



**Books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during academic year 2021-2022**

<b>Sl. No.</b>	<b>Name of the teacher</b>	<b>Title of the book/chapters published</b>	<b>Title of the paper</b>	<b>Title of the proceedings of the conference</b>	<b>Name of the conference</b>	<b>National / International</b>	<b>Year of publication</b>	<b>ISBN number of the proceeding</b>	<b>Page No</b>
1	Dr. Y.Srinivasa Rao	Microvascular and macrovascular complications of Type II Diabetes				International	2022	97862-05629-98-7	14
2	Dr. Y.Srinivasa Rao	Menstrual Hygiene Management in Women				International	2022	97862-05528-55-6	18

3	Dr. Y.Srinivasa Rao	Comparison of Risk Factors in Women with PCOS vs Without PCOS				International	2022	97862-05528-15-0	22
4	Dr.P.Chiranjeevi		Antimicrobial studies on leaf extract of vitis vinifera	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5-63390-8	27
5	M.Naga Bharathi		Knowledge ,attitude and practice towards iodized salt utilization among pregnant women in vishakhapatnam	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5-63390-8	28



6	Gana Manjusha Kondepudi		Formulation and evaluation of chewable tablets using Hingwashtak Churna	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5- 63390-8	29
---	----------------------------	--	---	-------------	--	---------------	------	-----------------------	----

7	KRVS Chaitanhya		Behavioural assessment and antioxidant evaluation of methanolic extract of Syzygium jambos fruits in wistyar rat model	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5- 63390-8	30
8	K.Daniel Raju		Estimation of anti hyperglycemic effect of glochidion tomentosum in STZ induced diabetic rats	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5- 63390-8	31
9	D Aruna Kumari		Evaluation of anti inflammatory activity on aerial parts pf Heliopsis Helianthoides	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5- 63390-8	32

10	A Kanaka Raju		Development and validation of UV Spectrophotometric method for the estimation of Molnupiravir in bulk and pharmaceutical	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5-63390-8	33
----	---------------	--	--	-------------	---	---------------	------	-------------------	----

			formulation						
11	G.Chandra sekhara Rao		Improvement of physical stability of ibuprofen suspensions employing $\beta$ Cyclodextrin	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5-63390-8	34
12	B.Rama Rao		Anti microbial and anti oxidant activity of Tinospora Cordifolia (Gudichi Tree)	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5-63390-8	35

13	Varaprasada Rao K		Simultaneous RP-HPLC Method for estimation of Doxylamine succinate and pyridaxone hcl in bulk and formulation	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5-63390-8	36
14	Syamala Reddi		Evaluation of the relaxant activity of skeletal muscle using leaf extraction of the crossandra infundibuliforms leaf extracts in albino wistar rats	ICEMTA-2022	International conference on Emerging materials for technological applications	International	2022	978-620-5-63390-8	37
15	Dr S Satya Lakshmi	Phytonanotechnology, chapter- Biomedical Applications of Phytonanotechnology				International	2022	978-981-19-4810-7	38
16	Dr. Y.Srinivasa Rao	COVID-19 Patients Lived Experiences and Stress in General Population				International	2022	97862-05528-21-1	42

17	Dr. Gana Manjusha K	A Handbook of Pharmacognosy and Crude Drugs				International	2022	97862-05492-47-5	46
18	Dr. P.V. Kamala Kumari	An Introduction to Pharmaceutics-I				National	2022	97815-43346-74-9	49
19	Dr. Y.Srinivasa Rao	New Advances in Carbon Fibers: A concise review on carbon fiber reinforced polymer (CFRP) and their mechanical significance including industrial applications				International	2022	978-1-83768-129-7	53

20	Dr. Y.Srinivasa Rao	21st Century Nanostructured Materials: Recent advances in nanoenabled fertilizers towards sustainable agriculture and environment: A mini review				International	2022		55
21	Dr. Vasudha Dadi		RP-HPLC Technique For The Simultaneous Quantification Of Ivacaftor And Tezacaftor	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
22	Dr. M.Saritha		Formulation And Evaluation Of Dexamethasone Orodispersable Tablets Using Natural Superdisintegrants	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
23	Dr. Gana Manjusha K		Nutraceuticals: Hybrid Of Nutrition And Pharmaceuticals	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in	International	2022	2250-0774	57-74

					Artificial Intelligence driven Drug Design, Discovery and Development				
24	Mrs. V.Jhansi Lakshmi		The Protective Effect Of Hydro - Alcoholic Extract Of Leaves Of Moringa Oleifera On Doxorubicin Induced Cardiotoxicity And Hepatotoxicity	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
25	Ms. Gandhi Anusha		Modern Advances For Bioanalytical Specimen Preparation In Pharmaceuticals	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
26	Mrs. Karanam Sridevi Ranjitha		UPLC-MS In Metabolomics	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74

27	Ms B.Bhavya Pratyusha		Synthesis Of Novel Bischalcones And Evaluation Of Their Antimicrobial Activities	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
28	Mr. Koppisetty B. R. B		Impurity Profile Of Immunomodulatory Drug Teriflunomide By RP-HPLC-PDA	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
29	Mr. K VaraPrasada Rao		Development And Validation Of RP-HPLC And UV Spectrophotometric Methods For The Estimation Of Ranolazine In Bulk And	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74

			Pharmaceutical Dosage Form						
--	--	--	----------------------------	--	--	--	--	--	--

30	Dr. S. Satya Lakshmi		Rosuvastatin Calcium Nanosponges Loaded Transdermal Patchdesign, Optimization And Characterization	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
31	Ms. Ketha Srilekhya		Artificial Intelligence In Drugs And Pharmaceuticals	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
32	Ms. Ummuri Bhavani		Anti Fungal Loaded Niosomes	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74
33	Mrs. Dokkada Aruna Kumari		Evaluation On Aerial Part Of Heliopsis Helanthoides For Phytochemical Biological Studies	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	57-74

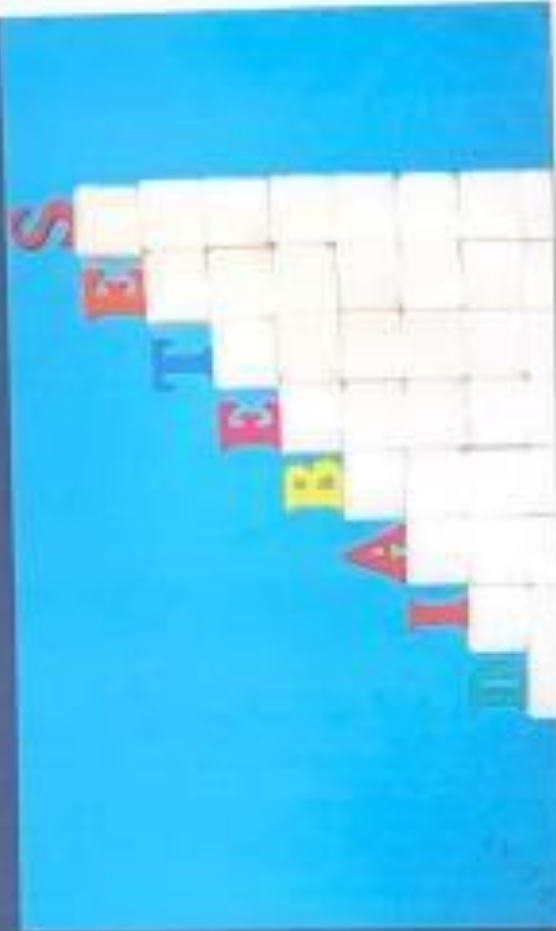


34	Mrs. M.NagaBharathi		Effect Of Hydro Alcoholic Extract Of Punicagranatum On Ethylene Glycol And Ammonium Chloride Induced Nephrolithiasis	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	<u>57-74</u>
35	Mr. Koppala RVS Chaitanya		Hepatoprotective Action Of Selenicereus Undatus Methanolic Extract In Paracetamol Induced Male Albino Wister Rats	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022	2250-0774	<u>57-74</u>
36	Dr Galanki Vasanth		Invitro Evaluation Of Antimicrobial, Antiinflammatory And Antioxidant Activities Of Crossandra Infundibuliformis Root Extracts	PharmaNEST 3.E International Conference	International Conference on Professional Development and Advanced Training in Artificial Intelligence driven Drug Design, Discovery and Development	International	2022		<u>57-74</u>
37	Ms. B.Bhavya Pratyusha		Novel bischalcones as potent antibacterial agents	Global advances and issues in pharmaceutical education and research	7th indo-Caribbean virtual international conference	International	2022		<u>75-81</u>

38	Dr Galanki Vasantha		Attenuation of Diabetic nephropathy in streptozocin induced diabetic rats by Lannea Coromandelica leaf and stem extract	Global advances and issues in pharmaceutical education and research	7th indo-Caribbean virtual international conference	International	2022		<a href="#">75-81</a>
39	Dr.S.Satya Lakshmi		Repurposing Efavirenz for anticancer therapy with curcumin combination in solid lipid formulation	Emerging trends and technologies in Engineering, Pharmacy and Langlit	Emerging trends and technologies in Engineering, Pharmacy and Langlit	International	2022	9783-9441272-1	<a href="#">82-87</a>
40	Dr.S.Satya Lakshmi		Diclofenac Sodium-Curcumin combined Nanogel:An efficient topical agent against inflammation	Emerging trends and technologies in Engineering, Pharmacy and Langlit	Emerging trends and technologies in Engineering, Pharmacy and Langlit	International	2022	9783-9441272-1	<a href="#">82-87</a>
41	Dr D Vasudha		Estimation of Amlopidine Besylate and Celecoxib in combined dosage form BYRP-HPLC	Emerging trends and technologies in Engineering, Pharmacy and Langlit	Emerging trends and technologies in Engineering, Pharmacy and Langlit	International	2022	9783-9441272-1	<a href="#">82-87</a>

42	Dr D Vasudha		A peculiar responsive and validated UV spectrophotometric method of determination of Favipiravir in bulk and pharmaceutical dosage form.	Emerging trends and technologies in Engineering, Pharmacy and Langlit	Emerging trends and technologies in Engineering, Pharmacy and Langlit	International	2022	9783-9441272-1	82-87
----	--------------	--	--	---	---	---------------	------	----------------	-------

The prevalence and incidence of type 2 diabetes are increasing at an alarming rate. Diabetes mellitus and its associated complications are a significant threat to global health. Diabetes, neuropathy, nephropathy, retinopathy, cardiovascular diseases, and peripheral vascular disease are the serious complications associated with type 2 diabetes, being the leading cause of major organ failure among diabetics. Often, when patients are diagnosed with complications, their functions have already been significantly damaged. Therefore, a risk prediction tool may be beneficial for the implementation of early treatment and prevention.



He has profound experience in teaching, industrial and research laboratories in India and abroad. He writes-ups near about 150 Research Paper Publications in National and International Journals. He received the Best Research Paper Award 4 Times from Amity University. He received the "YOUNG SCIENTIST AWARD-2018" from CEGR, New Delhi.

Srinivasa Rao Yerraguntla  
Woodburyar Nuguda

# MICROVASCULAR AND MACROVASCULAR COMPLICATIONS OF TYPE II DIABETES

PREDICTION USING MACHINE LEARNING



4. K. K. Kulkarni  
PRINCIPAL  
VIGNANI INSTITUTE OF TECHNOLOGY  
PHARMACEUTICAL TECHNOLOGY  
Noida-201302, Uttar Pradesh, India



LAP  
LAMBERT  
Academic Publishing

**Srinivasa Rao Yarraguntla  
Vinodkumar Mugada**

**MICROVASCULAR AND  
MACROVASCULAR  
COMPLICATIONS OF TYPE II  
DIABETES**

**PREDICTION USING MACHINE LEARNING**

FOR AUTHOR USE ONLY

**LAP LAMBERT Academic Publishing**

## **Imprint**

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: [www.ingimage.com](http://www.ingimage.com)

**Publisher:**

LAP LAMBERT Academic Publishing

is a trademark of

Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L publishing group

120 High Road, East Finchley, London, N2 9ED, United Kingdom

Str. Armeneasca 28/1, office 1, Chisinau MD-2012, Republic of Moldova,  
Europe

Printed at: see last page

**ISBN: 978-620-5-62998-7**

Copyright © Srinivasa Rao Yarraguntla, Vinodkumar Mugada

Copyright © 2022 Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L  
publishing group

FOR AUTHOR USE ONLY

## TABLE OF CONTENTS

<b>CHAPTE RNO.</b>	<b>CONTENT</b>	<b>PAGE NO.</b>
<b>1.</b>	<b>ABSTRACT</b>	<b>5</b>
<b>2.</b>	<b>AIMS AND OBJECTIVES</b>	<b>7</b>
<b>3.</b>	<b>INTRODUCTION</b>	<b>8</b>
<b>4.</b>	<b>LITERATURE REVIEW</b>	<b>14</b>
<b>5.</b>	<b>METHODOLOGY</b>	<b>24</b>
<b>6.</b>	<b>RESULTS</b>	<b>50</b>
<b>7.</b>	<b>DISCUSSION</b>	<b>57</b>
<b>8</b>	<b>CONCLUSION</b>	<b>60</b>
<b>9</b>	<b>REFRENCES</b>	<b>61</b>

Women and children are generally kept in dark, unventilated  
shelters, especially in the case of women. The poor living conditions  
subsequent to the earthquake have led to a high incidence of  
disease and other health problems. The poor living conditions and  
inadequate sanitation have led to a high incidence of  
infections. Therefore, menstrual hygiene is an important factor in the  
prevention of many adolescent illnesses. Women from villages due to  
poor sanitation, unavailability of water, and inadequate facilities,  
and due to tradition.



Srisravan Rao Varrepeddi  
Virodhumar Majjala

## MENSTRUAL HYGIENE MANAGEMENT IN WOMEN

KNOWLEDGE, ATTITUDE, AND PRACTICES STUDY



A. Srinivasulu  
Principal, Institute of  
Health Sciences,  
Anna University,  
Chennai





Srinivasa Rao Yarraguntla  
Vinodkumar Mugada

# MENSTRUAL HYGIENE MANAGEMENT IN WOMEN

A KNOWLEDGE, ATTITUDE, AND PRACTICES  
STUDY

FOR AUTHOR USE ONLY



*Srinivasa Rao*

PRINCIPAL  
VIGNANI INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49

**LAP LAMBERT Academic Publishing**

## Imprint

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: [www.ingimage.com](http://www.ingimage.com)

Publisher:

LAP LAMBERT Academic Publishing

is a trademark of

Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L publishing group

120 High Road, East Finchley, London, N2 9ED, United Kingdom

Str. Armeneasca 28/1, office 1, Chisinau MD-2012, Republic of Moldova,  
Europe

Printed at: see last page

ISBN: 978-620-5-52855-6

Copyright © Srinivasa Rao Yarraguntla, Vinodkumar Mugada

Copyright © 2022 Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L  
publishing group

FOR AUTHOR USE

*Srinivasa Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49



## CONTENTS

S.NO	NAME OF THE TOPIC	PAGE NUMBER
1	ABSTRACT	1
2	AIM & OBJECTIVES	2
3	INTRODUCTION	3-7
4	REVIEW OF LITERATURE	8-18
5	METHODOLOGY	19-21
6	RESULTS	21-36
7	DISCUSSION	36-43
8	CONCLUSION	44
9	REFERENCES	45-50



*Dr. Srinivas Rao*  
PRINCIPAL  
VIGNANI INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49

In women of reproductive age, polycystic ovary syndrome is the most prevalent endocrine disorder. Globally prevalence estimates of PCOS are highly variable, ranging from 2.2% to 26% of this age group. PCOS is characterized by menstrual irregularity, signs of hyperandrogenism such as acne, hirsutism, alopecia, infertility, and acanthosis nigricans of which hirsutism is most often observed. Participants in our study had a higher BMI, cravings for sweets, drinks, junk food, weight gain, menstrual irregularities, hirsutism, alopecia, acanthosis nigricans, sleep problems, anxiety, and depression when compared to those without PCOS.



Srinivasa Rao Yaraguntla  
Vinodkumar Mugada

## COMPARISON OF RISK FACTORS IN WOMEN WITH PCOS VS WITHOUT PCOS

COMPARISON OF RISK FACTORS, CONSEQUENCES, ANXIETY AND DEPRESSION IN WOMEN WITH PCOS VS. NON-PCOS

He has profound experience in Teaching, Industrial and Research Laboratories in home and abroad. His write-ups near about 150 Research Paper Publications in National and International Journals repeat. He received the Best Research Paper Award 4 times by Andhra University. He received the "YOUNG SCIENTIST AWARD-2016" by CEGRI, New Delhi.



