



# **SANTHIRAM COLLEGE OF PHARMACY**

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## **3.3**

### **RESEARCH PUBLICATION AND AWARDS**



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## **3.3.2**

Number of research papers per teacher in the  
journals notified on UGC care list during the year  
**(ACADEMIC YEAR 2022-2023)**





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## 3.3.2. Research papers published per teacher in the journals notified on UGC care list during AY 2022-2023

Sl.	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal
1	A study on prescribing patterns and assessing the functional outcomes in cerebral stroke patients	B.Pradeep	Pharmacy practice	Journal of Pharmaceutical research international	2022	2456-9119	<a href="https://journaljpri.com/index.php/JPRI/article/view/6056">https://journaljpri.com/index.php/JPRI/article/view/6056</a>
2	Development of Nanocrystal Formulations with improved dissolution and bioavailability for BCS Class-II Drug- Quitapine	K. Ravi Kumar	Industrial Pharmacy	Journal of Pharmaceutical negative results	2022	5113	<a href="https://www.pnrjournal.com/index.php/home/article/view/9612">https://www.pnrjournal.com/index.php/home/article/view/9612</a>
3	Formulation and evaluation of Pulsatile drug delivery system of Tolterodine Core In Cup tablets	K.Pavan Kumar	Pharmaceutics	Journal of Pharmaceutical negative results	2022	2379	<a href="https://www.pnrjournal.com/index.php/home/article/view/9055">https://www.pnrjournal.com/index.php/home/article/view/9055</a>
4	A QBD approach to improvement of solubility and bioavailability of Ivacaftor by spray drying technology:	K. Ravi Kumar	Industrial Pharmacy	European chemical bulletin	2023	4984-4995	<a href="https://scholar.google.co.in/citations?view_op=view_citation&amp;hl=en&amp;user=Hs29jrIAAAAJ&amp;citation_for_view=Hs29jrIAAAAJ:0EnyYjriUFMC">https://scholar.google.co.in/citations?view_op=view_citation&amp;hl=en&amp;user=Hs29jrIAAAAJ&amp;citation_for_view=Hs29jrIAAAAJ:0EnyYjriUFMC</a>

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	Invitro and Invivo evaluation						
5	Utilizing andrographis paniculate leaves for effective usage of Bioactive andrographolide and its nanodelivery	K. Ravi Kumar	Industrial Pharmacy	Frontiers journal	2023	10.3389	<a href="https://www.frontiersin.org/journals/nutrition/articles/10.3389/fnut.2023.1185236/full">https://www.frontiersin.org/journals/nutrition/articles/10.3389/fnut.2023.1185236/full</a>
6	A brief review of protective role of Sennsa Singueana in Diverse biological functions	K. Ravi Kumar	Industrial Pharmacy	Pakistan heart journal	2023	2227-9199	<a href="https://www.pkheartjournal.com/index.php/journal/article/view/1646/1590">https://www.pkheartjournal.com/index.php/journal/article/view/1646/1590</a>
7	Formulation Development and characterization of Olmesartan microbaloons	K. Ravi Kumar	Industrial Pharmacy	European chemical bulletin	2023	5005-5011	<a href="https://www.scimagojr.com/journalsearch.php?q=Formulation+and+characterization+of+olmesartan+microbaloons">https://www.scimagojr.com/journalsearch.php?q=Formulation+and+characterization+of+olmesartan+microbaloons</a>
8	Method development and validation indicating studies of prulifloxacin by RP-HPLC	N.Madan gopal	Pharmaceutical Analysis	Journal of XIDIAN university	2023	1001-2400	DOI:10.37896/jxu17.7/100
9	Method development and validation of Celecoxib in bulk and ph. Dosage form by using RP-HPLC method	N.Madan gopal	Pharmaceutical Analysis	High Technology Letters	2023	1006-6748	<a href="https://drive.google.com/file/d/1IcDnmrVZlQ4B0Po6XDGg_p4ZofL-39MY/view">https://drive.google.com/file/d/1IcDnmrVZlQ4B0Po6XDGg_p4ZofL-39MY/view</a>

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10	Design of experiment approach for method development and validation of Bilastine in pure and Pharmaceutical Dosage form using RP- UFLC	L.Siva shankar Reddy	Pharmaceut ical Analysis	Oriental journal of Chemistry	2023	736-745	<a href="https://www.orientjchem.org/vol39no3/design-of-experiments-approach-for-method-development-and-validation-of-bilastine-in-pure-and-pharmaceutical-dosage-form-using-rp-ufllc/">https://www.orientjchem.org/vol39no3/design-of-experiments-approach-for-method-development-and-validation-of-bilastine-in-pure-and-pharmaceutical-dosage-form-using-rp-ufllc/</a>
11	A Prospective Observational Study on Acute Coronary Syndrome In Young Patients At Tertiary Care Teaching Hospital	R. Niranjan Kumar	Pharmacology	European Chemical Bullitin	2023	5817-5826	<a href="https://scholar.google.com/citations?view_op=view_citation&amp;hl=en&amp;user=LNbergMAAAAJ&amp;citation_for_view=LNbergMAAAAJ:FPJr55Dyh1AC">https://scholar.google.com/citations?view_op=view_citation&amp;hl=en&amp;user=LNbergMAAAAJ&amp;citation_for_view=LNbergMAAAAJ:FPJr55Dyh1AC</a>
12	A Prospective Interventional Study On Clinical Pharmacist Assisted Counselling Towards Usage Of Inhaler Devices And Its Impact On Copd And Asthma Patients	C.Bhargav Reddy	Pharmacy practice	Journal of Pharmaceutic al negative results	2022	2057	<a href="https://www.pnrjournal.com/index.php/home/article/view/9490/13117">https://www.pnrjournal.com/index.php/home/article/view/9490/13117</a>
13	A Prospective Observational Study on Incidence, Risk Factors. Etiology and Outcomes Associated with Acute Kidney Injury	C.Bhargav Reddy	Pharmacy practice	International Journal of Research publication and reviews	2023	2582-7421	<a href="https://ijrpr.com/uploads/V4ISSUE4/IJRPR12232.pdf">https://ijrpr.com/uploads/V4ISSUE4/IJRPR12232.pdf</a>

  
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14	Clinical prediction factor and management approaches of recurrent stroke associated with microbleeds in tertiary care hospital	B.Pradeep	Pharmacology	Journal of Xidian University	2022	1001-2400	<a href="https://doi.org/10.37896/jxu16.10/038">https://doi.org/10.37896/jxu16.10/038</a>
15	A Survey on Prevalence of Respiratory Tract Infections in Pediatrics	R.E.Ugandar	Pharmaceutics	Journal of Advanced Zoology	2023	1300:1303	ISSN : 0253-7214
16	Antihyperlipidemic Activity of Terminalia Chebula Retz Extract-Loaded Phytosomes: Development and Characterization	R.E.Ugandar	Pharmaceutics	Journal of Advanced Zoology	2023	319:326	ISSN : 0253-7214
17	Efficacy of 0.5% Hyperbaric Bupivacaine Vs 0.75% Isobaric Ropivacaine for Lower limb surgeries	R.E.Ugandar	Pharmaceutics	Journal of Population Therapeutics and Clinical Pharmacology	2023	729-735	<a href="https://www.jptcp.com/index.php/jptcp/article/view/2511">https://www.jptcp.com/index.php/jptcp/article/view/2511</a>
18	Prevalence and Coping Strategies of depression, Anxiety and Stress among high school adolescents a cross sectional study	R.E.Ugandar	Pharmaceutics	Journal of Population Therapeutics and Clinical Pharmacology	2023	721-728	<a href="https://www.jptcp.com/index.php/jptcp/article/view/2508/2508">https://www.jptcp.com/index.php/jptcp/article/view/2508/2508</a>

