Tel: 0866-2479775

Kommareddy Venkata Sadasiva Rao
Siddhartha College of Pharmaceutical Sciences
Siddhartha Nagar, Vijayawada - 520010, AP, INDIA
(Sponsors : Siddhartha Academy of General & Technical Education)
ISO 9001:2015, ISO 14001:2015 & ISO 50001:2011 CERTIFIED INSTITUTION
Affiliated to Krishna University, Machilipatnam
Approved by AICTE, PCI, New Delhi and Govt. of Andhra Pradesh

E-mail :kvsrsiddharthapharma@gmail.com Web: www.kvsrsiddharthapharma.edu.in

RESEARCH PUBLICATIONS -2022

S.No	Faculty name	Title of the paper	Name of the journal	It is listed in UGC, SCOPUS, WEB OF SCIENCE	Link to abstract	Article count year wise
1.	B.Anupama, N. L Sudeepthi	Investigation of Wrightia tinctoria extract activity on Alopecia using In-Silco and In-Vivo studies	Research Journal of Pharmacy and Technology	Scopus preview – Scopus - Research Journal of Pharmacy and Technology	https://doi.org/10.52711/0974-3160X.2022.00106	2
2.	B. Anupama, K.Chenchulakshmi	Design, In Silico Study, Synthesis and In Vitro Evaluation of Some N5-(1h-Pyrazol-3-Yl)-3h-Benzo[D]Imidazole-2,5diamine Derivatives as Potential Pancreatic Lipase Inhibitors for Anti-Obesity Activity	European Review for Medical and Pharmacological Sciences	Web of Science Master Journal List - Journal Profile (clarivate.com)	Design, in silico study, synthesis and in vitro evaluation of some N5-(1H-pyrazol-3-yl)-3H-benzo[d]imidazole-2,5-diamine derivatives as potential pancreatic lipase inhibitors for anti-obesity activity – DOAJ	2
3.	Siva Reddy Challa	Therapeutic Efficacy of Matrix Metalloproteinase-12 Suppression on Neurological Recovery after Ischemic Stroke: Optimal Treatment Timing and Duration	Frontiers in Neuro Science	Scopus preview - Scopus - Frontiers in Neuroscience	https://doi.org/10.3389/fnins.2022.1012812	1
4.	Siva Reddy Challa	The Interplay between Mmp-12 and T-Pa in the Brain after Ischemic Stroke	Neuro Chemistry International	Scopus preview - Scopus - Neurochemistry International	https://www.sciencedirect.com/science/article/abs/pii/S0197018622001619?via%3Dihub	1
5.	Ravi Shankar Kunderu	Development and Characterization of Lansoprazole Fast Dissolving Tablets	High Technology Letters	Scopus preview - Scopus - High Technology Letters	https://drive.google.com/file/d/1C1v6pTq-j5vr_UkvzOXxjIqo43sNpBUk/view	1
6.	VijayaLakshmi, Marella, A. Suneetha	A Novel and Robust Analyticaltechnique for Determining Covid-19 Medications used in Emergencies	NeuroQuantology	Scopus preview - Scopus - NeuroQuantology	https://acrobat.adobe.com/link/review?uri=urn:aaid:scds:US:6e97bf8a-628a-3fbf-ba29-31d6ca5234e3	2
7.	Naveen Babu.K	Therapeutic Potential of Quercetin for the Prevention of Various Drugs and Chemicals-Induced Nephrotoxicity: A Review	Annals of Phytomedicine	Web of Science Master Journal List - Journal Profile (clarivate.com)	DOI: 10.54085/ap.2022.11.2.5	1

PRINCIPAL
K.V.S.R.SIDDHARTHA COLLEGE OF
PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010.

Tel: 0866-2479775

Kommareddy Venkata Sadasiva Rao
Siddhartha College of Pharmaceutical Sciences
Siddhartha Nagar, Vijayawada - 520010, AP, INDIA
(Sponsors : Siddhartha Academy of General & Technical Education)
ISO 9001:2015, ISO 14001:2015 & ISO 50001:2011 CERTIFIED INSTITUTION
Affiliated to Krishna University, Machilipatnam
Approved by AICTE, PCI, New Delhi and Govt. of Andhra Pradesh

E-mail :kvsrsiddharthapharma@gmail.com Web: www.kvsrsiddharthapharma.edu.in

8.	Naveen Babu.K	Effect of Herbal Bioenhancer (naringenin) on the Pharmacokinetics of Diltiazem in Rats via CYP3A4 and P-Glycoprotein Inhibition	Annals of Phytomedicine	Web of Science Master Journal List - Journal Profile (clarivate.com)	http://dx.doi.org/10.54085/ap.2022.11.2.0	1
9.	G.Ramana Reddy	Study on Influence of Process Parameters on Quality of Lovastatin Microspheres by Design of Experiments	Journal of Pharmaceutical Negative Results	Scopus preview - Scopus - Journal of Pharmaceutical Negative Results	10.47750/pnr.2022.13.S07.246	1
10.	Ravi Shankar Kunderu, G. Ramana Reddy	Effect of Combination Superdisintegrants on the Drug Delivery of Lansoprazole	Journal of Xidian University	Scopus preview - Scopus - Xi'an DianziKejiDaxue Xuebao/Journal of Xidian University	https://doi.org/10.37896/jxu16.9/006	2
11.	DSNBK Prasanth	Interlinked Role of ASN, TDP-43 and Miro1 with Parkinopathy: Focus on Targeted Approach Against Neuropathy in Parkinsonism	Ageing Research Reviews	Web of Science Master Journal List - Search (clarivate.com)	https://doi.org/10.1016/j.arr.2022.101783	1
12.	DSNBK Prasanth	Neuroinflammation and Neovascularization in Diabetic Eye Diseases (Deds): Identification of Potential Pharmacotherapeutic Targets	Molecular Biology Reports	Web of Science Master Journal List - Search (clarivate.com)	https://doi.org/10.1007/s11033-022-08113-6	1
13.	DSNBK Prasanth	Development and Validation of a Novel Bioanalytical Method for the Simultaneous Determination of Glecaprevir and Pibrentasvir in Human Plasma using Reversed-Phase High-Performance Liquid Chromatography	Egyptian Pharmaceutical Journal	Web of Science Master Journal List - Search (clarivate.com)	10.4103/epj.epj_47_22	1
14.	DSNBK Prasanth	Evaluation of the Thrombolytic and Antioxidant Activity of Leaf Extracts of Plumbagozeylanica L.	Indian Journal of Pharmaceutical Education and Research	Web of Science Master Journal List - Search (clarivate.com)	10.5530/ijper.56.4.200	1
15.	DSNBK Prasanth, A.Suneetha	In Silico Screening of Plant-Derived Anti-virals from Shoreahemsleyana (King) King ex Foxw Against SARS CoV-2 Main Protease	Chemistry Africa	Web of Science Master Journal List - Search (clarivate.com)	https://doi.org/10.1007/s42250-022-00521-2	2

PRINCIPAL
K.V.S.R.SIDDHARTHA COLLEGE OF
PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010

Tel: 0866-2479775

Kommareddy Venkata Sadasiva Rao
Siddhartha College of Pharmaceutical Sciences
Siddhartha Nagar, Vijayawada - 520010, AP, INDIA
(Sponsors : Siddhartha Academy of General & Technical Education)
ISO 9001:2015, ISO 14001:2015 & ISO 50001:2011 CERTIFIED INSTITUTION
Affiliated to Krishna University, Machilipatnam
Approved by AICTE, PCI, New Delhi and Govt. of Andhra Pradesh

E-mail :kvsrsiddharthapharma@gmail.com Web: www.kvsrsiddharthapharma.edu.in

16.	Naveen Babu.Kilaru, Kanaka durgadevi	Evaluation of Current Prescribing Practices – A Method to Reduce the Cost of Therapy	Journal of Pharmaceutical Negative Results	Scopus preview - Scopus - Journal of Pharmaceutical Negative Results	EVALUATION OF CURRENT PRESCRIBING PRACTICES – A METHOD TO REDUCE THE COST OF THERAPY | Journal of Pharmaceutical Negative Results (pnrjournal.com)	2
17.	DevalaRao G& IswaryaObilineni	Production of Naringinase by using Amla on Solid State Fermentation	Research journal of pharmacy and technology	Scopus preview - Scopus - Research Journal of Pharmacy and Technology	DOI: 10.52711/0974-360X.2022.00204	2
18.	Kanaka durgadevi	Evaluation of Invitro and Invivo Anti- Oxidant and Anti-Inflammatory Activities of New IsatinDervatives	Chinese journal of medical Genetics	Scopus preview - Scopus - Chinese Journal of Medical Genetics	EVALUATION OF INVITRO AND INVIVO ANTI- OXIDANT AND ANTI- INLAMMATORY ACTIVITIES OF NEW ISATIN DERVATIVES | Chinese Journal of Medical Genetics (zhyxycx.life)	1
19.	Ravi Shankar Kunderu	Prescription Analysis in Patients with COPD and Asthma, as well as to Determine the Prevalence and Incidence of COPD in Smokers and Non-Smokers	NeuoQuantology	Scopus preview - Scopus - NeuroQuantology	doi:10.14704/nq.2022.20.10.NQ55783 Prescription Analysis in patients with COPD and Asthma, as well as to determine the Prevalence and Incidence of COPD in smokers and Non-smokers (neuroquantology.com)	1
20.	A. Bharathi	Full Factorial Designs for Formulation and Evaluation of Non-Steroidal Anti – Inflammatory Drug	International Journal of Drug Delivery Technology	Scopus preview - Scopus - International Journal of Drug Delivery Technology	IJDDT,Vol12,Issue1,Article1.pdf (impactfactor.org)	1
21.	Kanaka Durga Devi	Effect of AegleMarmelos Leaf Extract on Glucose Uptake Using Isolated Rat Diaphragm	Journal of Pharmaceutical Negative Results	Scopus preview - Scopus - Journal of Pharmaceutical Negative Results	DOI: 10.47750/pnr.2022.13.S01.47 View of EFFECT OF AEGLE MARMELOS LEAF EXTRACT ON GLUCOSE UPTAKE USING ISOLATED RAT DIAPHRAGM (pnrjournal.com)	1
22.	Kanaka durgadevi	In Silico Multi-Epitope Bunyumwera Virus Vaccine to Target Virus Nucleocapsid N Protein	Journal of Genetic Engineering and biotechnology	Scopus preview - Scopus - Journal of Genetic Engineering and Biotechnology	https://link.springer.com/content/pdf/10.1186/s43141-022-00355-y.pdf?pdf=button sticky	1

PRINCIPAL
K.V.S.R.SIDDHARTHA COLLEGE OF PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010

Tel: 0866-2479775

Kommareddy Venkata Sadasiva Rao

Siddhartha College of Pharmaceutical Sciences

Siddhartha Nagar, Vijayawada - 520010, AP, INDIA

(Sponsors : Siddhartha Academy of General & Technical Education)

ISO 9001:2015, ISO 14001:2015 & ISO 50001:2011 CERTIFIED INSTITUTION

Affiliated to Krishna University, Machilipatnam

Approved by AICTE, PCI, New Delhi and Govt. of Andhra Pradesh

E-mail :kvsrsiddharthapharma@gmail.com Web: www.kvsrsiddharthapharma.edu.in

23.	IswaryaObilineni	Evaluation of Antihyperlipidemic activity of leaves of Cassia Tora	Research Journal of Pharmacy and Technology	Scopus preview - Scopus - Research Journal of Pharmacy and	10.52711/0974-360X.2022.00123	1
24.	Mandavamahima	Association Between Cardiovascular Events and Risk-Factors in Patients with Type-2 Diabetes Mellitus	Positif Journal	Scopus preview - Scopus - Positif	https://doi.org/10.37896/psj30.6/1024	1
25.	Kanaka Durga Devi, K Naveen Babu	Cost Analysis of Extensively used Antibiotics	NeuoQuantology	Scopus preview - Scopus - NeuroQuantology	10.14704/nq.2022.20.10.NQ55988	2
26.	Kanaka Durga Devi	A Prospective Observational Study on Drug Combination Therapy in the Treatment of Diabetis: Focus to Achieve a Better Glycemic Control	NeuoQuantology	Scopus preview - Scopus - NeuroQuantology	10.14704/nq.2022.20.10.NQ55989	1
27.	Kanaka Durga Devi	Development and Evaluation of a Bioactive Synbiotic Edible Films	NeuoQuantology	Scopus preview - Scopus - NeuroQuantology	doi:10.14704/nq.2022.20.10.NQ55914	1
28.	D.S.N.B.K Prasanth	Inhibitory Effects of Mixed Flavonoid Supplements on Unraveled DSS- Induced Ulcerative Colitis and Arthritis	Bioimpacts	Web of Science Master Journal List - Search (clarivate.com)	10.34172/bi.2022.23523	1
29.	Kanaka Durga Devi	COVID 19: A New Insight Into Organ Failure and Complications Caused by Novel SARS-Cov-2 Virus and Discussion on the Role of Nanotechnology in Detection, Treatment and Prevention of the Disease	Current Trends in Biotechnology and Pharmacy	Scopus preview - Scopus - Current Trends in Biotechnology and Pharmacy	COVID 19: A New Insight Into Organ Failure and Compli-Cations Caused by Novel SARS-CoV-2 Virus and Discussion on the Role of Nanotechnology in Detection, Treatment and Prevention of the Disease | Current Trends in Biotechnology and Pharmacy (abap.co.in)\	1

Siddhartha College of Pharmaceutical Sciences VIJAYAWADA 520 010 K.V.S.R.

PRINCIPAL

PRINCIPAL
K.V.S.R.SIDDHARTHA COLLEGE OF PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010

RJPT
Research Journal of Pharmacy and Technology

Research Journal of Pharmacy and Technology

ISSN

0974-360X (Online)
0974-3618 (Print)

Investigation of Wrightia tinctoria extract activity on Alopecia using In-silco and In-vivo studies (AbstractView.aspx?PID=2022-15-2-26)

(https://scholar.google.co.in/scholar?q=Investigation of Wrightia tinctoria extract activity on Alopecia using In-silco and In-vivo studies)

Author(s): K. Sruthi (search.aspx?key=K. Sruthi), B. Anupama (search.aspx?key=B. Anupama), N.L. Sudeepthi (search.aspx?key=N.L. Sudeepthi), P. Gopi Krishna (search.aspx?key=P. Gopi Krishna), Abdul Kareem (search.aspx?key=Abdul Kareem), Mohammad Habeeb (search.aspx?key=Mohammad Habeeb)

Email(s): sruthidms68@gmail.com (mailto:sruthidms68@gmail.com)

DOI: 10.52711/0974-360X.2022.00106 (https://doi.org/10.52711/0974-360X.2022.00106)
(https://scholar.google.co.in/scholar?q=10.52711/0974-360X.2022.00106)

Address: K. Sruthi1*, B. Anupama2, N.L. Sudeepthi2, P. Gopi Krishna2, Abdul Kareem2, Mohammad Habeeb3
1Department of Pharmaceutical Chemistry, Vijaya Institute of Pharmaceutical Sciences for Women, Vijayawada, Andhra Pradesh, India.
2Department of Pharmaceutical Chemistry, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.

