Nanded Pharmacy College, Nanded

3
Research Innovations & Extensions

3.3.1
Number of research papers published per teacher in the Journals

Link to the uploaded papers, the first page/full paper (with author and affiliation details) on the institutional website

Shri Sharda Bhavan Education Society's
NANDED PHARMACY COLLEGE
Shyam Nagar, Nanded - 431 605 Maharashtra India (19.175868,77.307992)
Phone – 91 2462 254347 Tele fax No. 91 2462 254445 (O)
Visit: www.nandedpharmacycollege.org.in ; Email: ssbesnpc146@gmail.com
Affiliated to Swami Ramanand Teerth Marathwada University, Nanded, www.srtmun.ac.in
Approved by PCI & AICTE, New Delhi; College DTE Code: 2149; College SRTM University Code: 146
Ref. No. NPC / B. Pharm/ Date:

Key Indicator

3

Research Innovations & Extensions

3.3.1

Number of research papers published per teacher in the Journals

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Sr No	Contents	Page No.
01	List of the Publications and Details 2017-18	1
02	List of the Publications and Details 2018-19	3
03	List of the Publications and Details 2019-20	5
04	List of the Publications and Details 2020-21	8
05	List of the Publications and Details 2021-22	12
06	First page of Publication 2017-18	16
07	First page of Publication 2018-19	26
08	First page of Publication 2019-20	35
09	First page of Publication 2020-21	53
10	First page of Publication 2021-22	73

NANDED PHARMACY COLLEGE

FACULTY PUBLICATION DATA FROM 2017-18

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	Link to article / paper / abstract of the article
Review on Phytochemical and Pharmacological aspects of Diospyros melanoxylon	Nitin B Ghiware Ramling Patrakar	Pharmacology	International Journal Of Innovative Pharmaceutical Sciences And Research	2017	***2347-2154***	www.ijipsr.com	https://www.ijipsr.com/index.php/IJIPSR/article/view/180
Role of natural polymer in sustained and controlled release	G R Shendarkar V S Kadam	Pharmacognosy	Indo American Journal Of Pharmaceutical Research	2017	2231-6876	https://www.iajpr.com	https://core.ac.uk/download/pdf/144861991.pdf
Design and development of polyherbal formulation with antioxidant potential	G R Shendarkar D P Shelke	Pharmacognosy	Journal Of Medicinal Plant Studies	2017	2320-3862	https://www.plantsjournal.com	https://www.plantsjournal.com/archives/2017/vol5issue2/PartC/5-1-64-362.pdf
Phytochemical screening and antimicrobial activity of Dendrocalamus strictus leaves extracts	G R Shendarkar S N Wangawar	Pharmacognosy	World Journal Of Pharmaceutical Research	2017	2277-7105	https://www.wjpr.net	https://wjpr.s3.ap-south-1.amazonaws.com/article_issue/1490958025.pdf
Phytochemical evaluation and antioxidant study Dendrocalamus strictus leaves extracts	G R Shendarkar A K Daswad	Pharmacognosy	World Journal Of Pharmaceutical And Medicinal Research	2017	2455-3301	https://www.wjpmr.com	https://www.wjpmr.com/home/article_abstract/423
Physiochemical characterisation and antioxidant study of Allium cepa leaf extracts	G R Shendarkar A K Daswad	Pharmacognosy	International Journal Of Pharma And Chemical Research	2017	2395-3411	https://www.ijpacr.com/default.html	http://www.ijpacr.com/files/07-04-2017/10.pdf
Pharmaceutical Cocrystal of piroxicam:	G R Shendarkar Prabhakar Panzade	Pharmacognosy	Advance Pharmaceutical	2017	2258-5881	https://www.ncbi.nlm.nih.gov/pmc/journals/2246/	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5651061/

Design, Formulation and Evaluation			Bulletin				
Pharmaceutical Cocrystal: an antique and multifaceted approach	G R Shendarkar Prabhakar Panzade	Pharmacognosy	Current Drug Delivery, Bentham Science Publication	2017	1875-5704	https://pubmed.ncbi.nlm.nih.gov/	https://pubmed.ncbi.nlm.nih.gov/27758692/
Software based approaches for drug designing and development: A systematic review on commonly used software and its applications	Mahavir H. Ghante, P G. Jamkhande	Pharmaceutical Chemistry	Bulletin Of Faculty Of Pharmacy, Cairo University	2017	1110-0931	https://www.sciencedirect.com/journal/bulletin-of-faculty-of-pharmacy-cairo-university https://www.sciencedirect.com/	https://www.sciencedirect.com/science/article/pii/S1110093117300467
Influence Of Xanthum, Guar and Acacia Gum On Release Of Extended Release Tablet Of Trazadone Hydrochloride	Vaishali S. Kadam and G. R. Shendarkar	CRPS Nanded College of Pharmacy, Nanded, Maharashtra India	International Journal Of Pharmacy	2017	ISSN 2249-1848	http://www.pharmascholars.com	https://www.pharmascholars.com/articles/influence-of-xanthum-guar-and-acacia-gum-on-release-of-extended-release-tablet-of-trazadone-hydrochloride.pdf

NANDED PHARMACY COLLEGE NANDED 2149 146

PRINCIPAL
Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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FACULTY PUBLICATION DATA FROM 2018-19

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	Link to article / paper / abstract of the article
Regulation of micro-RNA in cancer	Nitin B Ghiware, Pavan Wankhade,	Pharmacology	Indo American Journal of Pharmaceutical science	2018	2349-7750	https://www.iajps.com	67.IAJPS67012018.pdf
Comparative Evaluation of Tabernaemontana Divaricata leaves Extracts for Antidepressant Activity	Nitin B Ghiware, Priyanka Tadkase	Pharmacology	World Journal of Pharmaceutical Research	2018	2277–7105	https://www.wjpr.net	https://wjpr.s3.ap-south-1.amazonaws.com/article_issue/1529113314.pdf
Optimization of stress conditions of forced degradation Study by UV spectrophotometer	A B Roge, Dr. G R Shendarkar.	Pharmaceutical Chemistry	Indo American Journal of Pharmaceutical Research	2018	1509-1516	http://iajpr.com	http://iajpr.com/archive/volume-8/aug-2018#
Development of validated UV spectrophotometric stability indicating method for estimation of gallic acid in bulk form	A B Roge and G R Shendarkar	Pharmaceutical Chemistry	International Journal of Pharmacy and Biological Sciences	2018	2230-7605	https://www.ijpbs.com	ijpbs_5be55c7736acd.pdf
Role of Dynein in Alzheimer Disease	Nitin Ghiware, Pavankumar Wankhade	Pharmacology	International Journal of Pharmacy and Pharmaceutical research	2018	2349-7203	https://ijppr.humanjournals.com	https://ijppr.humanjournals.com/role-of-dynein-in-alzheimer-disease/
Extraction, characterization and identification of bioactive components from medicinal plants: A review	A T Sharma N B Ghiware V N Gunjkar	Pharmaceutics	Indo American Journal of Pharmaceutical Sciences	2018	2349-7750	http://www.iajps.com	http://doi.org/10.5281/zenodo.1452504

Review On: Traditional Plant Having Anti Asthmatic Activity	VN Gunjkar, NB Ghiware, AT Sharma, SN Firke	Pharmaceutics	Indo American Journal of Pharmaceutical Sciences	2018	2349-7750	https://www.iajps.com	https://zenodo.org/record/1450302#collapseOne
Superior Solubility and Dissolution of Zaltoprofen via Pharmaceutical Cocrystals	Prabhakar PANZADE*, Giridhar SHENDARKAR	Center for Research in Pharmaceutical Sciences	Turk J Pharm Science	2018	16(3):310-316	https://www.ncbi.nlm.nih.gov/	https://pubmed.ncbi.nlm.nih.gov/32454729/

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FACULTY PUBLICATION DATA FROM 2019-20

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	Link to article / paper / abstract of the article
Anti-mycobacterial, antimicrobial, antioxidant activities and *in silico* PASS investigations of root fractions and extract of Cordiadichotoma Forst	PG Jamkhande, M H. Ghante, S Barde& B R. Ajgunde	Pharmaceutical Chemistry	Oriental Pharmacy and Experimental Medicine,	2019	E ISSN 2662-4060 Print ISSN 2662-4052	https://www.springer.com/journal/13596	https://doi.org/10.1007/s13596-019-00399-5
Role of Pentacyclic Triterpenoids in Chemoprevention and Anticancer Treatment: An Overview on Targets and Underling Mechanisms	Mahavir H. Ghante, Prasad G. Jamkhande	Pharmaceutical Chemistry	J Pharmacopuncture	2019	P ISSN 2093-6966 E ISSN 2234-6856	https://www.journal-jop.org/main.html	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6645347/
Pharmacognostic and Pharmacological review on herbal plant: Hibiscus rosasinesis Linn	Shrinivas Sarje, Shital Narwade, Mahesh Thakur, N B Ghiware	Pharmacology	International Journal of Chemtech Research	2019	0974-4290	https://sphinxsai.com	https://sphinxsai.com/2019/ch_vol12_no4/4/(266-270)V12N4CT.pdf
A Pharmacognostic and pharmacological review on Canna indica Linn.	Shrinivas Sarje, Ingole Kushewati, Angad shinde, N B Ghiware	Pharmacology	International Journal of Research in Pharmacy and Chemistry	2019	2231-2781	http://www.ijrpc.com	http://www.ijrpc.com/files/03-08-19/01.pdf
Development of Validated UV Spectrophotometric Stability Indicating Method for Estimation of Desloratadine from Its Tablet Dosage Form.	. A B Roge*, G R Shendarkar1, M H Ghante and N B Ghiware	Pharmaceutical chemistry	International Journal of Pharmacy and Biological Sciences	2019; 9	E ISSN: 2230-7605, P ISSN: 2321-3272	www.ijpbs.com	https://ijpbs.com/ijpbsadmin/upload/ijpbs_5deb8804945e7.pdf

Anti-hyperglycaemic Evaluation of Extracts of *Spinacia oleracea* Linn. And *Acacia nilotica* Linn. in Alloxan induced diabetic Rats	SK. Sarje, NB. Ghiware, Sachin Bhosale, Payal Chavan,	Pharmacology	International Journal of Pharmacy and Biological Sciences	(2019)	E ISSN: 2230-7605, P ISSN: 2321-3272	www.ijpbs.com	https://www.ijpbs.com/ijpbsadmin/upload/ijpbs_5ce0ffffd9e34.pdf
Antihyperlipidemic Activity of *Acacia nilotica pods* extract against fructose induced hyperlipidaemia	S. K. Sarje, Kadam Varsha, Rasale Snehal, Shiradhonkar Vikas, N. B. Ghiware	Pharmacology	Indo American Journal of Pharmaceutical Research,	2019	2231-6876	https://iajpr.com/	https://iajpr.com/archive/volume-9/MAY-2019
Antihyperlipidemic Activity of *Acacia nilotica pods* extract in triton induced hyperlipidaemic	S. K. Sarje, Sakhare Sneha, Ingole Kushewati, Narwade Shital, Shinde Angad,	Pharmacology	World Journal of Pharmacy and Pharmaceutical Sciences,	2019	2278-4357	https://www.wjpps.com	https://www.wjpps.com/wjpps_controller/abstract_id/10525
Antihyperlipidemic Activity of *Murraya koenigii* leaves extract against fructose induced hyperlipidaemia	, S. K. Sarje, Desai Vishal, Kshirsagar Gunesh, Shinde Rani, N. B. Ghiware,	Pharmacology	World Journal of Pharmaceutical Sciences	2019	2321-3010	https://wjpsonline.com/index.php/wjps	https://wjpsonline.com/index.php/wjps/article/view/161
Phytochemical Investigation and Pharmacological Evaluation of *Bougainvillea spectabilis* for Hepatoprotective Activity	S K Sarje, Kadam V M, Hede A B, Ware S V, Patil V D, Jadhav V R	Pharmacology	World Journal of Pharmaceutical Research	2019	2277–7105	https://wjpr.net	https://wjpr.s3.ap-south-1.amazonaws.com/article_issue/1582976302.pdf
Spatial and Working Memory enhancing Activity of *Pongamia pinnata* Leaves extracts rats	S K Sarje, Shagufta Farooqui, Muttewar Arti, Navghare Balaji, Shinde Dinesh	Pharmacology	World Journal of Pharmaceutical Research,	2019	2277–7105	https://wjpr.net	https://wjpr.s3.ap-south-1.amazonaws.com/article_issue/1582976030.pdf
Antiulcer activity of *Neriumindicum* Mill. Extracts in Ethanol induced rats	S K Sarje, Rasale Snehal, Bhalerao Seema, Chavan Kunal, Deshmukh Shachi	Pharmacology	World Journal of Pharmacy and Pharmaceutical Sciences,	2019	2278-4357	https://www.wjpps.com	https://www.wjpps.com/Wjpps_controller/abstract_id/11995

Phytochemical and Pharmacognostic Estimation and Antioxidant potential of *Neriumindicum*	S K Sarje, Rasale Snehal, Dukare Sagar, Kamble Mahesh, Karate Pooja	Pharmacology	World Journal of Pharmacy and Pharmaceutical Sciences	2019	2278-4357	https://www.wjpps.com	https://www.wjpps.com/Wjpps_controller/abstract_id/11996
Review Article of Pharmacological Activity of *Nerium Indicum* Mill	Shrinivas K. Sarje*, Snehal Rasale, Aparna Suryavanshi, Shagufta Bano Farooqui, Nitin B. Ghiware	Pharmacology	World Journal of Pharmacy And Pharmaceutical Sciences	2019	2278 – 4357	https://www.wjpps.com	https://www.wjpps.com/Wjpps_controller/abstract_id/10506
Development of UV Spectrophotometric Assay method for determination of Ivabradine Hydrochloride in bulk & formulated microsphere dosage form	S N Firke, N B Ghiware	Pharmaceutics	*Indian Journal of Pharmaceutical and Biological Research*	2019	2230-7605	https://ijpbr.in/index.php/IJPBR	https://zenodo.org/record/2530607#.ZDvRhnZByM8
Formulation and Optimization of Floating Microspheres of Ivabradine Hydrochloride by 32 Factorial Design Approach	**Sagar N Firke***, Pritam R Siraskar, Dhiraj H Nagore and Nitin B Ghiware	Pharmaceutics	International Journal of Pharmacy and Biological Sciences	2019	E ISSN: 2230-7605, P ISSN: 2321-3272	www.ijpbs.com	https://ijpbs.com/ijpbsadmin/upload/ijpbs_5d8358abc9f75.pdf
Design and Preparation of Zaltoprofen-Nicotinamide Pharmaceutical Cocrystals via Liquid Assisted Grinding Method	Prabhakar Panzade, Giridhar Shendarkar	Centre for Research in Pharmaceutical Sciences	Indian Journal of Pharmaceutical Education and Research	| 2019	0019-5464	www.ijpr.com	https://www.researchgate.net/publication/337192833

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FACULTY PUBLICATION DATA FROM 2020-21

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	Link to article / paper / abstract of the article
Phytochemical and Pharmacological evaluation of *Cymopsistetra gonoloba* pods extracts for Memory Enhancing Activity	Nikita Tiwari, M H Ghante, N B Ghiware, S K Sarje	Pharmacology	World Journal of Pharmacy and Pharmaceutical Sciences	2020	Vol. 9, Issue. 9 Pg. No. 848-872.	https://www.wjpps.com	https://www.wjpps.com/Wjpps_controller/abstract_id/13002
Phytochemical Investigation and Pharmacological evaluation of *Trigonellafoenum-graecum*linn. Leaves extracts for its Wound healing activity	S K Sarje, Sharada Yenglod, Arti Shenbade, Sourabh Atak	Pharmacology	International Journal of Scientific Development and Research (IJSDR)	2020	ISSN: 2455-2631	https://www.ijsdr.org	https://www.ijsdr.org/papers/IJSDR2009037.pdf
Pharmacognostic evaluation of *Trigonellafoenum-graecum*linn. Leaves	S K Sarje, Sharada Yenglod, Kalyani Berlikar, Shivani Lone, Balaji Navghare,		International Journal of Research in Pharmacy and Pharmaceutical Sciences	2020	ISSN: 2455-698X	https://www.pharmacyjournal.in	https://www.pharmacyjournal.in/archives/2020/vol5/issue5/5-5-13
Phytochemical and Pharmacological evaluation of *Vignaradiata* stem bark extracts for its Wound healing activity	S K Sarje, Balaji Navghare, Madhavi Jadhav, Rupali Kadam, Arshad Ibrahim	Pharmacology	International Journal of Research Trends and Innovation (IJRTI),	2020	ISSN: 2456-3315	https://ijrti.org	https://ijrti.org/papers/IJRTI2009004.pdf
Phytochemical and Pharmacological evaluation of *Vignaradiata* stem bark extracts for its Hepatoprotective activity, ,	S K Sarje, Dinesh Shinde, Sagar Dukare, Tukai Kulkarni, Danish Farooqui	Pharmacology	International Journal of Pharmacy and Pharmaceutical Research (IJPPR)	2020	Vol. 19, Issue. 3 Pg. No. 36-66.	https://ijppr.humanjournals.com	https://ijppr.humanjournals.com/wp-content/uploads/2020/11/3.Shrinivas-Sarje-Dinesh-Shinde-Sagar-Dukare-Tukai-Kulkarni-Danish-Farooqui.pdf

Phytochemical Investigation and Pharmacological evaluation of *Solanum nigrum* L. leaves extracts for Memory Enhancing Activity	S K Sarje, Mahesh Kamble, Sagar Dukare, Sujata Holkar, Rushikesh Khaje Pawar	Pharmacology	International Journal of Pharmacy and Pharmaceutical Research (IJPPR),	2020	ISSN 2349-7203	https://ijppr.humanjournals.com	https://ijppr.humanjournals.com/wp-content/uploads/2020/11/2.Shrinivas-Sarje-Mahesh-Kamble-Sagar-Dukare-Sujata-Holkar-Rushikesh-Khajepawar.pdf
Pharmacological Evaluation of *Cymopsistetra gonoloba* L. extracts for its Hepatoprotective activity	S K Sarje, Seema Bhalerao, Shagufta Farooqui	Pharmacology	International Journal of Creative Research Thoughts (IJCRT)	2020	ISSN: 2456-3315	https://ijrti.org	https://ijrti.org/papers/IJRTI2009005.pdf
Phytochemical and Pharmacognostic estimation and antioxidant potential of *Neriumindicum* mill stem extracts	S K Sarje, Aparna Suryawanshi, Vivek Shinde,	Pharmacology	International Journal of Research in Pharmacy and Pharmaceutical Science	2020	ISSN: 2455-698X	https://www.pharmacyjournal.in	https://www.pharmacyjournal.in/archives/2020/vol5/issue5/5-5-14
Memory Enhancing Activity of *Neriumindicum* mill stem extracts in rats	S K Sarje, Aparna Suryawanshi, Pratiksha Alabade,	Pharmacology	International Journal of Scientific Development and Research (IJSDR)	2020	ISSN: 2455-2631	https://www.ijsdr.org	https://www.ijsdr.org/papers/IJSDR2009036.pdf
Anti-inflammatory activity of *ACACIA NILOTICA* Pods extracts in experimental rats	S. K. Sarje , Swati Tekale, Thakur Adhika, Tiwari Nikita	Pharmacology	World Journal of Pharmaceutical Research	Feb 2020	WJPR Vol 9, Issue 3, Pg no1113-1127 2277-5105	https://www.wjpr.net	https://www.wjpr.net/abstract_file/13965
Evaluation of Memory Enhancing Potential of *Dendrocalamusstrictus* leaf extracts on suitable animal Model.	Akshaykumar Daswad* , Dipali Shelke, Giridhar Shendarkar, Avinash Dhadwe	Pharmacology	International Journal of PharmaO2 IJPO	20202(4):	0186-0194	International Scientific Indexing (ISI) (isindexing.com)	International Scientific Indexing (ISI) (isindexing.com)
Design Development and Evaluation of Memory Enhancing Potential of Poly-Herbal Formulation	Dipali P. Shelke* 1 , A.K. Daswad1 , G.R. Shendarkar2 and A.K. Dhadwe3	Pharmacology	International Journal of Pharma O_2,	2020; 2(4)	0247-0256.	International journal of PharmaO2 (ijpo.in)	International journal of PharmaO2 (ijpo.in)
Benefits Of Tea and Reutilization of Waste Tea Powder	Shagufta Farooqui, Adhika Thakur2	Pharmacology	Albert Science International Organization	2020	*2455-3794*	ASIO (albertscience.com)	https://albertscience.com/asset/images/uploads/15943098589138.pdf

A Review on Bilayer Tablets	Shagufta Farooqui	Pharmacology	Albert Science International Organization	2020	2455-2828	https://albertscience.com/journals/article_detail/200	https://albertscience.com/asset/images/uploads/15952241205383.pdf
Phytochemical Screening of *Cyamopsis Tetragonoloba* L. Extracts	*Shrinivas Sarje, 1Seema Bhalerao, 1Dinesh Shinde, 1Mahima Katariya, Shagufta Farooqui	Pharmacology	International Journal for Research Trends and Innovation	2020	2456-3315	https://ijrti.org/papers/IJRTI2009005.pdf	https://ijrti.org/papers/IJRTI2009005.pdf
Pharmacological Evaluation of *Cyamopsis Tetragonoloba* L. Extract for Its Hepatoprotective Activity	Shrinivas Sarje Seema Bhalerao Mahesh Kamble Shagufta Farooqui Arshad Ibrahim	Pharmacology	International Journal of creative Research Thoughts	2020	2320-2882	https://ijcrt.org/archive.php?vol=8&issue=9&page=41	https://ijcrt.org/archive.php?vol=8&issue=9&page=41
Evaluation of Memory Enhancing Potential of *Dendrocalamus Strictus* Leaf Extracts on Suitable Animal Model	Akshaykumar Daswad*, Dipali Shelke, Giridhar Shendarkar, Avinash Dhadwe	Pharmacology Department, Nanded Pharmacy College, Shyam Nagar, Nanded	International Journal of PharmaO2	2020	2582-4708	www.ijpo.in	https://www.ijpo.in/pdf/may/3.pdf
Pharmaceutical cocrystal: a game changing approach for the administration of old drugs in new crystalline form	Prabhakar S. Panzade and Giridhar R. Shendarkar	Center for Research in Pharmaceutical Sciences,	DRUG DEVELOPMENT AND INDUSTRIAL PHARMACY Taylor and Francis	2020	0363-9045	https://www.researchgate.net/publication/343740349	https://doi.org/10.1080/03639045.2020.1810270
Hot Melt Extrusion: an Emerging Green Technique for the Synthesis of High-Quality Pharmaceutical Cocrystals	Prabhakar S. Panzade& Giridhar R. Shendarkar & Deepak A. Kulkarni	Center for Research in Pharmaceutical Sciences	Journal of Pharmaceutical Innovation	2020	1872-5120	Journal of Pharmaceutical Innovation	https://doi.org/10.1007/s12247-020-09512-7

Formulation And Evaluation Of Sustained-Release Tablet Of Trazodone Hydrochloride	S. Kadam Vaishali * and G. R. Shendarkar	Center for Research in Pharmaceutical Sciences	International Journal of Pharmaceutical Sciences and Research	2021	E-ISSN: 0975-8232; P-ISSN: 2320-5148	www.ijpsr.com	http://dx.doi.org/10.13040/IJPSR.0975-8232.12(11).5833-41

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FACULTY PUBLICATION DATA FROM 2021-22

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	Link to article / paper / abstract of the article
Pharmacological screening of mast cell stabilizing, anti-inflammatory and anti-oxidant activity of *Calotropis procera* extracts	Chandrakant P. Rathod, Mahavir H. Ghante*	Pharmaceutical Chemistry	Turkish Journal of Physiotherapy and Rehabilitation;	2021	e-ISSN 1309-4653	https://turcomat.org/index.php/turkbilmat/article/view/11296	**https://turcomat.org/index.php/turkbilmat/article/view/11296/8356**
Neuropharmacological Exploration of Standardized Extract of Annona squamosa (L.) Fruit Pulp in Experimental Animals Section	Kawade Rajendra M, Ghante Mahavir H*, Warokar Amol S	Pharmaceutical Chemistry	Int J Cur Res Rev	2021	ISSN: 2231-2196 (Print) ISSN: 0975-5241 (Online)	https://ijcrr.com/index.php	http://dx.doi.org/10.31782/IJCRR.2021.132325
Formulation, Characterization and Evaluation of Topical Biodegradable Film Loaded with Levofloxacin Solid-Lipid Nano Carriers.	A B Roge, S N Firke, S K Sarje, K V Bhambar, AleshKasliwal	Pharmaceutical Chemistry	Nat. Volatiles & Essent. Oils	2021	5608-5619	**https://www.nveo.org/index.php/journal**	**https://www.nveo.org/index.php/journal/article/view/4783**
Review of pharmacological activity of nilotica plant	Tekale Swati Ashokrao*	Pharmacology	World Journal of Pharmaceutical Research	2021	2277–7105	1614936964.pdf (wjpr.s3.ap-south-1.amazonaws.com)	1614936964.pdf (wjpr.s3.ap-south-1.amazonaws.com)
Formulation And Evaluation Of Sustained-Release Tablet Of Trazodone Hydrochloride	S. Kadam Vaishali * and G. R. Shendarkar	CRPS, Nanded College of Pharmacy, Nanded - 431605	International Journal of Pharmaceutical Sciences and Research	2021	E-ISSN: 0975-8232; P-ISSN: 2320-5148	www.ijpsr.com	Formulation And Evaluation Of Sustained-Release Tablet Of Trazodone Hydrochloride | International Journal Of Pharmaceutical Sciences

							And Research (Ijpsr.Com)
Formulation And Characterization Of Polyherbal Topical Cream	Sameer Shafi*, G.R. Shendarkar	Centre for Research in Pharmaceutical Science, Nanded Pharmacy College, Nanded	Journal of Advanced Scientific Research	2021	0976-9595	http://www.sciensage.info	https://sciensage.info/index.php/JASR/article/view/1203
Solid State Characterization and Dissolution Enhancement of Nevirapine Cocrystals	Prabhakar Panzade, Giridhar Shendarkar, Deepak Kulkarni , Santosh Shelke	Centre for Research in Pharmaceutical Science, Nanded Pharmacy College, Nanded	Advance Pharmaceutical Bulletin	2021	2228-5881 eISSN: 2251-7308	Home | Advanced Pharmaceutical Bulletin (tbzmed.ac.ir)	https://apb.tbzmed.ac.ir/Search/T_10.34172/apb.2021.087
Quantitation of Vitamin C from Marketed Chyawanprash Using UV Spectrophotometer	Ghante Mahavir H, Roge Ashish B, Firke Sagar N and Sarje Shrinivas K	Pharmaceutical Chemistry	Int J Food Nutr Sci;	2022	ISSN PRINT 2319 1775 Online 2320-7876	https://www.ijfans.org/	https://www.ijfans.org/uploads/paper/bce12f3655067cb65910822fb109eb50.pdf
Evaluation of Mast Cell Stabilizing, Anti-inflammatory & Anti-oxidant Activity of Seed Extracts of *Saraca Asoka* (Roxb.), De. Wild	Chandrakant P. Rathod, Mahavir H. Ghante	Pharmaceutical Chemistry	Asian Pacific Journal of Health Sciences	2022	E-ISSN: 2349-0659 P-ISSN: 2350-0964	https://www.apjhs.com/index.php/apjhs/article/view/2571	https://www.apjhs.com/index.php/apjhs/article/view/2571
Antiatherosclerotic Activity of Methanolic Extract of woodfordia fructicosa Flowers	N B Ghiware Vishweshwar Dharashive	Pharmacology	Journasl of Pharmaceutical Research International	2022	ISSN: 2456-9119	https://journaljpri.com/index.php/JPRI	http://eprints.asianrepository.com/id/eprint/3177/1/35951-Article%20Text-63357-1-10-20220317.pdf
Cardioprotective Activity of Randia Dumetorum Aginst Doxorubicin induced Cardiotoxicity	N B Ghiware Vishweshwar Dharashive	Pharmacology	Biosciences Biotechnology Research Asia	2022		https://www.biotech-asia.org	https://www.biotech-asia.org/vol19no3/cardioprotective-actvity-of-randia-dumetorum-against-doxorubicin-induced-cardotoxicity/