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19	Advancing chemical sensors synthesis and classification for the integration of mems optical phased array in polymer nanocomposites	R.E.Ugandar	Pharmaceutics	Optical and Quantum Electronics	2023	56:74	<a href="https://doi.org/10.1007/s11082-023-05675-y">https://doi.org/10.1007/s11082-023-05675-y</a>
20	Polymer based Nano carriers for Targeted drug delivery synthesis characteristics and Pharmaceutical insights	K.Ravi kumar	Industrial Pharmacy				
21	Advances recently made in antibody drug conjugates	K.Ravi kumar	Industrial Pharmacy				
22	Unveiling the Cardioprotective Power: Liquid Chromatography–Mass Spectrometry (LC MS)- Analyzed Neolamarckia cadamba (Roxb.) Bosser Leaf Ethanolic Extract against Myocardial Infarction in Rats and In Silico Support Analysis	R.Niranjan kumar	Pharmacology	MDPI	2023	2223-7747	<a href="https://www.mdpi.com/2223-7747/12/21/3722">https://www.mdpi.com/2223-7747/12/21/3722</a>

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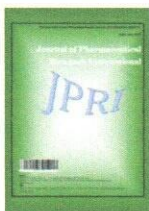
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23	A Prospective Observational Study on Acute Coronary Syndrome In Young Patients At Tertiary Care Teaching Hospital	R.Niranjankumar	Pharmacology	European chemical bullitin	2023	5817-5826	<a href="https://scholar.google.com/citations?view_op=view_citation&amp;hl=en&amp;user=LNbergMAAAAJ&amp;citation_for_view=LNbergMAAAAJ:FPJr55Dyh1AC">https://scholar.google.com/citations?view_op=view_citation&amp;hl=en&amp;user=LNbergMAAAAJ&amp;citation_for_view=LNbergMAAAAJ:FPJr55Dyh1AC</a>
24	A Prospective Observational Study On Antimicrobial Resistance Of E.Coli And Klebsiella Pneumoniae In Renal Failure Patients And Impact Of Treatment	B.Pradeep	Pharmacology	Journal of Pharmaceutic al negative results	2023	2057	DOI:10.47750/pnr.2023.14.S01.94

  
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## **A Study on Prescribing Patterns and Assessing the Functional Outcomes in Cerebral Stroke Patients**

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K. Anil Kumar<sup>b</sup> and R. E. Ugandar<sup>a</sup>**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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### **Short Research Article**

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### **ABSTRACT**

Cardiovascular diseases and Cerebro-vascular diseases account for majority of the burden of NCDs. Stroke is one the major component of these, posing public health challenges. 1 in 6 people suffer with stroke in their life time. The impact of stroke can be short or long term, depending on which part of the brain is affected and how quick it is treated. This hospital based case study was undertaken with aim to study the prescribing pattern and the functional outcomes in cerebral stroke. Study was carried out in the Santhiram Medical hospital, Nandyal, Andhra Pradesh, India.


**Methodology:** Patients visiting the neurology clinic were asked to answer the questionnaire covering functional outcomes by using functional assesment scales to determine the clinical status of the patient; Most of the patient's data were collected from case sheets. A total of 150 patients were included in the observational study. Data from case sheets were analysed to assess the prescribing pattern and the questionnaires like mRS, SSQOLS, MMSE scales were used to interview the stroke patients to assess the functional outcomes.

**Results:** Our study presents that there is a minimal Modified Rankin Scale (MRS) score progress in patients. MRS, SSQOL, MMSE scales, which showed improvement in the quality of life and cognition in stroke patients after treatment.

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# Development of Nanocrystal Formulations With Improved Dissolution And Bioavailability for BCS Class-II Drug- Quetiapine

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## Abstract

The aim of the present work was to improve the solubility and bioavailability of BCS Class-II Drug Quetiapine using nanocrystal approach. Quetiapine nano crystals were prepared by bottom up technology. The resultant nanocrystals were characterised for its physio chemical parameters such as Melting point, solubility, Particle size and drug release. From the results it is investigated that prepared nano crystals had improved solubility and particle size compared to pure drug. Among the prepared formulations F6 had shown 97% Drug release in thirty minutes which was 15 times more faster than the pure drug with reduced particle size for optimised formulation of 400nm (F6) using PVP k30 as a stabiliser. Drug Excipient compatibility studies were carried out using FTIR spectroscopic studies and reveals that there is no interaction between the drug and the selected excipients. From DSC studies it reveals that the reduced melting point of prepared nanocrystal of 126°C from 180 °C of the pure drug clearly distinct the nanosized formation decrease the melting point increase the solubility and dissolution values this may be attributed to the weaker bonds of drug with the stabiliser. Thus nano crystal approach is an effective technology in improving the bioavailability of the pure drug quetiapine.

**Keywords:** Quetiapine, Particle size solubility, bioavailability, Drug excipient compatibility, DSC studies

## INTRODUCTION:

Today, nanotechnology permeates every aspect of our daily lives, in the increasing field of bio technology (where new tools to easily interact with proteins in ever smaller sizes are needed [Merkle 1999]) also in the pharmaceutical technology in producing products in Nanosize range, nanosized agents can provide a whole range of benefits for effective drug therapy. Now a days, literature states that about 60% of all synthesised drugs coming directly from synthesis are poorly soluble [1-4] (Merisko-Liversidge 2002) that suffers with low bioavailability. Use of nanotechnology approaches improves the solubility and bioavailability of these drug molecules. [2,5] Nanocrystals are defined as crystalline nanoparticles between 200 and 500nm in size that have surface stabilizers on them. They increase the saturation solubility, dissolution rate and results in the improved oral bioavailability of drugs exhibiting dissolution rate dependent bioavailability. [3,7] Drug nanocrystals constitute a versatile formulation approach to enhance the pharmacokinetic and pharmacodynamics properties of poorly soluble drugs. Drug Nano crystals should be separated from polymeric nanoparticles since the latter contain a drug and a polymeric matrix while drug Nano crystals do not. It enhances the oral bioavailability of the medicine leads to rapid onset of action. In the present study, nanocrystal formulations were developed using novel excipients.

Quetiapine is 2-[2-(4-benzothiazepine-6-yl piperazin-1-yl) ethoxy] ethanol an Antipsychotic agent used for the treatment of Schizophrenia bipolar disorder, psychosis associated with parkinsons disease and as adjunct treatment of major depressive disorder. It is Characterized by Low Solubility and High Permeability belongs to BCS class II drug suffers with low bioavailability of 9%. [5-6]



# Formulation And Evaluation Of Pulsatile Drug Delivery System Of Tolterodine Core In Cup Tablets

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## Abstract

**Objective:** The aim of the present study to prepare Pulsatile release tablets of Tolterodine tartarate for the treatment of over active bladder.

