FACULTY PUBLICATIONS FOR THE AY 2023-24

GEETHANJALI COLLEGE OF PHARMACY

CHEERYAL (V), KEESARA (M), MEDCHAL (D), TELANGANA-501301.

List of Paper Publications by faculty for AY 2023-24

S. No.	Faculty Name	Title	Journal Name	Volume/ Issue/Page	Year	DOI No	Sci Impact Factor	Indexed in	ISSN.NO.
1.	Dr. M. Ravi Kumar	Design and characterization of Glimepiride hydrotropic solid dispersion to enhance the solubility and dissolution	Journal of applied Pharmaceutical Research	Vol 12 Issue 2 Pg 63-78	Apr 2024	https://doi.org/10.18231/j.joapr.2024.12.2.68.78		Scopus	2348-0335
2.	Dr. M. Ravi Kumar	A comprehensive review on Pharmacognostic & Phytochemical evaluation of Bryophyllum Pinnatum leaves	Journal of technology	Vol 12 Issue 4	Apr 2024			Scopus	1012-3407
3.	Dr. M. Ravi Kumar	Exploration of In-Vitro Antidiabetic activity of ZnO NPs and Ag NPs synthesized using methanolic extracts of Alpinia mutica and Tradescantia spathaeca leaves	International Journal of Pharmaceutical Quality Assurance	2023; 14(3): Pg 464-469	Sep 2023	DOI: 10.25258/ijpqa.14.301		Scopus	0975-9506
4.	Dr. M. Ravi Kumar	A Review on herbal nano drug delivery systems: A new skyline	AIP Conference Proceedings		Sep 2023	https://doi.org/ 10.1063/5.0162912			0094243X
5.	Dr. M. Ravi Kumar	Importance of a Yoga course to manage Hypoxia in individuals	International Journal of Zoological Investigations	Vol 9, No 2, Pg 1239-1245	Dec 2023	https://doi.org/10.33745/ijzi.v09i02.139	0.95	Web of Sciences	2454-3055

6.	Dr. M. Srinivas	Establishment and Validation of High-performance liquid chromatography Technique for Quantifying Dalbavancin in Injectable Formulations	Asian Journal of Pharmaceutical Research and Health care	Vol 15 Issue 4	Dec 2023	DOI: 10.4103/ajprhc.ajprhc_112_23	0.4	Web of Sciences	2250-1444
7.	Dr. M. Srinivas	Development and validation of an HPLC method for the determination of Lobeglutazone in Bulk and in Tablet formulation	Int.J.Pharm. Investigation	Vol 14 Issue 1 Pg 204-211	Oct 2023	Doi: 10.5530/ijpi.14.4.26			2230-973X
8.	Dr. R. Siva Kumar	Antimycobacterial, Molecular Docking and ADME Studies of Spiro Naphthyridine Pyrimidine and N-(Quinolin-8-yl) acetamide Derivatives	Chemistry Select	2023.8 Pg 1-14	Aug 2023	Doi.org/ 10.1002/slct.202301047		Scopus	2365-6549
9.	Dr. R. Siva Kumar	A review on role of biomass in production of global renewable bioenergy	EMERG	Vol IX Issue 3/2023 Pg 103-122	Nov 2023			Scopus	2668-7003
10	Dr. Abdul Nazar Ali	The effect of obesity on Severity of Asthma: An Observational Prospective Study from Pakistan	Journal of Pharmacy and Bioallied Sciences	Vol 16 Issue 1 Pg 38-43	March 2024	Doi:10.4103/jpbs.jpbs_238_23	0.8	Scopus	0976-4879
1	Dr. Bharat Bhushan	Importance of a Yoga course to manage Hypoxia in individuals	International Journal of Zoological Investigations	Vol 9, No 2, Pg 1239-1245	Dec 2023	https://doi.org/10.33745/ijzi.v09i02.139	0.95	Web of Sciences	2454-3055
12	Dr. N. Anjaneyulu	Importance of a Yoga course to manage Hypoxia in individuals	International Journal of Zoological Investigations	Vol 9, No 2, Pg 1239-1245	Dec 2023	https://doi.org/10.33745/ijzi.v09i02.139	0.95	Web of Sciences	2454-3055

13	Dr. P. Neeraja	Design and characterization of Glimepiride hydrotropic solid dispersion to enhance the solubility and dissolution	Journal of applied Pharmaceutical Research	Vol 12 Issue 2 Pg 68-78	Apr 2024	https://doi.org/10.18231/_joapr.2024.12.2.68.78		Scopus	2348-0335
14	Dr. P. Neeraja	A review on role of biomass in production of global renewable bioenergy	EMERG	Vol IX Issue 3/2023 Pg 103-122	Nov 2023			Scopus	2668-7003
15	Dr. R. Naga KIshore	Importance of a Yoga course to manage Hypoxia in individuals	International Journal of Zoological Investigations	Vol 9, No 2, Pg 1239-1245	Dec 2023	https://doi.org/10.33745/ijzi.v09i02.139	0.95	Web of Sciences	2454-3055
16	Ch. Sumalatha	A new method was established for simultaneous estimation of elbasir and grazoprevir by RP-HPLC method	Indo American Journal of Pharmaceutical Sciences (IAJPS)	Vol 10(09) Pg 287-295	Nov 2023	https://doi.org/10.528 /zenodo.10014531			2349-7750
17	Ch. Sumalatha	Molecular Docking analysis of Human-Cyclooxygenase 1CX2 by 97 flavonoid derivatives	European chemical bulletin	Issue 8 3628-44	Dec 2023				
18	Ch. Sumalatha	Establishment and Validation of High-performance liquid chromatography Technique for Quantifying Dalbavancin in Injectable Formulations	Asian Journal of Pharmaceutical Research and Health care	Vol 15 Issue 4	Dec 2023	DOI: 10.4103/ajprhc.ajprhc_112_23	0.4	Web of Sciences	2250-1444
19	Ch. Sumalatha	Development and validation of an HPLC method for the determination of Lobeglutazone in Bulk and in Tablet formulation	Int.J.Pharm. Investigation	Vol 14 Issue 1 Pg 204-211	Oct 2023	Doi: 10.5530/ijpi.14.4.26			2230-973X
20	B. Sandhya	Evaluation of anti-inflammatory and analgesic	Journal of Emerging	Vol 10, Issue 10	Oct 2023				2349-516

		activity of aqueous and alcoholic extracts of leaves of Epipremnum aureum. Linn in rats	technologies and innovative research (JETIR)	Pg 607					
21	Md. Abubakar	Observational study of incidence and clinical patterns of Mesenteric lymphadenopathy among children in RVM hospital	Clinical Practice	(2023) 20 (2), Pg 1-13	June 203	DOI: 10.37532/2044-9046.2023.20(2)		Scopus	2044-9038
22	Md. Abubakar	Comparative study of combination therapy of Telmisartan + Amlodipine Vs Telmisartan + Clinidipine in hypertensive patients	Journal of Cardiovascular Disease Research	Vol 14, Issue 9, 2023 Pg 14	July 2023				0975-3583
23	P. Shankaraiah	Exploration of In-Vitro Antidiabetic activity of ZnO NPs and Ag NPs synthesized using methanolic extracts of Alpinia mutica and Tradescantia spathaeca leaves	International Journal of Pharmaceutical Quality Assurance	2023; 14(3): Pg 464-469	Sep 2023	DOI: 10.25258/ijpqa.14.301		Scopus	0975-9506
24	P. Shankaraiah	A Review on herbal nano drug delivery systems: A new skyline	AIP Conference Proceedings		Sep 2023	https://doi.org/ 10.1063/5.0162912			0094243X
25	R. Umadevi	Establishment and Validation of High-performance liquid chromatography Technique for Quantifying Dalbavancin in Injectable Formulations	Asian Journal of Pharmaceutical Research and Health care	Vol 15 Issue 4	Dec 2023	DOI: 10.4103/ajprhc.ajprhc_112_23	0.4	Web of Sciences	2250-1444
26	V. Shalini	Evaluation of anti-inflammatory and analgesic activity of aqueous and alcoholic extracts of leaves of Epipremnum aureum.	Journal of Emerging technologies and innovative research (JETIR)	Vol 10, Issue 10 Pg 607	Oct 2023				2349-516

		Linn in rats							
27	Md. Mohasin Pasha	Assessment of the role of clinical pharmacist in implementation of antimicrobial stewardship in a tertiary care hospital: An observational Study	Clinical Practice	(2023) 20(2), Pg: 1-12	Nov 2023	DOI: 10.37532/2044-9046.2023.20(2)		Scopus	2044-9046
28	Md. Mohasin Pasha	Prospective cohort study on the effectiveness of structured patient education program given to smokers in specialized centers (deaddiction centers)	Clinical Practice	(2023) 20(4), Pg: 104-113	Nov 2023	DOI: 10.37532/2044-fmcp.2023.20(4)		Scopus	2044-9038
29	S. Kiranmai	Prospective cohort study on the effectiveness of structured patient education program given to smokers in specialized centers (deaddiction centers)	Clinical Practice	(2023) 20(4), Pg: 104-113	Nov 2023	DOI: 10.37532/2044-fmcp.2023.20(4)		Scopus	2044-9038
30	G. Laxmi Prasanna	Observational Study of ADR monitoring, safety and efficacy of clopidogrel with atorvastatin combination in cardiovascular diseases	Clinical Practice	Vol 20(3) Pg 40-47	Nov 2023	DOI: 10.37532/2044-fmcp.2023.20(3)		Scopus	2044-9038
31	G. Laxmi Prasanna	Observational study on safety and efficacy of rivaroxaban in Covid-19 and post Covid-19 patients	Clinical Practice	Vol 20(1) Pg 1-11	Nov 2023	DOI: 10.37532/2044-fmcp.2023.20(1)		Scopus	2044-9038
32	L. Devakamma	Design and characterization of Glimepiride hydrotropic solid dispersion to enhance the solubility and dissolution	Journal of applied Pharmaceutical Research	Vol 12 Issue 2 Pg 68-78	Apr 2024	https://doi.org/10.18231/j.joapr.2024.12.2.68.78		Scopus	2348-0335
33	P. Naga Chandrika	Design and Characterization of Hallow Porous Floating	International Journal of Drugg	Vol 14 Issue 1	Mar 2024	DOI: 10.25258/ijddt.14.1.35		Scopus	0975-4415

		Microspheres of Favipiravir	Delivery Technology	Pg 236-245					
34	P. Naga Chandrika	A comprehensive review on Pharmacognostic & Phytochemical evaluation of Bryophyllum Pinnatum leaves	Journal of technology	Vol 17 Issue 4	Apr 2024			Scopus	1012-3407
35	G. Abhinayani	Importance of a Yoga course to manage Hypoxia in individuals	International Journal of Zoological Investigations	Vol 9, No 2, Pg 1239-1245	Dec 2023	https://doi.org/10.33745/ijzi.v09i02.139	0.95	Web of Sciences	2454-3055
36	G. Abhinayani	Evaluation of anti-inflammatory and analgesic activity of aqueous and alcoholic extracts of leaves of Epipremnum aureum. Linn in rats	Journal of Emerging technologies and innovative research (JETIR)	Vol 10, Issue 10 Pg 607	Oct 2023				2349-516
37	Madhavi. A	Development and validation of an HPLC method for the determination of Lobeglutazone in Bulk and in Tablet formulation	Int.J.Pharm. Investigation	Vol 14 Issue 1 Pg 204-211	Oct 2023	Doi: 10.5530/ijpi.14.4.26			2230-973X
38	S. Rani	Evaluation of anti-inflammatory and analgesic activity of aqueous and alcoholic extracts of leaves of Epipremnum aureum. Linn in rats	Journal of Emerging technologies and innovative research (JETIR)	Vol 10, Issue 10 Pg 607	Oct 2023				2349-516
39	S. Rani	A review on role of biomass in production of global renewable bioenergy	EMERG	Vol IX Issue 3/2023 Pg 103-122	Nov 2023			Scopus	2668-7003