*Dr. Srinivasa Rao Yaraguntla*  
PRINCIPAL OF  
VIGNANI INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Vignani, V.S.E.Z. Duvvada, Visakhapatnam-531045



## Imprint

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: [www.ingimage.com](http://www.ingimage.com)

Publisher:

LAP LAMBERT Academic Publishing

is a trademark of

Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L publishing group

120 High Road, East Finchley, London, N2 9ED, United Kingdom

Str. Armeneasca 28/1, office 1, Chisinau MD-2012, Republic of Moldova, Europe

Printed at: see last page

ISBN: 978-620-5-52815-0

Copyright © Srinivasa Rao Yarraguntla, Vinodkumar Mugada

Copyright © 2022 Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L publishing group

**Srinivasa Rao Yarraguntla  
Vinodkumar Mugada**



# COMPARISON OF RISK FACTORS IN WOMEN WITH PCOS VS WITHOUT PCOS

COMPARISON OF RISK FACTORS,  
CONSEQUENCES, ANXIETY AND DEPRESSION IN  
WOMEN WITH PCOS Vs. NON-PCOS



## CONTENTS

S. NO.	NAME OF THE TOPIC	PAGE.NO
1	ABSTRACT	5
2	AIM & OBJECTIVES	7
3	NEED FOR STUDY	7
4	INTRODUCTION	8
5	REVIEW OF LITERATURE	12
6	METHODOLOGY	38
7	RESULTS	44
8	DISCUSSION	54
9	CONCLUSION	64
10	REFERENCES	65



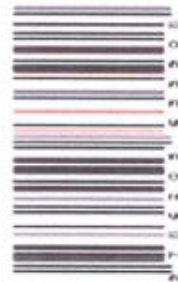
*Dr. Srinivas Rao*

PRINCIPAL  
VIGNANI INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49

The goal of ICEMTA-2022 is to bring together scientists, engineers, and business professionals from around the world. The purpose of this forum is to provide a venue for the exchange of knowledge regarding various technological innovations, advancements, and successes in the fields of material science, electronic engineering, electrical engineering, and emerging materials for technological applications, among others. Additionally, it would promote conversation on the advancements and difficulties in the area of Emerging Materials for Technological Applications. A platform is provided by Emerging Materials for Technological Applications - 2022 for researchers, scientists, academicians, technocrats, and CEOs of energy materials and technology-based companies from around the world to share their research experiences and engage in interactive discussions on all topics related to energy materials, biomaterials, solar energy, hydrogen energy, super capacitors, batteries, fuel cells, and other topics. It helps attendees hear fresh perspectives on Emerging Materials from renowned international experts who are skilled in working with materials for a variety of engineering applications.



Dr. Ch. V. V. Ramana, MIT (A), Visakhapatnam, A.P., India. He published 66 scientific articles in refereed journals, 07 books, 05 books of papers and 01 Patent.  
 Dr. S. K. Alla, APJKTU (A), Tekkal, A.P., India. He has published 26 papers and one book chapter.  
 Dr. R. H. Rao, MIT (A), Visakhapatnam, A.P., India. He has published 14 research papers.



*Dr. Sankar Das*

PRINCIPAL  
 VIGNAN INSTITUTE OF  
 PHARMACEUTICAL TECHNOLOGY  
 Beside: VSEZ, Duvvada, Visakhapatnam-46



Ch. V. V. Ramana  
 Sandesh Kumar Alla  
 R. Hanumanth Rao

# ICEMTA-2022 conference souvenir

Book of abstracts





**PLENARY SPEAKERS**



**Prof. Dr. Andreas Levy**  
 Director, Institute of Physical Chemistry  
 and Institute of Materials Science  
 and Technology, University of  
 Duisburg-Essen, Germany



**Prof. Jian-Yi Liang**  
 Professor, Institute of Materials  
 Science and Engineering,  
 Chinese Academy of Sciences,  
 Beijing, China



**Prof. Anubhuj Thakur**  
 Director, Institute of Physical  
 Chemistry, University of  
 Duisburg-Essen, Germany



**Dr. John V. Antary, Ph.D.**  
 Senior Lecturer, Materials  
 Science, University of  
 Cambridge, UK



**Prof. Yousang Kim**  
 Lecturer, Smart Materials Group,  
 ADU RANOPHYD,  
 The Made Chemical Institute,  
 Ulsan, Korea



**Prof. G. Klugehayer**  
 University of Guelph,  
 Canada



**Dr. M. V. Reddy**  
 New materials world (NMG),  
 Montreal, Canada

**CHIEF PATRON (VIT)**  
 Dr. J. Lakshminarayana, VIT Vellore  
**CHIEF PATRON (AITAM)**  
 Dr. K. Sureshwar Rao, Chairman, AITAM  
**PATRONS**  
 Dr. V. Anand Kumar, VIT Vellore  
 Dr. N. Balakrishna, VIT Vellore  
 Dr. B. Ananthulu, Principal, VIT, India  
**CO-PATRON**  
 Dr. K. Sureshwar Rao, Vice-Chairman, VIT, India  
**CHIEF PATRON (AITAM)**  
 Dr. K. Sureshwar Rao, Chairman, AITAM  
**PATRONS**  
 Dr. L. Nagesh, Secretary, AITAM  
 Dr. K. Ravi Kumar, Joint Secretary, AITAM  
 Dr. T. Manoj Kumar, Treasurer, AITAM  
 Prof. V. V. Anand Kumar, Director, AITAM  
 Dr. K. Madhu Kumar, Director, AITAM  
 Dr. T. Manoj Kumar, Director, AITAM  
 Dr. V. Nagesh, Director, AITAM  
 Prof. A. S. Srinivasan Rao, Principal, AITAM  
**CO-PATRONS**  
 Dr. K. R. Madhukar, Director-R&D, AITAM  
 Dr. D. Anand Kumar, AITAM  
 Dr. R. Santhosh Kumar, Head, BS & H, AITAM  
**CONVENERS**  
 Prof. Dr. J. Sobel Thomas, MQU  
 Dr. Ch. V. V. Ramana, VIT  
 Dr. A. Santhosh Kumar, AITAM  
 Dr. R. Hanumanth Rao, VIT  
 Dr. V. T. Rao, IIT, IISc

**THEMES OF CONFERENCE**

- » Optical, Magnetic and Electronic Properties of Nanomaterials
- » Graphene and 2D Materials
- » Batteries and Solid Electrolyte Materials
- » Catalysis and Energy Materials
- » Sensors and Device Fabrications
- » Biomaterials and Biosensors
- » Energy Harvesting Materials
- » Renewable Energy and Energy Storage Systems
- » Power Systems and Power Electronics
- » Control Systems and Applications
- » Nanoelectronic Circuits and Systems
- » Surface and Material Characterization

**IMPORTANT DATES**

Abstract / Full paper submission Deadline  
 9 October 2022  
 Notification of Acceptance/Rejection  
 31 October 2022  
 Conference Dates 23 - 25 November 2022

**PUBLICATIONS**

All accepted papers will be published in  
 SCI / SCOPUS / Web of Science Indexed Journals

Participation Type	Registration Fee	
	India	International
Listener / Presentation without Paper Contribution	Student	INR 500.00 / USD 25
	Research Scholar	INR 1,000.00 / USD 50
	Academician	INR 1,500.00 / USD 75
Industry/Corporate	Industry/Corporate	INR 3,000.00 / USD 150
	Registration Fee + Publication charges	
Presentation & Paper Publication	Material Science Forum Journal	INR 10,000.00 / USD 150
	Key Engineering Materials Journal	INR 10,000.00 / USD 150
	SPIE Proceedings	INR 10,000.00 / USD 150
	Cambridge Scholar Publishing	INR 5,000.00 / USD 80
	Memories-Materials, Devices, Circuits and systems Journal	INR 2,000.00 / USD 60

**Plagiarism Policy for the Publication**

- » Authors are requested to kindly refrain from plagiarism in any form. Authors should submit their original and unpublished research work not under consideration for publication elsewhere.
- » Papers found to be plagiarized during any stage of review shall be rejected.
- » As per copyright transfer agreement, Authors are deemed to be individually and collectively responsible for the content of manuscripts published by them.
- » Hence, it is the responsibility of each author to strive for the highest ethical standards with respect to plagiarism

Papers of UG & PG students from India will be published in UGC care listed publisher (LAMBERT Academic Publishing, Germany).  
 Publication charges INR. 2000.00



**Paper Submission & Registration**

Please Visit:  
[www.icemta2022.org](http://www.icemta2022.org)

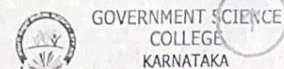
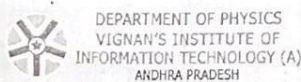
Registration Deadline  
**15 November 2022**

**CONTACT US**

Dr. Santhosh Kumar  
 Convener  
 Vignans IIT, Visakhapatnam  
 e-mail: challa@vignanuit.edu.in  
 Mobile: 8479106386

Dr. Santhosh Kumar  
 Convener  
 AITAM, Sri Kalahasti  
 e-mail: santhosh.itb@gmail.com  
 Mobile: 8853251176

Dr. R. Hanumanth Rao  
 Convener  
 Vignans IIT, Visakhapatnam.  
 e-mail: rao.phy1@gmail.com  
 Mobile: 9394953339





**ANTIMICROBIAL STUDIES ON LEAF EXTRACT OF VITIS VINIFERA**

P. Chiranjeevi, B. Sai Madhuri, M. Navya, P. Likitha, T. Sagarika

Vignan Institute of Pharmaceutical Technology, Visakhapatnam

**ABSTRACT**

The methanolic leaf extract of *Vitis vinifera* was prepared and screened for the antibacterial activity against gram positive bacteria viz., bacillus subtilis and gram negative bacteria viz., escherichia coli by using the cup plate method. Ciprofloxacin was used as reference standard. The extract was also tested for antifungal activity against aspergillus Niger and penicillium chrysogenum. Fluconazole was used as reference standard. The extract showed significant antibacterial activity and no antifungal activity.

Keywords: Vitis vinifera, Bacillus subtilis, Fluconazole



*G. Srinivasulu*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam

**KNOWLEDGE ATTITUDE AND PRACTICE (KAP) TOWARDS IODIZED SALT UTILIZATION AMONG PREGNANT WOMEN IN VISHAKHAPATNAM**

M. Naga Bharathi, K. Eswar Kumar, Y. Srinivasa Rao

Vignan Institute of Pharmaceutical Technology, Duvvada, Visakhapatnam

**ABSTRACT**

In pregnancy due to the alteration in the physiology of thyroid gland, thyroid hormones synthesis increases and the iodine requirement increases, if proper iodine nutrition was not obtained through diet and by iodized salt, it will result in a group of disorders known as iodine deficiency disorders (IDD). A Longitudinal hospital-based study with a total sample size of n=153 pregnant women at the 12th week of gestation attending Victoria hospital in the Vishakhapatnam were selected. The iodine content estimated in the salt samples was estimated using MBI Kits. Data regarding their knowledge, attitude and practices regarding the salt utilization were collected using subject profile form. The data was analyzed using MINITAB (v.17). The mean age of pregnant women was  $22.96 \pm 6.75$  years, study subjects were living in joint families, 56.7% live at urban area, 90% were unemployed and homemakers, only 17% finished their graduation, the illiteracy rate was 4.5%, the large portion of women belong to Hindu religion, majority of the pregnant women belong to lower middle class and middle class. History of abortions was low because majorities were first time pregnant (first gestation) and length of marriage was below one year. Out of 153 pregnant women 133 (86.9%) pregnant women were using powdered form of salt which was iodized salt, the iodine content estimated in the salt samples contain 15ppm to 30ppm iodine content. In our study we found association between poor knowledge and iodized salt usage p value  $>0.05$ . The awareness of iodine deficiency disorders during pregnancy which occur due to inadequate amount iodine intake in diet was very low among the study subjects. This indicating that there is large knowledge gap between the utilization and awareness.

Key Words: Iodine Deficiency, Thyroid Hormones, Pregnant Women



*Y. Srinivasa Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-46

FORMULATION AND EVALUATION OF CHEWABLE TABLETS  
USING HINGWASHTAK CHURNA

Gana Manjusha Kondepudi, P.N.Mallikarjun, K.Neelaveni, M. Radha Krishna, T.Neeraja,  
V.Komali

Vignan Institute of Pharmaceutical Technology, Visakhapatnam

Abstract

Herbal medicine has made a significant contribution in improving human health through its health promoting, curative and rehabilitative properties. People can treat many problems related to the digestive system by regularly using herbal preparations in the diet that can improve the function of the digestive system. Chewable tablets are a widely used dosage form for the delivery of pharmaceutical, nutraceutical, and veterinary active substances. As a dosage form, chewable tablets have the advantages of conventional tablets in terms of manufacturability, dosing accuracy, portability, and long-term stability. Hingwashtak Churna is a polyherbal Ayurvedic formulation sold in the form of powder. It is composed of eight main ingredients, namely *Cuminum cyminum*, *Ferula foetida*, *Zingiber officinale*, *Piper nigrum*, *Piper longum*, *Nigella sativa*, *Trachyspermum ammi*, and *Saindhava Lavana* (rock salt). Phytochemicals like alkaloids, glucosides, tannins, and phenols are present in Hingwashtak Churna. The present was aimed to formulate and evaluate Hingwashtak chewable tablets. Long pepper, Pepper, White Cumin, Black cumin, Awain, Asafoetida, Himalaya pink salt (Saindhava lavanam), Dry ginger (Sonthi) and Hingwashtak Churna (Standard) were procured from the market. Chewable tablets were prepared using prepared and marketed API by direct compression method and evaluated. The formulated chewable tablets were evaluated for hardness, friability and weight variation. Angle of repose, Compressibility index and Hausner's ratio of the prepared product were found to be 350, 13.33 and 1.15 and 40.090, 18, 1.21 for marketed product respectively. Weight variation, Hardness and Friability of the prepared product were found to be 99.06%, 0.02 and 1.8 and 99.3, 0.06 and 0.8 for marketed product respectively. Chewable tablets made from Prepared API showed better performance when compared to marketed API.



*Dr. Raveesh*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
side: VSEZ, Duvvada, Visakhapatnam-46



BEHAVIOURAL ASSESSMENT AND ANTIOXIDANT EVALUATION OF  
METHANOLIC EXTRACT OF *SYZYGIUM JAMBOS* FRUITS IN WISTAR RAT  
MODEL

Koppala RVS Chaitanya, G. Ramya, P. Yasvitha V Kalyani, M. Vandhana Rani, Y. Navya.

Vignan Institute of Pharmaceutical Technology, Visakhapatnam

**Abstract:** Selected medicinal plant *Syzygium jambos* was subject for maceration with methanol solvent and followed by concentration by conventional techniques, the concentrated Methanolic extract was subjected to behavioural screening using Wistar rats and also checked for its protective nature against the superoxide and hydroxyl radicals on *In vitro* bases. The antianxiety effects of MESJ in the elevated plus maze were comparable with those following the administration of diazepam in this task-*ie*, activity and latency ratios increased compared with vehicle. Behavioural studies were performed using elevated plus maze apparatus and customized light and dark chambers in acute and chronic studies levels. In the elevated plus maze, the open arms are more fear provoking than the closed arms. Test extract at 500mg/kg dose showed significant behavioral improvement in both acute and chronic studies with  $215.5 \pm 1.85^*$  standard value compared to acute  $173.50 \pm 1.25^*$  and chronic  $228.33 \pm 1.25^*$ . They also increase the ratio of open arm to total arm entries. In the light and dark box paradigm, the test dose range in 500mg/kg show significant improvement with acute study as  $45.16 \pm 0.24$  followed by chronic study  $35.8 \pm 5.3$  when compared to standard  $13.50 \pm 0.23$ . Reduction in the number of entries, time spent and rearing behavior in the light chamber were regarded as markers of anxiety. The superoxide and hydroxyl radical scavenging activity was significant in 150 ug/ml as  $90.0 \pm 0.6$  compared to standard  $89.0 \pm 0.7$  and 30ug/ml of test showed  $64.4 \pm 0.9$  in comparison to  $62.7 \pm 0.9$  scavenging activity.

**Keyword:** enigma, spatial memory, elevated plus maze, behavioral, antioxidant activity

*Y. Navya*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
side: VSEZ, Duvvada, Visakhapatnam-46



ESTIMATION OF ANTI-HYPERGLYCAEMIC EFFECT OF GLOCHIDION  
TOMENTOSUM IN STZ INDUCED DIABETIC RATS

K.Daniel Raju, A.Kusuma, S.S.S. Sri Pujitha, Tahseen Nishat, Y.V.Pooja  
Vignan Institute of Pharmaceutical Technology, Visakhapatnam

ABSTRACT

*Glochidion tomentosum* has traditionally been used as antimicrobial, anthelmintic, antioxidant and research is going on various other properties of the plant including diabetes mellitus. The plant extract consists of majorly terpenoids, tannins, alkaloids, glycosides, and steroids. The purpose of this study was to investigate the antidiabetic activity of the plant *Glochidion tomentosum* streptozotocin (STZ) induced diabetic rats. The administration of STZ (55mg/kg) significantly ( $p < 0.001$ ) increased the Fasting blood sugar level when compared to the normal control group. The fasting blood sugar level, food intake & water intake are increased in diabetes control group, whereas the body weight is decreased in diabetes control group after the STZ administration. After successive treatment with *Glochidion tomentosum* 21 days, the over said increased parameters are decreased significantly ( $p < 0.01$ ) and the body weight is maintained to normal control group. The overall results indicated that *Glochidion tomentosum* has almost equivalent antidiabetic potential and might be due to its insulinotropic action which increase the utilization of glucose thoroughly inside the body. The presence of glycosides, tannins, alkaloids, steroids, terpenoids in selected plant might be responsible for its therapeutic effect.