**Methods:** The drug delivery system was designed to deliver the drug at time when it could be most needful for the patient. Tolterodine Tartarate Pulsatile core-in-cup tablet was designed to deliver a rapid or transient and quantified drug after a predetermined lag period. This type of tablet was prepared by direct compression method and is used to prepare a set of core-in-cup tablets with Swellable and Rupturable polymers like Pectin, Locust bean gum and HPMCK15M respectively with different proportions with impermeable cup ethyl cellulose. Tablets were evaluated for Precompression. Post compression and *in vitro* dissolution studies. **Results:** The drug polymer interaction was studied by FTIR. The Precompression and post compression parameters are within the limits. The Data of core-in-cup tablet were within the acceptable limit and they can be compressed directly into tablets. The hardness, friability and uniformity in weight and disintegration time results were in accordance with the standard limit. The lag time is dependent on rupturing property of Ethylcellulose and swelling property of the polymers. In the Optimized formulation the best fit model was found to be Korsmeyer peppas with exponential 'n' value is  $> 1$  indicates the drug release follows super case II transport mechanism. The initial burst release was observed after lag time and drug release of 9hrs was extended up to 11hrs for the optimized formulation. The *in vitro* drug release studies suggest that core-in-cup tablet prepared with ethyl cellulose and HPMC K 15 M shows a lag time of 4hrs due to more swelling and delayed rupturing properties of HPMC K15M and ethyl cellulose. Comparative Dissolution studies were conducted for optimized formulation TT9 & Marketed preparation. Short Term Stability studies indicate no significant changes in Drug content and Dissolution rates.

**Keywords:** Pulsatile Drug Delivery, Core-in Cup, Tolterodine Tartarate, Swellable and Rupturable Polymer.

## INTRODUCTION

Overactive bladder is a condition that results from sudden, involuntary contraction of the muscle in the wall of the urinary bladder. It is commonly characterized by urinary urgency, with or without urge incontinence usually with frequency and nocturia. It causes sudden and unstoppable need to urinate (urinary urgency), even though the bladder may contain a small amount of urine. Overactive bladder, however, should not be considered as normal part of aging.

OAB affects approximately 17% of adults globally. A recent study using current ICS definitions of OAB found the prevalence of OAB to be 11% in men and 13% in women.

### Causes of Overactive Bladder:

The common abnormalities of the nervous system that cause overactive bladder are as follows

- Neurological disorders
- Due to urinary tract infections



## A QBD APPROACH TO IMPROVEMENT OF SOLUBILITY AND BIOAVAILABILITY OF IVACFTOR BY SPRAY DRYING TECHNOLOGY: INVITRO AND INVIVO EVALUATION

Purnachandra Reddy Guntaka<sup>1\*</sup>, Srinivas Lankalapalli<sup>2</sup>, Dr. Ravi Kumar Kota<sup>3</sup>

### Abstract

**Objective:** The present investigation was aimed to overcome the problems associated with the solubility, dissolution and oral bioavailability of ivacaftor by employing spray drying technology.

**Method:** Ivacaftor solid dispersions were prepared by using copovidone, hypromellose 5CPs, soluplus were selected as a carriers and sodium lauryl sulphate was selected as surfactant. Drug and polymer ratio was chosen as 1:1 ratio and characterized the solid dispersions by differential scanning calorimetry (DSC), scanning electron calorimetry (SEM) and X-ray diffraction studies (X-RD), Fourier transform infrared spectroscopy (FT-IR). Later solid dispersions were manufactured into tablets by direct compression method by using Ac-di-sol as a super disintegrant and evaluated for their post compression parameters. Further optimization was done by employing the 2<sup>2</sup> full factorial design by selecting the copovidone (X1) and sodium lauryl sulphate (X2) as independent factors and *invitro* drug release (Y2) as a dependent factor. In addition the optimized formulation was carried out for its *invivo* evaluation by using rats.

**Results:** Spray drying technology successfully employed to overcome the solubility problem by preparing the drug into their solid dispersions. DSC, SEM, X-RD and FT-IR performed on solid dispersion showed that ivacaftor existed in the amorphous form within the solid dispersion formulation fabricated using the spray drying process. Further design expert 12 software used to find the significant effect of independent factors on dependent factor by using 2D and 3D plots. Moreover, *invivo* study in rats also justified the improvement in the therapeutic efficacy of optimized formulation over pure drug.

**Conclusion:** Thus, spray-dried technology can be an effective method for enhancing the bioavailability of ivacaftor.

**Keywords:** Copovidone, Ivacaftor, Soluplus, Spray drying and sodium lauryl sulfate


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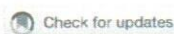
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# Utilizing *Andrographis paniculata* leaves and roots by effective usage of the bioactive andrographolide and its nanodelivery: investigation of antikindling and antioxidant activities through *in silico* and *in vivo* studies

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To valorise the bioactive constituents abundant in leaves and other parts of medicinal plants with the objective to minimize the plant-based wastes, this study was undertaken. The main bioactive constituent of *Andrographis paniculata*, an Asian medicinal plant, is andrographolide (AG), a diterpenoid, which has shown promising results in the treatment of neurodegenerative illnesses. Continuous electrical activity in the brain is a hallmark of the abnormal neurological conditions such as epilepsy (EY). This can lead to neurological sequelae. In this study, we used GSE28674 as a microarray expression profiling dataset to identify DEGs associated with andrographolide and those with fold changes  $>1$  and  $p$ -value  $<0.05$  GEO2R. We obtained eight DEG datasets (two up and six down). There was marked enrichment under various Kyoto Encyclopedia of Genes and Genomes (KEGG) and Gene Ontology (GO) terms for these DEGs (DUSP10, FN1, AR, PRKCE, CA12, RBP4, GABRG2, and GABRA2). Synaptic vesicles and plasma membranes were the predominant sites of DEG expression. AG acts as an antiepileptic agent by upregulating GABA levels. The low bioavailability of AG is a significant limitation of its application. To control these limitations, andrographolide nanoparticles (AGNPs) were prepared and their neuroprotective effect against pentylenetetrazol (PTZ)-induced kindling epilepsy was investigated using network pharmacology (NP) and docking studies to evaluate the antiepileptic multi-target mechanisms of



## A Brief Review of the Protective Role of *Senna singueana* in Diverse Biological Functions

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### Abstract:

*Senna singueana* is one of the most potential medicinal plants from genus *Senna* that are widely studied for medical purposes. Belongs to the family Fabaceae that growing up to 15 m. Other names are winter cassia, scrambled egg or sticky pod. *S. singueana* is commonly found in semi-arid regions of tropical Africa *Senna singueana* (Delile) Lock is a potential medicinal plant commonly used to mitigate various infectious and non-infectious diseases including malaria, typhoid, gonorrhoea, bilharzia, cancer, epilepsy and ulcer. The phytochemical profile of *S. singueana* indicates the presence of different phytoconstituents corresponding to the pharmacological properties. Scientific studies reveal that *S. singueana* has pharmacological activities including antimicrobial activity, antioxidant activity, antidiabetic activity, anticancer activity, hepatoprotective activity and antiapoptotic activity.