Synthesis and biological evaluation of 3, 4 - dihydropyrimidinesthiones derivatives	M H Ghante, C P Rathod	Pharmaceutical Chemistry	International Journal of Health Sciences (IJHS)	2022	s ISSN 2550-6978 E-ISSN 2550-696X	https://scienceschola r.us/journal/index.php/ijhs	https://doi.org/10.53730/ijhs.v6nS4.9512
Formulation and Evaluation of Chitosan Based Polyelectrolyte Complex of Levodopa for Nasal Drug Delivery	Sagar Firke, Ashish Roge, Shriniwas Sarje	Pharmaceutical Chemistry	International Journal of Health Sciences	2022	s ISSN 2550-6978 E-ISSN 2550-696X	https://scienceschola r.us/journal/index.php/ijhs	https://media.neliti.com/media/publications/426397-formulation-and-evaluation-of-chitosan-b-e859a596.pdf
Development and modification of the tragacanth solid lipid nanoparticles with natural polymer	Sangita Namdevrao Bhasme* Shriniwas Keshavrao Sarje Ashish Babanrao Roge Sagar Firke	Pharmaceutical Chemistry	International Journal of Health Sciences,2022	2022	s ISSN 2550-6978 E-ISSN 2550-696X	https://scienceschola r.us/journal/index.php/ijhs	https://sciencescholar.us/journal/index.php/ijhs/article/view/9646/6304
A review on microchips used in novel drug delivery system	Megha M. Muley, Ashish B. Roge, Mahavir H Ghante, Nitin B. Ghiware	Pharmaceutical Chemistry	World Journal of Pharmacy & Pharmaceutical Sciences	2022	2278 – 4357	Welcome TO WJPPS	1670239521.pdf (storage.googleapis.com)
Design, synthesis and evaluation of novel 3-(substituted phenyl)-2-(4-substitutedphenyl) thiazol-2-yl)-2H-pyrazolo[3,4-d]thiazol-5(6h)-one derivatives as anti-breast cancer agents	Megha M. Muley	Pharmaceutical Chemistry	Journal of Medical Pharmaceutical and Allied Science	2022	2320-7418	JMPAS	https://jmpas.com/download/article/1672550716JMPAS_NOVEMBER_-_DECEMBER_2022.pdf

Review on medical applications of Titanium dioxide nanoparticles,	S K Sarje	Pharmacology	Asian Journal of Organic & Medicinal Chemistry	2022	ISSN 2456-8937	https://asianpubs.org/index.php/ajomc	https://scholar.google.co.in/scholar?hl=en&as_sdt=0%2C5&as_vis=1&q=Review+on+medical+applications+of+Titanium+dioxide+nanoparticles+SHRINIWAS+SARJE&btnG=
Development, Validation of RP-HPLC Method and GC MS Analysis of Desloratadine HCL and It's Degradation Products	Ashish B Roge, Sagar N Firke, Shriniwas K Sarje, Mahaveer H Ghante, Giridhar R Shendarkar, Nitin B Ghiware	Pharmaceutics	Int J Cur Res	2021	2231-2196, 0975-5241	https://ijcrr.com	https://ijcrr.com/uploads/4384_pdf.pdf

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REVIEW ON PHYTOCHEMICAL AND PHARMACOLOGICAL ASPECTS OF DIOSPYROS MELANOXYLON

[1]Ramling Patrakar*, [2]Dr. Nitin B Ghiware

[1]Shree Santkrupa College of Pharmacy, Shivajinagar, Ghogaon (Karad), Dist-Satara, Maharashtra, INDIA
CRPS, Nanded Pharmacy College, Nanded, Maharashtra, INDIA

Abstract

Diospyros melonoxylon Roxb. commonly known as Coromandel Ebnoy or East Indian Ebony is a species of flowering tree native to India and Sri Lanka. This is a medium sized tree belonging to family Ebenaceae. Phytochemical investigation of Diospyros melanoxylon indicated the presence of alkaloids, carbohydrates, flavonoids, aminoacids, glycosides, tannins, proteins, steroids and saponins in the plant. The various constituents such as beta-Sitosterol, lupeol, betulin and betulinic acid have been isolated from the bark and sapwood. Leaves are found to contain alpha-amyrin, ursolic, corsolic acid. The present review reveals that Diospyros melonoxylon possess various pharmacological activities like analgesic, anti-diabetic, anti-ulcer, hepatoprotective, wound healing, antioxidant and several other important medicinal properties. This review focus on different phytochemical and pharmacological aspects of Diospyros melonoxylon which provide valuable information to researchers for continuing further scientific work on this plant.

Keywords: *Diospyros melanoxylon*, Alloxaninduce, Vernacular names, Traditional uses. Phytoconstituents, Pharmacology.

Corresponding Author:

Ramling Patrakar

Department of Pharmacognosy

Shree Santkrupa College of Pharmacy,

Shivajinagar,Ghogaon (Karad), Dist-Satara,

Maharashtra, INDIA

E-mail: *rampatrakar@rediffmail.com*

Phone: *9158733533*

Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded

INDO AMERICAN JOURNAL OF PHARMACEUTICAL RESEARCH

ROLE OF NATURAL POLYMER IN SUSTAINED AND CONTROLLED RELEASE

Vaishali S. Kadam, G. R. Shendarkar

CRPS, Nanded college of Pharmacy, Nanded, Maharashtra India.

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ABSTRACT

Now a day there has been an important development in different dosage forms for existing and newly designed drugs and natural products, and synthetic as well as semi-synthetic excipients always need to be used for a variety of purposes. Gums and mucilages are widely used as natural materials for conventional and novel dosage forms. With the increasing interest in polymers of natural origin, the pharmaceutical world has compliance to use most of them in their formulations. Moreover, the tremendous orientation of Pharmaceutical world towards these naturally derived polymers has become a subject of increasing interest to discover, extract and purify such compounds from the reported origin. These polymers such as natural gums and mucilage are bio-compatible, cheap and easily available and are preferred to synthetic and semi synthetic excipients because of their lack of toxicity, low cost, availability, soothing action and non irritant nature. In the present review gums and mucilage's, used as a excipients as well as carrier for sustained or controlled release.

Corresponding author
Vaishali S. Kadam
CRPS Nanded College of Pharmacy,
Shyam nagar Nanded, Maharashtra India
735041625
kjvaishali@gmail.com

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Prof.(Dr.) N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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DP Shelke
PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded, Maharashtra, India

GR Shendarkar
PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded, Maharashtra, India

AK Daswad
PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded, Maharashtra, India

JG Pohare
PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded, Maharashtra, India

SN Wangawar
PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded, Maharashtra, India

AB Roge
PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded, Maharashtra, India

Correspondence
GR Shendarkar
PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded, Maharashtra, India

Design and development of polyherbal formulation with antioxidant potential

DP Shelke, GR Shendarkar, AK Daswad, JG Pohare, SN Wangawar and AB Roge

Abstract
Ayurvedic system of medicine is as old as human civilization. Present study involves the development of a polyherbal formulation by using four different herbs i.e. Pumpkin seed (*Cucurbita maxima*), Sunflower seed (*Helianthus annus*), Spinach leaves (*Spinach oleracea*), and Beet root (*Beta vulgaris*). Ethanol (90%) was used for preparation of polyherbal tincture. Freshly collected and authenticated herbs were characterized by studying its morphological and pharmacognostic character. Further the powdered drugs and its tincture was subjected to its physicochemical evaluation. Phytochemical screening showed the presence of alkaloids, glycosides, carbohydrates, amino acid, tannin, steroids and flavonoids in the tincture. Physical parameters like solubility, pH, ash values, LOD, extractive value etc. has been studied. The antioxidant activity of the tincture was determined by using DPPH free radical scavenging method. The results showed that the tincture has best antioxidant effect at a dose of 100µg/ml when it was compared with ascorbic acid as reference standard.

Keywords: Polyherbal formulation, physicochemical parameter, antioxidant effect

Introduction
The human body has a complex system of natural enzymatic and non-enzymatic antioxidant defenses which counteract the harmful effects of free radicals and other oxidants. Free radicals are responsible for causing a large number of diseases including cancer, cardiovascular disease, neural disorders, Alzheimer's disease, mild cognitive impairment, Parkinson's disease, alcohol induced liver disease, ulcerative colitis, aging and atherosclerosis. Protection against free radicals can be enhanced by various herbal antioxidants. Substantial evidence indicates that polyherbal formulations containing antioxidants are of major importance in disease prevention. There is, however, a growing consensus among scientists that a combination of antioxidants in form polyherbal formulations, rather than single entities, may be more effective over the long term. Antioxidants may be of great benefit in improving the quality of life by preventing or postponing the onset of degenerative diseases. In addition, they have a potential for substantial savings in the cost of health care delivery
Antioxidants terminate chain reactions by removing free radical intermediates, and inhibit other oxidation reactions. In recent years, it has been investigated that many plant species are serving as source of antioxidants and received therapeutic significance. The present paper aimed to determine the antioxidant activity of polyherbal formulation containing Pumpkin seed (*Cucurbita maxima*), Sunflower seed (*Helianthus annus*), Spinach leaves (*Spinach oleracea*), and Beet root (*Beta vulgaris*) as component mixture.

Material and method
Plant collection & Authentication
The vegetative portion of plants i.e. Pumpkin (seeds), Sunflower (seeds), Spinach (leaves) and Beetroot (roots) were procured from local market of Nanded, Maharashtra. Herbarium sheets were prepared and authenticated by Taxonomist. Specimen no: NPC/M.Pharm/Herbarium 2016-17/ H- 09.

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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PHYTOCHEMICAL SCREENING AND ANTIMICROBIAL ACTIVITY OF *DENDROCALAMUS STRICTUS* LEAVES EXTRACTS

S. N. Wangawar, G. R. Shendarkar*, D. P. Shelke, A. K. Daswad, J. G. Pohare and A. B. Roge

PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded-431605.

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***Corresponding Author**
G. R. Shendarkar
PG Department, Nanded Pharmacy College, Shyam Nagar, Nanded-431605.

ABSTRACT

This study was carried out with an objective to investigate the antibacterial and antifungal potentials of leaves of *Dendrocalamus strictus*. The aim of the study is to assess the antimicrobial activity and to determine the zone of inhibition of extracts on some bacterial and fungal strains. In the present study, the microbial activity of aqueous and ethanolic extracts of leaves of *Dendrocalamus strictus* (an ethno medicinal plant) was evaluated for potential antimicrobial activity against medically important bacterial and fungal strains. The antimicrobial activity was determined in the extracts using agar cup method. The antibacterial and antifungal activities of extracts (50 & 100µg/ml) of *Dendrocalamus strictus* were tested against two Gram-positive—*Staphylococcus aureus, Bacillus subtilis*; two Gram-negative—*Escherichia coli, Salmonella typhi* human pathogenic bacteria; and four fungal strains—*Aspergillus niger, Penicillium chrysogenum Aspergillus flvus, Fusarium moneliforme*. Zone of inhibition of extracts were compared with penicillin for antibacterial activity and decrease in growth of fungi was compared with griseofulvin for antifungal activity. The results showed that the remarkable inhibition of the bacterial growth was shown by ethanolic extract at both the concentrations (50 & 100µg/ml). The Phytochemical analyses of the plants were carried out. The microbial activity of the *Dendrocalamus strictus* was due to the presence of various secondary metabolites. Hence, these plants can be used to discover bioactive natural products that may serve as leads in the development of new pharmaceuticals research activities.

KEYWORD: *Dendrocalamus strictus*, Phytochemical screening, Antibacterial, Antifungal activity.

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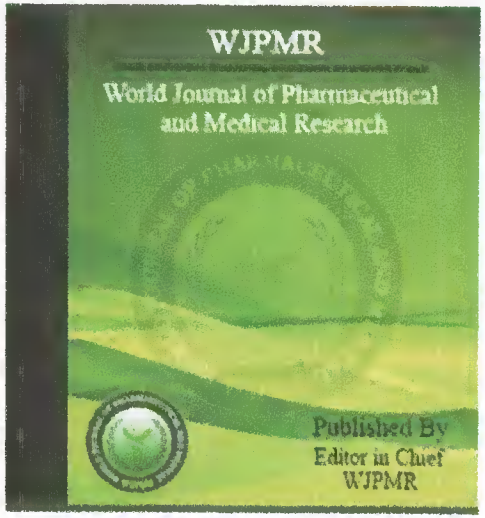

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ABSTRACT

PHYTOCHEMICAL EVALUATION AND ANTIOXIDANT STUDY OF DENDROCALAMUS STRICTUS LEAF EXTRACTS

A K Daswad, G R Shendarkar*, D. P. Shelke, J. G. Pohare, S.N. Wangawar, A. K Dhadwe

ABSTRACT

Medicinal plants have always been the principle sources of medicine worldwide. India sustains a very rich traditional medicinal plant wealth and inherits unique plant and animal communities. Present study enumerates the phytochemical screening and antioxidant evaluation of aqueous and methanolic extract of Dendrocalmus strictus (DS) leaves. Freshly collected and authenticated leaves were studied for its morphological and pharmacognostic character followed by physical and phytochemical evaluation. Phytochemical screening showed the presence of alkaloids, glycosides, carbohydrates, steroids and flavonoids in both the extracts. Physical parameters like solubility, MP, ash values, LOD, extractive value etc. has been studied. The antioxidant activity of the extract was done by using DPPH method. The results showed that aqueous extract at 100?g/ml concentration and methanolic extract at 150?g/ml concentration showed the significant antioxidant effect as compared with ascorbic acid as standard.

[Full Text Article] (https://www.wjpmr.com/download/article/20042017/1491026610.pdf)

Research Article

Physicochemical Characterization and Antioxidant Study of *Allium cepa* Leaf Extracts

JG. Pohare, GR. Shendarkar*, AK. Daswad, DP. Shelke, SN. Wangawar and AK. Dhadwe

PG Department, Nanded Pharmacy College, Shyam Nagar,

Nanded – 431605, Maharashtra, India.

ABSTRACT

The present study reports physicochemical characterization and antioxidant activity of extracts from *Allium cepa* leaves collected from local region of Nanded, Maharashtra, India. Different physical parameters like ash values, extractive value, Loss on drying, solubility etc were evaluated for powdered drug. The extracts were obtained from Soxhlet method by using water and methanol as solvents for extraction and subjected for preliminary physicochemical evaluation and antioxidant studies. Total phenolic and flavonoids content were also analyzed. The presence of primary and secondary metabolites such as carbohydrate, proteins, alkaloids, phenolic compounds, saponins was confirmed through preliminary phyto-chemical analysis. DPPH free radical scavenging assays showed strong antioxidant activities with increase in concentration of aqueous and methanol leaf extracts. Maximum percentage inhibition i.e. 80.97% was shown by aqueous extract at concentration of 150 µg/ml and was compared with Ascorbic acid as reference standard.

Keywords: *Allium cepa*, Aqueous and Methanolic extract, phytochemical screening, Antioxidant effect.

INTRODUCTION

Free radicals are recognized as the main products of lipid oxidation generating oxidative stress that plays a major role in the development of over 100 chronic diseases such as cancer, autoimmune disorders, aging, cardiovascular, and neurodegenerative diseases. These free radicals or reactive oxygen species (ROS) are highly reactive as they can interact with cellular molecules and metabolites leading to cellular damage. Free radicals include a number of chemically reactive molecules derived from oxygen such as hydrogen peroxide (H_2O_2), hydroxyl radical (OH^-), superoxide ($O2^-$), etc. The action of hydroxyl radicals that initiates lipid peroxidation and causing DNA damage is facilitated by the rapid decomposition of H_2O_2 into oxygen and water.

The ability of the antioxidants to inhibit the free radical reactions thereby protecting the human body from diseases has led to the increasing interest in the discovery of new antioxidant phytochemicals. The use of synthetic antioxidants such as butylated hydroxyl anisole and butylated hydroxyl toluene are highly discouraged due to its carcinogenic properties. Hence, natural antioxidants like phenolics and flavonoids from fruits, vegetables, spices, and herbs can be exploited as a substitute to these synthetic antioxidants.

Economically important *Allium cepa* vegetable contains antioxidant components such as volatile organosulfur compounds and flavonoids. These compounds can act either directly as an antioxidant or indirectly by modulating the pro-apoptotic pathway or activating the endogenous antioxidant system. Therefore, it is necessary to identify specific food groups that ameliorate the effects of oxidative stress and the progression of cancer. Green onions belonging to the family *Alliaceae* are consumed for their immature bulbs as well as green foliage. Green onions produce a mild flavor during tissue disruption and can be eaten raw or cooked. Numerous cultivars have been developed economically for various parameters such as size, form, color, storability, and climatic adaptations. Cultivars are divided into the common onion group (*Allium cepa* var. *Cepa*), that includes the cultivars grown for green or salad onions and the Aggregatum group. Quercetin is the flavonoids that are abundant in green onions that benefits health by preventing the

Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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Pharmaceutical Cocrystal of Piroxicam: Design, Formulation and Evaluation

Prabhakar Panzade,[1,*] Giridhar Shendarkar,[1] Sarfaraj Shaikh,[2] and Pavan Balmukund Rathi[2]

Abstract

Purpose: Cocrystallisation of drug with coformers is a promising approach to alter the solid sate properties of drug substances like solubility and dissolution. The objective of the present work was to prepare, formulate and evaluate the piroxicam cocrystal by screening various coformers.

Methods: Cocrystals of piroxicam were prepared by dry grinding method. The melting point and solubility of crystalline phase was determined. The potential cocrystal was characterized by DSC, IR, XRPD. Other pharmaceutical properties like solubility and dissolution rate were also evaluated. Orodispersible tablets of piroxicam cocrystal were formulated, optimized and evaluated using 3^2 factorial design.

Results: Cocrystals of piroxicam-sodium acetate revealed the variation in melting points and solubility. The cocrystals were obtained in 1:1 ratio with sodium acetate. The analysis of Infrared explicitly indicated the shifting of characteristic bands of piroxicam. The X-Ray Powder Diffraction pattern denoted the crystallinity of cocrystals and noteworthy difference in 2θ value of intense peaks. Differential scanning calorimetry spectra of cocrystals indicated altered endotherms corresponding to melting point. The pH solubility profile of piroxicam showed sigmoidal curve, which authenticated the pKa-dependent solubility. Piroxicam cocrystals also exhibited a similar pH-solubility profile. The cocrystals exhibited faster dissolution rate owing to cocrystallization as evident from 30% increase in the extent of dissolution. The orodispersible tablets of piroxicam cocrystals were successfully prepared by direct compression method using crosscarmelose sodium as superdisintegrant with improved disintegration time (30 sec) and dissolution rate.

Conclusion: The piroxicam cocrystal with modified properties was prepared with sodium acetate and formulated as orodispersible tablets having faster disintegration and greater dissolution rate.

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Pharmaceutical Cocrystal: An Antique and Multifaceted Approach

Prabhakar S Panzade [1], Giridhar R Shendarkar [1]

Affiliations

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Abstract

Background: Pharmaceutical cocrystal is an emerging approach to tailor physicochemical and mechanical properties of drug substances. Cocrystals are composed of API and pharmaceutically acceptable coformer. It is used to address the solubility, dissolution, mechanical properties and stability of drugs.

Methods: This review discusses introduction to cocrystal, preparation, and characterization, what USFDA says on cocrystal and role of Hansen solubility parameter to predict cocrystal. The effect of cocrystal on drug properties, dependence of cocrystal solubility on pH, concept of drug-drug cocrystal, and aerosil 200 as novel cocrystal former and impact of cocrystal on drug pharmacokinetic has also been presented in this review along with highly selected examples of cocrystals. Finally, how cocrystal offers an opportunity for patents is also delineated.

Results: Pharmaceutical cocrystals have ability to tailor physichochemical and mechanical properties of drug substances. It also provides opportunity for patentable invention. Therapeutic efficacy of drugs may be improved via drug-drug cocrystal.

Conclusion: The pharmaceutical cocrystals are not fully explored and have potential for future development. Successful drug delivery can be achieved through cocrystallization. Pharmaceutical industry will be beneficial through successful cocrystallization of drug substances.

Keywords: Aerosil 200; Hansen solubility parameter; USFDA; cocrystal; coformer; drug drug cocrystal.

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Nanded.

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Software based approaches for drug designing and development: A systematic review on commonly used software and its applications

Prasad G. Jamkhande [a], Mahavir H. Ghante [a], Balaji R. Ajgunde [b]

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Abstract

Drug discovery include drug designing and development, is a multifarious and expensive endeavor, where least number of drugs that pass the clinical trials makes it to market. Software based drug discovery and development methods have major role in the development of bioactive compounds for over last three decades. Novel software based methods such as molecular modeling, structure-based drug design, structure-based virtual screening, ligand interaction and molecular dynamics are considered to be powerful tool for investigation of pharmacokinetic and pharmacodynamic properties of drug, and structural activity relationship between ligand and its target. Computational approaches such as docking confer interaction of small molecules with structural macromolecules and thereby hit identification and lead optimization. These methods are faster, and accurately provide valuable insights of experimental findings and mechanisms of action. In addition, appropriate implementation of these techniques could lead to a reduction in cost of drug designing and development. Currently in biomedicine sciences these software are exhibiting imperative role in the different phases of drug discovery. The review discusses working principle and successful applications of most commonly used software for drug designing and development.

Keywords

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INFLUENCE OF XANTHUM, GUAR AND ACACIA GUM ON RELEASE OF EXTENDED RELEASE TABLET OF TRAZADONE HYDROCHLORIDE

*Vaishali S. Kadam and G. R. Shendarkar

CRPS Nanded College of Pharmacy, Nanded, Maharashtra India

***Corresponding author e-mail:** kjvaishali@gmail.com

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ABSTRACT

The objective of this work was to formulate extended release tablets of highly water-soluble Trazadone Hydrochloride using natural gums xanthum, guar and acacia gum as cost effective, nontoxic, easily available and suitable hydrophilic matrix systems by direct compression method and to study the effect of different concentration of polymers like xanthum gun, guar gum, and acacia on release rate from tablet. FTIR analysis does not show any interaction of drug with Excipients. Formulation was optimized on the basis of acceptable pre and post compressional parameters. The results of dissolution studies indicated that Batch F6 exhibited drug release of 93% at the end of 12h to provide sufficient concentration for achieving satisfactory therapeutic value for extended period of time. The drug release from Batch F6 formulation was sustained up to 12 h. Fitting *in-vitro* drug release data from optimized matrix formulation to zero order followed by Higuchi model indicated that diffusion could be mechanism of drug release. The n value indicates a non-fickian or anomalous diffusion pattern. This means that both the diffusion and erosion mechanisms were prevalent.

Keywords: Trazodone hydrochloride, direct compression, xanthum gum, guar gum, acacia, extended release.

INTRODUCTION

Oral route is the most oldest and convenient route for the administration of therapeutic agents because of low cost of therapy and ease of administration leads to higher level of patient compliance. [1] Approximately 50% of the drug delivery systems available in the market are oral drug delivery systems and historically too, oral drug administration has been the predominant route for drug delivery. [2][3] Hydrophyllic matrixes containing swallable polymers are called as swellable controlled release system or hydrophilic matrix tablets.

A number of polymers have been investigated to develop in situ-gel-forming system, due to the ability of these matrices to release an entrapped drug in aqueous medium and to regulate release of such drug by control of swelling and cross-linking. [4][5] Trazodone is serotonin-2 receptor antagonist that also decreases extracellular gamma-amino-butyric acid (GABA) levels in the cerebral cortex, through the blockade of 5-hydroxytryptamine*2A* receptors. Trazodone therefore a psychoactive compound with sedative and anti-depressant properties. [6][7][8] Hydrophilic polymers are becoming very popular in formulating oral controlled-release tablets. As the dissolution medium or biological fluid penetrates the dosage form, the polymer material swells and drug molecules begin to move out of the system by diffusion.

There is challenge to the pharmaceutical technologist for developing oral controlled-release tablets for highly water-soluble drugs with constant release rate. If water soluble containing drugs if not formulated properly then most of these drugs, may be readily release the drug at a faster rate and are likely to produce toxic concentrations when administered orally.[9]

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REGULATION OF MICRO-RNA IN CANCER

Nitin B. Ghiware[1], Pawan Wankhade[1], Sangameshwar B. Kanthale[2], Ajay D. Kshirsagar[2], Haidarali M. Shaikh[1*]

[1]Center for Research in Pharmaceutical Sciences (CRPS), Nanded Pharmacy College, Op. Kasturba Matru Seva Kendra, Shyam Nagar, Nanded-431605(M.S.)

[2]School of Pharmacy, Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded, Maharashtra 431606, India

Abstract:

Cancer is a dreadful disease of mankind, the treatment for cancer is not revealed as per expectation. The illuminating way come out with understanding and grab the molecular alteration in cell. Therefore, miRNAs is a novel notation for procurement of cancer. MicroRNAs are small, highly conserved non-coding RNA molecules involved in the regulation of gene expression. MicroRNAs are transcribed by RNA polymerases II and III which forms precursors that undergoes series of cleavage to form mature microRNA. There are two types of biogenesis pathways, one nuclear and one cytoplasmic. However there are some alternative biogenesis pathways exist that differ from conventional pathway in the number of cleavage events and enzymes responsible. The mechanism of sorting of microRNA precursors to the different pathways is unclear but it can be determined by the site of origin, its sequence and thermodynamic stability. The regulatory functions of microRNAs are able through the RNA-induced silencing complex (RISC). The regulation level of miRNAs in cell i.e. up regulation and down regulation, leads to cancer. In this review, highlighted the role of miRNAs in physiological way and explain the molecular mechanism involved in development of cancer.

Key words: *MicroRNA, Cancer, RNA-induced silencing complex (RISC), RNA polymerases II and III.*

***Corresponding author:**

Haidarali M. Shaikh, (M.Pharm)

Center for Research in Pharmaceutical Sciences (CRPS),
Nanded Pharmacy College,
Op. Kasturba Matru Seva Kendra,
Shyam Nagar, Nanded-431605
Email:haidar26ali@gmail.com

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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COMPARATIVE EVALUATION OF *Tabernaemontana divaricata* LEAVES EXTRACTS FOR ANTIDEPRESSANT ACTIVITY

[1]Priyanka P. Tadkase,[1] Prof. Dr. Nitin B. Ghiware,[2]Haidarali Shaikh,[1]Vidhya V. Mali, [1]Ashwini V. Gowande

[1]Department of Pharmacology, Nanded Pharmacy College, Nanded.
[2]Centre for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Nanded.