EUROPEAN REVIEW FOR MEDICAL AND PHARMACOLOGICAL SCIENCES (OCT 2022)

Design, in silico study, synthesis and in vitro evaluation of some N5-(1H-pyrazol-3-yl)-3H-benzo[d]imidazole-2,5-diamine derivatives as potential pancreatic lipase inhibitors for anti-obesity activity

A. Unnisa, B. Huwaimel, S. Almahmoud, A.S. Abouzied, K.M. Younes, B. Anupama, P.K. Kola, N.V.K.C. Lakshmi

AFFILIATIONS +

Journal volume & issue
Vol. 26

Abstract

READ ONLINE

OBJECTIVE: The aim of the study is to design N5-(1H-pyrazol-3-yl)-3H-benzo[d]imidazole-2,5-diamine derivatives and evaluate its anti-obesity activity. MATERIALS AND METHODS: A few pyrazole-fused benzimidazole derivatives were designed as potential Pancreatic Lipase (PL) inhibitors. The designed N5-(1H-pyrazol-3-yl)-3H-benzo[d]imidazole-2,5-diamine derivatives have been screened using the Lipinski rule of five, ADMET analysis, acute toxicity prediction, and molecular docking. Later on, the derivatives which possess the most drug-likeness properties and displayed the most

frontiers | Frontiers in Neuroscience

TYPE Original Research
PUBLISHED 04 October 2022
DOI 10.3389/fnins.2022.1012812

OPEN ACCESS

EDITED BY
Ashok Kumar,
University of Florida, United States

REVIEWED BY
Kathiresh Kumar,
Texas A&M University, United States
Jiao Deng,
Fourth Military Medical University, China
Aditya Panta,
University of Maryland, Baltimore, United States

*CORRESPONDENCE
Krishna Kumar Veeravalli
krishnav@uic.edu

†These authors have contributed equally to this work and share first authorship

SPECIALTY SECTION
This article was submitted to Neuropharmacology, a section of the journal Frontiers in Neuroscience

RECEIVED 05 August 2022
ACCEPTED 02 September 2022
PUBLISHED 04 October 2022

CITATION
Challa SR, Nalamolu KR, Fornal CA, Wang BC, Martin RC, Olson EA, Ujjainwala AL, Pinson DM, Klopfenstein JD and Veeravalli KK (2022) Therapeutic efficacy of matrix metalloproteinase-12 suppression on neurological recovery after ischemic stroke: Optimal treatment timing and duration.
Front. Neurosci. 16:1012812.
doi: 10.3389/fnins.2022.1012812

Therapeutic efficacy of matrix metalloproteinase-12 suppression on neurological recovery after ischemic stroke: Optimal treatment timing and duration

Siva Reddy Challa[1,2†], Koteswara Rao Nalamolu[1†], Casimir A. Fornal[1], Billy C. Wang[1,3,4], Ryan C. Martin[1], Elsa A. Olson[1], Ammar L. Ujjainwala[1], David M. Pinson[5], Jeffrey D. Klopfenstein[1,6,7] and Krishna Kumar Veeravalli[1,3,6,8*]

[1]Department of Cancer Biology and Pharmacology, University of Illinois College of Medicine at Peoria, Peoria, IL, United States, [2]Department of Pharmacology, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, India, [3]Department of Pediatrics, University of Illinois College of Medicine at Peoria, Peoria, IL, United States, [4]Children's Hospital of Illinois, OSF HealthCare Saint Francis Medical Center, Peoria, IL, United States, [5]Department of Health Sciences Education and Pathology, University of Illinois College of Medicine at Peoria, Peoria, IL, United States, [6]Department of Neurosurgery, University of Illinois College of Medicine at Peoria, Peoria, IL, United States, [7]OSF HealthCare Saint Francis Medical Center, Illinois Neurological Institute, Peoria, IL, United States, [8]Department of Neurology, University of Illinois College of Medicine at Peoria, Peoria, IL, United States

We recently showed that the post-ischemic induction of matrix metalloproteinase-12 (MMP-12) in the brain degrades tight junction proteins, increases MMP-9 and TNFα expression, and contributes to the blood-brain barrier (BBB) disruption, apoptosis, demyelination, and infarct volume development. The objectives of this study were to (1) determine the effect of MMP-12 suppression by shRNA-mediated gene silencing on neurological/functional recovery, (2) establish the optimal timing of MMP-12shRNA treatment that provides maximum therapeutic benefit, (3) compare the effectiveness of acute versus chronic MMP-12 suppression, and (4) evaluate potential sex-related differences in treatment outcomes. Young male and female Sprague-Dawley rats were subjected to transient middle cerebral artery occlusion and reperfusion. Cohorts of rats were administered either MMP-12shRNA or scrambled shRNA sequence (control) expressing plasmids (1 mg/kg; i.v.) formulated as nanoparticles. At designated time points after reperfusion, rats from various groups were subjected to a battery of neurological tests to assess their reflex, balance, sensory, and motor functions. Suppression of MMP-12 promoted the neurological recovery of stroke-induced male and female rats, although the effect was less apparent in females. Immediate treatment after reperfusion resulted in a better recovery

ScienceDirect

Neurochemistry International

Volume 161, December 2022, 105436

The interplay between MMP-12 and t-PA in the brain after ischemic stroke

Siva Reddy Challa [a b 1], Koteswara Rao Nalamolu [a 1], Casimir A. Fornal [a], Adithya Mohandass [a], Justin P. Mussman [a], Claire Schaibley [a], Aanan Kashyap [a], Vinay Sama [a], Billy C. Wang [a c d], Jeffrey D. Klopfenstein [a e f], David M. Pinson [g], Adinarayana Kunamneni [h], Krishna Kumar Veeravalli [a c e i]

Show more

https://doi.org/10.1016/j.neuint.2022.105436

Get rights and content

Abstract

Tissue-type plasminogen activator (t-PA) expression is known to increase following transient focal cerebral ischemia and reperfusion. Previously, we reported downregulation of t-PA upon suppression of matrix metalloproteinase-12 (MMP-12), following transient focal cerebral ischemia and reperfusion. We now present data on the temporal expression of t-PA in the brain after transient ischemia, as well as the interaction between MMP-12 and t-PA, two proteases associated with the breakdown of the blood-brain barrier (BBB) and ischemic brain damage. We hypothesized that there might be reciprocal interactions between MMP-12 and t-PA in the brain after ischemic stroke. This hypothesis was tested using shRNA-mediated gene silencing and computational modeling. Suppression of t-PA following transient ischemia and reperfusion in rats attenuated MMP-12 expression in the brain. The overall effect of t-PA shRNA administration was to attenuate the degradation of BBB tight junction protein claudin-5, diminish BBB disruption, and reduce neuroinflammation by decreasing the expression of the microglia/macrophage pro-inflammatory M1 phenotype (CD68, iNOS, IL-1β, and TNFα). Reduced BBB disruption and subsequent lack of infiltration of macrophages (the main source of MMP-12 in the ischemic brain) could account for the decrease in MMP-12 expression after t-PA suppression. Computational modeling of *in silico* protein-protein interactions indicated that MMP-12 and t-PA may interact physically. Overall, our findings demonstrate that MMP-12 and t-PA interact directly or indirectly at multiple levels in the brain following an ischemic stroke. The present findings could be useful in the development of new pharmacotherapies for the treatment of stroke.

Introduction

Worldwide, stroke remains the leading cause of death and disability. Ischemic stroke, which occurs due to the occlusion of cerebral blood arteries, accounts for about 87% of all strokes (Virani et al., 2020). The two FDA-approved recanalization treatments, endovascular thrombectomy and thrombolysis drug therapy with

Development and Characterization of Lansoprazole Fast Dissolving Tablets

RAVI SHANKAR KUNDERU [1*], RAGHAVENDRA KUMAR GUNDA[2*],ANUSHA RAVULAPATI[1], A. ANKA RAO [3], M. PRATHAP [4]

[1] Department of Pharmaceutics, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India - 520010.
[2] Department of Pharmaceutics, Narasaraopeta Institute of Pharmaceutical Sciences, Yellamanda (V), Narasaraopet, Palanadu (Dt), Andhra Pradesh, India-522601.
[3] Department of Pharmaceutics, KL College of Pharmacy, KoneruLakshmaiah Education Foundation, Vaddeswaram, Andhra Pradesh, India - 522502.
[4] Faculty of Pharmacy, Amity Institute of Pharmacy, Amity University, Gwalior, Madhya Pradesh, India-474005.

Running Title: Formulation and Evaluation of Oral Disintegrating Tablets for Lansoprazole

Address for Correspondence:

1. Dr. Ravi Shankar Kunderu M.Pharm.,Ph.D
Assistant Professor, Department of Pharmaceutics,
KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada,
Andhra Pradesh, India - 520010.

2. Dr. Raghavendra Kumar Gunda M.Pharm., PhD., FCEM.,
Associate Professor, Department of Pharmaceutics,
Narasaraopeta Institute of Pharmaceutical Sciences, Narasaraopet,
Palanadu(Dt), Andhra Pradesh, India - 522601.

Abstract

Objective: The purpose of presentinvestigation to formulate, characterize the fast dissolving tablets (FDT) for Lansoprazole. Lansoprazole,a proton pump inhibitor.It mainly used for the effective management of peptic ulcer. It is having very low solubility in GI fluid, which results in to poor bioavailability after oral administration. So there is a strong need to formulateLansoprazole Solid Dispersion. Where there is in imbalance between mucus layer and acid secretion it causes ulceration.In this condition, quick actions are required. Hence need to formulate suitable dosage forms likemouth dissolving/disintegrating tablet, to achieve reliable bioavailability and enhance patient compliance.

A NOVEL AND ROBUST ANALYTICAL TECHNIQUE FOR DETERMINING COVID-19 MEDICATIONS USED IN EMERGENCIES

VIJAYA LAKSHMI MARELLA*, VASANTHI MANDAPAKA,SUNEETHA ACHANTI, MOHAMMAD NASEEMA
Department of Pharmaceutical Analysis
KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, India-520010

Address for Correspondence
Vijaya Lakshmi Marella
Associate Professor
Department of Pharmaceutical analysis
KVSR Siddhartha College of Pharmaceutical Sciences,
Vijayawada, India-520010
Contact No. : 8501011122
Mail ID: marellavijayalakshmi1979@gmail.com

Abstract :
To treat mild to moderate COVID-19, an investigational drug called nirmatrelvir in combination with ritonavir is being researched for which the potential hazards with this are still unknown. Nirmatrelvir has been approved for immediate use by the US Food and drug intake in conjunction with the drug ritonavir for the treatment of mild to medium COVID-19 in grown ups and individuals of more than 12 years who test positive for the virus and are at a high risk to develop severe COVID-19.To quantify the drugs simultaneously in tablet dosage forms, a novel, sensitive and reproducible reverse phase liquid chromatography method has been developed. Thechromatographic separation was performed using Phenomenex (250×4.6mm,5µ particle size) column. The separation and elution were carried out at an ambient temperature using a mobile phase consisting of 0.1% trifluoro acetic acid &acetonitrile in the ratio of 50:50%v/v. The maximum absorbance by UV spectrophotometer shown at wavelength 258.3nm& 271.4nm for nirmatrelvir and ritonavir. Also, 266nm was selected as detector wavelength by a photodiode array detector for the HPLC chromatrographic method.Beer lambert's law obeyed in the linear range of 37.5-225µg/mL(R^2=0.9998) for nirmatrelvir and 25-150 µg/mL(R^2=0.9994) for ritonavir. The method shows method and system precision with % RSD less than 1%.The percentage mean recovery was found to be 99.9-100.2%& 100.0-100.2%. The LOD 1.5 µg/mL &1 µg/mL values indicates the method sensitivity. The proposed stability indicating method was validated for precision,accuracy, specificity, selectivity, robustness and stability studies according to ICH guidelines.

Keywords: RP-HPLC, Nirmatrelvir, Ritonavir, Trifluoro acetic acid, Stability studies.
DOI Number: 10.48047/nq.2022.20.22.NQ10161 **NeuroQuantology 2022; 20(22):1717-1725**

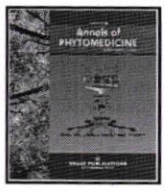
Annals of Phytomedicine 11(2): 42-51, 2022

DOI: http://dx.doi.org/10.54085/ap.2022.11.2.5

Annals of Phytomedicine: An International Journal

http://www.ukaazpublications.com/publications/index.php

Print ISSN : 2278-9839 Online ISSN : 2393-9885



Review Article : Open Access

Therapeutic potential of quercetin for the prevention of various drug and chemical-induced nephrotoxicity: A review

Naveen Babu Kilaru, Ravindra Babu Pingili*,◆, Vijaya R. Dirisala, Vara Prasad Saka***, Tanvija Kodali****, Vyshnavi Toleti****, Sirisha Koppula******

Department of Pharmaceutics and Biotechnology, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada-520010, Andhra Pradesh, India

**Department of Pharmacology, School of Pharmacy and Technology Management, SVKM's NMIMS (Deemed to be University), Babulde, Shirpur-425405, Maharashtra, India*

***Department of Biotechnology, Vignan's Foundation for Science, Technology and Research (Deemed to be University), Vadlamudi, Guntur-522213, Andhra Pradesh, India*

****DS-Pharmacology, Dr Anjali Chatarji Regional Research Institute (Homoeopathy), Central Council for Research in Homoeopathy, Kolkata-700106, West Bengal, India*

*****Department of Pharmacy Practice, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada-520010, Andhra Pradesh, India*

Article Info

Article history
Received 10 August 2022
Revised 27 September 2022
Accepted 29 September 2022
Published Online 30 December-2022

Keywords
Quercetin
Antioxidant
Nephroprotective
Nephrotoxicity
Toxicology

Abstract

Quercetin is a flavonoid and has been reported to have a wide range of pharmacological properties. The possible mechanisms involved in the nephroprotective activity of quercetin were discussed in this review. Quercetin exhibited nephroprotective activity against valproic acid, cisplatin, doxorubicin, streptozotocin, sodium fluoride, methotrexate, lead acetate, cadmium, lindane, adenine, paracetamol, gallium arsenide, chlorpyrifos, TiO_2, ferric nitrile triacetate, dichlorvas, melphalan, $HgCl_2$, ischaemic reperfusion, gentamicin, snake venom, ammonium fluoride, arsenate, atrazine, Ionising radiation and iron in various animal models due to its antioxidant, free radical-scavenging, anti-inflammatory, anti-apoptotic mechanisms. In this review, we provide an overview of the possible mechanisms by which quercetin reduced the nephrotoxicity-induced by different nephrotoxicants. This will help the scientific community to reduce the nephrotoxicity using quercetin.

1. Introduction

Flavonoids are a group of antioxidants affecting basic cell function such as growth, differentiation and apoptosis, because of their radical scavenging activity (Ilic *et al.*, 2014). Quercetin (QR) is a 3, 5, 7, 3, 4-pentahydroxyflavon, having the five hydroxyl groups placed at five different positions (Muhammad *et al.*, 2018). It has a bitter flavor and is widely distributed in fruits and vegetables. Buckwheat tea has a large amount of QR. QR is widely used in research and clinical trials. It has been proved to be having effective free radical scavenging activity, thus acts as an antioxidant (Ferry *et al.*, 1996). In addition, it also possesses anti-inflammatory, anti-apoptotic, hepatoprotective (Manoj *et al.*, 2021), renoprotective, neuroprotective (Paramita *et al.*, 2021) and cardioprotective effects (Chandrasinh *et al.*, 2021; Pingili *et al.*, 2020).