40	G. Sandya Rani	Neuroprotective and Antioxidant Potential of Methanolic and Aqueous Peel Extract of Citrus Sinesis on B-Amyloid induced Alzheimer's in mice	International journal of Science and research	Vol 13, Issue 3	Mar 2024			2319-7064

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Research Article

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DESIGN AND CHARACTERIZATION OF GLIMEPIRIDE HYDROTROPIC SOLID DISPERSION TO ENHANCE THE SOLUBILITY AND DISSOLUTION

Devakmma Lakumalla*, Neeraja Podichety, Ravi Kumar Maddali

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Keywords
Solubility, Hydrotrophy, Hydrotropic solubilization, hydrotropic solid dispersion, Glimepiride tablets

ABSTRACT

Background: Glimepiride lowers blood sugar levels in the body, and treats type 2 diabetes mellitus. But the main problem with the drug is its low aqueous solubility. The primary purpose of this study is to increase its solubility in an aqueous medium by using amphiphilic hydrotropic agents instead of harmful, volatile organic solvents. **Methodology:** A solubility study of Glimepiride was carried out using various hydrotropic agents at 10%, 20%, 30%, and 40%. In mixed hydrography, 30% of the hydrotropic agents were chosen for making blends due to their highest solubility. The blend's solubility was raised more than 50 times at fixed concentrations of urea (20%) and sodium acetate (10%) in a mixed hydrotropic solution. The solubility of Glimepiride in distilled water is 0.0038 mg/ml; in 30% urea, 49.512 ug/ml; and in 30% sodium acetate, 40.43 ug/ml. The optimized blend prepared hydrotropic solid dispersions by physical mixing and solvent evaporation. It was evaluated for drug content, FTIR, SEM, X-ray diffraction, and in vitro drug release studies. Finally, the drug release profile of the prepared tablet is compared with an already available consumer product. **Result:** HSD 5 showed an in vitro drug release of 84.77+0.44 at 90 min, which is higher than the remaining formulations, and no significant change was found in drug content or drug release after 15, 30, and 45 days of stability studies. Scanning electron microscopy (SEM) showed homogenous solid dispersion, crystallinity was determined using X-ray diffraction, and FTIR showed good drug compatibility with carriers. The drug release profile of the prepared tablet was higher than that of the available consumer product. **Conclusion:** This study revealed that hydrotropic agents can potentially increase glimepiride's solubility and drug release. This approach can effectively enhance the solubility of poorly water-soluble drugs.

INTRODUCTION

Oral administration is a very convenient and easy ingestion route for all solid dosage forms, but for various poorly soluble drugs, bioavailability is limited by the dissolution rate. This is the main problem in developing pharmaceutical dosage forms [1].

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A COMPREHENSIVE REVIEW ON PHARMACOGNOSTIC & PHYTOCHEMICAL EVALUATION OF BRYOPHYLLUM PINNATUM LEAVES

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ABSTRACT:

In the present study leaves of Bryophyllum Pinnatum were subjected to pharmacognostical studies bryophyllum is also commonly known as: Life Plant, Mother of Thousands of synonyms of Bryophyllum Pinnatum are Bryophyllum calycinum, Crassula pinnata belonging to the Crassulaceae family. The geographical Source of perennial herb growing widely all over the world in tropical and Subtropical are areas including Africa, America, India, China, Australia, Asia, New Zealand, Philippines. The plant grows all over India in hot and moist areas, especially in Bengal And Uttarakhand. Chemical constituents of B. Pinnatum is rich in alkaloids, triterpenes, glycosides, flavonoids, cardenolides, steroids and lipids. The leaves contain a group of chemicals called bufadienolides Which are very active antibacterial extraction methods Soxhlet extraction, maceration, turbo extraction, cold maceration pharmacology activities of b. Pinnata anti-microbial, anti-cancer , anti hypersensitive, anti diabetic, immunosuppressive effect, hepatoprotective, wound healing, anti helminthic activity, neuroprotective activity.

KEYWORDS:

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Naga Chandrika Pallam

RESEARCH ARTICLE

Exploration of *In-vitro* Antidiabetic Activity of ZnO NPs and Ag NPs Synthesized using Methanolic Extracts of *Alpinia mutica* and *Tradescantia spathaeca* Leaves

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ABSTRACT

Diabetes might be cured with the use of medicinal herbs and environmentally friendly production of metallic nanoparticles (Ag NPs) and ZnO NPs. The methanolic leaf extracts of *Alpinia mutica* and *Tradescantia spathaeca* were used to synthesize silver nanoparticles (Ag NPs) and zinc oxide nanoparticles (ZnO NPs), respectively, for *in-vitro* evaluation.

Methanolic leaf extracts of *A. mutica* and *T. spathaeca* were used to create AgNPs and ZnO NPs under ambient conditions using ultrasound-assisted extraction (UAE). Their ability to block alpha- and beta-amylase confirmed the *in-vitro* antidiabetic efficacy of methanolic leaf extract of plant (MLEP), AgNPs, and ZnO NPs. In this study, α- amylase activity of ZnO and nanoparticles of silver produced from natural sources will be evaluated in an effort to lessen the toxicity and negative effects of the inhibitor used to treat diabetes. Antidiabetic action was especially impressive in the ZnO and silver nanoparticles produced using methanolic extracts of *A. mutica* and *T. spathaeca.* Because of their promising *in-vitro* antidiabetic action with alpha-amylase activity, MLEP of *A. mutica* and *T. spathaeca*, AgNPs, and ZnO NPs show promise for future medical uses.

Keywords: *Alpinia mutica*, Green synthesis, Phytochemical studies, Silver nanoparticles, *Tradescantia spathaeca*, Zinc oxide nanoparticles, *Alpha-amylase activity.*

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INTRODUCTION

Medicinal plants are a major source of drugs. Plants are used in health treatment by 80% of the global population[1]. Natural molecules may substitute synthetic components in food and pharmaceuticals, which have adverse effects.[2] Because of their free radical-scavenging abilities, therapeutic plants and their phytoconstituents are becoming more popular as natural sources.

Effectively, plants are providers of natural antioxidant molecules with various pharmacological actions and few to no adverse effects that defend against many illnesses and safeguard human health.[3-5] By preventing the spread of oxidative chain reactions, medicinal plant compounds delay the deterioration of lipids or additional molecules, hence the development of oxidative stress-related illness.[2]

Radiation, cigarette smoke, airborne hazardous chemicals, overnutrition, shifting dietary habits, and lack of physical exercise are all examples of exogenous sources of reactive oxygen compounds (ESROS), reactive nitrogen compounds (RNS), and free radicals in the body. A few examples of cardiovascular illnesses are heart failure with congestive systolic high blood pressure, chest pain, atherosclerosis, cerebral deficiency, vein insufficiency, and ventricular fibrillation, or VF. There are many different medicinal plants that contain powerful cardioactive glycosides and have good inotropic properties on the heart; some examples are *Digitalis*

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RESEARCH ARTICLE | SEPTEMBER 08 2023

A review on herbal nano drug delivery systems: A new skyline

Shankaraiah Pulipaka; Ashish Suttee ✉; M. Ravi Kumar; Mary Chatterjee

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Importance of a Yoga Course to Manage Hypoxia in Individuals

Naga Kishore R.*, Ravi Kumar M., Anjaneyulu N., Bharat Bhushan M. and Abhinayani G.

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Abstract: Yoga is an art, a science, and a philosophy that was developed in India over 5000 years ago but now draws on a variety of spiritual precepts, practices, and ideas. An evaluation of the current yoga course revealed that, out of the more than 60 yogic activities, 16 and 17 were found to increase oxygen saturation and improve lung capacity, while 19 were determined to be helpful in both areas. The current study is a useful module for treating people with respiratory issues and hypoxia. However, more study is required to determine the viability and effectiveness of the module.

Keywords: Yoga therapy, Asanas, Lung capacity, Hypoxia

Citation: Naga Kishore R., Ravi Kumar M., Anjaneyulu N., Bharat Bhushan M. and Abhinayani G.: Importance of a yoga course to manage hypoxia in individuals. Intern. J. Zool. Invest. 9(2): 1239-1245, 2023.

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Introduction

Yoga, which has its roots in Indian philosophy and spirituality, is regarded as a method for reaching the unity of the mind, body, and spirit (Feuerstein, 1998). Nonetheless, regardless of style, yoga incorporates particular physical postures (asana), breathing methods (pranayama), meditation techniques (dhyana), and philosophy. Yoga has gained popularity as a discipline that improves wellbeing and is used to prevent and treat medical issues. Yoga is a holistic practice that is easily modified to fit each person's unique physical needs and has the potential to be used as a therapeutic intervention. The specifics of how a yoga practice (and all of its interconnected parts) affects one's health are still being investigated (Raub, 2002).

Yoga is an art, a science, and a philosophy that draws from a collection of spiritual principles, precepts, and practices that were created in India some 5000 years ago. It is a sophisticated intervention that combines physical exercise, breathing exercises, meditation, and theoretical underpinnings that could affect attitudes, beliefs, and interpersonal interactions (McCall *et al.*, 2013). Yogic practice has becoming increasingly popular all over the world (Cramer *et al.*, 2016).

Book chapter

Development of an Innovative Ultrasound-Assisted Extraction Technique to Optimize Extraction on Phytoconstituents and Compared Conventional Extraction Method

Shankaraiah Pulipaka, Ashish Suttee, M. Ravi Kumar, Kalakotla Shanker, Ramesh Kasarla, and Swamy Kasarla

Abstract In the past, people have relied on some methods like the Soxhlet and reflux device to extract plant matter. To address this problem, we use a cutting-edge extraction technique to remove the relevant plant material. There are several advantages of using ultrasonic-assisted extraction over the conventional approach, such as reduced solvent consumption, reduced extraction time, increased extraction purity, and an increased yield of bioactive phytoconstituents. The family Commelinaceae includes the Indian herb *Tradescantia spathacea* (T.S), which is used as a traditional medicine. It is the southeast Mexican region known as "Maguey Morado" are derived from *Tradescantia spathacea* (T.S) leaves extracted using traditional and ultrasonic-assisted extraction procedures using petroleum ether, ethyl acetate, methanol, hydroalcoholic, and aqueous solvents (Purple Maguey). Total phenolic

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Original Article

Establishment and Validation of a High-performance Liquid Chromatography Technique for Quantifying Dalbavancin in Injectable Formulations

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Abstract

Aim: A simple and sensitive analytical method was developed to estimate dalbavancin, anti-biotic drug in injectable formulations. **Materials and Methods:** Separation of analyte was attained on a Phenomenex Luna C_{18} column (250 mm × 4.6 mm × 5 µm particle size) using potassium dihydrogen orthophosphate pH 3.0 adjusted with orthophosphoric acid: acetonitrile: methanol (70:20:10 % v/v/v) as mobile phase pumped at 1.0 mL/min. A UV detector was used for effluent detection at a wavelength of 288 nm. **Results:** The retention time for Dalbavancin was determined to be 3.96 minutes. The drug exhibited linearity within the concentration range of 20–100 µg/mL. The accuracy of the method was considered satisfactory and the mean recovery percentage is found to be in the acceptable range of 98.74-101.02 %. **Conclusion:** The RP-HPLC method was successfully developed, validated as per ICH guidelines. The proposed method was simple, precise, sensitive, rapid, robust for the estimation of dalbavancin in injectable formulations.

Keywords: *Dalbavancin, method development, RP-high performance liquid chromatography, validation*

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Introduction

The battle against severe Gram-positive infections has become much more difficult as a result of the advent and quick spread of antibiotic-resistant organisms, necessitating the development of novel antimicrobial drugs. These resistant pathogen infections have been associated with extended hospital admissions, increased health-care costs, discomfort, and even mortality.[1,2]

Staphylococcus aureus causes a myriad of infections, demanding the utilization of antibiotics for treatment. A diverse range of antibiotics wage war against *staphylococcal* infections. These antibiotics zero in on crucial bacterial processes, such as the construction of cell walls, translation, transcription, and DNA replication. Unfortunately, the challenge of antibiotic resistance is surging, resulting in treatment setbacks that bear significant human and medical burdens.