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***Corresponding Author**
Prof. Dr. Nitin B Ghiware
Head, Dept of Pharmacology,
Nanded Pharmacy College,
Nanded, Maharashtra. Pin-431605.

ABSTRACT

Depression is considered as an affective disorder characterized primarily by change of mood. The study is aimed to comparative evaluation of *Tabernaemontana divaricata* leaves ethyl acetate (TDEA) and methanol (TDME) extracts for antidepressant activity by using wistar rats. The plant *Tabernaemontana divaricata* belonging to family Apocynaceae is used to treat various diseases like diarrhea, athralgia, asthma, epilepsy, aphrodisiac, leprosy, paralysis, piles etc. It is also traditionally claimed as antihypertensive, anthelmintic, hair growth promoter, tonic to the brain, liver, spleen etc. In the present study Despair swim test is used as model to induce depression in wistar rats. The TDEA at doses (100 mg/kg, 200 mg/kg) and TDME at dose (100 mg/kg, 200 mg/kg) show significant decrease in immobility time in sec on day 15 as compared to day 1 and 8. Methanol extract (200 mg/kg) on day 15 shows equivalent activity compared to standard Imipramine (25 mg/kg). The present study reveals that *Tabernaemontana divaricata* leaves have potential to reduce depression and it could be readily available source of treatment at low cost.

KEYWORDS: *Tabernaemontana divaricata, Ethyl acetate extract, Methanol extract, Antidepressant activity.*

INTRODUCTION

Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration.[1] It is associated with significant socioeconomic problems, morbidity and

Varsha Rajkumar Jamakhandi, M S Kalshetti
Department of Quality Assurance, College of Pharmacy, Solapur, Maharashtra, India.

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3 DESIGN AND DEVELOPMENT OF SIMVASTATIN FLOATING TABLETS FOR CONTROLLED RELEASE

N. G. Raghavendra Rao1*, M. Laharika2
[1]GRD [PG] Institute of Management and Technology, Rajpur, Dehradun – 248009, Uttarakhand, India.
[2]Graviti Pharmaceutical Private Limited, IDA Pashamylaram, Hyderabad - 502307, Telangana, India.

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4 OPTIMIZATION OF STRESS CONDITIONS OF FORCED DEGRADATION STUDY BY UV SPECTROPHOTOMETER

Mr. A B Roge, Dr. G R Shendarkar*
CRPS, Nanded Pharmacy College, Nanded.

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Forced degradation study (FDS) is an emerging trend, requisite to be performed and reported while filing abbreviated new drug application (ANDA) and investigational new drug application (IND) application. Modern analytical instruments like HPLC, UPLC, and LC-MS etc. are commonly used throughout the intact study. These methods are more specific, accurate but also costly and time consuming. Optimization of stress conditions is a critical part of study as standard values are not revealed by regulatory authorities. The objective of this work is to explore role of UV spectrophotometer in FDS and to overcome above problems. In this study, FDS of Gallic acid has been carried out using UV spectrophotometer. Gallic acid was exposed to different stress conditions like acidic and alkaline hydrolysis, oxidation, dry heat and photolytic degradation. UV spectrum of sample subjected to stress conditions was recorded and compared with standard spectrum. It was found that Gallic acid has undergone degradation in acidic (HCl), alkaline (NaOH) and oxidative media (H2O2). However, it was found stable at thermal and photolytic stress conditions. The present study explains usefulness of UV-Visible spectrophotometer in FDS which helps to save time and expenditure required for study.

5 A PROSPECTIVE OBSERVATIONAL STUDY ON NON ALCOHOLIC FATTY LIVER DISEASE

K. Maneesha[1], P. Kishore[1], Y. Ravalika[2], Narasimha Reddy[3], D. Sudheer Kumar[4], R. Deepthi[1*]
[1,2] Department of Pharmacy Practice, Care College of Pharmacy, Warangal, Telangana.
[3]PNR GUT& LIVER CLINIC, Hanumakonda, Warangal, Telangana.
[4]Department of Pharmaceutics, Care College of Pharmacy, Warangal, Telangana.

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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DEVELOPMENT OF VALIDATED UV SPECTROPHOTOMETRIC STABILITY INDICATING METHOD FOR ESTIMATION OF GALLIC ACID IN BULK FORM

A B Roge* and G R Shendarkar[1]

*Research Scholar, Center for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Nanded
[1]Research Guide, Center for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Nanded

*Corresponding Author Email: ashish_roge@rediffmail.com

ABSTRACT

A novel simple, reliable, rapid and accurate UV spectrophotometric stability indicating method (SIM) was developed for estimation of gallic acid from bulk powder. The study was carried out at 220 nm. Gallic acid has shown linear absorbance over the concentration range of 4-20 µg/Ml with R^2 value 0.999. This $y = 0.061x + 0.016$ was used for determination of concentrations of test solution. The proposed method was validated as per ICH Q2 (R1) guidelines for various parameters eg. Prcision, accuracy, limit of detection (LOD), limit of quantification (LOQ) and linearity and range. Results of validation study has shown compliance with criteria of ICH guidelines. Relative standard deviation was found less than 2% and recovery was found in range 98.6- 100.63 %. Method was very sensitive as LOD and LOQ were found to be 0.147 µg/mL and 0.447 µg/mL respectvely. Stability indicating potential was studied by anlysing sample subjected to various stress conditions like hydrolysis, oxidation, photodegradation and thermal degradtions. Proposed method reveals that gallic acid was found to be unstable at hydrolytic and oxidative stress conditions.

KEY WORDS

Gallic acid, ICH guidelines, Stability indicating method, Stress conditions, Validation

INTRODUCTION:

All pharmaceutical substances un-avoidably contain impurities and the role of ethical pharmaceutical industry is to define an impurity profile that is acceptable for the intended use of a given drug, without compromising its therapeutic safety and efficacy [1,2]. The stability of a drug product or a drug substance is a critical parameter which may affect purity, potency and safety. Changes in drug stability can risk patient safety by formation of a toxic degradation product(s) or deliver a lower dose than expected. Therefore, it is essential to know the purity profile and behavior of a drug substance under various environmental conditions which could be possible by stability testing [3,4].

ICH defined stability indicating assay methods (SIAM) as, quantitative analytical methods that are based on structural, chemical or biological properties of each active ingredient of a drug product and that will distinguish each active ingredient from its degradation products so that the active ingredient content can be accurately measured [5,6].

SIAM can also be defined as "An analytical method that accurately quantitates the active ingredients without interference from the degradation products, process impurities, excipients or other potential impurities" [5]. Validation of a method indicates to establish documented evidence that the system is doing what its purpose to do. Validation is necessary when a method or a procedure is going to be used by a manufacturing

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Role of Dynein in Alzheimer Disease

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HUMAN

Nitin B. Ghiware[1], Pavankumar P. Wankhade, Ajay D. Kshirsagar[2], Haidarali M. Shaikh[1]*.

1. Department of Pharmacology, Center for Research in Pharmaceutical Sciences (CRPS), Nanded Pharmacy College, Op. Kasturba Matru Seva Kendra, Shyam Nagar, Nanded-431605(M.S.)

2. School of Pharmacy, Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded, Maharashtra 431606, India

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Keywords: Dynein, Alzheimer's disease, cognitive impairment, plaques.

ABSTRACT

Alzheimer's disease (AD) is characterized by the accumulation of proteins in the brain in the form of plaques and tangles and associated cognitive impairment. Various studies have shown that the number of motor proteins is involved in the neurodegenerative progression of the AD. In the AD the dyneins is a precise protein for thinking. The dyneins are a subfamily of the AAA+ (ATPases Associated with diverse cellular Activities) proteins. Two general forms of dynein are found in eukaryotes i.e. Cytoplasmic dynein and axonal dynein. In Alzheimer, the axonal dynein is focusing and dysfunction of this protein leads to various diseases. In this review, we have critically discussed the possible mechanisms involved in the modulation of dynein in Alzheimer conditions.

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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6

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EXTRACTION, CHARACTERIZATION AND IDENTIFICATION OF BIOACTIVE COMPONENTS FROM MEDICINAL PLANTS: A REVIEW

Mr. A. T. Sharma*, Dr. N. B. Ghiware, Mr. V. N. Gunjkar

Natural products from medicinal plants, either as pure compounds or as standardized extracts, provide unlimited opportunities for new drug leads because of the unmatched availability of chemical diversity. Due to an increasing demand for chemical diversity in screening programs, seeking therapeutic drugs from natural products, interest particularly in edible plants has grown throughout the world. Botanicals and herbal preparations for medicinal usage contain various types of bioactive compounds. Bioactive principles are responsible for the therapeutic activities of medicinal plants and provide unlimited opportunities for new drug leads because of their unmatched availability and chemical diversity. For the most part, the beneficial or toxic outcomes of standardized plant extracts depend on the chemical peculiarities of the containing bioactive principles. The focus of this paper is on the analytical methodologies, which include the extraction, isolation and characterization of active ingredients in botanicals and herbal preparations. The common problems and key challenges in the extraction, isolation and characterization of active ingredients in botanicals and herbal preparations are discussed. As extraction is the most important step in the analysis of constituents present in botanicals and herbal preparations, the strengths and weaknesses of different extraction techniques are discussed. The analysis of bioactive compounds present in the plant extracts involving the applications of common phytochemical screening assays, chromatographic techniques such as HPLC and, TLC as well as nonchromatographic techniques such as immunoassay and Fourier Transform Infra Red (FTIR) are discussed. Key words: Bioactive principles; Bioassay; Herb extraction; Herb medicinal value; Herb toxicity; Phytomedicine, Chromatography, FTIR.

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
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REVIEW ON: TRADITIONAL PLANT HAVING ANTI ASTHMATIC ACTIVITY

V. N. Gunjkar* , Dr. N.B.Ghiware , A.T.Sharma, S.N.Firke
Nanded Pharmacy College, Nanded Maharashtra, India- 431602.
.*Corresponding Author E-mail: vijay.gunjkar@gmail.com

Abstract:
Asthma is a common disease that is rising in prevalence worldwide with the highest prevalence in industrialized countries. Asthma affect about 300 million people worldwide and it has been estimated that a further 100 million will be affected by 2025. Since the ancient times, plants have been exemplary sources of medicine. Current asthma therapy lack satisfactory success due to adverse effect, hence patients are seeking complementary and alternative medicine to treat their asthma. Ayurveda and other Indian literature mention the use of plants in various human ailments. India has about 45,000 plant species and among them several thousand are claimed to possess medicinal properties. Researches conducted in the last few decades on the plants mentioned in ancient literature or used traditionally for asthma have shown antiasthmatic, antihistaminic and antiallergic activity.

Keywords: *Asthma, Antiasthmatic plants, Ayurveda, Herbal medicines, Antiallergic activity, Medicinal property*

Corresponding author:
V. N. Gunjkar*,
Nanded Pharmacy College,
Nanded Maharashtra, India- 431602.
*Corresponding Author E-mail: vijay.gunjkar@gmail.com

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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DEVELOPMENT OF UV SPECTROPHOTOMETRIC ASSAY METHOD FOR DETERMINATION OF IVABRADINE HYDROCHLORIDE IN BULK AND FORMULATED MICROSPHERE DOSAGE FORM

S N Firke, N B Ghiware*, S B Dhoot, A B Roge, V N Gunjkar, A T Sharma
CRPS, Nanded Pharmacy College, Nanded.

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Ivabradine Hydrochloride;
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ABSTRACT

Ivabradine is a heart rate lowering agent and controls the spontaneous diastolic depolarization in the sinus node to regulates heart rate. It is soluble in water, hydrochloric acid and in methanol. A simple, sensitive, precise and highly accurate UV spectrophotometric method has been developed for determination of Ivabradine HCL in formulated microsphere dosage form. Ivabradine HCl exhibited λ max at 286 nm in water, 0.1 N HCL solution and obeyed linearity in the concentration range of 20-100 mcg with Coefficient of determination value (R^2) of 0.9960 . The slope, intercept, correlation coefficient, detection and quantitation limits were also calculated and found within statistical perimeter. Result of percentage recovery shows the method was not influenced by the presence of impurities or excipients. The method was validated by determining its sensitivity, accuracy and precision which proves suitability of the developed method for the routine estimation of Ivabradine in microsphere dosage form.

Corresponding author
Mr. S N Firke
Research Scholar,
CRPS, Nanded Pharmacy College,
Shyam Nagar, Nanded.
431605, Maharashtra.
sagar1385@yahoo.co.in
9665993927

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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ORIGINAL ARTICLE

Superior Solubility and Dissolution of Zaltoprofen via Pharmaceutical Cocrystals

Farmasötik Cocrystal ile Zaltoprofen'in Üstün Çözünürlük ve Çözünmesi

Prabhakar PANZADE*, Giridhar SHENDARKAR

Center for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Opp. Kasturba Matruseva Kendra, Sham Nagar, Nanded, India

ABSTRACT

Objectives: Pharmaceutical cocrystals are a promising tool to enhance the solubility and dissolution of poorly soluble drugs. Zaltoprofen (ZFN) is nonsteroidal anti-inflammatory drug with a prevalent solubility problem. The present study was undertaken to enhance the solubility and dissolution of ZFN through pharmaceutical cocrystals by screening various coformers.

Materials and Methods: Cocrystals of ZFN were prepared in 1:1 and 1:2 ratio of drug:coformer by the dry grinding method. The melting point and solubility of the crystalline phase were determined. The potential cocrystals were characterized by differential scanning calorimetry (DSC), infrared spectroscopy, and powder X-ray diffraction (PXRD). Cocrystals were subjected to dissolution rate and stability study.

Results: ZFN-nicotinamide (NIC) cocrystals demonstrated deviation in melting point and solubility. The cocrystals were obtained in both 1:1 and 1:2 ratios with NIC. The infrared analysis noticeably indicated the shifting of characteristic bands of ZFN. The crystallinity of the cocrystals was evident from the XRPD pattern and notable difference in the 2θ values of intense peaks. The DSC spectra of the cocrystals exhibited altered endotherms analogous to melting point. The cocrystals showed a faster dissolution rate and a 55% increase in the extent of dissolution compared to pure drug. The cocrystals were stable at room temperature and accelerated conditions.

Conclusion: The prepared cocrystals exhibited greater solubility and dissolution compared to the pure drug and were stable at room temperature and accelerated conditions.

Key words: Pharmaceutical cocrystal, zaltoprofen, solubility, dissolution

ÖZ

Amaç: Farmasötik kokristal, zayıf çözünür ilaçların çözünürlüğünü ve çözünmesini arttırmak için umut veren bir araçtır. Zaltoprofen (ZFN) yaygın çözünürlüğe sahip nonsteroid antiinflamatuvar ilaçtır. Bu çalışma, çeşitli koformerlerin taranması yoluyla farmasötik kokteyli aracılığıyla ZFN'nin çözünürlüğünü ve çözünmesini arttırmak için üstlenilmiştir.

Gereç ve Yöntemler: Kuru öğütme yöntemi ile 1:1 ve 1:2 oranında ilaç:koformer oranında ZFN kristalleri hazırlanmıştır. Erime noktası ve kristalin fazın çözünürlüğü belirlenmiştir. Potansiyel kristaller differansiyel tarama kalorimetrisi (DSC), kızılötesi spektroskopi ve toz X ışını kırınımı (PXRD) ile karakterize edilmiştir. Kokristaller çözünme hızına ve stabilite çalışmasına tabi tutulmuştur.

Bulgular: ZFN-nikotinamid (NIC) kokristal erime noktasında ve çözünürlükte sapma göstermiştir. Kristaller, NIC ile hem 1:1 hem de 1:2 oranında elde edilmiştir. Kızılötesi analizi, ZFN karakteristik bantlarının kaymasını belirgin bir şekilde göstermiştir. Kristallerin kristallenmesi XRPD paterninden belirgin olarak görülmüştür ve 2θ değerindeki yoğun zirvelerdeki kayda değer farklılıklar gözlenmiştir. Kristallerin DSC spektrumları, erime noktasına benzer değiştirilmiş endotermler sergilemiştir. Kristaller, daha hızlı çözünme oranı ve saf ilaçla karşılaştırıldığında çözünme derecesinde % 55 artış göstermiştir. Kristaller, oda sıcaklığında ve hızlandırılmış koşullarda kararlı bulunmuştur.

Sonuç: Hazırlanan kristaller, saf ilaca kıyasla daha fazla çözünürlük ve çözünme sergilemiş ve oda sıcaklığında ve hızlandırılmış koşullarda sabit bulunmuştur.

Anahtar kelimeler: Farmasötik kokristal, zaltoprofen, çözünürlük, çözünme

*Correspondence: E-mail: prabhakarpanzade@gmail.com, Phone: +91-9921830328, ORCID-ID: orcid.org/0000-0003-1247-9197
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Antimycobacterial, antimicrobial, antioxidant activities and in silico PASS investigations of root fractions and extract of *Cordia dichotoma* Forst

Prasad Govindrao Jamkhande ✉, Mahavir H. Ghante, Sonal Ramrao Barde & Balaji R. Ajgunde

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Abstract

Indian cherry (*Cordia dichotoma* Forst.) is a medicinally important plant widely consumed as an indigenous remedy for several ailments in the India. Although it is widely used plant by the population, there are no studies on root proving these medicinal claims. The present study was designed to investigate antimicrobial, antimycobacterial and antioxidant activities of *Cordia dichotoma* Forst. roots and in silico biological activities prediction using PASS. Methanolic extract was prepared and further fractions were obtained by liquid–liquid partitioning. Agar well diffusion assay and disc diffusion method were selected for antimicrobial activity. Antimycobacterial activity was estimated

against *Mycobacterium tuberculosis*. For antioxidant activity, DPPH and hydrogen peroxide (H_2O_2) radical scavenging assay were employed. All the tested samples exhibited diverse pattern of sensitivity for tested strains. The value of MIC, MMC and MIC index showed that *P. vulgaris* and *K. pneumonia* were the most sensitive for ME and CF, whereas *A. fumigates* and *V. myditis* were sensitive to CF and AF. Microorganism susceptible index was 100 for *P. vulgaris* and *K. pneumonia* bacteria, and *A. fumigates* and *V. myditis* fungi. CF exhibited best activity against *M. tuberculosis* with lowest MIC of 30 mg/ml and highest activity index of 0.85. Dose dependent antioxidant activity was observed in both the assay. This data provides evidence that *Cordia dichotoma* Forst. roots have potent antibacterial, antimycobacterial, antioxidant, and moderate antifungal activity and a potential cure for infectious diseases like tuberculosis.

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Review Article

Role of Pentacyclic Triterpenoids in Chemoprevention and Anticancer Treatment: An Overview on Targets and Underling Mechanisms

Mahavir H. Ghante, Prasad G. Jamkhande*

Centre for Research in Pharmaceutical Sciences, Sharda Bhavan Education Society's Nanded Pharmacy College, Nanded 431605, Maharashtra, India

Key Words

cancer, pentacyclic triterpenoids, apoptosis, anti-angiogenic, isoprene, antiproliferative

Abbreviations

DNA: Deoxyribonucleic acid, BRCA1: Breast cancer gene 1, BRCA2: Breast cancer gene 2,WHO: World Health Organization, Nrf2: Nuclear factor erythroid 2 [NF-E2]-related factor 2 , NF-κB: Nuclear factor kappa-light-chain-enhancer of activated B cells, MDR: Multidrug resistance, AP-1: Activator protein 1, ROS: Reactive oxygen species, MAPK: Mitogen-activated protein kinase, SAPK: Stress-activated protein kinases, JNK: Jun amino-terminal kinases, HL-60: Human promyelocytic leukemia cells, HeLa: Immortal cell line, Bcl-2: B-cell lymphoma 2, R-HepG2: Resistant human hepatoma, bFGF or FGF: fibroblast growth factor, VEGF: Vascular endothelial growth factor, NSCLC: Non-small cell lung cancer, ROS: Reactive oxygen species, STAT: Signal transducer and activator of transcription, AMPK: AMP-activated protein kinase, R: Receptor, Apaf-1: Apoptic activating protease factor-1, IL-1β: Interleukin-1β, CREB: Cyclic AMP-responsive element-binding protein 1, ERK: Extracellular signal–regulated kinases, PKC: Protein kinaseC, BID: BH3interacting-domain, S-G2/M: Cell cycle checkpoints, ↑p21/WAF1: Cyclin-dependent kinase inhibitor 1 or CDK-interacting protein 1, Cdc2: Cell division cycle protein 2, Cdc25C: Cell Division Cycle 25 Homolog C, Bax: BCL 2 associated X protein, ERK: Extracellular signal–regulated kinases, IKK: I kappa B kinase, VEGFR: Vascular endothelial growth factor receptor, GR: Growth receptor, NO: Nitric oxide

Abstract

The incidences of cancer are continuously increasing worldwide, affecting life of millions of people. Several factors associated with the internal and external environment are responsible for this deadly disease. The key internal determinants like abnormal hormonal regulation, genetic mutations and external determinants such as lifestyle and occupational factors enhances onset of cancer. From the ancient time, plants were remained as the most trusted source of medicine for the treatment of diverse disease conditions. Extensive studies have been performed for the discovery of effective anticancer agent from the plant and still it is going on. Pentacyclic triterpenoids are biologically active phytochemicals having a different range of activities such as anti-inflammatory, hepatoprotective, anti-hypertensive, antiulcerogenic and anti-tumor. These compounds generally contain ursane, oleanane, lupane and friedelane as a chief skeleton of pentacyclic triterpenoids which are generally present in higher plants. Isoprene unit, phytochemical, with good antitumor/anticancer activity is required for the bio-

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*Corresponding Author
Prasad G. Jamkhande. Centre for Research in Pharmaceutical Sciences, Sharda Bhavan Education Society's Nanded Pharmacy College, Nanded 431606, Maharashtra, India.
Tel: +91-24-6225-1313 Fax: +91-24-6225-4455
E-mail: pjamkhande@gmail.com

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Pharmacognostic and Pharmacological review on herbal plant: *Hibiscus rosa sinensis* Linn

Shrinivas K Sarje[1*], Shital Narwade[1], Mahesh Thakur[1], Nitin B Ghiware[1]

[1]Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India

Abstract : Plants have been a source of medicinal compounds since ancient times and have been used to treat various diseases in humans as well as animals. Many of the modern clinical drugs are of natural origin. Over 50% of all modern clinical drugs are of natural product origin and play an important role in drug development programs in the pharmaceutical industry. *Hibiscus rosa sinensis* is one of the miraculous medicinal herbs. *Hibiscus rosa sinensis* Linn. Is certain to emerge in the near future as a major player in the growing field of herbal health supplements and medicines both in daily self-care and in professionally managed health care system. This article compile all the information related to *Hibiscus rosa sinensis* Linn.

Keywords : *Hibiscus rosa sinensis*, Malvaceae, Traditional medicine Pharmacology.

Introduction

Nature has been a source of medicinal agents for thousands of years and an impressive number of modern drugs have been isolated from natural sources, many based on their use in traditional medicine. In recent years, focus on plant research has increased all over the world. *Hibiscus rosa sinensis* a well known member of the family Malvaceae, *Hibiscus rosa sinensis* grows as an evergreen herbaceous plant. A native to tropical and sub-tropical regions, this plant is extensively cultivated as an ornamental plant.[1] It bears large flowers on the bushy hedges. These enormous flowers are usually dark red in color and are not usually fragrant. Today, various new varieties have been cultivated and developed through cross breeding. Different cultivars and hybrids have been produced and developed with flowers ranging in colors and other features. Prominent colors that have been promoted in the recent past are white, yellow, orange, scarlet and different shades of pink. *H. rosa sinensis* has been used for the treatment of a variety of diseases.[2]

Origin and Distribution

It grows on its own in tropic and sub tropic regions of the world. *Hibiscus rosa sinensis* are native to Tropical Asia. A native of Southeastern Asia (China), the plant is commonly found throughout the tropics and as a house plant throughout the world. Most ornamental varieties are hybrids. It is grown as an ornamental plant in gardens throughout India and often planted as a hedge or fence plant.[3]

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A PHARMACOGNOSTIC AND PHARMACOLOGICAL REVIEW ON CANNA INDICA LINN

Shrinivas K Sarje*, Kushewati Ingole, Shinde Angad, Bhutnar Priya and Nitin B Ghiware

Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India.

ABSTRACT

Canna indica L. is a tropical herb belonging to family *Cannaceae*. It has been widely used in traditional medicine for the treatment of many complains. The phytochemical analysis of *Canna indica* showed that it contained various phytochemicals including flavonoids, carbohydrates, terpenoids, alkaloids, proteins, steroids, cardiac glycosides, oils, saponins, tannins, anthocyanin pigments, phlobatinins & many other chemical compounds. The pharmacological studies showed that *Canna indica* plant exerted antiviral anthelmintic, anti-inflammatory, antibacterial, antioxidant, molluscicidal, cytotoxic, hepatoprotective, analgesic immunmodulatory, hemostatic, anti-diarrheal and other effects. This article aims to provide information which is required to claim & explore its pharmacognostic& pharmacological profile. Every part of Canna has beneficial properties that can serve humanity so the whole plant can be extensively studied for further research aspects.

Keywords: *Canna indica*, Constituents, Pharmacology, Antioxidant Activity and Hepatoprotectives.

INTRODUCTION

Healing with medicinal plant is as old as mankind itself. The connection between man and his search for drugs in nature dates from the far past. As a result of accumulated experience from the past generation, today, all the world's cultures have an extensive knowledge of herbal medicine. The previous treatment was not based on a true scientific knowledge. However, in the early nineteenth century, many sensitive ingredients were isolated & introduced in the medical practice (Al-Snafi AE. 2015). *Canna indica L.* commonly known as an Indian shot, the Canna arises from the Greek word for a cane or reed. Canna is the only genus in the family *Cannaceae*& 19 species of flowering plants. The species have large, eye-catching foliage & horticulturists have turned it into a large-flowered & bright garden plant. In addition, it is a horticultural plant & is one of the world's richest starch sources. It extensively used as a nutritive agent & has a number of valuable pharmacological activities (Kessler JR. 2007).

PLANT PROFILE

synonyms

Canna coccinea Mill, Canna edulis Ker-Gawl, Canna lutea Mill, Canna achiras Gilles (VanitaKanase et al., 2018).