**Keywords:** *Senna singueana*, Fabaceae, Phytochemical, Pharmacological properties.

### Introduction:

Plants with medicinal properties have historically been employed with remarkable efficacy to manage a variety of ailments due to the presence of active phytoconstituents. The isolation of biologically active compounds from medicinal plants has a lot of promise for developing drugs [1,2] Rural societies particularly in developing countries, still use medicinal plants as the principal source of medicines [3,4]. *Senna* a genus belonging to family Fabaceae, subfamily Caesalpinoideae, tribe Cassieae ser. Aphyllae has roughly 350 species of tree shrubs and subshrubs [5, 6]. It is called Runhu in Hausa language.[7] and is native to tropical Africa, occurring throughout mainland tropical regions of Africa (8). This genus can be found in wide-ranging habitats, in distinct climatic conditions, latitudes, and continents such as America, Africa, and Oceania and to a minor extent in Asia and Pacific islands [9]. *Senna* plants colonized forests (both humid and dry), deserts (both cold and dry), and rock outcrops [10]. Different parts of this plant species have numerous medicinal uses all over Africa. The plant is used to treat fever, malaria, pulmonary troubles, eye problems (conjunctivitis), skin disorders, venereal diseases, abdominal problems, bilharzia, impotence due to diabetes and wounds caused by leprosy, and syphilis (11, 12). It is also used as a purgative and as a lactation stimulant in both humans and animals (11, 12). In Zimbabwe, the leaves of *S. singueana* are used to treat a broad spectrum of poultry conditions such as coccidiosis, Newcastle disease, coughing, and flu-like symptoms (13). To date, the genus is also commonly recognized for its biologically active compounds and medicinal properties [14, 15].





## FORMULATION DEVELOPMENT AND CHARACTERIZATION OF OLMESARTAN MICROBALLOONS

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### Abstract:

The objective of the current study was to increase the bioavailability of olmesartan (OLM) by using gastro retentive formulations to keep the drug in the gastrointestinal tract (GIT) for a longer period of time, enhance drug release, and increase efficacy. As rate-controlling polymers, EC and hydrophilic polymer HPMC are utilized in the solvent diffusion process to formulate Microballoons. The drug's embedding in the Microballoons' shell and attainment of surface smoothness were discovered and validated by SEM examination. A modest particle size of less than 117 $\mu$ m may have contributed to the prepared Microballoons' for excellent floating characteristics over a period of more than 12 hours. In-vitro drug release was performed using the USP Type-I method in 0.1N HCL drug released obtained 69.5 % for 12 hours for optimal formulation which may be attributed for effective entrapment efficiency for the prepared formulations. Kinetic studies reveals that higher values of correlation co-efficient obtained through Higuchi square root of time, indicates diffusion mechanism. The optimized formulation was best fitted with kores Myer papas model of n value 0.5 indicates anomalous drug transport.

**Keywords:** Microballoons (Hollow Microspheres) Solvent Diffusion Method, Olmesartan HPMC &Ethyl Cellulose Higuchi & kores Myer papas model.

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## METHOD DEVELOPMENT, VALIDATION AND STABILITY INDICATING STUDIES OF PRULIFLOXACIN IN ITS API AND FORMULATION BY USING RP-HPLC

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**Abstract:** Prulifloxacin is a fluoroquinolone antibacterial agent with activity against gram-negative and gram-positive bacteria. Its Pka value is 5.85. For the purpose of determining Prulifloxacin in bulk and medicinal dosage by RP-HPLC method utilizing a C18 column (250 mm $\times$ 4.6 id, 5), a straightforward, quick, and accurate method has been established (shim-pack). The mobile phase was Acetonitrile and Isopropyl alcohol in a ratio of 90:10 (v/v), the flow rate was 1 ml/min, the injection volume was 10  $\mu$ l, and the detection was by a UV detector at 279 nm. The retention time was 3.047 min against a 5.0 min runtime at 300  $^{\circ}$ C. The linearity was found to be  $\mu$ g/ml. The %RSD of inter- and intraday precision was 1.08 and 1.25, respectively. The recovery study was 99.25–100.16; LOD and LOQ were 1.087 and 3.295  $\mu$ g/ml, respectively. The stress studies reveal that all the degradation is within limits. The described HPLC method is evaluated by parameters like linearity, system suitability, Accuracy, Precision, robustness, and stability.

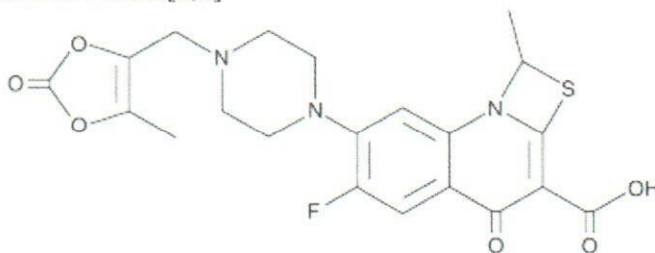
**Key words** HPLC, Method Development, Method Validation, Prulifloxacin

### 1. INTRODUCTION

Prulifloxacin is antibiotic. Prulifloxacin is bactericidal, and it works by inhibiting bacterial DNA replication by binding to an enzyme called DNA gyrase. This enzyme is necessary for the unfolding of one DNA double helix into two, which is how Prulifloxacin blocks bacterial DNA replication. Prulifloxacin crosses the placenta and is distributed into cord blood and amniotic fluid [2]. If the drug is distributed through milk is unknown. Following a single 600-mg oral dose of the medication, prulifloxacin was not found in the milk of lactating mothers, although it is unknown whether distribution into milk with higher doses. The piperazinyl group on the drug is modified to produce six metabolites with the numbers M-1, M-2, M-3, M-4(1), M-4(2), and M-5.2 and structure was observed in fig 1. Despite the fact that some metabolites are microbiologically active, they are not as potent as the parent drug. Prulifloxacin may go through first-pass metabolism in the liver, but more research is required to fully understand the drug's metabolic fate. Prulifloxacin is a broad-spectrum antibiotic drug that has been proven to be effective against both Gram-positive and Gram-negative bacterial species [1].