Keywords: *Glochidion tomentosum*, streptozotocin, insulinotropic



*Y. Viveetha*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
side: VSEZ, Duwada, Visakhapatnam-46

**EVALUATION OF ANTI-INFLAMMATORY ACTIVITY ON AERIAL PARTS OF  
HELIOPSIS HELIANTHOIDES**

D. Aruna Kumari, B Vaishnavi, E Sandhya, D Akhila, G Prathyusha, Teena Margret  
Vignan Institute of Pharmaceutical Technology, Visakhapatnam

**ABSTRACT**

The main objective of the present study was to evaluate anti-inflammatory activity of methanolic extract of aerial parts of *Heliopsis helianthoides*. (Asteraceae). The aerial parts of plant were collected and extracted by soxhlet extraction. Phytochemical tests were performed on extract. The in-vitro anti-inflammatory activity was evaluated by using protein denaturation assay. It is evaluated for inhibition of protein inhibition at 660nm by using UV Visible spectrophotometer. The methanolic extract of aerial parts of *Heliopsis helianthoides* exhibited concentration dependent inhibition of protein denaturation. Therefore, from the study it can be concluded that aerial parts extract confirmed the presence of alkaloids, tannins, saponins, phenolics and possess marked anti-inflammatory activity.



*f. sivasub*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
side: VSEZ, Duwada, Visakhapatnam-46



**DEVELOPMENT AND VALIDATION OF UV SPECTROPHOTOMETRIC METHOD FOR THE ESTIMATION OF MOLNUPIRAVIR IN BULK AND PHARMACEUTICAL FORMULATION**

A.Kanaka Raju, S.Pooja Pranathi, P.BalaVamsi Krishna, M. Dharani  
Vignan Institute Of Pharmaceutical Technology, Visakhapatnam

**ABSTRACT**

Antiviral drugs have gained much more attention in recent years due to severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection and many drug candidates are currently under investigation in order to end pandemic. Molnupiravir, a prodrug of the synthetic nucleoside derivative N4-hydroxycytidine, is one of the promising candidates for SARS-CoV-2 treatment. In this study, a RP-HPLC method was developed for the determination of Molnupiravir and applied for in vitro permeability studies of selfemulsifying drug delivery system (SEDDS) formulations using Caco-2 cell line. Discovery® HS C18 Column (75 ×4.6 mm, 3 µm) was used at 30 °C. Isocratic elution was performed with ACN:water (20:80 v/v) mixture. The flow rate was 0.5 mL/min and UV detection was at 240 nm. Molnupiravir eluted within 5 min. Molnupiravir was exposed to thermal, photolytic, hydrolytic, and oxidative stress conditions. Peak homogeneity data of Molnupiravir in the stressed samples peak obtained using photodiode array detector, in the stressed sample chromatograms, demonstrated the specificity of the method for their estimation in presence of degradants. The developed method was validated according to the International Council for Harmonisation (ICH) guidelines and found to be linear within the range 0.1–60.0 µg/mL. The method was simple, rapid, selective, sensitive, accurate, precise, robust and rugged. Thus, it was applied successfully for permeability quantitation of Molnupiravir in nanoformulations. The apparent permeability of Molnupiravir in SEDDS formulations, which have droplet size under 350 nm, was calculated as  $3.20 \pm 0.44 \times 10^{-6}$  cm/s. The novel coronavirus disease 2019 (COVID-19) emerged in late December 2019 in china and has rapidly spread to many countries around the world. The effective pharmacotherapy can reduce the mortality of COVID-19. Antiviral medications are the candidate therapies for the management of COVID-19. Molnupiravir is an antiviral drug with anti-RNA polymerase activity and currently is under investigation for the treatment of patients with COVID-19. This review focuses on summarizing published literature for the mechanism of action, safety, efficacy, and clinical trials of molnupiravir in the treatment of COVID-19 patients.

*f. siveetha*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-46



IMPROVEMENT OF PHYSICAL STABILITY OF IBUPROFEN SUSPENSIONS  
EMPLOYING  $\beta$ -CYCLODEXTRIN

G. Chandra Sekhara Rao, Chinta Manasa, Tammineni Meghana, Pothala Lahari, Boyidi Sai  
Ramya  
Vignan Institute of Pharmaceutical Technology, Visakhapatnam

ABSTRACT:

An oral suspension provides a convenient means of administering an insoluble drug where difficulty may be encountered in swallowing solid dosage forms (mainly in pediatrics and geriatrics). Suspensions are liquid preparations that consist of solid particles dispersed throughout a liquid phase in which the particles are not soluble. The present work was aimed at developing Ibuprofen Oral suspension by complexation with  $\beta$ -Cyclodextrin for oral administration, with a view to improve physical stability and dissolution. A total of 5 ibuprofen oral suspensions containing 0%, 1%, 2%, 3%, 4%  $\beta$ -CD and 1% methylcellulose were prepared and evaluated for drug content estimation, viscosity measurement, pH measurement, particle size determination, Sedimentation volume, Redispersibility, Freeze-thaw cycling stability. From these stability studies, formulation F5 with 4%  $\beta$ -CD has shown better physical stability, high Sedimentation volume and high redispersibility when compared to other.



*Received*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Vadlapudi, Visakhapatnam-46



ANTIMICROBIAL AND ANTI OXIDANT ACTIVITY OF *TINOSPORA*  
*CORDIFOLIA* (GUDUCHI TREE)

B. Rama Rao, Y. Mrudula, T. Chandini, Sowrya Bharathi, K. Mounika, K. Dileep Kumar  
Vignan Institute of Pharmaceutical Technology, Visakhapatnam

**ABSTRACT**

Medicinal plants are known for their bioactive compound which is responsible for various beneficial characters, in this case, anti-microbial character. The anti-microbial and anti-oxidant activity, character of shade dried and powdered *T. cordifolia* leaves were tested and observed against a test microorganism *Escherichia coli*. Different solvent extracts, i.e. ethanolic and aqueous extracts of the leaf were taken and then tested for their degree of anti-microbial nature against *E. coli* using slip disc method. The degree of the character of the plant extract was inferred by the comparative studies of the zone of inhibition (in mm diameter). The results observed from the experiment prove to us that the natural medicinal character of the climber is an economical alternative form of medicine compared to the currently used ones, with fewer side effects to the consumers and easy availability.



*y. Mrudula*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Address: VSEZ, Duvvada, Visakhapatnam-6

**SIMULTANEOUS RP-HPLC METHOD FOR ESTIMATION OF DOXYLAMINE  
SUCCINATE AND PYRIDAXONE HCL IN BULK AND FORMULATION**

Anitha Kola, Varapasada Rao K<sup>1</sup>, Gangu Naidu Challa, Sridevi Ranjitha, Srinivasa Rao  
Yarraguntla<sup>1</sup>, Bhagavan Rajesh Babu Koppisetty  
Vignan Institute of Pharmaceutical Technology, Visakhapatnam

**ABSTRACT**

A simple, rapid and sensitive simultaneous RP-liquid chromatographic method has been developed for the assay of pyridoxine HCL and doxylamine succinate in Bulk and Pharmaceutical dosage form. Chromatographic separation achieved on a Waters Symmetry C<sub>18</sub> column of 150 mm ×4.6mm with a particle size of 5µm in Isocratic elution with mobile phase containing phosphate buffer and acetonitrile in ratio (30 : 70 v/v). The pH was adjusted to 3.5 with orthophosphoric acid. The flow rate was 1 mL/min and effluent were monitored at 254nm. The elution/retention time of Doxylamine succinate and Pyridaxone HCL was at 3.3 min and 2.16 min respectively. The run time for analysis was 10 min. The developed method was validated according to ICH guidelines and successfully applied to bulk drugs as well as in Pharmaceutical dosage form.

Keywords: HPLC, method development, Doxylamine, ICH guidelines



*Dr. Anitha Kola*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Address: VSEZ, Duwada, Visakhapatnam-46

EVALUATION OF THE RELAXANT ACTIVITY OF SKELETAL MUSCLE USING LEAF EXTRACTS OF THE *CROSSANDRA INFUNDIBULIFORMIS* LEAF EXTRACTS IN ALBINO WISTAR RATS

Syamala Reddi, Galanki Vasantha, Lakshmi sujitha T  
Vignan Institute of Pharmaceutical Technology, Duvvada, Visakhapatnam.

ABSTRACT

*Crossandra infundibuliformis* also Known as "Firecracker" & species of the flowering plant belonging to the family of Acanthaceae, which is originated to Sri Lanka and southern India. In tropical and subtropical areas of India, it is most commonly used to cure a wide range of illnesses. The present study was to evaluate the skeletal muscle relaxant activity using ethanol & n-hexane extracts of *Crossandra infundibuliformis* leaves by comparing with the diazepam in albino wistar rats. On the basis of acute toxicity experiments, a total of 36 wistar albino rats of both sexes, weighing roughly 200-250g, and two doses were chosen. Six different groups, each with six creatures, were formed from the animals. Group I, the control group, was treated with regular saline. The ethanol extract of *Crossandra infundibuliformis* was given to Groups III and IV at doses of 100 and 200 mg/kg body weight, respectively, in addition to the standard drug (Diazepam), which was given to Group II at a dose of 10 mg/kg body weight, orally. Groups V and VI received oral doses of *Crossandra infundibuliformis* n-hexane extract at 100 mg/kg and 200 mg/kg, respectively. Using the Rotarod device, the skeletal muscle relaxant activity or the motor coordination were carried out. Turkey's multiple comparison tests were conducted after the statistical study was completed using Analysis Of Variance (ANOVA) and Graph Pad Prism 7. However, P 0.05 was chosen as the statistical significance threshold. The Rotarod apparatus' findings demonstrated that the extract of *Crossandra infundibuliformis* considerably decreased (P 0.05) the tested animals' ability to coordinate their movements. According to this study, *Crossandra infundibuliformis* has substantial skeletal muscle relaxing properties.

**KEY WORDS:** Skeletal muscle relaxant, Rotarod, *Crossandra infundibuliformis*, Diazepam



*S. Sivasubramanian*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
VADLAPUDI, P.P. 48, VISAKHAPATNAM-531 124



Maulin P. Shah  
Arpita Roy *Editors*

# Phytonanotechnology

 Springer

Maulin P. Shah · Arpita Roy  
Editors

# Phytonanotechnology

 Springer



*Editors*

Maulin P. Shah  
Industrial Wastewater Research Lab  
Division of Applied and Environmental  
Microbiology  
Gujarat, India

Arpita Roy  
Department of Biotechnology, School  
of Engineering and Technology  
Sharda University  
Greater Noida, India

ISBN 978-981-19-4810-7      ISBN 978-981-19-4811-4 (eBook)  
<https://doi.org/10.1007/978-981-19-4811-4>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2022

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd. The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

# Contents

<b>Plant Synthesized Nanoparticles for Dye Degradation</b> .....	1
Varimadugu Aruna, Nainika Chada, Medagam Tejaswini Reddy, Vadakavila Geethikalal, Kiranmai Dornala, and C. Nagendranatha Reddy	
<b>Plant-Mediated Green Synthesis of Nanoparticles for Photocatalytic Dye Degradation</b> .....	31
Vikram R. Jadhav, Jayraj S. Aher, Arun M. Bhagare, Akshay C. Dhaygude, and Dnyaneshwar D. Lokhande	
<b>Plant-Derived Nanoparticles for Heavy Metal Remediation</b> .....	59
V. Andal, Karthik Kannan, V. Selvaraj, and K. Suba	
<b>Biomedical Applications of Phytonanotechnology</b> .....	77
Satya Lakshmi Siragam	
<b>Application of Nanotechnology in Plant Secondary Metabolites Production</b> .....	99
Gyanendra Kumar, Bijesh Puthusseri, Divya Peethambaran, and Mohammed Azharuddin Savanur	
<b>Applications of Nanotechnology in Preservation and Development of the Plants: A Look Back</b> .....	121
Gyanaranjan Sahoo, Pravat Kumar Roul, Prasannajit Mishra, and Aruna Kumari Nakella	
<b>Environmental Applications of Phytonanotechnology: A Promise to Sustainable Future</b> .....	141
Rakhi Chahar and Manishita Das Mukherji	
<b>Phytonanotechnological Approach for Silver Nanoparticles: Mechanistic Aspect, Properties, and Reliable Heavy Metal Ion Sensing</b> .....	161
Shubhangi Mane-Gavade, Pratapshingh Gaikwad, Rohant Dhabbe, Suraj Umdale, Sachinkumar Patil, and Sandip Sabale	

COVID-19 pandemic has emerged as a disaster for human beings. Governments around the world have been preparing to deal with this medical emergency that is associated with a mortality rate of about 5%. It has been observed that many patients with COVID-19 infection have mild symptoms or are asymptomatic. COVID-19 infected individuals are kept in isolation wards because of the risk of infecting others. Patients with COVID-19 infection experience mental distress due to the isolation, the fear of death, and the stigma associated with it. Monitoring and overseeing population mental health during a crisis such as a pandemic is therefore of utmost importance.



Srinivasa Rao Yarraguntla  
Vinothkumar Mugada

He has profound experience in Teaching, Industrial and Research Laboratories in home and abroad. His write-ups near about 150 Research Paper Publications in National and International Journals. He received the Best Research Paper Award 4 times by Andhra University. He received the "YOUNG SCIENTIST AWARD-2016" by CEGR, New Delhi.



# COVID-19 PATIENTS LIVED EXPERIENCES AND STRESS IN GENERAL POPULATION

A MIXED METHODS STUDY



*Dr. Srinivasa Rao*  
PRINCIPAL  
VIGNANI INSTITUTE OF PHARMACEUTICAL TECHNOLOGY  
VINOCHKUMAR MUGADA  
VADDE VEEEL, DUVVURADA, VADDE VEEEL, DUVVURADA, VADDE VEEEL, DUVVURADA





Srinivasa Rao Yarraguntla  
Vinodkumar Mugada

# COVID-19 PATIENTS LIVED EXPERIENCES AND STRESS IN GENERAL POPULATION

A MIXED METHODS STUDY

FOR AUTHOR USE ONLY

*S. Srinivasa Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49



**LAP LAMBERT Academic Publishing**

## Imprint

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: [www.ingimage.com](http://www.ingimage.com)

Publisher:

LAP LAMBERT Academic Publishing

is a trademark of

Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L publishing group

120 High Road, East Finchley, London, N2 9ED, United Kingdom

Str. Armeneasca 28/1, office 1, Chisinau MD-2012, Republic of Moldova, Europe

Printed at: see last page

ISBN: 978-620-5-52821-1

Copyright © Srinivasa Rao Yarraguntla, Vinodkumar Mugada

Copyright © 2022 Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L publishing group

*S. Srinivasa Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49



## CONTENTS

CHAPTER NO.	NAME OF THE TOPIC	PAGE NUMBER
	ABSTRACT	1-2
	AIM AND OBJECTIVES	3
1	INTRODUCTION	4-7
2	REVIEW OF LITERATURE	8-24
3	METHODOLOGY	25-32
4	RESULTS	32-48
5	DISCUSSION	49-56
6	CONCLUSION	56-57
7	REFERENCES	57-64



*Dr. Sushree Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49

This textbook gives detailed view on the evolution of pharmacognosy and different traditional systems of medicine. A glimpse of various crude drugs their collection, collection and medicinal uses are also covered in this book. This book help the students to understand the concept of good agricultural practices and adulteration. The also covers systematic pharmacognostic study of lipids, steroidal oils and role of quality crude drugs as ingredients. A feedback manual is also provided to benefit all categories of students.

### Pharmacognosy & Crude Drugs



The author is a doctorate from Anna University. The author has 11 years of experience in teaching and research. She is an expert in the field of Pharmacognosy, Medicinal Drug Technology, Chemistry of Natural Products and Herbal Cosmetics. The author is currently working as Associate Professor in Vignam Institute of Pharmaceutical Technology.



