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Email: npc_nellore@yahoo.com

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Certificate

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

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Purnasai.B

PURNASAI. BADDIREDDI M.Pharm.
Associate Professor,
Department of Pharmaceutics,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

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Project Viva-voce held on 29/04/24

Purnasai. B
Internal Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

External Examiner 29/4/24

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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We further declare that the result of this work has not been submitted for any degree or fellowship.

G. Lahari

GULURI. LAHARI

(204Q1R0025)

K. Nandini

KANDE. NANDINI

(204Q1R0033)

S. Sahith

SATHENA. SAHITH

(204Q1R0080)

Sk. Humera

SHAIK. HUMERA

(204Q1R0086)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

V. Madhavi

VELLADULI. MADHAVI

(204Q1R00A6)

9. CONCLUSION

By studying all the experimental results of the prepared Ketorolac microbeads, the results suggest that microbeads containing NSAID drug like Ketorolac were successfully formulated by an ionotropic gelation technique by using sodium alginate, HPMC, pectin and chitosan as polymers and calcium chloride as cross linking agent to produce sustained release delivery systems.

In the present study nine formulations were formulated by using sodium alginate alone and in combination with HPMC, pectin and chitosan as drug release modifiers in various proportions, and evaluate their physicochemical properties and in-vitro drug release potential. Results of preformulation study, granulometric study, bulk and tapped density, mean particle size, angle of repose, drug- entrapment efficiency, *in-vitro* dissolution study. The mechanism of drug release from Ketorolac microbeads exhibited zero-order kinetics and the release of the drug from the microbeads. In the present study nine formulations were formulated by using sodium alginate alone and in combination with HPMC, pectin and chitosan as drug release modifiers in various proportions, and evaluate their physicochemical properties and in-vitro drug release potential. Results of preformulation study, granulometric study, bulk and tapped density, mean particle size, angle of repose, drug-entrapment efficiency, *in-vitro* dissolution study. In-vitro release study of formulations F1, F2 and F3 showed a release slowly to some extent with increased percentage of sodium alginate. Formulation F1, F2 and F3 showed a more faster release than F7 and F8 but the optimum level of sustained release effect will be observed in the batch F4, F5, F6 and F7 containing sodium alginate coated with HPMC and Chitosan polymers.On the basis of release data and graphical analysis formulations F5 and F7 having 1% w/v of coating polymer showed good sustained release followed by zero-order kinetics. The microbeads were further subjected to surface and particle size determination by scanning electron microscopy wherein formulations F5, F7 and F9 containing 1% HPMC, 1% chitosan, 2% pectin as polymers showed bridging which indicated for dense nature, low porosity of the coating materials and larger particle size.

The data suggest that a promising controlled release microparticulate drug delivery of Ketorolac can be developed.

- Stability studies of the formulations.
- Further in-vivo investigation is required to correlate in-vitro release studies.

PHYTOCHEMICAL SCREENING AND EVALUATION OF ANTI-OXIDANT ACTIVITY OF ETHANOLIC EXTRACT OF CLITORIA TERNATEA

Dissertation

Submitted to

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In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

G.SARANYA	(204Q1R0026)
G.MADHAN KUMAR	(204Q1R0027)
K.SRAVANI	(204Q1R0029)
K.TARUN REDDY	(204Q1R0030)
N.NITIN	(204Q1R0057)

Under the Guidance of

Mrs. A. KIRANMAI, M. Pharm
Assistant Professor,
Department of Pharmaceutical Analysis

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524002

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

April 2024

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(Affiliated to Jawaharlal Nehru Technological University Anantapur
and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

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NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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Mrs. A.KIRANMAI M.Pharm.
Assistant Professor,
Department of Pharmaceutical Analysis,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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Project Viva-voce held on 27/04/2024

Internal Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE-524 002

External Examiner 27-4-24

NARAYANA PHARMACY COLLEGE
NELLORE-2.
A.P.

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We further declare that the result of this work has not been submitted for any degree or fellowship.

G. Saranya
G.SARANYA
(204Q1R0026)

G. Madhan Kumar.
G.MADHAN KUMAR
(204Q1R0027)

K. Sravani
K.SRAVANI
(204Q1R0029)

K. Tarun
K.TARUN REDDY
(204Q1R0030)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

Nitin. N.
N.NITIN
(204Q1R0057)

8. CONCLUSION

- It is concluded that Clitoria ternatea is a plant with a variety of ethnic medicinal uses. The qualitative analysis of Clitoria ternatea shows the presence of bioactive compounds such as Alkaloids, Tannins, Glycosides, Resins, Steroids, Saponins, Flavonoids and Phenols. .
- it revealed that the ethanolic extraction of Clitoria ternatea leaves and flower scavenged hydrogen peroxide in a concentration dependent manner. The ethanol extract of Clitoria ternatea showed strong hydrogen peroxide scavenging activity. Hydrogen peroxide itself is not particularly reactive with most biologically important molecules, but is an intracellular precursor of hydroxyl radicals which is very toxic to the cell .
- Thus, scavenging of hydrogen peroxide is a measure of the antioxidant activity of the fraction. The fraction of Clitoria ternatea scavenged hydrogen peroxide which may be attributed to the presence of phenolic groups that could donate electrons to hydrogen peroxide, thereby neutralizing it into water.

