Criterion III: Research, Innovations and Extension

3.3.1 Number of research papers published per teacher in the Journals notified on UGC care list during the last five years

3.3.1.1. Number of research papers in the Journals notified on UGC CARE list year wise during the last five years

HEI Input:

2022-2023	2021-2022	2020-2021	2019-2020	2018-2019
24	36	25	14	11

DVV Query

1. HEI is requested Kindly note that for the metrics related to publication as per Manual, calendar year is to be considered for HEI input. For eg: paper published in 2017 will comes under 2017-18 and so on, so please check and provide data accordingly.
2. Kindly note that please provide valid link landing to the research paper.
3. Please provide valid Link to the journal website.
4. Please provide cover page, content page and first page for all the publications, for all the assessments Years.
5. HEI is requested please relook the metric and provide data & supporting documents if available (as per SOP).

DVV Response

1. The metrics related to publication as per Manual, calendar year is considered. After checking data is provided accordingly in tabular form
2. Valid link landing to the research paper is provided.
3. Valid Link to the journal website is provided.
4. For all the publications, for all the assessments years scanned copies are attached.
5. All supporting documents and data are already provided.

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3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the last five years

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (doi) number		
						Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list
ACADEMIC YEAR 2022-2023								
Formulation, Development & Characterization of Silver Nanoparticle of Indian Traditional Herbs WithaniaSomnifera (Ashwagandha)	Md. Rageeb Md. Usman*, Bhagyesh Pahade1, Swapnil D. Salunkhe2	Pharmacognosy	Journal of Hospital Pharmacy	2022-2023	2348-7704	https://journalofhospitalpharmacy.in/	https://journalofhospitalpharmacy.in/johp/admin/freePDF/499vm29c6cynvn8g15yy.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Pharmacognostic Evaluation of TrachyspermumAmmi (Ajwain	Md. Rageeb Md. Usman, G. P. Vadner	Pharmacognosy	International Journal of Medical &	2022-2023	2231-2188	https://ijmps.org/	https://www.ijmps.org/uploads/	https://ugccare.unipune.ac.in/apps1/home/

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Seeds) Seed Extract for Vulvovaginal Candidiasis (VVC)	e, Snehal Pawar		Pharmaceutical Sciences (IJMPS)				215_pdf.pdf	index
Dynamic review of perfume from essential oil Geraniol (pelargonium graveolens) and ginger (Zingiberofficinale)	Dr. Md. Rageeb Md. Usman1*, Mr. SajanMangilalPawara	Pharmacognosy	Indo american journal of Pharmaceutical sciences	2022-2023	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/07/33.IAJPS33072022.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Phytochemical investigation of apamarga (Achyranthesa speralinn.) on flowers and fruits	M Z Shaikh1, MdRageebMd Usman2, Mayuri K Mahajan2	Pharmacognosy	International Journal of Botany Studies	2022-2023	0976–044X	https://www.botanyjournals.com/	https://www.botanyjournals.com/assets/archives/2022/vol7issue7/7-6-27-359.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Formulation and evaluation of natural Antiacne serum using Cinnamomum	Md. Rageeb Md. Usman*, Quresh	Pharmacognosy	Indo american journal of Pharma	2022-2023	2349-7750	https://www.iajps.com/	https://www.academia.edu/83240425/	https://ugccare.unipune.ac.in/apps1/home/

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Camphora (Bhimseni kapur)	A. I. Shaikh1, M. Z. Shaikh2		ceutical sciences				FORMULATION_AND_EVALUATION_OF_NATURAL_ANTI_ACNE_SERUM_USING_CINNAMOMUM_CAMPHORA_BHIMSENI_KAPUR_	index
In-Vivo and Ex-Vivo ComparativeStudy of Transdermal Patch of Ramosetron Hydrochloride	Sanjay Nagdev 1 Dr. Omprakash Agrawal , Dr. Mdrageeb Md.Usman	Pharmacognosy	Nat. Volatiles &Essent. Oils,	2022-2023	2148 - 9637	https://www.nveo.org/index.php/journal	https://www.nveo.org/index.php/journal/article/view/4293	https://www.scopus.com/sourceid/21100904334
Development of Spray-dried Mucoadesive Valsartan Nasal	TUFAIL DANA 1*, SUFIY	Pharmacognosy	International Journal of Biology	2022-2023	2277 – 4998	https://www.ijbpas.com/	https://ijbpas.com/archive/archive	https://mjl.clarivate.com/search-

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icroparticles: Formulation, Optimization and Evaluation	AN AHMAD2MD. RAGEEB3 AND SHAIKH TANVIR4		, Pharmacy and Allied Science (IJBPAS				-single-pdf/5029	results
Review of miracle formulation of anorexia using amalakyadi churna	Mr. Bhushan Pravin Patil, Mrs. K .D. Patil, Dr. G .P. Vadnere, Mr. Gopal Jagannath Ahire	Pharmacognosy	International Journal of Research and Analytical Review	2022-2023	2348-1269	https://www.ijrar.org/	45.Issue 06 june 22 - INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES (iajps.com)	https://ugccare.unipune.ac.in/apps1/home/index
Comparative analysis of Covid19 Vaccine and their efficacy	Mr. Kundan C. Patil, Dipak B. Bari, Ravindra G. Mali, et al.	Pharmaceutics	Journal of Hospital Pharmacy	2022-2023	2348-7704	https://journalofhospitalpharmacy.in/	https://journalofhospitalpharmacy.in/johp/admin/freePDF/s98plctr02itgh1t1ofq.pdf	https://ugccare.unipune.ac.in/apps1/home/index

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A concise review on analytical profile of Vigabatrin	Vikas R. Patil, Mr. Sudhir G Patil, Rohit S. Patil, Vinay V. Sarode, Yogesh A. Chaudhari, Samir B. Tadavi	Pharma. Chemistry	World Journal of Advanced Research and Review	2022-2023	2581 - 9615	https://wjarr.com/	https://wjarr.com/content/concise-review-analytical-profile-vigabatrin	https://ugccare.unipune.ac.in/apps1/home/index
Hypolipedemic Effect Of Seed Extract Of Trigonella foenum-graceum In Non-Diabetic Volunteers: A Systematic Review And Meta Analysis.	Mr. K. D. Baviskar	Pharmaceutics	Latin American Journal of Pharmacy	2022-2023	0326 2383	http://www.latamjpharm.org/	http://www.latamjpharm.org/resumenes/41/12/LAJOP_41_12_1_27.pdf	https://mjl.clarivate.com/search-results
Medicinal Plants and Herbal Concoctions on the Rise Post Covid-19 Pandemic Threat – An Exploratory	Dr. B.V.Jain	Pharmaceutics	Journal of Coastal Life Medicine	2022-2023	2309 - 5288	https://www.jclmm.com/index.php/journal	https://www.jclmm.com/index.php/journal/article/view/	https://ugccare.unipune.ac.in/apps1/home/index

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Study							451	
Prophylactic Preparations for Common Ailments of the Respiratory Tract	Dr. S.R. Pawar	Pharmaceutics	Journal of Survey in Fisheries Sciences	2022-2023	2368-7487	https://sifisheriessciences.com/index.php/journal	https://sifisheriesscience s.com/journal/index.php/journal/article/view/797	https://www.scopus.com/sourceid/21100905326
To design and evaluate miracle formulation of Anorexia using amalakyadi churna	Mrs. K .D. Patil	Pharmaceutics	Indo american journal of Pharmaceutical sciences	2022-2023	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/06/45.IAJPS45062022.pdf	https://www.iajps.com/wp-content/uploads/2021/11/ugc-new.pdf
Profile Access and Treatment of Minor Symptoms as First Line of Defense Against Prevalent Viral Attack	Sandip R. Pawar*, Md. Rageeb Md. Usman1, Bhushan P.	Pharmaceutics	Journal of Costal Life Medicine	2022-2023	2309-5288	https://www.jclmm.com/index.php/journal	https://sifisheriesscience s.com/index.php/journal	https://ugccare.unipune.ac.in/apps1/home/index

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	Patil1, Amit D. Patil2							
Preparing Herbal Formulations through Indigenous and Modern Methods: An Experimental Study Modern Methods: An Experimental Study	Md. Rageeb Md. Usman*, Sandip R. Pawar1, Prerna N. Jadhav1, Suvarnalata S. Mahajan1	Pharmaceutics	Journal of Costal Life Medicine	2022-2023	2309-5288	https://www.jclmm.com/index.php/journal	https://jclmm.com/index.php/journal/article/view/449	https://ugccare.unipune.ac.in/apps1/home/index
Increased Reliance on OTC Drugs as Anti-depressants by Housewives of Urban Area Housewives of Urban Area	Sandip R. Pawar*, Bharat V. Jain1, Pavan A. Chaudhari1, Piyush K. Chavan2	Pharmaceutics	Journal of Costal Life Medicine	2022-2023	2309-5288	https://www.jclmm.com/index.php/journal	Increased Reliance on OTC Drugs as Anti-depressants by Housewives of Urban Area | Journal of Coastal Life Medicine (jclmm.com)	https://ugccare.unipune.ac.in/apps1/home/index
Concomitant	Md.	Phar	Journal	2022-	1054	https://	https://	https://

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Use of Local Herbal Cornucopia in Providing Relief from Respiratory Disorders	Rageeb Md. Usman	mace utics	of Survey in Fisherie s Science s	2023	- 1061	sifishe riessci ences. com/ index. php/ journal / issue/ view/1	sifisheri esscien ces.co m/ journal/ index.p hp/ journal/ article/ view/ 794/77 5	www.s copus.c om/ sourcei d/ 211009 05326
Impact of OTC Purchase and Utilization of Pain Killers in Rheumatoid Arthritis	Bharat V. Jain	Phar mace utics	Journal of Survey in Fisherie s Science s	2022-2023	1054 - 1061	https:// sifishe riessci ences. com/ index. php/ journal / issue/ view/1	https:// sifisheri esscien ces.co m/ journal/ index.p hp/ journal/ article/ view/ 795	https:// www.s copus.c om/ sourcei d/ 211009 05326
Formulation and Application of Herbal Preparation for Bacterial Pathogen	Bharat V. Jain	Phar mace utics	Journal of Survey in Fisherie s Science s	2022-2023	1054 - 1061	https:// sifishe riessci ences. com/ index. php/ journal / issue/ view/1	https:// sifisheri esscien ces.co m/ journal/ index.p hp/ journal/ article/ downlo ad/ 795/77	https:// www.s copus.c om/ sourcei d/ 211009 05326

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							6/1524	
Anti-Inflammatory Action of Essential Oils and Their Usage in respiratory Tract Infection	Md. Rageeb Md. Usman*, Bharat V. Jain1, Suvarnalata S. Mahajan1, Prerna N. Jadhav1	Pharmaceutics	Bulletin of Environment, Pharmacology and Life Sciences	2022-2023	2277-1808	https://bepls.com/spl(1)2023.html	https://bepls.com/spl(1)2023.html	https://mjl.clarivate.com/search-results
Self-Medication post Covid-pandemic Treating Common Viral Ailments	Bharat V. Jain*, Md. Rageeb Md. Usman1, Tanvir Y. Shaikh2, Atul A. Sabe2	Pharmaceutics	Bulletin of Environment, Pharmacology and Life Sciences	2022-2023	2277-1808	https://bepls.com/spl(1)2023.html	https://bepls.com/spl(1)2023.html	Web of Science Master Journal List - Search (clarivate.com)
Immunity builders in local herbs concoctions of giloy, guava leaves, tulsi, aloe vera, amla, coconut water and others as	Sandip R. Pawar*, Bharat V. Jain1, Pavan A. Chaudhari1,	Pharmaceutics	Journal of Clinical Otorhinolaryngology, Head, and Neck Surgery	2022-2023	1001-1781	https://www.lcebyhkzz.cn/	https://www.bing.com/search?q=Immunity+builders+in+local+herb	https://www.scopus.com/sourceid/13804

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popular pharmaceutical	Bhushan P. Patil2						s+concoctions+of+giloy%2C+guava+leaves%2C+tulsi%2C+aloe+vera%2C+amla%2C+coconut+water+and+others+as+popular+pharmaceutical&form=ANNTH1&refig=4930a92740154a59a34f206b0d34a573	
Chest congestion and infusions of ginger, honey, tulsi, blackpepper	Md. Rageeb Md. Usman*, Bharat V.	Pharmaceutics	Journal of Clinical Otorhinolaryngology,	2022-2023		https://www.lcebyhkzz.cn/	https://sifisheriesciences.com/journal/	https://www.scopus.com/sourceid/