Botanical Classification (Tanaka N. 2001)

Kingdom	Plantae
Subkingdom	Tracheobiont
Superdivision	Spermatophyta
Division	Magnoliophyta
Class	Liliopsida
Subclass	Zingiberidae
Order	Zingiberales
Family	Cannaceae
Genus	Canna
Species	*indica L.*

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Development of Validated UV Spectrophotometric Stability Indicating Method for Estimation of Desloratadine from Its Tablet Dosage Form

A B Roge*, G R Shendarkar[1], M H Ghante[2] and N B Ghiware[3]
*Research Scholar, Center for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Nanded
[1]Research Guide, Center for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Nanded
[2]Associate Professor, Nanded Pharmacy College, Nanded
[3]Head and Director, Center for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Nanded

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Corresponding Author Email: ashish_roge@rediffmail.com

Abstract
A novel simple, reliable, rapid and accurate UV spectrophotometric stability indicating method (SIM) was developed for estimation of Desloratadine from its tablet dosage form. The study was carried out at 242 nm. Desloratadine has shown linear absorbance over the concentration range of 5-30 µg/mL with R^2 value 0.999. The slope and intercept equation y = 0.045x + 0.013 were used for determination of concentrations of test solution. The proposed method was validated as per ICH Q2 (R1) guidelines for various parameters e.g. precision, accuracy, limit of detection (LOD), limit of quantification (LOQ) and linearity and range. Results of validation study have shown compliance with criteria of ICH guidelines. Relative standard deviation was found less than 2% and recovery was found in range 99.12 – 99.90 %. Method was very sensitive as LOD and LOQ were found to be 0.121 µg/mL and 0.366 µg/mL respectively. Stability indicating potential was studied by analyzing sample subjected to various stress conditions like hydrolysis, oxidation, photo degradation and thermal degradations. Proposed method reveals that Desloratadine was found unstable at hydrolytic and oxidative stress conditions.

Keywords
Stability indicating method, Desloratadine, Validation, ICH guidelines, stress conditions

*****

INTRODUCTION:

Need for Study:

All pharmaceutical substances un-avoidably contain impurities and the role of ethical pharmaceutical industry is to define an impurity profile that is acceptable for the intended use of a given drug, without compromising its therapeutic safety and efficacy (1-2). The stability of a drug product or a drug substance is a critical parameter which may *affect purity, potency and safety. Changes in drug* stability can risk patient safety by formation of a toxic degradation product(s) or deliver a lower dose than expected. Therefore, it is essential to know the purity profile and behavior of a drug substance under

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Anti-Hyperglycemic Evaluation of Extracts of *Spinacia oleracea* Linn. and *Acacia nilotica* Linn. in Alloxan induced Diabetic Rats

Shrinivas K Sarje[1]*, Nitin B Ghiware[1], Sachin Bhosale[1], Payal Chavan[1]

[1]Department of Pharmacology, CRPS, Nanded Pharmacy College, Nanded, Maharashtra.

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Corresponding Author Email: shriniwas.sarje@gmail.com

Abstract

Aim of the study- The study was designed to investigate the Anti-hyperglycemic activity of extracts of *Spinacia oleracea* Linn. and *Acacia nilotica* Linn. in Alloxan induced diabetic Rats. **Material and Methods**- The leaves of *Spinacia oleracea* Linn. were extracted using petroleum ether, chloroform, ethyl acetate and methanol and pods of *Acacia nilotica* Linn. were extracted using petroleum ether, chloroform, ethyl acetate and ethanol, all the extracts were screened for presence of various phytoconstituents. Diabetes was induced by single dose of intraperitoneal injection of Alloxan monohydrate 120 mg/kg. The test extract were given from day 0 to 21 and on day 0,7,14 and 21 blood glucose and body weight was checked. **Results**- on day 21 standard drug Glimepiride treated rats showed highly significant $p<0.001$ while *Spinacia oleracea* leaves extracts and *Acacia nilotica* pods extracts showed significant reduction in blood glucose level from day 7 onwards over diabetic control. **Conclusion**- the antihyperglycemic activity of the extracts may be through its insulinogenic effects as it may have the ability to enhance the activity of insulin within the body.

Keywords

Alloxan, Spinacia oleracea leaves and Acacia nilotica pods extracts, Diabetic rats.

*****

INTRODUCTION

Diabetes mellitus also known as simply diabetes is a group of metabolic diseases in which high blood sugar levels over a prolonged period can be seen. This high blood sugar produces the symptoms of frequent urination, increased thirst, and increased hunger. Serious long-term complications include heart disease, stroke, kidney failure, foot ulcers and damage to the eyes.

Several pathogenic processes are involved in the development of diabetes; these ranges from autoimmune destruction of the β-cells of the pancreas with consequent insulin deficiency to abnormalities that result in resistance to insulin action. Deficient action of insulin on target tissues and hyperglycemia are the basis of the abnormalities in carbohydrate, fat, and protein metabolism, causing diabetes characteristic clinical features.

INDO AMERICAN JOURNAL OF PHARMACEUTICAL RESEARCH

ANTI-HYPERLIPIDEMIC ACTIVITY OF *ACACIA NILOTICA* PODS EXTRACT AGAINST FRUCTOSE INDUCED HYPERLIPIDEMIA

Shrinivas K Sarje*, Varsha Kadam, Snehal Rasale, Vikas Shiradhonkar, Nitin B Ghiware
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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Hyperlipidemia,
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ABSTRACT

Hyperlipidemia is one of the major causes of disability in developing countries. It is the one of the major risk factor of coronary heart diseases. The present study was designed to investigate the effect of the pod extract of a medicinal plant Acacia nilotica (AN) on fructose-induced hyperlipidemia in rats. The plant extract and commercial lipid lowering drug atorvastatin were administered in fructose-induced hyperlipidemic rats (FIHRs) at a dose of 100mg/kg and 200mg/kg per day.Biomedical parameters were studied includingSerum Triglyceride, Serum Total Cholesterol, Serum LDL, Serum HDL, VLDL, in control, treated and diabetic rats. The result of the experiment suggest that The AN extract showed a significant decrease in lipid profile, i.e it shows antihyperlipidemic effect in fructose induced hyperlipidemic rats.

Corresponding author
Shrinivas K Sarje
Department of Pharmacology,
Nanded Pharmacy College, Nanded, Maharashtra.
shriniwas.sarje@gmail.com

Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College
Nanded

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ANTIHYPERLIPIDEMIC ACTIVITY OF *ACACIA NILOTICA* PODS EXTRACTS IN TRITON INDUCED HYPERLIPIDEMIC RATS

Shrinivas K. Sarje[1*], Sneha Sakhare[1], Kushewati Ingole[1], Shital Narwde[1], Shinde Angad[1]

[1]Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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***Corresponding Author**
Shrinivas K. Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

ABSTRACT

Hyperlipidemia is the common and challenging health problem throughout the world. Hyperlipidemia is a key risk factor for cardiovascular disorders (CVD). Since synthetic drugs have shown side clinical importance of herbal drugs in the treatment of CVD has considerable attention in recent years. The present research work was focused on evaluation of *Acacia nilotica* pods extracts for antihyperlipidemic activity in triton induced hyperlipidemic rats. *Acacia nilotica* was administered at a dose of 100mg/kg and 200mg/kg per day, to triton induced hyperlipidemic rats. Atorvastatin was used as reference standard. The activity was assessed by estimation of body weight, serum lipid profile etc. The bio-chemical parameters like Total cholesterol (TC), Triglycerides (TG), High density lipoprotein cholesterol (HDL-C), Low density lipoprotein cholesterol (LDL-C), Very low density lipoprotein cholesterol (VLDL-C) were also assessed. The statistical analysis was carried out using ANOVA followed by Tukey test. The graded doses of *Acacia nilotica* extracts significantly reduced the weight gain pattern of body. The present study demonstrated that *Acacia nilotica* extracts shows antihyperlipidemic effect.

KEYWORDS: Acacia nilotica, Hyperlipidemia, Triton, Atorvastatin, wistar rats.

INTRODUCTION

Hyperlipidemia is a condition in which an elevation in the blood lipid concentration was observed. It often results from delayed or defective clearance, or overproduction of VLDL by the liver, which subsequently transforms into LDL. Some of the food products like meat, whole milk dairy products such as high fat milk, cheese, cream, butter and tropical oils like palm and coconut oil contributes their part in the development of hyperlipidemia, as they are

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Anti-Hyperlipidemic activity of murraya koenigii leaves extract against fructose induced hyperlipidemia

Shrinivas K Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India

Vishal Desai
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India

Gunesh Kshirsagar
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra

Rani Shinde
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra

Nitin B Ghiware
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra

Keywords: Murraya koenigii, Hyperlipidemia, Triglycerides, lipoprotein, fructose

ABSTRACT

Hyperlipidemia is the greatest risk factor of coronary heart disease. Currently available hypolipidemic drugs have been associated with number of side effects. Herbal treatment for hyperlipidemia has no side effects and is relatively cheap and locally available. A literature claimsthat flavonoids can able to reduce the hyperlipidemia. The literature available on *Murraya koenigii* Leaves suggested for the presence of flavonoid content, therefore the leaves of *Murraya koenigii* were selected and the present study was designed to investigate theanti-hyperlipidemicactivity of extract of *Murraya koenigii* fructose induced Hyperlipidemia. *Murraya koenigii* was administered at a dose of 100mg/kg and 200mg/kg per day (p.o) to fructose induced Hyperlipidemic rats. Atorvastatin was used as reference standard.The statistical analysis was carried out using one way ANOVA followed by Tukey test. *Murraya koenigii* showed a significant decrease in the levels of serum cholesterol, triglycerides, LDL, VLDL and a gradual increase in the level of serum HDL at the dose of 200mg/kg/day (p.o) against fructose induced hyperlipidemia. Therefore the

study concluded that the extract of leaves of *Murraya koenigii* effectively suppressed the hyperlipidemia in rats, suggesting the potential protective role in Coronary heart disease.

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ABSTRACT

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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PHYTOCHEMICAL INVESTIGATION AND PHARMACOLOGICAL EVALUATION OF *BOUGAINVILLEA SPECTABILIS* FOR HEPATOPROTECTIVE ACTIVITY

S. K. Sarje*, Kadam V. M., Hede A. B., Ware S. V., Patil V. D. and Jadhav V. R.

Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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***Corresponding Author**
S. K. Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

ABSTRACT

The presence study aimed to evaluate the Hepatoprotective effect of Bougainvillea spectabilis stems extract against liver injury induced by carbon tetrachloride (CCl_4). Both male and female wistar albino rats were used, rats were injected i.p. with CCl_4 (1ml/kg) mixed in liquid paraffin in portion (1:1), three times in a seven days and treated orally with Bougainvillea spectabilis (100 mg/kg and 200 mg/kg) stems extract daily for seven days and compared with a group of rats injected i.p. with CCl_4 (1ml/kg) mixed in liquid paraffin in portion (1:1), three times in a seven days. Bougainvillea spectabilis plant belonging to family Nyctaginaceae used in various diseases like Hepatitis.(Leaves), Diarrhea, Inflammation, Stomach acidity, Cough, sore throat and other respiratory diseases, Leucorrhea, Ulcer, Microbial infection, Diabeties, Hyperlipidemia, Cancer, It have anti-fertility property. Carbon tetrachloride caused a significant elevation in enzyme levels such as AST, ALT, Total bilirubin and Total protein, this indicated the damaged structural integrity of liver, Due to Carbon tetrachloride inducing agent the levels of SGOT, SGPT, Total bilirubin were elevated and the total protein levels was decline than normal. The pre-treatment of B.S.Eth and B.S.Aqs stems extracts at dose levels of 100 and 200 mg/kg were shown a restored the ALT, AST, Total bilirubin and Total protein levels towards normalization and the effects were comparable with standard drug (Silymarin 100 mg/kg). Histopathological evaluation of livers revealed that the B.S. Eth and B.S.Aqs stems extracts reduced inflammation of hepatocytes, swelling, necrosis and no. liver lesions induced by CCl_4.

KEYWORDS: Bougainvillea spectabilis, CCl_4, AST, ALT, Hepatitis.

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SPATIAL AND WORKING MEMORY ENHANCING ACTIVITY OF *PONGAMIA PINNATA* LEAVES EXTRACTS IN RATS

S. K. Sarje*, Shagufta Farooqui, Muttewar Arti, Navghare Balaji and Shinde Dinesh

Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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***Corresponding Author**
S. K. Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

ABSTRACT

Memory is the ability of an individual to record sensory stimuli & retain them over short or long periods of time & recall the same at a later date when needed. Short and long term memory loss may result from deteriorating cerebral mechanisms due to different causes having impact on the quality of life. Memory enhancer can improve thinking, memory, and alertness in people with Alzheimer's disease that affect the mind. The Leaves of *Pongamia pinnata pierre* (Linn) belongs to the family Fabaceae is used as a digestive, laxative, anti-helmintic and are good for diarrhea, leprosy, dyspepsia and cough. Traditonally it is also used as Neuroprotective as it contains Chalcone derivatives.

Memory refers to retaining and recalling information over a period of time, depending upon the nature of cognitive task you are required to perform. The present study designed to assess the memory enhancing potential of *Pongamia pinnata* leaves extracts in wistar albino rats. In this study the two models has been selected under which in radial arm maze model in rats is used to evaluate working and reference memory errors and the Morris water maze is used to evaluate the retrieval of memory. The extract was administered orally in two doses (100 and 200 mg/kg p.o) for a period of 8 days for radial arm and 11 days for water maze test. Piracetam, 200mg/kg i.p, was used as standard drug treatment. Radial arm maze (RAM) was used to evaluate number of correct entries and time spent in baited arms as well as the latency to find the food. In Morris water maze used to evaluate the escape latency and time spent in target quadrant. The both the extracts of *Pongamia pinnata* at conc.200mg/kg, o.p. showed significantly increase in number correct entries and time spent in baited arms as well as increase in latency to find food, besides this in Morris water maze both the extracts i.e PPEA-200 and PPETH-200 mg/kg, o.p. showed significantly decreased in escape latency and increased in time spent in target quadrants as compared to standard (Piracetam) and highly

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ANTIULCER ACTIVITY OF NERIUM INDICUM MILL.EXTRACTS IN ETHANOL INDUCED RATS

Shrinivas K. Sarje*, Rasale Snehal, Bhalerao Seema, Chavan Kunal and Deshmukh Shachi

Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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***Corresponding Author**
Shrinivas K. Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

ABSTRACT

Ulcers are lesions on the surface of the skin or a mucous membrane characterized by a superficial loss of tissue. Ulcers are most common on the skin of the lower extremities and in the gastrointestinal tract, although they may be encountered at almost any site. There are many types of ulcer such as mouth ulcer, esophagus ulcer, peptic ulcer, and genital ulcer, of these peptic ulcer is one of the world's major gastrointestinal disorders. ***Nerium indicum*** Mill. is already traditionally as folk medicine to treat a number of illnesses. However, there is no scientific evidence in antiulcer activity of this plant. So, the present investigation explores the potential use of ***Nerium indicum*** Mill Stem extract as an antiulcer. Both the extracts were tested for their antiulcer property at a dose of 100 & 200 mg/kg against ethanol induced ulcer model in albino rats (Wistar strains) Ranitidine was used as reference standard. Both the extracts of *Nerium indicum* Mill. shows significant protection against ethanol induced ulcer model. Results shows protection by NIAqE (98.89%) & NIEE (97.42%) Against ethanol induced ulcer which are comparable to standard. The extract nor increased or decreased gastric volume, but increased in the pH of gastric juice was observed in ethanol method.

KEYWORDS: *Nerium indicum,* Standardization, Antioxidant activity, Ethanol induced.

INTRODUCTION

Ulcers are lesions on the surface of the skin or a mucous membrane characterized by a superficial loss of tissue. Ulcers are most common on the skin of the lower extremities and in the gastrointestinal tract, although they may be encountered at almost any site. There are many types of ulcer such as mouth ulcer, esophagus ulcer, peptic ulcer, and genital ulcer, of

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PHYTOCHEMICAL AND PHARMACOGNOSTIC ESTIMATION AND ANTIOXIDANT POTENTIAL OF NERIUM INDICUM EXTRACTS

Shrinivas K. Sarje*, Rasale Snehal, Dukare Sagar, Kamble Mahesh and Kharate Pooja

Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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***Corresponding Author**
Shrinivas K. Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

ABSTRACT

Nerium is a distinct genus of evergreen coniferous tree from the family Apocynaceae, containing only one species, *Nerium indicum* (*Kaner*). Stem and powdered microscopy revealed useful diagnostic features. Phytochemical testing of varies extracts revealed the presence of glycosides, flavonoids, tannins, phenolic compounds, carbohydrates etc., which was further confirmed by TLC. The total phenolic and flavonoid content of plant extracts was expressed as Gallic acid equivalents and as rutin equivalents respectively. Total phenolic content and flavonoid contents was found to be more in ethanolic extract of stem as compared to aqueous extract respectively. *In-vitro* Antioxidant activity study indicates that aqueous extract has the more antioxidant effect (98.89% inhibition of free radicals at 100µg/ml) as compared to ethanol extract. Accordingly safe experimental dose was calculated as ≤ 200mg/kg & was used accordingly for further screening of extracts.

KEYWORDS: *Nerium indicum*, Standardization, Antioxidant activity.

INTRODUCTION

Medicinal plants have been defined in many ways, the most accepted definition as given by the Agricultural and Natural Resource Development being, "Plants that are recognized by people to have reliable and effective medicinal values, are commonly used in treating, and preventing specific ailments and diseases, and play an essential role in health care" (Vijayalakshmi S et. al, 2016) The World Health Organization (WHO) estimates that 4 billion people (80 % of the world population) presently use herbal medicine as a part of primary health care. (Suriyavathana M et. al, 2010) Herbal medicines have already formed the basis of therapeutic use in developing countries, and also seen an increase in the use by

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REVIEW OF PHARMACOLOGICAL ACTIVITY OF *NERIUM INDICUM* MILL

Shrinivas K. Sarje*, Snehal Rasale, Aparna Suryavanshi, Shagufta Bano Farooqui, Nitin B. Ghiware

Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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***Corresponding Author**
Dr. Shrinivas K. Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

ABSTRACT

Nerium indicum Mill is an important Chinese folk medicine. It is a vegetatively propagated ornamental plant, valued for its evergreen foliage and showy terminal flower clusters that are available in different colors. Indicum is cultivated recently as a flowering pot plant and therefore abundant propagation of plant material for commercial use is of great importance. This species also produces secondary metabolites, some of which are pharmacological interests. The important pharmacological activities are anti-inflammatory, antibacterial, anticancer, antinociceptive, and CNS depressant activity. This paper explains the evidence-based information regarding the phytochemistry and pharmacological activity of this plant.

KEYWORDS: Nerium indicum, Phytochemistry, Pharmacological activity, Taxanocological classification.

INTRODUCTION

In recent years, traditional system of medicine has become a topic of global importance. Many of the plant species that provide medicinal herbs have been scientifically evaluated for their possible medicinal applications. It has been mentioned that natural habitats for medicinal plants are disappearing at a faster rate and together with environmental and geopolitical instabilities; it is increasingly difficult to acquire plant derived compounds. Nerium indicum mill.is an evergreen shrub reaching up to four meters in height and belongs to the family – Apocynaceae, is a shrub or occasionally tree distributed in tropical Asia Nerium indicum mill. is cultivated worldwide as an ornamental plant. It is native to the

Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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Formulation and Optimization of Floating Microspheres of Ivabradine Hydrochloride by 3^2 Factorial Design Approach

Sagar N Firke*, Pritam R Siraskar, Dhiraj H Nagore and Nitin B Ghiware
CRPS, Nanded Pharmacy College Nanded (Affiliated to SRTM University Nanded)
Apposite Kasturba Matruseva Hospital, Shyam Nagar, Nanded- 431602. MS

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*Corresponding Author Email: sagar1385@yahoo.co.in

Abstract

The Present study is an attempt to design and formulate floating microsphere of Ivabradine Hydrochloride to achieve its release in a controlled manner and to avoid its repetitive administration thereby, to improve the bioavailability. Ivabradine floating microspheres were prepared by multiple emulsion solvent evaporation technique (w/o/w) using Ethyl Cellulose as polymer, Dichloro Methane as solvent for polymer and tween 80 was used as emulsifying agent. The Formulation was optimized by 3^2 factorial design, by means of polymer concentration and stirring speed as an independent variables and drug loading, particle size and % drug release was selected as a response along with other micromeritic properties such as particle size, bulk density, tapped density and flow ability. Formulation prepared by using 400 mg of Ethyl cellulose gives the highest yield of 89.10±10 %, 91.5±0.10 % of drug loading, 162.55 µm of average particle size,78.20±0.27 percent of drug release in 8 hours and 92.10±0.26 of Buoyancy. The optimized formulation was found suitable to be dispensed as a single unit dosage form in the form capsules.

Keywords
Ethyl Cellulose, Floating Microspheres, Ivabradine HCL, Solvent Evaporation technique, Tween 80.

*****

INTRODUCTION

Cardiovascular diseases have now become the leading cause of mortality in India, attributed to cardiovascular disease (CVD). Ischemic Heart diseases like Angina Pectoris and Stroke are the leading cause of deaths in India and are responsible for > 80% of CVD deaths. Ivabradine HCL is a pure heart rate lowering agent, acting by selective and specific inhibition of the cardiac pacemaker I_f current that controls the spontaneous diastolic depolarization in the sinus node and regulates heart rate. The absolute bioavailability is around 40% due to first-pass effect in the gut and liver, elimination Half half-life of 2 hours[1]. The patient diagnosed with Angina Pectoris needs special attention in the treatment; since the Angina attack may be impulsive at the night or in the early morning hours[2]. This can be treated by maintaining therapeutic level of drug in plasma over the period of time, with sustained release formulation of Ivabradine.

Original Article

Design and Preparation of Zaltoprofen-Nicotinamide Pharmaceutical Cocrystals via Liquid Assisted Grinding Method

Prabhakar Panzade[1,2]*, Giridhar Shendarkar[2]

[1]Srinath College of Pharmacy, Bajaj Nagar, Waluj, Aurangabad, INDIA.
[2]Centre for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Kasturba Matruseva Kendra, Shyam Nagar, Nanded, Maharashtra, INDIA.

ABSTRACT

Introduction: Pharmaceutical cocrystal is an endowed approach to augment solubility and dissolution of drugs with limited aqueous solubility. Zaltoprofen is a nonsteroidal anti-inflammatory drug with prevailing solubility problem. The present study deciphers preparation of cocrystals of lipophilic drug zaltoprofen to improve the solubility and dissolution by screening various coformers. **Methods:** Cocrystals of zaltoprofen were prepared in 1:1 and 1:2 molar ratio of drug: coformer by liquid assisted grinding method. The crystalline phase was subjected to evaluation by melting point and solubility. The potential cocrystals were characterized by differential scanning calorimetry (DSC), infrared spectroscopy (IR), powder X-ray diffraction (PXRD) and scanning electron microscopy (SEM). Dissolution rate and stability of cocrystals was also investigated. **Results:** Zaltoprofen-nicotinamide (ZFN-nicotinamide) cocrystals revealed variation in melting point and solubility. Two cocrystals were obtained in 1:1 and 1:2 ratios with nicotinamide. IR spectrum distinctly showed the shifting of typical absorption bands of zaltoprofen. Crystallinity of cocrystals was clear from the PXRD pattern and noteworthy difference in 2θ value of intense peaks. DSC spectra of cocrystals revealed altered endotherms analogous to melting point. Cocrystals exhibited rapid dissolution rate and 56% increase in the extent of dissolution compared to pure drug. The cocrystals were found stable at stability conditions. SEM revealed difference in the crystal morphology. **Conclusion:** Hence, it can be concluded that ZFN-nicotinamide cocrystal could present an improved drug design approach to surmount dissolution and bioavailability related challenges linked with lipophilic drug zaltoprofen.

Key words: Cocrystal, Zaltoprofen, Liquid assisted grinding, Solubility, Dissolution.

INTRODUCTION

The crucial task in the development of drug product is searching appropriate solid form of an Active Pharmaceutical Ingredient (API) with desired physicochemical properties. The rational approach is a use of solid forms with greater solubility to improve dissolution and bioavailability.[1-5] Amorphous solids, hydrates/solvates, polymorphs and salts have been used conventionally to improve solubility and dissolution. However, amorphous solids or metastable polymorphs of an API possess greater solubility but are thermodynamically unstable in solid state. Hence, erratic product quality and therapeutic performance may be observed. Therefore, conventional solid forms may not fulfill the need for development of successful product.[6-11]

Pharmaceutical cocrystals have emerged as a way of modifying solubility, dissolution, bioavailability and other physicochemical and pharmacokinetic properties of drug substances, keeping their molecular structure intact. Cocrystal is a stoichiometric multi-component system connected by non-covalent interactions containing two

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Correspondence:
Mr. Prabhakar Panzade,
Centre for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Opp. Kasturba Matruseva Kendra, Shyam Nagar- 431605, Nanded, Maharashtra, INDIA.
Phone: +91 9921830320
E-mail: prabhakarpanzade@gmail.com

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PHYTOCHEMICAL AND PHARMACOLOGICAL EVALUATION OF CYAMOPSIS TETRAGONOLOBA PODS EXTRACTS FOR MEMORY ENHANCING ACTIVITY

Nikita Tiwari[1]*, Dr. M. H. Ghante[2], Prof. Dr. N. B. Ghiware[3], Dr. S. K. Sarje[4]

[1]Research Scholar, Department of Pharmacology, Nanded Pharmacy College Nanded, Maharashtra, India.

[2]Professor, Department of Pharmaceutical Chemistry, Nanded Pharmacy College, Nanded Maharashtra, India.

[3]Principal, Department of pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India.

[4]Assistant Professor, Department of Pharmacology, Nanded Pharmacy College Nanded, Maharashtra, India.

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***Corresponding Author**
Nikita Tiwari
Research Scholar,
Department of
Pharmacology, Nanded
Pharmacy College Nanded,
Maharashtra, India.

ABSTRACT

The present study reports physicochemical characterization, antioxidant and Memory enhancing activity of extracts from *Cyamopsis tetragonoloba L.* pods collected from local region of Nanded, Maharashtra, India. Different physical parameters like ash values, extractive value, Loss on drying, solubility etc were evaluated for powdered drug. The extracts were obtained from Soxhlet method by using water and methanol as solvents for extraction and subjected for preliminary physicochemical evaluation and antioxidant studies. Total phenolic and flavonoids content were also analyzed. The presence of primary and secondary metabolites such as carbohydrate, proteins, alkaloids, phenolic compounds, saponins was confirmed through preliminary phyto-chemical analysis. DPPH free radical scavenging assays showed strong antioxidant activities with increase in concentration of Ethyl acetate and methanol leaves extracts. Maximum percentage inhibition i.e. 76.14 % was shown by Methanolic extract at concentration of 150 µg/ml and was compared with Ascorbic acid as referring standard.The *In-Vivo* memory enhancing activity of *Cyamopsis tetragonoloba L.* pods was evaluated by radial arm maze model in rats using Piracetam as a standard. Both the extracts at

PHYTOCHEMICAL INVESTIGATION AND PHARMACOLOGICAL EVALUATION OF *TRIGONELLA FOENUM-GRAECUM* LEAVES EXTRACTS FOR ITS WOUND HEALING ACTIVITY

[1]Dr. Shrinivas K Sarje, [2]Sharada Yenglod, [3]Arti Shembade, [4]Sourabh Atak

Department of Pharmacology,
Nanded Pharmacy College, Nanded, Maharashtra, India.

