3.3.2 Number of research papers per teachers in the Journals notified on UGC website during the last five years

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to website of the Journal
Protective effect of *Fragaria annanasa* and *Vaccinium corymbosum* fruit extracts against L-arginine induced acute pancreatitis in rats	Veena Gadicherla	Pharmacology	Indian Journal of Animal Research	2020	0367-6722	https://arccjournals.com/journals/indian-journal-of-animal-research
A INCIDENCE, PREVALENCE, AND CLINICAL MANAGEMENT OF POISONING CASES IN TELANGANA STATE REGION – A PROSPECTIVE STUDY	VEENA G	Pharmacology	Asian journal of pharmaceutical and clinical research	2020	2455-3891	https://innovareacademics.in/journals/index.php/ajpcr
A INCIDENCE, PREVALENCE, AND CLINICAL MANAGEMENT OF POISONING CASES IN TELANGANA STATE REGION – A PROSPECTIVE STUDY	D.NAGA LATHA	Pharmacy Practice	Asian journal of pharmaceutical and clinical research	2020	2455-3891	https://innovareacademics.in/journals/index.php/ajpcr
Adverse drug reactions associated with drugs inducing osteoporosis	A Mohathasim Billah	Pharmacy Practice	National Journal of Physiology, Pharmacy and Pharmacology	2020	2231-3206	http://www.njppp.com/index.php
Formulation and In-vitro Evaluation of Moxicloxacin Microspheres Using Natural Polysaccharides	Praveen Gujjula	Pharmaceutics	Pharma Springs Publication	2020	Awaiting	https://pharmasprings.com

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Patient perception of health care services and role of CRM Tools to enhance in health sector	M.VIJAYA LAKSHMI	Pharmacy practice	International Journal of advanced science and technology	2020	2005-4238IJAST	http://sersc.org/
Formulation and Evaluation of Flurbiprofen Solid Dispersions using Novel Carriers for Enhancement of Solubility	Mohammed Jaffer Sadik, abdulla khan et al	PHARMACEUTICS	Asian Journal of Pharmaceutics •	2020	ISSN: 0975-3031	https://www.asiapharmaceutics.info
Formulation and Evaluation of Flurbiprofen Solid Dispersions Incorporated Buccal PatchesInternational	Mohammed Jaffer Sadik, , abdulla khan, et al	PHARMACEUTICS	Journal of Pharmaceutical Sciences and Drug Research	2020	ISSN: 0975-248X	http://ijpsdr.com/index.php/ijpsdr
A INCIDENCE, PREVALENCE, AND CLINICAL MANAGEMENT OF POISONING CASES IN	D.NAGA LATHA	Pharmacy Practice	Asian journal of pharmaceutical and clinical research	2020	2455-3891	https://innovareacademics.in/journals/index.php/ajpcr
*Morinda Citrifolia (*Noni*)* Fruit Protects the Exocrine Pancreatic Dysfunction Against L-Arginine Induced Acute Pancreatitis in Rats	Veena Gadicherla	Pharmacology	Pharmacognosy Magazine	2019	0976-4062	https://www.phcog.com/
Assessment Of Adverse Drug Reactions In Tuberculosis Patients Of South India	Veena G	Pharmacology	International Research Journal of Pharmacy	2019	2230-8407	https://www.irjponline.com/
Invitro Inhibitory Activities of α-Amylase and Pancreatic Lipase of Some Fruit Extracts	Veena Gadicherla	Pharmacology	Journal of Applicable Chemistry	2019	2278-1862	http://www.joac.info/
Assessment of Success rate of DOTS in Tuberculosis patients of South India	Veena G	Pharmacology	Journal of Young Pharmacists	2019	0975-1483	http://www.jyoungpharm.org/

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Liquisolid Compacts of Clofibrate: An Approach to Enhance the Dissolution and Bioavilability of Poorly Water Soluble Drugs	Varun Dasari	Pharmaceutics	Journal of Global Trends in Pharmaceutical Sciences	2019	ISSN-2230-7346	https://www.jgtps.com/index.php
Quality-By-Design Based Development and Characterization of Pioglitazone Loaded Liquisolid Compact Tablets With Improved Biopharmaceutical Attributes	Varun Dasari	Pharmaceutics	Journal of Drug Delivery Science and Technology	2019	17732247	https://www.sciencedirect.com/journal/journal-of-drug-delivery-science-and-technology
Evaluation of Hydroalcoholic Extract of Strawberry Fruits on Acute Pancreatitis in Rats	Varun Dasari	Pharmaceutics	Journal of Xi'an University of Architecture & Technology	2019	Issn No : 1006-7930	https://www.xajzkjdx.cn/
Solubility Enhancement Effect at Absorption Site on Bioavailability of Ritonavir Using Liquisolid Technique	Varun Dasari	Pharmaceutics	Therpeutic. Delivery, Future Science Group	2019	ISSN (online): 2041-6008	https://www.future-science.com/journal/tde
Enhancement of Solubility and issolution Rate of BCS Class II Drug Ritonavir Using Liquisolid Technique	Varun Dasari	Pharmaceutics	International Journal of Pharmaceutical Sciences & Research	2019	ISSN (Online): 0975-8232	https://ijpsr.com/

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Comparison study on Community Pharmacy in three different countries India and UAE with the standard and practicing pattern of United Kingdom in terms of categories of minor ailments treated with pharmacist ability and recommendations of OTC medications.	A Mohathasim Billah	Pharmacy Practice	Asian Journal of Pharmaceutics	2019	0973-8398	https://www.asiapharmaceutics.info/index.php/ajp/index
A study of medication adherence and efficacy in asthma and copd patients	Dr.Rohit kumar, Dr Sai kumar et.al	Pharmacy Practice	INTERNATIONAL JOURNAL OF RECENT SCIENTIFIC RESEARCH	2019	0976-3031	https://www.recentscientific.com
A NEW RP-HPLC METHOD FOR SIMULTANEOUS ESTIMATION OF CEFIXIME AND LINEZOLID IN ITS BULK AND TABLET DOSAGE FORM	B. Nagaveni*, S. K. Godasu, M. Sowmya, R. Suneetha, P. Raju	pharmacuetical analysis	European Journal of Biomedical and Pharmaceutical Sciences	2019	ISSN 2349-8870	http://www.ejbps.com
DESIGN AND SYNTHESIS OF SMALL MOLECULES CAPABLE OF BINDING TO β-AMYLOID PROTIEN FOR THE TREATMENT OF ALZHEIMER'S DISEASE	R. Suneetha *, S.K. Godasu, b. Nagaveni, P. Raju	pharmacuetical organic chemistry	journal of pharma reaserch	2019	2319-5622	http://www.jprinfo.com/
4.Phytochemical Screening,Anti Helmenthic And Ant Oxidant Activity Of Polygala Chainesis	N.VIJAYAREKHA	PHARMACOGNOSY	IJPSR	2019	E- ISSN: 2348-3962, P-ISSN: 2394-5583	https://ijpjournal.com › bft-article › phytochemical-and

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A NEW RP-HPLC METHOD FOR SIMULTANEOUS ESTIMATION OF CEFIXIME AND LINEZOLID IN ITS BULK AND TABLET DOSAGE FORM	B. Nagaveni*, S. K. Godasu, M. Sowmya, R. Suneetha, P. Raju	pharmacuetical analysis	European Journal of Biomedical and Pharmaceutical Sciences	2019	ISSN 2349-8870	http://www.ejbps.com
DESIGN AND SYNTHESIS OF SMALL MOLECULES CAPABLE OF BINDING TO β-AMYLOID PROTIEN FOR THE TREATMENT OF ALZHEIMER'S DISEASE	R. Suneetha *, S.K. Godasu, b. Nagaveni, P. Raju	pharmacuetical organic chemistry	journal of pharma reaserch	2019	2319-5622	http://www.jprinfo.com/
In-Vitro Evaluation of Extended Release Atorvastatin Tablets by using Natural Gums	P. Venkatesh1, *, S. K. Godasu2 , G.S.V. Divya Jyothi3 , V. Rajashakar4	Pharmaceutics	Research & Reviews: A Journal of Drug Formulation, Development and Production	2019	ISSN: 2394-1944	www.stmjournals.com
5. Anti-diabetic activity of Butanol fraction of Murraya excotica seeds in Streptozocin induced diabetic rats	Kyatham Hemanth	PHARMACO GNOSY	EJBPS	2019	2349-8870	https://www.ejbps.com
6. A study of medication adherence and efficacy in Asthma and Copd patients	Kyatham Hemanth	PHARMACO GNOSY	IJRSR	2019	0976-3031	https://www.recentscientific.com
PHYTOCHEMICAL AND PHARMACOLOGICAL ACTIVITIES OF POLYGALA CHAINENSIS, CLEOME CHELIDONII	N. Vijaya Rekha * , S. K. Godasu, G. S. V. Divya Jyothi and K. Hemanth	Natural Products	International journal of pharmacognocy	2019	E- ISSN: 2348-3962, P-ISSN: 2394-5583	www.ijpjournal.com

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DESIGN AND SYNTHESIS OF SMALL MOLECULES CAPABLE OF BINDING TO β-AMYLOID PROTIEN FOR THE TREATMENT OF ALZHEIMER'S DISEASE	R. Suneetha *, S.K. Godasu, b. Nagaveni, P. Raju	Natural Products	Journal of Pharma Research	2019	ISSN: 2319-5622	www.ijprinfo.com
A NEW RP-HPLC METHOD FOR SIMULTANEOUS ESTIMATION OF CEFIXIME AND LINEZOLID IN ITS BULK AND TABLET DOSAGE FORM	B. Nagaveni*, S. K. Godasu, M. Sowmya, R. Suneetha, P. Raju	Natural Products	European Journal of Biomedical and Pharmaceutical Sciences	2019	ISSN 2349-8870	www.ejbps.com
In-Vitro Evaluation of Extended Release Atorvastatin Tablets by using Natural Gums	P. Venkatesh1, *, S. K. Godasu2 , G.S.V. Divya Jyothi3 , V. Rajashakar4	Natural Products	Research & Reviews: A Journal of Drug Formulation, Development and Production	2019	ISSN: 2394-1944	www.stm.journals.com
PHYTO CHEMICAL SCREENING AND ANTI-AMNESIC EFFECT OF MARSILEA QUADRIFOLIA	Divya Jyothi G.S.V* and Suresh Kumar Godasu	Natural Products	International Journal of Recent Scientific Research	2019	ISSN: 0976-3031	www.recentscientific.com
A study of medication adherence and efficacy in asthma and copd patients	Dr Rohit kumar*, Dr Sai kumar, Dr Sushma Polu, Mohammed Jaffer Sadik and Kyatham Hemant	PHARMACEUTICS	INTERNATIONAL JOURNAL OF RECENT SCIENTIFIC RESEARCH	2019	ISSN: 0976-3031	http://recentscientific.com