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and other home remedies as otc dispensed pharma products	Jain1, Akansha L. Patil1, Priyanka S. Jain1		Head, and Neck Surgery				index.php/journal/article/view/794	13804
ACADEMIC YEAR 2021-2022								
Gastroretentive Drug Delivery System: An Overview	RUPAL S. SANGHAVI1*, OMPRAKSH AGRAWAL2, MD RAGEEB MD USMAN3	Pharmacognosy	Research Journal of Pharmacy and Technology	2021-2022	0974-360X	https://www.rjptonline.org/	https://rjptonline.org/HTMLPaper.aspx?Journal=Research%20Journal%20of%20Pharmacy%20and%20Technology;PID=2022-15-3-67	https://www.scopus.com/sourceid/21100197160
'Transdermal Drug Delivery System: An Overview'	Sanjay A. Nagdev *1, Omprakash Agrawal2, Md. Rageeb Md.	Pharmacognosy	Research Journal of Pharmacy and Technology	2021-2022	0974-360X	https://www.rjptonline.org/	https://rjptonline.org/HTMLPaper.aspx?Journal=Research%20Jou	https://www.scopus.com/sourceid/21100197160

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	Usman3						rnal %20of %20Pharmacy %20and %20Technology;PID=2022-15-3-72	
Pharmacognostical and Preliminary Phytochemical Evaluation of Stem of S Linn.	Md. Rageeb Md. Usman*, Zuber Shaikh[1], Umar Farooqe Shaikh[2]	Pharmacognosy	International Journal of Biology Pharmacy, and Allied Science (IJBPAS)	2021-2022	2277-4998	https://www.ijbpas.com/	https://ijbpas.com/archive/archive-detail-pdf/VOLUME-11-ISSUE-9	https://mjl.clarivate.com:/search-results?issn=2277-4998&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=search-results-share-this-journal
Antimicrobial	Md.	Phar	Internat	2021-	0975	https://	https://	https://

and antifungal activity of bark of hardwickiabinata Roxb (fabaceae / caesalpiniaceae)	Rageeb Md. Usman and Rohini Patil	macognosy	ional Journal of Pharmaceutical Sciences and Research	2022	-8232	ijpsr.com/	ijpsr.com/bft-article/antimicrobial-and-antifungal-activity-of-bark-of-hardwickia-binata-roxb-fabaceae-caesalpiniaceae/	ugccare.unipune.ac.in/apps1/home/index
UV Spectrophotometric Method Development and Validation for the Simultaneous Estimation of Efavirenz, Emtricitabine and TenofovirDisoproxilFumarate in Marketed Formulation	Rajeev Kumar Mishra1*, Neelesh Chaubey1, Harish pandey1, Satish Mishra2, Rohit Singh3, Dr. Md. Rageeb Md. Usman4	Pharmacognosy	EAS Journal of Pharmacy and Pharmacology	2021-2022	2663-0990	https://www.easpublisher.com/journal/easjpp/home	https://www.easpublisher.com/get-articles/1950	https://ugccare.unipune.ac.in/apps1/home/index

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Quantitative and qualitative estimation of phytoconstituents from stems of Atylosiabarbata	Bharat V Jain*, MdRageebMd Usman	Pharmacognosy	International Journal of Botany Studies	2021-2022	0976 – 044 X	https://www.botanyjournals.com/	https://www.botanyjournals.com/archives/2022/vol7/issue1	https://ugccare.unipune.ac.in/apps1/home/index
Pharmacognostical and phytochemical investigation on stems of Linn	Bharat V Jain*, MdRageebMd Usman, Sandip R Pawar	Pharmacognosy	International Journal of Botany Studies	2021-2022	0976 – 044 X	https://www.botanyjournals.com/	https://www.botanyjournals.com/archives/2021/vol6/issue6/6-6-200	https://ugccare.unipune.ac.in/apps1/home/index
Isolation of B-Sitosterol from methanol extract of stems of baker	Bharat V Jain*,MdRageeb Md Usman	Pharmacognosy	International Journal of Botany Studies	2021-2022	0976 – 044 X	https://www.botanyjournals.com/	https://www.botanyjournals.com/archives/2021/vol6/issue6/6-6-168	https://ugccare.unipune.ac.in/apps1/home/index
Qualitative Estimation of Seed of Lam. By using Chromatography Technique	Md. Rageeb Md. Usman*, Shaikh Salman Shaikh	Pharmacognosy	Research Journal of Pharmacy and Techno	2021-2022	0974 - 3618	https://www.rjptonline.org/	https://rjptonline.org/HTMLPaper.aspx?Journal	https://www.scopus.com/sourceid/211001

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	Babu[1]		logy				=Research %20Journal %20of %20Pharmacy %20and %20Technology;PID=2021-14-10-71	97160
Phytochemical and in vitro assessment of antihistaminic and anticholinergic activity of leaves of linn	Md. Rageeb Md. Usman*, Mangal sing K. Kachhava[1]	Pharmacognosy	International Journal of Pharmaceutical Sciences and Research	2021-2022	0975-8232	https://ijpsr.com/	https://ijpsr.com/bft-article/phytochemical-and-in-vitro-assessment-of-antihistaminic-and-anticholinergic-activity-of-leaves-of-hibiscus-sabdariffa-linn/	https://ugccare.unipune.ac.in/apps1/home/index
A Review –	Kunal	Phar	Strad	2021-	0039	https://	https://	https://

Phytochemical, Pharmacological and Toxicological Properties of Ashwagandha	S. Surwade*, Gautam P. Vadnere, Md. Rageeb Md. Usman	macognosy	Research	2022	-2049	stradresearch.org/	stradresearch.org/index.php/volume-8-issue-8-2021/	ugccare.unipune.ac.in/apps1/home/index
Formulation and Evaluation of Orodispersible Tablet of Warfarin by Direct Compression Technique	Md. Rageeb Md. Usman*1, Sandip R. Pawar1, Anil S. Mahajan1, Bharat V. Jain1, Tanvir Y. Shaikh1	Pharmacognosy	Advances in Bioresearch [ABR]	2021-2022	0976-4585	https://soeagra.com/abr/abr.html	https://soeagra.com/abr/abrmarch2021/33.pdf	https://mjl.clarivate.com:/search-results?issn=0976-4585&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=journal-profile-share-this-journal
Phytochemical and	Bharat V.	Pharmaco	International	2021-2022	0976 –	https://www.	https://www.b	https://ugccare

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Haemolytic Activity on Stems of Linn.	Jain*PakhaleRohit Rajendra[1], Md. Rageeb Md. Usman[1]	gnosy	Journal of Botany Studies		044 X	botany journals.com/	otanyjournals.com/archives/2021/vol6/issue3/6-3-139	.unipune.ac.in/apps1/home/index
Pharmacognostical and Phytochemical Evaluation of Stem of Calotropisgigantea Linn.	Md. Rageeb Md. Usman*, Pakhale Rohit Rajendra1, Bharat V. Jain1	Pharmacognosy	International Journal of Botany Studies	2021-2022	0976 – 044 X	https://www.botanyjournals.com/	https://www.botanyjournals.com/archives/2021/vol6/issue3/6-3-132	https://ugccare.unipune.ac.in/apps1/home/index
Pharmacognostical and Antimalarial Studies of Leaves	Dr. Md. Rageeb Md. Usman*, BadgujarPallavi Sunil1	Pharmacognosy	Journal of University of Shanghai for Science and Technology	2021-2022	1007 - 6735	https://jusst.org/	https://jusst.org/wp-content/uploads/2021/06/Pharmacognostical-and-Antimalarial-Studies-of-Tamarindus-indica-	https://www.scopus.com/sourceid/14040

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							Leaves.pdf	
Preliminary Phytochemical Analysis of EmblicaOfficinalis Seed	Dr. Md. Rageeb Md. Usman*, Dr. Gautam P. Vadnere1, Rohit Patil1	Pharmacognosy	Journal of University of Shanghai for Science and Technology	2021-2022	1007-6735	https://jusst.org/	https://jusst.org/wp-content/uploads/2021/06/Preliminary-Phytochemical-Analysis-of-Emblica-Officinalis-Seed-1.pdf	https://www.scopus.com/sourceid/14040
Antihelmintic effect of embeliatsjeriam-cottam	Manjusha Suresh Nikam[1], Md. Rageeb Md. Usman*, Gautam P. Vadnere[1]	Pharmacognosy	Journal of University of Shanghai for Science and Technology	2021-2022	1007-6735	https://jusst.org/	https://jusst.org/wp-content/uploads/2021/06/ANTIHELMINTIC-EFFECT-OF-EMBELIA-TSJERI	https://www.scopus.com/sourceid/14040

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							AM-COTTAM-1.pdf	
Formulation and evaluation of liquid crystals containing acotiamide capsule for oral delivery	Mr Sandip R Pawar	Pharmaceutics	Indo American Journal Of Pharmaceutical Sciences	2021-2022	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/05/43.IAJPS43052022.pdf	https://www.iajps.com/wp-content/uploads/2021/11/ugc-new.pdf
Liquid crystals containing acotiamide capsule for oral delivery review	Mr Sandip R Pawar	Pharmaceutics	Indo American Journal Of Pharmaceutical Sciences	2021-2022	2349-7751	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/05/45.IAJPS45052022.pdf	https://www.iajps.com/wp-content/uploads/2021/11/ugc-new.pdf

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Dynamic formulation of effervescent antimicrobial mouthwash review.	Mr Sandip R Pawar	Pharmaceutics	International Journal Of Creative and Innovative Research In All Studies	2021-2022	2581-5334	http://ijciras.com/	http://ijciras.com/Users/ManuScript/PastIssueDetails/f588ba55-dc7d-4558-a311-e27ebd7c1f19	https://ugccare.unipune.ac.in/apps1/home/index
To design and develop solid lipid nanoparticles based nanogel for dermal delivery of meloxicam	Mr Sandip R Pawar	Pharmaceutics	Indo American Journal Of Pharmaceutical Sciences	2021-2022	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/05/52.IAJPS52052022.pdf	https://www.iajps.com/wp-content/uploads/2021/11/ugc-new.pdf
Solid lipid nanoparticles based nanogel for dermal delivery of meloxicam: review	Mr Sandip R Pawar	Pharmaceutics	International Journal Of Creative and Innovative Research In All Studies	2021-2022	2581-5334	http://ijciras.com/	http://www.ijciras.com/PublishedPaper/IJCIRAS1881.pdf	https://ugccare.unipune.ac.in/apps1/home/index

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Formulation evaluation and development of fast dissolving tablets containing solid dispersion of indomethacin	Mr Sandip R Pawar	Pharmaceutics	Indo American Journal Of Pharmaceutical Sciences	2021-2022	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/05/42.IAJPS42052022.pdf	https://www.iajps.com/wp-content/uploads/2021/11/ugc-new.pdf
Rizatriptan benzoate nanoemulgel for topical drug delivery system: review	Mr Sandip R Pawar	Pharmaceutics	International Journal Of Creative and Innovative Research In All Studies	2021-2022	2581-5334	http://ijciras.com/	http://www.ijciras.com/PublishedPaper/IJCIRAS1887.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Design, development and characterization of novel in situ gel for ocular drug delivery	Mr Sandip R Pawar	Pharmaceutics	Indo American Journal Of Pharmaceutical Sciences	2021-2022	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/07/12.IAJPS12072022.pdf	https://www.iajps.com/wp-content/uploads/2021/11/ugc-new.pdf
Formulation evaluation and development of	Mr Sandip R Pawar	Pharmaceutics	Indo American Journal Of Pharmaceutical Sciences	2021-2022	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-	https://www.iajps.com/wp-

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mucoadhesive buccal tablet of vildagliptin							content/uploads/2022/05/51.IAJPS51052022.pdf	content/uploads/2021/11/ugc-new.pdf
To design and develop mucoadhesive buccal tablet of vildagliptin: review	Mr Sandip R Pawar	Pharmaceutics	International Journal Of Creative and Innovative Research In All Studies	2021-2022	2581-5334	http://ijciras.com/	http://www.ijciras.com/PublishedPaper/IJCIRAS1887.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Review of matrix type transdermal patches of benazepril hydrochloride	Mr Sandip R Pawar	Pharmaceutics	Indo American Journal Of Pharmaceutical Sciences	2021-2022	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/06/51.IAJPS51062022.pdf	https://www.iajps.com/wp-content/uploads/2021/11/ugc-new.pdf
Development and characterization of mucoadhesive patches of bosentan for buccal	Mr Sandip R Pawar	Pharmaceutics	Indo American Journal Of Pharmaceutical Science	2021-2022	2349-7750	https://www.iajps.com/	https://www.iajps.com/wp-content/uploads/2022/0	https://www.iajps.com/wp-content/uploads/

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administration			s				5/53.IAJPS53052022.pdf	2021/11/ugc-new.pdf
Preparation & Investigation of analytical profile of Indian traditional medicine: Mukta shoktik bhasma by using modern analytical techniques	Mr. Kundan C. Patil. Dr. Gautam P. vadnere, Dr. Mohd. Rageeb Mohd. Usman	Pharmaceutics	International Journal of Botany Studies	2021-2022	2455-541X	https://www.botanyjournals.com/	https://www.botanyjournals.com/archives/2021/vol6/issue6/6-6-109	https://ugccare.unipune.ac.in/apps1/home/index
Preparation and characterization of egg shell bhasma by using modern analytical techniques	Mr. Kundan C. Patil. Dr. Gautam P. vadnere, Dr. Mohd. Rageeb Mohd. Usman	Pharmaceutics	Journal of Medical Pharmaceutical and Allied Sciences	2021-2022	2320-7418	https://jmpas.com/	https://jmpas.com/download/article/1645364949JMPAS_INTERNATIONAL_CONFERENCE_SEP-OCT_2021.pdf	https://www.scopus.com/sourceid/21101042009
Comparative study of Phytochemicals and In vitro Antioxidant Activity of	Mrs. Rupali M. Patil	Pharmaceutics	Bulletin of Environment, Pharmacology	2021-2022	2277-1808	https://bepls.com/	https://bepls.com/special_issue(1)2022/	https://mjl.clarivate.com:/search-results?