Garu Marquisha Kondeppudi

Garu Marquisha Kondeppudi

# A Handbook of Pharmacognosy and Crude Drugs



*G. Marquisha*  
PRINCIPAL OF  
VIGNAM INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Trade VELL, Dornada, Vaidyanthapuram



Gana Manjusha Kondepudi

**LAP LAMBERT Academic Publishing**

# A Handbook of Pharmacognosy and Crude Drugs

Publisher:

LAP LAMBERT Academic Publishing

is a trademark of

Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L Publishing group

20 High Road, East Finchley, London, N2 9ED, United Kingdom  
Str. Armeneasca 28/1, office 1, Chisinau MD-2012, Republic of Moldova,  
Europe

Printed at: see last page

ISBN: 978-620-5-49247-5

Copyright © Gana Manjusha Kondepudi

Copyright © 2022 Dodo Books Indian Ocean Ltd. and OmniScriptum S.R.L  
Publishing group

## Imprint

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: [www.ingimage.com](http://www.ingimage.com)



## TABLE OF CONTENT

S.NO.	Content	Page No.
1	Objectives & Outcomes	2
	<b>Chapters</b>	
2.	Chapter-I: Definition, history, scope and development of Pharmacognosy	4
3.	Chapter-II: Classification of Crude Drugs	31
4.	Chapter-III: Cultivation, collection, processing, drying and storage of medicinal plants	52
5.	Chapter-IV: Adulteration & Evaluation of crude drugs	114
6.	Chapter-V: Systematic pharmacognostic study of the following carbohydrates and derived products	153
7.	Chapter-VI: Systematic Pharmacognostic study of the following Lipids Systematic Pharmacognostic study of the following volatile oils	186
8.	Fast track material	271



Dr. P.V. KAMALA KUMARI

*An Introduction to*  
**PHARMACEUTICS-I**

*Strictly As Per Syllabus Prescribed for B. Pharmacy,  
Semester-I by Pharmacy Council of India, New Delhi*

**Pee Vee** (Regd.)



*An Introduction to*

# **PHARMACEUTICS-I**

*Strictly As Per Syllabus Prescribed for B. Pharmacy,  
Semester-I by Pharmacy Council of India, New Delhi*

**Dr. P.V. Kamala Kumari**, *M.Pharm, Ph.D*

*Professor*

Vignan Institute of Pharmaceutical Technology

Beside VSEZ, Duvvada

Visakhapatnam- 530049

**S.VIKAS AND COMPANY (MEDICAL PUBLISHERS)**



# CONTENTS

Chapter 1	Historical background and development of profession of pharmacy 1-19	
	1.1 History of profession of pharmacy 1, 1.2 Current status of pharmacy profession in India 6, 1.3 Pharmaceutical industry in India 8, 1.4 Pharmacy as a career 9, 1.5 Pharmacopoeia / formularies / compendia 12	
Chapter 2	Dosage forms	20-34
	2.1 Introduction 20, 2.2 Classification 21, 2.3 Solid dosage forms 25, 2.4 Liquid dosage forms 27, 2.5 Semi solid dosage forms 31, 2.6 Gaseous dosage forms 32	
Chapter 3	Prescription	35-45
	3.1 Definition 35, 3.2 Parts of a prescription 35, 3.3 Handling of prescription 38, 3.4 Latin terms and abbreviations commonly used in prescription writing 39, 3.5 Sources of error in prescription 42	
Chapter 4	Posology	46-52
	4.1 Introduction to posology 46, 4.2 Factors influencing dosage 46, 4.3 Paediatric dose calculations 49	
Chapter 5	Pharmaceutical calculations	53-73
	5.1 Weights and measures 53, 5.3 Conversion table for domestic measures 56, 5.4 Percentage calculations 56, 5.5 Isotonic solutions 61, 5.6 Alcohol dilutions 63, 5.7 Alligation method 64, 5.8 Proof spirit 70	
Chapter 6	Powders	74-89
	6.1 Introduction 74, 6.2 Comminution of drugs 75, 6.3 Blending powders 75, 6.4 Classification of powders 76, 6.5 Special powders 86	
Chapter 7	Liquid dosage forms	90-107
	7.1 Introduction 90, 7.2 Classification of liquid dosage forms 91, 7.3 Formulation of liquid dosage forms 91, 7.4 Excipients used in formulation of liquid dosage forms 94, 7.5 Solubility 100, 7.6 Solubility enhancement techniques 102	
Chapter 8	Monophasic liquids	108-128
	8.1 Introduction 108, 8.2 Liquids meant for internal administration 108, 8.3 Liquids to be used in the mouth 117, 8.4 Liquids to be instilled into body cavities 122, 8.5 Liquids applied to the skin 125	
Chapter 9	Biphasic liquids	129-164
	9.1. a. Suspensions 129, 9.1. b. Emulsions 140	



*Dr. Anil Kumar*  
PRINCIPAL  
VIGNANI INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
B-57, Duvvada, Visakhapatnam-531 004



Chapter 10 Suppositories 165-177

10.1 Introduction 165, 10.2 Advantages of suppositories 165, 10.3 Disadvantages of suppositories 165, 10.4 Types of suppositories 166, 10.5 Suppository bases 166, 10.6 Preparation of suppositories 169, 10.7 Packaging and storage 172, 10.8 Mechanism of drug action 173, 10.9 Factors affecting drug absorption from rectal suppositories 173, 10.10 Evaluation of suppositories 175

Chapter 11 Pharmaceutical incompatibilities 178-190

11.1 Definition 178, 11.2 Types of incompatibilities 178, 11.3 Physical incompatibility 178, 11.4 Chemical incompatibility 181, 11.5 Therapeutic incompatibility 187

Chapter 12 Semisolid dosage forms 191-214

12.1 Introduction 191, 12.2 Classification 191, 12.3 Ointment bases 192, 12.4 Preparation of ointments 195, 12.5 Mechanism and factors influencing dermal penetration of drugs 199, 12.6 Evaluation of ointments 202, 12.7 Pastes 203, 12.8 Creams 204, 12.9 Gels 207, 12.10 Excipients used in semisolid dosage forms 212

Index

(i)-(ii)



*G. Srinivas*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duwada, Visakhapatnam-46



01 Chapter

02 A Concise Review on Carbon Fiber-  
03 Reinforced Polymer (CFRP) and  
04 Their Mechanical Significance  
05 Including Industrial Applications

06 *Challa Gangu Naidu, Ch. VV. Ramana, Y. Srinivasa Rao,*  
07 *K. Vara Prasada Rao, D. Vasudha, G. Anusha*  
08 *and K.B. Rajeshbabu*

09 Abstract

10 Excellent characteristics of carbon fiber-reinforced polymer (CFRP) include light  
11 weight, high strength, high modulus, and high temperature resistance. CFRP has a  
12 wide range of potential applications in the domains of public safety, aviation, and  
13 high-end non-military people products. Different methods have been used to modify  
14 the CFRP in order to increase surface action, harshness, and wettability, improving  
15 the interfacial binding between the fiber and network for better mechanical proper-  
16 ties. Finally, a few CFRP-related difficulties are looked at, and future directions in  
17 interfacial support research are predicted. In this day and age, innovation-focused  
18 applications are becoming more significant, and the use of mechanical cycles is  
19 progressing swiftly and steadily. Due to their exceptional performance, such as low  
20 weight, high specific strength, and high specific stiffness, carbon fiber-reinforced  
21 polymer (CFRP) composites have a wide application viewpoint in the aerospace,  
22 military, and wind power sector high-quality civilian products. The components  
23 of CFRP are Carbon fiber as reinforcement to enhance the composite's mechanical  
24 qualities and polymer as a matrix to link the fibers and shield them from the elements.  
25 Currently, there is still a significant discrepancy between the theoretical calcula-  
26 tion of the CFRP and the actual force. Improving the interface rationally is the key  
27 to solving this fundamental issue. Due to unique aspects like a high load carrying  
28 capacity and low thickness, the interface is a unique component of composites that is  
29 directly related to the actual transfer and dispersion of charges between matrix and  
30 reinforcement and, hence, defines the strength compound toughness. The develop-  
31 ment, properties, and contemporary applications of CFRP composite materials, as  
32 well as their processing and boring activities, are discussed in this overview along  
33 with recent innovations and potential future applications.

34 **Keywords:** CFRP, macro systems, machinability, reinforcement, high specific strength

AQ1



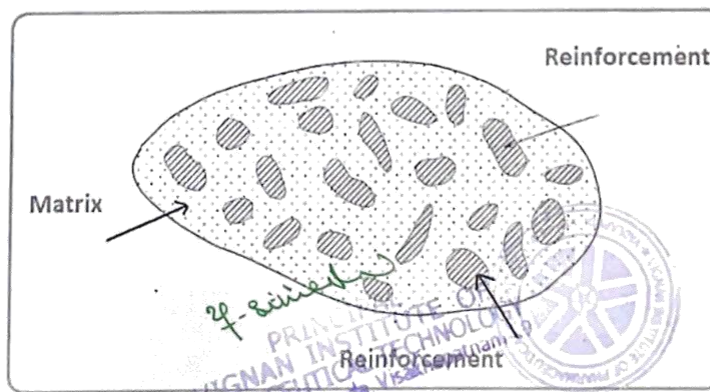
01 **1. Introduction**

02 Recently, carbon fiber has emerged as one of the most important supporting  
03 materials due to its incredible strength, modulus, and high temperature resistance  
04 (Figure 1). Many logical efforts have been made to enhance and analyze their exhibi-  
05 tion, particularly composite frameworks [1-5]. Despite these advantages and efforts,  
06 it should be noted that a composite framework's interfacial bond between the carbon  
07 strands and the framework is too weak to ensure excellent mechanical performance  
08 [6, 7]. Because van der Waals attraction and the hydrogen force are present at the  
09 point of interaction in a composite framework, the degree of bonding at the connec-  
10 tion point between the fiber and lattice plays a substantial role in the development of  
11 the future mechanical behavior. In addition, numerous functional group interactions  
12 through carbon fiber connectivity as well as machinability gradually increased [8, 9],  
13 and the level of binding at points of interaction is essential. They can also respond  
14 with a variety of different polymer materials.

15 Metals, plastics, ceramics, and composite materials are the four main groups into  
16 which the materials are separated based on their properties (like hardness; strength,  
17 thickness, and liquefying temperature). While the qualities, designs, and application  
18 areas of each of these materials vary, composite materials have recently emerged as  
19 common and valuable designing materials for a wide range of applications. Composite  
20 materials should perform better because they are minutely heterogeneous, have  
21 significant variations in the mechanical characteristics of their component materials,  
22 and have a volumetric ratio of component materials more than 10%.

23 However, the characteristics of these composites are controlled by the characteris-  
24 tics of the individual components as well as by the junction between the strands and  
25 the framework saps (status, access, power, and stuff). All that is needed to sustain  
26 composite materials effectively is for enough pressure to pass between the network  
27 pitches and strands. The two have a tangible, bodily link that attests to this. Epoxy  
28 resins and gums cannot form a strong bind with untreated carbon strands. To combat  
29 this, pretreatments of fiber surfaces have been promoted. These are typically oxida-  
30 tive in nature and considerably improve the fiber/network connection in various  
31 classes, as shown in Figure 2.

32 Due to their exceptional display, such as their excellent binding nature, and sen-  
33 sible connection improvement, carbon fiber-supported polymer (CFRP) composites



34 **Figure 1.**  
Schematic representation of composite material structure.

Chapter

# Recent Advances in Nano-Enabled Fertilizers towards Sustainable Agriculture and Environment: A Mini Review

*Challa Gangu Naidu, Yarraguntla Srinivasa Rao,  
Dadi Vasudha and Kollabathula Vara Prasada Rao*

## Abstract

Food creation be directed expand uniquely to take care of the developing human populace; however, this should be accomplished while at the same time decreasing unfriendly natural effects. In such manner, there is expanding interest in the utilization of nanomaterials as composts for further developing plant mineral sustenances that are crippling Indian agriculture. To address these problems, there is a need to explore one of the frontier technologies like nano-technology to precisely detect and deliver correct quantity of nutrients that promote the productivity. Nano-technology uses synthesized materials that are 10–9 nm in size to improve the productivity, yield and crop quality. Research has proved beyond doubt that the nano-fertilizers that contain readily available nutrients in nano-scale have increased uptake, absorption and improved bioavailability in the plant body compared to the conventional bulk equivalents. This audit assesses the current writing on ENMs utilized as pesticides and manures, and features basic information holes that should be addressed to guarantee maintainable use of nanotechnology in horticulture to accomplish worldwide food security. Designing nanoparticles-based nanofertilizers offer advantages in crop nourishment of the board by upgrading abiotic stress resilience and improving farming efficiency towards the advancement of brilliant and supportable future horticulture.

**Keywords:** fertilizers, nanotechnology, nanomaterials, nanofertilizers, plant nutrition

## 1. Introduction

The ascent in worldwide populace, joined with further developed pay also dietary changes, is driving a consistently expanding food request that is relied upon to ascend by 70% in 2050. This request is the significant wellspring of food and feed for people and home animals. In any case, rural yield bugs, environmental change occasions like dry spells, and low supplement use productivity are critical deterrents to accomplishing worldwide food security [2]. More than 22,000 types of plant microbes, weeds, bugs and vermin are assaulting ranch produce globally [3]. Annually, China also the United States use around 1806 and



386 a huge number of kilograms of pesticides, individually. However, financial misfortunes brought about by crop infections and vermin in the United States are assessed at a few billions of dollars every year. In the United States, endeavors to battle contagious microbes alone surpass \$600 million for every annum [4, 5]. This degree of financial misfortune also shortcoming in food creation keep on frustrating endeavors pointed towards accomplishing and keeping up with food security [4]. The board of plant infections and nuisances is especially difficult, both as far as ideal recognizable proof of infection and because of the predetermined number of administration choices.

The best methodology among the regular techniques for illness the board procedures is the turn of events of host opposition crop varieties [6]. However, not all crops intrinsically have obstruction qualities against pathogenic infections what's more there keeps on being huge cultural disquiet over hereditarily changed food sources. These sources contain like copper, manganese along with zinc as a micro elemental metals in farm safeguard. Nonetheless, based on viability of regular compost having specific revisions obstructed, due to existence of minimum supplement required in which would be impartial solubility [7, 8]. There has been interest in the utilization of nanotechnology in horticulture for almost 15 years, in spite of the fact that effective application has been to some degree tricky. By the by, the utilization of designed nanomaterials (ENMs) in plant infection the executives and soil treatment has earned expanded interest as of late, with different reports illustrating critical potential. Various ENMs have been accounted for to further develop development, improve supplement use proficiency, and stifle sicknesses in plants in nursery tests and a modest number of field trials [9, 10] also, the utilization of ENMs as an expected option in the insurance of plants against bugs and weeds is acquiring interest, albeit hardly any investigations have been led in this area [11]. This audit assesses current potential open doors for the utilization of ENMs in horticulture, zeroing in on nanotechnology-empowered manures and pesticides (counting microbicides, bug sprays and herbicides), from now on alluded to as nanofertilizers and nanopesticides. A number of the detailed articles were fundamentally assessed in view of the adequacy of ENMs utilized in the examination, the trial plan, possible ecological effects, and relative correlation with traditional business items. Notwithstanding reviewing the current writing, a conversation of

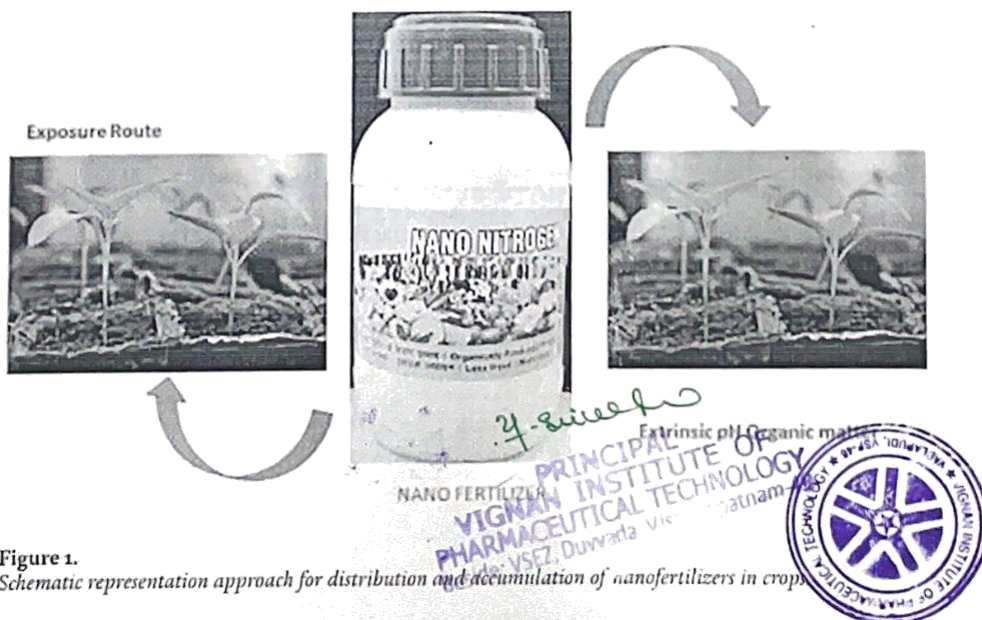


Figure 1. Schematic representation approach for distribution and accumulation of nanofertilizers in crops.