FORMULATION AND EVALUATION OF FLOATING TABLETS OF LEVOFLOXACIN

Dissertation

Submitted to

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In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

A. SRAVANI	(204Q1R0001)
G. HYNDAVI	(204Q1R0023)
K. HARSHINI	(204Q1R0037)
Sk. NAFISA	(204Q1R0088)
Sk. ROOHI APSHA	(204Q1R0089)
T.V.S. PRANAV	(204Q1R0099)

Under the Guidance of

Dr. S. SUJATHA, M. Pharm., Ph.D.
Professor & HOD,
Department of Pharmaceutics

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

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(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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S. Sujatha

Dr. S. SUJATHA, M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur
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S. Sujatha

Dr. S. SUJATHA, M. Pharm. Ph.D.
Professor & HOD,
Department of Pharmaceutics,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

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S. Sujatha

Dr. S. SUJATHA, M. Pharm. Ph.D.
Professor & HOD,
Department of Pharmaceutics,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

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Project Viva-voce held on 27-04-2024

S. Sujatha
Internal Examiner

S. P — 27.4.24
External Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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(204Q1R0001)

G.HYNDAVI
(204Q1R0023)

K. HARSHINI
(204Q1R0037)

SK. NAFISA
(204Q1R0088)

SK. ROOHI APSHA
(204Q1R0089)

T.V.S.PRANAV
(204Q1R0099)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

9.CONCLUSION

- The floating matrix tablets of levofloxacin were successfully formulated by using the hydrophilic rate controlling polymer HPMC & Gas generating agent sodium bicarbonate.
- The prepared tablets were found to be suitable with respect to their physicochemical properties, floating lag time, floating time and drug content.
- The drug release from the optimized formulations F_4& F_8 was 92.56 & 96.39 respectively at 10 hrs.
- Hence the controlled release of Levofloxacin was successfully done by employing a floating drug delivery technology.

FORMULATION AND EVALUATION OF ORAL FLOATING *IN SITU* GEL OF RABEPRAZOLE

Dissertation

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In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

N. SYAMALA SUREKHA	(204Q1R0052)
P. AMULYA	(204Q1R0061)
Sk. SAMEERA	(204Q1R0090)
T. DEVIKA	(204Q1R0095)
T. BHAVANA PREETHI	(204Q1R0097)
M. PADMINI	(194Q1R0045)

Under the Guidance of

Dr. A.AVINASH, M.Pharm., Ph.D.
Associate Professor,
Department of Pharmaceutics

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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S. Sujatha

Dr. S. SUJATHA, M.Pharm., Ph.D.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 003

Principal,

Narayana Pharmacy College,

Nellore.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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A. Avinash

Dr. A. AVINASH M.Pharm. Ph.D.
Associate Professor,
Department of Pharmaceutics,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

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Project Viva-voce held on 29/4/24.

Internal Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

External Examiner

29/4/24

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

DECLARATION

We hereby declare that the topic entitled **"FORMULATION AND EVALUATION OF ORAL FLOATING IN *SITU* GEL OF RABEPRAZOLE"** which is submitted to Jawaharlal Nehru technological university for partial fulfillment of the requirements for the award of degree of **Bachelor of Pharmacy**, is the work done by us under the guidance of **Dr. A. AVINASH,** M.Pharm., PhD, Associate professor, Department of Pharmaceutics, Narayana Pharmacy college, Nellore during the academic year 2023-2024.

We further declare that the result of this work has not been submitted for any degree or fellowship.

N. Syamala Surekha

N. SYAMALA SUREKHA
(204Q1R0052)

P. Amulya

P. AMULYA
(194Q1R0061)

Sk. sameera

SK. SAMEERA
(204Q1R0090)

T. Devika

T. DEVIKA
(204Q1R0095)

T. Bhavana Preethi

T. BHAVANA PREETHI
(204Q1R0097)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

M. padmini

M. PADMINI
(194Q1R0045)

9. CONCLUSION

Rabeprazole is a proton pump inhibitor which is used in the treatment of Gastric and duodenal ulcer. Conventional oral formulations of rabeprazole when administered, absorption occurs within 1 hour of administration. Elimination of rabeprazole occurs very rapidly and affects their pharmacodynamics (e.g., acid suppression). The therapeutic concentration of a drug in blood can be maintained for a prolonged period of time by administering it in the form of *in situ* floating gel dosage form. With this objective rabeprazole *in situ* gel was designed. Rabeprazole has low bioavailability (52%) and short biological half-life (1 hr) favors for the development of prolonged release *in situ* gel. In present work an attempt has been made to formulate rabeprazole *insitu* gel using natural polymers like pectin extracted from orange peel, sodium alginate, HPMC E15 and HPMC K4M. FT-IR studies showed that there was no interaction between the drug and polymers used in formulation. The formulations are evaluated for pH, *in vitro* gelation capacity, viscosity, sol to gel transformation, buoyancy parameters, drug content and *in vitro* drug release. The evaluated parameters showed appreciable results. Amongst the formulations prepared (F1-F10), F6 was found to be optimized formulation which showed prolong drug release for 12hrs. The sodium alginate and HPMC K4M with a primary role in the sol-gel phenomenon and buoyant also affected the release rate of drug for prolonged duration. From the stability study results, it was confirmed that the optimized formulation is stable.

FORMULATION, DEVELOPMENT OF POLY HERBAL SOAP AND EVALUATION OF ITS ANTI FUNGAL ACTIVITY.

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
ANANTAPUR,ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

KADIVETI MOUNIKA	(204Q1R0028)
KORIVI DEVENDER REDDY	(204Q1R0038)
NAGIREDDY ROSHITHA	(204Q1R0050)
NAYAR PREM	(204Q1R0056)
PASUPULETI PRANEETH SAI	(204Q1R0066)

Under the Guidance of

T. VINOD KUMAR M. Pharm.
Associate Professor,
Department of Pharmaceutical analysis

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

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(Affiliated to Jawaharlal Nehru Technological University Anantapurand Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us:

www.narayanapharmacycollege.com Phone & Fax No:

0861 – 2317966 Cell No. +91 9100051603

Certificate

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S. Sujatha

Dr. S. SUJATHA, M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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T. Vinod

T. VINOD KUMAR M. Pharm
Associate Professor,
Department of Pharmaceutical analysis,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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Project Viva-voce held on 29/4/24

T. Vinod 29/4/24
Internal Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

External Examiner 29/4/24

NARAYANA PHARMACY COLLEGE
(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)
Email: npc_nellore@yahoo.com
Visit us: www.narayanapharmacycollege.com
Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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KADIVETI MOUNIKA
(204Q1R0028)

NAGIREDDY ROSHITHA
(204Q1R0050)

KORIVI DEVENDER REDDY
(204Q1R0038)

PASUPULETI PRANEETH SAI
(204Q1R0066)

NAYAR PREM
(204Q1R0056)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

CONCLUSION

Polyherbal soap contains full of natural products, it will not make any side effects. In the current study provided different concentrations of soaps and their preparation. When compared three different concentrations of soaps, the F3 formulation has given good result and it also has antifungal activity with healing property and control the fungal infection.