QR is now largely utilized as nutraceutical and as a phytochemical medication for different diseases. Owing to its basic chemical structure, the most obvious feature of QR is its strong antioxidant activity (Harshad *et al.*, 2020) which may potentially enable it to quench free radicals from forming resonance stabilized phenoxyl radicals (Veerendra *et al.*, 2021; Miltonprabu *et al.*, 2017). In this review, the nephroprotective effects of QR against drugs and various toxic agents have been discussed (Table 1).

Corresponding author: Dr. Ravindra Babu Pingili
Assistant Professor, Department of Pharmacology, School of Pharmacy and Technology Management, SVKM's NMIMS (Deemed to be University), Babulde, Shirpur-425 405, Maharashtra, India.
E-mail: ravindrapingili@gmail.com
Tel.: +91-9885589543

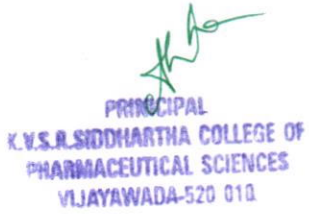
2. Nephroprotective activity of quercetin

2.1 Protective activity against valproic acid (VPA)-induced nephrotoxicity

VPA is used in treatment of epilepsy for various kinds of seizures. It induces release of free radicals and thereby causes lipid peroxidation and subsequent nephrotoxicity (Figure 1A). A study has shown that QR (0.05 mM) has nephroprotective activity against VPA-induced nephrotoxicity (20 mg/kg) by inhibiting lipid peroxidation using an *in vitro* model (Chaudhary *et al.*, 2015).

2.2 Protective activity against cisplatin (CS)-induced nephrotoxicity

CS is an antitumoral drug used for treatment of various types of cancers. CS induces mitochondrial injury and stimulates production of ROS and triggers inflammatory responses resulting in nephrotoxicity (Figure 1B). A study has demonstrated that QR (50 mg/kg/day, IP) prevented the nephrotoxic effect of CS (4 mg/kg, IP)

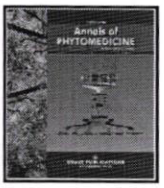


Annals of Phytomedicine 11(2): 654-660, 2022

DOI: http://dx.doi.org/10.54085/ap.2022.11.2.80

Annals of Phytomedicine: An International Journal
http://www.ukaazpublications.com/publications/index.php

Print ISSN : 2278-9839 Online ISSN : 2393-9885



Original Article : Open Access

Effect of herbal bioenhancer (naringenin) on the pharmacokinetics of diltiazem in rats *via* CYP3A4 and P-glycoprotein inhibition

Ravindra Babu Pingili*, Sridhar Vemulapalli, Surya Sandeep Mullapudi***, Krishna Mohan Chinnala**** and Naveen Babu Kilaru***◆**

**Department of Pharmacology, School of Pharmacy and Technology Management, SVKM's NMIMS, Babulde, Shirpur-425405, Maharashtra, India*

***Department of Pharmaceutical Sciences, University of Nebraska Medical Center, Omaha, Nebraska-68198, United States of America*

****Department of Pharmaceutics and Pharmaceutical Biotechnology, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada-520010, Andhra Pradesh, India*

*****Department of Pharmacology, School of Pharmacy, Nalla Narasimha Reddy Education Society's Group of Institutions, Hyderabad-500088, Telangana State, India*

Article Info

Article history
Received 8 August 2022
Revised 25 September 2022
Accepted 26 September 2022
Published Online 30 December-2022

Keywords
CYP3A4
P-glycoprotein
Diltiazem
Naringenin
Everted sacs

Abstract

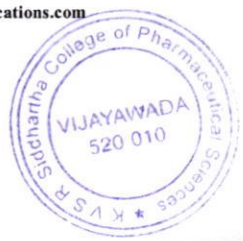
CYP3A4 and P-gp substrate is diltiazem and naringenin has been observed to affect both CYP3A4 and P-gp. The goal of this study was to observe how naringenin affected the pharmacokinetics (PK) of diltiazem in rats as well as absorption using everted gut sacs of rat *in vitro*. After 20 min, rats were administered orally with naringenin (12.5, 25 and 50 mg/kg) and then 15 mg/kg of diltiazem was also administered for 15 repeated days orally. In a single dosage PK study (SDS), blood was taken from the tail vein on the 1st day and in a multiple dosing PK study (MDS) on the 15th day. Thermokinetic was used to calculate the PK parameters. In a dose-dependent manner, naringenin pretreatment enhanced the Cmax and the AUC of diltiazem. At a dosage of naringenin 100 mg/kg, the Cmax of diltiazem increased from 39.276 ± 2.485 to 72.394 ± 5.152 and 44.982 ± 5.348 to 85.372 ± 5.263 ng/ml in SDS and MDS, respectively. In SDS and MDS, the AUC of diltiazem increased considerably from 818.206 ± 69.247 to 1448.781 ± 91.588 and 1730.362 ± 145.314 to 2677.052 ± 122.625 (ng/ml/h). *In vitro* test results revealed that diltiazem absorption was increased with naringenin and verapamil (a known standard P-gp and CYP3A4 inhibitor). The findings suggested that naringenin enhanced diltiazem absorption in the intestine due to P-gp and CYP3A4 inhibition.

1. Introduction

The bulk of medications' first-pass metabolism (FPM) and pharmacokinetics (PK) are influenced by cytochrome P-450 (CYP) and P-glycoprotein (P-gp). CYP3A4 is the important enzyme present in the human gut and liver (Paine *et al.*, 2006; Rostami and Tucker, 2007; Shimada *et al.*, 1994). A vast range of xenobiotic substances, including many medicinal medications, are known to be metabolized by CYP3A4 (Nebert and Russell, 2002). Drugs that undergo metabolism by CYP3A4 may combine with other medications that stimulate or inhibit CYP3A4, resulting in clinically relevant PK effects. Due to its broad-specificity and effect on drug PK characteristics, P-gp is an excellent example of a clinically useful drug transporter (Srivalli and Lakshmi, 2012). P-gp is an efflux transporter found in a variety of organs that have pharmacokinetic importance (Fardel *et al.*, 2012). P-gp acts as a unidirectional efflux pump and play an important role in the PK of drugs (Aller *et al.*, 2009). The Food and Drug Administration (FDA) further recommends that a screening to determine if prospective bioactive chemicals are P-gp substrates be carried out as early as feasible in the drug discovery pipeline (U.S. Food and Drug Administration, 2012).

Prescription and non-prescription medicines, as well as other xenobiotics present in some herbal remedies and food items, are CYP3A4 and P-gp modulators that can have clinically significant effects on some substrates (Rouveix, 2007). Diltiazem is a calcium channel blocker (CCB) that is commonly used to treat angina, supraventricular arrhythmias and hypertension (Millard *et al.*, 1983, Buckley *et al.*, 1990). Diltiazem has 40% absolute bioavailability because of first pass metabolism (FPM) mediated by CYP3A4 in the small intestine and liver (Pichard *et al.*, 1990; Lefebvre *et al.*, 1996). P-gp may be responsible for diltiazem's limited bioavailability in addition to extensive metabolism and diltiazem might be a substrate for both CYP3A4 and P-gp (Gottesman and Pastan, 1993; Gan *et al.*, 1996; Wacher *et al.*, 1998). Both P-gp and CYP3A4 are present in the small intestine, they may work together to increase FPM, resulting in drug absorption being reduced (Wacher *et al.*, 2001; Ito *et al.*, 1999). Naringenin is a citrus flavonoid that has an excellent antioxidant property. Several lines of research show that using naringenin supplements can help with obesity, diabetes, hypertension and metabolic syndrome (Paramita *et al.*, 2021; Alam *et al.*, 2014). In prior research, we found that naringenin inhibited CYP enzymes and P-gp (Surya *et al.*, 2014). Previous studies suggested that some of

Corresponding author: Dr. Kilaru Naveen Babu
Professor, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada-520010, Andhra Pradesh, India
E-mail: naveenbabukvsr@gmail.com
Tel.: +91-9666212999



Original Article

Study On Influence Of Process Parameters On Quality Of Lovastatin Microspheres By Design Of Experiments

Srikar Grandhi*[1], Ramana G[2], Raasi Siddanathi[3], Lakshman Potti[4], Raghuveer Pathuri[3], Ramu Samineni[1]

[1] Department of Pharmaceutical Sciences, Vignan's Foundation for Science Technology and Research (Deemed to be University), Guntur, India, 522213
[2] Department of Pharmaceutics, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, India, 520008
[3] University College of Pharmaceutical Sciences, Acharya Nagarjuna University, Nagarjuna Nagar, Guntur, India, 522510
[4] Department of Pharmaceutics, MAM College of Pharmacy, Kesanupalli, Narsaraopet, Andhra Pradesh, India, 522601
* Corresponding author:
Dr. Srikar Grandhi
Associate Professor,
Department of Pharmaceutical Sciences,
Vignan's Foundation for Science Technology and Research (Deemed to be University), Guntur, India, 522213
E-mail: srikar.grandhi@gmail.com;
DOI: 10.47750/pnr.2022.13.S07.246

Abstract

Scale-up of microspheres is major challenge at large scale manufacturing. The foremost objective of this research was to study the impact of key process parameters and formulation parameters, which are significant during scale-up, on the quality characteristic of the lovastatin microspheres. Emulsion solvent evaporation technique was explored to generate microspheres. Including the amount & type of polymer, process parameters like viscosity of the internal and temperatures used for evaporation of the solvent were taken as the factors. The key quality control parameters of the microspheres viz. entrapment efficiency and drug release rate constant were considered as the response variables on which the influence of the factors to be studied. Under response surface methodology, historical data design was employed to design of experiments (DoE) analysis using Stat Ease Design Expert software. Apart from the responses, the microspheres prepared were studied for flow properties, percentage yield and surface morphology. Scanning electron microscopy (SEM) images illustrated that the microspheres were almost spherical having different surface texture for different polymers. Entrapment efficiency results were found to be in the range of 78.43 – 93.83%; and the values of drug release rate constant were to be in the range of 0.09 – 1.2 h^{-1} for all the prepared microspheres. Response surface linear model was selected to elucidate the relation between the factors and the responses. Analysis of variance (ANOVA) of the selected model indicated that all the selected factors including the key process parameters had significant influence on both the responses. Later, graphical optimization was performed with the set desirability of maximizing the entrapment efficiency and minimizing the drug release rate constant. The microspheres obtained from the optimised formula were found to have 92.4% entrapment efficiency and 0.102 h^{-1} as the drug release rate constant. These results signified that the selected factors including the process parameters had substantial influence on the quality characteristics of the prepared microspheres.

KEYWORDS: Microspheres, process parameters, Design of experiments, Entrapment efficiency, Optimization.

INTRODUCTION

Microspheres are roughly spherical solid particles, ranging in diameter of 1 – 1000μm that contain a drug dispersed in solution (or) in microcrystalline form (1). Microcapsules and microspheres are the terms that are often used synonymously. The polymeric microspheres are more stable than other particulate drug delivery systems. Upon surface modification, these microparticles can be used to deliver the contained drugs to the desired target site

Journal of Xidian University https://doi.org/10.37896/jxu16.9/006 ISSN No:1001-2400

EFFECT OF COMBINATION SUPERDISINTEGRANTS ON THE DRUG DELIVERY OF LANSOPRAZOLE

Ravi Shankar Kunderu [1*], Raghavendra Kumar Gunda[2*], Ramana Gangireddy[1], A. Anka Rao [3], M. Prathap [4]

1. *Department of Pharmaceutics, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India - 520010.*
2. *Department of Pharmaceutics, Narasaraopeta Institute of Pharmaceutical Sciences, Yellamanda (V), Narasaraopet, Palanadu (Dt), Andhra Pradesh, India-522601.*
3. *Department of Pharmaceutics, KL College of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Andhra Pradesh, India - 522502.*
4. *Faculty of Pharmacy, Amity Institute of Pharmacy, Amity University, Gwalior, Madhya Pradesh, India-474005.*

Running Title: Development and Characterization of Lansoprazole Fast Dissolving Tablets

Address for Correspondence:

1. Dr. Ravi Shankar Kunderu **M.Pharm., PhD.,**
Assistant Professor, Department of Pharmaceutics,
KVSR Siddhartha College of Pharmaceutical Sciences,
Vijayawada, Andhra Pradesh, India- 520010.
2. Dr. Raghavendra Kumar Gunda **M.Pharm., PhD.,FCEM.,**
Associate Professor, Department of Pharmaceutics,
Narasaraopeta Institute of Pharmaceutical Sciences, Yellamanda(V),
Narasaraopet (Po), Palanadu (Dt), Andhra Pradesh, India- 522601.

Journal of Xidian University https://doi.org/10.37896/jxu16.9/006 ISSN No:1001-2400

EFFECT OF COMBINATION SUPERDISINTEGRANTS ON THE DRUG DELIVERY OF LANSOPRAZOLE

Ravi Shankar Kunderu [1*], Raghavendra Kumar Gunda[2*], Ramana Gangireddy[1], A. Anka Rao [3], M. Prathap [4]

1. *Department of Pharmaceutics, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India - 520010.*
2. *Department of Pharmaceutics, Narasaraopeta Institute of Pharmaceutical Sciences, Yellamanda (V), Narasaraopet, Palanadu (Dt), Andhra Pradesh, India-522601.*
3. *Department of Pharmaceutics, KL College of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Andhra Pradesh, India - 522502.*
4. *Faculty of Pharmacy, Amity Institute of Pharmacy, Amity University, Gwalior, Madhya Pradesh, India-474005.*

Running Title: Development and Characterization of Lansoprazole Fast Dissolving Tablets

Address for Correspondence:

1. Dr. Ravi Shankar Kunderu**M.Pharm., PhD.,**
Assistant Professor, Department of Pharmaceutics,
KVSR Siddhartha College of Pharmaceutical Sciences,
Vijayawada, Andhra Pradesh, India- 520010.

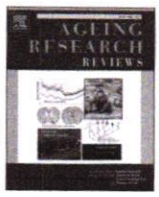
2. Dr. Raghavendra Kumar Gunda **M.Pharm., PhD.,FCEM.,**
Associate Professor, Department of Pharmaceutics,
Narasaraopeta Institute of Pharmaceutical Sciences, Yellamanda(V),
Narasaraopet (Po), Palanadu (Dt), Andhra Pradesh, India- 522601.