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tridax P.Extracted In different solvent and their effect on calcium oxalate and brushite under in vitro condition.			and Life Sciences, [BEPLS]				134.pdf	issn=2277-1808&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=search-results-share-this-journal
Evaluation of Flavonoid Rich Extract of Tridax procumbens Linn for Acute Toxicity Profile and Antiurolithiatic Activity	Mrs. Rupali M. Patil	Pharmaceutics	Bulletin of Environment, Pharmacology and Life Sciences, [BEPLS]	2021-2022	2277-1809	https://bepls.com/	https://bepls.com/special_issue(1)2022/134.pdf	https://mjl.clarivate.com:/search-results?issn=2277-1808&hide_exact_match_fl=true&utm_source=mjl&utm_medium=shar

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Review on Tridax procumbense ,its phytochemical constitutions and Antilithiatic activity.	Mrs. Rupali M. Patil	Pharmaceutics	Bulletin of Environment, Pharmacology and Life Sciences, [BEPLS]	2021-2022	2277-1810	https://bepls.com/	https://bepls.com/special_issue(1)2022/21.pdf	https://mjl.clarivate.com:/search-results?issn=2277-1808&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=search-results-share-this-journal
Formulation and Evaluation of	Suvarnalata Suhas	Pharmaceutics	Int. J. Pharm. Investig	2021-2022	0975-8232	https://www.jpionlin	https://www.jpionline.	https://mjl.clarivate.co

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Proniosomal Topical Antifungal Gel of Miconazole Nitrate	Mahajan*, RY Chaudhari, VR Patil		ation,			e.org/index.php/ijpi	org/index.php/ijpi/article/view/894	m:/search-results?issn=2230-973X&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=journal-profile-share-this-journal
Formulation and Evaluation of Proniosomal Topical Antifungal Gel of f Miconazole Nitrate	Suvarnalata Suhas Mahajan*, RY Chaudhari, VR Patil	Pharmaceutics	International Journal of Pharmaceutical Sciences and Drug Research	2021-2022	0975-248X	https://ijpsdr.com/index.php/ijpsdr	http://www.ijpsdr.com/index.php/ijpsdr/article/view/1807/788	https://ugccare.unipune.ac.in/Apps1/User/WebA/ViewDetails?JournalId=101002202&flag=Search
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Formulation and Evaluation of Sustained Release Tablets of Metoprolol Succinate	Muzammil Husain1*, Sufiyan Ahmad 1, Sajjad Husain1, Md. Rageeb Md. Usman3, V. D. Sodgir 3	Pharmacognosy	Advances in Bioresearch	2020-2021	0976-4585;	https://soeagra.com/abr.html	http://www.apjonline.in/result.php	https://mjl.clarivate.com:/search-results?issn=0976-4585&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=journal-profile-share-this-journal
Antioxidant activity of leaves solvent extract of linn.	Ansari Asif * 1, Sufiyan Ahmad 1, Md. Rageeb Md. Usman 2, Tanvir Shaikh	Pharmacognosy	International Journal of Pharmaceutical Science and Research	2020-2021	0975-8232	https://ijpsr.com/	https://ijpsr.com/?action=download_pdf&postid=73225	https://ugccare.unipune.ac.in/apps1/home/index

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	2, Muzammil Husain 1 and Zuber Shaikh							
Stability indicating RP-HPLC Method For Estimation of Saxagliptin And Dapagliflozin In Bulk And Dosage Form	Sufiyan Ahmad * 1, Md. Rageeb Usman 1,Tanvir Shaikh 1, Md. Imran 2 and Rashid Akhtar 3	Pharmacognosy	International Journal of Pharmaceutical Science and Research	2020-2021	0975-8232	https://ijpsr.com/	https://www.jpsr.pharmainfo.in/Documents/Volumes/vol12issue04/jpsr12042006.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Formation Development And Evaluation Of Microsphere Of Quercetin For The 7 Treatment Of Colon Disease Or Inflammatory Bowel Diseases	M. K. Patel*1, S. K. Shah1, C. K. Tyagi1 and Md. Rageeb Md. Usman2	Pharmacognosy	Journal of Advanced Scientific Research	2020-2021	0976-9595	https://scienseage.info/index.php/JASR	http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=09769595	https://mjl.clarivate.com:/search-results?issn=2454-3225&hide_exact_match_fl=true&utm_source=mjl&utm_mediu

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Antiulcer Activity of Petroleum Ether and Ethanolic Extracts of Tuber of Roxb. in Albino Rats	Md. Rageeb Md. Usman*, Gautam P. Vadnere, Nikita P. Patel	Pharmacognosy	International Journal of Pharmaceutical Sciences Review and Research	2020-2021	0976 – 044X	https://www.globalresearchonline.net/	https://globalresearchonline.net/journalcontents/v66-1/03.pdf	https://www.scopus.com/sourceid/19700188319
Lantana camara: Secondary	Mohammed Rageeb	Pharmacognosy	Journal of Drug Deliver	2020-2021	2250-1177	https://jddtonline.inf	https://jddtonline.info/	https://ugccare.unipun

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Metabolite Isolation by Analytical Techniques	Mohammed Usman*		y and Therapeutics			o/ index.php/ jddt	index.php/ jddt/ article/ download/ 4419/3439	e.ac.in/ Apps1/ User/ WebA/ SearchList
Antihyperlipidemic effect of different extract of whole plant Of diplocyclospal matuslinn. In atherogenic diet induced rats	Md. Rageeb Md. Usman*1, Gautam P. Vadnere1, KiranD. Patil2	Pharmacognosy	GIS Science Journal	2020-2021	1869-9391	https://gisscience.net/	https://gisscience.net/volume-7-issue-11-2020/	https://ugccare.unipune.ac.in/apps1/home/index
Preliminary phytochemical and antibacterial studies of seed oil of Butea Monosperma Lam	MdRageebMd Usman1*, Shaikh Salman Shaikh Babu2	Pharmacognosy	International Journal of Botany Studies	2020-2021	2455-541X	https://www.botanyjournals.com/	http://www.botanyjournals.com/archives/2020/vol5/issue6/5-6-22	https://ugccare.unipune.ac.in/apps1/home/index
Break the Chain of Coronavirus Disease (Covid-19) Infection: A Review	Sufiyan Ahmad *, Md. Rageeb Md. Usman1, Kiran D. Baviska	Pharmacognosy	International Journal of Pharmaceutical Sciences Review	2020-2021	0976–044X	https://www.globalresearchonline.net/	https://globalresearchonline.net/journalcontents/v64-2/30.pd	https://www.scopus.com/sourceid/19700188319

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	r2, Tushar P. Patil3		and Research				f	
Pharmacognostical and preliminary phytochemical evaluation of Diplocyclospalmatuslinn	Gautam P Vadnere1*, MdRageebMd Usman1,Kiran D Patil2	Pharmacognosy	International Journal of Botany Studies	2020-2021	2455-541X	https://www.botanyjournals.com/	http://www.botanyjournals.com/archives/2020/vol5/issue5/5-5-59	https://ugccare.unipune.ac.in/apps1/home/index
Corona Virus (Covid-19) Pandemic: A Systematic Review	Uma G. Daryai[1], Kashmira G. Deore*1, Pramod R. Deore[1], Mohammed Imran[1], Vinod A. Bairagi[1], Md. Rageeb Md. Usman*[2], Priyanka V. Patil[2]	Pharmacognosy	Journal of Pharmaceutical Sciences and Research(JPSR)	2020-2021	0975-1459	https://www.jpsr.pharmainfo.in/	https://www.jpsr.pharmainfo.in/Documents/Volumes/vol12issue04/jpsr12042008.pdf	https://www.jpsr.pharmainfo.in/scopus.php
Pharmacognos	Ansari	Phar	Internat	2020-	2455	https://		https://

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tical and Anthelmintic studies on leaf of Linn	Asif*, Sufiyan Ahmad[1], Md. Rageeb Md. Usman[1], ,Snadip R. Pawar[3], Rohit S. Patil[3]	maco gnosy	ional Journal of Botany Studies	2021	-541 X	www.botanyjournals.com/	http://www.botanyjournals.com/archives/2020/vol5/issue5/5-5-13	ugccare.unipune.ac.in/apps1/home/index
Mouth Dissolving Tablets: A Modern Approach to Delivery of Drug	Prevesh Kumar*[a], Navneet Verma[a], AdityaSharma[a], Diskha[a], Munesh Mani[a], Pawan Singh, Md. Rageeb Md. Usman[b]	Pharmacognosy	Research Journal of Pharmacy and Technology (RJPT	2020-2021	0974-3618	https://www.rjptonline.org/	https://rjptonline.org/AbstractView.aspx?PID=2020-13-6-74	https://www.scopus.com/sourceid/21100197160
Antibacterial and antifungal activities from leaf extracts of .	Ansari Asif *[1], Sufiyan Ahmad[1], Muzammil Hussain[1], Md. Rageeb	Pharmacognosy	International Journal of Pharmacognosy and Phytochemical Researc	2020-2021	0975-4873	https://ijppr.com/	http://impactfactor.org/PDF/IJPPR/12/IJPPR, Vol12,Issue2,Article9.	https://www.scopus.com/sourceid/20400195018

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	Md. Usman[2], Rashid Akhtar[3], Swapnil D. Salunkhe[4]		h (IJPPR)				pdf	
Antimicrobial Activity Of AnacardiumOccidentale On Some Microorganisms Associated With Dental Diseases	Md. Rageeb Md. Usman*, Ansari Asif Husain[1], Sufiyan Ahmad[1], Mohammed Zuber Shaikh[2], Bharat V. Jain[3]	Pharmacognosy	Research Journal of Pharmaceutical, Biological and Chemical Sciences(RJPBCS)	2020-2021	0975-8585	https://www.rjpbcs.com/	https://www.rjpbcs.com/pdf/2020_11(3)/[17].pdf	https://www.scopus.com/sourceid/19700188422
Development and evaluation of oral fast disintigreting tablets of warfarin prepared by Wet granulation technique	Sandip R. Pawar*, Anil S. Mahajan, Md. Rageeb Md. Usman, Tanvir Y. Shaikh, Bharat V. Jain	Pharmaceutics	International Journal Of Pharmaceutical Sciences Review And Research	2020-2021	0976-044X	https://www.globalresearchonline.net/	https://globalresearchonline.net/journalcontents/v65-1/23.pdf	https://www.scopus.com/sourceid/19700188319

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Colonic drug delivery system: a review	Pooja P. Chaudhari*, Sudhir G. Patil1, Sandip R. Pawar1, Md. Rageeb Md. Usman1	Pharmaceutics	International Journal Of Pharmaceutical Sciences Review And Research	2020-2021	0976-044X	https://www.globalresearchonline.net/	https://globalresearchonline.net/journalcontents/v65-1/17.pdf	https://www.scopus.com/sourceid/19700188319
Pharmacognostical and anthelmintic studies on leaf of mimusopselengi linn	Mr Sandip R Pawar	Pharmaceutics	International Journal Of Botany Studies	2020-2021	2455-541X	https://www.botanyjournals.com/	https://www.botanyjournals.com/archives/2020/vol5/issue5/5-5-13	https://ugccare.unipune.ac.in/apps1/home/index
Proniosomal gel: a novel therapeutic topical / transdermal drug delivery system,	S. S. Mahajan,R. Y. Chaudhari, T. Y. Shaikh, P. V. Patil	Pharmaceutics	Int. J. Pharm. Sci. Res.	2020-2021	0975-8232	https://ijpsr.com/	https://ijpsr.com/bft-article/proniosomal-gel-a-novel-therapeutic-topical-transdermal-drug-	https://ugccare.unipune.ac.in/apps1/home/index