Naturally plants produced many number of secondary metabolites, these compounds has huge medicinal value, so undoubtedly we use herbal soaps. Now a days most of people move on to herbal products. The result used for further development of herbal production and also helpful for commercially.

EVALUATION OF CRITICAL QUALITY ATTRIBUTES OF FORMULATED CIPROFLOXACIN TABLETS WITH BRANDED AND GENERIC DRUGS

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

B. ANUSHA	(204Q1R0008)
K. DIVYA	(204Q1R0034)
P. VAISHNAV	(204Q1R0064)
P. KARTHIK	(204Q1R0070)
S. SUPRAJA	(204Q1R0082)

Under the Guidance of

Mrs. V. LEELA LAKSHMI., M. Pharm, (Ph. D)
Associate Professor,
Department of Pharmaceutics

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

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PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

S. Sujatha

Dr. S. Sujatha M. Pharm., Ph.D.
Principal,
Narayana Pharmacy College,
Nellore.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur
and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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Mrs. V. LEELA LAKSHMI., M. Pharm, (Ph. D)
Associate Professor,
Department of Pharmaceutics,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

EVALUATION CERTIFICATE

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Project Viva-voce held on 29-04-2024

29/04/2024

Internal Examiner

External Examiner 29/4/24

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

DECLARATION

We hereby declare that the topic entitled **"EVALUATION OF CRITICAL QUALITY ATTRIBUTES OF FORMUALTED CIPROFLOXACIN TABLETS WITH BRANDED AND GENERIC DRUGS"** which is submitted to Jawaharlal Nehru technological university for partial fulfillment of the requirements for the award of degree of **Bachelor of Pharmacy,** is the work done by us under the guidance of **Mrs. V. LEELA LAKSHMI,** M. Pharm, (Ph. D) Assistant professor, Department of Pharmaceutics, Narayana Pharmacy college, Nellore during the academic year 2023-2024.

We further declare that the result of this work has not been submitted for any degree or fellowship.

B. Anusha

B. ANUSHA

(204Q1R0008)

K. Divya

K. DIVYA

(204Q1R0034)

P. Vaishnav

P. VAISHNAV

(204Q1R0064)

P. Karthik

P. KARTHIK

(204Q1R0070)

S. Supraja

S. SUPRAJA

(204Q1R0082)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

8. CONCLUSION

All branded, generic, and formulated tablets passed evaluation tests in our comparative studies. The results of the study revealed that the efficacy of the branded medication was comparatively greater than that of the generic medication. Furthermore, our formulated tablets satisfied assessment standards comparable to those of both branded and generic drugs. The findings of the research underscore the superior efficacy and caliber of the brand-name medication when compared to its generic equivalent. This indicates that formulation or active ingredient delivery variations may offer potential benefits or distinctions that contribute to improved efficacy. Furthermore, the tablets that were formulated with the intention of imitating the qualities of the brand-name medication attained comparable levels of efficacy and drug release characteristics. This accomplishment highlights the efficacy of the formulation strategy in reproducing the functionality of both brand-name and generic drugs.In general, the results emphasize the effectiveness and similarity of the manufactured tablets in comparison to both brand-name and generic alternatives. The thorough assessments conducted in the study offer significant contributions to the understanding of the relative efficacy of these medications, thereby facilitating well-informed choices concerning their prescription and usage.

IN-VITRO EVALUATION OF ANTHELMINTIC ACTIVITY AND PHYTOCHEMICAL SCREENING FOR HYDRO-ALCOHOLIC EXTRACT OF PETROSELINUM CRISPUM LEAVES

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

B. HARISH	(204Q1R0009)
M. NANDINI	(204Q1R0047)
P. SIVARAMAKRISHNA	(204Q1R0071)
SK. AADIL	(204Q1R0083)
V. SRIYA	(204Q1R00A5)

Under the Guidance of

Dr.SK. SALMA, M. Pharm, Ph. D
Associate Professor,
Department of Pharmaceutical chemistry

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002, (A.P.)

APRIL-2024

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Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

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(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI &AICTE)

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Salma.Sk

Dr. SK. SALMA M.Pharm, Ph.D.
Associate Professor,
Department of Pharmaceutical chemistry,
Narayana Pharmacy College,
Chinthareddypalem,Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

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(Affiliated to Jawaharlal Nehru Technological University Anantapur

andApproved by PCI &AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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Project Viva-voce held on 29-04-2024

Salma SK 29/4/24

Internal Examiner

External Examiner 29/4/24

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur

andApproved by PCI &AICTE)

Email: npc_nellore@yahoo.com

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Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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We further declare that the result of this work has not been submitted for any degree or fellowship.

B.Harish.
B.HARISH
(204Q1R0009)

M.Nandini.
M.NANDINI
(204Q1R0047)

P.Sivaramakrishna.
P.SIVARAMAKRISHNA
(204Q1R0071)

SK.Aadil.
SK.AADIL
(204Q1R0083)

V.Sriya
V.SRIYA
(204Q1R00A5)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

CHAPTER -8

CONCLUSION

- The Anthelmintic activity of hydro alcoholic Extract of Petroselinum crispum leaves was evaluated.
- From the above result it was confirmed that hydroalcholic extract obtained from the leaves of Petroselinum crispum showed Anthelmintic Activity at various concentrations respectively (20 mg/ml, 40 mg/ml and 80 mg/ml).
- At (80mg/ml) concentration the maximum anthelmintic activity has been achieved while compared to that of the standard solution.

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NELLORE - 524 002.

