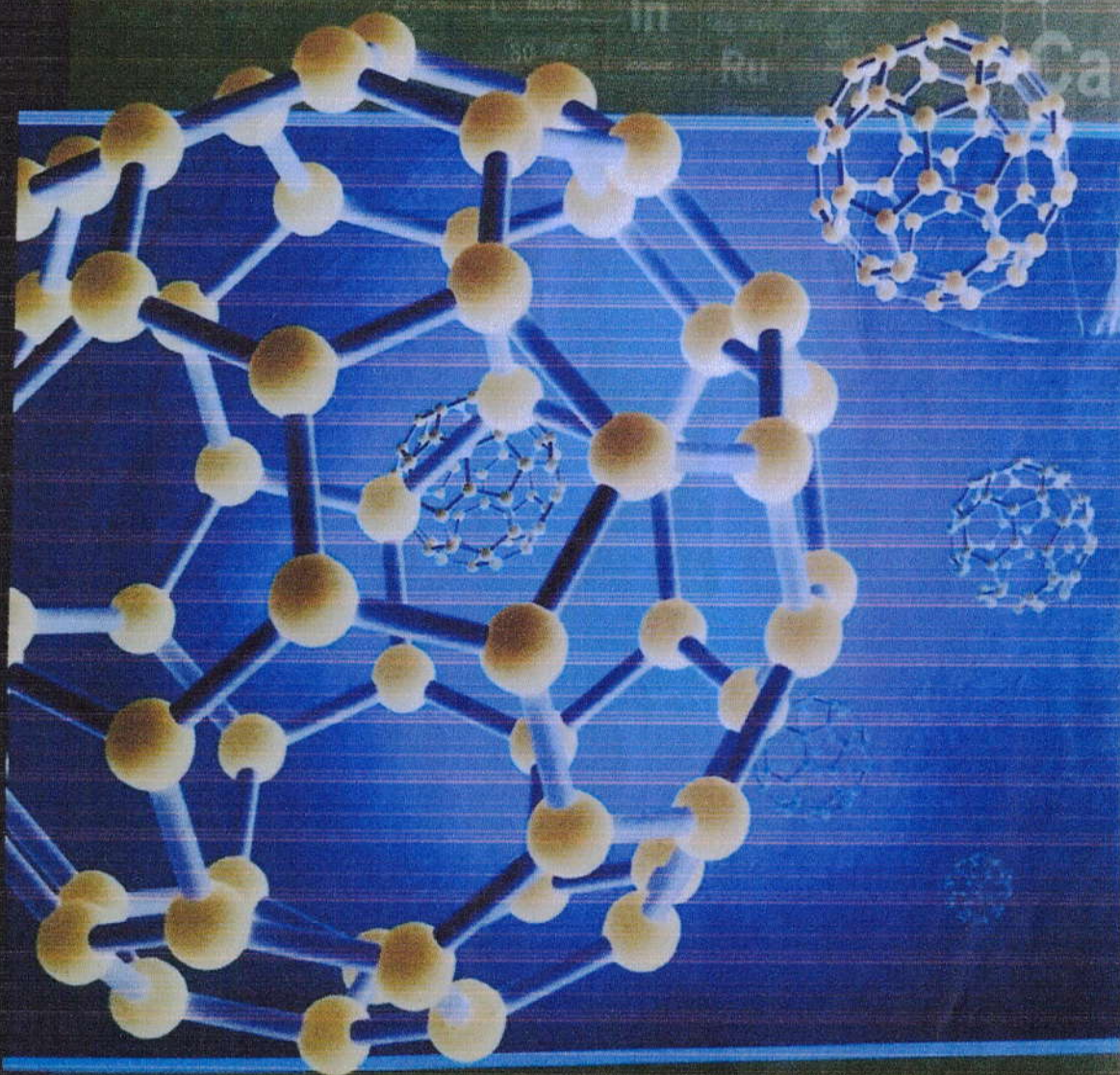
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Second Edition

Practical Pharmaceutical In-organic Chemistry

Bayya Subba Rao
V. Alagarsamy



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*Appended with Additional Experiments, Test for Purity and Assay
Methods of Indian Pharmacopoeia-2014 for Small Molecule Drugs*

Bayya Subba Rao

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Professor

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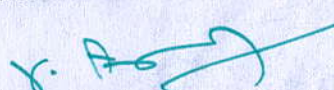
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CHAPTER 1