Ageing Research Reviews 83 (2023) 101783

Contents lists available at ScienceDirect

Ageing Research Reviews

journal homepage: www.elsevier.com/locate/arr



Interlinked role of ASN, TDP-43 and Miro1 with parkinopathy: Focus on targeted approach against neuropathy in parkinsonism

Siva Prasad Panda [a,*], DSNBK Prasanth [b], Uma Sankar Gorla [c], Saikat Dewanjee [d]

[a] Pharmacology Research Division, Institute of Pharmaceutical Research, GLA University, Mathura, India
[b] Department of Pharmacognosy, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, AP, India
[c] College of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhrapradesh, India
[d] Advanced Pharmacognosy Research Laboratory, Department of Pharmaceutical Technology, Jadavpur University, Kolkata 700032, India

ARTICLE INFO

Keywords:
Parkinsonism
Parkinopathy
ASN, TDP-43
Miro1
Targetted therapy

ABSTRACT

Parkinsonism is a complex neurodegenerative disease that is difficult to differentiate because of its idiopathic and unknown origins. The hereditary parkinsonism known as autosomal recessive-juvenile parkinsonism (AR-JP) is marked by tremors, dyskinesias, dystonic characteristics, and manifestations that improve sleep but do not include dementia. This was caused by deletions and point mutations in PARK2 (chromosome 6q25.2–27). Diminished or unusual sensations (paresthesias), loss of neuron strength both in the CNS and peripheral nerves, and lack of motor coordination are the hallmarks of neuropathy in parkinsonism. The incidence of parkinsonism during oxidative stress and ageing is associated with parkinopathy. Parkinopathy is hypothesized to be triggered by mutation of the parkin (PRKN) gene and loss of normal physiological functions of PRKN proteins, which triggers their pathogenic aggregation due to conformational changes. Two important genes that control mitochondrial health are PRKN and phosphatase and tensin homologue deleted on chromosome 10-induced putative kinase 1 (PINK1). Overexpression of TAR DNA-binding protein-43 (TDP-43) increases the aggregation of insoluble PRKN proteins in OMM. Foreign α-synuclein (ASN) promotes parkinopathy via S-nitrosylation and hence has a neurotoxic effect on dopaminergic nerves. Miro1 (Miro GTPase1), a member of the RAS superfamily, is expressed in nerve cells. Due to PINK1/PRKN and Miro1's functional relationship, an excess of mitochondrial calcium culminates in the destruction of dopaminergic neurons. An interlinked understanding of TDP-43, PINK1/PRKN, ASN, and Miro1 signalling in the communication among astrocytes, microglia, neurons, and immune cells within the brain explored the pathway of neuronal death and shed light on novel strategies for the diagnosis and treatment of parkinsonism.

1. Introduction

The loss of dopamine pathways in dopaminergic nerves and the formation of Lewy bodies, which are intracytoplasmic proteinaceous aggregates of α-synuclein (ASN), distinguishes mobility disorders such as parkinsonism (Nicastro et al., 2018). The autosomal recessive-juvenile parkinsonism (AR-JP) has just been identified as a kind of hereditary parkinsonism that is distinguished by tremors, dyskinesias, and dystonic features without dementia features, as well as the improvement of conditions during sleep (Kim et al., 2008; Stoker and Greenland, 2018). Lewy body-free dopaminergic neurons in the nigrum distinguish AR-JP from conventional Parkinson's disease (PD) (Dickson,

Abbreviations: AR-JP, Autosomal Recessive-Juvenile Parkinsonism; ASN, α- synuclein; PRKN, Parkin; PINK1, [PTEN (phosphatase and tensin homologue deleted on chromosome 10)-induced putative kinase 1)]; AD, Alzheimer disease; PD, Parkinson disease; PCR, Polymerase chain reaction; TDP-43, TAR DNA-binding protein 43; PQC, Protein Quality Control; Miro1, Mitochondrial Rho GTPase1; Miro2, Mitochondrial Rho GTPase2; NFT, Neurofibrillary tangles; NAC, Non Amyloid Component; MTD, Mitochondrial-Targeting Domain; UbH, Ubiquitin homology; RING, Really interesting new gene; IBR, In between RING fingers; OMM, Outer Mitochondrial Membrane; VDAC, Voltage-Dependent Anion Channel; MCU, Mitochondrial Calcium Uniporter; IP3R, Inositol 1,4,5-triphosphate Receptor; NTD, N-Terminal Domain; RRM1, RNA Recognition Motif1; RRM2, RNA recognition motif2; CTD, C-terminal domain; NES, Nuclear Export Sequence; GRR, Glycine-Rich Region; MERCs, Mitochondria and endoplasmic reticulum (ER) contact sites; TRAK, Trafficking Kinesin Protein; TMD, Transmembrane Domain; DMT, Disease-Modifying Therapy; ST, Symptomatic Therapy; GCase, Glucocerebrosidase; MAO, Monoamineoxidase; GLP-1, Glucagon-like peptide-1; BBB, Blood-Brain Barrier.

* Corresponding author.
E-mail address: sivaprasad.panda@gla.ac.in (S.P. Panda).

https://doi.org/10.1016/j.arr.2022.101783
Received 11 October 2022; Received in revised form 1 November 2022; Accepted 7 November 2022
Available online 9 November 2022

Molecular Biology Reports
https://doi.org/10.1007/s11033-022-08113-6

REVIEW

Neuroinflammation and neovascularization in diabetic eye diseases (DEDs): identification of potential pharmacotherapeutic targets

Siva Prasad Panda[1] · P Hemachandra Reddy[2,3,4,5,6] · Uma Sankar Gorla[7] · DSNBK Prasanth[8]

Received: 23 September 2022 / Accepted: 9 November 2022

Abstract

The goal of this review is to increase public knowledge of the etiopathogenesis of diabetic eye diseases (DEDs), such as diabetic retinopathy (DR) and ocular angiosarcoma (ASO), and the likelihood of blindness among elderly widows. A widow's life in North India, in general, is fraught with peril because of the economic and social isolation it brings, as well as the increased risk of death from heart disease, hypertension, diabetes, depression, and dementia. Neovascularization, neuroinflammation, and edema in the ocular tissue are hallmarks of the ASO, a rare form of malignant tumor. When diabetes, hypertension, and aging all contribute to increased oxidative stress, the DR can proceed to ASO. Microglia in the retina of the optic nerve head are responsible for causing inflammation, discomfort, and neurodegeneration. Those that come into contact with them will get blind as a result of this. Advanced glycation end products (AGE), vascular endothelial growth factor (VEGF), protein kinase C (PKC), poly-ADP-ribose polymerase (PARP), metalloproteinase9 (MMP9), nuclear factor kappaB (NFkB), program death ligand1 (PDL-1), factor VIII (FVIII), and von Willebrand factor (VWF) are potent agents for ocular neovascularisation (ONV), neuroinflammation and edema in the ocular tissue. AGE/VEGF, DAG/PKC, PARP/NFkB, RAS/VEGF, PDL-1/PD-1, VWF/FVIII/VEGF, and RAS/VEGF are all linked to the pathophysiology of DEDs. The interaction between ONV and ASO is mostly determined by the VWF/FVIII/VEGF and PDL-1/PD-1 axis. This study focused on retinoprotective medications that can pass the blood-retinal barrier and cure DEDs, as well as the factors that influence the etiology of neovascularization and neuroinflammation in the eye.

Keywords Diabetic retinopathy · Ocular angiosarcoma · FVIII/VWF/VEGF · PDL-1/PD-1 · Blood retinal barrier · Retinoprotective drugs

Introduction

New Delhi, India's capital city, is just a short drive away from Vrindavan and Mathura, two of the country's most popular pilgrimage destinations for Hindu devotees. They're referred to as the "city of widows" because they care for a sizable portion of India's 40 million-plus widow population. Widows may be housed in ashrams, temples, or even in the

✉ Siva Prasad Panda
sivaprasad.panda@gla.ac.in

1 Pharmacology Research Division, Institute of Pharmaceutical Research, GLA University, 281406 Mathura, Uttar Pradesh, India

2 Department of Internal Medicine, Texas Tech University Health Sciences Center, 79430 Lubbock, TX, USA

3 Department of Pharmacology and Neuroscience, Texas Tech University Health Sciences Center, 79430 Lubbock, TX, USA

4 Department of Neurology, Texas Tech University Health Sciences Center, 79430 Lubbock, TX, USA

5 Department of Public Health, Graduate School of Biomedical Sciences, Texas Tech University Health Sciences Center, 79430 Lubbock, TX, USA

6 Department of Speech, Language, and Hearing Sciences, Texas Tech University Health Sciences Center, 79430 Lubbock, TX, USA

7 College of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, AP, India

8 Department of Pharmacognosy, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, AP, India

Published online: 13 December 2022

Development and validation of a novel bioanalytical method for the simultaneous determination of glecaprevir and pibrentasvir in human plasma using reversed-phase high-performance liquid chromatography

Bonagiri Pavani[a], Malothu Narender[b], Dintakurthi Sree Naga Bala Krishna Prasanth[c], Chakravarthi Guntupalli[b]

[a]Research Scholar, Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India, [b]Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India, [c]Department of Pharmacognosy, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada 520010, AP, India

Correspondence to Malothu Narender, M. Pharmacy, PhD, Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India.
Tel: +91 888 520 9161;
e-mail: narendermalothu@gmail.com

Received: 20 May 2022
Revised: 22 June 2022
Accepted: 17 July 2022
Published: 11 November 2022

Egyptian Pharmaceutical Journal 2022, 0:0–0

Background and objective
For the simultaneous determination of glecaprevir (GPR) and pibrentasvir (PTR) in human plasma, a novel, accurate, and selective reversed-phase high-performance liquid chromatography method was developed and validated.

Materials and methods
Owing to structural resemblance, bictegravir was selected as an internal standard. Anticoagulant used was K_2-EDTA. The GPR-PTR was the first of its kind approved drug by FDA for the treatment of chronic hepatitis C. Precipitation technique with acetonitrile was employed for the extraction of analyte from human plasma. Kromasil C_{18} column (5 µ, 150×4.6 mm) with an isocratic mobile phase of 0.1% orthophosphoric acid buffer pH 4.3, adjusted with dilute hydrochloric acid: acetonitrile in the ratio of 70 : 30 v/v, was used for the resolution. At a flow rate of 1 ml/min, the mobile phase was pumped. Using a photodiode array detector, effluents were monitored at 250 nm.

Results
Over concentration ranges of 5–200 µg/ml and 6.650–266.000 µg/ml, the method was found to be linear for GPR and PTR, respectively, in human plasma, with the precision and accuracy ranging from 0.76 to 9.05% and 90.55 to 98.98% for GPR respectively, whereas for PTR ranged from 0.74 to 9.52% and 91.56 to 105.61%, respectively.

Conclusion
The stability of the analyte was evaluated in plasma under different stress conditions.

Keywords:
acetonitrile, bictegravir, glecaprevir, Kromasil, orthophosphoric acid buffer, pibrentasvir, plasma

Egypt Pharmaceut J 0:0–0

1687-4315

Introduction

Each year, between two and four million new cases of hepatitis C virus (HCV) are reported by the World Health Organization [1]. Infections are primarily associated with intravenous drug use, blood transfusions, and tattoos, which are the few common causes of transmission [2]. The cause of 70–90% of chronic infections is acute infections, which are then followed by cirrhosis, chronic liver failure, hepatocellular carcinoma, and death [3]. Cirrhosis develops in 20–30% of patients with chronic liver disease, end-stage liver disease develops in 5–10%, and 4–8% die owing to liver-related causes after 20 years of infection. There are six genotypes of HCV, with genotypes 1–3 distributed worldwide [4,5]. Globally, genotypes 1a and 1b cause 60% of HCV infections. There is a 54% prevalence of genotypes 1a and 1b and a 37% prevalence of genotypes 3a [6,7]. In the United States and Europe, there is a low incidence of HCV genotype 4 infection (~1 and ~5% on average) [8].

In patients with genotype 1 HCV infection and prior failure of direct-acting antiviral therapy, glecaprevir (GPR) and pibrentasvir (PTR) were highly effective and well tolerated [9]. The sustained virologic response to direct-acting antiviral therapies for chronic HCV infection has been high; however, virologic failure may still occur, potentially resulting in viral resistance, and subsequently decreasing the efficacy of all subsequent treatments [10]. GPR is a potent pangenotypic next-generation HCV NS3/4A. According to enzymatic assays, GPR exhibited high selectivity for HCV

DOI: 10.4103/epj.epj_47_22

original Article

Evaluation of the Thrombolytic and Antioxidant Activity of Leaf Extracts of *Plumbago zeylanica* L.

Sarvan Kumar Guguloth[1,2], Narender Malothu[1,*], D.S.N.B.K Prasanth[3], Anka Rao Areti[1]

[1]Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, INDIA.
[2]Department of Pharmacology, G. Pulla Reddy College of Pharmacy, Mehdipatnam, Hyderabad, Telangana, INDIA.
[3]Department of Pharmacognosy, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, INDIA.

ABSTRACT

Background: *Plumbago zeylanica* L. is one of the extremely accessible conventionally used herbal plants with various biological activities. However, actions of *P. zeylanica* L on blood clotting and other complications of blood were indisposed therapeutically studied. Therefore, the scope of the current exploration is to screen the thrombolytic, antioxidant, and cytotoxic effects of leaf extracts. **Materials and Methods:** Thrombolytic activity (*in vitro*) was assessed with clot lysis and thrombin inhibitory ability. Further, thrombolytic activity (*in vivo*) was evaluated by a thrombotic tail (carrageenan-induced) animal model. DPPH and nitric oxide (free radical) scavenging methods were employed to check the *in vitro* antioxidant property. Further cytotoxicity and acute oral toxicity were assessed for plant extract. **Results:** The quantitative analysis elicits the presence of the magnificent amount of the total phenolic content (96.8 ± 7.92 mg GAE/g) and total flavonoid content (63.52 ± 4.54 mg QE/g) on the dry weight basis. The maximum clot lysis (96.83% ± 0.657) of methanolic leaf extract was detected in *in vitro* model at 800 µg/mL in 72 hr. A strong thrombin inhibition (94.63 ± 2.12%) effect was observed for methanol leaf extract at 2 mg/mL. In *in vivo* studies a significant ($p < 0.001$) clot lysis was achieved at the tested dose (100, 200 and 300 mg/kg). DPPH radical and nitric oxide scavenging activity showed the IC_{50} value of 25.47 ± 0.51 and 56.32 ± 0.85, respectively. The methanolic extract was found safer up to the highest lethal dose of 2000 mg/kg. **Conclusion:** These findings suggested that the plant leaves are comprised of significant thrombolytic properties. It could be a promising source for the existence of antioxidant and thrombolytic agents.

Keywords: *Plumbago zeylanica* L., Thrombolytic activity, Anti-oxidant activity, Cytotoxicity, Streptokinase, DPPH radical etc.

Submission Date: 04-02-2022;
Revision Date: 09-06-2022;
Accepted Date: 08-08-2022.

DOI: 10.5530/ijper.56.4.200

Correspondence:
Dr. Narender Malothu
Department of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur -522001, Andhra Pradesh, INDIA.
E-mail: narendermalothu@gmail.com

www.ijper.org

INTRODUCTION

Plants are used in divergent approaches in managing various infirmities. These herbal agents are accomplished to amalgamate dissimilar secondary active metabolites; those possess the potential for remarkable biological activity. Biological activities present in these medicinal plants and their derivatives are of great importance in health care history. *Plumbago zeylanica* L. (Chromosome 2n=24) is also known as "Chitrak", a medicinal herb that belongs to the family of *Plumbaginaceae* (Figure 1).[1] It is the most commonly used medicinal plant, scattered all over the tropical and subtropical regions of the World.[2] The vernacular names of *P. zeylanica* L include, in Kannada- chitramula, in Malyalam-chitrakmula/ bilichitramula, in Tamil-Chita, and in Telugu kodiveli/chitramoolam.[3] It possesses various pharmacological activities like the flowers are used as digestant,[4] roots possess expectorant, abortifacient, laxative, astringent and anti-diarrhea activities.[5] Tincture of bark is used as anti-menstruation and leaves used in remedies for scabies,[6] antimicrobial, anti-inflammatory,[7] androgenic alopecia,[8] anti-fertility,[9] and anti-diabetic.[10] Plumbagin is the secondary

Chemistry Africa
https://doi.org/10.1007/s42250-022-00521-2

ORIGINAL ARTICLE

In Silico Screening of Plant-Derived Anti-virals from *Shorea hemsleyana* (King) King ex Foxw Against SARS CoV-2 Main Protease

D. S. N. B. K. Prasanth[1] · Gagandeep Singh[2,3] · Siva Prasad Panda[4] · Suneetha Achanti[5] · Hemant Soni[2] · Tapan K. Chaudhuri[3] · Harshal Ashok Pawar[6] · Md Jahasultana[7]

Received: 14 June 2022 / Accepted: 13 October 2022

Abstract

Shorea hemsleyana (King) King ex Foxw is used to treat various ailments in humans. Numerous biological activities have been reported previously. The current study sought to identify *S. hemsleyana* phyto-derived anti-viral compounds against the SARS-CoV-2 main protease to gain insight into the molecular interactions. In the present research, nine compounds obtained from the PubChem database are examined via molecular docking. Docking experiments were conducted using the AutoDock Vina tool. The Swiss ADME and DruLito servers were used for drug-like predictions. Our research shows that the phytoconstituents of *S. hemsleyana*, namely, Hemsleyanol-A and Hemsleyanoside-A, may act against SARS CoV-2 main protease with the binding affinity of −7.6 and −6.8 kcal/mol respectively, which were further validated by molecular dynamics (MD) simulations and end-state binding energy calculations. These phytocompounds could be used in contemporary strategies to develop effective medicines from natural sources. The identified substances are potential anti-viral agents. However, in vitro studies are necessary to assess their effectiveness against SARS-CoV-2.