SYNTHESIS,CHARACTERISATION AND IN-SILICO,IN-VITRO ANTI-CHOLINESTERASE ACTIVITY OF SOME NOVEL 2-AMINO 5-SUBSTITUTED OXADIAZOLES

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

Inpartial fulfillment of the requirementsfor the award of the degree of

BACHELOR OF PHARMACY

By

G.NAVYA SREE	(204Q1R0024)
K.JOSHNA	(204Q1R0032)
M.SWARUPA	(204Q1R0044)
P.DEEPIKA	(204Q1R0074)
SK.ARSHIYA	(204Q1R0085)

Under the Guidance of

Dr.M.SUCHITRA,M.Pharm.,PhD
Associate Professor,
Department of Pharmaceutical chemistry

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur

andApproved by PCI &AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

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Dr.M.SUCHITRA,M.Pharm.,PhD

Associate Professor,

Department of Pharmaceutical chemistry,

Narayana Pharmacy College,

Chinthareddypalem,Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur

andApproved by PCI &AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

EVALUATION CERTIFICATE

This is to certify that the dissertation work entitled **"SYNTHESIS,CHARACTERISATION AND IN-SILICO,IN-VITRO ANTI-CHOLINESTERASE ACTIVITY OF SOME NOVEL 2-AMINO 5-SUBSTITUTED OXADIAZOLES"**is thebonafide research work done by **G.NAVYA SREE (204Q1R0024), K.JOSHNA (194Q1R0032), M.SWARUPA (204Q1R0044), P.DEEPIKA (194Q1R0074) and SK.ARSHIYA (204Q1R0085)** in partial fulfillment of the requirements for the award of degree of **Bachelor of Pharmacy** from Jawaharlal Nehru Technological University Anantapur, Ananthapuramu, during the academic year 2022-2023.

Project Viva-voce held on 27-4-2024

M. Sucha 27/4/24
Internal Examiner

J. P 27.4.24
External Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

NARAYANA PHARMACY COLLEGE
NELLORE-2.
A.P.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI &AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

DECLARATION

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We further declare that the result of this work has not been submitted for any degree or fellowship.

G.Navya Sree
G.NAVYA SREE
(204Q1R0024)

K. Joshna
K.JOSHNA
(204Q1R0032)

M.Swarupa
M.SWARUPA
(204Q1R0044)

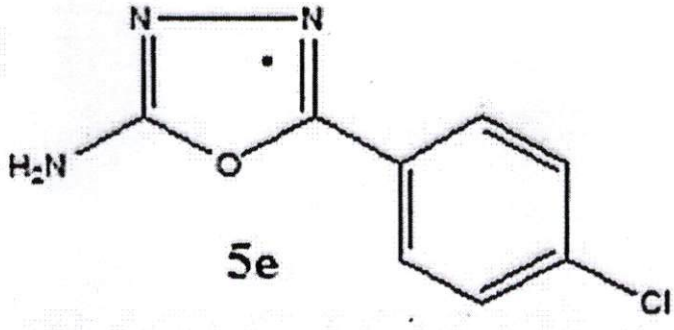
P.Deepika
P.DEEPIKA
(204Q1R0074)

Sk. Arshiya
SK.ARSHIYA
(204Q1R0085)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002.

CONCLUSION

- Five novel different 2 amino 5 substituted oxadiazoles were synthesized, characterized and evaluated for *insilico, in vitro* ACHE inhibitory activities
- Compound **5e** the most promising oxadiazole,it could serve as novel template for ACHE Inhibition .



5e

Future perspectives:

Taking into account the significant activities of the examined compounds, it is believed that further optimization of these identified chemical leads can probably lead to the development of more active molecules. Future studies are proposed to establish their *in vivo* efficacy and receptor interaction, after making suitable structural modifications.

FORMULATION AND EVALUATION OF MICROBEADS OF KETOROLAC BY INOTROPIC GELATION METHOD

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

GULURI. LAHARI	(204Q1R0025)
KANDE. NANDINI	(204Q1R0033)
SATHENA. SAHITH	(204Q1R0080)
SHAIK. HUMERA	(204Q1R0086)
VELLADULI. MADHAVI	(204Q1R00A6)

Under the Guidance of

PURNASAI. BADDIREDDI, M. Pharm.,
Associate Professor,
Department of Pharmaceutics

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

April 2024

SYNTHESIS AND BIOLOGICAL EVOLUATION OF 2-METHYL BENZIMIDAZOLE

Dissertation

Submitted to

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In partial fulfillment of the requirements for the award of the degree of

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By

D.BHARATHI	**(204Q1R0017)**
K. VINEESHA	**(204Q1R0041)**
M. NAGA VENNELA	**(204Q1R0048)**
N. SOWJANYA	**(204Q1R0049)**
N. SANTHOSH	**(204Q1R0051)**

Under the Guidance of

Dr. CH. LALITHA, M. Pharm, Ph.D.
Associate Professor,
Department of Pharmaceutical chemistry

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

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NELLORE - 524 002

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(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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Ch. Lalitha 26/4/24

Dr. CH. LALITHA, M. Pharm, Ph.D.
Associate Professor,
Department of Pharmaceutical chemistry,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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Visit us: www.narayanapharmacycollege.com

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Project Viva-voce held on 29/4/24

Ch. Lalitha 29/4/24

Internal Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

External Examiner 29/4/24

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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We further declare that the result of this work has not been submitted for any degree or fellowship.

D. Bharathi
D.BHARATHI
(204Q1R0017)

K. Vineesha
K. VINEESHA
(204Q1R0041)

M. Naga Vennela
M.NAGA VENNELA
(204Q1R0048)

N. Sowjanya
N. SOWJANYA
(204Q1R0049)

N. Santhosh
N. SANTHOSH
(204Q1R0051)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

8.CONCLUSION

The synthesis and biological evaluation of 2-methyl benzimidazole have yielded valuable insights into its potential pharmacological properties. Through a systemic approach we have successfully synthesized 2-methyl benzimidazole.

In conclusion the synthesis and biological evaluation of 2-methyl benzimidazole has provided valuable preliminary data indicating its potential as a pharmacologically active compound. Further studies are warranted to elucidate its mechanism of action, optimize its pharmacological properties and evaluate its therapeutic potential in relevant disease models. This research contributes to the exploration of new chemical entities with potential medicinal applications.