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New RP-UPLC Method Development and Validation for Simultaneous Estimation of Nebivolol and Valsartan in Pharmaceutical Dosage Form	GOPINADH VUYYALA	PHARMACEUTICAL CHEMISTRY	International Journal of Research	2019	2236-6124	http://ijrpublisher.com
RP-UPLC Method Development and Validation for Simultaneous Estimation of Amlodipine Besylate and Perindopril Arginine in Pharmaceutical Dosage Form and Its Force Degradation Study	GOPINADH VUYYALA	PHARMACEUTICAL CHEMISTRY	International Journal of Research	2019	2236-6124	http://ijrpublisher.com
Method Development and Validation for Simultaneous Estimation of Cangliflozin and Metformin in Combined Dosage form	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	Journal of Applied Science and Computations	2019	1076-5131	http://j-asc.com/
Method Development and Validation for Simultaneous Estimation of Elbasvir and Grazoprevir by RP-HPLC	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	International Journal of Research	2019	2236-6124	http://ijrpublisher.com/
Stability Indicating RP-HPLC Method for Simultaneous Estimation of Sofosbuvir and Velpatasvir	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	Journal of Applied Science and Computations	2019	1076-5131	http://j-asc.com/
Stability Indicating RP-UPLC Method Development and Validation of Nebivolol and Valsartan	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	International Journal of Research	2019	2236-6124	http://ijrpublisher.com/

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RP-HPLC Stability Indicating Method Development and Validation for Concurrent Estimation of SITAGLIPTIN and METFORMIN HCL	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	Universal Review	2019	2277-2723	http:/ /universalreview.org
Prophylactic treatment of *Musa paradisica* fruit extract on L-arginine induced acute pancreatitis in rats	Veena Gadicherla, Siva R Challa, Basaveswara Rao M V, Veena Rani I, Geetha Parvathi A	Pharmacology	International Journal of Interdisciplinary Research and Innovations	2018	2348-1218	https://researchpublish.com /journal-details/IJIRI
Controlled Porosity Osmotic Pump Tablet of Atenolol - Construction of 2^2 Factorial Design, Calculating Interaction of Factors & Prediction by Mathematical Model and Analyzing by Software	Varun Dasari	Pharmaceutics	Journal of Global Trends in Pharmaceutical Sciences	2018	ISSN-2230-7346	https://www.jgtps.com/index.php
Liquisolid Compact Technology - An Alternative and conventional Approach to Improve Bioavailability of BCS Class-II Drugs	Varun Dasari	Pharmaceutics	Universal Journal of Pharmacy	2018	ISSN 2320-303X	http://ujponline.com/
A Review on Controlled Porosity Osmotic Pump Drug Delivery System and Treating Hypertension with Beta Blockers	Varun Dasari	Pharmaceutics	International Journal of Medical Research & Pharmaceutical Sciences	2018	ISSN: 2394-9414	https://www.ijmrpsjournal.com/index.html

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A Review on Osmotic Drug Delivery System In Treating Hypertension by Atenlol	Varun Dasari	Pharmaceutics	Indo American Journal of Pharmaceutical Sciences	2018	ISSN: 2349-7750	https://www.iajps.com/
Kinetics & Stability studies on Controlled Porosity Osmotic Pump Tablet of Atenolol	Varun Dasari	Pharmaceutics	World Journal of Pharmacy and Pharmaceutical Sciences	2018	ISSN 2278 – 4357	https://www.wjpps.com/
Invivo Studies & Sem of Controlled Porosity Osmotic Pump (CPOP) Tablet of Atenolo	Varun Dasari	Pharmaceutics	World Journal of Pharmaceutical Research	2018	ISSN 2277–7105	https://www.wjpr.net/
Invitro antioxidant potential screening of Berry extracts of Diospyros virginiana linn using DPPH free radical model	A.Sambasiva Rao and SNVL Sirisha	Pharmaceutics	European Journal of Biomedical and Pharmaceutical sciences.	2018	2349-8870	https://www.ejbps.com/
Screening of Gastroprotective action of Diospyros virginiana linn berry extracts against pyloric ligation process in wistar albino rats	A.Sambasiva Rao and SNVL Sirisha	Pharmaceutics	European Journal of Pharmaceutical and Medical Research.	2018	2394-3211	https://www.ejpmr.com/home
A Comprehensive Scientific Review on Diospyros Chloroxylon.	A.Sambasiva Rao and SNVL Sirisha	Pharmaceutics	International Journal of Current Advanced Research	2018	2319-6475	https://www.journalijcar.org/

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A Novel Approach of Locust bean gum microspheres for colonic delivery of Mesalamine.	A.Sambasiva Rao and VNL Sirisha	Pharmaceutics	International Journal of Applied Pharmaceutics.	2018	0975-7048	https://innovareacademics.in/journals/index.php/ijap/index
Comparison study on Community Pharmacy in India and UAE with the standard and practicing pattern of United Kingdom in terms of facilities available, dispensing OTC medications for minor ailments treatment and availability of pharmaceutical care items in the facility.	A Mohathasim Billah	Pharmacy Practice	Journal of Basic and clinical Pharmacy	2018	0976-0113	https://www.jbclinpharm.org/
METHOD DEVELOPMENT AND VALIDATION FOR SIMULTANEOUS ESTIMATION OF SITAGLIPTIN AND SIMVASTATIN	Dr.P.KRANTI KUMAR *A.SPOORTHY SINHA *P.RAJU *B.NAGAveni	pharmacuetical analysis	JASC: Journal of Applied Science and Computations	2018	ISSN NO: 1076-5131	http://j-asc.com/Volume-5-issue-1-January-2018/
3.Evaluation Of Anti-Diabatic Activity Onguava(Psidium Guava Linn.)Seeds Aqueous Extract In Streptozotocin-Induced Daibatic Rats	N.VIJAYAREKHA	PHARMACOGNOSY	EJBPS	2018	2349-8870	https://www.ejbps.com/ejbps/abstract_id/2771
METHOD DEVELOPMENT AND VALIDATION FOR SIMULTANEOUS ESTIMATION OF SITAGLIPTIN AND SIMVASTATIN	Dr.P.KRANTI KUMAR *A.SPOORTHY SINHA *P.RAJU *B.NAGAveni	pharmacuetical analysis	JASC: Journal of Applied Science and Computations	2018	ISSN NO: 1076-5131	http://j-asc.com/Volume-5-issue-1-January-2018/

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Hypolipidemic activity of cayenne pepper on dexamethasone induced hyperlipidemia in rats	Deepika P*, Mamatha B, Kiran K, Navika G	Pharmacology	Adv J Pharm Life sci Res	2018	24543535	www.ajplronline.org
Anti ulcer activity of assafoetida on stress induced gastric ulcers in rats	Mamatha B.*1, Deepika. P.2 and Ashwini S.3		european journal ofbiomedical and pharmaceutical sciences	2018	23498870	http://www.ejbps.com
4. Investigation of Antihypertensive Activity Of Young Shoots Aqueous Extract Of Aegle Marmelos (L.) In Doca Salt Induced Hypertensive Rats	Kyatham Hemanth	PHARMACO GNOSY	EJBPS	2018	2349-8870	https://www.ejbps.com
Determination of Simultaneous Estimation HPLC Method for Elvitegravir, Tenofovir Disoproxil Fumarate, Emtricitabine and Cobicistat it's Pure And Tablet Form	Godasu SK* , Sreenivas SA	Natural Products	Der Pharma Chemica	2018	ISSN 0975-413X	www.derpharma chemica.com
Determination of RP-HPLC Method for Safinamide: Its Bulk and Tablet Dosage Form	S.K. Godasu1, *, V. Rajashakar2 , G.S.V.D. Jyothi3 , Supraja4 , Pravallika Priya4 , Santhosh4	Natural Products	Research & Reviews: A Journal of Drug Formulation, Development and Production	2018	ISSN: 2394-1944	www.stm.journals.com

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Analytical Method Development and Validation for the Simultaneous Estimation of Elvitegravir and Cobicistat by RP-HPLC Method	Rajashakar V.*, S. K. Godasu, Chinna Eswaraiah M	Natural Products	Research & Reviews: A Journal of Drug Formulation, Development and Production	2018	ISSN: 2394-1944	www.stm.journals.com
INVESTIGATION OF ANTIHYPERTENSIVE ACTIVITY OF YOUNG SHOOTS AQUEOUS EXTRACT OF AEGLE MARMELOS (L.) IN DOCA SALT INDUCED HYPERTENSIVE RATS	Kanakam Vijayabhaskar*, Hemanth Kyatham, Mohammed Jaffer Sadik, Nimma Vijaya Rekha, Polu Pavan Kumar and Kurimilla Swathi et.al	PHARMACEUTICS	European Journal of Biomedical and Pharmaceutical sciences	2018	ISSN: 2349-8870	https://www.ejbps.com/
ANTI ULCER ACTIVITY OF ASSAFOETIDA ON STRESS INDUCED GASTRIC ULCERS IN RATS	Mamatha B.* 1 , Deepika. P.2 and Ashwini S.3	Pharmacology	European Journal of Biomedical AND Pharmaceutical sciences	2018	ISSN 2349-8870	www.EJBPS.com
HYPOLIPIDEMIC ACTIVITY OF CAYENNE PEPPER ON DEXAMETHASONE INDUCED HYPERLIPIDEMIA IN RATS	Deepika P* , Mamatha B, Kiran K, Navika G	Pharmacology	Advanced journal of pharmacie and life science research.	2018	ISSN 2454 3535	www.ajplronline.org
Method Development and Validation for Simultaneous Estimation of SITAGLIPTIN and SIMVASTATIN	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	Journal of Applied Science and Computations	2018	1076-5131	http://j-asc.com/