Antibiotic resistance arises from mechanisms, including modifications, in the targets of drugs the deactivation of drugs through enzymes increased expulsion of substances, and changes, in drug accessibility.[3] The ease of resistance dissemination is heightened through a diverse range of mobile genetic elements.[4,5] While resistance has been detected for nearly all antimicrobial compounds, instances of strains being resistant to all available drugs remain uncommon. Nevertheless, the persistence of resistance continues to present treatment complexities, as exemplified by vancomycin

Despite the fact that fully vancomycin-resistant strains are uncommon, the more prevalent vancomycin-intermediately resistant strains (VISA) are associated with elevated infection severity and

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Original Article

Development and Validation of an HPLC Method for the Determination of Lobeglitazone in Bulk and in Tablet Formulation

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ABSTRACT

Objectives: A straightforward, accurate, and precise reverse-phase high-performance liquid chromatography method was developed to determine the quantity of Lobeglitazone in both bulk and pharmaceutical dosage forms. **Materials and Methods:** The chromatographic separation was achieved on a Phenomenex Luna column with dimensions of 250 cm×4.6 mm×5 µm, and the mobile phase was a combination of potassium dihydrogen orthophosphate and acetonitrile in a 70:30 V/V ratio with a pH of 4.0, adjusted using orthophosphoric acid. The flow rate was set at 1.0 mL/min, and detection of the effluents occurred at 250 nm. **Results:** The retention time for Lobeglitazone was determined to be 2.157 min. The drug exhibited linearity within the concentration range of 10-60 µg/mL, the correlation coefficient was established to be 0.9996. The LOD, LOQ were found to be 0.8 µg/mL and 2.5 µg/mL. The accuracy of the method was considered satisfactory and the mean recovery percentage is found to be in the acceptable range of 99.78-101.31%. **Conclusion:** The HPLC method was successfully developed, validated as per ICH guidelines. The proposed method was simple, precise, sensitive, rapid, robust for the estimation of Lobeglitazone in both bulk and tablet dosage forms.

Keywords: Lobeglitazone, Method development, Validation, RP-HPLC.

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INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is a chronic, progressive metabolic disorder. It has long-term effects on the body, characterised by insulin resistance and β-cell dysfunction.[1] T2DM is a complex and multifactorial disease involving a number of underlying mechanisms. As a result, there are multiple approaches available to manage the condition.[2] There are several classes of Oral Anti-Diabetic agents (OADs) available, but the Thiazolidinedione (TZD) class stands out because it primarily targets insulin resistance.[2] The TZDs improve insulin sensitization and enhance glucose and lipid metabolism by activating the proliferator-activated receptor γ (PPARγ).[3] In type 2 diabetes, rosiglitazone and pioglitazone are the most commonly used drugs for better glycemic control by promoting insulin sensitivity. Due to cardiovascular and bladder cancer risks, their use has declined in recent years.[4] The newly developed thiazolidinedione "lobeglitazone" (Chong Kun Dang Pharmaceutical Corporation, Seoul, Korea) provides a safer and more effective alternative to existing TZDs.[5] It works similarly to pioglitazone on glycemic control but requires lower doses. Furthermore, clinical studies have indicated positive results in terms of safety, addressing some of the concerns associated with other TZDs. Since July 2013, it has been used in Korea as a treatment for T2D due to its pleiotropic effects in pre-clinical and clinical studies.[6,7] As a pharmacophore, lobeglitazone consists of a 2,4-thiazolidinedione group bound to an ethoxy-benzyl N-methylamino group (Figure 1). Its structural formula is $C_{24}H_{24}N_4O_5S$, and the chemical name is 5-[4-(2-{[6-(4-Methoxy-phenoxy)-pyrimidin-4-yl]-methyl-amino}-ethoxy)-benzyl]-thiazolidine-2,4-dione hydrosulphuric acid.[8]

Lobeglitazone tablets are available on the market under the brand name Lobg (Glenmark Pharmaceuticals Ltd.). Jong-Hwa Lee *et al.* developed a validated assay using liquid chromatography and tandem mass spectrometry to perform pharmacokinetic studies of Lobeglitazone in rats.[9] Gulhane *et al.*, developed a bioanalytical method for the estimation of Lobeglitazone in human plasma.[10] The literature survey indicates that other than a few bioanalytical methods, no method has been reported so far for estimating Lobeglitazone in pharmaceutical dosage forms.

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Antimycobacterial, Molecular Docking and ADME Studies of Spiro Naphthyridine Pyrimidine and N-(Quinolin-8-yl)acetamide Derivatives

Sahana Satisha,[a] Vijayakumar G. Revanasiddappa,*[a] and Sivakumar Ramalah[b]

Two series of compounds viz., spiro naphthyridine pyrimidine derivatives and N-(quinolin-8-yl)acetamide derivatives which possess the quinoline core moiety were designed and synthesized. The spectral analysis viz., FT-IR, ^{1}H-NMR, ^{13}C-NMR and mass was carried out to establish the structures for the synthesized compounds. *In vitro* anti-tubercular activity was done against *Mycobacterium tuberculosis* H37Rv by following "microplate alamar blue assay (MABA)". The synthesized compounds showed good anti-tuberculosis (TB) activity with the least minimum inhibitory concentration (MIC) value of 6.25 μg/mL. Computational molecular docking studies were performed out with *Mycobacterium tuberculosis enoyl reductase* (INHA) (PDB code: 4TZK) using AutoDock to predict the key binding interactions responsible for the activity and the Swiss ADME (absorption, distribution, metabolism, and excretion) tool computed the *in silico* drug likeliness properties. The synthesized title compounds create a way for the optimization and development of potential drugs against tuberculosis.

Introduction

Tuberculosis (TB) is one among the deadliest infectious diseases and is responsible for a large number of deaths. The number of deaths due to TB in 2020 was nearly double the number caused due to HIV/AIDS and impact severely during the Covid-19 pandemic[1]. The clinical utility of currently available anti-TB drugs is limited by the development of resistance. This is primarily due to the longer treatment course, the patient's non-compliance and associated adverse effects.[2,3] The emergence of a large number of multidrug resistant tuberculosis (MDR-TB) and extremely resistant tuberculosis (XDR-TB) cases has stimulated the synthesis of new anti-TB drugs. The number of TB cases and deaths is constantly increasing in developing countries and the possibility of coinfection is much more with HIV-positive patients.[4] After looking at the WHO END TB strategy, it signifies the priority of developing new antitubercular agents to resolve the problem we are now facing.[5]

It has been recognized that heterocyclic compounds having medicinal applications play a major role in constructing a new structural entity in drug discovery. In recent years the use of quinoline and its analogues has been constantly increasing due to their wide spectrum of biological and biochemical activities. As it is one of the prominent structural moieties to treat TB disease, a number of research groups are synthesizing its analogues and screening for their anti-TB activity.[6–12] Some of the anti-TB agents with their structures are shown in Figure 1.

Naphthyridine systems being nitrogen-rich hybrids[13] are also known for their chemical and biological activities.[14–16] These derivatives are used as potent acyl–CoA: cholesterol acyltransferase inhibitor,[17] anticancer,[18] anti-inflammatory,[19] antiplatelet,[20] for alzheimer's disease treatment,[21] HIV-1 integrase inhibitors[22] and antimicrobial[23] agents. Among the different naphthyridine systems, the development of new synthetic methods remains an active research area in synthesizing 1,8-naphthyridine derivatives[24] because of their physiology such as anti-inflammatory,[25] antitumor,[26,27] and antimycobacterial activities.[28] In addition, structural entities of barbituric acid and its analogues are also accounted for their biological activities.[29,30] Spiro compounds that resulted from the pyrimidine derivatives are known for their range of medicinal applications[31] and hence herewith we have planned to synthesize the spiro naphthyridine pyrimidine derivatives and evaluate their biological activities.

Further, review of the literature disclosed that most of the front-line anti-tubercular drugs were created by amide linkers such as isoniazid (INH), rifampicin (R), pyrazinamide, etc., (Figure 2). The advanced areas of synthetic medicinal chemistry involve the inclusion of amide linkage into organic molecules followed by miscellaneous transformations[32] because amides are neutral, stable and have both hydrogen-bond accepting and donating properties which made them a suitable choice for developing newer drug molecules.[33] The biomolecules having amide bond exhibit vital pharmacological activities viz., anticancer, antimalarial, antimicrobial, anti-inflammatory and anti-tubercular activities.[34–37]

Herein, we report the synthesis, characterization and *in vitro* antitubercular evaluation of novel spiro naphthyridine pyrimidine derivatives (**3a–j**) and N-(quinolin-8-yl)acetamide deriva-

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A REVIEW ON ROLE OF BIOMASS IN PRODUCTION OF GLOBAL RENEWABLE BIOENERGY

O EVALUARE A ROLULUI BIOMASEI ÎN PRODUCȚIA DE BIOENERGIE REGENERABILĂ LA NIVEL MONDIAL

Neeraja Podichety*[1], Rani Sadula[1], Sivakumar Ramaiah[21]

Abstract: *Global energy demand is growing rapidly. Biomass for energy can play a pivotal role. Energy from biomass can decrease greenhouse gas emissions. Biomass is a solid, non-hazardous cellulosic material made from plant material farmed for fuel, solid wood and agricultural waste. This review outlines different types of biomass used for bioenergy production. It includes the classification, roles and recent studies of biofuels. The role of bioenergy in agricultural sector, as wastewater is an abundant supply of microorganism nutrients; its role in producing bioenergy is discussed. The efficiency of water for development, global scenario of biofuels is discussed in this review.*

Key words: *Bio diesel, Bioenergy, Biofuels, Biomass, Lignocellulose and Waste water*

Rezumat: *Cererea globală de energie crește rapid. Biomasa pentru energie poate juca un rol esențial. Energia din biomasă poate reduce emisiile de gaze cu efect de seră. Biomasa este un material celulozic solid, nepericulos, obținut din material vegetal cultivat pentru combustibil, lemn masiv și deșeuri agricole. Această analiză prezintă diferite tipuri de biomasă utilizate pentru producerea de bioenergie. Include clasificarea, rolurile și studiile recente ale biocombustibililor. Rolul bioenergiei în sectorul agricol, întrucât apele uzate reprezintă o sursă abundentă de nutrienți pentru microorganisme; se discută rolul său în producerea de bioenergie. Eficiența apei pentru dezvoltare, scenariul global al biocombustibililor este discutată în această revizuire.*

Cuvinte cheie: Biomotorină, Bioenergie, Biocombustibili, Biomasă, Lignoceluloză și Ape uzate

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PRINCIPAL
Geethanjali College of Pharmacy
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Original Article

The Effect of Obesity on Severity of Asthma: An Observational Prospective Study from Pakistan

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ABSTRACT

Objective: The current research study aimed to access the relationship between obesity and asthma exacerbations and severity among adult patients at the outpatient section of a federal hospital (PIMS) in Islamabad, Pakistan. **Methods:** A cross-sectional research study was carried out on 207 asthma adult patients belonging to different areas and ethnic groups from the country. The study setting was the PIMS hospital, which attracts patients from all over the country due to its facilities and cost-effective treatments. The body mass index (BMI) of asthma patients was calculated using the heights and weights of the study subjects. However, the pulmonary functions were calculated using a computerized spirometer i-e Spirolab III S/N 303681 in line with Winspiro PRO 7.1.version software. It presents the patient's forced vital capacity that expires in the first second of expiration to full (FEV1) in comparison to forced vital capacity (FVC) ratio, that is, Tiffeneau–Pinelli index was also recorded to determine the asthma severity. **Results:** According to recent surveys, the overall prevalence of patients with overweight and obesity was 29.0% and 23.7%, respectively. A Chi-square test was used, and a statistically significant relationship was observed between BMI and asthma severity ($P < 0.001$). The adult obese female patients presented poor pulmonary functions. The average FEV1/FVC ratio presented significant variance among four different categories of BMI with $P < 0.05$. This difference was due to the normal BMI category as the Tiffeneau–Pinelli index, that is, FEV1/FVC in the normal BMI group was significantly lower as compared to that in underweight and obese patients. **Conclusion:** The study subjects presented raised asthma severity in accordance with the raised BMI. Obese patients presented comparatively raised asthma exacerbations. Moreover, a statistically significant association of gender difference was observed between obesity and asthma severity. It was concluded that adult asthmatic women with obesity presented raised asthma severity as compared to adult asthmatic males.