INTRODUCTION TO PHARMACEUTICAL INORGANIC CHEMISTRY

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Pharmaceutical Inorganic Chemistry

SECOND
EDITION

Pharmaceutical Inorganic Chemistry is a much awaited great work in the Pharmacy. Targeted mainly to B. Pharmacy & Pharm-D students, this book will also be useful for B.Sc. as well as M.Sc. chemistry and pharmaceutical chemistry students. The main object of this book is to attract the under graduate and post graduate students, to learn the basic theories of Pharmaceutical Inorganic Chemistry. Thus the book is aimed to eliminate the inadequacy in teaching and learning of Pharmaceutical Inorganic Chemistry by providing enormous information about the inorganic compounds used in Pharmacy.

- The content of the book is innovative and presented in eight chapters, in a concise form as per the needs of the students.
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About the Author

V. Alagarsamy, M. Pharm., Ph.D. FIC, DOMH, is Professor and Principal of MNR College of Pharmacy, Sangareddy, Gr. Hyderabad. He received his D. Pharm from Coimbatore Medical College, B. Pharm degree from Madurai Medical College, M. Pharm from LM College of Pharmacy, Ahmedabad, Ph.D., from The MS University of Baroda. He has been teaching Pharmaceutical Inorganic Chemistry, Chemistry of Natural Products & Medicinal Chemistry and performing research work in synthetic medicinal chemistry on novel heterocyclic bio-active compounds for two decades. For his research work, he has collaborated with various research laboratories/organizations like National Cancer Institute, USA; Rega Institute for Medical Research, Belgium; Southern Research Institute, USA; and Sudbury Regional Hospital, Ontario, Canada. He is a recipient of Young Scientist award from the Department of Science and Technology, New Delhi. He is the author/co-author of over 150 papers, which includes the original research articles and presentations in various conferences and symposium. His Books on the title of "Text Book of Medicinal Chemistry", and "Pharmaceutical Chemistry of Natural Products" and "Practical Pharmaceutical Inorganic Chemistry, Second Edition" are well appreciated in the academic community. His research activities are supported by the funding agencies like CSIR, DST and DSIR. He is a doctoral committee member and a recognized research guide for Ph.D. scholars in various universities.



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Practical Pharmaceutical In-organic Chemistry

Second Edition

The book is unique of its kind in giving clear understanding of the various experiments of pharmaceutical in-organic chemistry for undergraduate students. The experiments in the book are planned to suit all Indian Universities syllabi at the level of D. Pharm., B. Pharm., Pharm D. (Post-Baccalaureate of Pharmacy) and Pharm. D. The book is written considering all latest official standard procedures.

Features

- Most important feature of the book is its self-explanatory presentation.
- Special concentration is made on giving clear details of limit test for lead for easy understanding.
- Every chemical reagent used in the experiment is explained for its purpose, a highlight in the book.
- Experiments relating to assays were designed taking into consideration of all types of assays.
- Identification tests of anions and cations were presented lucidly for easy memory by the students.
- Semi-micro analysis is new for even teachers in some of the universities. A detailed layout and necessary information is included.
- A proper exposure of the student in handling viva-voce is necessary and all the possible questions are included.

Appended Features

- Additional Experiments under every Category.
- Emphasized on specific test for purity of certain in-organic drugs.
- Compiled list of Assay methods of Small Molecule Drugs as per Indian Pharmacopoeia-2014 and Addendum-2015.

About the Authors

Bayya Subba Rao completed both B. Pharm and M. Pharm from College of Pharmaceutical Sciences, Manipal. He completed P. G. Diploma in Patent Laws from NALSAR University of Law, Hyderabad. He was awarded with Doctorate in Pharmaceutical Sciences degree from Andhra University, Visakhapatnam.

During his 19 years of career he was involved in basic research, process research, teaching, government service at various levels as scientist-II, research chemist, lecturer, associate professor, I/C Principal, patent analyst. He has to his credit over 30 research, review articles published in national journals and has five copyrights.

During his career he was involved in synthesis of new chemical entities, synthesis of drug metabolites and chemical process developments. He developed a process that was later patented.

He was involved in teaching intellectual property rights relating to pharmaceuticals to students at the B.Pharm and M.Pharm levels. Currently he is working as Professor in a Pharmacy College located in Hyderabad.