The enzymes topoisomerase II (DNA gyrase) and topoisomerase IV, which are necessary for bacterial DNA replication, transcription, repair, and recombination, are inhibited by Prulifloxacin, which has a bactericidal effect[1,2]

Prulifloxacin, the lipophilic prodrug of ulifloxacin, is a new oral fluoroquinolone with a broad spectrum of in vitro activity against various Gram-positive and Gram-negative microorganisms. Currently, it is the most potent in vitro fluoroquinolone against *Escherichia coli* and *Pseudomonas aeruginosa*, and also has the lowest potential of inducing the emergence of resistant strains for these bacteria. It exhibits good penetration in target tissues and fluids, and possesses a long half-life, thus allowing for once-daily administration. Prulifloxacin has an acceptable toxicity profile, comparable to that of other fluoroquinolones, with gastric disturbances, diarrhea, nausea and skin rash of mild-to-moderate severity being the most frequent adverse events.[2,3]





## Method Development and Validation of Celecoxib In Bulk And Pharmaceutical Dosage Form By Using Rp-Hplc Method

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**Abstract:** For the measurement of celecoxib in API and capsule formulations, a straightforward, speedy, and accurate Reverse Phase High Performance Liquid Chromatography (RP-HPLC) approach was devised. Osteoarthritis and rheumatoid arthritis were treated with celecoxib. The suggested method was created utilizing a mobile phase of methanol:OPA in an 80:20 v/v ratio, and it was optimized in binary mode on a shimadzu C18 (4.6\*250mm) 5 $\mu$ m column with a 1.2 ml/min flow rate. Celecoxib had a retention duration of 5.025 min with a maximum absorption of 250 nm. The validity of the optimized approach in terms of sensitivity, robustness, accuracy, and precision Studies on degradation were also carried out and found to be within the limitations. The range of the linearity was 5 to 25  $\mu$ g/ml, and the regression coefficient was 0.9916. The values for the LOD and LOQ were 0.52  $\mu$ g/ml and 1.75  $\mu$ g/ml, respectively. A simple, precise, and accurate method was developed and validated according to ICH Q2R1 guidelines.

**Key Words:** Celecoxib, Methanol, HPLC, ICH Guidelines.

### I. INTRODUCTION

4-[5-(4-methylphenyl)-3-(trifluoromethyl)pyrazol-1-y) Celecoxib Benzenesulfonamide is a non-steroidal anti-inflammatory medication (NSAID) that is a diaryl pyrazol. It has anti-inflammatory, analgesic, and antipyretic effects by specifically blocking the synthesis of prostaglandins by the enzyme cyclooxygenase-2 (COX-2)[3,4]. It is prescribed to treat osteoarthritis and rheumatoid arthritis symptoms. The U.S. FDA gave celecoxib a priority review rating and approved it on December 12th, 1998. There are dose formulations for it in capsules of 100 mg and 200 mg. Cytochrome P450 2C9 is principally responsible for its metabolism. Human plasma has been found to contain three inactive metabolites, including a primary alcohol, the matching carboxylic acid, and its glucuronide conjugate [1, 2].



## Design of Experiment Approach for Method Development and Validation of Bilastine in Pure and Pharmaceutical Dosage form using RP-UFLC

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### ABSTRACT

Background: Bilastine is a H1 receptor antagonist, used in the treatment of allergic urticaria, seasonal rhinitis, etc. Few journals have reported the analytical related work on bilastine drugs. Objective: The objective of the work is to develop a simple, precise, rapid, and reproducible method using design of experiments (DOE) and check the optimized conditions when run on UFLC would give the best method or not. Results: The DOE software was used to select optimized conditions with minimal runs. The central composite design was the best fit, with two variables that include flow rate and column temperature. A total of 13 runs gave optimum conditions of 1.2 mL/min flow rate, column temperature of 40°C and mobile phase methanol: buffer (pH 6.0) in the ratio of 70:30 in the binary mode using the Shimadzu C18 column on an HPLC instrument. The retention time of bilastine was found to be 5.126min, the number of theoretical plates and asymmetric factor being within the limit. The proposed method was validated as per the ICH Q2R1 guidelines. The linearity was found to be in the range of 1.25 µg/mL-10 µg/mL. The correlation coefficient was found to be within the limits i.e.,  $R^2=0.999$ . The accuracy of the current method was being performed using the %recovery at three stages 50%, 100%, and 150% and was found to be 99.5126%, 100.2765% and 99.6714% respectively. The LOD and LOQ of bilastine was found to be 0.292 µg/mL and 0.974 µg/mL. Conclusion: The DOE software reduced the number of trials, saving both time and solvent consumption. This method can be conveniently used with confidence for regular assay, which is a simple, precise, rapid, and reproducible one for the estimation of bilastine in pure and pharmaceutical tablet dosage form using UFLC.

**Keywords:** Bilastine,  $\text{KH}_2\text{PO}_4$ , RP-UFLC, ICH Q2R1 guidelines, DOE and Validation parameters.



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## A PROSPECTIVE OBSERVATIONAL STUDY ON ACUTE CORONARY SYNDROME IN YOUNG PATIENTS AT TERTIARY CARE TEACHING HOSPITAL

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### Abstract

**Background:** There has been an increase in the prevalence of cardiovascular risk factors associated with acute coronary syndrome (ACS) among people of Indian ancestry, and ACS has emerged as a major cause of mortality in this population. According to the data we have at the moment, young patients account for 0.4% to 19.0% of all ACS cases, depending on the age threshold that is employed. The goal of the current investigation was to determine the prevalence of the most common cause of Acute Coronary Syndrome in young individuals.

**Methodology:** Patients between 25 and 44 years old, of either gender, who were hospitalised with suspected ACS symptoms beyond the upper limit of normal were included in this prospective observational study.

**Results:** The study consisted of total number of 147 cases of young adult of acute coronary syndrome who were admitted Cardiology Unit in tertiary care centre. Patients included in the study of which 112 (76.2%) were male patients and 35 (23.8 %) were female patients. In this study, three different types of acute coronary syndrome were encountered during our study which includes 81 (55.1%) patients are with NSTEMI, 50 (34 %) are with AAMI and 16 (10.9%) are with IAMI. In our study, Smoking & Alcoholic were the major cause for ACS in young patients constituting 78 (53.06%). The ACS patients, prescribed with Anti platelets (97.9%), Anti coagulants (99.3%), HMG-CoA reductase inhibitors (100%), Proton pump inhibitors (100%), Beta blockers (28.5%), Diuretics (13.6%) & Vasodilators (4.08%).

**Conclusion:** Smoking, hypertension, diabetes, dyslipidemia and alcohol consumption were other important modifiable risk factors in young adults. Other risk factors such as family history of premature CAD was also prevalent in young adults.

**Keywords:** Smoking, hypertension, diabetes, dyslipidaemia, premature CAD, adult coronary syndrome

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# A Prospective Interventional Study On Clinical Pharmacist Assisted Counselling Towards Usage Of Inhaler Devices And Its Impact On Copd And Asthma Patients

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## Abstract

**Background:** Asthma and COPD are the respiratory diseases. Asthma is a persistent lung disease presented with chronic cough, SOB that occurs from bronchial hyper responsiveness and inflammation. COPD is also known as COAD (Chronic obstructive airway disease) is the airway obstructive disease which leads to obstruction of the airflow that is either partially or completely and results in dysfunction of the lungs disease. The purpose of the study is to provide the clinical pharmacist assisted counselling towards usage of inhaler devices and assessing its impact by using inhaler specific checklist for both MDI,DPI and nebulizer assessment. Inhaler devices such as nebulizer, metered dose inhaler (MDI), dry powder inhaler(DPI) have an advantageous impact in control of asthma and COPD.

**Materials and Methods:** A prospective interventional study was held for half of the year. All the data were collected, documented and analyzed based on standard protocol. The collected data were statistically analysed by using paired T –test.

**Results:** In this study we observed that patients had improved the correct usage of inhaler devices after counselling than before and also helps to relieve from symptoms.

**Conclusion:** We conclude that patients had improved their performance on usage of inhaler devices in post counselling than to pre counselling. The involvement of clinical pharmacist in counselling shows improvement on correct usage of inhalation technique in COPD and asthma patients.