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Formulation Development and Evaluation of Controlled Porosity Osmotic Pump Tablet of Atenolol	Varun Dasari	Pharmaceutics	Journal of Global Trends in Pharmaceutical Sciences	2017	ISSN-2230-7346	https://www.jgtps.com/index.php
Formulation parameters of formulation and development of new dosage forms	A.Sambasiva Rao and Hareesh Reddy	Pharmaceutics	International Journal of Recent advances in multidisciplinary research	2017	2350-0743	https://www.ijramr.com/international-journal-recent-advances-multidisciplinary-research
Different Kinetic mathematical models used to drug release from solid dosage forms	A.Sambasiva Rao and Hareesh Reddy	Pharmaceutics	IJIRR	2017		
Correlation between Basket and Padel dissolution test methods by drug release in solid dosage forms from Nizatidine and Ramipril	A.Sambasiva Rao and Hareesh Reddy	Pharmaceutics	International Journal of Develpmental Research	2017	2230-9926	https://www.journalijdr.com/
Kondagogu Microspheres for colon specific drug delivery: An invitro Evaluation	A.Sambasiva Rao and VNL Sirisha	Pharmaceutics	European Journal of Pharmaceutical and Medical Research.	2017	2394-3211	https://www.ejpmr.com/home
Formulation and evalaution of Locust bean gum microspheres of Cromolyn Sodim for the treatment of Ulcerative collitis	A.Sambasiva Rao and VNL Sirisha	Pharmaceutics	International Journal of Pharmacy and Pharmaceutical Research	2017	2349-7203	https://ijppr.humanjournals.com/

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Formulation and evaluation of karya gum Microspheres of Cromolyn Sodium: treatment of ulcerative collitis	A.Sambasiva Rao and VNL Sirisha	Pharmaceutics	Int. Res. J. Pharm	2017	2230-8407	https://www.irjponline.com /archives.php
Description on formulation and evaluation parameters of gelatin enrobed tabletting technology; formulation perspective.	A.Sambasiva Rao and L Nandha Kumar.	Pharmaceutics	International Journal of Pharmacy and Industrial Research	2017	2231-3648	https://www.ijpir.com/
Zika Virus Pandemic: A Glimpse	A.Sambasiva Rao and L Nandha Kumar	Pharmaceutics	International Journal of Biopharmaceutics	2017	229-7499	https://www.ijbonline.com/
Antidiabetic activity on the extracts of Embelica ribes in strptozotocin induced diabetic rats	A.Sambasiva Rao and L Nandha Kumar	Pharmaceutics	Der Pharmacia Scinica	2017	0976-8688	https://www.imedpub.com/ der-pharmacia-sinica/
Surface solid dispersion of Domperidone for dissolution rate enhancement	A.Sambasiva Rao and T Naga Aparna.	Pharmaceutics	World Journal of Pharmaceutical Research	2017	2277-7105	https://wjpr.net/dashboard/i ndex
Melt granulation; an apporach to enhance the dissolution rate of Domperidone	A.Sambasiva Rao and T Naga Aparna.	Pharmaceutics	European Journal of Biomedical and Pharmaceutical sciences.	2017	2349-8870	https://www.ejbps.com/ejb ps/index
Development of Metoprolol tartarate pulsated drug delivery formulation by press coated technology	A.Sambasiva Rao and K Sunitha Kumari.	Pharmaceutics	Indo Americal Journal of Pharmaceutical Research	201	2231-6876	http://www.iajpr.com/

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A Self-Limited Survey on Community Pharmacies in India, the Services Offered, Facilities available to Make Ease of Compliance for the Medication Prescribed and over the Counter Medication in View of Pharmacists.	A Mohathasim Billah	Pharmacy Practice	Journal of Pharmaceutical Sciences & Research	2017	0975-1459	https://www.jpsr.pharmainfo.in/
Surface solid dispersion of Domperidone for Dissolution rate enhancement	Tatapudi Naga Aparna, Dr. A. Sambasiva Rao	Pharmaceutics	World Journal of Pharmaceutical Research	2017	2278-4357	https://www.wjpr.net/
Liquisolid compacts: An approach to enhance the Dissolution rate of Domperidone	Tatapudi Naga Aparna, Dr. A. Sambasiva Rao	Pharmaceutics	World Journal of Pharmacy and Pharmaceutical Sciences	2017	2277-7105	https://www.wjpps.com/
Melt Granulation: An approach to enhance the Dissolution rate of Domperidone	Tatapudi Naga Aparna, Dr. A. Sambasiva Rao	Pharmaceutics	European Journal of Biomedical and Pharmaceutical sciences	2017	2349-8870	https://www.ejbps.com/
Antidiabetic activity of butanol fraction of murraya exotica seeds in streptozotocin induced diabetic rats	Kanakam Vijayabhaskar,Rohit kumar et al	Pharmacy Practice	European Journal of Biomedical and Pharmaceutical sciences	2017	2349-8870	https://www.ejbps.com/

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Development and Validation of Simultaneous Chromatographic method for Estimation of Metformin, Pioglitazone and Glipizide in a Combined Form by RP-HPLC	*B.NAGAVENI *Dr.P.KRANTI KUMAR *P.RAJU *A.SPOORTHY SINHA	Pharmacuetical analysis	International Journal of Research	2017	ISSN NO:2236-6124	http://ijrpublisher.com/VOL-6-ISSUE-6-2017
1.Anticonvulsant Activity Of Flower Extract Of Costus Speciosus (Coastaceae) In Experimental Animals	N.VIJAYAREKHA	PHARMACOGNOSY	EJBPS	2017	2349-8870	https://www.ejbps.com/ejbps/abstract_id/2655
Development and Validation of Simultaneous Chromatographic method for Estimation of Metformin, Pioglitazone and Glipizide in a Combined Form by RP-HPLC	*B.NAGAVENI *Dr.P.KRANTI KUMAR *P.RAJU *A.SPOORTHY SINHA	Pharmacuetical analysis	International Journal of Research	2017	ISSN NO:2236-6124	http://ijrpublisher.com/VOL-6-ISSUE-6-2017
1. Evaluation of Anti-diabetic activity on Guava(Psidium guajava)linn. Seeds aqueous extract in Streptozotocin-induce diabetic rats	Kyatham Hemanth	PHARMACOGNOSY	EJBPS	2017	2349-8870	https://www.ejbps.com
2. Development of Metoprolol tartrate pulsatile drug delivery formulation by press coated technology.	Kyatham Hemanth	PHARMACOGNOSY	IAJPR	2017	2231-6876	https://zenodo.org
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A new validated RP-HPLC method for the determination of metformin hcl and empagliflozin in its bulk and pharmaceutical dosage forms.	S. K. Godasu, Dr S.A Sreenivas	Natural Products	IJPSR	2017	E-ISSN: 0975-8232; P-ISSN: 2320-5148	www.ijpsr.com
A new RP-HPLC method for simultaneous estimation of Sacubitril and Valsartanin its bulk and tablet dosage form.	S.K. Godasu1*, S.A. Sreenivas2	Natural Products	Journal of Scientific Research in Pharmacy	2017	ISSN: 2277-9469	http://www.jsrponline.com/
A new RP-HPLC method for simultaneous estimation of sacubitril and valsartan in its bulk and tablet dosage form and its force degadation studies as per ich	S. K. Godasu* 1 and S. A. Sreenivas2	Natural Products	European Journal of Biomedical AND Pharmaceutical sciences	2017	ISSN 2349-8870	www.ejbps.com
Pharmacological evoluation of ficus religiosa	Mamatha Bangaru*, Mounika. M, S. K. Godasu, Shital Dangae	Natural Products	International Journal of Innovative Pharmaceutical Sciences and Research	2017	ISSN 2347-2154	www.ijipsr.com
ANTI-FATIGUE EFFECT OF D-LIMONENE ON CHRONIC FATIGUE SYNDROME IN MICE	Mamatha Bangaru*, S. K Godasu, Mounika Reddy	Natural Products	International Journal of Innovative Pharmaceutical Sciences and Research	2017	ISSN 2347-2154	www.ijipsr.com
Antidiabetic activity of butanol fraction of murraya exotica seeds in streptozotocin induced diabetic rats	Mohammed Jaffer Sadik, Kanakam Vijayabhaskar,Rohit kumar et al	PHARMACEUTICS	European Journal of Biomedical and Pharmaceutical sciences	2017	ISSN: 2349-8870	https://www.ejbps.com/

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Development and Validation of Simultaneous Chromatographic method for Estimation of Metformin,Pioglitazone and Glipizide in a Combined form by RP-HPLC	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	International Journal of Research	2017	2236-6124	http://ijrpublisher.com/
A Study on Prescribing Pattern of Proton Pump Inhibitors at A Private Tertiary Care Hospital	D.NAGA LATHA	Pharmacy Practice	American journal of pharmacy and health research	2016	2321–3647	http://www.ajphr.com/
Design and evaluation of novel high load Mesalamaine multiparticulate formulations for colon targeted control drug delivery.	A.Sambasiva Rao and B V Radha Krishna.	Pharmaceutics	Journal Of Comprehensive Pharmacy	2016	2349-5669	https://www.jcponline.in/
Design and optimization of high dose colon targeted controlled drug delivery system for Mesalamine using Eudragit coated matrix tablets	A.Sambasiva Rao and B V Radha Krishna	Pharmaceutics	Journal Of Comprehensive Pharmacy	2016	2349-5669	https://www.jcponline.in/

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Formulation and evaluation of matrix tablets of Ramipril using hydrophilic polymer (HPMCK 15M) and Karaya gum	A.Sambasiva Rao and Hareesh Reddy	Pharmaceutics	International Journal of Current Research.	2016	0975-833X	http://journalcra.com/
Formulation development and statistics optimization of Ivabradine HCL floating pulsatile microcapsules using Response surface methodology	A.Sambasiva Rao, T Vani Prasanna	Pharmaceutics	Asian Journal of Pharmaceutics	2016	0973-8398	https://www.asiapharmaceutics.info/index.php/ajp/index
Formulation development and statistics optimization of Ivabradine HCL floating pulsatile pellets by fludised and coating bed technique	A.Sambasiva Rao, T Vani Prasanna	Pharmaceutics	Asian Journal of Pharmaceutical Sciences and Clinical Research	2016	2455-3891	https://innovareacademics.in/journals/index.php/ajpcr/index
An overview of Chronotherapeutic drug delivery systems based on floating pulsatile concept	A.Sambasiva Rao, T Vani Prasanna	Pharmaceutics	Journal of advances in medical and pharmaceutical sciences.	2016	2394-1111	https://www.journaljamps.com/index.php/JAMPS/about
4-chloro-6-methoxy -2-styryl quinoline its synthesis and antibacterial activity	A.Sambasiva Rao, B Deepthi	Pharmaceutics	International Journal of Allied Medical sciences and clinical research	2016	2347-6567	https://ijamscr.com/ijamscr
Comparision of different techniwue involved in the development of Irabradine HCL floating pulsatile multiparticulate systems for chronotherapeutic delivery.	A.Sambasiva Rao, T Vani Prasanna	Pharmaceutics	Journal of Pharmaceutical Research International	2016	2456-9119	https://www.journaljpri.com/index.php/JPRI/about