Keywords *Shorea hemsleyana* · Autodock Vina · ADMET · In-silico · Lipinski's rule · Main protease

1 Introduction

An outbreak of the SARS-CoV-2 virus in 2019 caused one of the worst pandemics in history, resulting in a medical catastrophe [1]. SARS-CoV-2 has also spread to people from different countries via different routes, such as travellers, resulting in a pandemic declared by the WHO [2, 3]. The primary infection symptom of this novel coronavirus (COVID-19) is pneumonia, although additional symptoms include headache, weariness, and loss of taste.

The epidemiological history of the infection was obtained from the seafood market in Wuhan, China [4]. However, the precise origin of human transmission remains unclear. Currently, NCBI GenBank recognises over 100 genome patterns from over ten countries [5]. The variation between these series was less than 1%. SARS-CoV-2 has led to significant respiratory system infections in humans, caused by β-coronaviruses via the ACE2 receptor. Chinese experts separated SARS-CoV-2 and sequenced its genome SARS-CoV-2 on January 7, 2020 [6].

To propose an effective therapy against SARS-CoV-2, a thorough understanding of the viral structure is required, which may help identify more suitable targets [7–9]. Some

✉ D. S. N. B. K. Prasanth
dsnbkprasanth@gmail.com

1 Department of Pharmacognosy, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, AP 520010, India

2 Section of Microbiology, Central Ayurveda Research Institute, Jhansi, Uttar Pradesh 284003, India

3 Kusuma School of Biological Sciences, Indian Institute of Technology Delhi, New Delhi, India

4 Department of Pharmacology, Institute of Pharmaceutical Research, GLA University, Mathura, UP, India

5 Department of Pharmaceutical Analysis, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, AP 520010, India

6 Department of Pharmacognosy, Dr. L. H. Hiranandani College of Pharmacy, Ulhasnagar, Maharashtra 421003, India

7 Pharmaceutics Research Division, K L College of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, India

Published online: 11 November 2022

Chemistry Africa
https://doi.org/10.1007/s42250-022-00521-2

ORIGINAL ARTICLE

In Silico Screening of Plant-Derived Anti-virals from *Shorea hemsleyana* (King) King ex Foxw Against SARS CoV-2 Main Protease

D. S. N. B. K. Prasanth[1] · Gagandeep Singh[2,3] · Siva Prasad Panda[4] · Suneetha Achanti[5] · Hemant Soni[2] · Tapan K. Chaudhuri[3] · Harshal Ashok Pawar[6] · Md Jahasultana[7]

Received: 14 June 2022 / Accepted: 13 October 2022

Abstract

Shorea hemsleyana (King) King ex Foxw is used to treat various ailments in humans. Numerous biological activities have been reported previously. The current study sought to identify *S. hemsleyana* phyto-derived anti-viral compounds against the SARS-CoV-2 main protease to gain insight into the molecular interactions. In the present research, nine compounds obtained from the PubChem database are examined via molecular docking. Docking experiments were conducted using the AutoDock Vina tool. The Swiss ADME and DruLito servers were used for drug-like predictions. Our research shows that the phytoconstituents of *S. hemsleyana*, namely, Hemsleyanol-A and Hemsleyanoside-A, may act against SARS CoV-2 main protease with the binding affinity of −7.6 and −6.8 kcal/mol respectively, which were further validated by molecular dynamics (MD) simulations and end-state binding energy calculations. These phytocompounds could be used in contemporary strategies to develop effective medicines from natural sources. The identified substances are potential anti-viral agents. However, in vitro studies are necessary to assess their effectiveness against SARS-CoV-2.

Keywords *Shorea hemsleyana* · Autodock Vina · ADMET · In-silico · Lipinski's rule · Main protease

1 Introduction

An outbreak of the SARS-CoV-2 virus in 2019 caused one of the worst pandemics in history, resulting in a medical catastrophe [1]. SARS-CoV-2 has also spread to people from different countries via different routes, such as travellers, resulting in a pandemic declared by the WHO [2, 3]. The primary infection symptom of this novel coronavirus (COVID-19) is pneumonia, although additional symptoms include headache, weariness, and loss of taste.

The epidemiological history of the infection was obtained from the seafood market in Wuhan, China [4]. However, the precise origin of human transmission remains unclear. Currently, NCBI GenBank recognises over 100 genome patterns from over ten countries [5]. The variation between these series was less than 1%. SARS-CoV-2 has led to significant respiratory system infections in humans, caused by β-coronaviruses via the ACE2 receptor. Chinese experts separated SARS-CoV-2 and sequenced its genome SARS-CoV-2 on January 7, 2020 [6].

To propose an effective therapy against SARS-CoV-2, a thorough understanding of the viral structure is required, which may help identify more suitable targets [7–9]. Some

✉ D. S. N. B. K. Prasanth
dsnbkprasanth@gmail.com

1 Department of Pharmacognosy, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, AP 520010, India

2 Section of Microbiology, Central Ayurveda Research Institute, Jhansi, Uttar Pradesh 284003, India

3 Kusuma School of Biological Sciences, Indian Institute of Technology Delhi, New Delhi, India

4 Department of Pharmacology, Institute of Pharmaceutical Research, GLA University, Mathura, UP, India

5 Department of Pharmaceutical Analysis, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, AP 520010, India

6 Department of Pharmacognosy, Dr. L. H. Hiranandani College of Pharmacy, Ulhasnagar, Maharashtra 421003, India

7 Pharmaceutics Research Division, K L College of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, India

Published online: 11 November 2022

Original Article

EVALUATION OF CURRENT PRESCRIBING PRACTICES - A METHOD TO REDUCE THE COST OF THERAPY

Kanaka Durga Devi.Nelluri[1], Naveen Babu.Kilaru[2], Chakka Rupa Swathi[3], Polimetla Haripriya[4], Gutta Shilpa[5], Sravani Patibandla[6], Vandana Pathakoti[7], Chagantipati Surekha[8], Tammina Chandralekha[9], Juhi Nirmala yarrapothu[10]

[1,2,3,4,5,6,7,8,9,10]KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.

Email: nelluriss@rediffmail.com

DOI: 10.47750/pnr.2022.13.S01.48

Abstract

In India, there are more chances of the diseases in the poor, who are unaware of hygiene and it is very difficult for them to afford the treatment. The escalating costs of prescription drugs have become a substantial economic burden on patients with limited income. Since a large number of people in developing countries are economically challenged, many of them cannot afford required treatment. We need to ensure that the poor and vulnerable are not priced out of access to the medications they need to keep them out of the hospital, and to ensure a good quality of life. Any method which decreases the cost of therapy can be boon for the poor and the vulnerable. There are different brands of a single drug available in the market with different prices. But these drugs that are marketed under different brand names are similar in nature (i.e, they are similar in API , dose and form). So, the present study was based on the comparison of prices of different brands of extensively used drugs in the health care system which are employed for chronic or acute usage for decreasing the mortality and the morbidity of the patients. Results have shown that in the current scenario, upto 99.72% cost could be saved by substituting the highest priced brand with the lowest priced brand in a prescription. Hence , it is possible for a physician to decrease the cost of therapy especially of poor patients by comparing the prices of different brands of drugs & prescribing the low priced brands.

Keywords: prescription drugs, economically, vulnerable, API.

INTRODUCTION

Anyone who has flipped through a newspaper recently knows that the escalating cost of prescription drugs1-4 is an issue of national concern, especially as such drugs become an increasingly significant element of medical care. This constitutes a substantial economic burden on patients, physicians, hospitals, health-care systems, and society as a whole. When a patient with a limited income must choose between buying groceries or filling a prescription, the prescription is likely to go unfilled. Every day millions of population take medications prescribed for acute and chronic medical conditions to sustain or improve their health. Countless patients pay out-of-pocket for their medications because they do not have insurance or because they cannot afford the high co-payments or deductibles required by their insurance plan. Every day millions more who should take prescription drugs do not because of the associated high cost. Too many people — particularly those most vulnerable in society — are forced to choose between life's basic necessities — food, shelter, clothing — and their health because they cannot afford their prescribed medications. For a country often cited as providing the most advanced and sophisticated medical care in the world, this should never be the case.

One relatively easy way to help the low-income patients is to evaluate the current prescribing practices. Cost is one among the various factors to be taken into account in drug prescribing.

Without even realizing it, the prescriber may be in the habit of prescribing certain drugs to treat certain conditions, regardless of cost. If there arises a question when the prescriber reaches the prescription pad "Is there a less expensive alternative to treat the problem that will work as well for the patient?" Obviously as the prescriber don't want to provide inferior care just to save the patient a few bucks. Rather, be attuned to opportunities to provide the same excellent care for less, by substituting a high priced brand with a low priced brand.

The economic analyses provided in the literature must be understood and used in order to adequately compare and choose the best option. This reports the less costly procedures for the treatment. Cost data are derived from current actual costs in India.

Original Article

EVALUATION OF CURRENT PRESCRIBING PRACTICES - A METHOD TO REDUCE THE COST OF THERAPY

Kanaka Durga Devi.Nelluri[1], Naveen Babu.Kilaru[2], Chakka Rupa Swathi[3], Polimetla Haripriya[4], Gutta Shilpa[5], Sravani Patibandla[6], Vandana Pathakoti[7], Chagantipati Surekha[8], Tammina Chandralekha[9], Juhi Nirmala yarrapothu[10]

[1,2,3,4,5,6,7,8,9,10]KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.

Email: nelluriss@rediffmail.com

DOI: 10.47750/pnr.2022.13.S01.48

Abstract

In India, there are more chances of the diseases in the poor, who are unaware of hygiene and it is very difficult for them to afford the treatment. The escalating costs of prescription drugs have become a substantial economic burden on patients with limited income. Since a large number of people in developing countries are economically challenged, many of them cannot afford required treatment. We need to ensure that the poor and vulnerable are not priced out of access to the medications they need to keep them out of the hospital, and to ensure a good quality of life. Any method which decreases the cost of therapy can be boon for the poor and the vulnerable. There are different brands of a single drug available in the market with different prices. But these drugs that are marketed under different brand names are similar in nature (i.e, they are similar in API , dose and form). So, the present study was based on the comparison of prices of different brands of extensively used drugs in the health care system which are employed for chronic or acute usage for decreasing the mortality and the morbidity of the patients. Results have shown that in the current scenario, upto 99.72% cost could be saved by substituting the highest priced brand with the lowest priced brand in a prescription. Hence , it is possible for a physician to decrease the cost of therapy especially of poor patients by comparing the prices of different brands of drugs & prescribing the low priced brands.

Keywords: prescription drugs, economically, vulnerable, API.

INTRODUCTION

Anyone who has flipped through a newspaper recently knows that the escalating cost of prescription drugs1-4 is an issue of national concern, especially as such drugs become an increasingly significant element of medical care. This constitutes a substantial economic burden on patients, physicians, hospitals, health-care systems, and society as a whole. When a patient with a limited income must choose between buying groceries or filling a prescription, the prescription is likely to go unfilled. Every day millions of population take medications prescribed for acute and chronic medical conditions to sustain or improve their health. Countless patients pay out-of-pocket for their medications because they do not have insurance or because they cannot afford the high co-payments or deductibles required by their insurance plan. Every day millions more who should take prescription drugs do not because of the associated high cost. Too many people — particularly those most vulnerable in society — are forced to choose between life's basic necessities — food, shelter, clothing — and their health because they cannot afford their prescribed medications. For a country often cited as providing the most advanced and sophisticated medical care in the world, this should never be the case.

One relatively easy way to help the low-income patients is to evaluate the current prescribing practices. Cost is one among the various factors to be taken into account in drug prescribing.

Without even realizing it, the prescriber may be in the habit of prescribing certain drugs to treat certain conditions, regardless of cost. If there arises a question when the prescriber reaches the prescription pad "Is there a less expensive alternative to treat the problem that will work as well for the patient?" Obviously as the prescriber don't want to provide inferior care just to save the patient a few bucks. Rather, be attuned to opportunities to provide the same excellent care for less, by substituting a high priced brand with a low priced brand.

The economic analyses provided in the literature must be understood and used in order to adequately compare and choose the best option. This reports the less costly procedures for the treatment. Cost data are derived from current actual costs in India.

Research J. Pharm. and Tech. 15(3): March 2022

RJPT

ISSN 0974-3618 (Print)
0974-360X (Online)

www.rjptonline.org

RESEARCH ARTICLE

Production of Naringinase by using Amla on Solid State Fermentation

Supriya Chatla[1]*, Devalarao. Garikapati[2], Abdul Rahaman[3], Iswarya Obilineni[4]

[1]Associate Professor, Department of Biotechnology, Nirmala College of Pharmacy, Atmakuru, Mangalagiri, Guntur.

[2]Principal, KVSR Siddhartha College of Pharmaceutical Sciences Vijayawada, Andhra Pradesh.

[3]Principal, Nirmala College of Pharmacy, Atmakur, Andhra Pradesh.

[4]Assistant Professor, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh.

*Corresponding Author E-mail: **snsanjurocks@gmail.com**

ABSTRACT:

Microbial enzymes are widely used in different pharmaceutical, textile and in leather industries, mainly because of vast availability of sources. They could be genetically modified and are considered as more economical in comparison to plant and animal enzymes. Production of microbial enzymes by application of fermentation involves microbial propagation like bacteria, mold and yeast to get useful product. There are two methods of fermentation used to produce microbial enzymes called submerged fermentation and solid-state fermentation. Submerged fermentation involves the production of enzymes by using microorganisms in a liquid state nutrient media. Solid-state fermentation is the cultivation of microorganisms in solid substrate. Nutrients containing carbon compounds are broken down by the microorganisms, which produce the enzymes either intracellular or extracellular. Industries that use enzymes generated by fermentation are the brewing, wine making, baking, cheese making, dairy, beverages, and cereals. In the present study *Asperigillus Niger* strain was used to produce the extra cellular naringinase enzyme in nutrient medium containing Amla as a solid substrate. Amla is the chief material for the production maximum Naringinase enzyme. The study also involved in the optimization of various physical parameters like temperature, PH, incubation period, mass of inoculum. The study concluded that pH -5.5, temperature of 28°c, incubation period of 96 hrs and 20% of inoculums for maximum naringinase production.

KEYWORDS: Naringinase, Amla, *Asperigillus Niger,* solid state fermentation, Enzymes.