**Keywords:** Asthma, COPD, Inhaler devices, SOB, Counselling.

## INTRODUCTION:

### Asthma:

Asthma is a persistent lung disease mainly presented with recurrent gasp, cough and SOB occurs as a result of swelling and hyper responsiveness of the airways. As per epidemiological data united states has the higher disease rate of asthma that is it affects about 20million individuals.<sup>1</sup>

### Classification of Asthma:

Patients with asthma are categorized in to:

Extrinsic asthma Intrinsic, asthma Occupational asthma Potentially fatal asthma Exercise induced asthma Cough variant asthma<sup>2</sup>. The goal of therapy is the control of symptoms. Such control of symptoms can be obtained through proper patient education about medication, life style modifications, avoidance of exposure to triggering factors, individualized, pharmacotherapy and regular follow up.<sup>3</sup>

### COPD:

COPD is a persistent pathological condition in which airway limitation is seen due to over production of phlegm, severe cough and inflammation of airways. One of the strongest cause behind the COPD is cigarette smoking. Depending on production of phlegm and age, COPD is categorized in to chronic bronchitis and emphysema.

Patients with COPD are more prone to lung infections caused by bacteria or virus.<sup>4</sup> Triggering factors of Asthma and





## **A Prospective Observational Study on Incidence, Risk Factors. Etiology and Outcomes Associated with Acute Kidney Injury.**

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### **ABSTRACT:**

Acute kidney injury (AKI) is a common clinical condition among patients admitted in the hospital. The condition associated with both increased short term and longterm mortality, with the development of a standardised definition for AKI and the acknowledgement of the impact of AKI on patient outcomes there has been increased recognition of AKI. Two advances from past decades, the usage of computer decision support and the discovery of AKI biomarkers, have the ability to advance the diagnostic method to and further management of AKI.

Acute kidney injury (AKI) Increases in critically ill patients morbidity, mortality, length of ICU stay, and long term risk chronic kidney disease.

Studies with a comprehensive analysis of the epidemiology of acute kidney injury in intensive care units are still limited in developing countries.

The aim of this study is to assess the incidence of acute kidney injury at the study site and to compare etiology, risk factors to predict the AKI enhanced outcome based on the SOFA score among critically ill patients. We include 150 patients. The incidence of AKI was 45% and the AKI dialysis rate was 45 (30%) on comparison of SOFA with outcome (ie, mortality). The AUC was observed to be 0.805, which suggests that SOFA could predict the mortality significantly with excellent predictability.

At the best cutoff 11.5, SOFA could predict the mortality with sensitivity of 80% and specificity of 92.7%. Among the study population 51-65 age group was observed as highest frequency of AKI i.e., 56 (37%). Based on gender wise distribution highest frequency of AKI observed in males (70%) we analyse AKI cases from different departments. Highest frequency observed in nephrology then cardiology and neurology. By comparing etiology in relation to ICU stay, sepsis AKI is one of the etiology present in ICU in comparison to 65.4% of cases who did not have ICU stay still have sepsis AKI. There is no significant difference in the etiology in admission in ICU and NON ICU. Sepsis AKI is the most common etiology for mortality patients who receive RRT there is no mortality was observed. Patients who did not receive dialysis was observed as died.

**Key Words:** Acute kidney injury, chronic kidney injury, intensive care unit, renal replacement therapy, sequential or sepsis related organ failure assessment score, dialysis.

### **INTRODUCTION:**

AKI is defined as reduction in kidney function, including diminished GFR and kidney failure. Staging of AKI is appropriate because, with increased stage of AKI, the imminence for death and need for RRT increases.

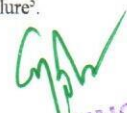
According to International society of nephrology (2021) Every year, there are around 13.3 million cases of AKI. A burden that's on the increase in emerging countries where the annual incidence is estimated to be 11.3 million. Out of 1.7 million global deaths per year caused by AKI, around 1.4 million come down in low and middle income countries<sup>1</sup>.

A prospective observational study conducted in 100 critically ill cases by Eswarappa M et al. (2018), in Indian population, it was set up that incidence of AKI was 17.3 cases/ 1000 persons<sup>2</sup>.

Knowledge of incidence and risk factors is pivotal because it drives local and international works on finding and treatment.

In hospitalized cases perioperative risk factors promoting AKI postoperatively. A previous knowledge of risk factors contributing to a planned preventative management and prognostication<sup>3</sup>. AKI occurs due to pre-renal, renal, and post renal aetiologies.

The sequential organ failure assessment score (SOFA score)<sup>4</sup>, preliminarily known as the sepsis related organ failure assessment score, is used to track a person's status during the stay in Intensive care unit (ICU) to determine the extent of person's organ function or rate of failure<sup>5</sup>.

  
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## Clinical Prediction Factors and Management Approaches of Recurrent Stroke Associated With Microbleeds in Tertiary Care Hospital

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**Abstract**— Microbleeds in the brain are primarily connected with ischemic and hemorrhagic stroke. Microhaemorrhages or cerebral microbleeds in the brain are small, long-lasting accumulations of blood products caused mostly by a hemolysis, primarily hemosiderin that macrophages have captured in perivascular areas. **Objectives:** The study aim was to assess the incidence and prediction of factors associated with cerebral microbleeds by using the MRI in Stroke patients and the therapeutic approaches in microbleeds associated stroke patients. It was a retrospective study conducted for the duration of 6 months at department of Neurology, Santhiram Medical College and General Hospital. The study comprised 151 patients, of whom 61.58 % (93) of males and 38.42 % (58) of females had a stroke. The incidence of stroke, recurrent stroke, and micro bleeds was 116 (76.68%), 28 (18.54%), and 7 (4.46%), respectively. Age, Hypertension and Diabetes Mellitus were identified as risk factors for stroke, recurrent stroke, and microbleeds. The majority of patients were treated with the more successful combination of aspirin and clopidogrel, Atorvastatin, mannitol, and vitamin supplement. Males had a higher incidence of ischemic stroke, recurrent stroke, and microbleeds; age, hypertension and type 2 diabetes were risk factors for the development of stroke and microbleeds.

**Keywords**— Stroke, Microbleeds, hypertension, Glasgow Coma Scale, MRI.

### I. INTRODUCTION

Stroke is defined by the World Health Organization as a clinical syndrome consisting of rapidly developing clinical signs of focal disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular Origin. Worldwide, stroke is the major cause of death and disability and can be generically categorized as ischemic or hemorrhagic. Ischemic stroke results from any blockage in the blood arteries that provide blood to the brain. Ischemic stroke is caused by embolism, thrombosis, and stenosis. Hemorrhagic stroke is mostly caused by the rupture of a blood vessel within the brain, which produces internal bleeding. The two kinds of hemorrhagic stroke are intracerebral haemorrhage (ICH) and subarachnoid haemorrhage (SAH). Intracerebral haemorrhage and subarachnoid haemorrhage SAH refer to bleeding into the brain parenchyma and subarachnoid space, respectively [1-3].