International Conference on  
Professional Development and Advanced Training in Artificial  
Intelligence driven Drug Design, Discovery and Development

# SOUVENIR



**Hosted By**  
Department of Pharmaceutical Chemistry  
**JSS College of Pharmacy**  
Ooty, The Nilgiris, Tamil Nadu.

**Jointly Organized By**



Operant Pharmacy  
Federation

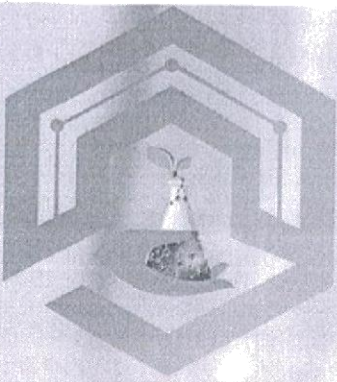


*Dr. Rishikesh Rao*

**Academic Partner**  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvuru, Visakhapatnam-49







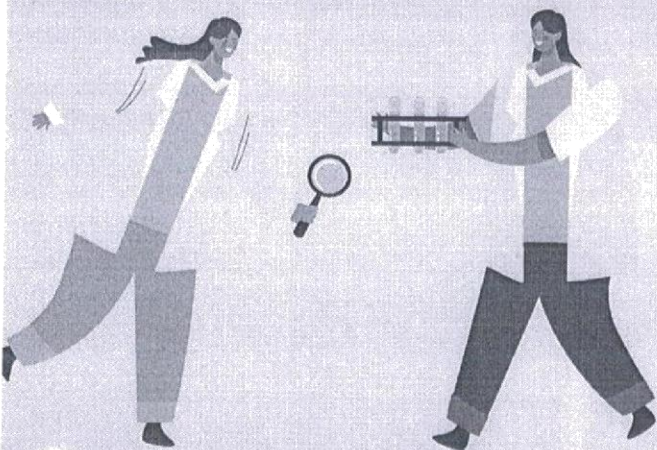
# PharmaNEST'3.E

Network, Engage, Support, Transfer Knowledge

## INTERNATIONAL CONFERENCE

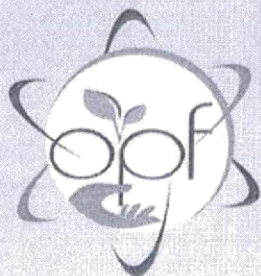
on 14 & 15 October 2022

**Professional Development and Advanced  
Training in Artificial Intelligence driven drug  
design, discovery and development**



**JOINTLY ORGANISED BY**

**Academic Partner**

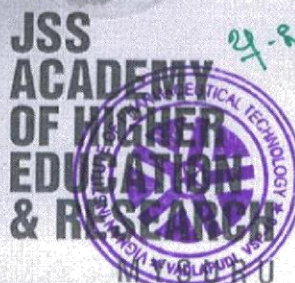


Operant Pharmacy  
Federation



(DEEMED TO BE UNIVERSITY)

Organizing at:



**JSS  
ACADEMY  
OF HIGHER  
EDUCATION  
& RESEARCH**

*27 - Ethirvel Kan*



**VIGNIT INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY**  
Beside VSEZ, Duvvada, Machilipatnam, AP



**GUJARAT TECHNOLOGICAL  
UNIVERSITY**

**Department of Pharmaceutical Chemistry**

**JSS College of Pharmacy, Ooty**

(Ranked 6th by NIRF in India)

JSS Academy of Higher Education & Research, Mysuru

(Deemed to be University-Accredited with 'A+' Grade by NAAC)

Ooty -643001, The Nilgiris, Tamil Nadu.

Ph: 0423-2443393/2443394, Fax: 0423-2442937

+91-94609 71652



pharmanest.opf@gmail.com



www.jss.opf.org.in





PCPA/P/201

**RP-HPLC TECHNIQUE FOR THE SIMULTANEOUS QUANTIFICATION OF  
IVACAFTOR AND TEZACAFTOR**

**Salapu Geetha Manisha\***, Vasudha Dadi  
B.Pharmacy, Vignan Institute Of Pharmaceutical  
Technology, Duvvada, Visakhapatnam, Andhrapradesh, India  
**\*Geethasalapu@Gmail.Com**

**Introduction and objective**

Ivacaftor N-(2, 4-Di-tert-butyl-5-hydroxyphenyl) 4-oxo-1, 4-dihydroquinoline. By enhancing the channel-open probability (or gating) of the G551D-CFTR protein, -3-carboxamide, whose molecular formula is C<sub>24</sub>H<sub>28</sub>N<sub>2</sub>O<sub>3</sub>[1], promotes enhanced chloride transport. Tezacaftor 1-(2,2-Difluoro-1,3-benzodioxol-5-yl)-N-[1-[(2R)-2,3-dihydroxypropyl]-6-fluoro-2-(2-hydroxy-1,1-dimethylethyl)-1H-indol-5-yl]-cyclopropanecarboxamide[2]. Tezacaftor and Ivacaftor are simultaneously determined using the RP-HPLC technique in a fixed dose combination.

**Methods**

The ideal chromatographic conditions for the separation of Tezacaftor and Ivacaftor were achieved using Inertial-ODS C18 (250 x 4.6 mm, 5), flow rate of 1.0 ml/min, mobile phase ratio of Methanol: Buffer (45:55), and detection wavelength of 254 nm.

**Results**

Ivacaftor and tezacaftor had average recoveries of 100.21 percent and 100.15 percent, respectively. For the estimation of ivacaftor and tezacaftor, the method given has been successfully used in combination tablet dose form and has been verified in accordance with ICH standards.

**Conclusion**

The development of the analytical method involved researching several parameters. First off, it was discovered that Tezacaftor and Ivacaftor's highest absorbance occurred at 241 and 254 nm, respectively. The typical wavelength is 254 nm, and the peak purity was superb. For both medicines, it was discovered that the analytical method was linear over the range of 20-70 ppm of the target concentration. The analysis passed the tests for ruggedness and robustness.

**References:**

- [1] Tezacaftor and Ivacaftor / Pharmacol.com. Displayed on: <http://www.PubMed>.
- [2] B.K. Sharma, page 286-370 a chemical analysis procedure that uses instruments.



*G. Srinivas Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49



**FORMULATION AND EVALUATION OF DEXAMETHASONE ORODISPERSABLE TABLETS USING NATURAL SUPERDISINTEGRANTS**

Jampana Ramya<sup>1\*</sup>, Medapati Saritha, Dwarapudi Revathi, Boyina Harshini<sup>2\*</sup>

<sup>1</sup>b.Pharmacy, Vignan Institute Of Pharmaceutical Technology, India

<sup>2</sup>b.Pharmacy, Vignan Institute Of Pharmaceutical Technology, India

\*[ramyajampana02@gmail.com](mailto:ramyajampana02@gmail.com)

**Introduction and objectives:**

Healthcare practitioners reported trouble swallowing oral medications in juvenile, geriatric, psychotic patients & tourists difficult in accessing water where solid dosage form is least preferred. The goal of this study is to develop mouth dissolving Dexamethasone ODTs which have quick onset of action which dissolve and disintegrate in mouth without using water in seconds using synthetic and natural superdisintegrants like SSG, Crospovidone & hibiscus leaf mucilage, Okra gum, mango pectin to investigate drug release profile.

**Methods:**

Direct compression to compress into tablet, Dexamethasone and its excipients used were determined by using FTIR Spectroscopy to examine its compatibility, to analyse pure drug sample and polymer (Infrared Spectroscopy). Finally, post compression tests and in-vitro drug release tests are conducted.

**Result:**

The formulation met USP specification limit where 2.5% Okra mucilage disintegrated in 38.08 seconds and 99.85% of drug was released by the end of 60 minutes.

**Conclusion:**

Maximum lambda was found at 242nm it enables faster disintegration of tablets in <3 minutes with minimum wetting time and maximum water absorption ratio. ODTs are promising approach for fast action of drug compared to conventional dosage form with better bioavailability, effectiveness and patient compliance.

**References:**

1. Swatantra KM, Rakesh V, Sandeep SP. Formulation and evaluation of mouth dissolving tablets of carvedilol. Int J Biol Sci. 2011 Jan-Mar; 2(1): 232-235
2. Pritam Dinesh Choudary and Harsh Ashok Pawar Journal of Pharmaceutics volume 2014, Article ID 204849, 9 pages, <http://dx.doi.org/10.1155/2014/204849>.



*Y. Srinivas Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49

**NUTRACEUTICALS: HYBRID OF NUTRITION AND PHARMACEUTICALS**

Sonal Sharma\*<sup>1</sup>, Dr. Gana Manjusha K<sup>1</sup>

<sup>1</sup>Vignan Institute of Pharmaceutical Technology, Duvvada, Visakhapatnam – 530046

**Introduction and Objective:**

Nutraceuticals are dietary supplements, in broad, are food or part of food playing a significant role in modifying and maintaining normal physiological function that maintains healthy human beings. The food products used as nutraceuticals can be categorized as dietary fibre, prebiotics, probiotics, polyunsaturated fatty acids, antioxidants and other different types of herbal/ natural foods.

**Methods:**

Risk of toxicity or adverse effect of drugs led us to consider safer nutraceutical and functional food-based approaches for the health management. Herbal nutraceutical helps in maintaining health and promoting optimal health, longevity, and quality of life. Studies have shown promising results of nutraceuticals to treat several diseases, such as cancer, neurodegenerative diseases, cardiovascular diseases, etc.

**Results:**

The global market for nutraceutical is huge i.e., approximately USD 117 billion. Frequency of nutraceuticals use is 50%-70% in developed countries' population and this number is increasing by the age

**Conclusions:**

This nutraceutical revolution will lead us into a new era of medicine and health, in which the food industry will become research oriented one similar to the pharmaceutical industry.

**Key words:** Nutraceuticals, Dietary supplements

**References:**

- 1) Wilfried Andlauer, Peter Fürst, Food Research International 35 (2-3), 171-176, 2002
- 2) Lipi Das, Eshani Bhaumik, Utpal Raychaudhuri, Runu Chakraborty, Journal of food science and technology 49 (2), 173-183, 2012



*Dr. Gana Manjusha K*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-46



PCT/P/582

**THE PROTECTIVE EFFECT OF HYDRO -ALCOHOLIC EXTRACT OF LEAVES OF  
*MORINGA OLEIFERA* ON DOXORUBICIN INDUCED CARDIOTOXICITY AND  
HEPATOTOXICITY**

**Molli Bhoomika<sup>1\*</sup>, V.Jhansi Lakshmi<sup>1</sup>**

<sup>1\*</sup>B Pharmacy, Vignan Institute Of Pharmaceutical Technology, Duvvada, Visakhapatnam,  
Andhra Pradesh, India

<sup>1</sup>Department Of Pharmacology, Vignan Institute Of Pharmaceutical Technology, Duvvada,  
Vishakapatnam, Andhra Pradesh, India

[\\*bhoomimolli3401@gmail.com](mailto:*bhoomimolli3401@gmail.com)

**Introduction & Objective:**

*Moringa oleifera* belongs to the moringaceae family rich in antioxidants. Doxorubicin is an anthracycline anticancer drug, which induces both cardio and hepatotoxicity. To evaluate and confirm the potential cardio and hepato protective effects of administration of hydro-alcoholic leaves of *Moringa oleifera*.

**Method:**

Doses of 200mg/kg BW and 400mg/kgBW orally for a time span of a time span 14 days on doxorubicin-induced toxicity in male Wister rats.

**Observation:**

There is change of body weight, serum activity of lactate dehydrogenase, creatine kinase MB. In treatment groups with 200 and 400 mg/kg of the extract, the serum levels of ALT, AST, ALP and LDH; CK-MB decreased dose dependently compared with the toxic groups. After administration of doxorubicin, histopathological examination showed periportal leucocyte infiltration, granulomatous formation, focal necrosis and degeneration and inflammation in the liver tissue structure. The study cardio and hepatotoxicity were induced by doxorubicin for evaluation of the protective effect of hydro-alcoholic extract of leaves. The serum level in cardiac and hepatic tissues were significantly increased upon administration of DOX.

**Conclusion:**

According to biochemical, physical and histopathological results, it is confirmed that high dose of hydro-alcohol of *moringa oleifera* 400md/kg exhibit protective influence on heart and liver tissue against toxicity by doxorubicin.

**Reference:**

1 WHO/FAO expert consultation on diet, nutrition and the prevention of chronic disease

2 <http://www.heart.org>



*G. Srinivas Rao*

**PRINCIPAL**  
**VIGNAN INSTITUTE OF**  
**PHARMACEUTICAL TECHNOLOGY**  
Beside: VSEZ, Duvvada, Visakhapatnam-49



PCPA/O/105

**MODERN ADVANCES FOR BIOANALYTICAL SPECIMEN PREPARATION IN PHARMACEUTICALS**

Gandi Anusha\*<sup>1</sup> Assistant Professor, Karanam Sridevi Ranjitha <sup>2</sup>Associate Professor  
<sup>1,2</sup> Department of Pharmaceutical Analysis & Quality Assurance, Vignan Institute of  
Pharmaceutical Technology, India

\*gandianusha11@gmail.com

**Abstract**

Sample preparation is considered as the bottleneck step in bioanalysis because each biological matrix has its own unique challenges and complexity. A critical stage in every bio-analytical technique is competent sample preparation to extract the required analytes and remove superfluous components. The matrix effect is a significant barrier in the processing of bio-analytical samples, which has drawn a lot of attention.

**Methods:**

In terms of accuracy, automation, simplicity of sample preparation, preservation, and transportation, novel specimen preparation techniques are superior to conventional procedures. Over the past ten years, they have grown in popularity. Our goal is to give a thorough overview of recent advancements in a variety of bio-analytical sample preparation methods for chromatographic and spectroscopic analysis.

**Results and Conclusion:**

With the help of preferred instances, it is also indicated how these procedures have attracted a lot of attention in bio-analytical research during the past 10 years. The focus is mostly on current developments in sorbent-based micro-extraction techniques and other modern trends in bio-analytical sample preparation.

**Keywords:** Sample preparation technique, Biological matrices, Bioanalysis, Microextraction, Matrix effect

**References:**

1. A. Vaghela, A. Patel, A. Patel, *et al.* Sample preparation in bioanalysis: A review Int. J. Sci. Tech. Res., 5 (2016), pp. 6-10.
2. Z. Niu, W. Zhang, C. Yu, *et al.* Recent advances in biological sample preparation methods coupled with chromatography, spectrometry and electrochemistry analysis techniques TrAC Trends Anal. Chem., 102 (2018), pp. 123-146.



*Dr. Sridevi Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Reside: VSEZ, Duvvada, Visakhapatnam-49





PCPA/O/107

**UPLC-MS IN METABOLOMICS**

Karanam Sridevi Ranjitha \*<sup>1</sup> Associate Professor, Gandhi Anusha<sup>2</sup> Assistant Professor  
<sup>1,2</sup> Department of Pharmaceutical Analysis & Quality Assurance, Vignan Institute of  
Pharmaceutical Technology, India  
\*ranjitha.karanam@gmail.com

**Abstract:**

One of the relatively young and quickly expanding fields of post-genomic biological research is metabolomics. Metabolomics technology is being used more widely in drug discovery and development, and as a result, its impact is significantly growing.

**Methods:**

This presentation aims to give the reader a quick overview of the history of metabolomics' development, its importance, and methods for carrying out metabolomics studies. The most popular metabolomics analytical tools, NMR, UPLC-MS, LC-MS, and GC-MS, are reviewed along with usage guidelines.

**Results and conclusion:**

This review highlights some examples of the value of metabolomics analysis in research and development as well as how metabolomics may help with pharmaceutical research investigations in areas like toxicology and pharmacology.

**Keywords:** Metabolomics, NMR, UPLC-MS, LC-MS, GC-MS, Toxicology and Pharmacology.

**References:**

1. M. Murph *et al.* Liquid chromatography mass spectrometry for quantifying plasma lysophospholipids: potential biomarkers for cancer diagnosis, *Methods Enzymol*(2007).
2. M. Rafii *et al.* Measurement of homocysteine and related metabolites in human plasma and urine by liquid chromatography electrospray tandem mass spectrometry, *J Chromatogr B*(2009).



*G. Sridevi Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duwada, Visakhapatnam-49

PCPA/O/118

**SYNTHESIS OF NOVEL BISCHALCONES AND EVALUATION OF THEIR  
ANTIMICROBIAL ACTIVITIES**

**B.Bhavya Pratyusha\*, N. Siva Kumar, J.Ramesh, Dr.D.Vasudha**  
Vignan Institute Of Pharmaceutical Technology, Duvvada, Visakhapatnam  
Mail-beesetti.pratyusha@gmail.com

**Introduction and Objective:**

Chalcones are a group of natural products which possess a wide variety of biological activities. Bischalcones contain two chalcone moieties in a single structure which resemble curcumin.