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Prevalence of Bacterial Pathogen and its Antimicrobial Sensitivity in Hor Al anz Area, Dubai for Respiratory Tract Infection.	A Mohathasim Billah	Pharmacy Practice	Journal of Pharmaceutical Sciences & Research	2016	0975-1459	https://www.jpsr.pharmainfo.in/
Validation of Spectrophotometric method for the Determination of Esomeprazole in Tablet Dosage forms	P.RAJU *Dr.P.KRANTI KUMAR *A.SPOORTHY SINHA *B.NAGAVENI	Pharmacuetical analysis	International Journal of Advanced in Management, Technology and Engineering Sciences Volume VI, Issue II, 2016	2016	ISSN NO : 2249-7455	http://ijamtes.org/VOL-6-ISSUE-2-2016/
Validation of Spectrophotometric method for the Determination of Esomeprazole in Tablet Dosage forms	P.RAJU *Dr.P.KRANTI KUMAR *A.SPOORTHY SINHA *B.NAGAVENI	Pharmacuetical analysis	International Journal of Advanced in Management, Technology and Engineering Sciences Volume VI, Issue II, 2016	2016	ISSN NO : 2249-7455	http://ijamtes.org/VOL-6-ISSUE-2-2016/
Alleviating effect of gallic acid on dexamethasone induced insulin resistance in albino mice	Alvi SB* , Mamatha B, Veeresh B	Pharmacology	nternational Journal of Toxicological and Pharmacological Research	2016	ISSN: 0975-5160	www.ijtpr.com
A Study on Prescribing Pattern of Proton Pump Inhibitors at A Private Tertiary Care Hospital	D.NAGA LATHA	Pharmacy Practice	American journal of pharmacy and health research	2016	2321–3647	http://www.ajphr.com/

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Validation of Spectrophotometric method for the Determination of Esomeprazole in Tablet Dosage form	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	International Journal of Advanced in Management,Technology and Engineering Sciences	2016	2249-7455	http://www.ijamtes.org/
Design and Characterization of Controlled Release Lornoxicam Nanofibres by Electrospinning Technique	Varun Dasari	Pharmaceutics	International Journal of Biomedical and Advanced Research	2015	ISSN: 2229-3809	http://www.ssjournals.com/index.php/ijbar/about
Enhancement of Dissolution Rate of Clofibrate (BCS Class-II Drug) by Using Liquisolid Compact Technology	Varun Dasari	Pharmaceutics	International Journal of Biomedical and Advanced Research	2015	ISSN: 2229-3809	http://www.ssjournals.com/index.php/ijbar/about
Nasal Drug Delivery: A Potential Route for Brain Targeting	Varun Dasari	Pharmaceutics	International Journal of Advances in Scientific Research	2015	ISSN: 2395-3616	https://ssjournals.com/index.php/ijasr/about
Formulation and evaluation of controlled release matrix tablets of Nizatidine using Hydrophyllic and natural polymers	A.Sambasiva Rao and Hareesh Reddy	Pharmaceutics	Journal of scientific sresearch in Pharmacy	2015	2277-9469	https://www.jsrponline.com/
A Factorial study of formulation of ritonavir tablets employing βCD , soluptus and PVPK-30	A.Sambasiva Rao, K. Ravi Shankar, KPR Chowdary	Pharmaceutics	World Journal of Pharmacy and Pharmaceutical Sciences	2015	2278-4357	https://www.wjpps.com/wjpps_controller/index

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Optimisation of efavirenz tablet formulation employing βCD and soluptus by 2^2 Factorial design.	A.Sambasiva Rao, K. Ravi Shankar, KPR Chowdary	Pharmaceutics	World Journal of Pharmaceutical Research	2015	2277-7105	https://wjpr.net/dashboard/index
Studies on enhancement of solubility and dissolution rate of Ritonavir employing βCD , soluptus and PVPK-30	A.Sambasiva Rao, K. Ravi Shankar, KPR Chowdary	Pharmaceutics	World Journal of Pharmaceutical Research	2015	2277-7105	https://wjpr.net/dashboard/index
Preclincial pharmacokinetic evaluation of Ritonavir tablets formulation employing βCD and soluptus.	A.Sambasiva Rao, K. Ravi Shankar, KPR Chowdary	Pharmaceutics	World Journal of Pharmacy and Pharmaceutical Sciences	2015	2278-4357	https://www.wjpps.com/wjpps_controller/index
Formualtion of RItonavir tablets: optimization by 2^3 Factorial design	A.Sambasiva Rao, K. Ravi Shankar, KPR Chowdary	Pharmaceutics	World Journal of Pharmaceutical Research	2015	2277-7105	https://wjpr.net/dashboard/index
Application of Ipomea batata starch mucilage as suspending agent in oseltamivir suspension	A. Sambasiva Rao , Kusuma R	Pharmaceutics	International journal of Current Pharmceuticak research	2015	0975-7066	https://innovareacademics.in/journals/index.php/ijcpr
Formulation, Development and Evaluaiton of Indomethacin emulgel using pregelatinised starch from Ipomea batata tubers	A.Sambasiva Rao, Kusuma R & Venkat Reddy P.	Pharmaceutics	Asian Journal of Pharmaceutics	2015	0973-8398	https://www.asiapharmaceutics.info/index.php/ajp/index
Effects of phosphate modified and pregelatinized sweet potato starches on Disintegration properties of paracetamol and aspirin tablet formulations	A.Sambasiva Rao, Kusuma R & Venkat Reddy P	Pharmaceutics	Journal of Pharma Research	2015	2319-5622	https://jprinfo.com/

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Evaluation of ipomoea Batata starch as an alternative tablet excipient to maize and potato starch Assesment by preformulation and formulation studies	A.Sambasiva Rao, Kusuma R & Venkat Reddy P	Pharmaceutics	Journal of scientific sresearch in Pharmacy	2015	2277-9469	https://www.jsrponline.com/
Evaluation of colocasia esculenta starch as an alternative tablet excipient to maizestarch. Assesment by preformulation and formulation studies	A.Sambasiva Rao, Kusuma R & Venkat Reddy P	Pharmaceutics	Int. J of Pharmaceutical Sciences and Research	2015	0975-8232	https://ijpsr.com/
A Review of oral matrix type controlled drug delivery system	A.Sambasiva Rao & M .Hareesh Reddy	Pharmaceutics	indo American journal of pharmaceutical sciences	2015	2349-7750	https://www.iajps.com/
Design and Invitro evaluation of floating pulsatile microspheres of IVA BRA DINE hydrochloride	A.Sambasiva Rao, T Vani Prasanna	Pharmaceutics	Asian Journal of Pharmaceutical Sciences and Clinical Research	2015	2455-3891	https://innovareacademics.in/journals/index.php/ajpcr/index
Formulation & Evaluation of ariprazole solid dispersions	A Sambasiva Rao, Sashikumar Yadav	Pharmaceutics	indo American journal of pharmaceutical sciences	2015	2231-6876	http://www.iajpr.com/

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A Qualitative Study on Community Pharmacies across the United Arab Emirates in Terms of Pharmacists View about the Facilities Offered, Demographic Details, Prescription Received and Types of Minor Ailments Being Treated with Over the Counter Medications.	A Mohathasim Billah	Pharmacy Practice	Journal of Pharmaceutical Sciences & Research	2015	0975-1459	https://www.jpsr.pharmainfo.in/
Prevalence of Bacterial Pathogen and its Antimicrobial Sensitivity in Hor Al anz Area, Dubai for Skin Disease.	A Mohathasim Billah	Pharmacy Practice	Journal of Pharmaceutical Sciences & Research	2015	0975-1459	https://www.jpsr.pharmainfo.in/
Formulation and Evaluation of salbutamol sulphate sustained release tablets	P.KRANTI KUMAR	PHARMACEUTICAL ANALYSIS	International Journal Of Pharmaceutical Research And Novel Sciences	2015	2395-0536	http://www.ijprns.com/

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HYDERABAD

Validation of Spectrophotometric method for the Determination of Esomeprazole in Tablet Dosage forms

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*Department of Pharmaceutical Analysis, Sri Indu Institute of Pharmacy, Sheriguda, Ibrahimpatnam, Hyderabad 501510

ABSTRACT

A New, simple, sensitive spectrophotometric method in U.V region has been developed for the determination of Esomeprazole in bulk and in its dosage form. Esomeprazole shows maximum absorbance at 275 nm in Dimethyl formamide (DMF) solvent for first dilutio n and further dilution with 50:50 v/v of DMF:Water. Beers laws obeyed in the concentration range of 10-60mcg/ml.Results of analysis were validated statistically and by recovery studies.

Key Words: Esomeprazole, Spectrophotometric Determination.

INTRODUCTION

Esomeprazole Chemically (S)-5-methoxy-2-[(4-methoxy-3,5-dimethylpyridin-2-yl) methylsulfinyl]-3H-benzoimidazole (M.F: $C_{17}H_{19}N_3O_3S$; M.W: 345.417) [4]. Esomeprazole is in a class of drugs called proton pump inhibitors (PPIs) [1] which blocks the production of acid by the stomach. Other drugs in the same class include Omeprazole, Lansoprazole, Rabeprazole and Pantoprazole [5]. Chemically, esomeprazole is very similar to Omeprazole.NEXIUM (esomeprazole magnesium trihydrate) delayed release tablets contain esomeprazole (the S-isomer of omeprazole) [6]. Esomeprazole is acid labile and therefore is administered orally as enteric-coated granules compressed into a tablet [6].