FORMULATION AND IN-VITRO EVALUATION OF HERBAL WOUND HEALING PATCH

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

B. DEEPTHI	**(204Q1R0007)**
C. HEMA BINDHU	**(204Q1R0011)**
K. VARSHITHA	**(204Q1R0031)**
K. KEERTHANA	**(204Q1R0036)**
SD. NAVEED AHMAD	**(204Q1R0094)**

Under the Guidance of

Dr. M. KRISHNAVENI M. Pharm., Ph. D
Associate Professor,
Department of Pharmaceutics

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE-524 002

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

April-2024

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

Principal,

Narayana Pharmacy College,

Nellore.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

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29/4/2024.

Dr.M.KRISHNAVENI M.Pharm. Ph.D
Associate Professor,
Department of Pharmaceutics,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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Project Viva-voce held on 29/04/2024

29/4/24

Internal Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

External Examiner

29/4/24

NARAYANA PHARMACY COLLEGE

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Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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We further declare that the result of this work has not been submitted for any degree or fellowship.

B.Deepthi.

B.DEEPTHI

(204Q1R0007)

C.Hema Bindu.

C.HEMA BINDU

(204Q1R0011)

K.Varshitha

K.VARSHITHA

(204Q1R0031)

K.Keerthana.

K.KEERHANA

(204Q1R0036)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

Sd/- Naveed Ahmad

SD.NAVEED AHMAD

(204Q1R0094)

10.CONCLUSIONS

The formulation and evaluation of herbal wound healing patches represent a significant step forward in the development of alternative therapies for promoting wound healing. Through a comprehensive approach encompassing formulation, characterization, in vitro evaluation, and stability testing, this study has provided valuable insights into the potential of these patches in the pharmaceutical industry.

The successful formulation of herbal wound healing patches using a solvent casting method with starch and sodium alginate, along with glycerine as a plasticizer, lays the foundation for further exploration of natural alternatives for wound care. The utilization of plant extracts from Millingtonia hortensis leaves, Lanata camara flowers, and Lanata montevidensis flowers adds to the richness of active phytoconstituents available for wound healing applications. The identification of maximum absorption wavelengths through UV-visible spectrum analysis enhances our understanding of the constituents present in these extracts, aiding in their characterization and potential therapeutic effects.

The physical evaluation of starch films, coupled with the investigation of glycerol concentrations and drying times, provides valuable insights into the formulation parameters affecting the characteristics of the patches. The absence of incompatibility observed in the FTIR spectral analysis for both starch and sodium alginate films underscores the compatibility of these materials, essential for ensuring the stability and efficacy of the final product. Furthermore, the assessment of swelling index and stability at room temperature contributes to our understanding of the physical properties and storage conditions required for maintaining the integrity of the patches.

In vitro evaluations, including anti-inflammatory, antimicrobial, and hemocompatibility assessments, are crucial steps in determining the biocompatibility and therapeutic potential of the herbal patches. The confirmation of biocompatibility through hemolysis ratio and pH measurements instills confidence in the safety profile of the patches for potential clinical use. Additionally, the assessment of albumin denaturation inhibition highlights the potential wound healing properties of the herbal patches, further supporting their efficacy in addressing wound care needs.

The conclusions drawn from the data regarding drug release and biocompatibility provide valuable insights into the optimization of formulation parameters for enhanced therapeutic efficacy. The 0.5% LM sodium alginate film formulation emerges as a promising candidate, demonstrating rapid drug release, excellent hemocompatibility, and significant albumin denaturation inhibition. Similarly, the 1% MHE starch film formulation shows potential for optimized wound healing effects, with sustained drug release and significant albumin denaturation inhibition.

Furthermore, the stability testing results under accelerated conditions offer promising indications of the formulations' long-term stability. The slight decrease in drug release observed over the testing period suggests that the formulations maintain their integrity and drug release characteristics, crucial for ensuring consistent therapeutic efficacy. However, further studies under real-time conditions are warranted to confirm the long-term stability and suitability of the formulations for commercialization.

In summary, the combination of drug release profiling, biocompatibility assessment, and stability testing provides a comprehensive approach to optimize and evaluate the efficacy of herbal wound healing patches. These formulations hold significant promise for addressing wound care needs and advancing therapeutic options in the pharmaceutical industry. Further research and development efforts are needed to translate these findings into clinically viable products, ultimately benefiting patients and healthcare providers alike

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NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

A COMPARATIVE SCREENING OF INVITRO ANTIHELMITHIC ACTIVITY OF MONO HERBAL EXTRACTS WITH POLY HERBAL EXTRACT

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

N. NANDINI	**(204Q1R0053)**
N. AFRIN	**(204Q1R0058)**
P.SIVAKUMAR	**(204Q1R0068)**
P.RUSHEEL	**(204Q1R0073)**
T.SUSMITHA	**(204Q1R0098)**

Under the Guidance of

Miss. V. SUJITHA, M. Pharm.,
Assistant Professor,
Department of Pharmacology

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

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and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

This is to certify that the dissertation work entitled **"A COMPARATIVE SCREENING OF INVITRO ANTIHELMINTHIC ACTIVITY OF MONO HERBAL EXTRACTS WITH POLY HERBAL EXTRACT"** is the bonafide research work done **N.NANDINI (204Q1R0053), N.AFRIN (204Q1R0058), P.SIVAKUMAR (204Q1R0068), P.RUSHEEL (204Q1R0073) and T.SUSMITHA (204Q1R0098)** in partial fulfillment of the requirements for the award of degree of **Bachelor of Pharmacy** was carried out in Narayana Pharmacy College, Chinthareddypalem, Nellore under the guidance of **MISS. V. SUJITHA, M.Pharm.** This work is submitted to JNTUA Anantapur. No part of this thesis is submitted to any university or institution.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

S. Sujatha

Dr.S.SUJATHA M.Pharm., ph.D
Principal,
Narayana Pharmacy College,
Nellore.