KEYWORDS: *Asthma, body mass index (BMI), forced expiratory volume (FEV1), forced vital capacity (FVC), obesity*

INTRODUCTION

Asthma is a chronic disease of air passages, which is characterized by the presenting symptoms of wheezing, shortness of breath, coughing, chest tightness, and decreased forced expiratory volume (FEV).[1] Both symptoms and airflow limitations differ with time and intensity and these symptoms are often exaggerated by trigger factors that differ from person to person.[1] The word asthma was derived from a Greek word meaning "hard breathing" and therefore it represents a series

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Importance of a Yoga Course to Manage Hypoxia in Individuals

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Abstract: Yoga is an art, a science, and a philosophy that was developed in India over 5000 years ago but now draws on a variety of spiritual precepts, practices, and ideas. An evaluation of the current yoga course revealed that, out of the more than 60 yogic activities, 16 and 17 were found to increase oxygen saturation and improve lung capacity, while 19 were determined to be helpful in both areas. The current study is a useful module for treating people with respiratory issues and hypoxia. However, more study is required to determine the viability and effectiveness of the module.

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Introduction

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Yoga is an art, a science, and a philosophy that draws from a collection of spiritual principles, precepts, and practices that were created in India some 5000 years ago. It is a sophisticated intervention that combines physical exercise, breathing exercises, meditation, and theoretical underpinnings that could affect attitudes, beliefs, and interpersonal interactions (McCall *et al.*, 2013). Yogic practice has becoming increasingly popular all over the world (Cramer *et al.*, 2016).

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Research Article

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DESIGN AND CHARACTERIZATION OF GLIMEPIRIDE HYDROTROPIC SOLID DISPERSION TO ENHANCE THE SOLUBILITY AND DISSOLUTION

Devakmma Lakumalla*, Neeraja Podichety, Ravi Kumar Maddali

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Keywords
Solubility, Hydrotrophy, Hydrotropic solubilization, hydrotropic solid dispersion, Glimepiride tablets

ABSTRACT

Background: Glimepiride lowers blood sugar levels in the body, and treats type 2 diabetes mellitus. But the main problem with the drug is its low aqueous solubility. The primary purpose of this study is to increase its solubility in an aqueous medium by using amphiphilic hydrotropic agents instead of harmful, volatile organic solvents. **Methodology:** A solubility study of Glimepiride was carried out using various hydrotropic agents at 10%, 20%, 30%, and 40%. In mixed hydrography, 30% of the hydrotropic agents were chosen for making blends due to their highest solubility. The blend's solubility was raised more than 50 times at fixed concentrations of urea (20%) and sodium acetate (10%) in a mixed hydrotropic solution. The solubility of Glimepiride in distilled water is 0.0038 mg/ml; in 30% urea, 49.512 ug/ml; and in 30% sodium acetate, 40.43 ug/ml. The optimized blend prepared hydrotropic solid dispersions by physical mixing and solvent evaporation. It was evaluated for drug content, FTIR, SEM, X-ray diffraction, and in vitro drug release studies. Finally, the drug release profile of the prepared tablet is compared with an already available consumer product. **Result:** HSD-5 showed an in-vitro drug release of 84.77±0.44 at 90 min, which is higher than the remaining formulations, and no significant change was found in drug content or drug release after 15, 30, and 45 days of stability studies. Scanning electron microscopy (SEM) showed homogenous solid dispersion, crystallinity was determined using X-ray diffraction, and FTIR showed good drug compatibility with carriers. The drug release profile of the prepared tablet was higher than that of the available consumer product. **Conclusion:** This study revealed that hydrotropic agents can potentially increase glimepiride's solubility and drug release. This approach can effectively enhance the solubility of poorly water-soluble drugs.

INTRODUCTION

Oral administration is a very convenient and easy ingestion route for all solid dosage forms, but for various poorly soluble drugs, bioavailability is limited by the dissolution rate. This is the main problem in developing pharmaceutical dosage forms [1].

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A REVIEW ON ROLE OF BIOMASS IN PRODUCTION OF GLOBAL RENEWABLE BIOENERGY

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A NEW METHOD WAS ESTABLISHED FOR SIMULTANEOUS ESTIMATION OF ELBASVIR AND GRAZOPREVIR BY RP-HPLC METHOD

Vanapalli Sindhu, Sumalatha Chepyala

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Abstract:

Objective: *A simple, Accurate, precise method was developed for the simultaneous estimation of the Elbasvir and Grazoprevir in pharmaceutical dosage form.*

Methods: *Chromatogram was run through symmetry C18, 250 x 4.6 mm, 5µm. Mobile phase containing 0.1% Ortho Phosphoric acid: Acetonitrile, (55:45, v/v) was pumped through column at a flow rate of 1 ml/min. Temperature was maintained at Ambient. Optimized wavelength for Elbasvir and Grazoprevir was 260 nm.*

Results: *Retention time of Elbasvir and Grazoprevir were found to be 3.848 min and 2.313 min. The % purity of Elbasvir and Grazoprevir was found to be 100.4 % and 100.2 % respectively. The system suitability parameters for Elbasvir and Grazoprevir such as theoretical plates and tailing factor were found to be 3568.30 and 4836.12. The linearity study for Elbasvir and Grazoprevir was found in concentration range of 12.5 µg-75 µg and 25 µg-150 µg and correlation coefficient (r2) was found to be 0.999 and 0.999, % mean recovery was found to be 100.19 % and 100.84 %, %RSD for repeatability was 0.75 and 0.36 %. The precision study was precise, robust and repeatable. LOD value was 0.082 and 0.357, and LOQ value was 1.05 and 0.23 respectively*

Conclusion. *The results of study showed that the proposed RP HPLC method is a simple, accurate, precise, rugged, robust, fast and reproducible, which may be useful for the routine estimation of Elbasvir and Grazoprevir in pharmaceutical dosage form.*

Keywords: *Elbasvir, Grazoprevir, RP-HPLC, Simultaneous estimation.*

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Molecular Docking Analysis of Human-Cyclooxygenase 1CX2 by 97 Flavonoid Derivatives

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Abstract: COX (Cyclooxygenase) is the protein that infuses the degradation of PG (prostaglandins) from its substrate, AA (arachidonic acid). The reactions involve 2 steps that area unit 1st step oxidation reaction of AA to hydroperoxy endoperoxide PGG2, go after by 2nd steps future reduction to hydroxyl endoperoxide PGH2. During this work, we tend to study the interaction of ninety-seven flavone derivatives against COX enzymes for anti-inflammatory activity discovery using molecular docking simulation. Docking simulation for every compound was continual molegro virtual docker (MVD) 2013.6.0 for windows was used to predict the degree of each COX binding pockets. Thus, these observations are inconsistent 14 compounds were designated per their best marking values and were designed their hydrogen bonds, electrostatic interactions, steric interactions. However, selective CO-II inhibitors, respectively, N-acetyl-D-glucosamine, protoporphyrin-IX containing Fe, 1-Phenyl-sulfonamide-3-trifluoromethyl-5-parabromophenyl-pyrazole. The remainder of the LIGs is categorized as non-selective inhibitors.

Keywords: Cyclooxygenase, Molegro Virtual Docker, flavonoid

Establishment and Validation of a High-performance Liquid Chromatography Technique for Quantifying Dalbavancin in Injectable Formulations

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ABSTRACT

Aim: A simple and sensitive analytical method was developed to estimate dalbavancin, anti-biotic drug in injectable formulations. **Materials and Methods:** Separation of analyte was attained on a Phenomenex Luna C_{18} column (250 mm × 4.6 mm × 5 µm particle size) using potassium dihydrogen orthophosphate pH 3.0 adjusted with orthophosphoric acid: acetonitrile: methanol (70:20:10 % v/v/v) as mobile phase pumped at 1.0 mL/min. A UV detector was used for effluent detection at a wavelength of 288 nm. **Results:** The retention time for Dalbavancin was determined to be 3.96 minutes. The drug exhibited linearity within the concentration range of 20–100 µg/mL. The accuracy of the method was considered satisfactory and the mean recovery percentage is found to be in the acceptable range of 98.74-101.02 %. **Conclusion:** The RP-HPLC method was successfully developed, validated as per ICH guidelines. The proposed method was simple, precise, sensitive, rapid, robust for the estimation of dalbavancin in injectable formulations.

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KEYWORDS: *Dalbavancin, method development, RP-high performance liquid chromatography, validation*

INTRODUCTION

The battle against severe Gram-positive infections has become much more difficult as a result of the advent and quick spread of antibiotic-resistant organisms, necessitating the development of novel antimicrobial drugs. These resistant pathogen infections have been associated with extended hospital admissions, increased health-care costs, discomfort, and even mortality.[1,2]

Staphylococcus aureus causes a myriad of infections, demanding the utilization of antibiotics for treatment. A diverse range of antibiotics wage war against *staphylococcal* infections. These antibiotics zero in on crucial bacterial processes, such as the construction of cell walls, translation, transcription, and DNA replication. Unfortunately, the challenge of antibiotic resistance is surging, resulting in treatment setbacks that bear significant human and medical burdens.

Antibiotic resistance arises from mechanisms, including modifications, in the targets of drugs the deactivation of drugs through enzymes increased expulsion of substances, and changes, in drug accessibility.[3] The ease of resistance dissemination is heightened through a diverse range of mobile genetic elements.[4,5] While resistance has been detected for nearly all antimicrobial compounds, instances of strains being resistant to all available drugs remain uncommon. Nevertheless, the persistence of resistance continues to present treatment complexities, as exemplified by vancomycin.

Despite the fact that fully vancomycin-resistant strains are uncommon, the more prevalent vancomycin-intermediately resistant strains (VISA) are associated with elevated infection severity and

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Original Article

Development and Validation of an HPLC Method for the Determination of Lobeglitazone in Bulk and in Tablet Formulation

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ABSTRACT

Objectives: A straightforward, accurate, and precise reverse-phase high-performance liquid chromatography method was developed to determine the quantity of Lobeglitazone in both bulk and pharmaceutical dosage forms. **Materials and Methods:** The chromatographic separation was achieved on a Phenomenex Luna column with dimensions of 250 cm×4.6 mm×5 µm, and the mobile phase was a combination of potassium dihydrogen orthophosphate and acetonitrile in a 70:30 V/V ratio with a pH of 4.0, adjusted using orthophosphoric acid. The flow rate was set at 1.0 mL/min, and detection of the effluents occurred at 250 nm. **Results:** The retention time for Lobeglitazone was determined to be 2.157 min. The drug exhibited linearity within the concentration range of 10-60 µg/mL, the correlation coefficient was established to be 0.9996. The LOD, LOQ were found to be 0.8 µg/mL and 2.5 µg/mL. The accuracy of the method was considered satisfactory and the mean recovery percentage is found to be in the acceptable range of 99.78-101.31%. **Conclusion:** The HPLC method was successfully developed, validated as per ICH guidelines. The proposed method was simple, precise, sensitive, rapid, robust for the estimation of Lobeglitazone in both bulk and tablet dosage forms.

Keywords: Lobeglitazone, Method development, Validation, RP-HPLC.