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							delivery-system/	
Formulation and Evaluation of Mouth Dissolving Tablet of Lornoxicam Using Novel Natural Superdisintegrants	Mr. K. D Baviskar	Pharmaceutics	American Journal of Pharm Tech Research	2020-2021	2249-3387	https://ajptr.com/	http://www.ajptr.com/	https://www.scopus.com/sourceid/21100863640
Ameliorative Effect of Polysaccharide Rich Fraction from Eulophia herbacea Against Methotrexate Induced Liver Damage in Rats	Gautam P. Vadnere, Kiran D. Patil, ,Mohan Lal Kori, Santram Lodhi	Pharmacognosy	Pharmaceutical Chemistry Journal	2020-2021	1573-9031	https://www.springer.com/journal/11094	https://stradresearch.org/index.php/volume-8-issue-8-2021/	https://mjl.clarivate.com:/search-results?issn=0091-150X&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=search-results-share-this-

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Formulation and Evaluation of Sustained Release Matrix Tablets of Valsartan	Dr. Bharat V jain	Pharmaceutics	World Journal of Pharmacy and Pharmaceutical Sciences	2020-2021	2278 – 4357	https://www.wjpps.com/	https://storage.googleapis.com/journal-uploads/wjpps/article_issue/1601466522.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Synthesis and Biological Evaluation of Novel Triazolyl Quinazolin-4-one Derivatives as Anticancer agents	N. S. Khairnar, A. V. Patil, M. N. Noolvi	Pharma. Chemistry	European Journal of Molecular & Clinical Medicine	2020-2021	2515 - 8260	https://ejmcm.com/	https://ejmcm.com/article_7400_1d2be6bc07c7f9f1cd7ed1dbf19020a9.pdf	https://www.scopus.com/sourceid/21100863640
Review on pyrimidine analogs as potential antihyperlipidemic agents	Prashant Chavan1 , Amitkumar Raval1 , Avinash V. Patil2	Pharma. Chemistry	Indo American Journal of Pharmaceutical Research	2020-2021	2231 - 6876	https://iajpr.com/archive/volume-10/nov-2020	https://iajpr.com/archive/volume-10/nov-2020	https://www.iajps.com/wp-content/uploads/2021/11/ugc-new.pdf
FORMULATI	Purusho	Phar	World	2020-	2278	https://	https://	https://

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ON AND EVALUATION OF BI-LAYERED TABLET OF ANTICONVULSANT DRUG	ttam Suresh Mahajan and Dr. Bharat Vijaykumar Jain*	maceutics	Journal of Pharmacy and Pharmaceutical Sciences	2021	–4357	www.wjpps.com/wjpps_controller/index	storage.googleapis.com/journal-uploads/wjpps/article_issue/1601463670.pdf	ugccare.unipune.ac.in/apps1/home/index
ACADEMIC YEAR 2019-2020								
BarleriaPrionitis: It's Pharmacognosy, Phytochemicals and Its Potential Beneficial Effects in Common Oro-Dental Diseases	Sufiyan Ahmad*, Md. Rageeb Md. Usman[1], Bharat V. Jain[1], Mohammed Zuber Shaikh[2]	Pharmacognosy	Current Pharma Research	2019-2020	2230-7842	https://jcpr.humanjournals.com/	https://www.proquest.com/openview/1ac3e4ec065aed12f0719891491bb5a0/1?pq-origsite=gscholar&cbl=1936342	https://ugccare.unipune.ac.in/apps1/home/index
Pharmacognostical And Phytochemical Assessment Of Leaves Of Hibiscus Sabdariffa	Md. Rageeb Md. Usman*1, Bharat V.	Pharmacognosy	International Research Journal of Humani	2019-2020	2249-2569	https://ijheps.org/	https://ijheps.org/journal/429/PHARMACO	https://ugccare.unipune.ac.in/apps1/home/index

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Linn	Jain2, Tanvir Y. Shaikh2, Zuber Shaikh3,		ties, Engineering & Pharmaceutical Sciences				GNOSTICAL-AND-PHYTOCHEMICAL-ASSESSMENT-OF-LEAVES-OF-HIBISCUS-SABDARIFFA-LINN	
Development And Validation Of Stability Indicating Rp-Hplc Method Of BisoprololAnd Amlodipine In Bulk And Pharmaceutical Dosage Form	Sufiyan Ahmad *,Md. Rageeb Md. Usman*1, Mohammed Imran2, Vinod A. Bairagi 2Rohit S. Patil3,	Pharmacognosy	Indian Journal of Applied Research	2019-2020	2249-555X	https://www.worldwidejournals.com/indian-journal-of-applied-research-(IJAR)/	https://www.jpsr.pharmainfo.in/Documents/Volumes/vol12issue04/jpsr12042008.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Analytical Development and validation of UV Spectrophotom	Sufiyan Ahmad *[1], Avinash Khedka	Pharmacognosy	Journal of Hospital Pharma	2019-2020	2348-7704	https://journalofhospitalpharmacy.	http://www.johp.journalofhospitalph	https://ugccare.unipune.ac.in/apps1/

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etric method of Bisoprolol and Amlodipine in bulk and pharmaceutical dosage form	r[1], Mohammed Imran[2], Md. Rageeb Md. Usman*[3], Bharat V. Jain[4], Swapnil D. Salunkhe[4]		cy			in/	armacy.in/admin/freePDF/e7x1vdnso71xllgtqyix.pdf	home/index
Evaluation and Formulation of Floating Microspheres of Clarithromycin Solid Dispersion	Mr Sandip R Pawar	Pharmaceutics	Our Heritage	2019-2020	0474-9030	https://archives.ourheritagejournal.com/index.php/oh	https://archives.ourheritagejournal.com/index.php/oh/article/view/8365	https://ugccare.unipune.ac.in/apps1/home/index
Evaluation and Formulation of Floating Microspheres of Metronidazole Solid Dispersion	Mr Sandip R Pawar	Pharmaceutics	Our Heritage	2019-2020	0474-9031	https://archives.ourheritagejournal.com/index.php/oh	https://archives.ourheritagejournal.com/index.php/oh/issue/view/10	https://ugccare.unipune.ac.in/apps1/home/index
Evaluation and Formulation of	Mr Sandip	Pharmace	Our Heritag	2019-2020	0474-	https://archiv	https://archive	https://ugccare

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Floating Microspheres of Lansoprazole Solid Dispersion	R Pawar	utics	e		9032	es.ourheritagejournal.com/index.php/oh	s.ourheritagejournal.com/index.php/oh/issue/view/10	.unipune.ac.in/apps1/home/index
Solubility enhancement (Solid dispersions) novel boon to increase Bioavailability	Mr Sandip R Pawar	Pharmaceutics	Journal of Drug delivery and Therapeutics	2019-2020	2250-1178	https://jddtonline.info/index.php/jddt	https://jddtonline.info/index.php/jddt/article/view/2437	https://ugccare.unipune.ac.in/Apps1/User/WebA/SearchList
Bhasma: The effective Nano medicine	Mr. Kundan C. Patil. Dr. Gautam P. vadnere, Dr. Mohd. Rageeb Mohd. Usman	Pharmaceutics	Journal of Emerging Technologies and Innovative Research	2019-2020	2349-5162	https://www.jetir.org/	https://www.jetir.org/	https://ugccare.unipune.ac.in/apps1/home/index
Role of hyaluronic acid based hydrogel in management of wound healing effect	Kiran Baviskar	Pharmaceutics	Advance Pharmaceutical Journal	2019-2020	2456-1436	http://www.apjonline.in/	https://doi.org/10.31024/apj.2019.4.6.3	https://ugccare.unipune.ac.in/apps1/home/index
Investigation on antibacterial	Mr. K.D. Baviska	Pharmaceutics	Advance Pharma	2019-2020	2456-1436	http://www.apjonli	https://doi.org/10.310	https://ugccare.unipun

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effect of Eulophiaherbacea against Streptococcus Mutans.	r		ceutical Journal			ne.in/	24/apj.2019.4.6.5	e.ac.in/apps1/home/index
Design and synthesis of Novel Imidazopyridine analogues and Evaluation as H^+/K^+-ATPase antagonist	R.S. SONAWANE 1, MRUNAL SHIRSAT1, S.R. PATIL 2, J.C. HUNDIWALE 3 and A.V. PATIL	Pharma. Chemistry	Asian Journal of Chemistry	2019-2020	0975 – 427X	https://asianjournalofchemistry.co.in/Home.aspx	https://asianpubs.org/index.php/ajchem/article/view/15029/15001	https://www.scopus.com/sourceid/22703
Design, synthesis and biological evaluation of novel quinoline analogues as hiv-1 integrase inhibitor	K. D. Deo , I. J. Singhvi , S. Murugesan , G. P. Vadnere and A. V. Patil	Pharma. Chemistry	International Journal of Pharmaceutical Sciences and Research	2019-2020	2320 - 5148	https://ijpsr.com/	file:///C:/Users/abc/Downloads/24-Vol.-11-Issue-3-Mar-2020-IJPSR-RA-12348.pdf	https://ugccare.unipune.ac.in/apps1/home/index
Protective effects of Luteolin on	Santram Lodhia ,	Pharmacology	Journal of traditio	2019-2020	2249 - 3387	https://www.science	https://www.sciencedi	https://www.scopus.c

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injury induced inflammation through reduction of tissue uric acid & pro – inflammatory cytokines in rats	Gautam P. Vadnere a, * , Kiran D. Patil b , Tushar P. Patil b		nal & complementary Medicine			direct.com/journal/journal-of-traditional-and-complementary-medicine	irect.com/science/article/pii/S2225411019302408	om/sourceid/21100287117
ACADEMIC YEAR 2018-2019								
Preparation and evaluation of mucoadhesive buccal tablet for oral infection disease	Surajj Sarode1 , S. D. Barhate 1, P. R. Patil2, Md. Ragib Usman3 , A. R. Bendale 4	Pharmacognosy	Journal of Pharmaceutical and BioSciences	2018-2019	2321-0125	https://www.jpbs.in/	https://www.researchgate.net/publication/326242405_Preparation_and_evaluation_of_mucoadhesive_buccal_tablet_for_oral_infection_disease	https://ugccare.unipune.ac.in/apps1/home/index
Contribution of poisonous plants in herbal	Surekha D. Salgar, Md.	Pharmacognosy	Journal of Pharmaceutical	2018-2019	2321-0126	https://www.jpbs.in/	https://www.academia.edu/	https://ugccare.unipune.ac.in/

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remedies	Rageeb Md. Usman, Gautam P. Vadnere, Santram Lodhi, Kranti D. Pati		and BioSciences				91106896/Contribution_of_poisonous_plants_in_herbal_remedies	apps1/home/index
Preparation and evaluation of itraconazole liposome using ether injection solvent evaporation method	Virendra Tripathi1*, Md. Rageeb Md. Usman2-3, Sumeet Dwivedi2-4 and Raghvendra Dubey1	Pharmacognosy	International Journal of Pharmacy & Life Sciences	2018-2019	0976-7126	http://www.ijplsjournal.com/home.html	https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=+%E2%80%9CPreparation+and+evaluation+of+itraconazole+liposome+using+ether+injection+solvent+evaporation+method%E2%	https://ugccare.unipune.ac.in/apps1/home/index

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Nanosuspensions as a promising approach to enhance bioavailability of poorly soluble drugs : An update	StanekzaiAzimullah *, Vikrant1, Sudhakar CK1, Kumar Pankaj1, Patil Akshay2, Md. Rageeb Md. Usman2, Mohammed Zuber Shaikh Usman3	Pharmacognosy	Journal of Drug Delivery & Therapeutics	2018-2019	2250 - 1177	https://jddtonline.info/index.php/jddt	http://www.jddtonline.info/index.php/jddt/article/view/2436	https://ugccare.unipune.ac.in/Apps1/User/WebA/SearchList
Development	Kanke	Phar	Asian	2018-	2320	https://	http://	https://

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and Evaluation of Disintegration Control Matrix Tablets of Febuxostat By Using 2^3 Factorial Design	Pralhad *1, Sawant Pankaj1, Md. Rageeb Md. Usman2 ,Baviskar Kiran3	maco gnosy	Journal of Pharmaceutical Research and Development	2019	-4850	journals.indexcopernicus.com/search/details?id=33982	ajprd.com/index.php/journal/article/view/392	ugccare.unipune.ac.in/apps1/home/index
A Review on Disintegration Control Matrix Tablets	Pralhad K. Kanke* 1, Pankaj Sawant 1, Ajit Jadhav2, Md. Rageeb Md. Usman	Pharmacognosy	Journal of Drug Delivery & Therapeutics	2018-2019	2250-1177	https://jddtonline.info/index.php/jddt	http://jddtonline.info/index.php/jddt/article/view/1852	https://ugccare.unipune.ac.in/Apps1/User/WebA/SearchList
Nanoemulsion: A brief review on development and application in Parenteral Drug Delivery	Gautam P. Vadnere, Tushar Hemant Nikam, Mahesh Pralhad Patil,Snehal Sunil Patil,	Pharmacognosy	Advance Pharmaceutical Journal	2018-2019	2456-1436	http://www.apjonline.in/	http://www.apjonline.in/currentissue.php?acc=view&id=9bf31c7ff062936a96d3c8bd1f8f2ff3	https://ugccare.unipune.ac.in/apps1/home/index
Design, Synthesis and	RAVINDRA S.	Pharma.	Asian Journal	2018-2019	2020-	https://asianjo	https://asianjo	https://www.s