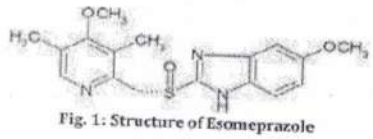

Fig. 1: Structure of Esomeprazole

EXPERIMENTAL

Instrumentation:

An Elico UV – Visible spectrophotometer (model SL–164) with matching quartz cells were used for all absorbance measurements. The solvent DMF used to be analytical graded (S. d. Fine-Chem. Ltd.). The commercially available tablets in the local market of Esomeprazole were IZRA-40 (Unichem), ESOFAG (Micro labs) and ESCZ (Glenmark) were procured from local market and estimated.

Reagent used: Dimethyl formamide (A.R.GRADE) S.D.Fine-Chem. Ltd

Preparation of Stock Solutions:

25 mg of Esomeprazole was accurately weighed and dissolved in 25 ml of dimethyl formamide in 25ml of volumetric flask.

Optimization:

Optimum Conditions Fixation in Procedures:

In order to ascertain the wavelength of maximum absorbance (λ_{max}) of the pharmacodynamic agents in each of the above methods, specified amount were taken and the absorption spectra were scanned in the wavelength region of 200 - 380nm against a corresponding reagent blank. The resulting spectra of the absorption curves show characteristic absorption maximum at 275nm.

The Optimum Conditions incorporated in the procedure of the proposed spectrophotometric method were ascertained by performing systematic investigation as given below.

The optimum conditions in all those methods were fixed basing on the study of the effects of various parameters such as organic solvents for Esomeprazole, temperature and stability of the species. The author performed controlled experiments by measuring the absorbances at respective λ_{max} of a series of solutions varying only one and fixing the other parameters such as effect of volume of reagent or solvent temperature, time, and nature of the solvents for final dilutions. The optimum conditions developed and actual conditions chosen for the procedures are recorded.

Preparation of Working Standard Solutions and Procedure for Calibration curve:

The above stock solution was further diluted with 50:50 DMF: distilled water to get working standard solutions of 100 µg/ml. Aliquots of working standard solutions from 100 µg/ml of Esomeprazole ranging from 1 to 6 ml were transferred separately into a series of 10 ml volumetric flasks and final volume was brought to 10 ml with 50:50 DMF:distilled water. The absorbances were measured at λ_{max} 275 nm against reagent blank.

RESULTS AND DISCUSSIONS

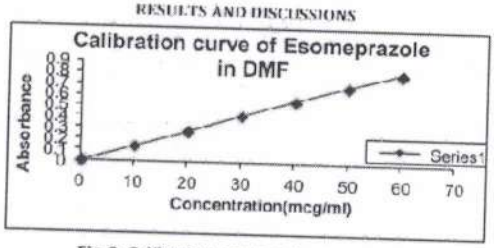

Fig. 2: Calibration curve of Esomeprazole

Table No. 1: Optical Characteristics and Precision

Development and Validation of Simultaneous Chromatographic method for Estimation of Metformin, Pioglitazone and Glipizide in a Combined Form by RP-HPLC

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ABSTRACT

A simple, rapid, and precise reversed-phase high-performance liquid chromatographic method for simultaneous analysis of Metformin Hcl, Pioglitazone Hcl, and Glipizide in a tablet dosage form has been developed and validated. Chromatography was performed on an Inertsil C18, 250 X 4.6mm, 5µ column with 40:60 (v/v) 10 mM potassium dihydrogen phosphate buffer: methanol as mobile phase at a flow rate of 1.2 ml/min. UV detection at 240nm; Metformin Hcl, Pioglitazone Hcl, and Glipizide were eluted with retention times of 1.766, 5.316, and 9 .550min, respectively. The method was validated in accordance with ICH guidelines. Validation revealed the meth od is specific, rapid, accurate, precise, reliable, and reproducible. Calibration plots were linear over the concentration ranges 5 -100µg/ml for Metformin Hcl, Pioglitazone Hcl, and Glipizide. The high recovery and low coefficients of variation confirm the suitability of the method for simultaneous analysis of the three drugs in tablets. Statistical analysis proves that the method is suitable for the analysis of Metformin Hcl, Pioglitazone Hcl and Glipizide as a bulk drug and in pharmaceutical formulation without any interference from the excipients. It may be extended to study the degradation kinetics of three drugs and also for its estimation in plasma and other biological fluids.

Key Words: Metformin Hcl, Pioglitazone Hcl and Glipizide, RP-HPLC, Validation, Combined Dosage Forms.

INTRODUCTION

Metformin, [MET] chemically [1,1-dimethyl biguanide hydrochloride] (**Fig. 1**) [1]. It acts by suppressing excessive hepatic glucose production and improving glucose clearance, its predominant effect is to decrease fasting plasma glucose. It is the most well known member of the biguanide group, regarded as the main compound in mixed therapies, and is always used in high doses of about 500 or 850 mg. Glipizide [GLP] is an oral rapid- and short-acting anti-diabetic drug from the sulfonylurea class. It is classified as a second generation sulfonylurea, which means that it undergoes enterohepatic circulation. Second-generation sulfonylureas are both more potent and have shorter half-lives than the first-generation sulfonylureas, it is chemically N-{4-[N-(cyclohexylcarbamyl)sulfamoyl]phenethyl}-5-methylpyrazine-2-carboxamide (**Fig. 2**) [2]. Pioglitazone hydrochloride (PIO) is chemically designated as 5-[[4-[2-(5-Ethyl-2-pyridinyl)ethoxy] phenyl]methyl]-2,4-thiazolidinedione (**Fig. 3**). It is a member of the thiazolidinedione group. The combination of Metformin Hcl, Pioglitazone Hcl, and Glipizide is used in pharmaceutical preparations. This combination, however, is not present in any official pharmacopoeia. In this respect, a method for the analysis of this combination is needed.

In the scientific literature, analysis of MET, PIO, and GLP has been reported as individual ingredients and in combination with other compounds. Analytical methods have included estimation of MET [3-8], GLP [9], PIO individually [10]. And in two component formulations of PIO and MET have been analyzed in combination by [11-18]. Simultaneous HPLC analysis of MET with GLP in combinations with other drugs have also been reported [19].

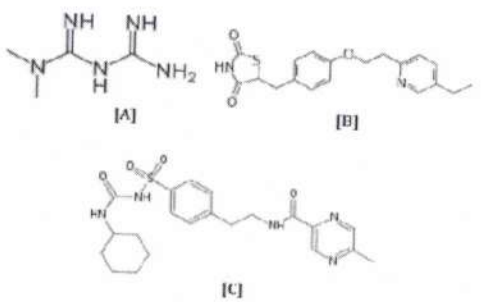

Fig. 1: Structures of Metformin (A), Pioglitazone (B), and Glipizide (C)

Because no chromatographic method for simultaneous analysis of MET, PIO, and GLP in a combined dosage form has yet been reported, it was essential to develop a chromatographic method for simultaneous estimation of all the three drugs in a tablet formulation. The method described is rapid, economical, precise, and accurate and can be used for routine analysis of tablets. It was validated as per ICH norm [20-22].

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Vol. 8, Issue 10, 2019 ISSN: 2319-5622 USA CODEN: JPROK3

Research Article

DESIGN AND SYNTHESIS OF SMALL MOLECULES CAPABLE OF BINDING TO β-AMYLOID PROTIEN FOR THE TREATMENT OF ALZHEIMER'S DISEASE

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Received on: 26-07-2019; Revised and Accepted on: 29-09-2019

ABSTRACT

In the present study a hybrid molecule was designed and synthesised which contains a Benzothiazole moiety and cinnomoyl moiety. The first part was specifically chosen for the amyloid protein binding and the remaining part is for its anti-oxidant properties. The molecule was synthesised using a straight forward synthesis as shown in the scheme. In this study two such derivatives were synthesised and fully characterised spectroscopically.

KEYWORDS: Alzheimer's disease, β-Amyloid protien, Benzothiazole, Cinnomoyl.

INTRODUCTION

Alzheimer's disease:

Alzheimer's disease has been hypothesized to be a protein misfolding disease (proteopathy), caused by accumulation of abnormally folded beta amyloid and tau proteins in the brain. Plaques are made up of small peptides, 39–43 amino acids in length, called beta-amyloid (also written as A-beta or Aβ). Beta-amyloid is a fragment from a larger protein called amyloid precursor protein (APP), a transmembrane protein that penetrates through the neuron's membrane. APP is critical to neuron growth, survival and post-injury repair. In Alzheimer's disease, an unknown process causes APP to be divided into smaller fragments by enzymes through proteolysis. One of these fragments gives rise to fibrils of beta-amyloid, which form clumps that deposit outside neurons in dense formations known as senile plaques. One of the pathological landmarks found in post-mortem brains of patients is the abundance of senile plaques containing β-amyloid (Aβ) peptides. While the exact mechanisms underlying the pathology of AD are not fully understood, reducing deposition of amyloid plaques is believed to be potentially useful to benefit patients[3]. Currently, inhibitions of β-secretases responsible for Aβ formation as well as Aβ immunization to reduce Aβ plaques are proposed as potential treatments for AD. The pivotal role of Ah aggregates in AD provides a strong impetus to search for specific Aβ-aggregate-binding agents to target this devastating disease [1-13].

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DOI: https://doi.org/10.5281/zenodo.3557312

One of the pathological hallmarks of Alzheimer's disease is the presence of amyloid-β plaques in the brain and the major constituent of these plaques is aggregated amyloid-β peptide. Amyloid deposition in the brain is an early, causative event in the pathogenesis of Alzheimer's disease (AD), the principal component of the amyloid core is a protein called amyloid-beta (Aβ). Since the initial deposition of amyloid may occur long before clinical symptoms of AD are noticeable, the detection and quantification of amyloid deposits could facilitate the diagnosis of AD in its early, pre-symptomatic stages. Small molecules having capability of binding to the β-Amyloid protein can be used as diagnostic marker for the AD. In the present study two molecules consisting of benzothiazole moiety and anti-oxidant moiety were synthesized [14-32].

METHODS AND MATERIALS

The aim of the work is the design and synthesis of small and novel amyloid imaging agents. This work describes the design and synthesis of compounds which may contribute to the development of novel amyloid imaging agents. In the present study we tried to develop a small and novel amyloid imaging agent. For this purpose we designed a molecule having 3-Benzothiazol-2-yl-phenylamine (which is previously reported as amyloid binding scaffold) as main scaffold, along with this we introduced different anti-oxidant molecules In view of the fact that in AD oxidative stress is the main cause. Small molecule-based benzothiazole derivatives were designed and synthesized.