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INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is a chronic, progressive metabolic disorder. It has long-term effects on the body, characterised by insulin resistance and β-cell dysfunction.[1] T2DM is a complex and multifactorial disease involving a number of underlying mechanisms. As a result, there are multiple approaches available to manage the condition.[2] There are several classes of Oral Anti Diabetic agents (OADs) available, but the Thiazolidinedione (TZD) class stands out because it primarily targets insulin resistance.[2] The TZDs improve insulin sensitization and enhance glucose and lipid metabolism by activating the proliferator-activated receptor γ (PPARγ).[3] In type 2 diabetes, rosiglitazone and pioglitazone are the most commonly used drugs for better glycemic control by promoting insulin sensitivity. Due to cardiovascular and bladder cancer risks, their use has declined in recent years.[4] The newly developed thiazolidinedione "lobeglitazone" (Chong Kun Dang Pharmaceutical Corporation, Seoul, Korea) provides a safer and more effective alternative to existing TZDs.[5] It works similarly to pioglitazone on glycemic control but requires lower doses. Furthermore, clinical studies have indicated positive results in terms of safety, addressing some of the concerns associated with other TZDs. Since July 2013, it has been used in Korea as a treatment for T2D due to its pleiotropic effects in pre-clinical and clinical studies.[6,7] As a pharmacophore, lobeglitazone consists of a 2,4-thiazolidinedione group bound to an ethoxy-benzyl N-methylamino group (Figure 1). Its structural formula is $C_{24}H_{24}N_4O_5S$, and the chemical name is 5-[4-(2-{[6-(4-Methoxy-phenoxy)-pyrimidin-4-yl]-methyl-amino}-ethoxy)-benzyl]-thiazolidine-2,4-dione hydrosulphuric acid.[8]

Lobeglitazone tablets are available on the market under the brand name Lobg (Glenmark Pharmaceuticals Ltd.). Jong-Hwa Lee *et al.* developed a validated assay using liquid chromatography and tandem mass spectrometry to perform pharmacokinetic studies of Lobeglitazone in rats.[9] Gulhane *et al.*, developed a bioanalytical method for the estimation of Lobeglitazone in human plasma.[10] The literature survey indicates that other than a few bioanalytical methods, no method has been reported so far for estimating Lobeglitazone in pharmaceutical dosage forms.

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EVALUATION OF ANTI-INFLAMMATORY AND ANALGESIC ACTIVITY OFAQUEOUS AND ALCOHOLIC EXTRACTS OF LEAVES OF *Epipremnum aureum.linn* IN RATS

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ABSTRACT

Background: *Epipremnum aureum* (Family Araceae) commonly known as Money plant is a vigorously growing in India. It is a common indoor plant generally used for ornamental purposes having indoor air pollution removing capacity. The preliminary phytochemical studies of the aqueous and alcoholic extracts of the leaves showed the presence of various phytochemical constituents such as alkaloids, tannins, flavonoids, triterpenoids, and saponins. **Aims and Objectives:** The aim of the present study was carried out with the objective of phytochemical screening and to evaluate the anti-inflammatory and analgesic of aqueous and alcoholic extract of *E.aureum* in albino rats. **Materials and Methods:** Albino Wistar rats (100–150 g body weight) were used in this study. Aqueous and alcoholic extract of *Epipremnum aureum* was used to evaluate acute anti-inflammatory and analgesic activity by plethysmometer and hot plate method by oral administration at doses of 200 mg/kg body weight in healthy albino rats. **Results:** In acute studies, the aqueous and alcoholic extract showed anti-inflammatory activity by significant reduction in the paw edema volume, and significantly increased the latency of paw licking in hot plate method in a dose-dependent manner when compared with the control and standard drug. Statistical analysis was carried out by one-way ANOVA test. **Conclusion:** Thus, the positive results suggest that *Epipremnum aureum* extracts should be further studied to determine the bioactive chemical compounds as well as to understand the possible mechanism of action and evaluate their toxicity looking towards pharmaceutical actions.

KEY WORDS: *Epipremnum aureum*, Anti-inflammatory; Analgesic; Carrageenan -induced Paw Edema, Hot plate.

Observational study of incidence and clinical patterns of Mesenteric lymphadenopathy among children in RVM hospital

Attili Lavanya Nagaveni[1], Korat-ala Nikhltha Chowdary [1], Metta Deepthi Kumari[1] & Dr Mohammed Abubakar[2]

Abstract

Background

In this study, the objective was to estimate the incidence and observe the presenting complaints, and clinical patterns of mesenteric lymphadenopathy with and without abdominal pain in children.

Methodology

An observational study has been conducted on outpatients and inpatients of pediatrics in RVM Hospital (Laxmakkapally, Mulugu, Siddipet, Telangana). Total patients of 101 with mesenteric lymphadenopathy were recruited in the study and all of them were treated with theantibiotic drug metronidazole. The ML was diagnosed using the USG abdomen and Wong Bakers' pain scale.

Results

From the results obtained, we hereby conclude that the incidence rate of abdominal pain in ML was 100%. the incidence rate of ML in patients who were admitted with abdominal pain was 17%. the ML was diagnosed predominantly in females.

Keywords: Mesenteric lymphadenopathy, abdominal pain, incidence, reoccurrence, metronidazole.

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Introduction

Recurrent Abdominal Pain (RAP) in children is defined as the presence of at least three episodes of abdominal pain severe enough to affect their activities over a period longer than three months [1,2]. Abdominal pain is the most common among chronic pains in younger children and the second most common chronic symptom after headache in older children and adolescents.

Abdominal pain is the most common among chronic pains in younger children and the second most common chronic symptom after headache in older children and adolescents [3]. The most common surgical disease in children with acute abdominal pain admitted to the emergency department is Acute Appendicitis (AA). Diagnostic discrimination between AA and Acute Mesenteric Lymphadenitis (AML) may sometimes be difficult as a result of the physical examination and laboratory studies after excluding other diagnoses such as diarrhea, urinary infection, intussusception, and gastroenteritis [4,5]. Acute mesenteric lymphadenitis causes Right Lower Quadrant (RLQ) pain as in AA and its etiology may be due to primary (idiopathic) or secondary (infection, malignancy, etc.) reasons [6].

Although AML brings about abdominal pain, it does not cause any abnormalities in many healthy children with enlarged mesenteric lymph nodes. Wang et al. asserted in an ultrasound-guided clinical study that the mesenteric lymph nodes increase with age until 6 years and then decrease. Moreover, they supposed that AML with a short axis diameter larger than 8 mm could be related to abdominal pain [7].

Also, in another study, the short axis diameter of larger than 8 mm and even 10 mm was suggested for the definition of the pathologic mesenteric lymph node in children [8].

The consensus regarding the radiological and laboratory parameters which may be consistent with AML in the literature is still controversial

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COMPARATIVE STUDY OF COMBINATION THERAPY OF TELMISARTAN + AMLODIPINE VS TELMISARTAN + CILNIDIPINE IN HYPERTENSIVE PATIENTS

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ABSTRACT

BACKGROUND :

Hypertension also known as high blood pressure, is a hidden global menace, and it is a major risk of other heart diseases. A crucial need for any combination is evidence that it reduces BP significantly more than monotherapy with its separate components.

METHOD:

A comparative observational study of combination therapy (Telmisartan + Amlodipine vs Telmisartan + Cilnidipine) in Hypertensive patients was conducted over 6 months in tertiary care hospital, a total of 108 cases were collected and patient's medical records were assessed.

RESULTS:

The results showed a considerable reduction in blood pressure among both the selected groups. There is a considerable reduction of blood pressure in the group A patients (of about 30mmHg systolic pressure decrease and 20mmHg diastolic pressure decrease) with an exception in some patients, with the incidences of side effects of unusual heart rate, and general puffiness.

Group B showed significant results in decreasing the BP levels and also maintaining stability after consecutive months. There is progressive reduction (of about 40mmHg systolic pressure and 20mmHg diastolic pressure decrease) without any substantial side effects.

RESEARCH ARTICLE

Exploration of *In-vitro* Antidiabetic Activity of ZnO NPs and Ag NPs Synthesized using Methanolic Extracts of *Alpinia mutica* and *Tradescantia spathaeca* Leaves

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ABSTRACT

Diabetes might be cured with the use of medicinal herbs and environmentally friendly production of metallic nanoparticles (Ag NPs) and ZnO NPs. The methanolic leaf extracts of *Alpinia mutica* and *Tradescantia spathaeca* were used to synthesize silver nanoparticles (Ag NPs) and zinc oxide nanoparticles (ZnO NPs), respectively, for *in-vitro* evaluation.

Methanolic leaf extracts of *A. mutica* and *T. spathaeca* were used to create AgNPs and ZnO NPs under ambient conditions using ultrasound-assisted extraction (UAE). Their ability to block alpha- and beta-amylase confirmed the *in-vitro* antidiabetic efficacy of methanolic leaf extract of plant (MLEP), AgNPs, and ZnO NPs. In this study, α- amylase activity of ZnO and nanoparticles of silver produced from natural sources will be evaluated in an effort to lessen the toxicity and negative effects of the inhibitor used to treat diabetes. Antidiabetic action was especially impressive in the ZnO and silver nanoparticles produced using methanolic extracts of *A. mutica* and *T. spathaeca*. Because of their promising *in-vitro* antidiabetic action with alpha-amylase activity, MLEP of *A. mutica* and *T. spathaeca*, AgNPs, and ZnO NPs show promise for future medical uses.

Keywords: *Alpinia mutica*, Green synthesis, Phytochemical studies, Silver nanoparticles, *Tradescantia spathaeca*, Zinc oxide nanoparticles, *Alpha-amylase activity.*

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Conflict of interest: None

INTRODUCTION

Medicinal plants are a major source of drugs. Plants are used in health treatment by 80% of the global population[1]. Natural molecules may substitute synthetic components in food and pharmaceuticals, which have adverse effects.[2] Because of their free radical-scavenging abilities, therapeutic plants and their phytoconstituents are becoming more popular as natural sources.

Effectively, plants are providers of natural antioxidant molecules with various pharmacological actions and few to no adverse effects that defend against many illnesses and safeguard human health.[3] By preventing the spread of oxidative chain reactions, medicinal plant compounds delay the deterioration of lipids or additional molecules, hence the development of oxidative stress-related illness.[2]

Radiation, cigarette smoke, airborne hazardous chemicals, overnutrition, shifting dietary habits, and lack of physical exercise are all examples of exogenous sources of reactive oxygen compounds (ESROS), reactive nitrogen compounds (RNS), and free radicals in the body. A few examples of cardiovascular illnesses are heart failure with congestive systolic high blood pressure, chest pain, atherosclerosis, cerebral deficiency, vein insufficiency, and ventricular fibrillation, or VF. There are many different medicinal plants that contain powerful cardioactive glycosides and have good inotropic properties on the heart; some examples are *Digitalis*

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RESEARCH ARTICLE | SEPTEMBER 08 2023

A review on herbal nano drug delivery systems: A new skyline

Shankaraiah Pulipaka; Ashish Suttee ✉; M. Ravi Kumar; Mary Chatterjee

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Development of an Innovative Ultrasound-Assisted Extraction Technique to Optimize Extraction on Phytoconstituents and Compared Conventional Extraction Method

Shankaraiah Pulipaka, Ashish Suttee, M. Ravi Kumar, Kalakotla Shanker, Ramesh Kasarla, and Swamy Kasarla

Abstract In the past, people have relied on some methods like the Soxhlet and reflux device to extract plant matter. To address this problem, we use a cutting-edge extraction technique to remove the relevant plant material. There are several advantages of using ultrasonic-assisted extraction over the conventional approach, such as reduced solvent consumption, reduced extraction time, increased extraction purity, and an increased yield of bioactive phytoconstituents. The family Commelinaceae includes the Indian herb *Tradescantia spathacea* (T.S), which is used as a traditional medicine. It is the southeast Mexican region known as "Maguey Morado" are derived from *Tradescantia spathacea* (T.S) leaves extracted using traditional and ultrasonic-assisted extraction procedures using petroleum ether, ethyl acetate, methanol, hydroalcoholic, and aqueous solvents (Purple Maguey). Total phenolic

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Original Article

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ABSTRACT

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KEYWORDS: *Dalbavancin, method development, RP-high performance liquid chromatography, validation*

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INTRODUCTION

The battle against severe Gram-positive infections has become much more difficult as a result of the advent and quick spread of antibiotic-resistant organisms, necessitating the development of novel antimicrobial drugs. These resistant pathogen infections have been associated with extended hospital admissions, increased health-care costs, discomfort, and even mortality.[1,2]