Micro bleeds are observed on gradient echo MRI (GRE) of normal elderly individuals and in patients with ischemic and hemorrhagic stroke. Microbleeds are mainly associated with the presence of white matter hyper intensities on MRI. The Rotterdam Scan Study described Cerebral Microbleeds (CMBs) in 1,062 older subjects. CMBs were detected in 17.8% of patients aged between 60 to 69 years, in 31.3% of patients aged between 70 to 79, and in 38.3% of patients aged between 80 to 97. The prevalence of multiple CMBs was also found to increase significantly with age. The prevalence of CMBs in elderly subjects with no history of cerebrovascular disease is around 5%, but is much higher in patients with ischemic or hemorrhagic stroke. In this study the main objective is predict which factors are main responsible for developing the CMBs in the stroke [7-8].

### II. MATERIALS AND METHODS

#### Study design and site

It was a Retro-prospective study to assess the clinical prediction factors in stroke and stroke associated micro bleeds patents and their therapeutic approaches from November 2021to April 2022 at Department of Neurology, Santhiram medical college and General Hospital. The study data was collected by using the patient's case sheets, counselling and interviewing from patients and by using GCS (Glasgow Coma Scale). Initially consent was taken from the patients followed by the data collection as per the inclusion and exclusion criteria of the study.





## A Survey on Prevalence of Respiratory Tract Infections in Paediatrics

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Article History	Abstract
Received: 12 June 2023 Revised: 21 Sept 2023 Accepted: 24 Oct 2023	<p>The study includes a survey on various Respiratory Tract Infections emerging among pediatrics of age groups ranging from 1 month to 12 years, at various Hospitals in and around the Nandyal region of Andhra Pradesh, India. The study was conducted with a questionnaire-based survey with informed assent forms from the parents of the 144 minor male and female subjects, 44.4% and 55.6% respectively among each gender. Among the study subjects, 75% were from urban regions and 25% were from rural regions. Results revealed upper Respiratory Tract Infections of which 30.6% of subjects were infected with Otitis media, 11.1% were infected with Sinusitis, and 2.7% were diagnosed with Tonsillitis. The lower Respiratory Tract Infections of which 30.6% of subjects were infected with Pneumonia, 11.1% were infected, and 11.1% were infected with Tuberculosis. Disorders related to Shortness of Breath were Bronchitis observed among 33.3% with Paroxysmal Nocturnal Dyspnoea, 22.2% with Dyspnoea, and 11.1% were infected with Orthopnea. Among the study population, 52.8% reported experiencing with history of respiratory tract illness, and 50% of the subject's family members with positive history of RTI.</p>
CC License CC-BY-NC-SA 4.0	<b>Keywords:</b> RTIs, Sinusitis, Tonsillitis, Pneumonia, Bronchitis and Dyspnoea

### 1. Introduction

Respiratory tract infections (RTIs) are infections of parts of the body involved in breathing, such as the sinuses, throat, airways, or lungs. Most RTIs get better without treatment, but sometimes you may need to see a Physician. Common symptoms of RTI may include; cough, sneezing, a stuffy or runny nose, sore throat, headaches, muscle aches, breathlessness, tight chest or wheezing, a high temperature, and feeling generally unwell. Children develop on average six viral respiratory tract infections each year. Viral respiratory tract infections are typically divided into Upper respiratory tract infections: Symptoms occur mainly in the nose and throat. Viral upper respiratory tract infections may occur at any age and include the common cold and influenza.

Lower respiratory tract infections: Symptoms occur in the windpipe, airways, and lungs. Viral lower respiratory tract infections are more common among children and include croup, bronchiolitis, and pneumonia. Children sometimes have infections involving both the upper and lower respiratory tracts<sup>1</sup>. Extensive research exists on the physiopathology of these diseases and their overall association with individual risk factors. These factors include environmental conditions such as indoor and outdoor air quality which are often affected by burning biofuels<sup>2</sup>, wildfires<sup>3</sup>, and traffic congestion<sup>4</sup>, and climatic factors such as temperature and precipitation<sup>5,6</sup>. Social and demographic characteristics have also been relevant, including poverty<sup>7,8</sup>, the age for both the very young and the elderly being at higher risk<sup>9</sup>.





## Antihyperlipidemic Activity of *Terminalia Chebula Retz* Extract-Loaded Phytosomes: Development and Characterization

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 13 Oct 2023	<p>Ethnopharmacological evidence has demonstrated that <i>Terminalia chebula Retz</i> is traditionally employed for the management of hepatic ailments. Presently, a significant number of prevalent diseases and nutritional disorders are managed through the utilization of natural remedies. The efficacy of herbal medications relies on the administration of a sufficient dosage of the therapeutically active component. However, there is a significant constraint in terms of their bioavailability when taken via oral or topical routes. Phytosomes are a novel class of herbal formulations that have been recently introduced. These formulations exhibit enhanced absorption properties, leading to improved bioavailability and efficacy compared to traditional phyto compounds or botanical extracts. The objective of the current investigation was to assess the qualitative and quantitative phytochemical analysis, high-performance liquid chromatography, optical microscopic research, and in vitro antioxidant properties of <i>Terminalia chebula Retz</i> leaves obtained from the Bhopal region of Madhya Pradesh. The hydroalcoholic extract of phytosome was prepared using a mixture of phospholipids and cholesterol. The characterization of phytosome was conducted using various analytical techniques, including Fourier-transform infrared spectroscopy, determination of entrapment efficiency, measurement of particle size and size distribution, examination under an optical microscope, high-performance liquid chromatography analysis. The concurrent utilization of phospholipids and <i>Terminalia chebula Retz</i> has the potential to produce a synergistic outcome. This synergistic effect can be assessed by evaluating the free radical scavenging activity using the DPPH model.</p>
CC License CC-BY-NC-SA 4.0	<b>Keywords:</b> Free radical scavenging activity, Phytosome, Phospholipids, and <i>Terminalia chebula Retz</i>

### 1. Introduction

The liver, being the largest organ, is susceptible to damage from various factors such as pathogenic infections, exposure to toxic substances, and the abuse of alcohol or drugs. The liver is widely recognized for its remarkable capacity for regeneration and recuperation following injury<sup>1</sup>.





## PREVALENCE AND COPING STRATEGIES OF DEPRESSION, ANXIETY AND STRESS AMONG HIGH SCHOOL ADOLESCENTS: A CROSS SECTIONAL STUDY

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### Abstract

**Background:** Across the globe, Students experience more psychiatric symptoms than ever, and most of them are brought on related to pressure from teachers, peer, parents and examinations etc. and these symptoms are the primary factors causing disability in adolescents. At the end, this study was conducted to determine prevalence of depression, stress, anxiety among high school adolescents and to access their coping strategies. **Materials and methods:** In this cross-sectional study, a total of 430 secondary school adolescents, within the age range of 13–17 years were included. The reliability, anonymity and confidentiality were maintained. Moreover SPAS, DAS, PSS and cope Scales were used individually for measuring the Stress, Depression, Anxiety and Coping mechanism respectively having Yes/No questions. **Results:** The prevalence of stress, depression and anxiety were found to be 76%, 57.7% and 2.8% respectively. Most of the students follow Avoidance coping strategy to cope with these psychiatry symptoms. **Conclusion:** This study demonstrated that stress and anxiety are less when compared with depression among high school adolescents. This research also revealed that psychiatric symptoms are significantly influenced by gender, Class, family influential factors, type of educational institution and socio-demographic factors