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur
and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

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V. Sujitha

MISS. V. SUJITHA, M.Pharm.,
Assistant Professor,
Department of Pharmacology
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

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Project Viva-voce held on 23/4/24

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

29/04/24

Internal Examiner

External Examiner

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

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We further declare that the result of this work has not been submitted for any degree or fellowship.

N.Nandini

N.NANDINI

(204Q1R0053)

N.Afrin

N.AFRIN

(204Q1R0058)

P.Sivakumar

P.SIVAKUMAR

(204Q1R0068)

P.RUSHEEL

(204Q1R0073)

T. Susmitha

T.SUSMITHA

(204Q1R0098)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

CONCLUSION:

From the results it concludes that extracts of Coriandrum sativum, Mentha piperita, Fenugreek, Polyherbal. demonstrate to possess dose dependent anthelmintic activity when compared to Albendazole. The results also revealed that the ethanolic extract of Polyherbal plant took the less time to cause paralysis of the earthworm than that of carbon standard drug extract thus it conclude that ethanolic Poly herbal [Coriander sativum,Mentha piperita,Fenugreek leaves]extract possess potent anthelmintic activity compared to remaining individual plant extract. From results the as an anthelmintic have been confirm as a it displayed activity against the worm used in present study.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

FORMULATION AND EVALUATION OF POLYHERBAL FRUIT PEEL SHAMPOO

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

A. ANUHYA	**(204Q1R0005)**
B. ADARSH	**(204Q1R0006)**
B. VANDANA KEERTHI	**(204Q1R0010)**
D. SIDDAIAH	**(204Q1R0016)**
SK. ABDUL HAMEED	**(204Q1R0084)**

Under the Guidance of

P. SREE MAHALAKSHMI, M.Pharm.,
Assistant Professor,
Department of Pharmacology

NARAYANA PHARMACY COLLEGE

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Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

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Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

This is to certify that the dissertation work entitled **"FORMULATION AND EVALUATION OF POLYHERBAL FRUIT PEEL SHAMPOO"** is the bonafide research work done **A. ANUHYA (204Q1R0005), B. ADARSH (204Q1R0006), B. VANDANA KEERTHI (204Q1R0010), D. SIDDAIAH (204Q1R0016) SK. ABDUL HAMEED (204Q1R0084)** in partial fulfillment of the requirements for the award of degree of **Bachelor of Pharmacy** was carried out in Narayana Pharmacy College, Chinthareddypalem, Nellore under the guidance of **P. SREE MAHALAKSHMI M.Pharm.** This work is submitted to JNTUA Anantapur. No part of this thesis is submitted to any university or institution.

S. Sujatha

Dr. S. SUJATHA, M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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P. Sree Mahalakshmi

P. SREE MAHALAKSHMI M.Pharm.
Assistant Professor,
Department of Pharmacology,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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P. Sree Mahalakshmi 27/04/24
Internal Examiner

S.R 27/4/24
External Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

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Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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We further declare that the result of this work has not been submitted for any degree or fellowship.

A. ANUHYA
(204Q1R0005)

B. ADARSH
(204Q1R0006)

B. VANDANA KEERTHI
(204Q1R0010)

D. SIDDAIAH
(204Q1R0016)

SK. ABDUL HAMEED
(204Q1R0084)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

9. CONCLUSION

The aim to develop the formulation which is stable and effective herbal shampoo and removal of synthetic ingredients was achieved in the study. The formulation has anti-microbial activity which was tested against Staphylococcus epidermidis. SLS (10%) acts as a surfactant which can produce the foam which is synthetic. In any preparation of the herbal shampoo, if we are adding the synthetic ingredients, to prevent the formulation from growing microorganisms. Natural sources are the best source for the growth of microbes. The active ingredients in the formulation should be from herbal sources. The P^H of the shampoo was found to be 5.8, which is acceptable the scalp with no skin irritancy. Evaluation study showed good wetting ability, cleansing action, stable and foam is also dense and small. Anti-microbial study was done against Staphylococcus species which is one of the causative factor scalp disorder showed Zone of Inhibition at 1000 µg/ml. From this results, we can conclude that the polyherbal fruit peel shampoo has therapeutic activity towards the scalp disorders such as Dandruff, Seborrheic dermatitis. Finally, from the parameters of evaluation and formulation using herbal active ingredients better in performance and stability and safer than the synthetic ones will be popular with the consumer.

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PHARMACOGNOSTICAL STUDIES AND PHYTOCHEMICAL SCREENING, FORMULATION AND EVALUATION OF ISOLATED PIPERINE, CURCUMIN AND CAFFEINE HERBAL BATH SOAP

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

CH. VANDHANA	**(204Q1R0012)**
K. MOUNIKA	**(204Q1R0035)**
K. LALITHA HAVISHMA	**(204Q1R0039)**
S. POOJITHA	**(204Q1R0079)**
A. NIKHILA	**(194Q1R0001)**

Under the Guidance of

Mrs. Y. RATNA KUMARI M. Pharm,
Associate Professor,
Department of Pharmacognosy.

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002, (A.P.)

April 2024

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

Narayana Pharmacy College,

Nellore.

NARAYANA PHARMACY COLLEGE

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Mrs. Y. RATNA KUMARI M.Pharm.
Associate Professor,
Department of Pharmacognosy,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

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Project Viva-voce held on 27/04/2024.