**Methods:**

Keeping in mind the diverse array of biological activities associated with bischalcones a series of some new bischalcones containing different substituents were synthesized by aldol condensation of 2,4-diacetyl resorcinol with various aromatic and substituted aldehydes.

**Results:**

The synthesized bischalcones were purified by recrystallization and column chromatography. The characterization of the purified chalcones was made by IR, <sup>1</sup>H NMR and <sup>13</sup>C NMR. These compounds were further subjected for antimicrobial activity studies.

**Conclusion:**

When these chalcones were evaluated for antibacterial activities, Antifungal And Antitubercular some of them found to possess significant biological activity when compared to standard drugs.

**References:**

- 1.Synthesis, characterization and antimicrobial activities of some novel bis-chalcones, Akbar Mobinikhaledi, Mehdi Kalhor & Hossein Jamalifar







PCPA/O/129

**IMPURITY PROFILE OF IMMUNOMODULATORY DRUG TERIFLUNOMIDE BY  
RP-HPLC-PDA**

Koppisetty B. R. B <sup>1\*</sup>, Yejella R. P<sup>1</sup>, Pawar A.K.M<sup>1</sup>, Yarraguntla S.R<sup>2</sup>, Dadi V<sup>2</sup>, Challa G.N<sup>3</sup>

<sup>1</sup>Department of Pharmaceutical Analysis, College of Pharmaceutical Sciences, Andhra University, Visakhapatnam, Andhra Pradesh- 530003, India.

<sup>2</sup>Department of Pharmaceutical analysis, Vignan Institute of Pharmaceutical Technology, Visakhapatnam, Andhra Pradesh-530046, India.

<sup>3</sup>Department of Basic Sciences and Humanities (BS&H), Division of Chemistry, Vignan's Institute of Information Technology VIIT(A), Visakhapatnam, Andhra Pradesh--530046, India.

\*Author for correspondence: Email: koppisettybrbabu@gmail.com

**Introduction and Objective:**

International Council for Harmonization (ICH) Q3A(R2) has classified impurities in drug substances into organic impurities, inorganic impurities and residual solvents. The organic impurities are potential genotoxins causing a regulatory challenge to pharmaceutical industry. This work is focused on the identification of Process related organic impurities formed during the synthesis of an Teriflunomide by chromatography. The postulated synthetic pathway of Teriflunomide helped in developing optimized analytical method for the impurity profile.

**Methods:**

The impurity profile study was performed on RP-HPLC with a diode array detector. The gradient separation was achieved on C<sub>18</sub> YMC-Pack ODS column at 25°C column temperature. The 0.015M potassium dihydrogen phosphate with pH adjusted to 3.5 and acetonitrile were used as mobile phase. The flow was set at 1.0 mL/minute and detector wavelength of 210 nm.

**Results:**

The validated analytical method separated, six process related impurities with resolution and retention times below 35 minutes. The range of developed analytical method for Teriflunomide, Teriflunomide stage-1 and Impurity-D are 0.066 to 3.262 µg/mL, 0.035 to 1.880 µg/mL and 0.025 to 1.255 µg/mL respectively. The LOD and LOQ values for Teriflunomide, Teriflunomide stage-1 and impurity-D are 0.0037 µg/mL and 0.0096 µg/mL; 0.0016 µg/mL and 0.0051 µg/mL; 0.0011 µg/mL and 0.0033 µg/mL respectively.

**Conclusions:**

All possible impurities from manufacturing process can be suitably identified by the validated analytical method. The method was precise for the small deliberate changes during robustness test and can applied for the assay of teriflunomide in bulk drugs.

**References:**

1. ICH Harmonized Tripartite guideline, Validation of Analytical procedures: Q2(R1).
2. ICH Harmonized Tripartite guideline, Impurities in New drug substances: Q3A(R2)

*Dr. Srinivas Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Resid. VSEZ, Duvvada, Visakhapatnam-49





PCPA/O/130

**DEVELOPMENT AND VALIDATION OF RP -HPLC AND UV  
SPECTROPHOTOMETRIC METHODS FOR THE ESTIMATION OF RANOLAZINE  
IN BULK AND PHARMACEUTICAL DOSAGE  
FORM**

\*K VARA PRASADA RAO<sup>1</sup>, PROFESSOR,  
G ANUSHA<sup>2</sup>, ASSISTANT PROFESSOR, VIGNAN INSTITUTE OF PHARMACEUTICAL  
TECHNOLOGY  
varaprasadvipt@gmail.com.

**Introduction:**

We developed and validated novel UV Spectroscopic method for the estimation of Ranolazine in tablet dosage form. The drug is freely soluble and showed absorption maxima in analytical grade methanol. The drug obeyed the Beer's law and showed good correlation of concentration with absorption which reflected in linearity.

**Methods:**

The UV spectroscopic method was developed for estimation of Ranolazine in tablet dosage form and also validated as per ICH guidelines. The melting point of Ranolazine was found to be 120-122°C. It showed absorption maxima at 248 nm in analytical grade methanol. On the basis of absorption spectrum, the working concentration was set on 20 µg/ml. The linearity was observed between 5-30µg/ml.

**Results:**

The results of analysis were validated by recovery studies. The recovery was found to be 99.2, 99.7 and 99.1 for three levels respectively. The % RSD for precision was found to be 1.26% which was within acceptance criteria as per ICH guidelines. An RP-HPLC method has been developed and afterward validated for the determination of Ranolazine in Bulk and its tablet dosage form. Enable C18 G 250×4.6mm column in binary gradient Column and Acetonitrile and water (80:20) v/v as eluent at a flow rate of 1.0 mL/min. The method is simple, rapid, and selective. The described method of Ranolazine is linear over a range of 10-60 µg/mL.

**Conclusion:**

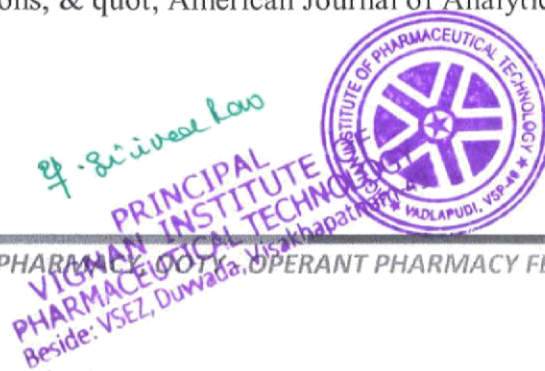
The precision studies are below 2.0% RSD. The percent recoveries of active pharmaceutical ingredient (API) from dosage forms ranged from 99% to 101%. The results demonstrated that the proposed technique is appropriate, precise, accurate and fast determination of Ranolazine in bulk and its Tablets dosage forms.

**Keywords:**

Ranolazine, Beer's law, ICH guidelines.

**References:**

1. Patil SP et al., Development and Validation of UV Spectroscopic Method for Estimation of Ranolazine in Tablet Dosage Form. American Journal of PharmTech Research 2018.
2. G. Ramanaiah, D. Ramachandran, G. Srinivas, J. Gowardhane, P. Rao and S. V, & quot; Development and Validation of Stability Indicating RP-LC Method for Estimation of Ranolazine in Bulk and Its Pharmaceutical Formulations, & quot; American Journal of Analytical Chemistry, Vol. 3 No. 5, 2012, pp. 378-384.





PTP/O/309

**ROSUVASTATIN CALCIUM NANOSPONGES LOADED TRANSDERMAL PATCH-  
DESIGN, OPTIMIZATION AND CHARACTERIZATION**

Siragam SATYA LAKSHMI<sup>1\*</sup>, Jalli ANUSHA<sup>1</sup>, Yarraguntla SINIVASA RAO<sup>1</sup>

<sup>1</sup>Department of Pharmaceutics, Vignan Institute of Pharmaceutical Technology, Near VSEZ,  
Duvvada, Visakahapatnam-530049.

\*satyalaxmi148@gmail.com

**Introduction and Objective:**

Rosuvastatin calcium is a low solubility containing anti-lipidemic drug and provides only 20% of oral bioavailability. Following a different route of administration can overcome the first pass metabolism and may improve the bioavailability. Therefore the present study aimed to design and characterize a transdermal patch containing rosuvastatin calcium nanospoges (RST-NSP) to enhance the drug dissolution.

**Methods:**

Emulsion solvent diffusion method was used in the preparation of (RST-NSP) employing  $\beta$ -cyclodextrin and poly vinyl alcohol as solubility enhancers. Design Expert<sup>®</sup> 13 was employed to design twenty formulations in which concentration of  $\beta$ -Cyclodextrin in mg (A), ethylcellulose in mg (B) and reaction time in hrs (C) were taken as independent factors, where as entrapment efficiency (%) and particle size were considered two responses.

**Results:**

Triple fold increase in solubility, 86 % of entrapment efficiency, 200 nm particle size containing NSP were loaded in transdermal patch by solvent casting method, with hydroxypropyl methyl cellulose and cabopol as polymers in 3:1 ratio. The zeta potential of the best formulated NSP was found to be -43.1 mV. DSC thermograms confirm that there was no drug and polymer interaction. SEM analysis showed the uniform distribution of nanospoges and its morphology. The transdermal patch loaded NSP released the drug up to 10 h. Kinetic modeling on release data showed that the best fitted model was Higuchi model and release mechanism was by Fickian diffusion.

**Conclusions:**

The formulated transdermal patches with loaded rosuvastatin calcium nanospoges can deliver the drug in controlled manner and considered as best alternative to oral therapy.

**References:**

1. Reham I., Ghada H., Sameh S., Journal of Advanced Pharmaceutical Technology and Research 2020; 11(1):13-19.
2. Ilona K., Silvia LA., Maria T., Gjylje HFC., Alberto RP., Claudio C., Roberta C., Francesco T. Polymers 2020; 12(5):1-23.

*S. Sinivasa Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49







PTP/O/311

**ARTIFICIAL INTELLIGENCE IN DRUGS AND PHARMACEUTICALS**

Ketha Srilekha\*<sup>1</sup> Assistant Professor, Ummuri Bhavani<sup>2</sup> Assistant Professor Department of  
Pharmaceutics, Vignan Institute of Pharmaceutical Technology, India  
srilekhyaketha20@gmail.com

**Introduction and Objective:**

Over the past ten years, artificial intelligence (AI) is a revolutionized process of the drug discovery. Numerous uses of AI, including virtual screening and drug design are applied in the field of the drug development.

**Methods:**

We first provide a outline of drug discovery in this review then go into associated applications. A subfield of computer science called artificial intelligence deals with the use of symbolic programming to solve problems. With numerous applications in business, medicine, and engineering, it has significantly developed into a science of problem-solving.

**Results:**

The article discusses the growth of new peptides from the natural foods, the treatment and organization of the rare diseases, drug adherence and dosage, and challenges of the adoption of AI in pharma. It also discusses manufacturing implementation systems; automated control processes systems, and AI to forecast new treatments.

**Conclusions:**

This review demonstrates how AI is effectively used in a variety of pharmaceutical sector, including drug discovery or development, drug repurposing, clinical trials, improving pharmaceutical productivity etc., to name a few. This reduces the work pressure placed on the humans while also enabling quick completion of goals.

**KEYWORDS:**

Artificial Intelligence, Tools of AI, Drug Discovery, Drug Repurposing, Drug Adherence and Dosage

**REFERENCES**

1. Mak KK, Pichika MR. Artificial intelligence in drug development: Present status and future prospects. Drug Discov Today. 2019;24 (3):773-80.
2. Paul, S. M., Mytelka, D. S., Dunwiddie, C. T., Persinger, C. C., Munos, B. H., Lindborg, S. R., & Schacht, A. L. (2010). How to improve R&D productivity: The pharmaceutical industry's grand challenge. Nature Reviews. Drug Discovery, 9(3), 203–214. <https://doi.org/10.1038/nrd3078>







PTP/O/313

### ANTI FUNGAL LOADED NIOSOMES

Ummuri Bhavani<sup>\*1</sup> Assistant Professor, Ketha Srilekhya<sup>2</sup> Assistant Professor, Department of Pharmaceutics, Vignan Institute of Pharmaceutical Technology, India.

bhavaniummuri31@gmail.com

#### Introduction and Objective:

Nanoparticles have been used as drug delivery systems for decades to improve therapeutic effects or reduce toxicity. Drug encapsulation in nanoparticulate vesicles simplifies drug transport into and across the skin. These drug delivery systems, which include niosome nanoparticles, have a wide range of applications in drug delivery and targeting. Niosomes are frequently used for drug loading for a variety of purposes (e.g., anticancer, antiviral, and antibacterial agents).

#### Methods:

Much research has been conducted in recent years on the use of niosomal systems for the delivery of fungal drugs. A review of the literature on the benefits of niosomes in antifungal drug delivery can shed light on the efficiency and superiority of this nanocarrier over others. Topically applied niosomes can increase drug residence time in the stratum corneum and epidermis while decreasing systemic absorption. To facilitate drug targeting infected cells, a number of nanocarrier-based antifungal delivery strategies are being developed.

#### Results & Conclusion:

Nanosized carriers have received special attention in order to reduce side effects and improve drug therapy efficacy<sup>[1]</sup>. Clinicians and patients have access to a wide range of vehicles for skin care and the topical treatment of dermatological disease, ranging from solids to semisolids and liquid preparations<sup>[2]</sup>. Topical antimicrobial agents are an effective treatment for skin and soft-tissue infections.

**Key Words:** Antifungal, Drug Delivery, Nanoparticle, Niosomes

#### References:

1. Puranjoti P, Patil RT, Sheth PD, Bommareddy G, Dondeti P, Egbaria K. Design and development of topical microemulsion for poorly water-soluble antifungal agents. J Appl Res Clin Exp Ther. 2002;2(1).
2. Ellaithy HM, El-Shaboury KM. The development of cutina lipogels and gel microemulsion for topical administration of fluconazole. Aaps Pharmscitech. 2002 Feb;3(4):77-85.



*Y. Rivalo*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49



PPB/O/417

**EVALUATION ON AERIAL PART OF *HELIOPSIS HELANTHOIDES* FOR  
PHYTOCHEMICAL BIOLOGICAL STUDIES**

**Dokkada Aruna Kumari\*<sup>1</sup>, Gana Manjusha.K<sup>1</sup>, B. Vaishnavi<sup>1</sup>, E. Sandhya Rani<sup>1</sup>, G. Baby Prathyusha<sup>1</sup>**

Department of Pharmacognosy and Phytochemistry  
Vignan Institute of Pharmaceutical Technology, Visakhapatnam  
\*arunampharma@gmail.com

**Introduction**

*Heliopsis helianthoides* The false sunflower (*Heliopsis helianthoides*), also known as oxeye sunflower, is an easy-growing herbaceous perennial plant that naturalizes in grasslands and at the edge of woodlands. The botanical name of *Heliopsis helianthoides* is a mouthful, but it basically means sunflower-like. (Helios was the Greek sun god.) And that's what these plants are. Although similar in looks, *Heliopsis helianthoides* is not the same as the perennial sunflower in the genus, and consequently, it's been given the common name of false sunflower.

**Methods**

*Heliopsis helianthoides* herbaceous perennial growing plant, claimed to be used traditionally in various ailments. The present study has made an attempt to evaluate Aerial part of *Heliopsis helianthoides* for phytochemical screening by using Qualitative chemical tests & column chromatography. The study includes biological evaluation of antibacterial and antifungal activity. Phytochemical screening of the crude methanolic extract of Aerial part of *Heliopsis helianthoides* showed the presence of Alkaloids, Steroidal glycosides, Tannins and Saponins.

**Results & conclusion**

Methanolic extract was subjected to Fractionation by Column Chromatography with Hexane, Chloroform, Ethyl Acetate and Methanol as Fractions. In Biological Evaluation, Anti-Inflammatory, antibacterial and antifungal activities on extracts of *Heliopsis helianthoides* were tested. The Post hoc analysis showed the remarkable Anti Inflammatory and Antibacterial activities and significant activity against fungal organism.

**Key Words**

*Heliopsis helianthoides*, Methanolic Extract, Column Chromatography, Anti-Inflammatory Activity, Anti Microbial Activity, Anti-Oxidant Activity.

**Reference**

1. K.D. Tripathi, Essentials of pharmacology, 6th ed. Jaypee brother's medical publishers (P) ltd, New Delhi.P.184.
2. Harsh Mohan, Text book of Pathology, 6th ed. Jaypee brother's medical publishers (P) ltd, New Delhi. P. 130-148. 5. Charles R. Craig and Robert E. Stitzel, Modern pharmacology with clinical applications 5th ed. United States of America.