**Keywords:** Adolescents, Depression, Anxiety, Stress, Coping strategies/mechanism.

### INTRODUCTION

Stress is a bio-psychosocial model that refers the consequence of the failure of an organism to respond adequately to mental, emotional, or physical demands. Clinically, anxiety is characterized by intense feelings of dread, accomplished by somatic symptoms that indicate hyperactive autonomic nervous system, whereas depression manifests as loss of interest or pleasure, sadness feeling of guilt or low self-worth, disturbed sleep or appetite, extreme tiredness, & poor concentration. A person shows behavioural defences in a state of adapting to stress which leads to





## Retraction Note: Advancing chemical sensors synthesis and classification for the integration of mems optical phased array in polymer nanocomposites

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**Retraction Note: Optical and Quantum Electronics (2023) 56:74**  
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The Publisher has retracted this article after multiple concerns were raised in an investigation of several articles including this one. These concerns include but are not limited to the article being out of scope for the journal, the peer-review process not being in line with editorial policy, inappropriate or irrelevant references being included or nonstandard phrases being used. The Publisher and Editors-in-Chief therefore no longer have confidence in the results and conclusions of this article and have agreed that it should be retracted.

Radhika Gautamkumar Deshmukh has not explicitly stated whether they agree or disagree to this retraction. Ekta Gupta, R. E. Ugandar, S. Hemalatha, Anitha Gopalan, Moham-

The online version of the original article can be found at <https://doi.org/10.1007/s11082-023-05675-y>.

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## Article

# Unveiling the Cardioprotective Power: Liquid Chromatography–Mass Spectrometry (LC–MS)-Analyzed *Neolamarckia cadamba* (Roxb.) Bosser Leaf Ethanolic Extract against Myocardial Infarction in Rats and In Silico Support Analysis

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**Abstract:** *Neolamarckia cadamba* (Roxb.) Bosser, a member of the Rubiaceae family, is a botanical species with recognized therapeutic properties. It is commonly used in traditional medicine to treat cardiac ailments and other disorders. However, the precise active constituents and the potential mechanisms by which they manage cardiovascular disorders remain unclear. Therefore, this study aimed to ascertain the bioactive components and investigate their underlying mechanisms of action. *N. cadamba* is used to treat cardiovascular disorders using the integrated metabolomic methodology. An HPLC-QTOF-MS/MS analysis determined the potential chemicals in the *N. cadamba* leaf ethanol extract (NCEE). A thorough investigation of the NCEE samples used in this study led to the identification of 32 phytoconstituents. Of the 32 compounds, 19 obeyed Lipinski's rule of five (RO5). A molecular docking study directed towards HMG-CoA reductase used 19 molecules. The reference drug atorvastatin indicated a binding energy of  $-3.9$  kcal/mol, while the other substances, Cinchonin Ib and Dukunolide B, revealed binding energies of  $-5.7$  and  $-5.3$  kcal/mol, respectively. Both phytoconstituents showed no toxicity and exhibited favorable pharmacokinetic properties. In vivo study results concluded that treatment with NCEE significantly reduced the cardiac myocardial infarction (MI) marker CK-MB and atherogenic risk indices, such as the atherogenic index plasma (AIP), cardiac risk ratio (CRR), and atherogenic coefficient (AC) in isoproterenol-induced MI rats. In MI rats, NCEE therapy significantly improved the antioxidant system of the heart tissue, as evidenced by the increased levels of GSH and SOD, lower levels of the oxidative stress marker MDA, and significantly decreased HMG-CoA activity. Additionally, electrocardiogram (ECG) signals from rats treated with NCEE resembled those treated with traditional atorvastatin to treat myocardial infarction. This study used H&E staining to show that administering NCEE before treatment reduced cardiac myocyte degeneration in rats with myocardial infarction, increased the presence of intact nuclei, and increased myocardial fiber strength. The potential cardioprotective effect observed in



# A Prospective Observational Study On Antimicrobial Resistance Of E.Coli And Klebsiella Pneumoniae In Renal Failure Patients And Impact Of Treatment

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## Abstract

Renal failure is defined as the kidney's inability to execute excretory activities, resulting in the retention of nitrogenous wastes in the blood. Renal insufficiency patients are more susceptible to infections because the host's immune system is compromised. As a result, CKD patients are more likely to develop an infection that leads to bacteremia and sepsis. This study involved 130 CKD patients with infections who participated in a prospective observational study. E.Coli and Klebsiella pneumonia were the most common microbes found in the study, followed by Pseudomonas aeruginosa, Coagulase negative staphylococci, Acinetobacter baumannii, Nonfermenting Bacilli, Streptococci, and Enterococcus faecalis. E.Coli and Klebsiella pneumonia were the bacteria with the highest incidence of causing infections in CKD patients. Resistance to Levofloxacin, Doxycycline, and Cefpodoxime Proxetil was identified in E.Coli. Resistance to Piperacillin with Tazobactam, Levofloxacin, Doxycycline, and Cefpodoxime Proxetil were also found in Klebsiella pneumoniae. To resolve the condition, proper diagnosis and therapy are required. This is an issue that all health care practitioners, particularly clinical pharmacists, should pay more attention towards.

**Keywords:** E.Coli, Klebsiella pneumonia, Antimicrobial resistance, Culture sensitivity test, Clinical Pharmacist.

## INTRODUCTION

Renal failure can be defined as the kidney's inability to conduct excretory activities, resulting in the retention of nitrogenous wastes in the blood. Acute Renal Failure (ARF) and Chronic Kidney Failure (CRF) or chronic kidney disease (CKD) are the two kinds of kidney failure. A persistent impairment of kidney function, excessively increased serum creatinine for more than 3 months or an estimated glomerular filtration rate (GFR) less than 60 ml per minute/1.73m<sup>2</sup>, is referred to as CKD. It involves a gradual loss of kidney function that leads to dialysis or renal replacement therapy.<sup>[1]</sup> Renal insufficiency patients are more susceptible to infections. Cardiovascular disorders cause an increased risk of morbidity and mortality in CKD patients. Infections in CKD patients are the second cause of morbidity and mortality. Infections are frequent in CKD patients at all stages of their disease. Infections develop because the host's immune system is compromised. As a result, CKD patients are more likely to develop an infection that leads to bacteremia and sepsis. Another cause is haemodialysis catheters, which, over time, can cause infections such as urinary tract infections (UTI).<sup>[2-12]</sup> The primary goal of this study is to discover distinct gram negative microorganisms that cause infection in CKD patients, particularly Escherichia Coli (E.Coli) and Klebsiella Pneumoniae, as well as this study focus on drugs used to treat the infection and antimicrobial resistance (AMR) in microorganisms.

## METHODOLOGY

### Study design

A prospective observational study was used in this study. The information was gathered from the patients' follow-up till they were discharged.

### Study site

The study was conducted at the Nephrology Department of Santhiram Medical College and General Hospital, which has a 1000-bed capacity hospital and has all of the necessary equipment to treat renal disease patients.

### Study duration

The study was done during a six-month period, from September 2021 to February 2022, after getting approval from the institutional ethical committee.