***Abstract*: The present study reports physicochemical characterization, antioxidant, antimicrobial and Wound Healing activity of extracts from *Trigonella Foenum-graecum* leaves collected from local region of Nanded, Maharashtra, India. The extracts were obtained from Soxhlet method by using ethyl acetate and methanol as solvents for extraction and subjected for preliminary physicochemical evaluation and antioxidant studies. Total phenolic and flavonoids content were also analyzed.**

The presence of primary and secondary metabolites such as carbohydrate, amino acids, tannins, alkaloids, phenolic compounds, saponins were confirmed through preliminary phyto-chemical analysis. DPPH free radical scavenging assays showed strong antioxidant activities with increase in concentration of Ethyl acetate and methanol leaves extracts. Maximum percentage inhibition i.e. 80.97% was shown by Ethyl acetate extract at concentration of 150 µg/ml and was compared with Ascorbic acid as reference standard.

The *in vitro* Antibacterial property of *Trigonella Foenum-graecum* leaves was carried out by using agar cup and plate method. In this method, increase in zone of inhibition was Ethyl acetate extract having better antibacterial activity on *Baccilus substillus* than *Staphylococcus aureus* & *E.coli*. Methanol extract having better antibacterial activity against *Baccilus substillus* & *Staphylococcus aureus* than *E.coli*

Antifungal property of *Trigonella Foenum-graecum* leaves was carried out by using poison plate method. In this method, reducing growth of fungi (moderate antifungal activity) and no growth of fungi of test sample was calculated and compared with standard i.e. (*Griseofulvin*). Both extract showed the reduced growth (more than 50% and less than 90% reduction in growth) at 100 mg/ml.

The *In-Vivo* Wound Healing activity of *Trigonella Foenum-graecum* leaves was evaluated by excision wound model in rats using Soframycin as standard. Both the extracts at 5 % conc" showed significant reduction in wound size.

The result suggest that *Trigonella Foenum-graecum* leaves extracts possess wound healing activity and this might be due to flavonoids, Phenolic compound, coumarin, tannin and saponins present in extract.

***Keywords*: *Trigonella Foenum-graecum*, Ethyl acetate and Methanolic extract, Phytochemical screening, Antioxidant effect, Anti-microbial activity, Wound healing activity.**

Introduction

Wound may be defined as a disruption of the cellular and anatomic continuity of a tissue, with or without microbial infection and is produced due to any accident or cut with sharp edged things. It may be produced due to physical, chemical, thermal, microbial or immunological exploitation to the tissues. Wound healing is a process of restoring normal structure and functions of damaged tissue. Healing is a natural phenomenon by which body itself overcome the damage to the tissue but the rate of healing is very slow and chance of microbial infection is high. This creates demand of a substance that speeds up the rate of healing.

Wound healers are one of the most critical requirement in the essential medicaments for soldier and may help in putting injured soldier back on the war field as quickly as possible. A wound healer also minimizes demand of other drugs like antibiotics and also their probable side effects by their use. India has a rich tradition of plant-based knowledge on healthcare. A large number of plants/plant extracts/decoctions or pastes are equally used by tribal and folklore traditions in India for treatment of cuts, wounds, and burns. Besides this, there is not a single synthetic drug formulation in the market which can claims for its wound healing properties. The drugs available are either bacteriostatic or bactericidal and in these cases healing is by a natural phenomenon only.

1. The inflammatory phase: The inflammatory phase starts immediately after the injury that usually last between 24 and 48 hrs may persist for up to two weeks in some cases. The inflammatory phase launches haemostatic mechanisms to immediately stop blood loss from the wound site

2. The fibro plastic phase: The second phase of wound healing is the fibro plastic that last up to two days to three weeks after the inflammatory phase. The phase comprises of three steps viz., granulation, contraction and epithelialization.

3. Remodeling phase: This phase last for 3 weeks to 2 years. Tissue tensile strength is increased due to intermolecular cross linking of collagen via vitamin c dependent hydroxylation.

The rapidity of wound healing depends to a considerable extent on the contraction that begins a few days after injury and continuous for several weeks.

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Pharmacognostic evaluation of *trigonella foenum-graecum linn* leaves

Shrinivas Sarje[1*], Sharda Yenglod[2], Kalyani Berlikar[3], Shivani Lone[4], Balaji Navghare[5]
[1-5] Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India

Abstract
Trigonella Foenum-graecum Linn., is an annual herb of bean family, reaching 30-60 cm and largely cultivated in India, Egypt and Morocco. It is commonly known as 'Fenugreek', which belongs to the family *Fabaceae*. The present study attempts to evaluate Pharmacognostic studies including examination of macroscopic and microscopic character and powder analysis of Fenugreek leaves. The detailed Pharmacognostic studies have given a clear idea regarding the different cell characters and various constants. The physicochemical parameters such as total ash value, acid insoluble ash value, water soluble ash value, loss on drying and extractive values were also determined. These Physicochemical parameters have given standard numerical values for comparison and detection of adulterants. The results of this study will possibly prove useful for establishing pharmacognostic standards for the identification, purity and quality of drug.

Keywords: *trigonella foenum-graecum linn.*, leaves, pharmacognostic studies, physicochemical parameters

1. Introduction

In recent times, there is a renewed interest in drugs of natural origin simply because they are considered as green medicine and green medicine is always supposed to be the safe. The advantage of natural drugs is their easy availability, economic and less or no side effects but the disadvantage is that they are the victims of adulteration. The more effective the natural drug, more is its demand and the chances of non-availability increases. To meet the growing demand, the natural drug is easily adulterated with low grade material. Pharmacognosy is the study of medicines derived from natural sources, mainly from plants. It basically deals with standardization, authentication and study of natural drugs. Pharmacognostic study includes parameters which help in identifying adulteration in dry powder form also. This is again necessary because once the plant is dried and made into powder form, it loses its morphological identity and becomes easily prone to adulteration. Such studies will help in authentication of the plants and ensure reproducible quality of herbal products which will lead to safety and efficacy of natural products.

Fenugreek, *Trigonella Foenum-graecum Linn.*, is an annual herb of bean family, reaching 30-60 cm and largely cultivated in India, Egypt and Morocco. The name fenugreek comes from *foenum-graecum*, meaning 'Greek hay', as the plant was traditionally used to scent inferior hay and the name of the *Trigonella* is derived from the old Greek name, denoting 'three angled', probably referring to the triangular shape of flowers. Fenugreek has strong flavor and aroma. The plants leaves and seeds are widely consumed in Indo-Pak subcontinent as well as in other oriented countries as a spice in food preparations and as a ingredient in traditional medicine. Medicinally it was used for the treatment of wound abscesses, arthritis, bronchitis, ulcer and digestive problems. The plant grows to height of about 3 feet. *Trigonella Foenum-graecum Linn* has long stalked leaves up to 5cm long stipules triangular; lanceolate leaflets about 2.5 cm long. The root mass of fingery structure. Flowers are white and pale yellow. The plant radiates spicy odor which persist on the hands after touching. Fenugreek is best grown as a annual crop from seeds by the line sowing method. The leaves contain 7 saponins, known as *graecunins*. These compounds are glycosides of diosgenin. Leaves contain moisture 86.1%, protein 4.4%, fat 0.9%, minerals 1.5%, fiber 1.1% and carbohydrate 6% & the vitamins (calcium, iron, phosphorous, carotene, thiamine, riboflavin, niacin and vitamin c).

Fabaceae: A large family that comprises the peas, beans and related herbaceous or woody plants with pea like flowers and a legume as fruit and that is now usually included in the family Leguminosae.

Fig 1: Trigonella Foenum-graecum leaves

2. Plant Profile

It is a biennial plant, but is usually grown as an annual. Modern varieties typically grow to a height of 15 to 45 cm (6 to 18 in). The leaves are yellowish to bluish green and grow alternately in a flattened, fan-shaped swathe. They are

PHYTOCHEMICAL AND PHARMACOLOGICAL EVALUATION OF *VIGNA RADIATA* STEM BARK EXTRACTS FOR ITS WOUND HEALING ACTIVITY

[1*]Shrinivas Sarje, [1]Balaji Navghare, [1]Madhvi Jadhav, [1]Rupali Kadam, [1]Arshad Ibrahim

[1]Department of Pharmacology,
Nanded Pharmacy College, Nanded, Maharashtra, India.

***Abstract*: The present study reports physicochemical characterization, antimicrobial and Wound Healing activity of extracts from *Vigna Radiata* stem bark collected from local region of Nanded, Maharashtra, India. Different physical parameters like ash values, extractive value, Loss on drying, solubility etc were evaluated for powdered drug. The extracts were obtained from Soxhlet method by using ethyl acetate and ethanol as solvents for extraction and subjected for preliminary physicochemical evaluation. Total phenolic and flavonoids content were also analyzed. The presence of primary and secondary metabolites such as carbohydrate, proteins, alkaloids, phenolic compounds, saponins was confirmed through preliminary phyto-chemical analysis. Antimicrobial activity showed strong antibacterial and antifungal activities with increase in concentration of ethyl acetate and ethanol leaf extracts. The *In-Vivo* wound Healing activity of *Vigna Radiata* stem bark was evaluated by excision wound model in rats using Soframycin as a standard. Both the extracts showed significant reduction in wound size. The result suggest that *Vigna Radiata* stem bark extracts possess wound healing activity and this might be due to flavonids. Phenolic compound, steroid and proteins present in extract.**

***Keywords*: *Vigna Radiata*, Ethyl Acetate and Ethanolic extract, Phytochemical screening, Antimicrobial effect, Wound Healing activity.**

1. Introduction

A wound may be described in many ways; by its aetiology, anatomical location, by whether it is acute or chronic, by the method of closure, by its presenting symptoms or indeed by the appearance of the predominant tissue types in the wound bed. All definitions serve a critical purpose in the assessment and appropriate management of the wound through to symptom resolution if viable, healing

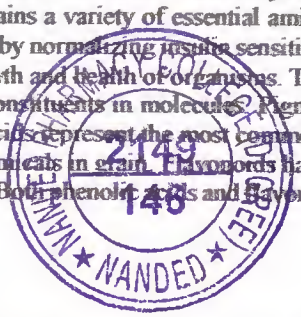
Types of Wound

1. Open wound
   E.g. Incised wound, tear wound.
2. Closed wound
   E.g. Blood tumor, crush injury.
3. Acute wound
   E.g. Surgical incisions.
4. Chronic wound
   E.g. Hypoxia, diabetes mellitus

Vigna radiata stem bark :

Mung bean (Vigna radiata L.) is a food source of vitamins, minerals, and essential amino acids and has a high nutrient value comparable to that of soybean (Glycine max L. Merr.) and kidney bean.

Mung bean is traditionally known as a functional food, and its functional components have been identified over decades with the development of analytical techniques. In recent years, the physiological functionality of mung bean has received attention, particularly with respect to the content of anti-angiotensin I-converting enzyme and to antitumor, antioxidant, anti-diabetic, and anti-melanocyte effects. Mung bean starch is also considered to be the most suitable raw material for starch noodle-making, as it contains resistant starch that can escape digestion in the small intestine. Starches that are fermented in the gut are generally recognized as components that can improve the gut environment. found in the mung bean Most flavonoids have polyhydroxy substitutions and can be classified as polyphenols with obvious antioxidant activity. Vitexin (apigenin-8- C-β-glucopyranoside) and isovitexin (apigenin-6-C-β-glucopyranoside) have been reported to be present in mung bean seeds at about 51.1 and 51.7 mg g^{-1} In starch granules, amylose and amylopectin are densely packed in a semicrystalline state with inter- and intramolecular bonds. Amylose is insoluble in cold water and is resistant to chemicals and enzymes. Mung bean is also an excellent source of protein with an ideal essential amino acid profile. It contains a variety of essential amino acids and is rich in lysine. The intake of mung bean protein may improve the plasma lipid profile by normalizing insulin sensitivity. Mung bean also contains fatty acids such as linoleic acid and linolenic acid that promote the growth and health of organisms. The physical and chemical properties of triglycerides and their applications depend on the fatty acid constituents in molecules. Pigmented grain contains many secondary metabolites such as phenolic acids and flavonoids. Phenolic acids represent the most common form of phenolic compounds and make up one of the major and most complex groups of phytochemicals in grain. Flavonoids have many health-related functions, such as antineoplastic activity, inoxidizability, and radioresistance. Both phenolic acids and flavonoids contribute to the antioxidant activity of mung bean.



Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College
Nanded

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Phytochemical and Pharmacological Evaluation of *Vigna radiata* Stem Bark Extracts for Its Hepatoprotective Activity

Shrinivas Sarje[1*], Dinesh Shinde[1], Sagar Dukare[1], Tukai Kulkarni[1], Danish Farooqui[1]

[1]Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India.

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Keywords: *Vigna radiata* (v.r.), Ethyl acetate (EA.) and Ethanolic (Eth.) extract, Phytochemical screening, Antioxidant activity, Hepatoprotective activity

ABSTRACT

Medicinal plants have always been the principle sources of medicine worldwide. Human beings have used those as medicine from the very beginning of time. India sustains a very rich traditional medicinal plant wealth and inherits unique plant and animal communities. The objective of the study was undertaken to investigate the hepatoprotective activity of Ethyl acetate & Ethanolic extract of *Vigna radiata* stem bark which is an important medicinal plant in Indian folk. In the present study, the stem bark of *Vigna radiata* which belongs to family Fabaceae were chosen because various parts of the plant possess several bioactivities & is used in traditional medicinal system. The antioxidant activity of the extracts was done by using DPPH method. The results showed that ethyl acetate extract and ethanolic extract at 125µg/ml concentration showed the significant antioxidant effect as compared with ascorbic acid as standard. The *In-vivo* hepatoprotective activity of VREA and VR Eth extract were estimated by using carbon tetrachloride induced hepatotoxicity model. The degree of protection was estimated by measuring levels of biochemical markers like SGOT, SGPT, Total Bilirubin and Total Protein. The histopathological study was also carried out and compared with carbon tetrachloride treated group. **Results:** The interpretations of results were done by subjecting the data to statistical analysis using mean ±S.E.M. The VREth extract at dose of 200mg/kg shows promising Hepatoprotective effect than VREA extract. The VREth extract of plant shows significant antioxidant activity at the concentration of 125µg/ml than VREA extract at the concentration of 125µg/ml. Conclusion: The results suggest that the stems of *Vigna radiata* stem bark possess potential antioxidant and hepatoprotective activity.

Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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Phytochemical Investigation and Pharmacological Evaluation of *Solanum nigrum* L. Leaves Extracts for Its Memory Enhancing Activity

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Shrinivas Sarje[1*], Mahesh Kamble[1], Sagar Dukare[1], Sujata Holkar[1], Rushikesh Khajepawar[1]

[1]Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India.

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Keywords: *Solanum nigrum*, ethyl acetate and Methanolic extract, phytochemical screening, Antioxidant effect, Memory enhancing activity

ABSTRACT

The present study reports physicochemical characterization, antioxidant and Memory enhancing activity of extracts from *Solanum nigrum* leaves collected from local region of Nanded, Maharashtra, India. Different physical parameters like ash values, extractive value, Loss on drying, solubility etc were evaluated for powdered drug. The extracts were obtained from Soxhlet method by using ethyl acetate and methanol as solvents for extraction and subjected for preliminary physicochemical evaluation and antioxidant studies. Total phenolic and flavonoids content were also analyzed. The presence of primary and secondary metabolites such as carbohydrate, proteins, alkaloids, phenolic compounds, saponins was confirmed through preliminary phytochemical analysis. DPPH free radical scavenging assays showed strong antioxidant activities with increase in concentration of ethyl acetate and methanol leaves extracts. Maximum percentage inhibition i.e. 80.97% was shown by ethyl acetate extract at concentration of 150 µg/ml and was compared with Ascorbic acid as reference standard. The *In-Vivo* memory enhancing activity of *Solanum nigrum* leaves was evaluated by radial arm maze model in rats using Piracetam as a standard. Both the extracts at 200mg/kg concentration showed significant to highly significant number of entries and time spent in P zone (from $P < 0.05$ to $P < 0.001$). The result suggests that *Solanum nigrum* leaves extracts possess memory enhancing activity and this might be due to flavonoids, Phenolic compound, steroid and proteins present in extract.

PHYTOCHEMICAL SCREENING OF *CYAMOPSIS TETRAGONOLOBA L.* EXTRACTS

[1*]Shrinivas Sarje, [1]Seema Bhalerao, [1]Dinesh Shinde, [1]Mahima Katariya, [1]Shagufta Farooqui

[1]Department of Pharmacology,
Nanded Pharmacy College, Nanded, Maharashtra, India.

ABSTRACT:
Medicinal plants have always been the principle sources of medicine worldwide. Human beings have used those as medicine from the very beginning of time. India sustains a very rich traditional medicinal plant wealth and inherits unique plant and animal communities. The objective of the study was undertaken to investigate the hepatoprotective activity of Ethyl Acetate & Methanolic extract of *Cyamopsis tetragonoloba L.* pods which is an important medicinal plant in Indian folk.
In the present study the pods of *Cyamopsis tetragonoloba* which belongs to family *Fabaceae* were chosen because various parts of the plant possesses several bioactivities & is used in traditional medicinal system.
The pods of *Cyamopsis tetragonoloba L.* were collected, processed & standardized as per official methods. Two extracts of *Cyamopsis tetragonoloba L.* pods (Ethyl Acetate and Methanolic) were studied to detect the chemical compounds present, to evaluate acute oral toxicity & hepatoprotective activity. Qualitative phytochemical screening revealed the presence of flavonoid, p-coumarin, Saponins, tannin and triterpenes. Total Polyphenol content & total flavonoid content was determined by Folin Ciocaltue & Aluminium trichloride method respectively by using UV-Visible spectrophotometer. Physical parameters like solubility, ash values, LOD, extractive value etc. has been studied.
The antioxidant activity of the extracts was done by using DPPH method. The results showed that Ethyl Acetate extract and Methanolic extract at 125µg/ml concentration showed the significant antioxidant effect as compared with ascorbic acid as standard. The *In-vivo* hepatoprotective activity of C.T.EA and C.T.Mth extracts were estimated by using carbon tetrachloride induced hepatotoxicity model. The degree of protection was estimated by measuring levels of biochemical markers like SGOT, SGPT, Total Bilirubin and Total Protein. The histopathological study was also carried sout and compared with carbon tetrachloride treated group.
Results: The interpretations of results were done by subjecting the data to statistical analysis using mean ±S.E.M. The C.T.Mth extract at dose of 200mg/kg shows promising Hepatoprotective effect than C.T.EA extract. The C.T.Mth extract of plant shows significant antioxidant activity at the concentration of 125µg/ml than C.T.EA extract at the concentration of 125µg/ml.
Conclusion: The results suggest that the pods of *Cyamopsis tetragonoloba L.* possess potential antioxidant and hepatoprotective activity.

Keywords: *Cyamopsis tetragonoloba L.* (C.T.) Ethyl Acetate (EA) and Methanolic (Mth.) extracts, Phytochemical screening, Antioxidant activity, Hepatoprotective activity.

Introduction:
Cyamposis tetragonoloba (L.) Taub.Family: Fabaceae or cluster bean is also known as *Guar* or *Guvar* and *Guvar* beans.Guar is mainly grown in India, Pakistan, United States, and recently in China. It is native to the Indian subcontinent and crop is mainly grown in the dry habitats of Rajasthan, Haryana, Gujarat and Punjab. In addition to its major cultivation in India, guar is regarded as a cash crop in the southwest part of the United State, especially in Texas and Oklahoma grown to limited extent in other parts of the world like Australia, Brazil and South Africa. Guar does not exist in a wild state and is believed to have originated from an African species imported to India as horse fodder by Arabian traders.It was turned into a gum-producing crop during the Second World War in the United States. Cyamposis tetragonoloba (L.) Taub.has a height of 2 to 3 m. It has a main single stem with either basal branching or fine branching along the stem. Fruit -Removes biliousness i.e., used to treat night blindness. Seeds –Used in curing sprains, swellings and arthritis1, as anti-oxidant, antibilious, laxatives and in polluting boiling, dry seeds trypsin inhibitor. Boiled seeds are used as poultice in plague, enlarged liver, head-swellings and swellings due to broken bonesLeaves –Used to cure night blindness and in asthma. Leaves are used boiled or stir-fried; green pods used boiled, stir-fried, or dried for storage; dry seeds processed for gum as thickener.Guar gum –Fiber from the seed of plant, used as a laxative, treating diarrhea, irritable bowel syndrome (IBS), obesity, and diabetes, and for preventing "hardening of the arteries"(atherosclerosis). Night blindness, dyspeptic complaints, anorexia, constipation and agalactia has also been treated with guar gum.As per Ayurveda, the plant is used to reduce fire and can be used as cooling, digestive, tonic, galactagogic, useful in constipation, dyspepsia, anorexia, agalactia, hyetalopia and vitiated condition of kapha and pitta. The Plant is also mentioned as Appetizer and Flatugenic.

MATERIAL AND METHODS:

1. **Collection, identification and authentication of plant material**
   The fresh Leaf of *Solanum nigrum* L. was collected from local region of Nanded i.e. from local market and authenticated by **Dr. Shrirang S. Bodke**, Head, Department of Botany& Horticulture, Yeshwant Mahavidyalaya, Nanded.

2. **Processing of crude drug:**
   Shade drying of the leaves up to complete removal of moisture was done. (Took around 15 days) Dried leaves were powdered by hand crushing and sieved through sieve number 30 #.

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PHARMACOLOGICAL EVALUATION OF CYAMOPSIS TETRAGONOLOBA L. EXTRACTS FOR ITS HEPATOPROTECTIVE ACTIVITY

Shrinivas Sarje[1*], Seema Bhalerao[1], Mahesh Kamble[1], Shagufta Farooqui[1], Arshad Ibrahim[1]

[1]Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India.

ABSTRACT:

The *In-vivo* hepatoprotective activity of C.T.EA and C.T.Mth extracts were estimated by using carbon tetrachloride induced hepatotoxicity model. The degree of protection was estimated by measuring levels of biochemical markers like SGOT, SGPT, Total Bilirubin and Total Protein. The histopathological study was also carried sout and compared with carbon tetrachloride treated group. The interpretations of results were done by subjecting the data to statistical analysis using mean ±S.E.M. The C.T.Mth extract at dose of 200mg/kg shows promising Hepatoprotective effect than C.T.EA extract. The C.T.Mth extract of plant shows significant antioxidant activity at the concentration of 125µg/ml than C.T.EA extract at the concentration of 125µg/ml. The results suggest that the pods of *Cyamopsis tetragonoloba L.* possess potential antioxidant and hepatoprotective activity.

Keywords: *Cyamopsis tetragonoloba L.* (C.T.) Ethyl Acetate (EA) and Methanolic (Mth.) extracts, Hepatoprotective activity.

INTRODUCTION:

Liver is vital organ which plays important role in metabolism, storage, detoxification, synthesis and regulation of various body processes. Liver is largest and heaviest gland of the body weighing about 1.4 kg. In the average adult it is second largest organ of the body located in the diaphragm and occupies most of right hypochondrium and part of epigastrium of the abdomen.The causes of liver disease are viruses, excessive drug therapy, environmental pollution, alcoholic intoxification etc. Liver receive blood supply fromhepatic artery(20%) and portal circulation (80%) up to 20-25% of total cardiac output. Toxin, infectious agent medication and serum inflammatory mediator enter into the liver through the blood, may result in diverse range of disease processes, causing the loss of normal histological architecture reduced cell mass and loss of blood flow this may lead to decline liver function. No effective hepatoprotective therapy is available. Conventional medicines used in liver treatments are often insufficient. Many chronic irreversible and acute hepatic disorders culminate in ultimately

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Phytochemical, pharmacognostical estimation and antioxidant potental of nerium indicum mill. stem extracts

Shrinivas Sarje[1*], Aparna Suryavanshi[2], Vivek Shinde[3], Zeeshan Ahmed[4], Mohzib Shaikh[5]
[1-5] Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India

Abstract
The objective of this study was to carry out phytochemical and pharmacognostic and quantitative evaluation of Stem of nerium indicumm mill. Nerium is a distinct genus of evergreen coniferous tree from the family Apocynaceae, containing only one species, Nerium indicum (Kaner). Stem and powdered microscopy revealed useful diagnostic features. Phytochemical testing of varies extracts revealed the presence of glycosides, flavonoids, tannins, phenolic compounds, carbohydrates etc., which was further confirmed by TLC. The total phenolic and flavonoid content of plant extracts was expressed as Gallic acid equivalents and as rutin equivalents respectively. Total phenolic content and flavonoid contents was found to be more in ethanolic extract of stem as compared to ethyl acetated extract respectively. In-vitro Antioxidant activity study indicates that ethyl acetated extract has the more antioxidant effect (98.89% inhibition of free radicals at 100µg/ml) as compared to ethanol extract. Accordingly safe experimental dose was calculated as ≤ 200mg/kg & was used accordingly for further screening of extracts.

Keywords: nerium indicum, standardization, antioxidant activity

Introduction
Medicinal plants have been defined in many ways, the most accepted definition as given by the Agricultural and Natural Resource Development being, "Plants that are recognized by people to have reliable and effective medicinal values, are commonly used in treating and preventing specific ailments and diseases, and play an essential role in health care". (Vijayalakshmi S et. al, 2016).
The World Health Organization (WHO) estimates that 4 billion people (80 % of the world population) presently use herbal medicine as a part of primary health care. (Suriyavathana M et. al, 2010).
Herbal medicines have already formed the basis of therapeutic use in developing countries, and also seen an increase in the use by developed world as well. This is mainly because these herbs/plants are relatively economical, easily available and their uses were decided on ancestral experience. In addition, synthetic drugs are not only expensive and inadequate for the treatment of disease, but also faced with adulteration and side effects. Therefore, medicinal plants have been useful in the development of new drugs and continue to play valuable role in the drug discovery process *Nerium indicum Mill* is already traditionally as folk medicine to treat a number of illnesses.

Materials and Method
Plant collection and extraction
The fresh stem of plant Nerium indicum was collected from known source that is from Visava garden, Nanded. The Morphological study & microscopic characters of the plant was identified and further authenticated by Dr. S.S. Bodke, HOD, Dept. of Botany, Yeshwant Mahavidyalaya, Nanded. Plant was authenticated as Nerium indicum (apocynaceae). Voucher No. NCP/M.pharm/135 was allotted to the plant herbarium.

Fig 1: Nerium indicum Mill.

The fresh stem of plant Nerium indicum was subjected to shade drying and further crushed to coarse powder, and then the powder is passed through the mesh 14 and stored in air tight container for further use which is subjected to ethanol and ethyl acetated solvents by continuous hot extraction method.

Preparation of plant extract
Successive solvent extraction (Soxhlet extraction) will be employed for extraction. Solvents may be selected from non-polar to polar nature like petroleum ether, ethyl acetate, and ethanol etc. Solvent will be selected by considering nature of phytoconstituents present in plant material. Study of literature survey revealed that leaves are aromatic and contain proteins, carbohydrates, fiber, flavonoids, quercetin, kaempferol on the basis of literature The extraction method selected for extraction of Nerium indicum Mill. Stem is

Prof. (Dr.) [illegible]
PRINCIPAL
Nanded Pharmacy College,
Nanded.

MEMORY ENHANCING ACTIVITY OF NERIUM INDICUM MILL STEM EXTRACTS IN RATS

[1]Dr. Shrinivas K Sarje, [1]Aparna Suryavanshi, [1]Pratiksha Alabade, [1]Sohail Sk

Department of Pharmacology,
Nanded Pharmacy College, Nanded, Maharashtra, India.