INTRODUCTION:

Industries have a great deal of raw material's in its quality attribute. The main focus was made on the lowest possible prices and maintaining organoleptic quality in case of food and beverages. The processing of citrus fruits such as grapes and oranges to yield fruit juices is complicated by several factors which are bitter finally. So it would be advantageous if the bitterness is removed. Naringin is the principle biflavonoid of citrous fruits that gives bitter taste to the juices. Naringin is abundant in immature fruits than in ripen fruits[1]. Naturally grape juice contains 0.017 - 0.0025% of naringin. Its taste thresholdbitterness in water is approximately 20 ppm, but 1.5ppm level may be detected.

Received on 16.12.2020 Modified on 19.04.2021
Accepted on 28.07.2021
Research J. Pharm.and Tech 2022; 15(3):1225-1229.
DOI: 10.52711/0974-360X.2022.00204

Naringin is a Bioflavonoid compound which is a conjugate of sugar molecule with naringenin. Reduction of naringin concentration by enzymatic hydrolysis appears as one of the promising technique in industries. Naringin can be hydrolysed by the enzyme Naringinase. Enzymes are among the most important sequels obtained for human needs through plant, animal and microbial sources[2]. Many of the enzymes have the lot of applications in industry, including food processing, brewery and baking[3-6]. Agro-industrial residues are generally considered as suitable substrates for the production of enzymes, especially cellulase, under solid state fermentation[7]. The agricultural waste has to be converted into useful components as they are a concern of environmental pollution. These products may be a solution to this problem[8]. Enzymes are defined as soluble, colloorganic catalysts which are produced by living cells, but are capable of acting independently on cells[9,10]. It is the debitterising enzyme which is used to

Research J. Pharm. and Tech. 15(3): March 2022

RJPT

ISSN 0974-3618 (Print)
0974-360X (Online)

www.rjptonline.org

RESEARCH ARTICLE

Production of Naringinase by using Amla on Solid State Fermentation

Supriya Chatla[1]*, Devalarao. Garikapati[2], Abdul Rahaman[3], Iswarya Obilineni[4]

[1]Associate Professor, Department of Biotechnology, Nirmala College of Pharmacy, Atmakuru, Mangalagiri, Guntur.

[2]Principal, KVSR Siddhartha College of Pharmaceutical Sciences Vijayawada, Andhra Pradesh.

[3]Principal, Nirmala College of Pharmacy, Atmakur, Andhra Pradesh.

[4]Assistant Professor, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh.

*Corresponding Author E-mail: **snsanjurocks@gmail.com**

ABSTRACT:

Microbial enzymes are widely used in different pharmaceutical, textile and in leather industries, mainly because of vast availability of sources. They could be genetically modified and are considered as more economical in comparison to plant and animal enzymes. Production of microbial enzymes by application of fermentation involves microbial propagation like bacteria, mold and yeast to get useful product. There are two methods of fermentation used to produce microbial enzymes called submerged fermentation and solid-state fermentation. Submerged fermentation involves the production of enzymes by using microorganisms in a liquid state nutrient media. Solid-state fermentation is the cultivation of microorganisms in solid substrate. Nutrients containing carbon compounds are broken down by the microorganisms, which produce the enzymes either intracellular or extracellular. Industries that use enzymes generated by fermentation are the brewing, wine making, baking, cheese making, dairy, beverages, and cereals. In the present study *Asperigillus Niger* strain was used to produce the extra cellular naringinase enzyme in nutrient medium containing Amla as a solid substrate. Amla is the chief material for the production maximum Naringinase enzyme. The study also involved in the optimization of various physical parameters like temperature, PH, incubation period, mass of inoculum. The study concluded that pH -5.5, temperature of 28°c, incubation period of 96 hrs and 20% of inoculums for maximum naringinase production.

KEYWORDS: Naringinase, Amla, *Asperigillus Niger,* solid state fermentation, Enzymes.

INTRODUCTION:

Industries have a great deal of raw material's in its quality attribute. The main focus was made on the lowest possible prices and maintaining organoleptic quality in case of food and beverages. The processing of citrus fruits such as grapes and oranges to yield fruit juices is complicated by several factors which are bitter finally. So it would be advantageous if the bitterness is removed. Naringin is the principle biflavonoid of citrous fruits that gives bitter taste to the juices. Naringin is abundant in immature fruits than in ripen fruits[1]. Naturally grape juice contains 0.017 - 0.0025% of naringin. Its taste thresholdbitterness in water is approximately 20 ppm, but 1.5ppm level may be detected.

Received on 16.12.2020 Modified on 19.04.2021
Accepted on 28.07.2021
Research J. Pharm.and Tech 2022; 15(3):1225-1229.
DOI: 10.52711/0974-360X.2022.00204

Naringin is a Bioflavonoid compound which is a conjugate of sugar molecule with naringenin. Reduction of naringin concentration by enzymatic hydrolysis appears as one of the promising technique in industries. Naringin can be hydrolysed by the enzyme Naringinase. Enzymes are among the most important sequels obtained for human needs through plant, animal and microbial sources[2]. Many of the enzymes have the lot of applications in industry, including food processing, brewery and baking[3-6]. Agro-industrial residues are generally considered as suitable substrates for the production of enzymes, especially cellulase, under solid state fermentation[7]. The agricultural waste has to be converted into useful components as they are a concern of environmental pollution. These products may be a solution to this problem[8]. Enzymes are defined as soluble, colloorganic catalysts which are produced by living cells, but are capable of acting independently on cells[9,10]. It is the debitterising enzyme which is used to

Kanak Durga
CHINESE JOURNAL OF MEDICAL GENETICS
ISSN:1003-9406
Vol. 32 Iss. 3 2022

EVALUATION OF INVITRO AND INVIVO ANTI- OXIDANT AND ANTI-INLAMMATORY ACTIVITIES OF NEW ISATIN DERVATIVES

Kanaka Durga Devi Nelluri*[1], Bala Yaswanth Kumar. S[1], B. Radha Madhavi[2], Suranjan Bantupalli[1], Atluri Deekshit[1], Lavu. Vamsi Krishna[1], Ganganaboyina.Rahul Krishna[1], M.Sravani[1] & Himabindu.U[1]

[1]KVSR Siddhartha College of Pharmaceutical Sciences, Andhra Pradesh, Vijayawada, India.
[2]Shri Vishnu College of Pharmacy, Vishnupur, Bhimavaram, Andhra Pradesh – 534202, India

ABSTRACT

Inflammation is a comprehensive array of physiological response to a foreign organism, including human pathogens, dust particles, and viruses. Inflammations are mainly divided into acute and chronic inflammation depending on various inflammatory processes and cellular mechanisms. Recent investigations have clarified that inflammation is a major factor for the progression of various chronic diseases/disorders, including diabetes, cancer, cardiovascular diseases, eye disorders, arthritis, obesity, autoimmune diseases, and inflammatory bowel disease. In this study, synthesised isatin compounds (11-113) were selected and screened in vitro antioxidant, Human RBC membrane stabilisation activity and anti-inflammatory activity. Isatin compounds showed dose dependent in-vitro antioxidant activity in DPPH assay, human RBC membrane stabilisation allay, Isatin 19 and 113 compounds showed dose dependent antioxidant and in vitro anti-inflammatory activity. The selected compounds were observed for in-vivo anti-inflammatory activity by carrageenan method. Both the compounds showed dose dependent anti-inflammatory activity. Further studied are needed for the evaluation of other pharmacological activities.

Keywords: Inflammation, anti-oxidant, anti-inflammatory activity, Isatin compounds.

1. INTRODUCTION

Inflammatory diseases include a vast array of disorders and conditions that are characterized by inflammation. Examples include allergy, asthma, autoimmune diseases, coeliac disease, glomerulonephritis, hepatitis, inflammatory bowel disease, preperfusion injury and transplant rejection (Gan e t al., 2016). Inflammation is a local reaction of the vascular and supporting elements of a tissue to injury resulting in the formation of a protein-rich exudates; it is protective response of the nonspecific immune system that serves to localize, neutralize, or to a destroy an injurious agent in preparation for the process of healing. The cardinal signs of inflammation are rubor (redness), calor (heat), dolor (pain), tumor (swelling), and function laesa (loss of function). Cause of inflammation includes physical agents, chemical agents, immunological reactions and infection by pathogenic organism. Inflammation is divided into acute and chronic patterns[1]. The characteristics of acute inflammation are the exudation of fluid and plasma proteins (oedema) and the emigration of leukocytes, predominantly neutrophils. Chronic inflammation is considered to be inflammation of prolonged duration(weeks or months) in which active inflammation, tissue destruction, and attempts at repair are proceeding simultaneously. Chronic inflammation includes some of the most common and disabling human diseases, such as rheumatoid arthritis[2], atherosclerosis, tuberculosis, and chronic lung diseases (Straub, 2012).

Causes

Inflammation is caused by a number of physical reactions triggered by the immune system in response to a physical injury or an infection. Inflammation does not necessarily mean that there is an infection, but an infection can cause inflammation.

Three main processes occur before and during acute inflammation:

The small branches of arteries enlarge when supplying blood to the damaged region,
1. Resulting in increased blood flow.
2 Capillaries become easier for fluids and proteins to infiltrate, meaning that they can move between blood and cells.
3. The body releases neutrophils. A neutrophil is a type of white blood cell filled with tinysacs that contain enzymes and digest microorganisms[3]

Prescription Analysis in patients with COPD and Asthma, as well as to determine the Prevalence and Incidence of COPD in smokers and Non-smokers

Author: Rohit Kumar*[1], Rajanya[2], Swarnalatha[3], Sushma Sri,[4] Jaffer Sadik Mohammad[5], K. Ravishankar[6], Rahaman Shaik[7]

***Corresponding author: Rohit Kumar**

***[1]Sri Indu Institute of Pharmacy,Sheriguda(V), Ibrahimpatnam(M) R.R Hyderabad, Telangana 501510**

drrohitkumar824@gmail.com

[2,3,4,5]Sri Indu Institute of Pharmacy,Sheriguda(V), Ibrahimpatnam(M) R.R Hyderabad, Telangana 501510

[6]. KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, A.P, 520010

[7]. Jamia Hamdard, Hamdard Nagar, New delhi-110062

ABSTRACT

To conduct prescription analysis in patients with COPD and Asthma, as well as to determine the prevalence and incidence of COPD in smokers and non-smokers. Patients admitted to the pulmonology department at BBR Multispecialty Hospital in Balanagar, Hyderabad, were studied. Patients only between age of 18 and 80 was considered, whereas those who was pregnant, paediatrics, or even in critical condition were excluded from the study. A total of 170 patients were collected throughout the duration of six months, from October 2021 to March 2022. In our research of 170 patients, the male population outnumbered the female population, and COPD and Asthma were more prevalent in patients ages 69 – 78. The oxygen level range for 170 patients was between 91% to 100%. Around 39 of these patients were smokers or ex-smokers. About 95 patients (55.88%) were found to have asthma, 65 patients (38.23%) were COPD, and 10 patients (5.86%) had an asthma-COPD overlap. There were about 97 in-patients and 73 out-patients. Acebrophylline were the most commonly used drug (38.82% or 66 patients), whereas long-acting -agonists were the most frequently prescribed class of drugs (58.82%).In our research, we found that, while asthma was more common than COPD, the latter was likely to have more severe effects on the patients. In fact, the COPD patients experienced serious, perhaps irreversible disease progression. However, continued therapy and cessation of smoking can significantly improve quality of life.

Keyword: COPD, Asthma, Quality of life, Prevalence, Incidence

DOI Number: 10.14704/nq.2022.20.10.NQ55783 **NeuroQuantology 2022; 20(10):7953-7989**

INTRODUCTION

According to WHO, COPD is a common, preventable, treatable chronic lung disease that affects men and women worldwide. Abnormalities in the lungs' small airways lead to limitation of airflow in and out of the lungs (1). The WHO definition of COPD is as follows: COPD is a group of pathological conditions in

RESEARCH ARTICLE

2^3 Full Factorial Designs for Formulation and Evaluation of Non-Steroidal Anti-inflammatory Drug

Desavath C. S. Naik[1]*, Arigela Bharathi[2]

[1]*Krishna University, Machilipatnam, Andhra Pradesh, India*
[2]*KVSR Siddhartha College of Pharmaceutical Sciences, Andhra Pradesh, India*

Received: 29th January, 2022; Revised: 10th February, 2022; Accepted: 28th February, 2022; Available Online: 25th March, 2022

ABSTRACT

This study aimed to formulate ibuprofen fast-dissolving tablets using a natural super-disintegrant to enhance their anti-inflammatory activity. In this survey, three factors in a two-level (2^3) factorial design were employed to examine the effects of three factors, i.e., effects of *Ocimum gratisimum* mucilage [A], sodium starch glycolate [B], and croscarmellose sodium [C] on dependent variables such as in vitro method, in water absorption, and percent drug release at 5 minutes. The pH range for all formulations was 7.2 ± 0.24 to 7.2 ± 0.25. The drug content percentages ranged from 198.92 ± 0.78 to 201.5 ± 10.55%. The in vitro relationship is that after transient administration of the system, it remains intact for an extended period of time. Water absorption was in the range of 45.9 ± 0.15 to 99.9 ± 0.25%; optimized formulation water absorption was estimated to be approximately 55 ± 0.05% to 195 ± 0.040%. Formulations F2 and F4 reflected rapid drug release within 5 minutes, and all formulations except F3, F6, and F7 exhibited approximately 90% drug release within 10 minutes. Experience has shown that the independent variables chosen to have a significant effect on the dependent variable, demonstrating the robustness and adaptability of the design implied by optimization. The developed system could be a promising alternative strategy to increase ibuprofen retention in the stomach, thereby enhancing its therapeutic efficacy. It even offers the added benefit of reducing stomach irritation, tissue damage, and ulcers by avoiding direct contact of the drug with the gastric mucosa.

Keywords: Factorial design, Ibuprofen, Mucilage, pH.

International Journal of Drug Delivery Technology (2022); DOI: 10.25258/ijddt.12.1.1

How to cite this article: Naik DCS, Bharathi A. 2^3 Full Factorial Designs for Formulation and Evaluation of Non-Steroidal Anti-inflammatory Drug. International Journal of Drug Delivery Technology. 2022;12(1):1-7.

Source of support: Nil.

Conflict of interest: None

INTRODUCTION

When placed on the tongue, fast dissolving tablets are defined as a solid dosage form containing medicinal substances that disintegrates rapidly, usually within seconds. Physical problems with swallowing (dysphagia) can occur at any age with traditional tablets but are more common in the elderly and those with dementia, whereas refusal to swallow is common in geriatric, paediatric, and psychiatric patients.[1] Tablet-taking difficulties and resistance are common in all patient groups. Fast-dissolving tablets have been developed in recent years to help people with swallowing problems. The tablet's orally disintegrating property is due to the rapid ingress of water into the matrix, which creates a porous structure and causes rapid disintegration. These tablets dissolve instantly when placed on the tongue, releasing the drug, which dissolves or disperses in saliva. As saliva passes down into the stomach, the drugs may be absorbed from the mouth, pharynx, or oesophagus. Fast dissolving tablets have the following benefits: ease of swallowing without water, rapid onset of action, enhanced dissolution rate, increased gastric absorption, improved oral bioavailability, reduced first pass metabolism, and improved patient compliance.[2]

Ibuprofen is a non-steroidal anti-inflammatory drug (NSAID) that is used to treat rheumatoid arthritis, osteoarthritis, and other chronic and acute pain and inflammation conditions. Because ibuprofen's serum concentrations and analgesic effect are linked, rapid absorption could be a requirement for its rapid onset of action. The drug's major drawbacks include its low solubility in biological fluids, gastric irritation, and a 2-hours biological half-life. It is practically water insoluble, resulting in poor solubility and, as a result, poor GI absorption and bioavailability.[3,4] Fast dissolving tablets of Ibuprofen were made using super-disintegrants and direct compression to improve dissolution rate and thus absorption.