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Pharmacological Evaluation of Novel Imidazopyridine Analogues as Proton Pump Antagonist	SONAWANE 1, KIRAN D. PATILand AVINASH V. PATIL	Chemistry	of Chemistry		2433	urnalofchemistry.co.in/Home.aspx	urnalofchemistry.co.in/User/ViewFreeArticle.aspx?ArticleID=32_4_9	copus.com/sourceid/22703
Docking, Synthesis and Biological Evaluation of Novel Diketoquinoline Analogues as HIV-1 Integrase Inhibitor	KISHORE D. DEO1 , I.J. SINGHVI1 , S.R. PATIL 2 and AVINASH V. PATIL 3,*	Pharma. Chemistry	Asian Journal of Chemistry	2018-2019	2020 - 2433	https://asianjournalofchemistry.co.in/Home.aspx	https://asianjournalofchemistry.co.in/User/ViewFreeArticle.aspx?ArticleID=31_9_18	https://www.scopus.com/sourceid/22703
A Review on techniques to improve solubility of poorly soluble drugs	Harshada Wagh*, Dr. K. S. Salunkhe, Dr. M. J. Chavan, Dr. J. C. Hundiwale, Amit Asti and	Pharma. Chemistry	World Journal of Pharmacy and Pharmaceutical Sciences	2018-2019	2278 – 4357	https://www.wjpps.com/	https://storage.googleapis.com/journal-uploads/wjpps/article_issue/1530351705.pdf	https://ugccare.unipune.ac.in/apps1/home/index

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Synergistic effect of herbal plants on diabetic rats from Satpuda region	Kiran D. Patil, V. Vaidhyalingam, K. L. Shentilkumar	Pharmacology	Journal of Pharmaceutical Biosciences	2018-2020	2456-1436	http://www.apjonline.in/index.php	http://www.speronline.com/jpbs/Articlefile/JPBS_9_2018.pdf	https://ugccare.unipune.ac.in/apps1/home/index
ACADEMIC YEAR 2017-2018								
MarrubiumVulgare L. : A Review on Phytochemical and Pharmacological Aspect	Santram Lodhi1, Gautam Prakash Vadnere1, Vimal Kant Sharma2, Md. Rageeb Usman1	Pharmacognosy	Journal of Intercultural Ethnopharmacology	2017-2018	2146-8397	https://journals.scholarsportal.info/browse/21468397	https://www.researchgate.net/publication/321271535_Marrubium_vulgare_L_A_review_on_phytochemical_and_pharmacological_aspects	https://www.scopus.com/sourceid/21100798510
Phytochemical investigation and in vitro antimicrobial screening of Santalum albumseeds	Gautam P. Vadnere, Md. Rageeb Usman, Santram	Pharmacognosy	International Journal of Pharmacy and Pharma	2017-2018	0975-4725	https://journals.innovareacademics.in/index.	https://www.innovareacademics.in/journals/	https://www.scopus.com/sourceid/197001

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extracts.	Lodhi, Vaishali Patil.		ceutical Sciences			php/ ijpps	index.php/ ijpps/ article/ view/ 21216	74810
Analytical Method Development and Validation for The Simultaneous Estimation of Emtricitabine and Tenofovir by Reversed-Phase High Performance Liquid Chromatography In Bulk and Tablet Dosage Forms	Sufiyan Ahmad *, Md. Rageeb Md. Usman[1]	Pharmacognosy	Asian Journal of Pharmaceutical & Clinical Research	2017-2018	2455-3891	https://innovareacademics.in/journals/index.php/ajpcr	https://www.innovareacademics.in/journals/index.php/ajpcr/article/view/20477	https://www.scopus.com/sourceid/19700174904
Development and Validation of RP- HPLC Method for Simultaneous Estimation of Metformin and Miglitol in Bulk and Dosage Form	Sufiyan Ahmad *; Ansari Sajjad; Md. Rageeb Md.Usman; Mohammed Imran; Rashid Akhtar3	Pharmacognosy	Asian Journal of Pharmaceutical & Clinical Research	2017-2018	2455-3891	https://innovareacademics.in/journals/index.php/ajpcr	https://asianjpr.com/HTMLPaper.aspx?Journal=Asian%20Journal%20of%20Pharmaceutical%20Research;	https://www.scopus.com/sourceid/19700174904

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Novel RP-HPLC Method Development and Validation of Meloxicam Suppository	Sufiyan Ahmad[1]*, Sharma Deepika[1], Patil Amol[1], Warude Kapil[1], Md. Rageeb Md.Usman[2]	Pharmacognosy	International Journal of Pharmaceutical Education and Research (IJPER)	2017-2018	0019-5464	http://www.ijper.in/index.php/IJPER	https://www.ijper.org/sites/default/files/10.5530ijper.51.4.95.pdf	https://mjl.clarivate.com:/search-results?issn=0019-5464&hide_exact_match_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=search-results-share-this-journal
Pharmacognostic and Antioxidant Studies of PyrostegiaVenusta Pres. Stem	Md. Rageeb Md. Usman*	Pharmacognosy	Indo American Journal of Pharmaceutical Sciences	2017-2018	2349-7750	https://www.iajps.com/	http://www.iajps.com/issue_17august.php	https://www.iajps.com/wp-content/uploads/2021/1

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Pesticides: An Overeview	Md. Rageeb Md. Usman* ,Koli Deepak Ramdas , Kiran D. Baviskar	Pharmacognosy	Journal of Drug Delivery & Therapeutics (JDDT)	2017-2018	2250 - 1177	https://jddtonline.info/index.php/jddt	http://jddtonline.info/index.php/jddt/article/view/1462	https://ugccare.unipune.ac.in/Apps1/User/WebA/SearchList
Hyphenated Techniques of Drug Analysis	Md. Rageeb Md. Usman* ,Swapnil R. Badgujar, Tanvir Y. Shaikh	Pharmacognosy	Scholars Academic Journal of Pharmacy (SAJP)	2017-2018	2320 - 4206	https://www.saspublishers.com/journal/sajp/home	https://www.semanticscholar.org/paper/Hyphenated-Techniques-of-Drug-Analysis-Badgujar-Shaikh/ee643f316b4d260744c64a4e1a809ccc6087ed1e	https://ugccare.unipune.ac.in/apps1/home/index

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Niosomes: A Novel Trend of Drug Delivery	Md. Rageeb Md. Usman* ,Prasanna R. Ghuge and Bharat V. Jain	Pharmacognosy	European Journal of Biomedical and Pharmaceutical sciences (EJBPS)	2017-2018	2349 - 8870	https://www.ejbps.com/	file:///C:/Users/DELL/Downloads/article_ejbps_volume_4_july_issue_7-1498819254%20(1).pdf	https://ugccare.unipune.ac.in/apps1/home/index
Effect of Size Reduction and Drying Technology on Granules Production	Md. Rageeb Md. Usman* , Arun S. Mahajan and Sandip R. Pawar	Pharmacognosy	World Journal of Pharmacy and Pharmaceutical Sciences (WJPPS)	2017-2018	2278 - 4357	https://www.wjpps.com/	file:///C:/Users/DELL/Downloads/article_wjpps_1498822263%20(1).pdf	https://ugccare.unipune.ac.in/apps1/home/index
Analytical method development and validation abacavir and lamivudine	Sufiyan Ahmad, Lalit Patil, Md. Rageeb Md. Usman, Mohammad Imran,	Pharmacognosy	Pharmacognosy Research (PR)	2017-2018	0974 - 8490	https://www.phcogres.com/	http://www.phcogres.com/showcaptcha.asp?RedirectUrl=article&issn=097	https://mjl.clarivate.com:/search-results?issn=0974-8490&hide_exact_mat

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	Rashid Akhtar						4-8490;year=2018;volume=10;issue=1;spage=92;epage=97;aulast=Raees;type=2	ch_fl=true&utm_source=mjl&utm_medium=share-by-link&utm_campaign=search-results-share-this-journal
Relevance and Perspectives of Experimental Wound Models in Wound healing Research	Gautam P. Vadnere. Santram Lodhi,	Pharmacognosy	Asian Journal of Pharmaceutical and Clinical Research	2017-2018	2455-3891	https://journals.innovareacademics.in/index.php/ajpcr/index	https://innovareacademics.in/journals/index.php/ajpcr/article/view/18276	https://www.scopus.com/sourceid/19700174904

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4. Proof for all the publications, for all the assessments Years.

3.3.1.1 (1) Number of research papers per teachers in the Journals notified on UGC website during the last five years 2022-23

S.N	Title of paper	Name of the author/s	Name of journal
1	Formulation, Development & Characterization of Silver Nanoparticle of Indian Traditional Herbs WithaniaSomnifera (Ashwagandha)	Md. Rageeb Md. Usman, Bhagyesh Pahade, Swapnil D. Salunkhe2	Journal of Hospital Pharmacy
2	Pharmacognostic Evaluation of TrachyspermumAmmi (Ajwain Seeds) Seed Extract for Vulvovaginal Candidiasis (VVC)	Md. Rageeb Md. Usman, G. P. Vadnere, Snehal Pawar	International Journal of Medical & Pharmaceutical Sciences (IJMPS)
3	Dynamic review of perfume from essential oil Geraniol (pelargonium graveolens) and ginger (Zingiberofficinale)	Dr. Md. Rageeb Md. Usman1, Mr. SajanMangilalPawara	Indo american journal of Pharmaceutical sciences
4	Phytochemical investigation of apamarga (Achyranthesasperalinn.) on flowers and fruits	M Z Shaikh1, Md Rageeb Md Usman2, Mayuri K Mahajan2	International Journal of Botany Studies
5	Formulation and evaluation of natural Antiacne serum using Cinnamomum Camphora (Bhimseni kapur)	Md. Rageeb Md. Usman, Quresh A. I. Shaikh1, M. Z. Shaikh2	Indo american journal of Pharmaceutical sciences
6	In-Vivo and Ex-Vivo ComparativeStudy of Transdermal Patch of Ramosetron Hydrochloride	Sanjay Nagdev1 Dr. Omprakash Agrawal , Dr. Mdrageeb Md.Usman	Nat. Volatiles &Essent. Oils,
7	Development of Spray-dried Mucoadesive Valsartan Nasal icroparticles: Formulation, Optimization and Evaluation	TUFAIL DANA1*, SUFIYAN AHMAD2MD. RAGEEB3 AND	International Journal of Biology, Pharmacy and Allied Science (IJBPAS
8	Review of miracle formulation of anorexia using amalakyadi churna	Mr. Bhushan Pravin Patil, Mrs. K .D.	International Journal of Research and
9	Comparative analysis of Covid19 Vaccine and their efficacy	Mr. Kundan C. Patil, Dipak B. Bari,	Journal of Hospital Pharmacy
10	A concise review on analytical profile of Vigabatrin	Vikas R. Patil, Mr. Sudhir G Patil,	World Journal of Advanced Research
11	Hypolipedemic Effect Of Seed Extract Of Trigonella foenum-graceum In Non-Diabetic Volunteers: A Systematic Review And Meta Analysis.	Mr. K. D. Baviskar	Latin American Journal of Pharmacy
12	Medicinal Plants and Herbal Concoctions on the Rise Post Covid-19 Pandemic Threat – An Exploratory Study	Dr. B.V.Jain	Journal of Coastal Life Medicine
13	Prophylactic Preparations for Common Ailments of the Respiratory Tract	Dr. S.R. Pawar	Journal of Survey in Fisheries Sciences
14	To design and evaluate miracle formulation of Anorexia using amalakyadi churna	Mrs. K .D. Patil	Indo american journal of Pharmaceutical sciences