***Abstract*: Memory is the ability of an individual to record sensory stimuli & retain them over short or long periods of time & recall the same at a later date when needed. Short and long term memory loss may result from deteriorating cerebral mechanisms due to different causes having impact on the quality of life. Memory enhancer can improve thinking, memory, and alertness in people with Alzheimers disease that affect the mind. The Stem of *Nerium indicum mill* belongs to the family apocynaceae is used as a digestive, laxative, anti-helmintic and are good for diarrhea, leprosy, dyspepsia and cough. Traditonally it is also used as Neuroprotective as it contains Chalcone derivatives.**

Memory refers to retaining and recalling information over a period of time, depending upon the nature of cognitive task you are required to perform. The present study designed to assess the memory enhancing potential of Nerium indicum stem extracts in wistar albino rats. In this study the two models has been selected under which in radial arm maze model in rats is used to evaluate working and reference memory errors and the Morris water maze is used to evaluate the retrieval of memory. The extract was administered orally in two doses (100 and 200 mg/kg p.o) for a period of 8 days for radial arm and 11 days for water maze test. Piracetam, 200mg/kg i.p, was used as standard drug treatment. Radial arm maze (RAM) was used to evaluate number of correct entries and time spent in baited arms as well as the latency to find the food. In Morris water maze used to evaluate the escape latency and time spent in target quadrant.

The both the extracts of Nerium indicum at conc.200mg/kg, o.p. showed significantly increase in number correct entries and time spent in baited arms as well as increase in latency to find food, besides this in Morris water maze both the extracts i.e NIEA200 and NIETH-200 mg/kg, o.p. showed significantly decreased in escape latency and increased in time spent in target quadrants as compared to standard (Pirecetam) and highly significant difference when compared to control. The present study revealed that the Nerium indicum stem extracts has potential to enhance the Memory and this might be due to presence of flavones and chalcone deriavtives such as Pongone, galbone, Pongalabol etc.

***Keywords*: Nerium indicum stem, Ethyl acetate and Ethanolic extract, Phytochemical screening, Memory enhancing activity.**

INTRODUCTION

Memory is the ability of an individual to record sensory stimuli, events, information etc., retain the over a short or long period of time and recall the same at a later date when needed. Learning is the process of acquisition of information and skills, while subsequent retention of that information is called memory. Learning is the process of acquiring knowledge about the world and memory could be considered as the retention of the acquired knowledge, which can be retrieved as and when, required. Poor learning abilities, impaired memory, lower retention and slow recall are the common problems in stressful situations. Moreover, age, stress and emotions are conditions that may lead to impaired learning, memory loss, amnesia, and dementia or to more ominous threats like Schizophrenia and Alzheimer's disease.

Memory is understood as an informational processing system with explicit and implicit functioning that is made up of a sensory processor, short-term (or working) memory, and long-term memory.

Loss of memory and disturbed cognitive functions are major concerns in people afflicted with neurological diseases world-wide. Memory is the natural counter part of learning. Poor memory, low retention and slow recall are common problems in today's stressful and competitive world. Age, stress, emotions are conditions that leads to cognitive disorders. Cognitive deficits have long been recognized as severe and consistent neurological disorders associated with numerous psychiatric and neuro-degenerative states such as senile dementia, multi-infract dementia, Parkinson's disease, Huntington's chorea etc and Alzheimers disease, amnesia, delirium, depression, schizophrenia etc. are the results of impairments in learning and memory Many neurotransmitters modulating learning and memory performance, some of them play an essential role in cognitive function.

They are dopaminergic, glutamate, serotonergic and acetyl choline. The Indian system of medicine is replete with medicinal plants claimed to promote learning, memory and intelligence. Plants like Bacopa monnerie, Azadirachta indica, Withania somnifera, as well as Ocimum sanctum, have been investigated for their effect on cognitive function. In the present study we have selected a plant namely the Stem of Nerium indicum mill. Pierre belongs to family Apocynaceae. It is native to India and distributed along South west Asia to the West pacific and northern Australia. All parts of the plant is used in the treatment of abscess, bronchitis, diarrhea, itches, piles, skin disease, tumors, painful rheumatic joints, ulcers, whooping cough, diabetes, blood purifier and as antiseptic to treat wound. In both the languages of Hindi and Bengali named it as „Kaner or „Raktkarabi."

The stemof Nerium indicum used as an Anthelmintic, digestive and laxative, piles and wounds. Anti-inflammatory and Anti-diarrheal. Pongamia pinnata species contain flavonoids, alkaloids, phenolic compounds, tannins, steroids, saponins.

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ANTI-INFLAMATORY ACTIVITY OF *ACACIA NILOTICA* PODS EXTRACTS IN EXPERIMENTAL RATS

S. K. Sarje*, Swati Tekale, Thakur Adhika, Tiwari Nikita and Yengload Sharda

Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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***Corresponding Author**
S. K. Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

ABSTRACT

Inflammation is body's response to disturbed homeostasis occurs mainly due to infection, injury or trauma resulting in systemic and local effects. The Roman writer Celsus in1st Century AD named the four Cardinal Signs of inflammation as Rubor (redness), Tumor (swelling), Calor (heat) and Dolor (pain). *Acacia nilotica* has long been used in folk medicine in treatment of diarrhoea, snake bite, malaria, smallpox, fever, scabies; ulcer, and stomach disorders. [Prajapti *et al* 2003]. Although a lot of work has been done on the pharmacological activities and phytoconstituents isolation of seed and leaves of *A. nilotica* but no work has been done on anti-inflammatory activity of pods extract of *A. nilotica.* Therefore, the aim of the present work is "Evaluation of anti-inflammatory activity of pods extracts of *Acacia nilotica*." The work was initiated with authentication of plant *Acacia nilotica*. Morphological, Acute toxicity study aims at establishing the therapeutic index. Extracts were found safe up to 2000 mg/kg. *In-vitro* and in-*vivo* anti-inflammatory activity of ethyl acetate, ethanolic extract of *Acacia nilotica* was evaluated by using hyaluronidase inhibition assay and the carrageenan induced paw edema models.

INTRODUCTION

Inflammation associated with many diseases. The drug which are available presently in market itself cause ulcer, hence currently search for new anti-inflammatory agents that have few side effect is undertaken by many researchers. Many medicines of plant origin had been used since ages without any adverse effects. It is therefore essential that efforts should be made to introduce new medicinal plants to develop more effective and cheaper drugs. Plants

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Evaluation of Memory Enhancing Potential of *Dendrocalamus Strictus* Leaf Extracts on Suitable Animal Model

Akshaykumar Daswad*, Dipali Shelke, Giridhar Shendarkar, Avinash Dhadwe
Nanded Pharmacy College, Shyam Nagar, Nanded-431605.

Abstract

Medicinal plants have always been the principle sources of medicine worldwide. India sustains a very rich traditional medicinal plant wealth and inherits unique plant and animal communities. Present study enumerates the phytochemical screening followed by antioxidant and memory enhancing evaluation of aqueous and methanolic extract of *Dendrocalamus strictus (DS)* leaves. Freshly collected and authenticated leaves were studied for its morphological and pharmacognostic character followed by physical and phytochemical evaluation. Phytochemical screening showed the presence of alkaloids, glycosides, carbohydrates, steroids and flavonoids in both the extracts. Physical parameters like solubility, ash values, LOD, extractive value etc. has been studied. The antioxidant activity of the extracts was done by using DPPH method. The results showed that aqueous extract at 100µg/ml concentration and methanolic extract at 150µg/ml concentration showed the significant antioxidant effect as compared with ascorbic acid as standard. The *In-Vivo* memory enhancing activity of *DS* leaf extracts was evaluated by radial arm maze model in rats using Piracetam as a standard. Both the extracts at 200mg/kg conc^n showed significant to highly significant increase in number of entries & time spent in P zone (from $P < 0.05$ to $P < 0.001$). The result suggested that *DS* leaf extracts possess memory enhancing activity and this might be due to flavonoids, Phenolic compounds, Steroids present in extracts.

Keywords: *Dendrocalamus strictus* (DS), Phytochemical, Antioxidant, Memory enhancing activity.

Corresponding author: Mr. Akshaykumar Daswad, Nanded Pharmacy College, Shyam Nagar, Nanded-431605, Maharashtra (India). Contact: +91-7387905120, +918668864025; E mail: adaswad@gmail.com

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Design Development and Evaluation of Memory Enhancing Potential of Poly-Herbal Formulation

Author(s): Dipali P. Shelke*[1], A.K. Daswad[1], G.R. Shendarkar[2] and A.K. Dhadwe[3]

[1]Nanded Pharmacy College, Shyam Nagar, Nanded-431605.

Abstract-

Ayurvedic arrangement of medication is as old as human progress. Present study includes the development of a Polyherbal formulation by utilizing four different herbs, Pumpkin seed (*Cucurbita maxima*), Sunflower seed (*Helianthus annus*), Spinach leaves (*Spinach oleracea*), and Beet root (*Beta vulgaris*). Ethanol (90%) was utilized for preparation of polyherbal tincture. Freshly collected and authenticated herbs were characterized by pharmacognostical character and physicochemical assessment. Phytochemical screening showed the presence of alkaloids, glycosides, carbohydrates, amino acid, tannin, steroids and flavonoid in the tincture. Physical parameters like solubility, pH, ash values, LOD, extractive value etc. has been studied. The antioxidant activity of the tincture was determined by using DPPH free radical scavenging method. The results showed that the tincture has best antioxidant effect at a dose of 100µg/ml when it was compared with ascorbic acid as reference standard. From the acute toxicity studies safe dose and therapeutic experimental dose was found to be 300mg/kg. *In-Vivo* memory enhancing activity of Polyherbal formulation was evaluated by radial arm maze model in rats using Piracetam as a standard. Polyherbal formulation at the dose of 300mg/kg conc showed significant to highly significant memory enhancing potential. The result suggested that Polyherbal formulation possess *in vivo* memory enhancing activity and this might be due to Flavonoid, Phenolic compounds, Steroids or other constituents present in formulation.

Keywords: Polyherbal formulation, Physicochemical, Antioxidant, Memory enhancing activity.

Corresponding author: Ms. Dipali P. Shelke, Nanded Pharmacy College, Shyam Nagar, Nanded-431605.
Contact: +919049028194; E mail: deep.shelke11@gmail.com

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PHYTOCHEMICAL, PHARMACOGNOSTICAL AND QUANTITATIVE ESTIMATION OF *PONGAMIA PINNATA* LEAVES EXTRACT-A PRELIMINARY STUDY TO IDENTIFIED PHYTOCONSTITUENTS

S. K. Sarje[1*], Shagufta Farooqui[1], Shinde Punam[1], Sontakke Shital[1] and Narote Mayur[1]

[1]Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

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***Corresponding Author**
S. K. Sarje
Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra.

ABSTRACT

Objective: The objective of this study was to carry out phytochemical and pharmacognostic and quantitative evaluation of leaves of *Pongamia pinnata* L. (Fabacea). **Method:** The present study provides pharmacognostic, phytochemical and quantitative details of the leaves of *P. pinnata*. **Results:** The macroscopic study showed that the leaf was ovate or elliptic with smooth margins, short petiole, alternate imparipinnate, hairless, acuminate at apex, rounded to cuneate at base and slightly thickened. Microscopic study revealed collateral, closed vascular bundles, trichomes, paracytic stomata, xylem vessels and prismatic calcium oxalate crystals. Qualitative Phytochemical screening showed the presence of alkaloids, glycosides, carbohydrates, steroids and flavonoids and phenolic compounds in both the extracts. Total Poly phenol content & total flavonoid content was determined by Folin Ciocaltue & Aluminium trichloride method respectively by using UV-Visible spectrophotometer. DPPH scavenging assay were performed to evaluate the antioxidant activity which was found maximum at 125 µg/ml concentration for both the extracts. **Conclusions:** The results of this study can serve as valuable source of information for identification of this plant for future investigation and applications.

INTRODUCTION

Plants have been the foundation of traditional medicine system throughout the world and continue to nurture mankind with new remedies. The research pertaining to medicinal plants is rapidly increasing at national and international levels.[1] Further investigation of traditional systems of medicine with emphasis on safety, efficacy and quality will help to rationalize the

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BENEFITS OF TEA AND REUTILIZATION OF WASTE TEA POWDER

Shagufta Farooqui[1]†, Adhika Thakur[2], Sudarshan Bhaurao Raut[3], Vivek Prakashrao Shinde[4], Rushikesh Prakash Gavali[5]

[1]Assistant Professor, Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India.

[2]Research Scholar, Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharashtra, India.

[3]Research Scholar, Department of Pharmaceutics, Smt. Kashibai Navale College of Pharmacy, Kondhwa, Pune, Maharashtra, India.

[4]Research Scholar, Department of Quality Assurance Technique, Dr. D. Y Patil College of pharmacy, Akurdi, Pune, Maharashtra, India.

[5]Research Scholar, Department of Pharmaceutics, Smt. Kashibai Navale College of Pharmacy, Kondhwa, Pune. Maharashtra, India.

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Corresponding Author:
† Shagufta Farooqui
[1]Assistant Professor, Department of Pharmacology, Nanded Pharmacy College, Nanded.

E-mail: :
shaguftafarooqui95@gmail.com

ABSTRACT

Tea is the most common beverage after water. It is extracted from the leaves of *Camellia sinensis* (family: *Theaceae*). It is consumed in different forms, namely, green, black tea depending on post-harvest treatment and chemical components. Tea is rich in natural antioxidants; tea is reported to be used in the management of colon, esophageal, and lung cancers, as well as urinary stone, dental caries, etc. Waste Tea powder can be a great source of biodegradable garbage but it can make a good source of compost as well. Tea waste powder can be used as a natural fertilizer; increase agricultural yields. The present review focuses on the beneficial effects of tea and ways of reutilizing the waste tea powder.

Key words: Tea, *Camellia sinensis* and Fertilizer.

I. INTRODUCTION

Tea is an aromatic beverage commonly prepared by pouring hot or boiling water over cured or fresh leaves of the, *Camellia sinensis*, an evergreen shrub (bush) native to East Asia. After water, it is the most widely consumed drink in the world. There are many different types of tea; some, like Darjling and Chinese green, have a cooling, slightly bitter, and astringent flavor while others have vastly different profiles that include sweet, nutty, floral or grassy notes. Tea has a stimulating effect in humans primarily due to its caffeine content. Most of the tea factories do not obey the rules of Tea Board of India regarding the disposal of tea waste. Every tea factory produces a large amount of tea waste, but tea waste buyer is lesser in number in this region. This waste may be the alternative income source for the tea growers as well as the owners of tea factories. The wastes derived from tea factories are called tea waste. This waste includes discarded tea leaves, buds and tender stems of tea plants. If the tea waste is not disposed properly, it can pollute the environment like soil, water and air. There shall be a minimum volume of tea waste and made tea at the ratio of 2:100 kilograms. Before exporting, selling or holding stock of tea waste, it shall be denatured by the admixture of urea not less than five percent, cow dung, slack lime or such other denaturants as may be specified by the Tea Board, of India. Mainly the by-product of tea industry is treated as waste, sometimes it is used in caffeine industries for the extraction of caffeine. In some part of the Assam, tea wastes are sometimes used as poultry and piggery feed. In the present study, the various ways for utilization of tea wastes, alternative earning source through selling tea waste and their appropriate management were discussed [1].

The main aim of this article is to reveal the beneficial effects of tea and In India most of the population threw the waste tea without knowing that the waste can be reutilized in various forms like fertilizers, varsnisher, get rid of bad smell etc.

II. BENEFITS OF TEA

Tea is the second most widely consumed beverage throughout the world, after water. "Tea" is referred to the aromatic beverage prepared by incubating cured leaves of the plant *Camelia sinesis* with hot or boiling water. Although tea in itself is presented in various forms throughout the world (white, yellow, green and black) but there are other variants like "herbal tea" which does not contain any *C. sinesis* leaves and is usually referred to the various infusions of herbs or fruits. All the variants of tea essentially originate from the same botanical source but differ in the type of processing done to obtain specific flavor and properties [2].

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A REVIEW ON BILAYER TABLETS

Shagufta Farooqui[1†], Vijayalaxmi Narayan Jogadand[2], Dipak Bhagvat Gaikwad[3], Rushikesh Prakash Gavali[4], Sudarshan Bhaurao Raut[5]

[1]Assistant Professor, Department of Pharmacology, Nanded Pharmacy College Nanded, Maharashtra, India.
[2,3,4 & 5]Research Scholar, Department of Pharmaceutics, Smt. Kashibai Navale College of Pharmacy, Kondhwa, Pune, Maharashtra, India.

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Corresponding Author:
† Shagufta Farooqui
Email:
shaguftafarooqui95@gmail.com

†Assistant Professor, Department of Pharmacology, Nanded Pharmacy College, Nanded, Mahatashtra, India.

ABSTRACT

Bilayer tablet is new era for the successful development of controlled release formulation along with various features to provide a way of successful drug delivery system. Controlled release dosage forms have been extensively used to improve therapy with several important drugs. Use of bilayer tablet is a very different aspect for anti-inflammatory and analgesic. Bi-layer tablet is suitable for sequential release of two drugs in combination, separate two incompatible substances and also for sustained release tablet in which one Layer is immediate release as initial dose and second layer is maintenance dose. Bilayer tablet is improved beneficial technology to overcome the shortcoming of the single layered tablet. In the case of bilayered tablets drug release can be rendered almost unidirectional if the drug can be incorporated in the upper nonadhesive layer its delivery occurs into the whole oral cavity.

KEYWORDS: Bilayer tablet, GMP requirement for bi-layer tablets, various tablet presses, RoTotab push technology and DUROS technology.

I. INTRODUCTION:

Day-by-day's various developed and developing countries are moving towards combination therapy for treatment of various diseases and disorders requiring long term therapy such as hypertension and diabetes. The problem of dose dependent side effects is minimized by combination therapies and is advantageous over monotherapy. From last few years, interest in developing a combination of two or more active pharmaceutical ingredients in a single dosage form has increased in pharmaceutical industry. Bi-layer tablets can be a primary option to avoid chemical incompatibilities between APIS by physical separation [1].

Bi-layer tablet is suitable for sequential release of two drugs in combination, separate two incompatible substances and also for sustained release tablet in which one layer is immediate release as initial dose and second layer is maintenance dose [2].

From various current methods for treating illness and diseases, chemotherapy (treatment with drugs) is the most frequently used technique. It has the broad range of applications over the greatest variety of disease states and is frequently the preferred treatment method. For many decades, treatment of acute disease or chronic illness has been mostly accomplished by delivery of drugs to patients using various pharmaceutical dosage forms including tablets, capsules, pills, suppositories, creams, ointments, liquids, aerosols and injectables as drug carriers [3].

However, if it is a viable option, oral drug delivery will be chosen in all but the most exceptional circumstances. Moreover, if the oral route is not immediately viable, pharmaceutical companies will often invest resources in making it viable, rather than plumping for an alternative delivery system. Oral route of drug administration have wide acceptance up to 50-60% of total dosage forms and is the most convenient and preferred route for systemic effects due to its ease of dosing administration, pain avoidance, accurate dosage, patient compliance and flexibility in formulation[4].

Bi-layer tablets are prepared with one layer of drug for immediate release with second layer design to release drug later as second dose or in an extended release or for both immediate release. Bi-layer tablets are tablet, made by compressing two different granulations fed into a die succession, one on top of another, in layers. Each layer comes from a separate feed frame with individual weight control. Rotary tablet press can be set up for two layers. More layers are possible but the design becomes very special. Bi-layer tablets are composed of two layers of granulation compressed together. They have the appearance of a sandwich because the edges of each layer are exposed However, these drug delivery devices are mechanically complicated to design/manufacture and

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PHYTOCHEMICAL SCREENING OF *CYAMOPSIS TETRAGONOLOBA L.* EXTRACTS

[1*]Shrinivas Sarje, [1]Seema Bhalerao, [1]Dinesh Shinde, [1]Mahima Katariya, [1]Shagufta Farooqui

[1]Department of Pharmacology,
Nanded Pharmacy College, Nanded, Maharashtra, India.

ABSTRACT:
Medicinal plants have always been the principle sources of medicine worldwide. Human beings have used those as medicine from the very beginning of time. India sustains a very rich traditional medicinal plant wealth and inherits unique plant and animal communities. The objective of the study was undertaken to investigate the hepatoprotective activity of Ethyl Acetate & Methanolic extract of *Cyamopsis tetragonoloba L.* pods which is an important medicinal plant in Indian folk.
In the present study the pods of *Cyamopsis tetragonoloba* which belongs to family *Fabaceae* were chosen because various parts of the plant possesses several bioactivities & is used in traditional medicinal system.
The pods of *Cyamopsis tetragonoloba L.* were collected, processed & standardized as per official methods. Two extracts of *Cyamopsis tetragonoloba L.* pods (Ethyl Acetate and Methanolic) were studied to detect the chemical compounds present, to evaluate acute oral toxicity & hepatoprotective activity. Qualitative phytochemical screening revealed the presence of flavonoid, p-coumarin, Saponins, tannin and triterpenes. Total Polyphenol content & total flavonoid content was determined by Folin Ciocaltue & Aluminium trichloride method respectively by using UV-Visible spectrophotometer. Physical parameters like solubility, ash values, LOD, extractive value etc. has been studied.
The antioxidant activity of the extracts was done by using DPPH method. The results showed that Ethyl Acetate extract and Methanolic extract at 125µg/ml concentration showed the significant antioxidant effect as compared with ascorbic acid as standard. The *In-vivo* hepatoprotective activity of C.T.EA and C.T.Mth extracts were estimated by using carbon tetrachloride induced hepatotoxicity model. The degree of protection was estimated by measuring levels of biochemical markers like SGOT, SGPT, Total Bilirubin and Total Protein. The histopathological study was also carried sout and compared with carbon tetrachloride treated group.
Results: The interpretations of results were done by subjecting the data to statistical analysis using mean ±S.E.M. The C.T.Mth extract at dose of 200mg/kg shows promising Hepatoprotective effect than C.T.EA extract. The C.T.Mth extract of plant shows significant antioxidant activity at the concentration of 125µg/ml than C.T.EA extract at the concentration of 125µg/ml.
Conclusion: The results suggest that the pods of *Cyamopsis tetragonoloba L.* possess potential antioxidant and hepatoprotective activity.

Keywords: *Cyamopsis tetragonoloba L.* (C.T.) Ethyl Acetate (EA) and Methanolic (Mth.) extracts, Phytochemical screening, Antioxidant activity, Hepatoprotective activity.

Introduction:
Cyamposis tetragonoloba (L.) Taub.Family: Fabaceae or cluster bean is also known as *Guar* or *Guwar* and *Guvar* beans.Guar is mainly grown in India, Pakistan, United States, and recently in China. It is native to the Indian subcontinent and crop is mainly grown in the dry habitats of Rajasthan, Haryana, Gujarat and Punjab. In addition to its major cultivation in India, guar is regarded as a cash crop in the southwest part of the United State, especially in Texas and Oklahoma grown to limited extent in other parts of the world like Australia, Brazil and South Africa. Guar does not exist in a wild state and is believed to have originated from an African species imported to India as horse fodder by Arabian traders.It was turned into a gum-producing crop during the Second World War in the United States. Cyamposis tetragonoloba (L.) Taub.has a height of 2 to 3 m. It has a main single stem with either basal branching or fine branching along the stem. Fruit -Removes biliousness i.e., used to treat night blindness. Seeds –Used in curing sprains, swellings and arthritis1, as anti-oxidant, antibilious, laxatives and in polluting boiling, dry seeds trypsin inhibitor. Boiled seeds are used as poultice in plague, enlarged liver, head-swellings and swellings due to broken bonesLeaves –Used to cure night blindness and in asthma. Leaves are used boiled or stir-fried; green pods used boiled, stir-fried, or dried for storage; dry seeds processed for gum as thickener.Guar gum –Fiber from the seed of plant, used as a laxative, treating diarrhea, irritable bowel syndrome (IBS), obesity, and diabetes, and for preventing "hardening of the arteries"(atherosclerosis). Night blindness, dyspeptic complaints, anorexia, constipation and agalactia has also been treated with guar gum.As per Ayurveda, the plant is used to reduce fire and can be used as cooling, digestive, tonic, galactagogic, useful in constipation, dyspepsia, anorexia, agalactia, hyetalopia and vitiated condition of kapha and pitta. The Plant is also mentioned as Appetizer and Flatugenic.

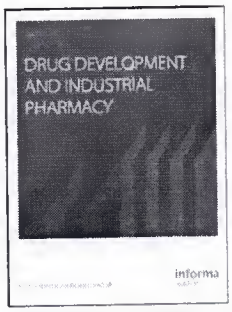
MATERIAL AND METHODS:

1. **Collection, identification and authentication of plant material**
   The fresh Leaf of *Solanum nigrum* L. was collected from local region of Nanded i.e. from local market and authenticated by **Dr. Shrirang S. Bodke**, Head, Department of Botany& Horticulture, Yeshwant Mahavidyalaya, Nanded.

2. **Processing of crude drug:**
   Shade drying of the leaves up to complete removal of moisture was done. (Took around 15 days) Dried leaves were powdered by hand crushing and sieved through sieve number 30 #.

NANDED PHARMACY COLLEGE

Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.



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Pharmaceutical cocrystal: a game changing approach for the administration of old drugs in new crystalline form

Prabhakar S. Panzade & Giridhar R. Shendarkar

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REVIEW ARTICLE

Hot Melt Extrusion: an Emerging Green Technique for the Synthesis of High-Quality Pharmaceutical Cocrystals

Prabhakar S. Panzade[1,2] · Giridhar R. Shendarkar[1] · Deepak A. Kulkarni[2]

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Abstract
Hot melt extrusion (HME) is emerging as a continuous, single-step, scalable, and industrially feasible process for the production of cocrystals. HME has gained momentum as a continuous and solvent-free process in the manufacturing of cocrystals. The incorporation of the matrix and the use of process analytical tool (PAT) for real-time monitoring further facilitate the process. The advantages and disadvantages of various cocrystal production methods including HME process are provided in the manuscript. Besides, an overview of the HME process and equipment, critical process parameters, and PAT for real-time monitoring of process has been reviewed in this article. Finally, recent literature related to the cocrystal synthesis via HME has been presented critically. This review provides useful information for the synthesis of the cocrystals using HME process.

Keywords Hot melt extrusion · Pharmaceutical cocrystal · Process analytical tool · Solvent-free method · Applications

Introduction

Over the two decades, cocrystallization of active pharmaceutical ingredients (APIs) acquired a remarkable increase. Cocrystals are "multi-component crystalline solids that are neutral homogeneous molecular and/or ionic compounds generally in a stoichiometric ratio, which are neither solvates nor simple salts" [1–3]. Cocrystal composed of the same coformer may exist in distinct stoichiometric configuration [4–6]. The formation of supramolecular homosynthon (e.g., carboxylic acid-carboxylic acid) or supramolecular heterosynthon (e.g., carboxylic acid-amide) approach is used in the design of cocrystals. Nevertheless, supramolecular heterosynthon is the prevalent strategy due to promising interaction between unlike molecules which frequently results in H-bonding and thermodynamically stable cocrystals [2, 7, 8]. The general process depicting the cocrystal product development is demonstrated in Fig. 1.