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EVALUATION OF ANTI-INFLAMMATORY AND ANALGESIC ACTIVITY OFAQUEOUS AND ALCOHOLIC EXTRACTS OF LEAVES OF *Epipremnum aureum.linn* IN RATS

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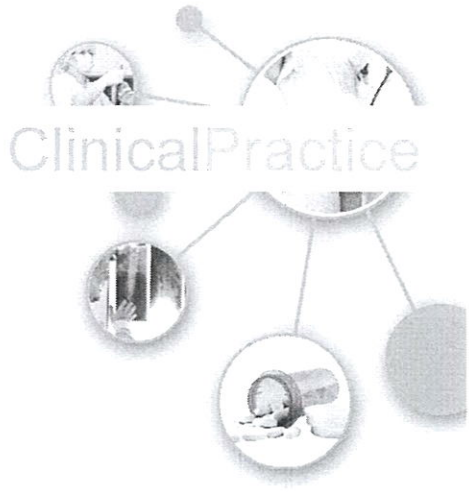
ABSTRACT

Background: *Epipremnum aureum* (Family Araceae) commonly known as Money plant is a vigorously growing in India. It is a common indoor plant generally used for ornamental purposes having indoor air pollution removing capacity. The preliminary phytochemical studies of the aqueous and alcoholic extracts of the leaves showed the presence of various phytochemical constituents such as alkaloids, tannins, flavonoids, triterpenoids, and saponins. **Aims and Objectives:** The aim of the present study was carried out with the objective of phytochemical screening and to evaluate the anti-inflammatory and analgesic of aqueous and alcoholic extract of *E.aureum* in albino rats. **Materials and Methods:** Albino Wistar rats (100–150 g body weight) were used in this study. Aqueous and alcoholic extract of *Epipremnum aureum* was used to evaluate acute anti-inflammatory and analgesic activity by plethysmometer and hot plate method by oral administration at doses of 200 mg/kg body weight in healthy albino rats. **Results:** In acute studies, the aqueous and alcoholic extract showed anti-inflammatory activity by significant reduction in the paw edema volume, and significantly increased the latency of paw licking in hot plate method in a dose-dependent manner when compared with the control and standard drug. Statistical analysis was carried out by one-way ANOVA test. **Conclusion:** Thus, the positive results suggest that *Epipremnum aureum* extracts should be further studied to determine the bioactive chemical compounds as well as to understand the possible mechanism of action and evaluate their toxicity looking towards pharmaceutical actions.

KEY WORDS: *Epipremnum aureum*, Anti-inflammatory; Analgesic; Carrageenan -induced Paw Edema, Hot plate.



Assessment of the role of clinical pharmacist in implementation of antimicrobial stewardship in a tertiary care hospital: An observational study

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Abstract

Background

A clinical pharmacist plays a key role in the implementation of antimicrobial stewardship by rationalizing antimicrobial use, decreasing the risk of antimicrobial resistance, and improving patient's health-related quality of life.

Objective

To emphasize the role of clinical pharmacist in AMSP to develop and manage the optimal use of antimicrobial agents and to promote rational antimicrobial use.

To rationalize antimicrobial use, to promote evidence-based medicine, to decrease the occurrence of antimicrobial resistance

Methods

An observational study was conducted over 6 months in tertiary care hospitals, a total of 152 cases were collected from the patient and patient's medical record and was assessed.

Results: Among 152 cases, 54 were rational and 98 were irrational irrespective of departments, 48.97% were wrong drug error, 27.55% were inappropriate duration of therapy, 5.1% were drug duplication, 19.38% were multiple antimicrobials for unnecessary use, 3.06% were overdose, 3.06% were subtherapeutic dose and 10.2% were drug without indication. Gram stain 13.26%, culture report 46.93%.

Conclusion

In this observational study, we are concluding that the role of the clinical pharmacist is vital in AMSP. With the implementation of AMSP, there is an opportunity for improvements in the appropriate use of antimicrobials without negatively affecting clinical outcomes.

Keywords: clinical pharmacist, irrational, rational, antimicrobial stewardship, drug-related problems

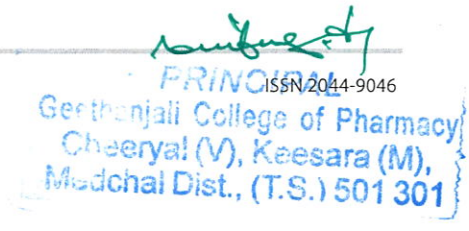
Introduction

Clinical Pharmacy is a branch of pharmacy that deals with the practice of rational medication used thereby to promote the health outcomes of patients [1].

One of the significant scientific advances of the 20th century is the discovery of antimicrobials which are considered life-saving drugs. Various types of antimicrobials act on micro-organisms with different mechanisms, such as antibacterial or antibiotics against bacteria, antivirals against viruses, antifungals against fungi, etc. A strong Antimicrobial Stewardship Program can both optimize the treatment of infectious diseases and reduce adverse events, cost of treatment, and length of hospital stay associated with antimicrobial use[2].

There has been data stating that antimicrobial misuse is widespread in all healthcare systems. This misuse has led to the development of AMR. Since inappropriate use of antibiotics is excessive in India, there is a need to improve antimicrobial safety in hospitals which can be achieved through the implementation of good "Antimicrobial stewardship" refers to interventions designed to promote the optimal use of antibiotic agents, including drug of choice, dosing, route, and duration of administration [3]. A strong Antimicrobial Stewardship Program can both optimize the treatment of infectious diseases and reduce adverse events, cost of treatment, and length of hospital stay associated with antimicrobial use.

Appropriate antimicrobial therapy is based on hospital guidelines and culture results which



ClinicalPractice

Prospective cohort study on the effectiveness of structured patient education program given to smokers in specialized centers (deaddiction centers)

A. Prema Hadassah[1], D. Laxmi Pranathi[1], P. Enos[1], Shaik Saakhiya[1], Mohammad Mohasin Pasha[2], & S.Kiranmai[2]

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Abstract

Background

Globally, smoking tobacco is a crucial cause of more than 80 lakh deaths per year and a key exposure factor for the progression of multiple diseases, including lung, liver, oral, and throat cancer, pulmonary diseases, heart diseases, and stroke. Cigarette smoking increases the disease burden and probability of death. Pakistan, India and Bangladesh are the most endangered countries, with a high proportion of consumers of nicotine and cigarettes.

Aims and Objectives

To execute a prospective cohort interventional study to perceive the outcomes of SPEP to help quit smoking in specialized centers.

Methodology

The study was fashioned to be prospective, interventional, and cohort in comparing the dependence on nicotine usage between three groups. They are Patients receiving only NRT, Patients receiving NRT along with SPE and Patients receiving only SPEP. The study will be conducted in Rehabilitation centers (Asha Hospital- Banjara Hills and rehabilitation center-Jubilee hills, Serenity foundation- Kapra). Study was proposed to be conducted for a 3-months (12 weeks) duration.

Conclusion

Therefore, we conclude that the efficiency of the SPEP given to smokers is significantly influenced by their willingness to give up smoking. This program has shown positive outcomes as it accompanies the patient through all the phases of giving up smoking and tries to facilitate the process of abstinence easy and fool proof as possible. Smoking cessation is a challenging procedure but a rewarding one, and with professional help (SPEP) could be made possible.

Keywords: prospective, cohort, structured patient education program, specialized centers, nicotine replacement therapy, nicotine dependence

Introduction

Among the planet's current population today, 500 000 000 are estimated to die from the utilization of tobacco with a mean loss of ten years of life. As a consequence, five billion years of human life will be lost to a single behavior. Even a modest leap forward in developing an intervention with greater influence on populations of smokers could ward off millions of premature deaths [1, 2]. This paper describes SPEP as a tool that is likely to increase our impact on smokers to help them abstain from nicotine and its products. Therefore, the necessity for abstinence from smoking is of prime importance.

Nearly all of the body's organ damage results from smoking, which also increases the threat of several illnesses and lowers smokers' overall health. Smoking has a number of detrimental impacts on a person's health, such as cancer, heart disease, stroke, lung illnesses, diabetes, and COPD which includes emphysema and chronic bronchitis. Smoking also escalates the threat for tuberculosis, a few eye diseases, and issues of the body's immune system, which includes rheumatoid arthritis. Smoking cessation is arguably the most powerful, cost-effective intervention available in clinical settings for the primary and secondary prevention of disease, disability and death [1-4].The continued carnage, and enormous costs, that result from global tobacco addiction make tobacco control

Prospective cohort study on the effectiveness of structured patient education program given to smokers in specialized centers (deaddiction centers)

A. Prema Hadassah[1], D. Laxmi Pranathi[1], P. Enos[1], Shaik Saakhiya[1], Mohammad Mohasin Pasha[2], & S.Kiranmai[2]

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Keywords: prospective, cohort, structured patient education program, specialized centers, nicotine replacement therapy, nicotine dependence

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Nearly all of the body's organ damage results from smoking, which also increases the threat of several illnesses and lowers smokers' overall health. Smoking has a number of detrimental impacts on a person's health, such as cancer, heart disease, stroke, lung illnesses, diabetes, and COPD which includes emphysema and chronic bronchitis. Smoking also escalates the threat for tuberculosis, a few eye diseases, and issues of the body's immune system, which includes rheumatoid arthritis. Smoking cessation is arguably the most powerful, cost-effective intervention available in clinical settings for the primary and secondary prevention of disease, disability and death [1-4].The continued carnage, and enormous costs, that result from global tobacco addiction make tobacco control

RESEARCH PAPER

Observational study of ADR monitoring, safety and efficacy of clopidogrel with atorvastatin combination in cardiovascular diseases

Abstract

Background

These days commonly used drug in cardiovascular problems is clopidogrel & atorvastatin, so the primary goal is to figure out the adequacy and any ADRs related to the treatment.

Objective

To evaluate the safety and efficacy of drugs, and also identifies the ADRs of drugs & their associated problems in cardiovascular disorder patients.

Methods

An observational study was conducted in the inpatient & outpatient unit of the cardiology department of RVM institutional, laxmakkapally for 6 months. The study shows 105 patients, including males and females diagnosed with cardiovascular disorders.

Results

The review contains 105 subjects. Out of them, 91 showed Doubtful ADRs (86.7%), 11 showed Possible ADRS (10.5%), and just 3 showed Probable ADRS (2.9%) None of them showed any Definite ADRs, and furthermore founded on the HS Troponin I mean contrast esteem (988.44) the medicine is protected and compelling in the therapy of CVS Disorder.

Conclusion

According to the Naranjo ADR probability scale and HS Troponin values the medication is demonstrated to be protected and more compelling in the treatment of CVS issues.

Keywords: ADR • CVS Disorder's • Naranjo ADR scale • HS Troponin I

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Introduction

Cardiovascular Disease (CVD) is currently the leading cause of death worldwide [1]. Many CVD patients develop Acute Coronary Syndrome (ACS), a life threatening condition encompassing Myocardial Infarction (MI) with or without ST-Segment Elevation (STEMI/NSTEMI), or unstable angina [1]. Approximately 1.2 million ACS patients are being hospitalized in the United States every year for cardiovascular events [2]. Elevated platelet aggregation and subsequent thrombus formation play a critical role in the pathophysiology of these patients. As a consequence, safe and effective antiplatelet therapy is essential for reducing the high morbidity and mortality of this disease [3]. Clopidogrel is an important antiplatelet drug that is widely used to prevent vessel blockage in clinical settings such as cardiovascular and cerebrovascular diseases. Dual antiplatelet therapy with clopidogrel and aspirin has become the standard treatment for acute coronary syndrome and after Percutaneous Coronary Intervention (PCI).Additionally, clopidogrel is commonly used with statins to lower the blood lipid level and with Proton Pump Inhibitors (PPIs) to counteract gastrointestinal tract disturbances such as aspirin induced bleeding.