The purpose of this study is to develop potential diagnostic imaging agents targeting amyloid plaques in Alzheimer's disease (AD). Formation and accumulation of aggregates of beta amyloid (Aβ) peptides in the brain are critical factors in the development and progression of AD. Developing Aβ-aggregate-specific imaging agents is now an emerging field of research. Oxidative stress (OS) plays a major role in the pathogenesis of Alzheimer's disease (AD). Antioxidants might theoretically act to prevent propagation of tissue damage and improve both survival and neurological outcome. Here we tried to design a small library of molecules containing Aβ-aggregate specific imaging moiety along with different anti-oxidant moieties.

ISSN NO : 2277-2723

RP-HPLC Stability Indicating Method Development and Validation for Concurrent Estimation of Sitagliptin and Metformin Hcl

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ABSTRACT

This present work is concerned with the application of simple, accurate, precise and highly selective HPLC method for simultaneous estimation of sitagliptin and metformin hcl in Bulk drugs. The developed method was validated for linearity, accuracy, precision, limit of detection, limit of quantification, robustness parameters and found to be in good accordance with the prescribed values. Thus the proposed method can be successfully applied for simultaneous determination of sitagliptin and metformin hcl in routine bulk drug analysis.

Keywords: sitagliptin and metformin hcl ,Validation, Bulk drugs.

INTRODUCTION

Sitagliptin is anti-diabetic drug.It is maialy used in treatment of diabetics. Chemically it is 7-[(3R)-3-amino-1-oxo-4-(2,4,5-trifluorophenyl)butyl]-5,6,7,8-tetrahydro-3-trifluoromethyl)-1,2,4-triazolo[4,3-a]pyrazine phosphate monohydrate (Fig. 1). It is a white to offwhite crystalline powder which is odourless and freely soluble in water. Numerous authors have reported CTZ detection methods in biological fluids and pharmaceutical formulations [2-6].

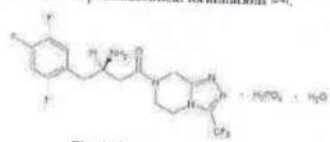
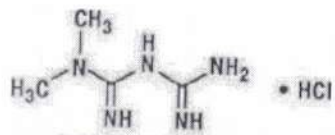


Fig. 1: Structure of Sitagliptin



Metformin Hydrochloride

Fig. 2: Structure of Metformin

Metformin is an oral antidiabetic drug in the biguanide class. It is the first-line drug of choice for the treatment of type 2 diabetes, in particular, in overweight and obese people and those with normal kidney function. It is also used in the treatment of polycystic ovary syndrome. Metformin is the only antidiabetic drug that has been conclusively shown to prevent the cardiovascular complications of diabetes. It helps reduce LDL cholesterol and triglyceride levels, and is not associated with weight gain.Chemically it is *N,N*- Dimethylimidodicarbonimidic diamide (Fig. 2)

It is a white crystalline powder which is odourless and freely soluble in water [7-9].

The aim of this work is to develop accurate, specific, cost effective, repeatable and validated HPLC method for the simultaneous estimation of sitagliptin and metformin hcl in the bulk drug samples.

EXPERIMENTAL

An UV spectrum of 10µg/ml. of in diluents was recorded by scanning in the wavelength range of 200nm to 400nm. From the overlein spectrum the absorption wavelength was found at 336nm for 10µg/ml solution. Initially the mobile phase tried was methanol: acetonitrile and acetonitrile: phosphate buffer and finally phosphate buffer : methanol with various combinations of pH as well as varying proportions. Finally, the mobile phase was optimized to potassium dihydrogen phosphate buffer (pH 3): methanol in the ratio of 50:50 respectively

Preparation of standard solution:

Accurately Weighed and transferred 100mg of Metformin and 10mg of Sitagliptin working Standards into a 10 ml clean dry volumetric flask, add 7ml of diluent , sonicated for 5 minutes and make up to the final volume with diluent(standard stock).

Preparation of sample solution:

20 tablets were weighed and calculated the average weight of tablets ,then the weight equivalent to 5 tablets was transferred into a 100 mL volumetric flask. 70mL of diluent added and sonicated for 25 min, further the volume made up with diluent and filtered. From the filtered solution 0.4ml was pipetted out into a 10 ml volumetric flask and made upto 10ml with diluent.

Validation Parameters:

Validation experiments were performed to demonstrate accuracy, precision, intermediate precision, linearity, specificity, LOD, LOQ, robustness.

A) Accuracy:

Preparation of stock solution containing sitagliptin and metformin:

Accurately weighed and transferred 5 mg of sitagliptin and 50 mg of metformin working standards into 10mL clean and dry volumetric flask and add ¾ th of mill Q water sonicated to dissolve completely and adjusted the volume upto the mark with the mill Q water. Further pipetted following concentrations from stock solution.

Universal Review

ISSN NO : 2277-2723

Preparation of Level – I (50%):

0.5ml of stock solution has taken in 10ml of volumetric flask dilute up to the mark with diluent.

Preparation of Level – III (100%):

1.0ml of stock solution has taken in 10ml of volumetric flask dilute up to the mark with diluent.

Preparation of Level – V (150%):

1.5ml of stock solution has taken in 10ml of volumetric flask dilute up to the mark with diluents.

Preparation of Level – II (70ppm):

0.7ml of stock solution has taken in 10ml of volumetric flask dilute up to the mark with diluent.

Preparation of Level – III (100ppm):

1.0ml of stock solution has taken in 10ml of volumetric flask dilute up to the mark with diluent.

Preparation of Level – IV 1(120ppm):

1.2ml of stock solution has taken in 10ml of volumetric flask dilute up to the mark with diluent.

ejbps, 2017, Volume 4, Issue 7 721-724. Research Article SJIF Impact Factor 4.382

EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES

http://www.ejbps.com

ISSN 2349-8870
Volume: 4
Issue: 7
721-724
Year: 2017

EVALUATION OF ANTI-DIABETIC ACTIVITY ON *GUAVA* (*PSIDIUM GUAJAVA* LINN.) SEEDS AQUEOUS EXTRACT IN *STREPTOZOTOCIN*-INDUCED DIABETIC RATS

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Article Received on 19/05/2017 **Article Revised on 09/06/2017** **Article Accepted on 30/06/2017**

ABSTRACT

Guava (*Psidium guajava* Linn.) commonly known for its food and nutritional values throughout the world. The medicinal properties of guava fruit, leaf and other parts of the plant are also well known in traditional system. In view of suggested anti diabetic potential, effect of aqueous and cold extracts of *Psidium guajava* (Myrtaceae) seeds, on fasting blood sugar levels and serum biochemical analysis in streptozotocin-induced diabetic rats was investigated. All the extracts of *Psidium guajava* produced a significant anti diabetic activity at dose levels of 1/5th of their lethal doses.

KEYWORDS: *Psidium guajava, Anti-diabetic activity, streptozotocin, Aqueous extract, Cold extract.*

INTRODUCTION

Diabetes mellitus (DM) is a chronic disease caused by inherited and/or acquired deficiency in production of insulin by the pancreas, or by ineffectiveness of insulin produced, such a deficiency results in increased concentration of glucose in the blood, which in turn damages many of the body's systems in particular the blood vessels and nerves. As the number of the people with diabetes multiplies worldwide, the disease has taken an ever-increasing share of national and international health care budgets. It is projected to become of the world's main disablers and killers within the next 25 years. Regions with greatest potential are Asia and Africa, where DM rates could rise to two-to-three- folds campened with the present rates. Apart from currently available therapeutic options, many herbal medicines have been recommended for the treatment of diabetes. Traditional plant medicines are used throughout the world for a range of diabetic presentation. Guava is a small tropical tree that grows up to 35 feet tall; it is widely grown for its fruit in tropics. It is a member of the Myrtaceae family, with about 133 genera and more than 3,800 species. The leaves and bark of *P. guajava* tree have a long history of medicinal uses that are still employed today (Nwinyi *et al.,* 2008). In the view of the immense medicinal importance of *P. Guajava* plant evidenced in there is a strong incentive for further research into the pharmacological activities of *P. guajava* plant extract against common infectious diseases considering the fact that the plant is readily available in the tropics and within the reach of the local populace. Guava contains broad spectrum of phytochemicals including polysaccharides, vitamins, essential oils, minerals, enzymes, proteins, sesquiterpenoid alcohols and triterpenoid acids, alkaloids, glycosides, steroids, flavanoids, tannins, saponins, *Psidium guajava* or guava is very rich in antioxidants and vitamins and also high in lutein, zeaxanthine and lycopene. Guava is rich in tannins, phenols, triterpenes, flavonoids, essential oils, saponins, carotenoids, lectins, vitamins, fibre and fatty acids. Guava fruit is higher in vitamin C than citrus (80 mg of vitamin C in 100 g of fruit) and contains appreciable amounts of vitamin A as well. Guava fruits are also a good source of pectin - a dietary fiber. The leaves of guava are rich in flavonoids, in particular, quercetin. Much of guava's therapeutic activity is attributed to these flavonoids. The flavonoids have demonstrated antibacterial activity.[1] Quercetin is thought to contribute to the anti diarrheal effect of guava; it is able to relax intestinal smooth muscle and inhibit

E- ISSN: 2348-3962, P-ISSN: 2394-5583

IJP (2019), Vol. 6, Issue 7

(Research Article)

IJP International Journal of Pharmacognosy

Received on 10 July 2019; received in revised form, 26 July 2019; accepted, 29 July 2019; published 31 July 2019

PHYTOCHEMICAL AND PHARMACOLOGICAL ACTIVITIES OF *POLYGALA CHAINENSIS*, *CLEOME CHELIDONII*

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Keywords:

Anthelmintic activity, Anti-oxidant activity, *Polygala chainensis*, *Cleome chelidonii*

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ABSTRACT: Natural products are an important source of bioactive compounds and have potential for the development of novel therapeutics. Natural products and their derivatives represent more than 50% of all drugs in clinical use in the world. Herbal plants contain and produce a verity of chemical substances used as a remedy for treating diseases. Anthelmintic and antioxidants have been treated with some medicinal plants or their extract based on folklore medicine. For the research *Polygala chainensis* and *Cleome chelidonii* selected based on its availability, high therapeutic value; activity has not been scientifically investigated. Very few pharmacological activities have been reported on whole plant of *Polygala chainensis* and *Cleome chelidonii*. The leaves of *Cleome chelidonii* and *Polygala chinensis* plants was observed for the phytochemical investigation and pharmacological evaluation. The percentage of yield and phytochemical was observed in methanolic extraction so this extraction was used for pharmacological activity. The extract of *Cleome chelidonii* and *Polygala chinensis* plants shown anthelmintic activity. The anthelmintic activity of *Polygala chinensis* was better than *Cleome chelidonii*. Significant DPPH free radical scavenging activity was found in methanolic extract the extract of *Cleome chelidoni* IC_{50} value is 28.06 ± 1.01 µg/ml and *Polygala chinensis* IC value is 30.1 ± 1.01 µg/ml compare with reference standard ascorbic acid IC value is 44.7 ± 2.01 µg/ml. The methanolic extract of *Polygala chinensis* was beater than *Cleome chelidonii* for antioxidant activity.