The enhancement of physical property is of a special concern to the pharmaceuticals as the mainstreams of medicines are delivered in solid forms [5, 9, 10]. Physical properties of the solids in pharmaceutical drug product directly affect the processing, delivery, and, eventually, functioning of the drug product [11, 12]. Conversely, a cocrystal has altered physicochemical, mechanical, and biological properties including intrinsic solubility, dissolution rate, hygroscopicity, melting point, compressibility, and bioavailability [13–15]. This is due to the different crystal structures of a cocrystal than either of the starting materials (drug and coformer) [16, 17]. Consequently, there is a continual rise in the interest of academic and industrial researchers to investigate newer cocrystals. Pharmaceutical cocrystals may lower the expenses of drug discovery and preclinical research due to the previously established thermodynamics and toxicological profile of the molecule, ultimately leading to a short process of formulation development [18, 19]. Moreover, cocrystals offer a substitute for chemical modification of drugs [20, 21]. Another key advantage of the cocrystal is that it provides an opportunity to generate and protect intellectual property beneficial to the pharmaceutical industry [2, 15, 22]. Besides, cocrystals have an enormous commercial potential and became commercial reality due to the launch of cocrystal-based product into the market [2, 23]. Some marketed cocrystal-based products comprise ipragliflozin-proline (Suglat, Astellas Pharma, and Kotobuki Pharmaceuticals) and valsartan-sacubitril (Entresto

✉ Prabhakar S. Panzade
prabhakarpanzade@gmail.com

[1] Center for Research in Pharmaceutical Sciences, Nanded Pharmacy College, Sham Nagar, Nanded, India

[2] Department of Pharmaceutics, Srinath College of Pharmacy, Waluj, Aurangabad, India

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FORMULATION AND EVALUATION OF SUSTAINED-RELEASE TABLET OF TRAZODONE HYDROCHLORIDE

S. Kadam Vaishali * and G. R. Shendarkar

CRPS, Nanded College of Pharmacy, Nanded - 431605, Maharashtra, India.

Keywords:

Trazodone hydrochloride, Wet granulation, Eudragit RS 100, Eudragit RL100, Sustained release

Correspondence to Author:
S. Kadam Vaishali

CRPS, Nanded College of Pharmacy, Nanded - 431605, Maharashtra, India.

E-mail: kjvaishali@gmail.com

ABSTRACT: The main objective of this study was to formulate a Sustained release tablet by wet granulation method. A sustained release tablet of trazadone hydrochloride was prepared by using synthetic polymer. The prepared tablets were evaluated for their diameter, thickness, drug content, Hardness, friability, weight variation. The thickness and diameter of the tablet range from 5.43±0.288 to 5.76±0.05 and 09.68±0.577 to 10.04±0.04, respectively. Drug content was studied, and its ranges from 92.03 to 98.60%. Hardness was studied; its ranges 5.5 to 6.5 kg/cm^2, Friability ranges 0.71 to 0.95%, Weight variation ranges between 434±1.49 to 460±1.23. FTIR and DSC analysis does not show any interaction of drug with Excipient. The formulation was optimized on the basis of acceptable pre and post-compression parameters. The results of dissolution studies indicated that Batch F4 containing eudragit RL 100 exhibited drug release of 88.06% at the end of 12 h to provide sufficient concentration for achieving satisfactory therapeutic value for an extended period of time. Optimized batch best fitted to Higuchi model. The n value indicates a non-fickinan or anomalous diffusion pattern. This means that both the diffusion and erosion mechanisms were prevalent. By the above results, it can be concluded that the above-prepared tablet of trazadone hydrochloride could be able to extend the drug release by avoiding problems such as dose dumping, more gastric residence time and improve patient compliance.

INTRODUCTION: The oral route is the oldest and convenient route for the administration of therapeutic agents because of low cost of therapy, and ease of administration leads to a higher level of patient compliance [1]. The goal of an extended-release dosage form is to maintain therapeutic drug levels in plasma for an extended period of time [2, 3]. The primary benefits of a sustained release dosage form in comparison with conventional dosage form maintain uniform drug plasma concentration over an extended period of time and hence the uniform therapeutic effect is achieved [4].

Trazodone is serotonin-2 receptor antagonist that also decreases extracellular gamma-amino-butyric acid (GABA) levels in the cerebral cortex. Through the blockade of 5-hydroxytryptamine 2A receptors. Trazodone, therefore a psychoactive compound with sedative and anti-depressant properties [5, 6]. Poly acrylates and polymethacrylate, glassy substances, are commonly referred to by the trade name eudragit.

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Research Ar cle

Pharmacological screening of mast cell stabilizing, anti-inflammatory and anti-oxidant activity of Calotropis *procera*extracts

Chandrakant P. Rathod, Mahavir H. Ghante*
Center for Research of Pharmaceutical Science, Nanded Pharmacy College,
Shyam Nagar, Nanded.
*Corresponding Author E-mail: mhghante@gmail.com

Abstract
Calotropis procera (Ait.) R. Br., a wild growing plant of family Asclepiadaceae, is well known for its medicinal properties which is widely used in traditional medicine to treat various diseases. *C. procera* flowers showed various levels of preliminary phytochemical screening of extract has revealed the presence of carbohydrates, flavonoids, polyphenols, tannins and saponins, alkaloids, proteins and amino acids.Acute toxicity test has done for the flowers of *C. procera* as per the standard method (OECD No: 423).
The present study was evaluated for phytochemical screening, mast cell stabilizing, anti-inflammatory and antioxidant activity of ethyl acetate extract of *C. procera*
Keywords: *Calotropis procera*, mast cell stabilizing, antioxidant and anti-inflammatory activity.

Introduction

The herbal medicines occupy distinct position right from the primitive period to present day. The ethnobotanical pharmacology is as old as man himself. These medicines have less side effects and man can get the herbs easily from nature. India being a tropical country is blessed with vast natural resources and ancient knowledge for its judicious utilization. However, in order to make these remedies acceptable to modern medicine, there is a need to scientifically evaluate them, to identify the active principles and to understand the mechanism of action. [1-4]
It is found in most parts of the world in dry, sandy and alkaline soils and warm climate and is more common in south western and central India and western Himalayas. It is found in waste lands and grows as a weed in agricultural lands. In ancient Ayurvedic medicines the plant Calotropis procera was known as "Rakta arka".Different parts of this plant have been reported to exhibit anti-inflammatory, analgesic, and antioxidant properties. *C.procera* has revealed the enormous diversity of its medicinal uses and popular use of the plant for a wide range of common ailments like fevers, rheumatism, indigestion, cough, cold, eczema, asthma, elephantiasis, nausea, vomiting and diarrhea. Either the whole plant or a plant part used singly or mixed with other plant materials to enhance the efficacy. [5-7]
Calotropis procera Linn., also known as Alarka, Surya, Suuryaahvya, Vikirna, Vasuka, Tapana, Tuulaphala, Kshirparna, Arkaparna, Aasphota Aakh, Madaar, Ashar in India, belongs to the Asciepiadaceae family and grows in tropical region and most abundant in Bangladesh, India, Burma, Pakistan and in the sub Himalayan tract. This plant was used first time as a medicinal plant by Ved Sushruta, which is about 800–900 AD. It is used from very ancient period in folk beliefs as well as a drug of choice for different ailments.Different parts of the plant have been used in Indian traditional system of medicine for the treatment of leprosy, ulcers, tumors, piles and diseases of spleen, liver and abdomen. [8-9]

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Neuropharmacological Exploration of Standardized Extract of Annona squamosa (L.) Fruit Pulp in Experimental Animals

Kawade Rajendra M[1], Ghante Mahavir H[*2], Warokar Amol S[3]

[1]Gajanan Maharaj College of Pharmacy, Nipani Bhalgaon, Beed Highway, Aurangabad- 431001 Maharashtra, India; [2]Department of Pharmaceutical Chemistry, Nanded Pharmacy College, Shyam nagar, Opp. Kasturba Matruseva Kendra, Nanded-431602, Maharashtra, India; [3]Dada Saheb Balpande College of Pharmacy, Besa, Nagpur, Maharashtra, India.

ABSTRACT

Aims: The present study aimed to investigate the neuroprotective potential of standardized *Annona squamosa* Linn fruit pulp extract using various in-vitro and in-vivo models.

Methodology: Neuroprotective potential of standardized extract was screened against dopamine-induced contraction of isolated rat vas deferens, serotonin-induced contractions of isolated rat fundus, acetylcholine-induced contractions of isolated goat tracheal chain. *In-vivo* models such as elevated plus maze, light and dark model, force swim test, tail suspension test, lithium-induced head twitches, haloperidol-induced catalepsy, PTZ induced seizure and foot shock-induced aggression were implemented to screen various doses intervals (50-200mg/kg) of extracts in experimental animals.

Results: Standardization of extract showed content of polyphenols 65.37 mg/g of GAE, total flavonoid 5.33 mg/g of RE and HPLC fingerprinting of ASP-ME showed identical retention time as that of standard gallic acid, quercetine and rutin, viz 3.830, 5.765 and 3.830 respectively. Inhibition of DPPH radical reflected as 91.32±0.19 % while percent inhibition of RRI of DPPH was observed as 95.99±0.47 at 150 min. ASP-ME significantly inhibited dopamine and serotonin induced contraction on isolated rat vas deferens and rat fundus respectively at log dose (1.3, 2.5) for dopamine and log dose (2.2, 2.5) for serotonin. ASP-ME potentiated ach-induced contractions on goat tracheal chain preparation. Ach alone produces 106.90±4.6 % response, while ASP-ME in presence of Ach potentiates response and produces 141.80±10 % response. The extract demonstrated anxiolytic activity by increasing the time spent in open arms and light zone in elevated plus maze and light dark test respectively. The duration of immobility was significantly decreased in force swim & tail suspension test respectively demonstrating antidepressant activity. Administration of ASP-ME shown antipsychotic effect in dose dependent manner by minimising aggression induced by foot shock (reduced number of flights), while potentiation of catalepsy induced by haloperidol. The extract also exhibited serotonergic system inhibitory effect by significantly reducing head twitches imparted by lithium.

The ASP-ME significantly delayed the onset of first myoclonic and clonic spasms induced by PTZ indicating anticonvulsant effects. Extract also shown ability to decrease the behavior facilitated by the serotonergic and dopaminergic coordination, while potentiated the actions produced by GABA.

Conclusion: Finding of the study suggests anxiolytic, antidepressant, antipsychotic effects of ASP-ME probably mediated through dopamine D2 and 5-HT receptors, with neuroprotective activity.

Key Words: *Annona squamosa*, Anxiolytic, Antidepressant, Antipsychotic, Anticonvulsant, Antiaggresion

INTRODUCTION

Brain ischemia induces the release of excitatory amino acids, with subsequent receptor activation leading to metabolic and electrophysiological dysfunction, along with oxidative stress (including lipid peroxidation).[1] Subsequent reperfusion worsens this oxidative stress, potentiating ischemic injury.[2] Many plants have been reported to be effective against CNS disorders and thus providing opportunity to evaluate ethno pharmacologically potential medicinal plants against neurological disorders.[3,4] *Annona squamosa* Linn (*Annonaceae*), which is popularly known as Custard Apple, has been cultivated all over India. It is traditionally used as an abortifacient, for the treatment of cardiac problems, constipation, dysentery, dysuria, fever, fainting, hemorrhage,

Corresponding Author:
Ghante Mahavir H, Department of Pharmaceutical Chemistry, Nanded Pharmacy College, Shyam nagar, Opp. Kasturba matruseva Kendra, Nanded-431602, Maharashtra, India; Cell.:+91-9860344322; E-mail: mhghante@gmail.com

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Formulation, Characterization And Evaluation Of Topical Biodegradable Film Loaded With Levofloxacin Solid-Lipid Nano Carriers

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Ashish Bababrao Roge , Sagar Nareshrao Firke , Shriniwas Keshavrao Sarje , Kunal Vilasrao Bhambar , Alesh Kasliwal

Abstract

The major goal of this research was to develop a levofloxacin loaded solid lipid nanoparticles and formulate the topical biodegradable film of that nanoparticles and assess its prospects as a topical drug delivery system. The films were created utilising a solvent casting method using varied quantities of ethyl cellulose, hydroxypropyl methylcellulose K4M, hydroxypropyl methylcellulose, eudragit L-100, and Chitosan coalescence, as well as dibutyl phthalate as a plasticizer. The films were assessed for weight variation, thickness, percent moisture absorption, percentage moisture loss, folding endurance, percentage swelling index, percentage elongation, as well as an in vitro drug release study and an ex-vivo permeation investigation. The F5 formulation was discovered to be superior in terms of film. As a result, it was investigated as an optimum formulation. When compared to another formulation, the in-vitro drug release analysis shows that the F5 formulation had the highest drug release (91.34 percent) at the end of 8 hours.

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Section

Articles

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REVIEW ON PHARMACOLOGICAL ACTIVITIES OF *ACACIA NILOTICA* PLANT

Tekale Swati Ashokrao*

Assistant Professor, Department of Pharmacology, Nanded Pharmacy College, Nanded, Maharshtra, India.

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***Corresponding Author**
Tekale Swati Ashokrao
Assistant Professor,
Department of Pharmacology,
Nanded Pharmacy College,
Nanded, Maharshtra, India.

ABSTRACT

Acacia nilotica Lam (Leguminosae) indigenously known as 'Babul' or 'Kikar' is a proverbial, medium sized tree and is broadly scattered in tropical and subtropical countries. In folk medicine, various parts of *Acacia* tree, including the leaves, bark, seeds, roots, gum, flowers, fruits, and young pods are utilized as nutrients and therapeutic remedies to hinder, alleviate, or manage many illnesses. *Acacia* is wealthy in antioxidant phenolics, mainly condensed tannin and phlobatannins. *A. nilotica*, antiviral, antifungal, antiparasitic, antibacterial, antiplasmodial, anti-inflammatory and anti-hypertensive activities of the plant. These notions constituted will help for better management of disease and other research perspectives like *in vivo* test of *Acacia nilotica* extracts on viral pathologies in Animal health.

KEYWORDS: *Acacia nilotica*, Kikar, antioxidant, phlobatannins.

INTRODUCTION

Acacia is the most significant genus of family: Leguminosae, first of all described by Linnaeus in 1773. It is estimated that there are roughly 1380 species of *Acacia* worldwide, about two-third of them native to Australia and rest of spread around tropical and subtropical regions of the world.[1,2] Gamble, (1918) have reported more than 40 species of this genus in India in his 'Flora of Madras Presidency.*Acacia* species are commonly known as 'Babool' in India and ethnomedicinally have long been used for the treatment of skin, sexual, stomach and tooth problems. *Acacia nilotica* (L.) Del. syn. *Acacia arabica* (Lam.) Willd. (Leguminosae). Commonly known as babul, kikar or Indian gum Arabic tree has been recognized worldwide as a multipurpose tree. It is widely distributed throughout arid and

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Research Article

FORMULATION AND CHARACTERIZATION OF POLYHERBAL TOPICAL CREAM

Sameer Shafi*, G.R. Shendarkar

Centre for Research in Pharmaceutical Science, Nanded Pharmacy College, Nanded, Maharshtra, India

**Corresponding author: sameershafi2@gmail.com*

ABSTRACT

Herbal plants and their combination report therapeutic as well synergistic effect that has been recognized in medicine. So, taking into account this factor, polyherbal topical cream formulation was prepared by using plant extracts, to improve patient compliance, enhance antimicrobial spectrum and enhance aesthetic properties. The objective of this study was to formulate and evaluate topical polyherbal cream for the delivery of the active constituents present in plants to improve skin diseases. The plant extracts of *Ocimum sanctum* (OS), *Rubia cordifolia* (RC) and *Glycyrrhiza glabra* (GG) were utilized for the preparation of cream. The formulated cream was subjected to different evaluation parameters and the results depicted that the spreadability of the formulation was low (17.80±1.10g. cm/sec) and this low value of spreadability coefficient was sufficient suggesting easy spreading and no signs of grittiness. In rheological studies, all the cream formulations also exhibited the same non-Newtonian behavior. Polyherbal topical cream showed potential antimicrobial activity against all selected microorganisms. Polyherbal topical cream (PHC5) was ideal in terms of viscosity than other formulations and showed good drug release. Thus, the formulated polyherbal cream was found to be stable in terms of all physicochemical properties.

Keywords: *Ocimum sanctum, Rubia cordifolia, Glycyrrhiza glabra,* topical cream, Polyherbal cream.

1. INTRODUCTION

In the present era, the use of herbal cosmeceuticals is rapidly increasing. As these possess varied properties in terms of availability of the natural resources, development of successful products and preparation of good quality, these are the potentials in the market [1]. Cosmetics are those products that are applied on the body for the purpose of cleansing, beautifying or altering appearance and enhancing the beauty. For most of the skin conditions, creams are used, for their various benefits they possess [2]. Human skin is the major organ of the body that is acts as a defense mechanism against most of the disorders. The basic three layers of skin include epidermis, dermis and the hypodermis. These layers of skin have specific properties and role that make them to act as a barrier against foreign material to enter the body, through skin [3]. The function of skin is to protect the underlying muscles, ligaments, internal organs etc. [4]. It also interfaces with environment, to protect against pathogens, with loss of excessive water [5, 6]. The other functions of skin include regulation of temperature, insulation, sensation, synthesis and storage of Vitamin D against UV, water resistance etc. [7]

So, the present study is aimed to prepare a polyherbal topical cream useful in the management of various skin diseases, by use of extracts of *Ocimum sanctum (OS), Rubia cordifolia (RC), Glycyrrhiza glabra (GG).*

2. MATERIAL AND METHODS

2.1. Material

Ocimum sanctum, Rubia cordifolia, Glycyrrhiza glabra, were procured from local market and authenticated.

2.2. Methods

The extraction of collected plant materials was carried out using established methods. The part of individual plant was selected, cleaned and powdered to get crude drug. To obtain non polar extracts, the air-dried coarse powders of *Ocimum sanctum, Rubia cordifolia* and *Glycyrrhiza glabra* were extracted separately by Soxhlet extraction process using petroleum ether and chloroform. These extracts were further successively extracted with respective polar extracts hydroalcoholic (60:40) solution. The extracts were then concentrated to dryness under reduced pressure and controlled temperature, respectively and they were preserved in a refrigerator for further study. The extracts obtained were filtered, evaporated to dryness to yield semi solid paste and preserved in refrigerator for further study [8]

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Short Communication

Solid State Characterization and Dissolution Enhancement of Nevirapine Cocrystals

Prabhakar Panzade[1*], Giridhar Shendarkar[2], Deepak Kulkarni[1], Santosh Shelke[1]

[1]Department of Pharmaceutics, Srinath College of Pharmacy, Aurangabad, India.
[2]Nanded Pharmacy College (poly), Nanded, India.

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Abstract

Purpose: Novel cocrystals of nevirapine (NP) were designed and prepared with salicylamide and 3-hydroxy benzoic acid (3-HBA).

Methods: The cocrystals were prepared by solvent drop grinding method by adding few drops of acetone to enhance the solubility and dissolution. The drug and cocrystals were characterized by differential scanning calorimetry (DSC) and powder x-ray diffraction (PXRD). The solubility of NP, its wet ground form, and cocrystals were investigated at different pH. Moreover, the effect of surfactant on solubility of cocrystals was also studied. Finally, intrinsic dissolution rate (IDR) and stability of cocrystals was examined.

Results: The characterization of cocrystals by DSC and PXRD revealed formation of new solid forms due to changes in thermogram and PXRD pattern. The cocrystal of NP with 3-HBA showed 4.5 folds greater solubility in pH 1.2 buffer and 5.5 folds in 1% Tween 80 as compared to original drug. IDR of cocrystals was higher than the pure drug in 0.1 N hydrochloric acid (HCl). Moreover, cocrystals were found physically stable after 3 months as evident from unchanged IDR.

Conclusion: Hence, the present research indicates the new stable solid forms of NP with improved dissolution rate than pure drug.

Introduction

The significance of solubility and dissolution rate of drugs has been explicitly understood for the *in vivo* performance of the drug and/or drug product.[1] Several approaches have been used to improve solubility and dissolution like micronization, solid dispersion, solubilisation, etc.[2] However, pharmaceutical cocrystals have attracted enormous attention from the pharmaceutical industry owing to commercial potential and ability to modulate solubility, dissolution, stability, pharmacokinetics, etc. of drugs. Further, the entry of the Food and Drug Administration (FDA) approved cocrystal products in the market and their presence in clinical trials pipeline provided an impetus to cocrystal research in the academia and pharmaceutical industry.[3,4] Moreover, it provides an opportunity to industry for filing patents related to new solid forms and launches old drugs in new forms extending the life cycle. The potential of cocrystals to modulate solubility is the biggest benefit as it is indispensable for the performance of the drug *in vivo*. Cocrystallization has been endorsed as an approach to tailor the solubility and/or dissolution rate of drugs. The most widely accepted definition of cocrystal is 'cocrystals are solids that are crystalline single-phase materials composed of two or more different molecular and/or ionic compounds generally in a stoichiometric ratio which are neither solvates nor simple salts'.[5] The chief hypothesis cited in the literature for enhanced solubility and dissolution is the altered structure of the drug and weak bonds involved in the cocrystal.[6]

Nevirapine (NP) is a BCS class-II non-nucleoside reverse transcriptase drug having inadequate aqueous solubility of 0.1 mg/mL and high permeability (Log P 2.5). NP (pKa 2.8), at higher doses exhibit solubility limited absorption with low bioavailability.[7,8] It is possible to prepare novel solid forms of NP with greater therapeutic efficacy and commercial value via cocrystallization. The various cocrystals of NP with amides, carboxylic acid, amino acids have been reported possessing enhanced solubility and dissolution.[9] However, cocrystals of NP with salicylamide and 3-hydroxy benzoic acid (3-HBA) have not been reported till date. Besides, NP contains an amide group which could be the probable site for the preparation of cocrystals with selected coformers. Scheme 1 shows the structure of NP and coformers. Moreover, H-bonding functionalities in the NP could form cocrystal through the supramolecular synthon approach.[10] This research was undertaken to check the feasibility of amide/

***Corresponding Author:** Prabhakar Panzade, Email: prabhakarpanzade@gmail.com

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S. Kadam Vaishali * and G. R. Shendarkar

CRPS, Nanded College of Pharmacy, Nanded - 431605, Maharashtra, India.

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INTRODUCTION: The oral route is the oldest and convenient route for the administration of therapeutic agents because of low cost of therapy, and ease of administration leads to a higher level of patient compliance [1]. The goal of an extended-release dosage form is to maintain therapeutic drug levels in plasma for an extended period of time [2, 3].

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ORIGINAL ARTICLE

Quantitation of Vitamin C from Marketed Chyawanprash Using UV Spectrophotometer

Ghante Mahavir H[1*], Roge Ashish B[2], Firke Sagar N[3] and Sarje Shrinivas K[4]

[1,2](Ph.D.), Associate Professor, Department of Pharmaceutical Chemistry, SSBES's Nanded Pharmacy College, Shyam Nagar, Opposite Matru Seva Sangh, Nanded 431605 (M. S.), India.
[3](Ph.D.), Assistant Professor, Department of Pharmaceutics, xxxxxxxxxx
[4](Ph.D.), Assistant Professor, Department of Pharmacology, xxxxxxxxxxxxxx

ABSTRACT Chyawanprash (CP) is an antioxidant paste created by blending around 50 herbs and spices in a synergistic fashion. It contains Vitamin C as a key ingredient. All of the substances are mixed in precise proportions and exposed to unique pharmaceutical techniques to develop products with the greatest health benefit. In the pharmaceutical sector, however, noncompliance with normal manufacturing processes is a typical blunder. It made it essential to test the products' quality before releasing them for sale. The content of a product's primary ingredient, i.e., Vitamin C ensures quality of Chyawanprash. In this study, a rapid and simple UV spectrophotometric method was developed for quantitation of Vitamin C from a few marketed Chyawanprash. Buffer and sodium oxalate solution were employed to keep the pH acidic and prevent Vitamin C oxidation in aqueous media. The absorption was measured at 266 nm. The response was found to be linear over 2.5-12 µg/mL with r^2 value 0. 998. The proposed method was also found to be specific, precise, accurate, and linear, and it was effectively used to estimate Vitamin C from commercially available Chyawanprash.

Keywords: Chyawanprash, Vitamin C, Noncompliance, Sodium oxalate, UV spectrophotometer

Address for correspondence: Mahavir H. Ghante, Department of Pharmaceutical Chemistry, SSBES's Nanded Pharmacy College, Shyam Nagar, Opposite Matru Seva Sangh, Nanded 431605 (M. S.), India. E-mail: mhghante@gmail.com

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INTRODUCTION

According to Ayurvedic Pharmacopeial Index (API), Chyawanprash is a traditional Indian polyherbal formulation with a semisolid and sticky in nature.[1] Chyawanprash is classified as Rasayana in Ayurvedic texts, and its main purpose is to maintain the body's integrity in order to delay the ageing process, improve longevity, and improve digestion.[2] It is the primary source of health care for respiratory tract disorders such as bronchial spasms, cough, asthmatic breathing, and tuberculosis. It can also be used as an immunomodulator and memory booster.[3] Formulation comprises of more than 50 medicinal plants ingredients such as AmLaki (*Emblica officinalis*), Bilva (*Aegle marmelos*), Agnimantha (*Premna Integrifolia*), Syonak (*Oroxylum indicum*), Kasmari (*Gmelina arborea*), Patala (*Stereospermum suaveolens*), Bala (*Sida cordifolia*), Salaparni (*Desmodium gangeticum*), Prsniparni (*Uraria picta*), Mudgaparni (*Phaseolus trilobus*), Mashaparni (*Teramnus labialis*), Pippali (*Piper longum*), Goksura (*Tribulus terrestris*), Brhati (*Solanum indicum*), kantakari (*Solanum surattense*), Sunthi (*Pistacia integerrima*), Bhumyamalaki (*Phyllanthus amarus*), Draksha (*Vitis vinifera*), Jeevanti (*Leptadenia reticulate*), Puskaramul (*Inula racemosa*), Agaru (*Aquilaria agallocha*), Haritaki (*Terminalia chebula*), Guduchi (*Tinospora cordifolia*), Rddhi (*Habenaria intermedia*), Jivaka (*Malaxis acuminate*), Rsabhaka (*Malaxis muscifera*), Sati (*Hedychium spicatum*), Mustak (*Cyperus rotundus*), Punarnava (*Boerhaavia diffusa*), Meda (*Polygonatum cirrhifolium*), Ela (*Elettaria cardamomum*), Candan (*Santalum album*), Utpala (*Nymphaea stellata*), Vidari (*Pueraria tuberose*), Vrsamula (*Adhatoda vasica*), Kakoli (*Lilium polyphyllum*) and Kakanasika (*Martynia annua*) in various amounts.[4]

One of the main active ingredients (35%) of Chyawanprash is Amla (*Emblica officinalis*) a richest source of Vitamin C a

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Evaluation of Mast Cell Stabilizing, Anti-Inflammatory, and Anti-Oxidant Activity of Seed Extracts of *Saraca Asoka* (Roxb.), De. Wild

M. H. Ghante, C. P. Rathod*

Abstract

Saraca Asoka (Caesalpiniaceae) is a medicinal plant used traditionally for the treatment of various diseases. There is no scientific evidence for the anti-asthmatic activity of *Saraca Asoka*. Preliminary phytochemical screening of extract has revealed the presence various phytochemical components such as flavonoids, tannins, saponins, carbohydrates, phenols, glycosides, and fixed oils and fats. However, no alkaloids, proteins and amino acids were found in the extracts. The present study was evaluated for phytochemical screening, mast cell stabilizing, anti-inflammatory, and antioxidant activity of the methanolic extract of *Saraca Asoka*. In the present study, DPPH radical scavenging activity was highest in methanol extract (94.5 % ± 1.8%) of *Saraca Asoka* seeds. The *in vivo* anti-inflammatory activity was evaluated in rats using carrageenan-induced paw edema and *in vitro* antioxidant activity was performed by 1, 1-diphenyl-2-picryl-hydrazyl (DPPH) and ABTS. Quantitative estimation of total polyphenolic content of the (SA-ME) was estimated by Folin-Ciocalteu method. SA-ME (200 mg/kg body wt.) significantly decreased paw volume, after oral administration of SA-ME in carrageenan and formaldehyde injection. SA-ME also exhibit significant antioxidant activity. Total polyphenolic content was found to be (179 ± 0.27 mg/ml) and exhibited highest flavonoid content (8.42 ± 0.25 mg/ml). These results show that the methanol extract of *Saraca Asoka* seeds shows potential mast cell stabilizing, anti-inflammatory and anti-oxidant activity.