*Dr. Aruna K*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Reside: VSEZ, Duvvada, Visakhapatnam-49





PCT/O/505

**EFFECT OF HYDRO ALCOHOLIC EXTRACT OF PUNICAGRANATUM ON  
ETHYLENE GLYCOL AND AMMONIUM CHLORIDE INDUCED NEPHROLITHIASIS**

V.JHANSI LAKSHMI\*<sup>1</sup> and M.NAGABHARATHI<sup>2</sup>

Department of Pharmacology<sup>1,2</sup>, Vignan institute of Pharmaceutical  
technology, india

\*jhanu.18@gmail.com

**Introduction and Objective:** Urinary supersaturation with respect to stone forming constituents is generally considered to be one of the causative factor in calculogenesis. The study of the urinary chemistry with respect to stone forming minerals will provide a good indication of the risk of stone formation. Hyper calciuria in ethylene glycol induced nephrolithic rats might be a factor favouring the nucleation. The study of the urinary chemistry with respect to the stone forming minerals will provide a good indication of the risk of stone formation. Hyper calcinuria in ethylene glycol induced nephrolithic rats might be a factor favouring the nucleation and precipitation of calcium phosphate from urine and subsequent crystal growth.

**Methods:** The aim of this work is to evaluate the effect of *Punica granatum* on ethylene Glycol and ammonium chloride induced Nephrolithiasis by using male wistar albino rats. the rats were divided into 7 groups , which include both preventive and curative study. Renal calculi are been induced by the administration pf 0.75 % of Ethylene glycol and 1% of ammonium chloride for a period of 28 days and 5 days respectively. Two different doses ie 200mg /kg and 400 mg/kg of the extract were been admistration for 28 days in preventive study and same doses of extract are administration from 14 to 28 days in curative study. Parameters like oxalate, calcium and phosphate in urine and creatinine, urea and uric acid in serum have been assessed. The histopathology studies of kidney and phytochemical screening of the plant extact were also carried out.

**Results:**

The levels of biochemical parameters were increased in ethylene glycol and ammonium chloride intoxicated rats when compared with the normal group. The extract , at doses of 200 and 400 mg/kg , exhibited significant ( $p < 0.001$ ) reduction in biochemical parameters (urine : calcium oxalate, phosphate & serum ,BUN, urea , creatinine ). Nephrolithiasis activity was also confirmed by histopathological findings .Furthermore the Phytochemical profile of the extract revealed the presence of alkaloid ,phenols,flavanoids.steroids and triterpinoids

**Conclusions:**

Oral administration of Methanolic extract of peel of punica granatum protected the rats from ethylene glycol induced nephrolithiasis. The protective effect of MEPP decreases the oxalate synthesis in the induced animals. These observations suggest MEPP is clinically protective against oxidative stress induced by calcium oxalate deposition.

**Acknowledgments:** The authors are thankful to Dr.Y.Srinivasa Rao Pricipal ,Vignan institute of Pharmaceutical technology ,for providing facilities and funding support.

**References:** Boskey et al., Current concepts of Physiology and Bio chemistry of Calcification .Orthrop.Relat.Res 1981 (157):225-257.

2. AngellAH., Resnick MI. Surface interaction between glycosaminoglycans and calcium oxalate. JUrol .1989(141)1255-1258.



*Y. Srinivasa Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Reside: VSEZ, Operant Pharmacy Federation  
Bhimavaram, Visakhapatnam-49





PCT/O/507

**HEPATOPROTECTIVE ACTION OF SELENICEREUS UNDATUS METHANOLIC EXTRACT IN PARACETAMOL INDUCED MALE ALBINO WISTER RATS**

Koppala RVS Chaitanya\*<sup>1</sup> Assistant Professor,

<sup>1</sup> Department of Pharmacology, Vignan Institute of Pharmaceutical Technology, Kapujaggaraju Peta, Duvvada, Andhra Pradesh, India, 530049

\*koppalachaitu@gmail.com

**Introduction**

The present study aimed to analyze the hepatoprotective activity of *Selenicereus undatus* in albino Wistar rats. Influence of *Selenicereus undatus* on immune response (IL-2, IFN – Gama), antinociceptive and anti-inflammatory effects, platelet aggregation inhibition activity, hepatoprotective activity were evaluated using in vivo experimental models. The extracts were analyzed for phytoconstituents.

**Method**

The hepatotoxicity-induced animal models were investigated for the biochemical markers in serum (AST, ALT, ALP, GGT, total lipids and total protein) and liver (total protein, total lipids, GSH and wet liver weight). TGO, TGP, FA, DHL, GT – Gama activities determined from collected blood samples were also discussed in this article in this study, animals were divided into different groups (six in each group) for accessing the anti-inflammatory and hepatoprotective activity where hepatotoxicity was induced by paracetamol.

**Results & conclusion**

The study was conducted for seven days. Initially the hematological parameters have shown a significant raise in liver enzymes in blood after liver damage but it was evident that after giving the treatment the high dose (150mg/ml) the blood liver enzymes got significant decrease however the decrease of blood liver enzymes is much more near to normal healthy rats when the dose is higher (300mg/ml) Thus proving the anti-inflammatory and hepatoprotective activities of *Selenicereus undatus* a succulent and this information will form the foundation of this plant, and further pharmacological studies with proper clinical trials.

**Keywords:** Keywords: *Selenicereus undatus*, hepatoprotective, plasma lipids, Lipoproteins, paracetamol

**References:**

1. Giby Abraham (2014), A review on hepato-protective herbs used in Ayurveda, Global J Res. Med. Plants & Indigen. Med., Volume 3(7): 303–311
2. Editorial Committee of Chinese Medicinal Herbs, Chinese Medicinal Herbs, Shanghai Science and Technology Publishing House, Shanghai. 2, 1999; 56–58.



*Dr. Srinivas Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49



PCT/O/508

**INVITRO EVALUATION OF ANTIMICROBIAL, ANTIINFLAMMATORY AND ANTIOXIDANT ACTIVITIES OF CROSSANDRA INFUNDIBULIFORMIS ROOT EXTRACTS**

\*Dr Galanki Vasantha, Associate Professor, Vignan Institute of Pharmaceutical Technology, Visakhapatnam

**Introduction and Objective:**

Oxidative stress is an important risk factor in the pathogenesis of numerous chronic diseases. The aim of the present study is to evaluate *Crossandra infundibuliformis* (Acanthaceae family) root extract for its antimicrobial, antiinflammatory and antioxidant activities.

**Methods:**

The root extracts were screened for DPPH(2,2-diphenyl-1-picrylhydrazyl) radical scavenging activity, Hydrogen radical scavenging activity, Reducing Power activity, Nitric oxide radical Scavenging activity, Hydroxyl radical scavenging activity. The Antibacterial activity of plants extract were determined by Disc diffusion method and Agar well diffusion method.

**Results:**

The roots of *Crossandra infundibuliformis* were screened for antibacterial activity against four pathogenic bacteria isolated from clinical samples such as *Bacillus subtilis*, *Pseudomonas auregonosa*, *E coli*, *Staphylococcus aureus*, by extracting them in ethanol and also anti-oxidant activity using DPPH method. It is also found that *Crossandra infundibuliformis* shows very good anticorrosive property when coated on steel against 1M HCl. Antiinflammatory activity was determined by rat paw method

**Conclusions:**

The results of in vitro antioxidant tests suggested that the hydro-alcoholic extract of *Crossandra infundibuliformis* possesses strong free radical scavenging activity that is analogous to a well known standard anti-oxidant ascorbic acid, which could exert beneficial action against pathological alterations caused by the presence of flavonoids.

**Keywords:**

Anti-inflammatory, Antimicrobial, Antioxidant

**References**

1. Shetty A., Magadum S., Managanvi K. Vegetables as sources of antioxidants. J. Food Nutr. Disord. 2013;2:1-5.
2. E. Bouchouka, A. Djilani, and A. Bekkouche, Antibacterial and antioxidant activities of



*G. Srinivas Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49



# 7<sup>th</sup> INDO – CARIBBEAN VIRTUAL INTERNATIONAL CONFERENCE

On

## “Global Advances and Issues in Pharmaceutical Education and Research”

(10<sup>th</sup> & 11<sup>th</sup> August 2022)

Dear Delegate,

Warm greetings from VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN.

The list of accepted papers with code numbers for Oral/Poster presentation in 7<sup>th</sup> INDO-CARIBBEAN VIRTUAL INTERNATIONAL CONFERENCE ON “**Global Advances and Issues in Pharmaceutical**

**Education and Research**”, (10<sup>th</sup> & 11<sup>th</sup> August 2022) is given below for your reference.

**Instructions for Oral presentation (e-Presentation):**

Kindly time your presentation for maximum 10 minutes. Your presentation should be focused on well-defined objectives, a brief but clear description of methodology to be followed along with expected outcome. I shall also request you to kindly not exceed the time duration mentioned above for your presentation.

**Instructions for Poster presentation (e-Poster):** The size of poster should be within 120 cm (Height) and 90 cm (Width). Content of the poster should be readable from 1.5 m distance.

Kindly refer the Code No. for future correspondence.

Thank you for your interest and co-operation. We hope you will find your participation in the seminar rewarding and motivating.

*However presentation is subject to confirmation of registration.*

**Dr. K. Padmalatha**

**Principal & Convener**

**VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN**

For further enquiries and correspondence regarding papers and the proceedings contact

**Dr. Purushothama Reddy K and**  
**Mr. A. Jayarami Reddy, VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN, Parkkapadu Vijayawada –**


521 108, NTR Dist., A P. Phone: +91 – 96182266403 and 9618924690. E-mail: vipworkshop@gmail.com



Dr. K. Padmalatha  
Principal  
Vijaya Institute of Pharmaceutical Technology for Women  
Parkkapadu, Vijayawada, Visakhapatnam-49



# ACCEPTED PAPERS FOR ORAL/POSTER PRESENTATION

S. No.	Abstract Code	Title of the Abstract	Corresponding author	Year/Course (Mode of Presentation)	Name of the College/University
<b>Department of Pharmaceutics – Dr. S. Venkateswara Rao/Mrs. B. Hemalatha/Mrs. A. Hima Bindu</b>					
1.	VIPW APP-PC/01	Mupirocin Loaded Niosomal Gel for Topical Wound Healing Application	Srikrishna. T	Research Scholar (Oral)	Faculty of Pharmacy, Dr. M.G.R. Educational and Research, Chennai.
2.	VIPW APP-PC/02	Review on Starch Based Nano capsules as Drug Carrier	Mousam Maity		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
3.	VIPW APP-PC/03	Pre-formulation Consideration for Targeted Drug Delivery	Gourav Ghosh		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
4.	VIPW APP-PC/04	Self microemulsifying drug delivery system: Promising approach for solubility enhancement of BCS class II drugs	Rutvik Kaneriya		Faculty of Pharmacy, Dharmasinh Desai University, College Road, Nadiad-387001, GJ, IN.
5.	VIPW APP-PC/05	Nanotechnology in Cancer Therapy: A Review	Souvik Kar		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
6.	VIPW APP-PC/06	Pro-drug as a strategy for enhancement of solubility and permeability	Rohini Modak		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
7.	VIPW APP-PC/07	Self-therapeutic nanoparticles for cancer therapy	Sunetra Maity		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
8.	VIPW APP-PC/08	Formulation and Evaluation of a Novel Oral Osmotic Pump Tablet for Citalopram Hydro Bromide	Fatima shireen		MAK College of pharmacy Moinabad, RR Dist. and Telangana
9.	VIPW APP-PC/09	Formulation and Evaluation of Meloxicam Fast Dissolving Tablets by using Direct Compression Method	M. RESHMA		Vignana Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.

Dr. Reshma Reddy  
M.P. Pharmaceutics  
1<sup>st</sup> Year (Oral)  
Professor

VIGNANA INSTITUTE OF PHARMACEUTICAL TECHNOLOGY  
Duvvada, Visakhapatnam, AP.

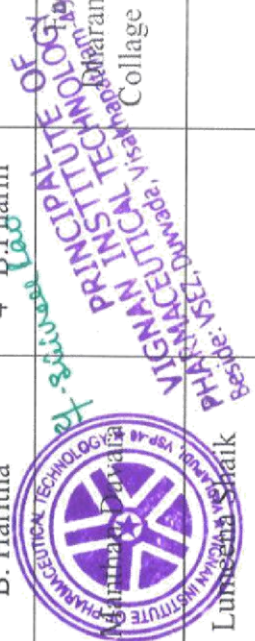
10.	VIPW APP-PC/10	Approaches to Enhance Bioavailability for Poorly Water Soluble Drugs: A Review	Soutrick Das	Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
11.	VIPW APP-PC/11	A Review on Transdermal Drug Delivery System	P. Gayatri Manogna	Vignan Pharmacy College, Vadlamudi-522213, Andhra Pradesh, India
12.	VIPW APP-PC/12	A Review on Emulgels as a Novel Approach for Topical Drug Delivery	M. Anusha	Vignan Pharmacy College, Vadlamudi-522213, Andhra Pradesh, India
13.	VIPW APP-PC/13	Hydrotrophy: A promising tool for solubility enhancement	Dhruva Kumar	Vignan Pharmacy College, Vadlamudi-522213, Andhra Pradesh, India
14.	VIPW APP-PC/14	Oral Dispersible Tablets: An Overview	N. Siri Abhigna	Vignan Pharmacy College, Vadlamudi-522213, Andhra Pradesh, India
15.	VIPW APP-PC/15	Formulation & Evaluation of Extended-Release Tablet of Tramadol Hydrochloride	Manthan Davara	Faculty of Pharmacy, Dharamsinh Desai University, Collage Road, Nadiad-387001, GJ, IN
16.	VIPW APP-PC/16	Design and Evaluation of Anticancer Formulations using Biopolymers for Colon Delivery	Dr. Madhu Gudipati	Vignan Pharmacy College, Vadlamudi-522213, Andhra Pradesh, India
17.	VIPW APP-PC/17	Formulation and Evaluation of Irbesatan Orodispersable tablets using Natural Super Disintegrants	G. SAI PRASANNA	Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
18.	VIPW APP-PC/18	Comparative Study and Evaluation of Different Brands of Aceclofenac Tablets	P. Komali	Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
19.	VIPW APP-PC/19	Floating Drug Delivery System	J. VASUNDHARA	VIPW
20.	VIPW APP-PC/20	Muco Adhesive Drug Delivery System	B. HARIKA RATHAN	VIPW
21.	VIPW APP-PC/21	Formulation and Evaluation of Cyclodextrin Loaded Rivaroxaban Fast Dissolving Tablets	KOMMANA SAI SWATHA	Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
22.	VIPW APP-PC/22	Nanoparticles: A Key to Enhance Oral Bioavailability	Prakash Roy	Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata



PRINCIPAL  
VIGNAN INSTITUTE OF PHARMACEUTICAL SCIENCE AND TECHNOLOGY  
DUVVADA, VISAKHAPATNAM, AP.