15	Profile Access and Treatment of Minor Symptoms as First Line of Defense Against Prevalent Viral Attack	Sandip R. Pawar*, Md. Rageeb Md. Usman1, Bhushan P. Patil1, Amit D.	Journal of Costal Life Medicine
16	Preparing Herbal Formulations through Indigenous and Modern Methods: An Experimental Study	Md. Rageeb Md. Usman*, Sandip R. Pawar1, Prerna N. Jadhav1,	Journal of Costal Life Medicine
17	Increased Reliance on OTC Drugs as Anti-depressants by Housewives of Urban Area	Sandip R. Pawar*, Bharat V. Jain1, Pavan A. Chaudhari1, Piyush K.	Journal of Costal Life Medicine
18	Concomitant Use of Local Herbal Cornucopia in Providing Relief from Respiratory Disorders	Md. Rageeb Md. Usman	Journal of Survey in Fisheries Sciences
19	Impact of OTC Purchase and Utilization of Pain Killers in Rheumatoid Arthritis	Bharat V. Jain	Journal of Survey in Fisheries Sciences
20	Formulation and Application of Herbal Preparation for Bacterial Pathogen	Bharat V. Jain	Journal of Survey in Fisheries Sciences
21	Anti-Inflammatory Action of Essential Oils and Their Usage in respiratory Tract Infection	Md. Rageeb Md. Usman*, Bharat V. Jain1, Suvarnalata S. Mahajan1,	Bulletin of Environment, Pharmacology and Life Sciences
22	Self-Medication post Covid-pandemic Treating Common Viral Ailments	Bharat V. Jain*, Md. Rageeb Md. Usman1, Tanvir Y. Shaikh2, Atul A.	Bulletin of Environment, Pharmacology and Life Sciences
23	Immunity builders in local herbs concoctions of giloy, guava leaves, tulsi, aloe vera, amla, coconut water and others as popular pharmaceutical	Sandip R. Pawar*, Bharat V. Jain1, Pavan A. Chaudhari1, Bhushan	Journal of Clinical Otorhinolaryngology, Head, and Neck
24	Chest congestion and infusions of ginger, honey, tulsi, blackpepper and other home remedies as otc dispensed pharma products	Md. Rageeb Md. Usman*, Bharat V. Jain1, Akansha L. Patil1, Priyanka S.	Journal of Clinical Otorhinolaryngology, Head, and Neck

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Formulation, Development & Characterization of Silver Nanoparticle of Indian Traditional Herbs Withania Somnifera (Ashwagandha)

Md. Rageeb Md. Usman[*], *Bhagyesh Pahade*[1], *Swapnil D. Salunkhe*[2]

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[2] Department of Pharmacognosy, Smt. Sharadchandrika Suresh Patil College of Pharmacy, Chopda, Maharashtra, India

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ABSTRACT

Nanotechnology has evolved into a platform for modifying and developing significant metal characteristics in the form of nanopaticles, with potential uses in a variety of disciplines for the benefit of humanity. Endophytic fungus Fusarium sp. was isolated from healthy leaves of Withania sominnifera (Ashwagandha) for extracellular production of silver nanoparticles in the current work (AgNps). Visual inspection, UV-Vis spectroscopy, and scanning electron microscopy were used to analyse the synthesized AgNps (SEM). The effectiveness of the AgNps produced against bacterial pathogens such as E.coli, S.typhi, and S.aureus was also examined.Visual observation of a shift in colour from pale white to brown indicated the creation of AgNps, and UV-Vis spectra at 440 and 422 nm were used to establish the Surface Plasmon Resonance. SEM demonstrated the production of tiny spherical nanoparticles with a diameter of 12-20 nm. AgNps' antibacterial efficacy against E.coli, S.typhi, and S.aureus was promising, with the highest zone of inhibition of E.coli, S.typhi, and S.aureus.

Keywords: *Withania sominnifera*, Ashwagandha, Silver Nanoparticle.

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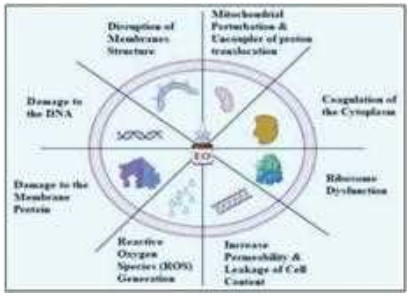
The demand for aromatic and medicinal plants containing essential oils is growing continuously particularly in the field of biomedical or pharmaceutical applications, which includes antiseptic (as bactericidal, virucidal, and fungicidal) and medicinal), as flavour in drinks, foods, spices, and preservatives in food industries, perfumery as perfume, for aromatherapy and pharmacy as a healer, as insecticides in the agriculture sector and other anthropogenic applications and also for household application. Due to the dual role of essential oils as showing pharmacological actions and as natural preservatives, they play a major contribution in chemical industries for research and development.[1,2]

Vulvovaginal candidiasis is a symptomatic vaginitis (vaginal inflammation) brought on by a Candida yeast infection and frequently affects the vulva.[3]



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https://doi.org/10.5281/zenodo.6850533

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DYNAMIC REVIEW OF PERFUME FROM ESSENTIAL OIL GERANIOL (PELARGONIUM GRAVEOLENS) AND GINGER (ZINGIBER OFFICINALE)

Dr. Md. Rageeb Md. Usman[1], Mr. Sajan Mangilal Pawara[1]*

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Article Received: May 2022 **Accepted:** June 2022 **Published:** July 2022

Abstract:

Perfume is a mixture of fragrant essential oils or aroma compounds (fragrances), fixatives and solvents, usually in liquid form, used t

The Egyptians developed aromatic oils and essences 5000 years ago. Great perfume lovers,

They used almond and rose oil, frankincense and myrrh, cedar, mimosa and lily, nutmeg, sweet balsam, cassia, benzoin and labdanum

Keywords: Perfume, Pelargonium Graveolens, Zingiber officinale

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Phytochemical investigation of apamarga (" " # linn.) on flowers and fruits

M Z Shaikh[1], Md Rageeb Md Usman[2], Mayuri K Mahajan[2]
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[2] Department of Pharmacognosy, Smt. Sharadchandrika Suresh Patil College of Pharmacy, Chopda, Maharashtra, India

Abstract
Preliminary screening of phytochemicals is a valuable step, in the detection of the bioactive principles present in medicinal plants and subsequently, may lead to drug discovery and development. Phytochemical investigation was carried out on the plant *Achyranthes aspera* which revealed the presence of medicinally important bioactive compounds. The presence of various phytochemical compounds in the plant *Achyranthes aspera* was evaluated in flowers and fruits. The extracts were subjected to qualitative screening test for various constituents. The extracts of *Achyranthes aspera* showed the presence of phytochemicals such as alkaloids, carbohydrates, flavonoids, proteins, and saponins.

Keywords: *Achyranthes aspera* linn., extracts, phytochemical investigation

Introduction
The term "medicinal plant" refers to a plant whose parts contain compounds that can be used to treat illnesses. The importance of medicinal plants to the wellbeing of people and communities is greater. Plant-based medicines are advantageous and well-known for their reliability, accessibility, and affordability. Whole plant parts that are primarily prepared from various plant parts may be included in herbal medicine. They are applied topically as well as orally and inhaled. [1].

A wide variety of chemical compounds are produced by plants, and they are divided into primary and secondary metabolites according to their chemical class, biosynthetic origin, and functional groups. While secondary metabolites have been used as biocatalysts, they are not directly involved in growth and development like primary metabolites are. Primary metabolites can be found in all types of organisms and are widely distributed innature. Similar to amino acids, nucleotides, carbohydrates, and chlorophyll, they play a crucial part in metabolic processes like photosynthesis, respiration, and nutrient assimilation. [2].

The plant species Achyranthes aspera Linn., which belongs to the Amaranthaceae family, is also known as apamarga. It is a well-known medicinal plant that is found to be used in tropical African and Asian countries as herbal remedies. It thrives in humid climates and is typically found as a weed throughout India. Every single partof the plant is frequently used to treat a variety of illnesses, including stomatitis, asthma, piles, dysentery, etc. Additionally, it functions as an abortifacient, an anti-diabetic, and an anti-inflammatory. [3].

Many Ayurvedic medicines' pharmacologically active components are currently being identified, and their value for drug therapy is being assessed [4].

The major aim of this work is to perform collection, extraction of *Achyranthes aspera* and detection of phytochemical constituents such as flavonoids, carbohydrates, proteins, tannins, etc.

Materials and Methods
Collection and authentication of plant material
Plant materials *Achyranthes aspera* were collected from Chopda region of Jalgaon district (Maharashtra). The plants were verified by the Western Regional Centre of the Botanical Survey of India in Pune, and a herbarium was deposited at the Department of Pharmacognosy of the Smt. S. S. Patil College of Pharmacy in Chopda, District of Jalgaon.

Extraction of flowers and fruits of " "
The collected flowers and fruits were carefully cleaned in the current study for extraction from Achyranthes aspera to remove foreign, earthy matter, and residual materials. Later, in the twilight, it withered. The leaveswere spread in a tray and air dried for a period of 7 days. The parched leaves were then pulverized using a laboratory pulverizer and the powder (particle size approximately 0.4 mm) was used for extraction. Extraction is the basic step in herbal drug preparation and it helps the plant metabolites to get solubilised in solvents. The important factors that affect the efficiency of extraction process are solubility of metabolites in the menstruum, temperature of extraction, particle size of the plant materials etc. A molecule may be water soluble or water

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SJIF Impact Factor: 7.187

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FORMULATION AND EVALUATION OF NATURAL ANTI-ACNE SERUM USING (+$$, ,', (, - (BHIMSENI KAPUR)

Md. Rageeb Md. Usman*, Quresh A. I. Shaikh[1], M. Z. Shaikh[2]

*[1]Department of Pharmacognosy, Smt. Sharadchandrika Suresh Patil College of Pharmacy, Chopda, Maharashtra, India

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Article Received: May 2022 **Accepted:** June2022 **Published:** July 2022

Abstract:

The moisture content present in human skin makes it look young and the use of moisturizer results in fastening the moisture with a surface film of oil. Acne vulgaris is one of the most commonly seen diseases among the youth. The present study is focused on the use of herbs as moisturizer for acne treatment. The anti-acne moisturizer was formulated from herbal crude extracts and investigated the physico-chemical parameters as well as antibacterial activity of the formulation. The study revealed that extract of Cinnamomum Camphora possessed the potential for inhibiting acne. It was observed that the optimal formula of anti-acne moisturizer was satisfactorily effective to control acne inducing bacteria i.e., Gram negative bacteria. The physico-chemical parameters of the formulation were also optimal with no signs of irritation.

Formulation, Evaluation, Cinnamomum Camphora, Bhimseni Kapur.

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Please cite thisarticle in press Md. Rageeb Md. Usman et al, $ % & ' ((#")" * # ! *Indo Am. J. P. Sci, 2022; 09(7).*

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Natural Volatiles &
Essential Oils

In-Vivo and Ex-Vivo Comparative Studyof Transdermal Patch of Ramosetron Hydrochloride

Sanjay Nagdev[1]* , Dr. Omprakash Agrawal[2] , Dr. Md rageeb Md. Usman[3]

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DEVELOPMENT OF SPRAY-DRIED MUCOADESIVE VALSARTAN NASAL MICROPARTICLES: FORMULATION, OPTIMIZATION AND EVALUATION

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ABSTRACT

The purpose of this research was to formulate, characterize, the Valsartan Nasal Microparticles encapsulated in dried *Lipidium sativum* mucilage based spray dried mucoadhesive microspheres for treating hypertension. Factorial design has been employed for the assessment of influence of three independent variables, inlet temperature, feed flow rate and drug–polymer ratio on production yield, particle size, and in vitro drug diffusion. Microparticles were evaluated for particle size, entrapment efficiency, swelling property, in vitro mucoadhesion, in vitro drug diffusion and stability studies. The result of differential scanning thermogram of Valsartanmicroparticles showed the peak at 109.76 °C and polymer at 263.47 °C. This DSC study further confirmed that there was no drug-polymer interaction in microparticles. X-ray diffraction The diffractogram of isolated polymer showed the characteristic sharp peak at 9.2°, 12.5°, 17° and 27.6° due to presence of particles in geometrical shape and it indicated the polymer is crystalline in nature. From the SEM photographs, it was observed that microparticles were found to be 5 µmin size and spherical in shape having smooth surface morphology. FT-IR analysis of optimized

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SJIF Impact Factor: 7.187

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TO DESIGN AND EVALUATE MIRACLE FORMULATION OF ANOREXIA USING AMALAKYADI CHURNA

Mr. Bhushan Pravin Patil[1]*, Mrs. K .D. Patil[2], Dr. G .P. Vadnere[3], Mr. Gopal Jagannath Ahire[4]

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Article Received: May 2022 **Accepted:** May2022 **Published:** June 2022

Abstract:

Ayurvedic medicines play an important role in gastro intestinal problems due to safety and efficacy in it. Hence churna meant for dige Anorexia and cachexia are major clinical problems seen in a large proportion of patients with advanced cancer. Weight loss has also b Amalakyadi Churna was subjected to pharmaceutical evaluation (evaluation of different physicochemical and phytochemical paramet

Keywords: Amalakyadi Churna, Suvarna Bhasma, Hirak Bhasma, Emblica officinalis.