The effects of clopidogrel on platelets vary among patients, with approximately 4% to 30% of patients being low responders or non responders and having an increased risk of ischemic events after stent implantation. The interaction between clopidogrel and other drugs may promote

ischemic events, as evidenced by emerging data that clopidogrel's effect on platelet function is altered by coadministration with statins or PPIs.

Clopidogrel (Plavix®), which was the second largest selling branded drug in the US in 2018, with $8.8 billion in sales, is an irreversible P2Y12 receptor antagonist indicated for reduction of arteriosclerotic events in patients with recent

requires enzymatic conversion into its active metabolite by a series of cytochrome P450 (CYP) enzymes [4,2]. Clinical evidence suggests that patients with deficient CYP2C19 activity (e.g. poor metabolizers or as a result of drug-drug interactions) have remarkably higher on-treatment platelet reactivity, which puts them at an increased risk of ischemic events following

RESEARCH PAPER

Observational study on safety and efficacy of rivaroxaban in covid-19 and post covid-19 patients

Abstract

Background: Rivaroxaban used to treat the coagulation is prescribed for covid 19 and post covid 19 (viral pneumonia and LRTI). To study the role of rivaroxaban in subjects with covid 19 and post covid 19 and assess the role of Rivaroxaban in covid 19 and post covid 19 subjects (LRTI or Viral pneumonia). To check the D DIMER value pre and post-giving Rivaroxaban.

Methodology: A total of hundred subjects were taken between the age of eighteen to eighty years having increased d dimer in covid-19 and post covid-19 subjects. The subjects were prescribed rivaroxaban with the dose of 10 mg orally administered once a day. The d-dimer is checked prior to the drug administration and after taking rivaroxaban.

Results: A rapid reduction in d-dimer values occurred from the administrating the drug. It is observed statistically that the rivaroxaban prescribed is safe and effective in managing coagulation of covid19 and post covid-19 subjects.

Conclusion: This study confirms that the Rivaroxaban is desirable for subjects having coagulation during covid19 or post covid-19.

Keywords: case report · sneddon syndrome · cerebral venous sinus thrombosis · livedo reticularis rash

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Introduction

Coronavirus Disease 2019 (COVID-19), caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), has developed into a pandemic disease and affected nearly every country in the world. There is no comprehensive and strong clinical evidence to support the efficacy of any drugs that specifically target the SARS-CoV-2 [1].

Previous research has found that coagulopathy is very common in COVID-19 patients, and includes thrombosis and coagulation abnormalities and dysfunction such as an elevated D-dimer level and prolonged Prothrombin Time (PT), respectively [2].

Autopsy histopathologic analysis has identified widespread thrombosis and microangiopathy in small vessels and capillaries of the lung, which are different from the pathologies observed in respiratory failure caused by other diseases [3-8]. Some scholars have therefore proposed Anticoagulation (AC) treatment as an integral part of systemic therapy in the early stage of COVID-19 [9].

Generally, retrospective studies have suggested that AC may decrease mortality in COVID-19 patients However; these conclusions are not completely reliable nor applicable to all COVID-19 patients due to limitations in methodology such as no prospective control or matching cohort, large heterogeneity in anticoagulant therapy, and a lack of subgroup analysis [9-13].

Methodology

This study is an observational study and is proposed to be conducted for a duration of 6 months. Subjects includes who are visiting RVM Hospital, diagnosed with Covid 19, and are on treatment with rivaroxaban The study will be conducted at RVM hospital.A total of 100 samples will be taken for the study from the various departments of the hospital and inclusion criteria for the sample was subjects with covid symptoms are considered and subjects with D-Dimer more than 500 will be considered. Exclusion criteria for the study includes children under the age of fifteen years are not considered ,pregnant and lactating women are not considered. Data was collected throught the

patient profile forms from MDR and Wards. The Institutional Human Ethical Committee of GCPK approved the study.

Statistical analysis

Descriptive statistics presentation of data in Bar chart, Pie chart values are expressed as Frequency, percentage, mean, SD, and SE. Comparison of mean D DIMER value pre and post

group by using the paired Student t-test (**Figure 1-7**). In all analysis, P<0.05 was considered to be significant. All statistical analyses were performed using SPSS statistical software, version 22 (**TABLE 1-14**).

Discussion

A recently completed Randomized Controlled

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Research Article

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DESIGN AND CHARACTERIZATION OF GLIMEPIRIDE HYDROTROPIC SOLID DISPERSION TO ENHANCE THE SOLUBILITY AND DISSOLUTION

Devakmma Lakumalla*, Neeraja Podichety, Ravi Kumar Maddali

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Keywords
Solubility, Hydrotrophy, Hydrotropic solubilization, hydrotropic solid dispersion, Glimepiride tablets

ABSTRACT

Background: Glimepiride lowers blood sugar levels in the body, and treats type 2 diabetes mellitus. But the main problem with the drug is its low aqueous solubility. The primary purpose of this study is to increase its solubility in an aqueous medium by using amphiphilic hydrotropic agents instead of harmful, volatile organic solvents. **Methodology:** A solubility study of Glimepiride was carried out using various hydrotropic agents at 10%, 20%, 30%, and 40%. In mixed hydrography, 30% of the hydrotropic agents were chosen for making blends due to their highest solubility. The blend's solubility was raised more than 50 times at fixed concentrations of urea (20%) and sodium acetate (10%) in a mixed hydrotropic solution. The solubility of Glimepiride in distilled water is 0.0038 mg/ml; in 30% urea, 49.512 ug/ml; and in 30% sodium acetate, 40.43 ug/ml. The optimized blend prepared hydrotropic solid dispersions by physical mixing and solvent evaporation. It was evaluated for drug content, FTIR, SEM, X-ray diffraction, and in vitro drug release studies. Finally, the drug release profile of the prepared tablet is compared with an already available consumer product. **Result**: HSD-5 showed an in-vitro drug release of 84.77±0.44 at 90 min, which is higher than the remaining formulations, and no significant change was found in drug content or drug release after 15, 30, and 45 days of stability studies. Scanning electron microscopy (SEM) showed homogenous solid dispersion, crystallinity was determined using X-ray diffraction, and FTIR showed good drug compatibility with carriers. The drug release profile of the prepared tablet was higher than that of the available consumer product. **Conclusion:** This study revealed that hydrotropic agents can potentially increase glimepiride's solubility and drug release. This approach can effectively enhance the solubility of poorly water-soluble drugs.

INTRODUCTION

Oral administration is a very convenient and easy ingestion route for all solid dosage forms, but for various poorly soluble drugs, bioavailability is limited by the dissolution rate. This is the main problem in developing pharmaceutical dosage forms [1].

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RESEARCH ARTICLE

Design and Characterization of Hallow Porous Floating Microspheres of Favipiravir

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ABSTRACT

The present investigation deals with the design and characterization of favipiravir floating microspheres for gastro retentive drug delivery system by employing 3^2 factorial design and also to investigate the main effects of different independent variables on microspheres that float. The emulsion solvent diffusion method was used to manufacture floating microspheres with Eudragit S 100 as the polymer. These microspheres will extend the release of the medicine, reducing the frequency of administration and the harmful effects caused by fluctuations in plasma concentration with conventional dosage forms. The main effect of independent variables like polymer Eudragit S 100 concentrations (50, 100, 150 mg) and stirring time (1, 2 and 3 hours) on the performance of microspheres. Formulated microspheres were characterized for responses including drug release, particle size, and entrapment efficiency and floating time. Based on the results of the responses, the optimized composition was arrived using the response surface method graphical and numerical optimization method using design of experiments (DoE) software. Then, the optimized formulation (OFES) was prepared and evaluated for the four responses compared with predicted values to find the validity of the selected model. The optimized formulation was further analyzed for drug-excipient compatibility by fourier-transform infrared (FTIR), differential scanning calorimetry (DSC), and also analyzed by X-ray diffraction (XRD), scanning electron microscope (SEM) analysis. Further zeta potential and micrometric properties were also observed. The results for the formulation FES 1 to 9 found were, that particles size ranged from 0.192 to 0.277 µm, entrapment efficiency ranged from 68.65 ± 1.9 to 76.25 ± 3.2%, percentage drug release range was from 89.25 ± 0.24 to 93.68 ± 0 .25%, and floating time range was from 12 to 23 hours. As per the design, OFES an optimized formulation fitted with the concentration of Eudragit S 100 of 139.1 mg and stirring time of 1-hour. Regarding the kinetic release, the responses were best fitted with Higuchi model of R^2 value of 0.9795 with kinetic mechanism of non-fickian diffusion with R^2 value of 0.9499, indicating good linearity. The combination of different variables and their effects on responses were investigated well using factorial design, and an optimized formulation was developed for favipiravir.

Keywords: Floating microspheres, Favipiravir, Factorial design, DoE, Prolonged release, Eudragit S100.

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Conflict of interest: None

INTRODUCTION

Favipiravir is a pyrazine carboxamide derivative, a potent, prodrug, and antiviral agent, which is mostly widely used for the management of COVID-19 of SAR-CoV2, Ebola, polio, measles, and influenza virus.[1] Through endocytosis, the prodrug of favipiravir penetrates the infected cells and undergoes metabolism to become an active drug. Active favipiravir-RTP and viral replication selectively inhibit RNA polymerase and are prevented. Favipiravir-RTP is believed to interact with RNA-dependent RNA polymerase (RdRp) in a variety of ways. RNA polymerase is selectively active favipiravir-RTP inhibits, which also restricts the replication of viral genome.[2] The interaction of favipiravir-RTP with RNA-dependent RNA polymerase is discussed in a variety of theories.[3,4] Favipiravir is a Biopharmaceutical Classification System (BCS) Class II drug that is low-soluble and high-permeable. To overcome drawbacks of conventional dosage forms of Favipiravir like a short half-life as 2 to 5.5, fair absorption at the stomach and increased toxicities like liver dysfunction due to concentration fluctuations. So, to avoid all these limitations, drug is converted into a controlled delivery system by gastro retentive approach.[5] Gastroretentive dosage forms give us novel and significant therapeutic options that extend the gastric residence time. In last few decades,

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Apl 2024

39

A COMPREHENSIVE REVIEW ON PHARMACOGNOSTIC & PHYTOCHEMICAL EVALUATION OF BRYOPHYLLUM PINNATUM LEAVES

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ABSTRACT:

In the present study leaves of Bryophyllum Pinnatum were subjected to pharmacognostical studies bryophyllum is also commonly known as: Life Plant, Mother of Thousands of synonyms of Bryophyllum Pinnatum are Bryophyllum calycinum, Crassula pinnata belonging to the Crassulaceae family The geographical Source of perennial herb growing widely all over the world in tropical and Subtropical are areas including Africa, America, India, China, Australia, Asia, New Zealand, Philippines. The plant grows all over India in hot and moist areas, especially in Bengal And Uttarakhand. Chemical constituents of B. Pinnatum is rich in alkaloids, triterpenes, glycosides, flavonoids, cardenolides, steroids and lipids. The leaves contain a group of chemicals called bufadienolides Which are very active antibacterial extraction methods Soxhlet extraction, maceration, turbo extraction, cold maceration pharmacology activities of b. Pinnata anti-microbial, anti-cancer , anti hypersensitive, anti diabetic, immunosuppressive effect, hepatoprotective, wound healing, anti helminthic activity, neuroprotective activity.

KEYWORDS:

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Importance of a Yoga Course to Manage Hypoxia in Individuals

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Abstract: Yoga is an art, a science, and a philosophy that was developed in India over 5000 years ago but now draws on a variety of spiritual precepts, practices, and ideas. An evaluation of the current yoga course revealed that, out of the more than 60 yogic activities, 16 and 17 were found to increase oxygen saturation and improve lung capacity, while 19 were determined to be helpful in both areas. The current study is a useful module for treating people with respiratory issues and hypoxia. However, more study is required to determine the viability and effectiveness of the module.