INTRODUCTION: Natural products are an important source of bioactive compounds and have potential for the development of novel therapeutics. Natural products and their derivatives represent more than 50% of all drugs in clinical use in the world. Over the decades there has been a growing interest in drugs of plant origin. During this period, utilization of medicinal plants has almost doubled in Western Europe and substances derived from higher plants constitute approximately 25% of prescribed medicines. Helminthiasis is one of the most important animal diseases worldwide, inciting heavy production losses in grazing animals.

The disease is especially prevalent in developing countries in association with poor management practices and inadequate control measures. An integrated approach is required for the effective control of helminths which include strategic and tactical use of anthelmintics and careful management of grazing lands, including control of

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DOI: 10.13040/IJPSR.0975-8232.IJP.6(7).253-58

The article can be accessed online on www.ijpjournal.com

DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.IJP.6(7).253-58

ISSN: 2321 – 4589

International Journal of Pharmaceutical Research and Life Sciences
Journal home page: www.ijprls.in

IJPRLS

COMPARATIVE PHYSICOCHEMICAL AND FLUORESCENCE STUDIES ON BLINDLY ADULTERATED WOOD SAMPLES OF AKIL

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ABSTRACT

Eight samples available in the name of Akil (S II to S IX) collected from Indian market were subjected to fluorescence analysis. The attempt studied for loss on drying at 105°C, pH, ash value, extractive value, solubility value, volatile oil content, qualitative phytochemical screening and inorganic chemical analysis as the standards showing the physico - chemical properties of all the source samples. The authentic sample of Akil was named SI for comparison. As the original source taxon is rare and limited in geography, standardization is required for its identification.

Keywords: Akil, Volatile oil, Phytochemical screening, Fluorescence

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INTRODUCTION

Akil is credited with several pharmacological properties as per the literature claims; it is also a highly priced incense wood of much popular antiquity. The plant *A. malaccensis ie.*, agarwood is termed as true 'Akil' ascribed in Siddha text and its uses were narrated[1]. Eight wood samples sold in the name of Akil were procured from various places of Indian country drug sellers. Authentic wood samples of *A. malaccensis* were procured. These samples are named as S I – S IX in present study. The voucher specimens

World Inventia Publishers

Journal of Pharma Research
http://www.iprinfo.com/

Vol. 8, Issue 10, 2019 ISSN: 2319-5622 USA CODEN: JPROK3

Research Article

DESIGN AND SYNTHESIS OF SMALL MOLECULES CAPABLE OF BINDING TO β-AMYLOID PROTIEN FOR THE TREATMENT OF ALZHEIMER'S DISEASE

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Received on: 26-07-2019; Revised and Accepted on: 29-09-2019

ABSTRACT

In the present study a hybrid molecule was designed and synthesised which contains a Benzothiazole moiety and cinnomoyl moiety. The first part was specifically chosen for the amyloid protein binding and the remaining part is for its anti-oxidant properties. The molecule was synthesised using a straight forward synthesis as shown in the scheme. In this study two such derivatives were synthesised and fully characterised spectroscopically.

KEYWORDS: Alzheimer's disease, β-Amyloid protien, Benzothiazole, Cinnomoyl.

INTRODUCTION

Alzheimer's disease:

Alzheimer's disease has been hypothesized to be a protein misfolding disease (proteopathy), caused by accumulation of abnormally folded beta amyloid and tau proteins in the brain. Plaques are made up of small peptides, 39–43 amino acids in length, called beta-amyloid (also written as A-beta or Aβ). Beta-amyloid is a fragment from a larger protein called amyloid precursor protein (APP), a transmembrane protein that penetrates through the neuron's membrane. APP is critical to neuron growth, survival and post-injury repair. In Alzheimer's disease, an unknown process causes APP to be divided into smaller fragments by enzymes through proteolysis. One of these fragments gives rise to fibrils of beta-amyloid, which form clumps that deposit outside neurons in dense formations known as senile plaques. One of the pathological landmarks found in post-mortem brains of patients is the abundance of senile plaques containing β-amyloid (Aβ) peptides. While the exact mechanisms underlying the pathology of AD are not fully understood, reducing deposition of amyloid plaques is believed to be potentially useful to benefit patients[3]. Currently, inhibitions of β-secretases responsible for Aβ formation as well as Aβ immunization to reduce Aβ plaques are proposed as potential treatments for AD. The pivotal role of Ah aggregates in AD provides a strong impetus to search for specific Aβ-aggregate-binding agents to target this devastating disease [1-13].

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DOI: https://doi.org/10.5281/zenodo.3557312

One of the pathological hallmarks of Alzheimer's disease is the presence of amyloid-β plaques in the brain and the major constituent of these plaques is aggregated amyloid-β peptide. Amyloid deposition in the brain is an early, causative event in the pathogenesis of Alzheimer's disease (AD), the principal component of the amyloid core is a protein called amyloid-beta (Aβ). Since the initial deposition of amyloid may occur long before clinical symptoms of AD are noticeable, the detection and quantification of amyloid deposits could facilitate the diagnosis of AD in its early, pre-symptomatic stages. Small molecules having capability of binding to the β-Amyloid protein can be used as diagnostic marker for the AD. In the present study two molecules consisting of benzothiazole moiety and anti-oxidant moiety were synthesized [14-32].

METHODS AND MATERIALS

The aim of the work is the design and synthesis o small and novel amyloid imaging agents. This work describe the design and synthesis of compounds which may contribute t the development of novel amyloid imaging agents. In th present study we tried to develop a small and novel amyloi imaging agent. For this purpose we designed a molecule havin 3-Benzothiazol-2-yl-phenylamine (which is previously reporte as amyloid binding scaffold) as main scaffold, along with this w introduced different anti-oxidant molecules In view of the fac that in AD oxidative stress is the main cause. Small molecule based benzothiazole derivatives were designed and synthesized

The purpose of this study is to develop potentia diagnostic imaging agents targeting amyloid plaques i Alzheimer's disease (AD). Formation and accumulation o aggregates of beta amyloid (Aβ) peptides in the brain are critica factors in the development and progression of AD. Developin Aβ-aggregate-specific imaging agents is now an emerging fiel of research. Oxidative stress (OS) plays a major role in th

pathogenesis of Alzheimer's disease (AD). Antioxidants might theoretically act to prevent propagation of tissue damage and improve both survival and neurological outcome. Here we tried to synthesise a small library of molecules containing Aβ aggregate-specific imaging moiety alongwith different anti oxidant moieties.

RESEARCH ARTICLE
Indian Journal of Animal Research, Volume 54 Issue 1: 74-82 (January 2020)

Protective effect of *Fragarria ananassa* and *Vaccinium corymbosum* fruit extracts against L-arginine induced acute pancreatitis in rats

Veena Gadicherla[1,2], Siva Reddy Challa[3], Mandava V. Basaveswara Rao[4], P. Ramakrishna[5], K. Pavan Kumar[6]

10.18805/ijar.B-3737

ABSTRACT

The study was aimed to evaluate the protective effects of alcoholic extracts of *Strawberry* and *Blueberry* fruits [AESF and AEBF] in acute pancreatitis in rats. Treatment groups received AESF and AEBF at doses of 200 and 400 mg/kg for 7 days with prior injections of L-arginine on 5th day. Biochemical parameters were estimated in serum and pancreatic tissue samples. Histopathological studies and DNA fragmentation assay were carried out in isolated pancreatic tissue. The results of the study indicated that treatment of AESF and AEBF exhibited a significant dose dependent protective effect. Upon the treatment, anti-oxidant enzymes were significantly (*p<0.05) increased. Biochemical results were correlated with the histopathological findings. In addition, the DNA fragmentation assay showed an intact DNA in pancreatic cells of treated groups. In conclusion, berry fruit extracts exerted a potential protective effect against L-arginine induced damage in rat pancreas, at least in part, due to its antioxidant properties.

Key words: Amylase, *Blueberry*, L-Arginine, Lipase, Oxygen free radicals, Pancreatitis, *Strawberry*.

INTRODUCTION

Acute pancreatitis (AP) is a critical self limiting gastrointestinal condition with wide clinical variation. Although 80% of the cases are mild 20% may lead to severe necrotizing pancreatitis causing high mortality rates in spite of the availability of advanced treatment modalities (Kui *et al.*, 2015). The incidence of acute pancreatitis is increasing by 13 to 45 cases per 100,000 persons (Yadav *et al.*, 2013). Many etiological factors have been derived for the occurrence of the disease of which alcohol and biliary tract abnormalities are the most common. The risk of AP ranges from 2 to 5 % among patients who are chronic alcoholics (Lankisch *et al.*, 2002). In 10% of the cases, the cause is unknown and may be secondary to microlithiasis of gall bladder. Although many pathogenic mechanisms have been derived; auto digestion, generation of oxygen free radical and lipid peroxidation is broadly accepted theory leading to rapid activation of inflammatory responses at the site of activation with the involvement of systemic organs (Abdin *et al.*, 2010). The systemic complications are implied by the activation of inflammatory cytokines like TNF α, IL -6 which are macrophage derived factors involved in the progression of the disease (Czako *et al.*, 1998). It has been suggested that trypsinogen, play a key role in the progression of severe acute pancreatitis. The balance of trypsinogen conversion to trypsin is mediated by a negative feedback loop and excessive activation of trypsinogen adds to the disturbance of the homeostasis leading to severe acute pancreatitis (Ning *et al.*, 2013). Lack of conventional therapy opens a novel approach for the use of antioxidants obtained from many resources for the development of new drugs.