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Comparative analysis of Covid19 Vaccine and their efficacy

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List of abbreviation: GMT: Geometric Mean Titre (U/mL); SAR: severe acute respiratory syndrome, CoV-2 Covid 2, SARS Cov 2: Severe acute respiratory syndrome,

Email Id: serviceheb@gmail.com

Abstract:
During this previous two years the word again focused on vaccine and vaccination program since we were facing pandemic situation of severe acute respiratory syndrome, SARS, CoV-2, or 2019 novel CoV. Nevertheless, development, and production of effective vaccine, implementation of vaccination as well was slowed & challenging as once the epidemic was controlled meanwhile.
Vaccination on covid-19 pandemic was also challenging related to distribution of vaccine with enough quantity and also to isolating person with seasonal cold flue. This review article mainly introduces the general aspect of vaccine, specification of different SARS Cov 2 vaccine with efficacy.
Keywords: SARS-CoV-2, COVID-19, Corona virus, Covid vaccines, Pfizer-BioNTech COVID-19 Vaccine, The Bharat Biotech COVID-19 Vaccine (COVAXIN), COVISHIELD, Sputnik V Vaccine, COVID-19 Vaccine Janssen, Moderna COVID-19 Vaccine (Spikevax), Sinopharm COVID-19 Vaccine, Convidicea Vaccine

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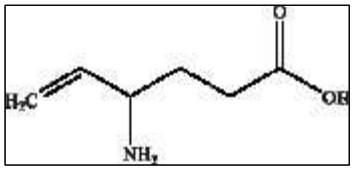

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Hypolipidemic Effect of Seed Extract of *Trigonella foenum-graecum* in Non-Diabetic Volunteers: A Systematic Review and Meta-Analysis

Kiran D. PATIL [1] *, Kiran D. BAVISKAR [2], Priyanka V. PATIL [3], Priyanka S. JAIN [3], Prerana N. JADHAV [3], Suvarnalata S. MAHAJAN [3] & Akanksha L. PATIL [3]

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&', / **Hyperlipidemia is a common risk factor for various metabolic syndromes such as hypertension, cardiovascular disease, diabetes, abdominal obesity, etc. Earlier research has proven 0 % % seed extract's favorable effect on this risk factor. This pooled analysis aims to analyze the efficacy and safety of 0 % seed extract in managing hyperlipidemia in non-diabetic volunteers. Searches were conducted in ACP Journal Club, Health Technology Assessment, Cochrane Central Register of Controlled Trials, Embase, Ovid MEDLINE(R), and PubMed from inception to October 2021. Only English language studies were included with at least one lipid profile outcome. Data were collected to analyze the effect of 0 % seed extract on hyperlipidemia, hypercholesterolemia, and hyperlipoprotein- emia. A total of 13 studies were included in the final review. Pooled analysis of 10 clinical trials reported a sig- nificant decrease in total cholesterol (TC) (# < 0.00001) with fenugreek seed compared to control. A combined analysis of 9 clinical trials identified improvement in TG after fenugreek seed consumption (# = 0.08) but not significantly. Moreover, low-density lipoprotein (LDL-C) has improved with fenugreek seed. However, no sig- nificant Improvement has been observed in very low-density lipoprotein (VLDL-C), high-density lipoprotein (HDL-C), and after consumption of fenugreek seed. The findings demonstrated that seed extract of 0 % is effective for managing hyperlipidemia. However, better quality and long-duration clinical trials are required to support effective dose preparation, providing better conclusive evidence.**

&', $ La hiperlipidemia es un factor de riesgo común para varios síndromes metabólicos como hipertensión, enfermedad cardiovascular, diabetes, obesidad abdominal, etc. Investigaciones anteriores han demostrado el efecto favorable del extracto de semilla de *Trigonella foenum-graecum* sobre este factor de riesgo. Este análisis combinado tiene como objetivo analizar la eficacia y seguridad del extracto de semillas de *Trigonella foenum-grae*cum en el manejo de la hiperlipidemia en voluntarios no diabéticos. Las búsquedas se realizaron en ACP Journal Club, Health Technology Assessment, Cochrane Central Register of Controlled Trials, Embase, Ovid MEDLINE(R) y PubMed desde el inicio hasta octubre de 2021. Sólo se incluyeron estudios en inglés con al menos un resultado de perfil de lípidos. Se recopilaron datos para analizar el efecto del extracto de semilla de *Trigonella foenum-graecum* sobre la hiperlipidemia, la hipercolesterolemia y la hiperlipoproteinemia. En la revisión final se incluyeron un total de trece estudios. El análisis combinado de 10 ensayos clínicos informó una disminución significativa en el colesterol total (TC) (p < 0,00001) con semillas de fenogreco en comparación con el control. Un análisis combinado de 9 ensayos clínicos identificó una mejora en TG después del consumo de semillas de fenogreco (p = 0,08), pero no significativa- mente. Además, la lipoproteína de baja densidad (LDL-C) ha mejorado con la semilla de fenogreco. Sin embargo, no se ha observado una mejora significativa en las lipoproteínas de muy baja densidad (VLDL-C), las lipoproteínas de alta densidad (HDL-C) y después del consumo de semillas de fenogreco. Los hallazgos demostraron que el extracto de semilla de *Trigonella foenum-graecum* es efectivo para controlar la hiperlipidemia. Sin embargo, se requieren ensayos clínicos de mejor calidad y mayor duración para respaldar la preparación de dosis efectivas, proporcionando una mejor evidencia concluyente.

KEY WORDS: cholesterol, hyperlipidemia, low-density lipoproteins, seed extract, *Trigonella foenum-graecum*, very low-density lipoprotein

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In response to the fast expansion of coronavirus illness, the need for medicinal plant raw materials has increased. The extraordinary spread of the pandemic likely contributed to the issue of drug scarcity, –since prices on the global market were inflated and transit was hampered by restricted borders. The public's easy access to health information, fear of adverse reactions to chemical treatments, and the need to personalise healthcare all played a role in the rise of alternative medicine. Moreover, there is a long list of aftereffects after COVID-19 symptoms have shown, and in some individuals, these aftereffects persisted even once a number of months.‖ No medications exist to treat these symptoms. As a result, many people turned to alternative and complementary treatment.

Traditional medicine has always made use of plants. There are chemicals in plants, and the activity of those chemicals is channelled towards different processes, which then enter into intricate interactions with the organism. –The presence of active substances (alkaloids, flavonoids, glycosides, vitamins, tannins, and coumarin compounds) in plants is what gives them their medicinal qualities, as these substances have a physiological effect on human and animal organisms or have biological activity against pathogens of various diseases‖. Aromatic chemicals, mostly phenols, are produced by plants, and oxygen-substituting derivatives of these compounds have medical use. Diseases affecting several organs and systems, as well as disorders that are secondary or tertiary to the primary ailment, may be treated with a single medicinal plant derivative. Plants, in all its guises, have been known to have a wide range of impacts on the human body for quite some time. Here are a few examples:

(i) Alkaloids are a kind of plant defence used to ward off pests like insects and larger animals. It has been shown that certain plant-based bioactive chemicals are effective against drug-resistant viral strains.

Prophylactic Preparations for Common Ailments of the Respiratory Tract

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Abstract

Hospitalization rates are highest for those who have been diagnosed with a respiratory illness. Patients in ICUs often develop severe sepsis and septic shock due to pneumonia (ICUs). “Complications from respiratory infections may be exacerbated by coexisting disorders such asthma, COPD, and sinusitis. Cough, sore throat, cold, tonsillitis, peritonsillar abscess, epiglottitis, laryngitis, tracheitis, and hoarseness are all symptoms of an upper respiratory tract infection. The most common forms of illness affecting the lower respiratory tract include influenza, bronchiolitis, bronchitis, and pneumonia. Influenza A and B viruses, adenoviruses, coronaviruses, rhinoviruses, respiratory syncytial viruses, enteroviruses, parainfluenza viruses, and Epstein-Barr virus are among the most common viruses that cause upper respiratory tract infections.” This research is focused on examining the treatment of respiratory tract infections.

Keywords: *Respiratory, Pneumonia, Asthma, Chronic Obstructive Pulmonary Disease, Influenza, Bronchiolitis, Bronchitis.*

INTRODUCTION

The World Health Organization has declared COVID-19 a global pandemic, and there have been 7,713,571 confirmed cases and 427,578 deaths.

To put it simply, health education is a procedure by which people acquire the knowledge and skills necessary to adopt lifestyles that support their own and others' health and well-being (Kuzman, 2005)1. It's not without its own difficulties and dangers to implement a successful health education project. Whether or whether the intervention is successful in changing behaviour relies on how well it works for the intended population in their natural environments and in light of their prior experiences and knowledge.

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TO DESIGN AND EVALUATE MIRACLE FORMULATION OF ANOREXIA USING AMALAKYADI CHURNA

Mr. Bhushan Pravin Patil[1]*, Mrs. K .D. Patil[2], Dr. G .P. Vadnere[3], Mr. Gopal Jagannath Ahire[4]

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Article Received: May 2022 **Accepted:** May2022 **Published:** June 2022

Abstract:

Ayurvedic medicines play an important role in gastro intestinal problems due to safety and efficacy in it. Hence churna meant for dige Anorexia and cachexia are major clinical problems seen in a large proportion of patients with advanced cancer. Weight loss has also b Amalakyadi Churna was subjected to pharmaceutical evaluation (evaluation of different physicochemical and phytochemical paramet

Keywords: Amalakyadi Churna, Suvarna Bhasma, Hirak Bhasma, Emblica officinalis.

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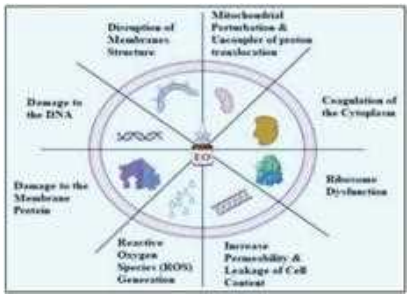
The demand for aromatic and medicinal plants containing essential oils is growing continuously particularly in the field of biomedical or pharmaceutical applications, which includes antiseptic (as bactericidal, virucidal, and fungicidal) and medicinal), as flavour in drinks, foods, spices, and preservatives in food industries, perfumery as perfume, for aromatherapy and pharmacy as a healer, as insecticides in the agriculture sector and other anthropogenic applications and also for household application. Due to the dual role of essential oils as showing pharmacological actions andas natural preservatives, they play a major contribution in chemical industries for research and development.[1,2]

Vulvovaginal candidiasis is a symptomatic vaginitis (vaginal inflammation) brought on by a Candida yeast infection and frequently affects the vulva.[3]



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Health care systems throughout the world have been greatly improved by the discovery and widespread use of chemically produced medications during the last century. While Western medicine has made great strides in recent decades, huge portions of the population in poor nations continue to depend on traditional practitioners and herbal remedies as their major source of healthcare. Up to 90% of Africans and 70% of Indians rely on traditional medicine for their primary health treatment. More than 90% of China's general hospitals also include departments dedicated to traditional medicine, and this sector contributes for over 40% of the country's total health care spending (WHO 2005)[1]. Yet, traditional medicine is not just practiced in underdeveloped regions; in the developed world, interest in natural remedies, including the use of ethnobotanicals, has exploded during the last two decades. Around 38% of adults and 12% of children in the United States used alternative medicine in 2007. (Ernst, Schmidt, and Wider 2005)[4].

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To study how minor symptoms are the first line of defense against prevalent viral attack.

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Collection of data on traditional medicines as first line of defense.

Using traditional medicine is common because it is more accessible financially, because it better aligns with the patient's ideology, because it allays fears about the side effects of chemical (synthetic) medicines, because it satisfies the desire for more individualized care, and

because it improves the quality of life for the general public. Medications are often used for preventative

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While the microorganism induces cytokines and chemokines, which may lead to prolonged inflammatory reactions, the immune response to respiratory (Ball et al, 2002)[1]tract infection is a double-edged sword that is responsible for many of the symptoms associated with these infections. Inflammatory cell phagocytosis of an invading pathogen is a natural and important part of host defence. Nevertheless a great deal of data indicates that the products of these inflammatory cells have deleterious effects throughout a wide part of the spectrum. Products like these may increase mucus production and hinder ciliary clearance, both of which can lead to infection worsening or even reinfection. The byproducts of primary inflammatory cells might paradoxically weaken the immune system while simultaneously boosting the activity of secondary inflammatory cells. These findings indicate that modifying the immune response might be an essential part of a complete treatment plan for a respiratory tract infection (Butler and Buss, 2006)[2]. Secretions produced by the lungs and the mucociliary escalator are the primary defence systems, serving to ensnare and expel invading microbes. Immunoglobulin A (IgA) systems are one type of microorganism-inhibiting protein found in lung secretions; they work to prevent bacteria from sticking to epithelial cells, restrict their growth, and kill them when possible. It is possible that neutrophil elastase contributes to the pathophysiology of pulmonary diseases by facilitating neutrophil infiltration of the airways and so increasing mucus production. Important characteristics of

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In response to the fast expansion of coronavirus illness, the need for medicinal plant raw materials has increased. The extraordinary spread of the pandemic likely contributed to the issue of drug scarcity, –since prices on the global market were inflated and transit was hampered by restricted borders. The public's easy access to health information, fear of adverse reactions to chemical treatments, and the need to personalise healthcare all played a role in the rise of alternative medicine. Moreover, there is a long list of aftereffects after COVID-19 symptoms have shown, and in some individuals, these aftereffects persisted even once a number of months.‖ No medications exist to treat these symptoms. As a result, many people turned to alternative and complementary treatment.