Internal Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

27.4.24

External Examiner

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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(204Q1R0012)

K. MOUNIKA
(204Q1R0035)

K. LALITHA HAVISHMA
(204Q1R0039)

S. POOJITHA
(204Q1R0079)

A. NIKHILA
(194Q1R0001)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

9. Summary & Conclusion

Natural products have good benefits in terms of compatibility and have lesser advent of side effects, there is always a special place for natural products in the world of cosmetics. Natural soap i.e., Coconut oil soap (F1-F4), was made by using various concentrations of isolated Piperine, Curcumin and Caffeine extract (0%,1%,3%,5%). These soaps were prepared by employing natural ingredients like coconut oil, together with lye to form soap. The physicochemical parameters like clarity, colour, odour, pH, percentage free alkali, foam height, foam retention time and alcohol insoluble matter were found to be optimal for better cleaning activity of soaps with very less skin problems. Irritation test was performed by normal skin test for the soaps and for standard results in vivo studies is required. These soaps were further evaluated for anti-microbial screening, and all the formulations exhibited significant zones of inhibition for E. coli colonies. The results when compared, the output of Coconut oil soap (F3) has shown greater results in physicochemical parameters and also in antimicrobial screening. Further optimization of the soaps is needed for meeting the standards.

Evaluation of Antidepressant activity of hydroalcoholic extract of Thunbergia erecta by using animal models.

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

Inpartial fulfillment of the requirementsfor the award of the degree of

BACHELOR OF PHARMACY

By

A. SAI PRAKASH	**(204Q1R0002)**
M.HEMA	**(204Q1R0046)**
P.MANEESHA	**(204Q1R0062)**
SK.SUSHMA	**(204Q1R0091)**
U.MANVITHA	**(204Q1R00A1)**

Under the Guidance of

Mrs. SK.SALMA SULTANA, M.Pharm., (Ph.D.)
Assistant Professor,
Department of pharmacology

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL - 2024

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(Affiliated to Jawaharlal Nehru Technological University Anantapur
andApproved by PCI &AICTE)
Email: npc_nellore@yahoo.com
Visit us: www.narayanapharmacycollege.com
Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

This is to certify that the dissertation work entitled "Evaluation of Antidepressant activity of hydroalcoholic extract of Thunbergia erecta using animal model"is the bonafide research workA.SaiPrakash(204Q1R0002),M.Hema(204Q1R0046),P.Maneesha(204Q1R0062), SK.Sushma(204Q1R0091)U.Manvitha(204Q1R00A1)in partial fulfillment of the requirements for the award of degree of **Bachelor** of **Pharmacy**was carried out in Narayana Pharmacy College, Chinthareddypalem, Nellore under the guidance of **Mrs.SK.Salma sultana Mam M.Pharm,(Ph.D)**This work is submitted to JNTUA Anantapur. No part of this thesis is submitted to any university or institution.

S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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SK.Salma Sultana M.Pharm(Ph.D)
Assistant Professor,
Department of Pharmacology,
Narayana Pharmacy College,
Chinthareddypalem,Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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Project Viva-voce held on 27-04-2024

S.R 27.4.24
Internal Examiner

S.R 27.4.24
External Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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A.Sai prakash
(204Q1R0002)

M.Hema
(204Q1R0046)

P.Maneesha
(204Q1R0061)

SK.Sushma
(204Q1R0091)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

U.Manvitha
(204Q1R00A1)

CONCLUSION:

The mood changes are part of our life, when reaction to these situation become extreme lead that leads to clinical conditions called depression and it is associated with lots of morbidity. Hence, it is very important to address these problems and find effective remedies. Thus the antidepressant study of Thumbergiaerecta was done on different groups of white albino rats at the doses of (200mg/kg, 400mg/kg) by using forced swimming test, tail suspension test. Results showed that the administration of hydroalcoholic extract of T.erecta produced a decreased immobility time of rats and at adose of 400mg/kg produce a significant antidepression like effect in both FST and TST models of depression and their efficacies were found to be comparable to imipramine(10mg/kg).

The results concluded that the shortening of immobility time in FST and TST ainly depends on the enhancement of central 5HT and catecholamine neurotransmitters, these effects are thought to be due to the presence of chemical constituents lika alkaloids, flavonoids and glycosides. Hence Thumbergiaerecta aerial parts extract possess antidepressant effects in animal models of depression, further investigation in this line is essential to establish its others therapeutic benefits.

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NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

ANALYTICAL METHOD DEVELOPMENT AND VALIDATION OF ARTESUNATEIN BULK DRUG AND PHARMACEUTICAL DOSAGE FORM BY UV-VISIBLE SPECTROSCOPY

Dissertation

Submitted to

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G.HARSHINI	(204Q1R0020)
SD. AAMINA	(204Q1R0093)
V.GAYATHRI	(204Q1R00A4)
K.JAHNAVI	(194Q1R0027)

Under the Guidance of

MS. A. SAI SARANYA M. Pharm.
Associate Professor,
Department of Pharmaceutical Analysis

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL 2024

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Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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Sai 26/4/24.

Ms. A. SAI SARANYA M.Pharm.
Associate Professor,
Department of Pharmaceutical analysis,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE
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Project Viva-voce held on 27-4-24

Dai 27/4/24
Internal Examiner

S.R d 27.4.24
External Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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A. Thanuja
A.THANUJA
(204Q1R0003)

G. Harshini Reddy
G.HARSHINI
(204Q1R0020)

Sd. Aamina
SD.AAMINA
(204Q1R0093)

V. Gayathri
V.GAYATHRI
(204Q1R00A4)

K. Jahnavi
K.JAHNAVI
(194Q1R0027)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

9. SUMMARY AND CONCLUSION

A new method is developed for estimation of artesunate by UV spectroscopic method. The sample preparation is simple, and the analysis time is short.