V. Alagarsamy, M.Pharm., Ph.D., is presently Professor and Principal of MNR College of Pharmacy, Sangareddy, near Hyderabad. He has more than 20 years of experience in teaching/research. His publications in journals and presentations in conferences put together exceeds hundred. His research activities are supported by the funding agencies like CSIR, DST and DSIR. He is a doctoral committee member and recognized guide for Ph.D., in different universities.



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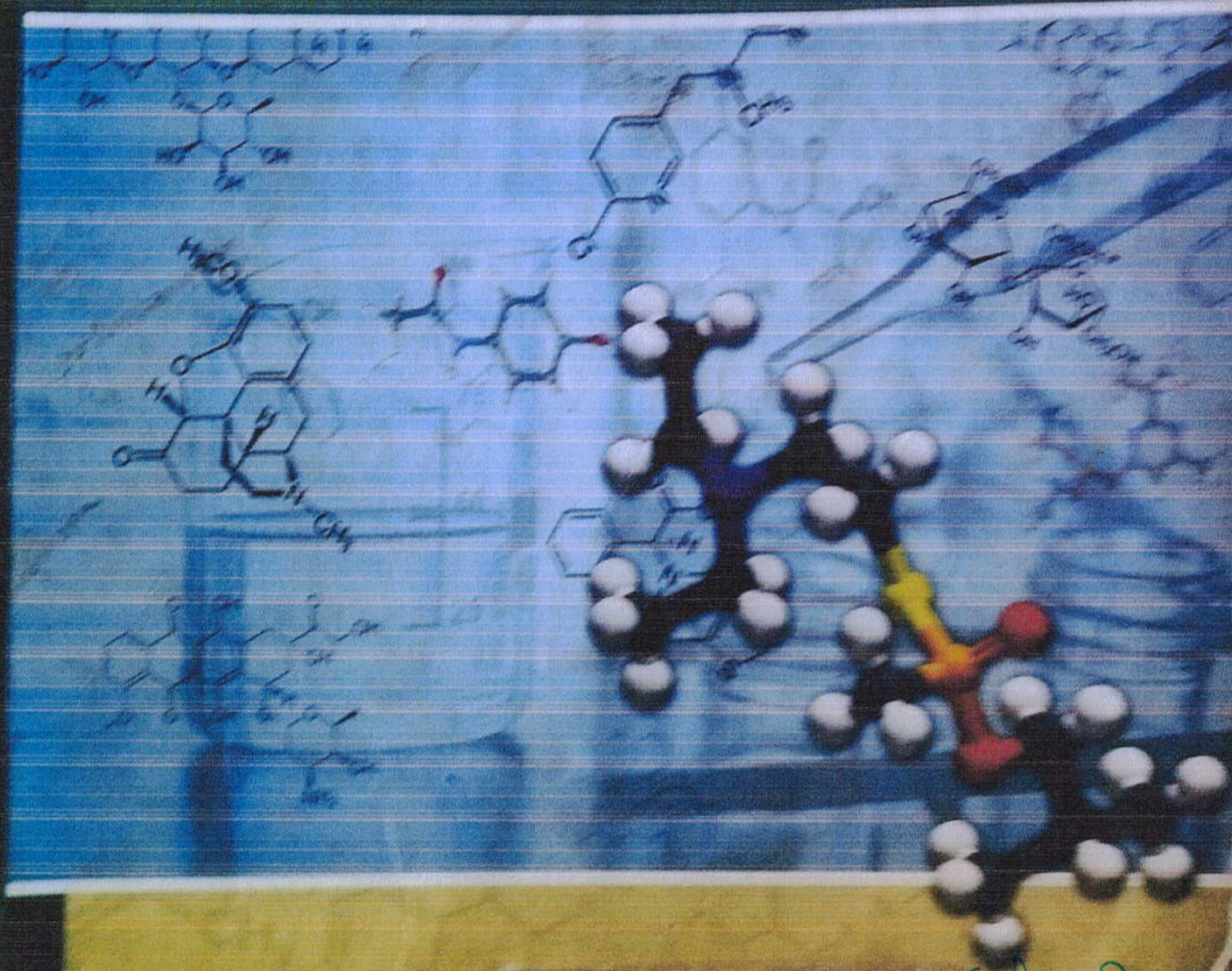
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SECOND EDITION