Keywords: Anti-inflammatory activity, Antioxidant, Mast cell stabilizer, *Saraca asoka*

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Introduction

Asthma is a chronic inflammatory disorder of the airways mainly associated with variable (usually reversible) airflow obstruction and enhanced bronchial hyper responsiveness to a variety of stimuli. During an asthmatic attack, the lining of the airways become swollen and muscles surrounding the airways become narrower. As a result, the inside of the airways become narrower, hence breathing becomes difficult.[1]

The prevalence of asthma worldwide is around 200 million with a mortality of around 0.2 million per year. Studies have indicated that asthma has increased by almost 7% during the last three decades in most countries including India. The estimated burden of asthma in India is more than 15 million.[2]

The current pharmacotherapy contains bronchodilators, anti-inflammatory agents, mast cell stabilizers, leukotriene modifiers, IgE antibody, etc. The limitations of current therapies are that, they may not produce complete cure and may not prevent all complications of bronchial asthma. Even though, these synthetic drugs are used, these are not completely safe especially for long term use and are associated with a number of serious side effects such as renal failure, liver failure, skeletal muscle tremor, hypokalemia, intense irritability, compromised immune system, and sustained high blood pressure. This has diverted the researchers toward the potential of medicinal plants and its herbal formulations claimed in the traditional systems of medicines like Ayurveda, these therapies can be successfully integrated with conventional therapy to provide maximal benefits to patients.[3]

Almost all parts such as bark, flowers, and seeds of *Saraca Asoka* are considered therapeutically valuable due to the presence of secondary metabolites such as alkaloids, terpenoids, flavonoids, steroids, glycosides, anthraquinones, phenolics, tannins, saponins, and other phytochemicals.[4]

Silver nanoparticles (AgNPs) using the extract of *Saraca Asoka* leaves have synthesized and evaluated and the extract of this leaves has been used as an antimicrobial agent.[5]

Asthma is an inflammatory disease of the lungs characterized by increased infiltration of leukocytes, especially eosinophil's, into the airways, and reduced respiratory function. The inflammation leads to bronchoconstriction, increased airway hyper-responsiveness, and mucus production.[6-10]

Pharmacognostic study, physiochemical analysis, toxicity assessment, and evaluated and the extracts of this seeds have been used as an antipyretic activity.[11]

In the present study was evaluated for phytochemical screening, mast cell stabilizing, anti-inflammatory, and antioxidant activity of the methanolic extract of *Saraca Asoka* for antiasthmatic potential has been carried out.

Center for Research of Pharmaceutical Science, Nanded Pharmacy College, Nanded, Maharashtra, India

***Corresponding Author:** C. P. Rathod, Center for Research of Pharmaceutical Science, Nanded Pharmacy College, Shyam Nagar, Nanded - 461 602, Maharashtra, India. E-mail: cprathod15@gmail.com

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Antiatherosclerotic Activity of Methanolic Extract of *Woodfordia fructicosa* Flowers

Vishweshwar M. Dharashive [a*] and N. B. Ghiware [a]

[a] Nanded Pharmacy College, Nanded 431605, (Maharashtra), India.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

In the present investigation the methanolic extract of *Woodfordia fructicosa* flowers at the doses of 100, 200 and 400 mg/kg was investigated for antiatherosclerotic against high fat diet induced atherosclerosis and triton induced atherosclerosis. In high fat diet induced atherosclerosis several parameters of lipid profile such as total cholesterol (TC) and triglycerides (TG), lipoprotein profile such as low density lipoprotein cholesterol (LDLc), very low density lipoprotein cholesterol (VLDLc) and high density lipoprotein cholesterol (HDLc), atherosclerotic markers such as alanine transaminase (ALT), aspartate transaminase (AST), alkaline phosphatase (ALP), lactate dehydrogenase (LDH) and creatine phosphokinase (CPK) and atherogenic index parameters such as TC/HDLc, LDLc/HDLc were determined and found to significantly altered in induction control group treated with high fat diet. The histopathological studies of liver and heart tissue were also performed wherein high fat diet showed toxic effects on cardiac and hepatic tissue. Similarly, in triton induced atherosclerosis parameters of lipid profile such as total cholesterol, triglycerides, low density lipoprotein and very low density lipoprotein levels were determined and were found to be significantly increased in induction control group. methanolic extract of *Woodfordia fructicosa* flowers showed protection against the atherosclerosis by bringing back the altered parameters to normal l both the models and showing ameliorating effects against high fat diet induced hepatic and cardiac damage. The multistep putative action of methanolic extract of flowers of *Woodfordia fructicosa* is attributed to the prominent phytoconstituents namely ellagic acid estimated through HPTLC analysis of the extract. Thus the study exhibited the protective effect of methanolic extract of flowers of *Woodfordia fructicosa* against atherosclerosis.

[a] Research Scholar;
[a] Professor and Principal;
**Corresponding author: E-mail: vishwesh07@gmail.com;*

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Cardioprotective Activity of *Randia Dumetorum* against Doxorubicin Induced Cardiotoxicity

Vishweshwar M. Dharashive and N.B. Ghiware

Nanded Pharmacy College, Nanded 431605, Maharashtra, India.

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In the present investigation the cardioprotective activity of ethanolic extract of Randia dumetorum fruits at the doses of 100, 200 and 400 mg/kg was investigated against doxorubicin induced cardiotoxicity model. In high fat diet induced atherosclerosis several heamodynamic parameters such as systolic and diastolic blood pressure, serum parameters such as lactate dehydrogenase (LDH), tissue parameters such as superoxide dismutase (SOD), reduced glutathione (GSH), and malonaldehyde (MDA) were determined and found to be significantly altered in induction control group treated with doxorubicin. The histopathological studies of cardiac tissue were also performed wherein doxorubicin showed toxic effects on tissue. Ethanolic extract of Randia dumetorum fruits showed protection against doxorubicin induced cardiotoxicity by normalizing the altered parameters and producing ameliorating effects against doxorubicin induced cardiac damage. The multistep putative action of ethanolic extract of Randia dumetorum fruits may be attributed to the prominent phytoconstituent namely 2-(3,5-dihydroxyphenyl)-3,4-dihydro-2H-chromene-3,5,7-triol estimated through HPTLC analysis of the extract. Thus, the study exhibited the protective effect of ethanolic extract of Randia dumetorum fruits against doxorubicin induced cardiotoxicity.

Keywords: Cardiotoxicity; Doxorubicin; lactate dehydrogenase (LDH); Randia dumetorum; superoxide dismutase (SOD).

The term cardiovascular disease (CVD) represents a broad range of diseases including heart disease, stroke, hypertension, hyperlipidemia, thromboembolism, coronary heart disease, congestive heart failure (CHF), hardening of the arteries, other circulatory system diseases etc. The published reports state that cardiovascular diseases are currently the leading cause of death especially in industrialized countries.[1] In addition to mortality, poorly managed CVD can lead to significant long-term disability from the complications of heart attacks, strokes, heart failure, and end-stage renal disease. CVD has become serious public health issue and hence requires greater attention to promote adequate awareness and treatment, both to health care providers and to the public. The growth of CVD in India further indicates that certain conditions like complicated hyperlipidemia, drug induced cardiotoxicity, atherosclerosis hasten the progress of disease and can cause various complications.[2]

*Corresponding author E-mail: vishwesh87@gmail.com

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Synthesis and biological evaluation of 3, 4 - dihydropyrimidines thiones derivatives

C. P. Rathod
School of Pharmacy S R T M U, Nanded & Nanded Pharmacy College, Shyam Nagar Nanded

N. R. Kadam
School of Pharmacy S R T M U, Nanded

S. C. Dhawale
School of Pharmacy S R T M U, Nanded

M H Ghante
Nanded Pharmacy College, Shyam Nagar Nanded
Corresponding author email: mhghante@gmail.com

A V Ingle
Nanded Pharmacy College, Shyam Nagar Nanded

L K Barde
P R Patil Institute of Pharmacy, Talegaon

***Abstract*—**3, 4-dihydropyrimidin-2(1H)-thiones, derivatives were synthesized by one pot solvent free green modified Biginelli cyclocondensation reaction catalyzed by triphenylphosphine as Lewis base. The structures of the synthesized compounds have been elucidated by IR, 1H NMR and elemental analysis. Synthesized compounds were screened for their antimicrobial screened against the *E.coli* and staphylococcus aureus, Salmonella typhi, *Bacillus subtilis, Escherichia coli* and antifungal activity against *Aspergillus niger, Penecillium crysogenum, Aspergillus flavus,* and *Candida albicans.*

***Keywords*—**Dihydropyrimidines, Biginelli, synthesis, antimicrobial, antifungal.

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Formulation and Evaluation of Chitosan Based Polyelectrolyte Complex of Levodopa for Nasal Drug Delivery

Pawan S. Avhad
Research Scholar, Dr APJ Abdul Kalam University Indore, India

Revathi A. Gupta
Faculty of Pharmacy, Dr APJ Abdul Kalam University Indore, India

Sagar Nareshrao Firke
Assistant Professor, Department of Pharmaceutics, Nanded Pharmacy College, MH, India

Ashish Babanrao Roge
Assistant professor, Department of Pharmaceutical Chemistry, Nanded Pharmacy College, MH, India

Shriniwas Keshavrao Sarje
Assistant Professor, Department of Pharmacology, Nanded Pharmacy College, MH, India

Abhijit S. Raut
Assistant Professor, D K Patil Institute of Pharmacy, Loha. Dist-Nanded., MH, India

Roopam Devaliya
Principal, Mauli College of pharmacy, Tondar, Udgir, MH, India

***Abstract*—**Because chitosan is biodegradable, biocompatible, non-toxic, and mucoadhesive, it is commonly used in the formulation of nasal drug delivery nanoparticles employing polyelectrolyte complexes. However, chitosan's lower solubility in aqueous and alkaline conditions limits its use in the pharmaceutical and biomedical fields. This needs the development of improved chemically altered chitosan mimics that can overcome the solubility barrier. Although Levodopa is an alternative in the treatment of Parkinson's disease, it has a low oral bioavailability and very low brain absorption due to its extensive degradation by aromatic amino acid decarboxylase in the peripheral

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Development and modification of the tragacanth solid lipid nanoparticles with natural polymer

Sangita Namdevrao Bhasme*
Assistant professor, Nagpur College of Pharmacy, Wanadongri, Hingna road, Nagpur.
*Corresponding author

Shriniwas Keshavrao Sarje
Assistant Professor, Department of Pharmacology, Nanded Pharmacy College, MH, India

Ashish Babanrao Roge
Assistant Professor, Department of Pharmacology, Nanded Pharmacy College, MH, India

Sagar Firke
Assistant Professor, Department of Pharmacology, Nanded Pharmacy College, MH, India

Jiwan Lavande
Associate Professor, Shivlingeshwar College of Pharmacy, Almala.

Shailesh Patwekar
Assistant Professor, School of Pharmacy, SRTM University, Nanded, MH

Kunal V. Bhambar
Mgv's Pharmacy College Panchavati, Nashik

***Abstract*—**Nanobiocomposite recycling is straightforward because nanofillers' physical properties do not modify throughout processing because of their considerable thermal stability. Additionally, the low nanofiller loading has no notable effect on the density of nanobiocomposite during an elevated appearance ratio, designate that nanobiocomposite has a very elevated prospective for use. Under mild situation, we present an easy technique for fabricating silver nanoparticles spontaneously in the presence of gum tragacanth polymer (a natural polymer) without the use of a conventional reducing agent. Silver nanoparticles were formulated by mixing equal

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A REVIEW ON MICROCHIPS USED IN NOVEL DRUG DELIVERY SYSTEM

Megha M. Muley[1*], Ashish B. Roge[2], Pravin N. Muli[3], Mahavir H Ghante[4], and Nitin B. Ghiware[5]

[1,2]Nanded Pharmacy College, Shyam Nagar, Nanded-431602, (MS), India.

[3]Indira College of Pharmacy, Vishnupuri, Nanded-431606, (MS), India.

[4]Associate Professor, Nanded Pharmacy College, Shyam Nagar, Nanded-431602, (MS), India.

[5]Professor, Nanded Pharmacy College, Shyam Nagar, Nanded-431602, (MS), India.

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***Corresponding Author**
Megha M. Muley
Nanded Pharmacy College, Shyam Nagar, Nanded-431602, (MS), India.
meghamuley3@gmail.com

ABSTRACT

There have been a lot of studies done and are still being done in an effort to develop the best medicine delivery mechanism for the human body. The dispensing of medications is a crucial component of medical care. Numerous medications' efficacy is intimately correlated with how they are delivered. Unfortunately, this can make choosing the best drug delivery mechanism quite challenging. In order to maximize therapeutic effectiveness, certain therapies call for the medicine to be given to the patient frequently over an extended period of time or in particular dosages at a time. Patients frequently forget, refuse, or are unable to take their prescriptions. Additionally, some medications are too strong for systemic drug delivery and can have the opposite effect. This results in the invention of a brand-new drug delivery system called Microchips, which may safely distribute a wide range of medications and other therapies through regulated, pulsatile, or continuous release. When designing a successful and efficient drug delivery system of this kind, it is important to take into account factors like biocompatibility, material dependability, drug release technique, and processibility.

KEYWORDS: Controlled, Pulsatile, Continuous release, Drug delivery system, Microchips, Biocompatability.

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Prof.(Dr.)N.B.Ghiware
Principal
Nanded Pharmacy College,
Nanded.

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Research article

Design, synthesis and evaluation of novel 3-(substitutedphenyl)-2-(4-(substitutedphenyl) thiazol-2-yl)-2h-pyrazolo [3, 4-d] thiazol-5(6h)-one derivatives as anti-breast cancer agents

Pravin Nandakumar Muli[1], Sonali Shankar Kamble[2], Sanjay Sudhakar Pekamwar[3], Balaji WamanraoMatore[4], Jagadish Singh[4], ParthaPratim Roy[4],Megha Mukund Muley[5], Bhaskar Sadashiv Dawane*1

[1] School of Chemical Sciences, Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra, India

[2] Department of Biochemistry, Gramin Science (Vocational) College, Vishnupuri, Nanded, Maharashtra, India

[3] School of Pharmacy, Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra, India.

[4] Department of Pharmacy, Guru Ghasidas Vishwavidyalaya (A Central University) Bilaspur, Chhattisgarh, India

[5] Nanded Pharmacy College, Nanded, Maharashtra, India

ABSTRACT

Mainstream cancer research has continued to place a significant emphasis on the development of new and effective therapeutic candidates to tackle rising treatment resistance and off-target toxicities. Here, a series of novel 3-(substitutedphenyl)-2-(4-(substitutedphenyl)thiazol-2-yl)-2H-pyrazolo[3,4-d]thiazol-5(6H)-one derivatives were synthesized and characterized. The ability of the synthesized compounds to reduce the survival of the human breast cancer cell line MDA-MB 231 was evaluated. When compared to the reference chemical, 5-fluorouracil, 3-(4-chlorophenyl)-2-(4-(4-chlorophenyl)thiazol-2-yl)-2H-pyrazolo[3,4d]thiazol-5(6H)-oneand 3-(4-nitrophenyl)-2-(4-(4-nitrophenyl)thiazol-2-yl)-2H-pyrazolo[3,4d]thiazol-5(6H)-oneshowed the highest inhibitory activity (IC50=550 0.78 M and 504 0.89, respectively) on the viability of MDA-MB 231 cells. A molecular docking study has been carried out to discover more potent drugs.

Keywords: Thiazolidione-2, 4-dione, Thiosemicarbazide, pyrazolo [3,4-d] thiazol-5(6H)-one, Anticancer activity, MDA-MB-231

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Correspondence: Bhaskar Sadashiv Dawane ✉ dawanebhaskar@gmail.com, **Orcid Id:** 0000-0003-2359-9012

School of Chemical Sciences, Swami Ramanand Teerth, Marathwada University, Nanded, Maharashtra, India.

INTRODUCTION

Breast cancer is not only the most common cancer in women worldwide, but it also ranks second in terms of the primary causes of mortality for women across the globe [1]. It is the most serious health problem of all gynaecological cancers, affecting a significant portion of the global population [2]. Every year, invasive breast cancer affects an estimated one million women globally. More specifically, in 2017, it was anticipated that there were roughly 40,000 breast cancer deaths among US women, although there were an increasing number of new patients with breast cancer every year in India [3,4]. The existing chemotherapy techniques utilized in the treatment of breast cancers have limitations due to significant target and off-target adverse effects in the face of developing drug resistance to the disease. Early diagnosis, and improved and safer treatment options are among the interventions and strategies used to lower the prevalence and fatality rates. The profusion of existing anti-cancer medications have spurred research into more effective breast cancer treatments. One of the most active components in heterocyclic compounds, pyrazole, and its derivatives exhibit a wide range of pharmacological actions [5-7]. Pyrrole exhibits considerable antifungal [8], antimicrobials [9,10],anticancer [11,12], especially anti-breast cancer activity [13-16], anticonvulsant [17,18], antitubercular [19,20], analgesics [21], cardiovascular [22] and anti-inflammatory [23,24] activity. The thiazole moiety is one of the most significant heterocyclic compounds and is utilized frequently in pharmaceutical chemistry. It also demonstrates a variety of biological functions, including anti-breast cancer activity, antitubercular activity, analgesic, anti-inflammatory, antihypertensive, CNS activity, antioxidant, antiviral, antidiabetic [25], antimicrobial [26], immunosuppressive activities [27].It also demonstrates biological processes such as COX-2 inhibitors [28], anti-hypnotics [29], anti-allergic [30], and HIV-1 inhibitors [31].The significant inhibitory activity of triazolone scaffold against anticancer has been thoroughly investigated by numerous research organizations [32-34]. A few of the pyrazolethiazolone compounds have been created [35-36], and they have activity against the dengue virus [37] as well as being anti-proliferative [38], anticonvulsant [39], antimicrobial and anti-inflammatory [40], antiviral [41], anti-HIV-1 NNRT inhibitors [42],

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Review on Medical Applications of Titanium Dioxide Nanoparticles

[1]Sharmila Sandeep Shah, [2]Shriniwas Sarje, [3]Kuldeep H Ramteke, [4]Vijaykumar T. Pawar, [5]Rahul Gujrathi and [6]Shailesh L. Patwekar

[1]SVPM's College of Pharmacy, Malegaon Bk., Baramati, MH
[2]Department of Pharmacology, Nanded Pharmacy College, MH, India
[3]Shivajirao Pawar College of Pharmacy, Ahmednagar
[4]Bharati Vidyapeeth College of pharmacy, Kolhapur
[5]College of Ayurved, Bharati Vidyapeeth, pune
[6]School of Pharmacy, SRTM University, Nanded, MH

ABSTRACT

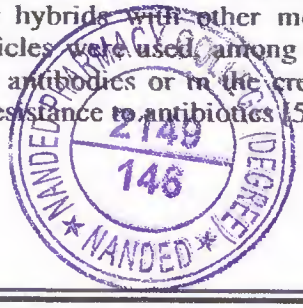
Metal oxide nanoparticles (NPs) with liposomes, micelles, quantum dots, dendrimers or fullerenes, metals, and titania NPS are among the polymer NPs currently being produced. It has the potential to be used in medical treatment. It is gaining a growing amount of attention. Titanium dioxide (titanium oxide (IV), titanium oxide, TiO2) is an inorganic molecule whose photoactivity has sparked contemporary scientific attention. TiO2 produces a range of reactive oxygen species when exposed to ultraviolet light in an aqueous media (ROS). Photodynamic treatment (PDT) uses the ability to generate ROS and trigger cell death to treat a wide range of disorders, from psoriasis to cancer. The use of titanium dioxide NP as a photosensitizer in the treatment of malignant tumors and the photodynamic inactivation of antibiotic-resistant bacteria has been investigated. Both TiO2 NP and its composites, as well as other compounds and biomolecules, can be employed as photosensitizers for PDT with success.

Keywords: Titanium dioxide, composite material, nanoparticles, photodynamic treatment, Photosensitizer etc.

INTRODUCTION

In recent years, photodynamic treatment (PDT) has undergone rapid growth. Look for new photosensitizers and media that can be used to administer them. The combination of dyes and nanoparticles (NPS) is one of the many potential ways for photodynamic research that has resulted in increased photosensitizer (PS) selectivity and/or therapeutic impact. Field of paddy. To begin, it's important to understand that NP refers to a certain sort of particle with a size of 1100 nm (including the surrounding boundary layer). "A nano item having all threenanoscale exterior dimensions, and no substantial difference between its longest and shortest axis," according to ISO technical specification 8004[1,2].

Studies on titanium dioxide (also known as titanium (IV) oxide, titania, or TiO2)nanoparticles, which fall under the category of metallic NPs, are discussed in the current study. Notably, this work was motivated by an evaluation of current TiO2 functionalization techniques as well as the biological and medicinal impacts of these NPs. Early in the 20th century, TiO2 was mass-produced as a non-toxic alternative to a white paint colour.Today, more than four million tonnes of TiO2 are produced annually, and this molecule is used in a wide range of everyday products as an excipient in the pharmaceutical industry, a colourant in white plastics, a sun cream excipient in the cosmetics industry, and as a relatively inexpensive and nontoxic food pigment that has been approved by the relevant European Union authorities for the safety of food additives [3]. When one of the earliest papers on the topic of photocatalytic disinfection was published in 1985, research on the potential uses of TiO2 NPs began [4].Since then, TiO2 NPs have been increasingly used in research on photodynamic treatment. It relates to the photodynamic inactivation of antibiotic- resistant bacteria and the use of TiO2 NPs as photosensitizing agents in the treatment of cancer. TiO2 NPs were effectively investigated as photosensitizers in photodynamic therapy, both by themselves and in composites, combinations, or hybrids with other molecules.In order to treat cancerous tumours, titanium (IV) oxide nanoparticles were used, among other things, in the synthesis of bioconjugates with cell-specific monoclonal antibodies or in the creation of black TiO2 NPs for the treatment of bacteria that have developed resistance to antibiotics [5,6].



Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.

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Development, Validation of RP-HPLC Method and GC MS Analysis of Desloratadine HCL and It's Degradation Products

Ashish B Roge[1*], Sagar N Firke[2], Shrinivas K Sarje[3], Mahavir H Ghante[4], Giridhar R Shendarkar[5], Nitin B Ghiware[6]

[1]Department of Pharmaceutical Chemistry, SSBES's Nanded Pharmacy College, Nanded, M.S., India; [2]Department of Pharmaceutics, SSBES's Nanded Pharmacy College, Nanded, M.S., India; [3]Department of Pharmacology, SSBES's Nanded Pharmacy College, Nanded, M.S., India; [4]Department of Pharmaceutical Chemistry, [5]Principal, SSBES's Nanded Pharmacy College (Poly), M.S., India; [6]Principal, SSBES's Nanded Pharmacy College (Degree), SSBES's Nanded Pharmacy College, Nanded, M.S., India.

ABSTRACT

Introduction: Efficacy and safety of drug therapy is directly related to the stability of active pharmaceutical ingredient (API) and drug product used. Forced degradation studies (also called stress testing) are performed for better understanding of API and drug product stability. Thus, stress testing is a prognostic research tool used to ascertain stability of drug molecule and provide support for developing stability indicating method.

Aim: The research aim is Development, Validation of RP-HPLC Method and GC MS Analysis of Desloratadine HCL and its Degradation Products.

Objective: The objective of current study was to develop validated specific stability indicating reversed-phase liquid chromatographic method for the quantitative determination of Desloratadine HCl in bulk sample in the presence of degradation products.

Method: Desloratadine HCL was subjected to variable pH, oxidative, dry heat and photolytic stress condition as per ICH guideline for stability study. Stressed samples were further studied by validated RP-HPLC method and also studied by GC-MS to characterise degradation products (Fig 15).

Result: At oxidative stress, degradation products were generated and detected by GCMS. Slight degradation was observed in acidic and alkaline stress while no degradation was observed in other stress conditions. Separation of degradation products from pure drug was achieved on C18 column 5µ (4.6 X 250 mm) using the mobile phase consists a mixture of Orthophosphoric acid (0.1%V/V), Acetonitrile and Methanol (50:35:15 V/V/V). The detection was carried out at 242 nm. The proposed validated LC method was used to quantify the stressed test solutions in order to ascertain stability indicating potential of the method.

Conclusion: The established LC approach has been shown to be suitable for determining the quality of Desloratadine HCl from its dosage form and assessing its stability when required.

Key Words: Reversed-Phase Liquid Chromatographic Method, Validation, Stability study, Gas Chromatography and Mass Spectrometry (GCMS), Orthosphosphoric acid

INTRODUCTION

8-chloro-6, 11-dihydro-11-(4-piperdinylidene)-5*H*-benzo [5,6] cyclohepta[1,2-b]pyridine Desloratadine (DSLR) is a tricyclic antihistamine, an antagonist at histamine H1 receptors, and at all subtypes of the muscarinic acetylcholine receptor. It is originally used for the treatment of allergies and allergic rhinitis. [1,2]

It is reported that Desloratadine exhibit antihistaminic activity and anti-inflammatory activity.[1]Desloratadine impedes release of proinflammatory cytokines, such as the interleukin (IL) 6 and IL-8.

It has a long-lasting effect and in moderate and low doses, does not cause drowsiness as it does not readily enter the central nervous system.[3] It is demonstrated that Desloratadine has no adverse effects on the central nervous system,

Corresponding Author:
Ashish B Roge, Assistant Professor, Department of Pharmaceutical Chemistry, SSBES's Nanded Pharmacy College, Nanded, M.S., India.
Mob: 9503887319; Email: ashish_roge@rediffmail.com

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Prof.(Dr.)N.B.Ghiware
PRINCIPAL
Nanded Pharmacy College,
Nanded.