MATERIALS AND METHODS

Materials

Ibuprofen pure drug obtained from yarrow chemicals Mumbai. Mannitol, Sodium starch glycolate, Croscarmellose sodium was obtained from Yarrow chem. products, Mumbai.

*Author for Correspondence: chandu.desavath@gmail.com

Original Article

EFFECT OF AEGLE MARMELOS LEAF EXTRACT ON GLUCOSE UPTAKE USING ISOLATED RAT DIAPHRAGM

Kanaka Durga Devi.Nelluri[1], B.Radha Madhavi[2], Bala Yaswanth Kumar.S[3], Bantupalli.Suranjan[4], Atluri.Deekshit[5], Mano Ranjitha.P[6], G.Rahul Krishna[7], P.Sai Sri Raajitha[8], Sravanthi.Talluri[9]

[1,3,4,5,6,7,8,9]KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.

[2]Shri Vishnu College of Pharmacy, Vishnupur, Bhimavaram, Andhra Pradesh – 534202, India.

Email: nelluriss@rediffmail.com

DOI: 10.47750/pnr.2022.13.S01.47

Abstract

The plant extract of the aegle marmelos, a medicinal plant was used for the solely purpose to know whether is it any better or equal to the standard diabetic drug rosiglitazone by using the isolated diaphragm of the rat. Tyrode solution was prepared and accordingly extracts were divided into7 groups with those comparing with glucose concentration of the drug after the tissue was added with standard drug and with leaf extract, leaf extract of 0.1mg and 1 mg ,5mg and 10mg was taken. Results showed that only 10mg leaf extract had show a significant uptake of the glucose which is equal to uptake of standard drug.

Keywords: Tyrode Solution, Aegel Marmelos, Standard Drug, Insulin.

INTRODUCTION

More number of research papers and reviews clearly shows that medicinal plants exhibit a variety of therapeutic properties and could provide health security to rural people primary health care. Among medicinal plants Aegle marmelos Correa (family Rutaceae) is very relevant and this plant is available in India, Bangladesh, Burma and Sri Lanka. A. marmelos has an important place in medicine. regarding pharmacology, alcoholic and aqueous extracts of the leaves had similar uses as digoxin in amplitude and contractions of the frog heart and methanolic extracts of roots inhibited the beating rate by approximately 50% of cultured mouse myocardial cells Karunanayake; Sabu and With respect to clinical applications, it should be noted that the roots are astringent, bitter and febrifuge. They are useful in diarrhea, dysentery, dyspepsia, stomachalgia cardiopalmus, seminal weakness, vomiting, intermittent fever swellings. Leaves of the A. marmelos are used as laxative expectorant, also in ophthalmic uses, inflammations, cataract, diabetes, asthmatic and antifungal complaints Also, the effect of these extracts was examined in the regulation of hyperthyroidism and for the analgesic activity in mice.

Diabetes mellitus, also referred as diabetes, is a group of metabolic diseases in which a person has high levels of blood sugar, which can be either because the body does not produce enough insulin, or because unresponsiveness of the cell towards insulin that is produced (Shoback et al., 2011). This increased blood glucose levels shows the symptoms of polyuria (frequent urination), polydipsia (increased thirst) and polyphagia (increased hunger).

A RISING GLOBAL BURDEN

Globally as of 2010, an estimated 285 million people have type 2 diabetes, making up about 90% of all diabetes cases (Shlomo Melmed et al., 2010)

Diabetes mellitus (predominantly type 2) is a major and growing health problem in almost all countries. Globally, the prevalence of diabetes in adults aged over 20 years was estimated to be 4% in 1995 and is projected to rise to 5.5% by 2025. Over the same period, the number of people effected with diabetes will rise from 135 million people to 300 million people, about 75% of whom will live in developing countries. In the western pacific region, the current number of people with diabetes is estimated to be 30 million. This will rise to at least 55millions adults by 2025. Of these 38 million will be in china and 9 million in Japan. The prevalence of diabetes exceeds 8%in 12 countries and areas of the region and in some pacific island countries it exceeds 20%. In countries where lifestyle changes began only recently (e.g. Cambodia, Vietnam) diabetes prevalence is relatively low, but there are signs that this is changing, in these countries rapid increases in prevalence can be anticipated unless urgent preventive action is taken.The numbers of people with diabetes will more than double over the next 25 years, to reach a total

Nelluri et al.
Journal of Genetic Engineering and Biotechnology (2022) 20:89
https://doi.org/10.1186/s43141-022-00355-y

Journal of Genetic Engineering and Biotechnology

RESEARCH Open Access

In silico multi-epitope Bunyumwera virus vaccine to target virus nucleocapsid N protein

Kanaka Durga Devi Nelluri[1*], Manne Anupama Ammulu[2], M. Lakshmi Durga[1], Melika Sravani[1], Vemuri Praveen Kumar[3] and Sudhakar Poda[4]

Abstract

Background: Bunyumwera virus can cause 82% mortality in humans currently with no vaccine or drugs for treatment. We described an in silico multi-epitope vaccine targeting Bunyumwera virus nucleocapsid N-protein and predicted B and T cell epitopes for immunogenicity, allergenicity, toxicity, and conservancy. For creating the most potent immunological response possible, docking epitopes with HLA alleles are chosen to screen them. The 3D vaccination was docked with the Toll-like receptor-8 using molecular dynamic simulations. To ensure production efficiency, the vaccine sequence was further cloned in silico in a plasmid pIB2 vector. For efficacy and safety, results must be supported in vitro and in vivo.

Results: The vaccine was cloned to enable expression and translation in a plasmid vector pIB2. It was expected to be antigenic, non-allergenic, and have a high binding affinity with TLR-8 in silico cloning. This multi-epitope vaccination may stimulate both innate and adaptive immunity.

Conclusion: The vaccine developed in this work was based on the nucleocapsid N-protein of the Bunyumwera virus and was created using a reverse vaccinology method. Further experimental validation is required to assess the vaccine's therapeutic effectiveness and immunogenicity.

Keywords: Bunyumwera virus, Multi-epitope, Nucleocaspid N-Protein, Vaccine design

Background

In the *Bunyaviridae* family, the *Bunyamwera* group is one of 18 serologically discovered arbovirus serogroups in the *Orthobunyavirus* genus. They are made up of three single-stranded RNA segments along with nucleoproteins. *Bunyamwera* virus is prevalent in sub-Saharan Africa and is a leading cause of severe fever sickness in humans. The virus was identified from people in Uganda, Nigeria, and South Africa, and antibodies have been discovered in humans throughout sub-Saharan Africa, with a high frequency (up to 82%) in some places [1]. The virus was isolated from multiple *Aedes* species mosquitos, indicating that they are the primary carrier. Cache Valley Fever virus was recently characterized as a *Bunyamwera* virus strain, extending the infection's total geographic distribution to North America. Other *Bunyamwera* virus strains were discovered in Argentina. In humans and mammals, the *Bumyamwera* virus-related illness was found to induce minor symptoms such as fever, joint discomfort, and rash. The Bunyamwera virus family consists of 32 viruses; among them, the viruses have the primary host as human – Batai, Bunyamwera, Fort, Germiston, Guaroa *Ilesha*, *Ngari*, *Shokwe*, and *Xingu* [2].

Bumyaviruses have a nucleocapsid protein (NP) that aids in the encapsidation of genomic RNA and viral replication. In the form of ribonucleoprotein complexes, copies of the N protein encapsulated genomic RNA segments. The N protein is employed in many serological and molecular diagnostics because it is the most

Kanaka Durga Devi Nelluri is the first author of the study.

*Correspondence: nelluriss@rediffmail.com

[1] Department of Pharmaceutics and Biotechnology, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India
Full list of author information is available at the end of the article

PRINCIPAL
K.V.S.R. SIDDHARTHA COLLEGE OF
PHARMACEUTICAL SCIENCES
VIJAYAWADA-520 010.

ISSN 0974-3618 (Print)
0974-360X (Online)

www.rjptonline.org

RJPT

RESEARCH ARTICLE

Evaluation of Antihyperlipidemic activity of leaves of *Cassia tora*

Iswarya Obilineni[1], Jangam Divya Latha[2], Kamireddy Srikala[2], Gummadi Asha[3], Marupilla Amulya[3], Vaddeswarapu Rajani[2]

[1]Assistant Professors, KVSR Siddhartha college of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh.
[2]Assistant Professors, Nirmala College of Pharmacy, Atmakur, Andhra Pradesh.
[3]IV B Pharmacy Students, Nirmala College of Pharmacy, Atmakur, Andhra Pradesh.
*Corresponding Author E-mail: **aishwarya.111188@gmail.com**

ABSTRACT:
Aim: To evaluate the antihyperlipidemic activity of leaves of cassia tora Objective: Hyperlipidemia is a clinical condition causing lethal diseases like atherosclerosis, myocardial infarction etc that ultimately leads to death. Several works have been reported that the extracts of many plants have antihyperlipidemic activity. Cassia tora is used for a long time as a daily vegetable in many countries. It consists of phytochemical constituents like flavonoids which lowers blood cholesterol level. Materials and Methods: Materials used: Antihyperlipidemic activity of Cassia tora was screened by a model, Cholesterol diet induced hyperlipidemia. Marker enzymes like LDH, LDL, VLDL, total protein, total cholesterol, AST, ALP, ALT,SOD, Catalase, LPO and histopathology of myocardium and aorta carried out. Results: Flavonoids of leaves of Cassia tora treated group showed significant decrease in LDL-Cholesterol, total cholesterol, triglycerides, AST, ALT, ALP and increase in HDL cholesterol, albumin, total protein and further was concluded by histopathological studies. Conclusion: From result, it was concluded that flavonoid of leaves of Cassia tora shows antihyperlipidemic activity in the heart of rats.

KEYWORDS: Antihyperlipidemic, Hypercholesteremia, Cholesterol-diet, Atherosclerosis, Myocardial infarction.

INTRODUCTION:

Traditional medicines occupy an important place in the healthcare systems of developing countries. Due to their vast availability, lower price ranges[1], higher efficacy and safety[2] most of the people of developing countries are depending on traditional medicines. Traditional medicines believed to have better compatibility with the human body due to the presence of chemical constituents that are a part of the physiological functions of living flora[3]. *Terminalia arjuna, Zingiber officinale, Phyllanthus niruri, Ginkgo biloba, Allium sativum, Commiphora mukul, Curcuma longa*[4], *Erythrina variegate*[5], *Murraya koenigii* (curry leaf)[6] , *Camellia sinensi*[7], *Solanum nigrum* fruit[8] *Sidarhomboidea roxb*[9] etc are some examples of herbs which are medicinally active against hyperlipidemia. Hyperlipidemia is a silent killer[10] faced by many societies and it is one of the major risk factors for the development of cardiovascular diseases such as atherosclerosis, acute infarction of the myocardium[11] Due to raised cholesterol levels, cholesterol plaques are developed in the artery walls leading to atherosclerosis[12] Despite the introduction of many antihyperlipidemic drugs, significant percentage of people are suffering with hyperlipidemia and heart diseases. Hyperlipidemia is the major cause of atherogenic risk; both genetic disorder and lifestyle contribute to the dyslipidemias around the world[13].

Familial hypercholesterolemia (FH) is a genetic disorder characterised by high cholesterol levels. Heterozygous FH is a common genetic disorder, occurring in 1:500 people in most countries; homozygous FH is much rarer, occurring in 1 in a million births[14]. Cardiovascular diseases are the most common cause of death worldwide. Hyperlipidemia in combination with

Received on 15.10.2020 Modified on 10.04.2021
Accepted on 03.07.2021
Research J. Pharm.and Tech 2022; 15(2):741-744.
DOI: 10.52711/0974-360X.2022.00123

ASSOCIATION BETWEEN CARDIOVA SCULAR EVENTS AND RISK-FACTORS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

DR. P RAMESH BABU[1] DR MUDDANA.V.RAMA SUBRAMANYAM[1] PONNALURI LALITHA [2], POLIMETLA HARIPRIYA [2], RAAVI HEMANTH [2], PALETI RACHANA [2] MANDAVA MAHIMA SWAROOPA [3]*

ADDRESS FOR CORRESPONDANCE: MANDAVA MAHIMA SWAROOPA,

Assistant professor at KVSR Siddhartha College of Pharmaceutical Sciences,

Vijayawada.

1 *.Cardiologist MBBS, MD, DM, FSCAI ,Ramesh Hospitals,Vijayawada

1. Chief Radiologist,MBBS,DNB in Ramesh Hospitals,Vijaywada
2. Students at KVSR Siddhartha College of Pharmaceutical sciences, Vijayawada, Andhra Pradesh.
3. Assistant professor at KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada.

\

\

NeuroQuantology |September 2022 | Volume 20 | Issue 10 |Page 10165-10182|doi: 10.14704/nq.2022.20.10.NQ55988
Kanaka Durga Devi Nelluri et al / Cost Analysis of Extensively Used Antibiotics

Cost Analysis of Extensively Used Antibiotics

Kanaka Durga Devi Nelluri[1]*, Naveen Babu Kilaru[1], Shaik Asha Begum[2], Chakka Rupa Swathi[1], Ponnaluri Lalitha[1], Haridasu Bhavyasri[1], Acchi Anuhya[1], Gade Siva Parvathi[1], Haripriya Tadi[1], Vasanthi Mandapaka[1]

[1]KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.
[2]Nirmala College of Pharmacy,Atmakur, Mangalagiri, Vijayawada,Andhra Pradesh

Corresponding:nelluriss@gmail.com

Abstract

Cost of therapy has been increasing day-by-day. Health expenditures like medicines have to be covered by out-of pocket money, which includes 50-90 percent of the people in developing countries, making medicines unaffordable (WHO, 2004b). About 25-70 percent of the income is spent on health-care expenditure in developing countries, in contrast to 10 percent in developed countries (HAI, 2008). Poor people, who are unaware of hygiene, are mostly prone to infections and they even cannot afford treatment. Antibiotics have made a significant contribution to improve the health of patients suffering from bacterial infections. Medicine prices play a crucial part for the poor in access to antibiotics. Hence, any method which decreases the cost of therapy could be a boon for the poor. There are different brands of a single drug available in the market with different prices. But these drugs that are marketed under different brand names are similar in nature (i.e., they are similar in API, dose and form). So, the present study was based on the comparison of prices of different brands of extensively used antibiotics in the health care systems which are employed for treating bacterial infections and thereby decreasing the mortality and the morbidity of the patients. Results have shown that in the current scenario, upto 99.11% cost could be saved by substituting the highest priced brand with the lowest priced brand in a prescription. Hence, it is possible for a physician to decrease the cost of therapy, while treating infections especially of poor patients by comparing the prices of different brands of drugs & prescribing the low priced brands.

Keywords:WHO,HAI, API, Antibiotics.
DOI Number: 10.14704/nq.2022.20.10.NQ55988 **NeuroQuantology 2022; 20(10): 10165-10182**

INTRODUCTION

Antibiotics are a group of medicines that are used to treat infections caused by germs (bacteria and certain parasites), or in some cases to prevent infections[1-4].