23.	VIPW APP-PC/23	Enhancement of Bioavailability with Nanoparticles	Tiyasha Biswas		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
24.	VIPW APP-PC/24	Development of pro-drug as a bioavailability enhancement technique	Shibsankar Bag		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
25.	VIPW APP-PC/25	Lipid Nano capsules to Enhance Drug Bioavailability to The Central Nervous System	Tammena Aparna	1 <sup>st</sup> Year M.Pharmacy (Poster)	Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
26.	VIPW APP-PC/26	Pharmacokinetics of Novel Drug Delivery System	Kakiliti Manasa	1 <sup>st</sup> Year M.Pharmacy (Poster)	Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
27.	VIPW APP-PC/27	Fabrication and Evaluation of Antihyperlipidemic Pharmacosomes a Novel Vesicular Drug Delivery System	Bommala Supraja	Asst. Prof. (Oral)	Geethanjali College of Pharmacy, Hyderabad, Telangana.
28.	VIPW APP-PC/28	Formulation Development of Curcumin Buccal Delivery System- Oral Liquid Spray	Ravula Priyanka		
29.	VIPW APP-PC/29	Preformulation considerations in the development of solid dosage forms	Shaik. Lafisa Thowsin	3 <sup>rd</sup> B.Pharm	VIPW
30.	VIPW APP-PC/30	A Review - The Need to Increase Bioavailability of Drugs	Sirisha Konda	1 <sup>st</sup> Year M.Pharmacy (Poster)	Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
31.	VIPW APP-PC/31	Transdermal Patches	Yaswanthi Battula	4 <sup>th</sup> B.Pharm	VIPW
32.	VIPW APP-PC/32	Recent Trends in Taste Masking Approaches for Unpleasant Taste Drugs	S. S. Samanvitha	4 <sup>th</sup> B.Pharm	VIPW
33.	VIPW APP-PC/33	Aquasomes: Novel Drug Carriers	T. PAVANI	4 <sup>th</sup> B.Pharm	VIPW
34.	VIPW APP-PC/34	Fast Dissolving Films: Novel Drug Delivery Approach	B. Haritha	4 <sup>th</sup> B.Pharm	VIPW
35.	VIPW APP-PC/35	Formulation & Evaluation of Extended-Release Tablet of Tramadol Hydrochloride			
36.	VIPW APP-PC/36	Formulation, Development and Evaluation of Sitagliptin and Metformin			





Hcl Film Coated Tablets for Treatment of Type II Diabetes		Department of Pharmacy Practice – Dr. N. Prathiba	
1.	VIPW APP-PP/01	A Case Study on Infantile Tremor Syndrome	U. Shravani V Yr. Pharm.D (Oral) VIPW
2.	VIPW APP-PP/02	A Review on Natural Resources Role in the Management & Treatment of Chronic Diseases	M. Pravallika V Yr. Pharm.D (Oral) VIPW
3.	VIPW APP-PP/03	Study of Drug Utilization Patterns with Associated Drug Therapy Problems in Indian Cardiovascular Patients at a Tertiary Care Teaching Hospital - An Observational Study	Veera R Bitra Lecturer (Oral) School of Pharmacy University of Botswana Gaborone, Private Bag 0022. Botswana.
4.	VIPW APP-PP/04	Rational use of Methylene blue in covid-19 treatment	Saikrupa B V V Yr. Pharm.D (Oral) PES College of Pharmacy, Bangalore.
5.	VIPW APP-PP/05	Inborn Errors Of Metabolism	Sonika Dandu 4 <sup>th</sup> B.Pharm VIPW
Department of Pharmacology – Mr. A. Jayarami Reddy/Mrs. A. Bhavana			
1.	VIPW APP-Ph.Col/01	Novel Bischalcones as Potent Antibacterial Agents	B. Bhavya Pratyusha Assistant Professor Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
2.	VIPW APP-Ph.Col/02	Nanoparticle-Mediated Drug Delivery for the Treatment of Cardiovascular Diseases	Manuri Kavya 1 <sup>st</sup> Year M.Pharmacy (Poster) Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
3.	VIPW APP-Ph.Col/03	Wound healing applications of chitosan and its derivatives	Rahit Kumar Dey Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
4.	VIPW APP-Ph.Col/04	Pharmacokinetic Study of Anticancer Drug Loaded Nanoparticles	Upasita Mukhopadhyay 2 <sup>nd</sup> B.Pharm (Poster) Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
5.	VIPW APP-Ph.Col/05	Toxicity of Carbon Dots	Souhardya saha Principalite of Pharmaceutical Technology Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
6.	VIPW APP-Ph.Col/06	Novel Therapeutic Approaches for Alzheimer's Disease	Sampara Meera Bai 1 <sup>st</sup> Year M.Pharmacy (Poster) Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.

7.	VIPW APP- Ph.Col/07	In vivo Antioxidant Activity of Muntingia Calabura Leaves Extracts in Albino Rats	J. K. RASINA	1 <sup>st</sup> Year M.Pharmacy (Oral)	Vignan Institute of Pharmaceutical Technology, Duvvada, Visakhapatnam, AP.
8.	VIPW APP- Ph.Col/08	Evaluation of <i>Acorus calamus</i> Extracts on plasma lipid levels in Triton -X-100 induced hyperlipidemia rats	Bojja Kumari Satya Pravalika	1 <sup>st</sup> Year M.Pharmacy (Oral)	Vignan Institute of Pharmaceutical Technology, Duvvada, Visakhapatnam, AP.
10.	VIPW APP- Ph.Col/10	Improvement of Pharmacokinetic of anticancer drugs using nanoparticles	Palash Ghosal	4 <sup>th</sup> Yr. B.Pharm (Poster)	Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
11.	VIPW APP- Ph.Col/12	The Influence of Serum Folate on Cancer Cells	Mohammed. Ashraff Sulthana		VIPW
12.	VIPW APP- Ph.Col/13	Nano Formulations of Gene Delivery	Dr. Debabrata Ghosh Dastidar		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
13.	VIPW APP- Ph.Col/14	Cellular Nutrition and Nutritional Medicine in Diabetes and Related Complications	Phani sree D		VIPW
14.	VIPW APP- Ph.Col/15	Memory and its Enhancement	Jothika Nalluru		VIPW

**Department of Pharmacognosy and Phytochemistry – Dr. M. Vani**

1.	VIPW APP- Ph.Cog/01	Pyrimidines as promising antiproliferative agents	Dr. Kalpana Divekar	Professor (Oral)	College of pharmaceutical sciences, Dayananda sagar University, Bangalore
2.	VIPW APP- Ph.Cog/02	Formulation & Evaluation of Nutraceuticals of Curculigo Orchioide Root Herbal Extract	LALITHA CHEMBETI	Research Scholar (Oral)	Faculty of Pharmacy, Dr. M.G.R. Educational and Research, Chennai.
3.	VIPW APP- Ph.Cog/03	Copper and copper-based nanoparticles: synthesis, characterization and applications	Arunava Chandra	M.Pharm (Pharmaceutics) 2 <sup>nd</sup> Year	Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
4.	VIPW APP- Ph.Cog/04	Review on Clinically Approved Drugs Discovery by CADD	Srinashita Dey	B.Pharm 3 <sup>rd</sup> Year	Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata
5.	VIPW APP- Ph.Cog/05	Attenuation of Diabetic Nephropathy by Streptozocin Induced Diabetic Rats by Lannea Coromandelica Leaf and Stem Extract	Dr. Galanki Vasantha	Associate Professor (Oral)	Vignan Institute of Pharmaceutical Technology, Duvvada, Visakhapatnam, AP.

6.	VIPW APP- Ph.Cog/06	Extraction Isoaltion and cytotoxic studies of phycocyanin from spirulina culture	Salma Shaik	Research Scholar	Faculty of Pharmacy, Dr. M.G.R. Educational and Research, Chennai.
<b>Department of Pharmaceutical Analysis – Mrs. D. Prasana</b>					
1.	VIPW APP- PA/01	Formulation and Development of Glucosamine Hydrochloride Oral Liquid Solution	Mounika kolisetty		
2.	VIPW APP- PA/02	Development and Validation of a High-Performance Liquid Chromatography Method Using Tezacaftor and Ivacaftor	P. Renuka Gayathri	1 <sup>st</sup> year M.Pharmacy (Oral)	Vignan Institute of Pharmaceutical Technology Duvvada, Visakhapatnam, AP.
3.	VIPW APP- PA/03	Application of carbon dots for glucose sensing	Bachaspati Jana		Guru Nanak Institute of Pharmaceutical Science and Technology, Kolkata

Dr. Renuka Gayathri

PRINCIPAL OF  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Duvvada, Visakhapatnam, AP.





# SANKETIKA TECHNICAL CAMPUS

(PM PALEM, VISAKHAPATNAM - 530 041)



**SANKETIKA VIDYA PARISHAD  
ENGINEERING COLLEGE (SVPEC)**

(Approved by AICTE, New Delhi & Accredited by NAAC)



**SANKETIKA INSTITUTE OF  
TECHNOLOGY & MANAGEMENT (SITAM)**

(Approved by AICTE, New Delhi)



**SRINIVASA RAO COLLEGE OF PHARMACY (SRCP)**

(Approved by PCI, New Delhi & Accredited by NAAC)

•••• In Collaboration With ••••



VEDA VIGNANA

**VEDA VIGNANA ACADEMIC AND RESEARCH CENTRE (VVARC)**

HYDERABAD, MSME-UDYAM-TS-09-0001114.



## A TWO DAY MULTI DISCIPLINARY INTERNATIONAL CONFERENCE ON

# Emerging Trends and Technologies in ENGINEERING, PHARMACY AND LANGLIT

Editor :

**Dr.M. Kasulamma**

HOD of English & Associate Professor  
Alwardas Group of Technical Institutions



*Dr. Srinivasa Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Reside: VSEZ, Duwada, Visakhapatnam-49

**PROCEEDING BOOK**

## SANKETIKA TECHNICAL CAMPUS

(PM PALEM, VISAKHAPATNAM - 530 041)



**SANKETIKA VIDYA PARISHAD  
ENGINEERING COLLEGE (SVPEC)**

(Approved by AICTE, New Delhi & Accredited by NAAC)



**SANKETIKA INSTITUTE OF  
TECHNOLOGY & MANAGEMENT (SITAM)**

(Approved by AICTE, New Delhi)



**SRINIVASA RAO COLLEGE OF PHARMACY (SRCP)**

(Approved by PCI, New Delhi & Accredited by NAAC)

We cordially invite your presence on the occasion of inaugural function of

### A Two Day Multi Disciplinary International Conference on

**Emerging Trends and Technologies in Engineering, Pharmacy and Langlit**

*on 29th & 30th , April , 2022 at 9:30 a.m*

#### Chief Guest

**Professor P.V.G.D.Prasad Reddy**

Vice- Chancellor  
Andhra University

#### Guests of Honour

Prof.S.Ramakrishna Rao,  
Former Vice-Chancellor of Krishna University, AP , India

Dr.N.L.Vijay Kumar,

Senior Technologist, National Institute for Space Research, Sao Jose Dos Campos , Sao Paulo , Brazil

Dr.S. Ramakrishna,

Senior Scientist IICT, Hyderabad , India

#### Chief Patrons

Dr. S.V.H.Rajendra , Secretary of Sri Srinivasa Vidya Parishad

Dr.S.Ravindra , Secretary of Sri Venkateswara Vidya Peeth

**VENUE: Sanketika Vidya Parishad Engineering College,  
P.M.Palem, Visakhapatnam, Seminar Hall**



*Dr. Srinivasan*  
**PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY**  
Beside: VSEZ, Duvvada, Visakhapatnam-49



## REPURPOSING EFAVIRENZ FOR ANTICANCER THERAPY WITH CURCUMIN COMBINATION IN SOLID LIPID FORMULATION

DR.S.SATYALAKSHMI, Associate Professor

M. SAI SRI VASTAV, Associate Professor

Vignan Institute of Pharmaceutical Technology,  
Duvvada, Vishakapatnam-530049, Andhra Pradesh, India

### ABSTRACT

Efavirenz is an anti-viral drug and a selective anti-HIV drug through its non-nucleoside reverse transcriptase inhibition (NNRT) mechanism. Researchers have reported non-nucleoside reverse transcriptase inhibitors for their promising anticancer activity. The poor survival rate in many cancers has been investigated new and alternative therapies against immortal tumours. Repurposing is the best choice that minimizes the drug development timeline and avoids phase 1 trial. Anti HIV drug Efavirenz has been spotted as a candidate for repurposing for cancer therapy with curcumin combination in this present work. The selected drugs were formulated as solid lipid nanoparticles by hot emulsification method to enhance solubility. All the evaluated parameters for characterization of SLNPs were within the acceptable limit. Scanning electron microscopy images, -36.2 mV zeta potential and 0.202 poly-dispersity index values confirm the nanosize of the drugs. SLNPs sustained the release of drug for about 24 h and the release pattern of drug is follows Higuchi kinetics. Curcumin and Efavirenz combination produced significant growth arrest in MCF-7 breast cell lines formulations compared to individual Efavirenz, curcumin formulation. Combined formulation showed significant loss of viability where only 11.63% of cell viability was retained, with curcumin 13.61% of viability and with efavirenz 15.98% of cell viability was retained. The cytotoxic activity was potentiated with curcumin combined formulation. It can be speculated that in HIV-1 positive patients, taking Efavirenz drug might be helpful to reduce the incidence of breast cancer. Efavirenz and curcumin combination might be a new option in the treatment of breast cancer.

**Key words:** Repurposing, Solid-lipid nanoparticles, Efavirenz, Curcumin, Anti-cancer.



*Dr. Srinee Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49



## DICLOFENAC SODIUM-CURCUMIN COMBINED NANOGEL: AN EFFICIENT TOPICAL AGENT AGAINST INFLAMMATION

P.M.S Charishma\*, Student

S. SATYA LAKSHMI, Associate Professor, Pharmaceutical Biotechnology Dept.

Y. Srinivasarao, Department of Pharmaceutics

Vignan Institute of Pharmaceutical Technology, Near VSEZ, Duvvada, Visakhapatnam.

### ABSTRACT

The present study aimed to formulate a topical nanogel of diclofenac sodium (DFS) with curcumin (CR) combination to enhance the anti-inflammatory activity. Emulsification solvent evaporation technique was employed with slight modification in the preparation of NPs. The recovered NPs were evaluated for their nanosize and compatibility. The optimized NPs and pure drug were loaded in a gel and then characterized. The drug release pattern of the different formulations was fitted to various kinetic models. Nanogel was examined for potential anti-inflammatory activity against matrix metalloproteinase (MMP-2 and MMP-9) enzyme by gelatin zymography technique. Scanning electron microscopy images, -36.2 mV zeta potential and 0.202 poly-dispersity index values confirm the nanosize of the drugs. More than 55% of DFS and CR were released from NPs within 30 min which confirms the solubility improvement. F1, F2, F3, F4, and F5 representing nano and conventional gel formulations, exhibited an acceptable range of physical characteristics to suit topical delivery. A significant percentage of drug release was observed in F1-F3, after 18 h ( $71.23 \pm 0.23$ ,  $69.21 \pm 0.17$ ,  $70.91 \pm 0.21$  (DFS),  $68.22 \pm 0.28$  (CR)) compared to conventional gels. The pattern of drug release fitted to the Higuchi kinetics with diffusion controlled. 98 % inhibition of MMP-2 and 85 % inhibition of MMP-9 activity proved the enhanced anti-inflammatory activity of combined formulation compared to the 96 % reduction of MMP-2 with CR and 94% reduction of DFS nanogels. The results obtained confirmed the potential of the nanogel formulation to establish the synergism of combined formulation of DFS with CR for improved anti-inflammatory activity.

**Keywords:** Nanogel; diclofenac sodium; curcumin; anti-inflammatory activity; gelatin zymography



*Dr. Srinivas Rao*

PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49

## ESTIMATION OF AMLODIPINE BESYLATE AND CELECOXIB IN COMBINED DOSAGE FORM BYRP-HPLC

Muttamsetty Bhavya, Vasudha Dadi

Department of Pharmaceutical Analysis, Vignan Institute of Pharmaceutical Technology,  
Duvvada, Vishakapatnam-530049, Andhra Pradesh, India

### ABSTRACT

A simple, precise, accurate, and rapid reverse phase-high performance liquid chromatograph (RP-HPLC) based analytical method with UV detection has been developed for the quantification of amlodipine besylate (AML) and celecoxib (CEL) in their fixed dose formulation. The analysis was performed on Thermosil C<sub>18</sub> analytical column (250 × 4.6 mm i.d., 5 μm). The mobile phase consisted of a mixture of 70 volumes of methanol and 3 volumes of 0.1 % ortho-phosphoric acid run in isocratic mode at a flow rate of 1 mL/min. Detection of analytes was carried at 252 nm and with linearity obtained at concentration range of 3-18 μg/ml and 75-450 μg/ml for AML and CEL respectively. The retention time of AML and CEL were 2.582 and 3.407 min respectively. The recoveries obtained were 99.46–101.3 % for AML, and 99.96–100.87 % for CEL. The analytical method validation was done in accordance with the guidelines of international conference of harmonization for the parameters with accuracy, precision, specificity, robustness, limits of detection and quantitation. The developed HPLC method was successfully applied in the analysis of commercial available dosage forms containing AML and CEL.

**Keywords :** Amlodipine besylate, Celecoxib, RP-HPLC, Tablet dosage form.



*Y. Srinivas Rao*  
PRINCIPAL  
VIGNAN INSTITUTE OF  
PHARMACEUTICAL TECHNOLOGY  
Beside: VSEZ, Duvvada, Visakhapatnam-49

**A PECULIAR, RESPONSIVE AND VALIDATED UV SPECTROPHOTOMETRIC  
METHOD FOR THE DETERMINATION OF FAVIPRAVIR IN BULK AND  
PHARMACEUTICAL DOSAGE FORM**

Maddipati Radha Krishna, Vasudha Dadi

Department of Pharmaceutical Analysis, Vignan Institute of Pharmaceutical Technology, Duvva  
Vishakapatnam-530049, Andhra Pradesh, India

**ABSTRACT**

The main target is to improve and authenticate an easy, sensitive, convenient, worthwhile and particular method for the determination of Favipiravir in bulk and formulation using 0.1N NaOH as solvent. The method developed obeys Beer's law at  $\lambda$  max of 238nm and the concentration ranges from 1-15  $\mu\text{g/ml}$ . The correlation coefficient is  $R^2=0.9984$  follows the regression equation as  $y=0.0544x-0.0039$ . According to ICH guidelines the method developed was validated for linearity, robustness, ruggedness, precision, LOD, LOQ and accuracy. As per the outcomes of the experiment, the process established is up to date, valid and diplomatic and be used for the approximation of Favipiravir in bulk and commercial dosage form.

**KEYWORDS:** Favipiravir, Validation, UV Spectrophotometer, Linearity, Accuracy



*Dr. Srinivasulu*

**PRINCIPAL**  
**VIGNAN INSTITUTE OF**  
**PHARMACEUTICAL TECHNOLOGY**  
Reside: VSEZ, Duvvada, Visakhapatnam-49