- The analytical procedure is validated as per ICH guidelines, the linearity, accuracy, precision, specificity values were checked and found to be within the limits. The drug obeys the ICH guidelines.
- The LOD and LOQ units are with limits
- This method is fast and simple.
- It is economic and used for routine analysis.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

ANTI FUNGAL ACTIVITY AND PHYTOCHEMICAL SCREENING OF HYDRO-ALCOHOLIC EXTRACT ON *Ficus benjamina* LEAVES

Dissertation

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF PHARMACY

By

CH.PADMA PRIYA	(204Q1R0013)
K.ARCHANA	(204Q1R0040)
LOKESH.B	(204Q1R0042)
P.KEERTHI PRIYA	(204Q1R0065)
T.VANI	(204Q1R0096)

Under the Guidance of

CL.SINDHURA, M. Pharm., MBA.,
Assistant Professor,
Department of Pharmacy practice

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

April-2024

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(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

Certificate

This is to certify that the dissertation work entitled "**ANTI FUNGAL ACTIVITY AND PHYTOCHEMICAL SCREENING OF HYDRO-ALCOHOLIC EXTRACT ON *Ficus benjamina* LEAVES**" is the bonafide research work done **CH.PADMA PRIYA (204Q1R0013), K.ARCHANA (204Q1R0040), LOKESH.B (204Q1R0042), P.KEERTHI PRIYA (204Q1R0065) and T.VANI (204Q1R0096)** in partial fulfillment of the requirements for the award of degree of **Bachelor of Pharmacy** was carried out in Narayana Pharmacy College, Chinthareddypalem, Nellore under the guidance of **CL.SINDHURA M.Pharm.,MBA.,** This work is submitted to JNTUA Anantapur. No part of this thesis is submitted to any university or institution.

S. Sujatha

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

Dr. S. Sujatha M.Pharm., Ph.D.
Principal,
Narayana Pharmacy College,
Nellore.

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CL.SINDHURA M.Pharm., MBA.,
Assistant Professor,
Department of Pharmacy practice,
Narayana Pharmacy College,
Chinthareddypalem, Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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Project Viva-voce held on 29/04/24

Internal Examiner

External Examiner

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur and Approved by PCI & AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

DECLARATION

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We further declare that the result of this work has not been submitted for any degree or fellowship.

Ch. PadmaPriya
CH. PADMA PRIYA
(204Q1R0013)

K. Archana
K.ARCHANA
(204Q1R0040)

B. Lokesh
LOKESH.B
(204Q1R0042)

P. Keerthi Priya
P.KEERTHI PRIYA
(204Q1R0065)

T. Vani
T.VANI
(204Q1R0096)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

9.CONCLUSION

Based on above investigations, it may be concluded that Hydroalcoholic extract leaves of Ficus Benjamina exhibited significant Anti fungal activity. There were different studies to investigate the benefits of Ficus Benjamina as sources of different medicinal uses. The presence of phytochemical constituents are Alkaloids, Glycosides, saponins, flavonoids, tannins, steroids, phenols and carbohydrates may partially contribute the significant Antifungal activity. Further detailed phytochemical investigations are required to identify the phytoconstituents responsible for the activity.

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NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

Comparative Phytochemical Investigation and Evaluation of *in vitro* Anti-Inflammatory activity of Different Herbal Extracts

Dissertation

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SHAIK MOHEETH	**(204Q1R0087)**
VADANALA ANUDEEPTHI	**(204Q1R00A2)**
VADANALA ANUPAMA	**(204Q1R00A3)**
VEMULA YAMINI	**(204Q1R00A7)**

Under the Guidance of

Mrs. G.UDAYA M.Pharm.
Assistant Professor,

NARAYANA PHARMACY COLLEGE

(Affiliated to JNTUA, Anantapuramu, Approved by A.I.C.T.E., New Delhi)

Chinthareddypalem, Nellore -524002,(A.P.)

APRIL - 2024

NARAYANA PHARMACY COLLEGE

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andApproved by PCI &AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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S. Sujatha

Dr. S. Sujatha M.Pharm., Ph.D.

Principal,

Narayana Pharmacy College,

Nellore.

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NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

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G.UDAYA M.Pharm.
Assistant Professor,
Department of Pharmacognosy,
Narayana Pharmacy College,
Chinthareddypalem,Nellore.

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

NARAYANA PHARMACY COLLEGE

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Project Viva-voce held on 27-04-2024

Internal Examiner

External Examiner 27.4.24

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 001

NARAYANA PHARMACY COLLEGE

(Affiliated to Jawaharlal Nehru Technological University Anantapur

andApproved by PCI &AICTE)

Email: npc_nellore@yahoo.com

Visit us: www.narayanapharmacycollege.com

Phone & Fax No: 0861 – 2317966 Cell No. +91 9100051603

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M. Salma

MALLAM.SALMA

(204Q1R0043)

Sk. Moheeth

SHAIK. MOHEETH

(204Q1R0087)

V Anudeepthi

VADANALA.ANUDEEPTHI

(204Q1R00A2)

V. Anupama

VADANALA.ANUPAMA

(204Q1R00A3)

V. Yamini

VEMULA YAMINI

(204Q1R00A7)

PRINCIPAL
NARAYANA PHARMACY COLLEGE
NELLORE - 524 002

6. CONCLUSION AND FUTURE PERSPECTIVES

Inflammation is known to be associated with certain processes viz. enhanced Protein denauration, increase in the vascular permeability and rearrangement of the membranes which is the cause of the discomfort during inflammation. Thus the research work done on many Phytochemical flora has been in focus for the development of the innovative treatments with minimal or no adverse effects. Therefore the present investigation has been focussed on the comparative exploration of the various phytoconstituents present in various herbal extracts along with the anti-inflammatory activity exhibited by the respective extracts when compared to the standard drugs.

The phytoconstituents mostly responsible for the anti-inflammatory activity include Phenols, Tannins, Flavonoids, etc., the extracts screened for the phytochemical analysis were found to contain them in Lantana, Neem, Mutingia, Marigold and Calotropis.

The herbal extracts of Neem leaf, Marigold flower and hydroalcoholic extract of Calotropis leaf exhibited higher anti-inflammatory activity in the egg albumin denaturation method and were found to be more potent than that of reference drugs. Egg albumin is one of the most affordable tests to check the anti-inflammatory activity, however this needs further validation by other methods. Other *in vitro* tests like membrane stabilization and *in vivo* studies using carrageenan-induced paw edema can be performed on various concentrations of these extracts to establish their effectiveness.

The findings of the study provides valuable insights about the therapeutic activity of these three extracts among the five tested for the activity and has an tremendous potential as the natural remedy for the ailments associated with the inflammation. The incorporation of these three extracts in the polyherbal formulation could be a novel treatment strategy with no or minimal adverse effects in contrast to those reported by their synthetic counterparts.