However, antibiotics are prescribed only to treat:

- Conditions that are not especially serious but are unlikely to clear up without the use of antibiotics, such as moderately severe acne.
- Conditions that are not especially serious but could spread to other people if not promptly treated, such as the skin infection impetigo or the sexually transmitted infection chlamydia.
- Conditions where evidence suggests that antibiotics could significantly speed up recovery, such as a kidney infection.
- Conditions that carry a risk of more serious complications, such as cellulitis or pneumonia.

Intravenous antibiotics

NeuroQuantology |September 2022 | Volume 20 | Issue 10 |Page 10165-10182|doi: 10.14704/nq.2022.20.10.NQ55988
Kanaka Durga Devi Nelluri et al / Cost Analysis of Extensively Used Antibiotics

Cost Analysis of Extensively Used Antibiotics

Kanaka Durga Devi Nelluri[1]*, Naveen Babu Kilaru[1], Shaik Asha Begum[2], Chakka Rupa Swathi[1], Ponnaluri Lalitha[1], Haridasu Bhavyasri[1], Acchi Anuhya[1], Gade Siva Parvathi[1], Haripriya Tadi[1], Vasanthi Mandapaka[1]

[1]KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.
[2]Nirmala College of Pharmacy,Atmakur, Mangalagiri, Vijayawada,Andhra Pradesh

Corresponding:nelluriss@gmail.com

Abstract

Cost of therapy has been increasing day-by-day. Health expenditures like medicines have to be covered by out-of pocket money, which includes 50-90 percent of the people in developing countries, making medicines unaffordable (WHO, 2004b). About 25-70 percent of the income is spent on health-care expenditure in developing countries, in contrast to 10 percent in developed countries (HAI, 2008). Poor people, who are unaware of hygiene, are mostly prone to infections and they even cannot afford treatment. Antibiotics have made a significant contribution to improve the health of patients suffering from bacterial infections. Medicine prices play a crucial part for the poor in access to antibiotics. Hence, any method which decreases the cost of therapy could be a boon for the poor. There are different brands of a single drug available in the market with different prices. But these drugs that are marketed under different brand names are similar in nature (i.e., they are similar in API, dose and form). So, the present study was based on the comparison of prices of different brands of extensively used antibiotics in the health care systems which are employed for treating bacterial infections and thereby decreasing the mortality and the morbidity of the patients. Results have shown that in the current scenario, upto 99.11% cost could be saved by substituting the highest priced brand with the lowest priced brand in a prescription. Hence, it is possible for a physician to decrease the cost of therapy, while treating infections especially of poor patients by comparing the prices of different brands of drugs & prescribing the low priced brands.

Keywords:WHO,HAI, API, Antibiotics.
DOI Number: 10.14704/nq.2022.20.10.NQ55988 **NeuroQuantology 2022; 20(10): 10165-10182**

INTRODUCTION

Antibiotics are a group of medicines that are used to treat infections caused by germs (bacteria and certain parasites), or in some cases to prevent infections[1-4].

However, antibiotics are prescribed only to treat:

- Conditions that are not especially serious but are unlikely to clear up without the use of antibiotics, such as moderately severe acne.
- Conditions that are not especially serious but could spread to other people if not promptly treated, such as the skin infection impetigo or the sexually transmitted infection chlamydia.
- Conditions where evidence suggests that antibiotics could significantly speed up recovery, such as a kidney infection.
- Conditions that carry a risk of more serious complications, such as cellulitis or pneumonia.

Intravenous antibiotics

eISSN1303-5150

A Prospective Observational Study On Drug Combination Therapy In The Treatment Of Diabetis: Focus To Achieve A Better Glycemic Control

Kanaka Durga Devi Nelluri[1]*, Shaik Asha Begum[2], Motupalli Sankeerth Kumar[1], Seelam Victor John Wilson[1], Krishna Tulasi.Kankanampati[1] Kavya Sree Myneedu[1], Pooja Sree Bolisetty[1], Sravanthi Talluri[1], Revanth Bojja[1]

[1]KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.

[2]Nirmala College of Pharmacy, Mangalagiri, Andhra Pradesh, India

Corresponding:nelluriss@gmail.com

Abstract

A prospective, observational study was carried out in the medical inpatient department of Dr. Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation, which is a tertiary care teaching hospital located in Chinavutapalli, Gannavaram Mandal, Krishna District of Andhra Pradesh state. The study was carried out for the period of three months. Prescriptions contained in 80 case notes of elderly patients diagnosed of Type II DM were consecutively selected and evaluated. Age of the elderly patient was taken as ≥50 years as stated in the WHO definition of an older or elder person. (WHO 2009). A self-designed data collection forms were used to collect data from patient's case notes. Information collected included Age, Sex, Chief complaints of the patient, Vitals, Past medical and medication history, previous allergies, Co morbidities, laboratory data and prescribed drugs. Data collected was entered into Microsoft Excel for easy sorting and was further analyzed using the same. Chi-square test was applied for some of the parameters by using Graph pad prism 5. P< 0.005 was considered to be significant. In the present study we discussed the results about combination therapy.

Keywords: Diabetis mellitus, combination therapy, low glycemic levels, comorbities.
DOINumber:10.14704/nq.2022.20.10.NQ55989 **NeuroQuantology 2022; 20(10): 10183-10189**

INTRODUCTION:

Diabetes mellitus (DM) is a chronic incurable condition caused by a relative or an absolute lack of insulin. It is a group of metabolic disorders characterized by hyperglycemia and alterations in lipid and protein metabolism. Over long term these metabolic abnormalities contribute to the development of chronic complications including microvascular, macrovascular and neuropathic disorders (retinopathy, nephropathy and neuropathy) [1]. It is a disease of the millions and it is projected that a quarter billion people across the globe would be suffering from diabetes mellitus by the year 2025. According to the International Diabetes Federation (IDF), 6.6% of the world

Development And Evaluation Of A Bioactive Synbiotic Edible Films

Kanaka Durga Devi.Nelluri[1]*, Ketuboyina Sravani[1], Kovelamudi Keerthi Dwaraka[1], Karre Manasa[1], Konda Krishnaveni Reddy[1]

[1]KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.

***Corresponding author:**
Dr. Kanaka Durga Devi.Nelluri
Assoc.Professor,
Department of Pharmaceutics&Biotechnology,
KVSR Siddhartha College of Pharmaceutical Sciences,
Vijayawada-520010,
Andhra Pradesh, INDIA.
E-mail: nelluriss@gmail.com / nelluriss@rediffmail.com

Abstract

One of the most important trends in the development of edible films is the inclusion of both probiotics and prebiotics in the polymeric matrix, so they can play an active role in the health of consumers. Probiotics are widely used in the field of nutrition. Lactic acid bacteria is given in the form of probiotics as a nourishing agent for lactic acid deficiency people. In this present study, a synbiotic film made from tapioca starch as polymeric matrix, chicory as prebiotic molecule and lactic acid bacteria as the probiotic bacteria was developed in a cost-effective manner. As these films are used as pharmaceutical products for many nutrition deficiencies and for those whose gut bacteria should be maintained.Several assays have been conducted on the effect of chicory concentration on the rheological,mechanical, barrier and opacity, thickness, solubility and water vapour permeability of the films, as well as on the effect of including probiotic bacteria (lactic acid bacteria) in the films.From the results it is stated that chicory has a plasticizing effect on the polymeric matrix thus increasing its elongation at break, while reducing its tensile strength. Viability of lactic acid bacteria during the storage and in simulated gastric conditions was also studied, lower viability values due to storage stress at 10°C and 25°Cwas observed. By this we can conclude that the lower viability values on tapioca starch films that when chicory was included. Tapioca starch is known for its low resistance to acid hydrolysis that leaves bacteria unprotected from gastric conditions, however chicory seems to have a protective effect on the probiotic bacteria, thus decreasing the viability loss.

Keywords: Synbiotic films, Tapioca starch, Prebiotic, Probiotic.
DOINumber:10.14704/nq.2022.20.10.NQ55914 **NeuroQuantology 2022; 20(10): 9360-9378**

eISSN1303-5150

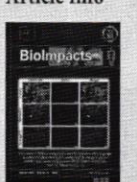
Panda et al, *BioImpacts*, 2023, 13(1), 73-84
doi: 10.34172/bi.2022.23523
http://bi.tbzmed.ac.ir/

Inhibitory effects of mixed flavonoid supplements on unraveled DSS-induced ulcerative colitis and arthritis

Siva Prasad Panda[1*], Mahamat Sami Adam Mahamat[2], Malikyahia Abdul Rasool[2], DSNBK Prasanth[3], Idris Adam Ismail[2], Moyed Abasher Ahmed Abasher[2], Bikash Ranjan Jena[4]

[1]Pharmacology Research Division, Institute of Pharmaceutical Research, GLA University, Mathura, Uttar Pradesh, India
[2]Pharmacognosy Research Division, College of Pharmacy, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, India
[3]Department of Pharmacognosy, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, AP, India
[4]SIIMS College of Pharmacy, Guntur, India

Article Info

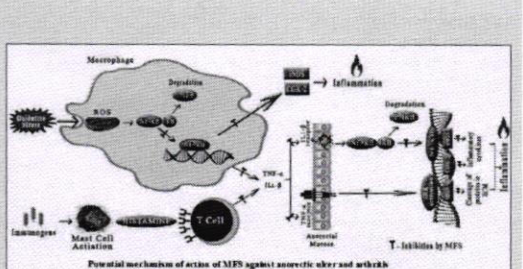


Article Type:
Original Article

Article History:
Received: 22 Nov. 2020
Revised: 13 Sep. 2021
Accepted: 14 Sep. 2021
ePublished: 31 Dec. 2022

Keywords:
MFS
Anorectic ulcer
Arthritis
NF-κB
MMP9
Cytokines

Abstract



Potential mechanism of action of MFS against anorectic ulcer and arthritis

Introduction: The mixed flavonoid supplement (MFS) [Trimethoxy Flavones (TMF) + epigallocatechin-3-gallate (EGCG)] can be used to suppress inflammatory ulcers as an ethical medicine in Ayurveda. The inflammation of the rectum and anal regions is mostly attributed to nuclear factor kappa beta (NF-κB) signaling. NF-κB stimulates the expression of matrix metalloproteinase (MMP9), inflammatory cytokines tumor necrosis factor (TNF-α), and interleukin-1β (IL-1β). Although much research targeted the NF-κB and MMP9 signaling pathways, a subsequent investigation of target mediators in the inflammatory ulcer healing and NF-κB pathway has not been done.

Methods: The docking studies of compounds TMF and EGCG were performed by applying PyRx and available software to understand ligand binding properties with the target proteins. The synergistic ulcer healing and anti-arthritic effects of MFS were elucidated using dextran sulfate sodium (DSS)-induced colon ulcer in Swiss albino rats. The colon mucosal injury was analyzed by colon ulcer index (CUI) and anorectic tissue microscopy. The IL-1β, tumor necrosis factor (TNF-α), and the pERK, MMP9, and NF-κB expressions in the colon tissue were determined by ELISA and Western blotting. RT-PCR determined the mRNA expression for inflammatory marker enzymes.

Results: The docking studies revealed that EGCG and TMF had a good binding affinity with MMP9 (i.e., -6.8 and -6.0 Kcal/mol) and NF-kB (-9.4 and 8.3 kcal/mol). The high dose MFS better suppressed ulcerative colitis (UC) and associated arthritis with marked low-density pERK, MMP9, and NF-κB proteins. The CUI score and inflammatory mediator levels were suppressed with endogenous antioxidant levels in MFS treated rats.

Conclusion: The MFS effectively unraveled anorectic tissue inflammation and associated arthritis by suppressing NF-κB-mediated MMP9 and cytokines.

Introduction

The history of Ayurveda was reviewed by Indian scientists in regards to the Indian traditional system of medicine. It was observed that a large population of India depends upon registered Ayurvedic medical practitioners for prevention and getting rid of complications of different diseases.[1] Scientists also reviewed the latest incumbent of ayurvedic medicines to treat inflammatory arthritis, ulcerative colitis, and musculoskeletal disorders.[2]

Ulcerative colitis (UC) means chronic colon inflammation with hallmarks of diarrhea, rectal bleeding, blood with stool, and abdominal pain. An autoimmune disorder is one of the major factors of colitis.[3] The UC and other immune-related colitis, Crohn's disease, belong to inflammatory bowel diseases (IBDs). There are other types of UC, including infectious UC, chemical UC,

*Corresponding author: Siva Prasad Panda, Email: sivaprasad.panda@gla.ac.in

Current Trends in Biotechnology and Pharmacy
Vol. 16 (3) 001 - 001, oct 2022, ISSN 0973-8916 (Print), 2230-7303 (Online)

COVID 19: a new insight into organ failure and complications caused by novel SARS-CoV-2 virus and discussion on the role of nanotechnology in detection, treatment and prevention of the disease

ManneAnupama Ammulu[1], Kanaka Durga Devi Nelluri[2], Praveen Kumar Vemuri[3], SomaiahChowdary Mallampati[4], Sudhakar Poda[5,*]

[1]Department of Civil Engineering, PVP Siddhartha Institute of Technology, Kanuru, Vijayawda, Andhra Pradesh, 520007, India

[2]Department of Pharmaceutics and Biotechnology, KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India

[3]Department of Biotechnology, KoneruLakshmaiah University, Vaddeswaram, Andhra Pradesh, India

[4]Department of Mechanical Engineering, PVP Siddhartha Institute of Technology, Andhra Pradesh, India.

[5]*Associate Professor, Department of Biotechnology, AcharyaNagarjuna University, Nagarjuna Nagar, Andhra Pradesh, Guntur, India

*Corresponding author: sudhakarpodha@gmail.com

Abstract

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus, which first appeared in Chinese individuals in December 2019, is now causing the COVID-19 pandemic, with 5,79,319 deaths and 13,338,364 confirmed cases as of January 31st, a total of 56.7 lakhs. COVID-19 causes dysregulated immunological responses, metabolic dysfunctions, and negative consequences on a variety of organ functions. Significant risk factors are typically connected with older people who have medical comorbidities including cancer and diabetes. Scientists and doctors have battled to understand the unique virus and its pathogenesis in order to develop suitable treatment drugs and vaccines for COVID-19. The spike protein SARS-CoV-2 has recently been discovered to attach to the enzyme that converts human angiotensin I. The purpose of this study was to examine the involvement of many organs in COVID-19 patients, particularly in severe cases. We also wanted to know what was driving the multiorgan failure caused by SARS-CoV-2. Multi-organ dysfunction manifests itself in a variety of ways, including acute lung failure, acute liver failure, acute kidney damage, cardiovascular disease, a variety of haematological abnormalities, and neurological problems. The most important processes are associated to SARS-direct coV-2's and indirect pathogenic features. Although SARS-CoV2 receptor angiotensin-converting enzyme 2 (ACE-2) was found in the lung, heart, kidney, testis, liver, lymphocytes, and nervous system, the presence of SARS-CoV-2 RNA in these organs was unknown. These epidemics have strained healthcare systems and prompted serious concerns about how to deal with them using traditional drugs and diagnostic tools. In this regard, the application of nanotechnology opens up new avenues for the creation of ground-breaking preventative, diagnostic, and treatment solutions. We examine how nanotechnology can be applied to control the COVID-19 virus by designing nano-based materials such as disinfectants, personal protective equipment, diagnostic systems, and nanocarrier systems for treatments and vaccine development, as well as the challenges and drawbacks that must be overcome.