Phytochemicals from plant origin are responsible for antioxidant property and are principally contributed by phenolics, anthocyanins and flavonoid compounds (Wang *et al.*, 2000). The consumption of fruits has been associated with decreased incidence of diseases. Berry fruits have been widely described for their antioxidant activity (Jaime Guerrero *et al.*, 2010). Wang *et al.*, (2000) has described notable antioxidant property of extracts of *Blueberry*, *Raspberry* and *Strawberry* against chemically generated superoxide radical species (Wang *et al.*, 2000). *Strawberry*

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How to cite this article: Gadicherla, V., Challa, S.R., Rao, M.V.B., Ramakrishna, P. and Kumar, K.P., (2020). Protective effect of *Fragarria ananassa* and *Vaccinium corymbosum* fruit extracts against L-arginine induced acute pancreatitis in rats, Indian Journal of Animal Research, 54(1): 74-82.

Submitted: 08-10-2018 **Accepted:** 12-12-2018 **Published:** 13-02-2019

Pharmacogn. Mag.
A multifaceted peer reviewed journal in the field of Pharmacognosy and Natural Products
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ORIGINAL ARTICLE

Morinda Citrifolia (Noni) Fruit Protects the Exocrine Pancreatic Dysfunction Against L-Arginine Induced Acute Pancreatitis in Rats

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Submitted: 28-12-2018 Revised: 24-01-2019 Published: 26-08-2019

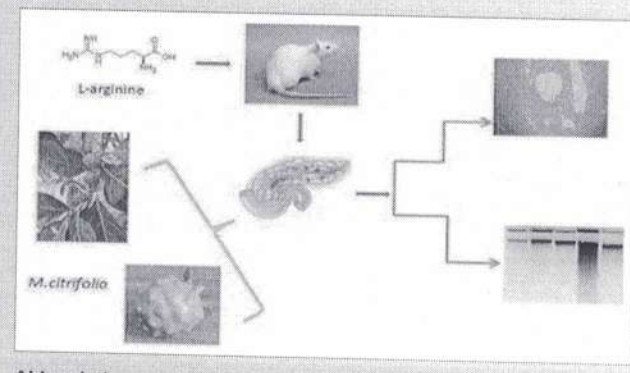
ABSTRACT

Background and Objective: *Morinda citrifolia* (MC) commonly known as Noni is being used for many ailments and is considered as wellness drink. It is traditionally used for anti-inflammatory, anti-aging, and immunostimulant properties. The present study has been initiated to investigate the protective effects of MC fruit extract (MCFE) on L-arginine-induced acute pancreatitis (AP) in rats. **Materials and Methods:** Male Sprague-Dawley rats were randomly divided into groups of control, disease control, positive control, and treatment groups. AP is induced by the administration of a single dose of L-arginine (2 × 2.5 g/kg, intraperitoneally, 1 h apart). Positive control received melatonin (10 mg/kg); treatment groups received 200 mg/kg and 400 mg/kg MCFE 6 days before administration of L-arginine. After 12 h of induction, the serum samples were analyzed for biomarker enzymes such as amylase, lipase, C-reactive protein, superoxide dismutase, glutathione, catalase, tissue nitrate, lactate dehydrogenase, and myeloperoxidase. Histopathological studies and deoxyribonucleic acid (DNA) fragmentation assay were performed from the isolated pancreatic tissue. **Results:** MCFE administration showed a dose-dependent significant ($P < 0.001$) protective effect by improving the levels of antioxidant enzymes and reducing the elevated levels of amylase and lipase. The acinar cell damage was limited in histopathological findings and an intact DNA when compared to disease control. **Conclusion:** MCFE administration showed a protective effect against AP in rats, and it may be due to the attenuation of oxidative stress. Further investigation for the exact molecular mechanism is needed.

Key words: Amylase, arginine, lipase, *Morinda citrifolia*, oxygen free radicals, pancreatitis

SUMMARY

- Noni juice demonstrated a protective effect against l-arginine induced acute pancreatitis which was in accordance with the positive control Melatonin. The protective effect is observed to be due to the presence of active constituents such as desacetylasperulosidic acid, 6-α-hydroxysdoxoside, 6-β-7-β-epoxy 8-episplendoside, americanin A which showed the antioxidant effects. The exploration of molecular level mechanism may lead to the development of essential therapeutic targets in acute pancreatitis.



Abbreviations used: AP: Acute Pancreatitis; MCFE: *Morinda citrifolia* fruit extract; DNA: Deoxyribonucleic acid; GI: Gastrointestinal; ROS: Reactive oxygen species; CRP: C-reactive protein; Kcl: Potassium chloride; UPLC: Ultrahigh-pressure liquid chromatography; LC-MS/MS: Liquid chromatography–mass spectrometry; OECD: Organization of economic cooperation and development; LD_{50}: Lethal dose 50; SOD: Superoxide dismutase; H_2O_2: Hydrogen peroxide; TCA: Trichloroacetic acid; DNPH: Di nitrophenylhydrazine; EDTA: Ethylenediaminetetraacetic acid; TBA: Thiobarbituric acid; MDA: Malondialdehyde; LDH: Lactate dehydrogenase; β-NADH: β-Nicotinamide adenine dinucleotide; SDS page: Sodium dodecyl sulfate-polyacrylamide gel electrophoresis; ANOVA: Analysis of variance; iNOS: Inducible nitric oxide

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DOI: 10.4103/pm.pm_661_18

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INTRODUCTION

Acute pancreatitis (AP), a self-limiting disease is one of the most frequent diseases of pancreas and the most common cause for hospital admission among the Gastrointestinal diseases in many countries. AP is regarded as one of the leading acute diseases worldwide with increasing evidence of age-standardized rates over the past decades. Although it is self-limiting, up to 20% of the patients may encounter mild edematous to severe necrotizing form.[1] Pathogenesis involves the activation of intracellular pancreatic zymogen which triggers systemic and local inflammatory response by releasing mediators from macrophages and neutrophils, which eventually lead to multiorgan dysfunction.[2] One of the pivotal mechanisms of AP is based on the involvement of reactive oxygen species (ROS), which provoke the development of pancreatitis through

Cite this article as: Gadicherla V, Challa SR, Rao MV, Kunda PK, Prudhvi R. *Morinda Citrifolia* (Noni) fruit protects the exocrine pancreatic dysfunction against L-arginine induced acute pancreatitis in rats. Phcog Mag 2019;15:S328-34.

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Turk J Pharm Sci 2021;18(3):262-270
DOI: 10.4274/tjps.galenos.2020.92145

ORIGINAL ARTICLE

Granny Smith Apple Extract Lowers Inflammation and Improves Antioxidant Status in L-arginine-induced Exocrine Pancreatic Dysfunction in Rats

Granny Smith Elma Ekstresi, Sıçanlarda L-arginin Kaynaklı Ekzokrin Pankreas Bozukluğunda İnflamasyonu Azaltır ve Antioksidan Durumunu İyileştirir

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ABSTRACT

Objectives: Granny Smith is a cultivated hybrid variety of apple with a high antioxidant content relative to all other species of apple. Acute pancreatitis (AP) is an instantly emerging inflammatory condition with a high mortality rate. The preferred treatment is restricted to symptomatic relief and supportive care. The present study was undertaken to evaluate the favorable effects of Granny Smith apple extract (GSAE) as a prophylactic treatment for L-arginine-induced AP in rats.

Materials and Methods: Male Sprague Dawley rats were divided in to five groups (n=6): Normal control (saline), disease control (a single dose of L-arginine 2.5 g/kg I.P.), positive control (pelatonin 10 mg/kg I.P.), and GSAE I and II (200 mg/kg and 400 mg/kg, orally, respectively). All groups were treated for 7 days. At the end of the study, blood samples were collected from the retro-orbital plexus, serum separated, and subjected to estimation of biomarker enzymes such as amylase, lipase, antioxidant enzymes, etc. The animals were then sacrificed, and the pancreas was isolated and subjected to estimation of tissue biomarkers, DNA fragmentation assay, and histopathological studies.

Results: Serum levels of amylase and lipase were significantly ($p<0.001$) reduced in L-arginine-treated rats. Similar results were also observed with tissue inflammatory markers such as malondialdehyde, nitrate, etc. There was a dramatic increase ($p<0.001$) in the overall antioxidant enzyme levels when compared with disease control rats. Histopathological examination of pancreatic tissue showed an intact structural feature of acinar cells in the extract-treated group of rats, which was further in pact with the intact DNA found in the DNA fragmentation assay.

Conclusion: Thus, GSAE treatment was found to be beneficial in lowering the inflammatory conditions of AP by improving the overall antioxidant levels, and a further investigation into its exact molecular mechanism is needed.

Key words: Granny Smith apple, L-arginine, free radicals, pancreatitis

ÖZ

Amaç: Granny Smith, diğer elma türlerine göre yüksek antioksidan içeriğine sahip, yetiştirilmiş bir melez elma çeşididir. Akut pankreatit (AP), yüksek ölüm oranına sahip, anında ortaya çıkan bir enflamatuvar süreçtir. Tercih edilen tedavi, semptomatik rahatlama ve destekleyici bakım ile sınırlıdır. Bu çalışma, Granny Smith elma özütünün (GSAE) sıçanlarda L-arginin kaynaklı AP için profilaktik bir tedavi olarak olumlu etkilerini değerlendirmek için yapılmıştır.

Gereç ve Yöntemler: Erkek Sprague Dawley sıçanları beş gruba ayrıldı (n=6): Normal kontrol (salin), hastalık kontrol (tek doz L-arginin 2,5 g/kg I.P.), pozitif kontrol (pelatonin 10 mg/kg I.P.) ve GSAE I ve II (sırasıyla 200 mg/kg ve 400 mg/kg ağızdan). Tüm gruplar 7 gün tedavi edildi. Çalışmanın sonunda, retro-orbital pleksustan kan örnekleri alındı, serum ayrıldı ve amilaz, lipaz, antioksidan enzimler gibi biyobelirteç enzimler analiz edildi. Hayvanlar daha sonra öldürüldü ve pankreas izole edildi. Doku biyobelirteçlerinin analizi, DNA fragmantasyon analizi ve histopatolojik çalışmalara tabi tutulmuştur.

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Received: 24.02.2020, Accepted: 30.05.2020