Pharmaceutical Inorganic Chemistry

V. Alagarsamy



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Second Edition

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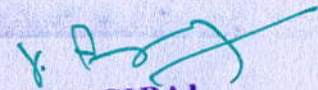
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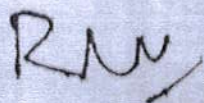
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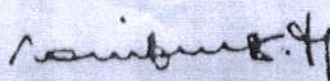
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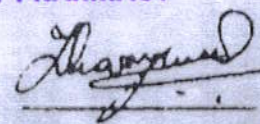

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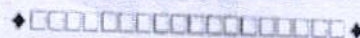
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Malla Reddy Pharmacy College
Secunderabad, Telangana

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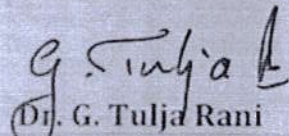
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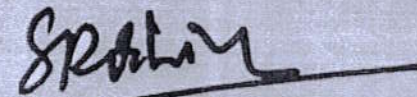
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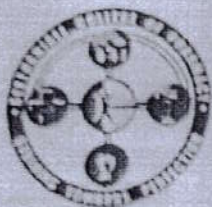

Dr. G. Tulja Rani

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Malla Reddy Pharmacy College
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Geethanjali College of Pharmacy

(Approved by AICTE, PCI New Delhi and Permanently Affiliated to JNTUH)
Cheeryal (V), Keesara (M), Medchal Dist. T.S - 501 301.



IPA

DRAVYAKA 2018

"Emerging Innovations in Pharmaceutical Sciences"

CERTIFICATE

This is to certify that Prof. / Dr. / Mr. / Ms / Mrs. V. SRUTHI has
participated / presented a paper in oral / poster entitled COMBINED ANTI-MICROBIAL ACTIVITY
OF LEMON GRASS OIL AND TULASI OIL in DRAVYAKA 2018, A 9th National Level Conference held
at Geethanjali College of Pharmacy on 2nd & 3rd November, 2018 Jointly organised by IPA,
Telangana State Branch

Sri G.R. RAVINDER REDDY
Secretary
Geethanjali College of Pharmacy

Prof. Dr. M. RAVI KUMAR
Principal - Convener
Geethanjali College of Pharmacy

Dr. T.V. NARAYANA
President - IPA,

Prof. Dr. T. MANGILAL
Chairman - Scientific Services
DRAVYAKA- 2018

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CERTIFICATE OF PARTICIPATION

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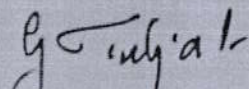
Prof./Dr./Mr./ Ms. V. SRUTHI

from MNR COLLEGE OF PHARMACY, SANGAREDDY

participated & presented /evaluated a 'poster' during

3rd Indo-US Conference on " Innovative Strategies in Pharmaceutical Education and Research"

organized by APP Telangana State Branch and APP Molecular Pharmacology Division
at Malla Reddy Pharmacy College, Maisammaguda, Dhulapally, Secunderabad, Telanagana
on July 28th, 2018 at beautiful campus of the college

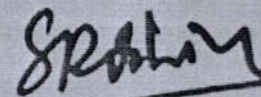

Dr. G. Tulja Rani

CONVENER & PRINCIPAL
Malla Reddy Pharmacy College
Secunderabad, Telangana



APP-MRPC COLLABORATIVE INDO-US CONFERENCE





Dr. Sunita Dahiya

GENERAL SECRETARY
Association of Pharmacy Professionals
San Juan, Puerto Rico, USA


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THIS IS TO CERTIFY THAT

Prof./Dr./Mr./Ms. B. Lakshma Devi

from MNR College of Pharmacy

participated & presented /evaluated a 'poster' during

3rd Indo-US Conference on "Innovative Strategies in Pharmaceutical Education and Research"

organized by APP Telangana State Branch and APP Molecular Pharmacology Division

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G. Tulja
Dr. G. Tulja Rani
CONVENER & PRINCIPAL
Malla Reddy Pharmacy College
Secunderabad, Telangana

S. Sunita
Dr. Sunita Dahiya
GENERAL SECRETARY
Association of Pharmacy Professionals
San Juan, Puerto Rico, USA

[Signature]
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