Keywords: Yoga therapy, Asanas, Lung capacity, Hypoxia

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Introduction

Yoga, which has its roots in Indian philosophy and spirituality, is regarded as a method for reaching the unity of the mind, body, and spirit (Feuerstein, 1998). Nonetheless, regardless of style, yoga incorporates particular physical postures (asana), breathing methods (pranayama), meditation techniques (dhyana), and philosophy. Yoga has gained popularity as a discipline that improves wellbeing and is used to prevent and treat medical issues. Yoga is a holistic practice that is easily modified to fit each person's unique physical needs and has the potential to be used as a therapeutic intervention. The specifics of how a yoga practice (and all of its interconnected parts) affects one's health are still being investigated (Raub, 2002).

Yoga is an art, a science, and a philosophy that draws from a collection of spiritual principles, precepts, and practices that were created in India some 5000 years ago. It is a sophisticated intervention that combines physical exercise, breathing exercises, meditation, and theoretical underpinnings that could affect attitudes, beliefs, and interpersonal interactions (McCall *et al.*, 2013). Yogic practice has becoming increasingly popular all over the world (Cramer *et al.*, 2016).

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EVALUATION OF ANTI-INFLAMMATORY AND ANALGESIC ACTIVITY OFAQUEOUS AND ALCOHOLIC EXTRACTS OF LEAVES OF *Epipremnum aureum.linn* IN RATS

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ABSTRACT

Background: *Epipremnum aureum* (Family Araceae) commonly known as Money plant is a vigorously growing in India. It is a common indoor plant generally used for ornamental purposes having indoor air pollution removing capacity. The preliminary phytochemical studies of the aqueous and alcoholic extracts of the leaves showed the presence of various phytochemical constituents such as alkaloids, tannins, flavonoids, triterpenoids, and saponins. **Aims and Objectives:** The aim of the present study was carried out with the objective of phytochemical screening and to evaluate the anti-inflammatory and analgesic of aqueous and alcoholic extract of *E.aureum* in albino rats. **Materials and Methods:** Albino Wistar rats (100–150 g body weight) were used in this study. Aqueous and alcoholic extract of *Epipremnum aureum* was used to evaluate acute anti-inflammatory and analgesic activity by plethysmometer and hot plate method by oral administration at doses of 200 mg/kg body weight in healthy albino rats. **Results:** In acute studies, the aqueous and alcoholic extract showed anti-inflammatory activity by significant reduction in the paw edema volume, and significantly increased the latency of paw licking in hot plate method in a dose-dependent manner when compared with the control and standard drug. Statistical analysis was carried out by one-way ANOVA test. **Conclusion:** Thus, the positive results suggest that *Epipremnum aureum* extracts should be further studied to determine the bioactive chemical compounds as well as to understand the possible mechanism of action and evaluate their toxicity looking towards pharmaceutical actions.

KEY WORDS: *Epipremnum aureum*, Anti-inflammatory; Analgesic; Carrageenan -induced Paw Edema, Hot plate.

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Original Article

Development and Validation of an HPLC Method for the Determination of Lobeglitazone in Bulk and in Tablet Formulation

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ABSTRACT

Objectives: A straightforward, accurate, and precise reverse-phase high-performance liquid chromatography method was developed to determine the quantity of Lobeglitazone in both bulk and pharmaceutical dosage forms. **Materials and Methods:** The chromatographic separation was achieved on a Phenomenex Luna column with dimensions of 250 cm×4.6 mm×5 µm, and the mobile phase was a combination of potassium dihydrogen orthophosphate and acetonitrile in a 70:30 V/V ratio with a pH of 4.0, adjusted using orthophosphoric acid. The flow rate was set at 1.0 mL/min, and detection of the effluents occurred at 250 nm. **Results:** The retention time for Lobeglitazone was determined to be 2.157 min. The drug exhibited linearity within the concentration range of 10-60 µg/mL, the correlation coefficient was established to be 0.9996. The LOD, LOQ were found to be 0.8 µg/mL and 2.5 µg/mL. The accuracy of the method was considered satisfactory and the mean recovery percentage is found to be in the acceptable range of 99.78-101.31%. **Conclusion:** The HPLC method was successfully developed, validated as per ICH guidelines. The proposed method was simple, precise, sensitive, rapid, robust for the estimation of Lobeglitazone in both bulk and tablet dosage forms.

Keywords: Lobeglitazone, Method development, Validation, RP-HPLC.

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INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is a chronic, progressive metabolic disorder. It has long-term effects on the body, characterised by insulin resistance and β-cell dysfunction.[1] T2DM is a complex and multifactorial disease involving a number of underlying mechanisms. As a result, there are multiple approaches available to manage the condition.[2] There are several classes of Oral Anti-Diabetic agents (OADs) available, but the Thiazolidinedione (TZD) class stands out because it primarily targets insulin resistance.[2] The TZDs improve insulin sensitization and enhance glucose and lipid metabolism by activating the proliferator-activated receptor γ (PPARγ).[3] In type 2 diabetes, rosiglitazone and pioglitazone are the most commonly used drugs for better glycemic control by promoting insulin sensitivity. Due to cardiovascular and bladder cancer risks, their use has declined in recent years.[4] The newly developed thiazolidinedione "lobeglitazone" (Chong Kun Dang Pharmaceutical Corporation, Seoul, Korea) provides a safer and more effective alternative to existing TZDs.[5] It works similarly to pioglitazone on glycemic control but requires lower doses. Furthermore, clinical studies have indicated positive results in terms of safety, addressing some of the concerns associated with other TZDs. Since July 2013, it has been used in Korea as a treatment for T2D due to its pleiotropic effects in pre-clinical and clinical studies.[6,7] As a pharmacophore, lobeglitazone consists of a 2,4-thiazolidinedione group bound to an ethoxy-benzyl N-methylamino group (Figure 1). Its structural formula is $C_{24}H_{24}N_4O_5S$, and the chemical name is 5-[4-(2-{[6-(4-Methoxy-phenoxy)-pyrimidin-4-yl]-methyl-amino}-ethoxy)-benzyl]-thiazolidine-2,4-dione hydrosulphuric acid.[8]

Lobeglitazone tablets are available on the market under the brand name Lobg (Glenmark Pharmaceuticals Ltd.). Jong-Hwa Lee *et al.* developed a validated assay using liquid chromatography and tandem mass spectrometry to perform pharmacokinetic studies of Lobeglitazone in rats.[9] Gulhane *et al.*, developed a bioanalytical method for the estimation of Lobeglitazone in human plasma.[10] The literature survey indicates that other than a few bioanalytical methods, no method has been reported so far for estimating Lobeglitazone in pharmaceutical dosage forms.

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KEY WORDS: *Epipremnum aureum*, Anti-inflammatory; Analgesic; Carrageenan -induced Paw Edema, Hot plate.

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A REVIEW ON ROLE OF BIOMASS IN PRODUCTION OF GLOBAL RENEWABLE BIOENERGY

O EVALUARE A ROLULUI BIOMASEI ÎN PRODUCȚIA DE BIOENERGIE REGENERABILĂ LA NIVEL MONDIAL

Neeraja Podichety[*1], Rani Sadula[1], Sivakumar Ramaiah[21]

Abstract: *Global energy demand is growing rapidly. Biomass for energy can play a pivotal role. Energy from biomass can decrease greenhouse gas emissions. Biomass is a solid, non-hazardous cellulosic material made from plant material farmed for fuel, solid wood and agricultural waste. This review outlines different types of biomass used for bioenergy production. It includes the classification, roles and recent studies of biofuels. The role of bioenergy in agricultural sector, as wastewater is an abundant supply of microorganism nutrients; its role in producing bioenergy is discussed. The efficiency of water for development, global scenario of biofuels is discussed in this review.*

Key words: *Bio diesel, Bioenergy, Biofuels, Biomass, Lignocellulose and Waste water*

Rezumat: *Cererea globală de energie crește rapid. Biomasa pentru energie poate juca un rol esențial. Energia din biomasă poate reduce emisiile de gaze cu efect de seră. Biomasa este un material celulozic solid, nepericulos, obținut din material vegetal cultivat pentru combustibil, lemn masiv și deșeuri agricole. Această analiză prezintă diferite tipuri de biomasă utilizate pentru producerea de bioenergie. Include clasificarea, rolurile și studiile recente ale biocombustibililor. Rolul bioenergiei în sectorul agricol, întrucât apele uzate reprezintă o sursă abundentă de nutrienți pentru microorganisme; se discută rolul său în producerea de bioenergie. Eficiența apei pentru dezvoltare, scenariul global al biocombustibililor este discutată în această revizuire.*

Cuvinte cheie: Biomotorină, Bioenergie, Biocombustibili, Biomasă, Lignoceluloză și Ape uzate

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Nueroprotective and Antioxidant Potential of Methanolic and Aqueous Peel Extract of Citrus Sinesis on B-Amyloid Induced Alzheimers in Mice

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Abstract: ***This study delves into the intricate pathophysiology of alzheimers disease AD, a leading neurodegenerative disorder characterized by significant neuronal loss and cognitive decline, primarily attributed to oxidative stress. Tracing its roots back to Alois alzheimers discovery in 1906, the research the β-amyloid hypothesis, positing that the accumulation of amyloid plaques plays a pivotal role in AD pathogenesis. These plaques, resulting from the abnormal cleavage of amyloid precursor protein APP, alongside hyperphosphorylated tau proteins, disrupt neuronal function and communication, leading to neurodegeneration and dementia. The paper further investigates the potential therapeutic effects of citrus sinensis peel extract, employing an experimental model to amyloid -induced neurotoxicity. Through a comprehensive analysis involving behavioral and biochemical assessments, including acetylcholinesterase and glutathione estimation, the study aims to elucidate the neuroprotective properties of the extract against AD pathology. This research contributes to the ongoing exploration of natural compounds in migrating alzheimers diseases devastating impact, offering insights into novel treatment avenues grounded in the intricate mechanisms underlying neurodegeneration.***

Keywords: citrus sinesis, extraction. DTNB, Anova, GSH

1. Introduction

Alzheimers disease is the one of the neurodegenerative diseases characterized by the loss of neurons and amnesia, intellectual ability. Oxidative stress is one of the reason for Alzheimer's disease. Alzheimer's disease was discovered in 1906 by Alois Alzheimers, a German neurologist and psychiatrist. The disease was initially observed in a 50- year old women named Auguste D. her family brought her to Dr. Alzheimer in 1901 after noticing changes in her personality and behaviour. The family reported problems with memory, difficulty speaking, and impaired comprehension. Dr. Alzheimer later described Auguste as having an aggressive form of dementia, manifesting in memory, language and behavioural deficits.

Neuropathology of Alzheimer's Disease

Amyloid Hypothesis:
Pathophysiology of AD, debate goes back to the Alzheimer's time 1907 when he observed the neuropathological features of the disease i.e. amyloid plaques and hyperphosphorylated NFTs. β-amyloid plaques are thought to play the central role in AD pathogenesis.

β-amyloid plaques are clumps of insoluble peptides that result from the abnormal cleavage amyloid precursor protein (APP),
the exact function of which is unknown. APP is normally cleaved by 3 enzymes; β-secretase, γ-secretase and α secretase. Cleavage by β-secretase, followed by γ-secretase, yield a soluble 40 amino acid peptide. In AD, a variant form of the γ-secretase cleaves APP at an incorrect place, creating a 42 amino acid peptide called Aβ42 or Aβ, which not soluble and aggregate into identifiable clumps termed as β-amyloid plaques, α- secretase actually serves a protective function as it cleaves APP at a site that prevents Aβ formation.

Genetic studies of AD support role of γ-amyloid plaques and β-secretase in AD pathogenesis. 3 genes have been identified in familial AD (APP, PS1 [presenilin 1], and PS2) and all are known to be involved with formation of Aβ. APP is the gene that codes for APP and is located on chromosome 21. Interestingly, people with Down's syndrome ultimately develop AD at younger age than the general population (Selkoe, 2005). During the AD pathogenesis, tau proteins become hyperphosphorylated, disturbing their bonds to microtubules, thus collapsing microtubule structure and destroying the neurons transport and communication system. Neuronal cell death ensues. Although the causal relationship unclear, hyperphosphorylation of tau is thought to occur after plaques formation.

- β-amyloid is a fragment from a larger protein called