Traditional medicine has always made use of plants. There are chemicals in plants, and the activity of those chemicals is channelled towards different processes, which then enter into intricate interactions with the organism. –The presence of active substances (alkaloids, flavonoids, glycosides, vitamins, tannins, and coumarin compounds) in plants is what gives them their medicinal qualities, as these substances have a physiological effect on human and animal organisms or have biological activity against pathogens of various diseases‖. Aromatic chemicals, mostly phenols, are produced by plants, and oxygen-substituting derivatives of these compounds have medical use. Diseases affecting several organs and systems, as well as disorders that are secondary or tertiary to the primary ailment, may be treated with a single medicinal plant derivative. Plants, in all its guises, have been known to have a wide range of impacts on the human body for quite some time. Here are a few examples:

(i) Alkaloids are a kind of plant defence used to ward off pests like insects and larger animals. It has been shown that certain plant-based bioactive chemicals are effective against drug-resistant viral strains.

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The precise mechanism through which antidepressants function remains elusive. Several of them accomplish their effects by boosting levels of neurotransmitters. We now know that the release of certain neurotransmitters, such serotonin and noradrenaline, may affect how we feel. Certain antidepressants may aid with long-term pain relief because of their potential effect on neurotransmitters, which modify pain signals transmitted by neurons (Abbott and Fraser, 1998)[1]. Antidepressants may help with depression's symptoms, but they don't always get to the root of the problem. In cases of severe depression or other mental health issues, they are thus often taken in conjunction with treatment. According to the findings of several studies, antidepressants may be useful for those who suffer from mild to severe depression. Unless in cases when conventional therapies, such as talk therapy, have failed, they are not often used for moderate depression. Depression medications are often given in pill form. If you've been prescribed one, you should probably start with the smallest effective dosage. It often takes 1–2 weeks of consistent antidepressant dosing for the therapeutic effect to become apparent. After feeling better, a full course of therapy often continues for at least six months [4]. The FDA has approved duloxetine for use in treating depression, and some patients with chronic depression are recommended to continue it forever.

Defining Depression

The word "depression" is often used interchangeably with "the blues," "manic depression," and "postpartum depression," however it may refer to a wide range of emotional states.

Depression, or more specifically Major Depressive Disorder (MDD), is one of the most frequent mental health disorders worldwide. Medically-defined bipolar disorder (MDD) patients may present with a wide range of symptoms and present visually distinct from

Concomitant Use of Local Herbal Cornucopia in Providing Relief from Respiratory Disorders

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Abstract

In recent years, non-traditional herbal formulations have become more popular. The problem is that most nations have not done a good job of incorporating these preparations into their contemporary medical systems. This is because there is not enough research to prove its safety and effectiveness over the long run. Other significant limitations include an absence of a predetermined pharmacovigilance strategy for herbal medications and a dearth of legitimate monographs on impurity profiling, standardization techniques, guidelines for fixed-dose combinations, and more. Few problems with traditional herbal remedies have been resolved in recent years. The problems with non-classical contemporary formulations, however, have not been resolved. As such, this brief study aims to illuminate the key difficulties associated with these formulations and provide some professional commentary on how to address them.

Keywords: *Pharmacovigilance, Herbal, Monographs, Formulation, Monographs.*

INTRODUCTION

Most of the world's population has relied on medicines derived from natural sources for the prevention and treatment of numerous terrible diseases ever since recorded history began. Despite many advances, modern medicine still does not meet the requirements of individuals from all economic backgrounds. As they cannot afford conventional medical care, the poor who live in rural areas rely heavily on herbal remedies (Prakash, 2017)1. In addition, the reduced risk of adverse effects and lower cost of traditional medicines have contributed to their increased use around the globe. It is projected that by the end of 2023, the global market for medicines will be worth $ 111 billion, expanding at a CAGR of 7.2% between 2017 and 2023 (Global Herbal Medicine Market Research Report - Forecast to 2023)2.

Impact of OTC Purchase and Utilization of Pain Killers in Rheumatoid Arthritis

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Abstract

Pain may be alleviated externally using topical therapies. It's true that topical pain relievers are effective. A lot of the time they also cause a thermal or a thermal sensation on the skin. The lack of systemic absorption means that topical therapies are safer than oral drugs. There are a variety of over-the-counter (OTC) topical creams, sprays, and gel pain relievers available for the treatment of arthritis and other types of physical pain. Both nonsteroidal anti-inflammatory drugs (NSAIDs) and capsaicin, the chemical responsible for chilli peppers' spiciness, may be used. Yet, NSAIDs are not without hazards and adverse effects. Prostaglandins are involved in a variety of processes in addition to pain. Yet, since NSAIDs lower prostaglandins in the body, the stomach lining may become more susceptible to injury from acid. Causes of stomach distress, ulcers, and internal bleeding may result from this. Additional potential NSAID side effects include hives, wheezing, which may be harmful for those with asthma; changes in renal function; and a rash. This study takes an indepth look at the use of pain killers in rheumatoid arthritis.

Keywords: *Protect, Prostaglandins, Damage, Wheezing, Vulnerable.*

INTRODUCTION

Symptoms of rheumatoid arthritis may be managed with anti-inflammatory drugs including ibuprofen and steroids. Yet, they are not effective in protecting the joints. They function well as a stopgap measure for severe pain until disease-modifying medicines take effect. Inflammation in the body may be reduced by disease-modifying antirheumatic medications (DMARDs), protecting joints from injury and alleviating symptoms (Bhala, 2013)1. Nevertheless, it may take a while (weeks) before they really begin to function. Until then, medications and steroids may help with the discomfort of rheumatoid arthritis.

Formulation and Application of Herbal Preparation for Bacterial Pathogen

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Abstract

Thousands of plants are utilised as antibiotics in traditional medicine across the globe. While some have undergone in vitro screening, the effectiveness of herbal medications is seldom subjected to rigorous testing in controlled clinical studies. Antibiotic therapy for bacterial infections is often provided by conventional medications, but the rising issue of antibiotic resistance necessitates constant research into alternative treatments. Herbal medications are preferred by some patients despite the fact that there is no evidence to suggest they are any safer than conventional antibiotics. Hence, medical personnel should be conversant with the data supporting the use of natural antibiotics. This research analysis was conducted to objectively evaluate the effectiveness of herbal antibacterial treatments that have undergone rigorous clinical testing.

Keywords: *Herbal Medicines, Antibacterial, Clinical Trials.*

INTRODUCTION

Before the discovery of antibiotics, the only treatment options for infectious diseases were herbal plants, plant preparations, and phytoconstituents, all of which have shown promise in reducing symptoms (many being of plant origin themselves). Viruses continue to account for the vast majority of human deaths due to infectious illnesses (Jadad, et al., 1996)1. Herbal medicines include a wide range of phytoconstituents that have been investigated for their potential antiviral effects. In light of this motivation, a web search was conducted, yielding a long list of plant species containing antiviral compounds. Several of the analysed references mention these herbs either alone or in combination. “The literature search revealed initiatives against the rabies virus, the human immunodeficiency virus, the chandipura virus, the Japanese encephalitis virus, the enterovirus, influenza A/H1N1, and other influenza viruses.” All known plant species with antiviral activities are included in this analysis. The study also includes the chemical make-up and

Prophylactic Preparations for Common Ailments of the Respiratory Tract

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Abstract

Hospitalization rates are highest for those who have been diagnosed with a respiratory illness. Patients in ICUs often develop severe sepsis and septic shock due to pneumonia (ICUs). “Complications from respiratory infections may be exacerbated by coexisting disorders such asthma, COPD, and sinusitis. Cough, sore throat, cold, tonsillitis, peritonsillar abscess, epiglottitis, laryngitis, tracheitis, and hoarseness are all symptoms of an upper respiratory tract infection. The most common forms of illness affecting the lower respiratory tract include influenza, bronchiolitis, bronchitis, and pneumonia. Influenza A and B viruses, adenoviruses, coronaviruses, rhinoviruses, respiratory syncytial viruses, enteroviruses, parainfluenza viruses, and Epstein-Barr virus are among the most common viruses that cause upper respiratory tract infections.” This research is focused on examining the treatment of respiratory tract infections.

Keywords: *Respiratory, Pneumonia, Asthma, Chronic Obstructive Pulmonary Disease, Influenza, Bronchiolitis, Bronchitis.*

INTRODUCTION

The World Health Organization has declared COVID-19 a global pandemic, and there have been 7,713,571 confirmed cases and 427,578 deaths.

To put it simply, health education is a procedure by which people acquire the knowledge and skills necessary to adopt lifestyles that support their own and others' health and well-being (Kuzman, 2005)1. It's not without its own difficulties and dangers to implement a successful health education project. Whether or whether the intervention is successful in changing behaviour relies on how well it works for the intended population in their natural environments and in light of their prior experiences and knowledge.

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IMMUNITY BUILDERS IN LOCAL HERBS CONCOCTIONS OF GILOY, GUAVA LEAVES, TULSI, ALOE VERA, AMLA, COCONUT WATER AND OTHERS AS POPULAR PHARMACEUTICAL PRODUCTS

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ABSTRACT: Commercialization of formulations based on medicinal plants has made quality control requirements for these plants more important, since in the past traditional physicians would personally distribute the medications.

This study attempts to understand the significant increase in demand for goods generated from plants in recent years, especially in industrialized nations. There has been a rise in the demand for these items as pharmaceuticals, nutraceuticals, and beauty aids. Increased instances of bad medication responses due to the widespread use of impure synthetic pharmaceuticals have led many people, especially in more developed countries, to turn once again to herbal and natural cures for their health problems. Saints and munis have been using herbal medicine to treat a wide variety of illnesses since ancient times. There are numerous active ingredients in herbal medicine that have been shown to be effective against many ailments, but the manufacture of herbal formulation requires expert expertise to avoid damaging the active constituents.

KEYWORDS: Herbalmedicine, Ayurveda, Plant Derived, Medicinal Products, Infection.

INTRODUCTION

"Modern pharmacognostical, chemical, biological, biopharmaceutical, and molecular approaches to medication research and development need biotechnology driven applications for standardizing herbal medicine (Bhutani , 2000)[1]".

For thousands of years, people all over the globe have turned to herbal treatments, also known as folklore medicines, traditional medicines, and ethnic medicines, as a means of maintaining health. These treatments represent the accumulated wisdom of traditional medicine practitioners throughout many centuries. Herbal medicine use has skyrocketed in popularity during the last decade (Blume and Schug, 2000)[2]. "The World Health Organization (WHO) estimates that between 75 and 80 percent of the world's population relies on herbal medicine for basic health care due to its better cultural acceptability, more compatibility with the human body, and less side-effects"(Kamboj, 2000)[3].

OBJECTIVES

(i) To study the immunity builders in local herbs

(ii) To understand local pharmaceutical products as immunity builders

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CHEST CONGESTION AND INFUSIONS OF GINGER, HONEY, TULSI, BLACK PEPPER AND OTHER HOME REMEDIES AS OTC DISPENSED PHARMA PRODUCTS

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ABSTRACT:

Many people with chect congestion and an inflamed ENT (Ear, nose, throat) condition end up missing time at work or school because they are too tired to function.This makes the common cold a significant economic and social problem. Thus, rhinovirus is the most prevalent virus. The influenza virus, adenoviruses, enteroviruses, and the respiratory syncytial virus are all examples of additional viruses. In general, upper respiratory tract infections cause substantial impairment for a very short time. Patients should be urged to take in enough of fluids, get plenty of shut-eye, give up tobacco use, and stick with their treatment plans. Patients should be urged to take in enough of fluids, get plenty of shut-eye, give up tobacco use, and stick with their treatment plans. The nursing staff may keep tabs on the patient's vitals and symptoms, provide advice on taking medications as prescribed, and communicate any concerns to the treating physicians. This study is an attempt to the conditions causing chest conditions and to understand the conditions resulting from chest congestion.

KEYWORDS: Common cold, Respiratory Infections, Medication Compliance, Influenza

INTRODUCTION

Often, the mucosa lining the upper airway is invaded directly by the organism that causes a URTI. Transmission of the organism often occurs by inhalation of droplets that are contaminated with it. The mucosal mucus and hair lining both act as barriers that hinder pathogen attachment. “The pharynx and nose are at an angle to one another to keep foreign bodies from entering the airways, and the ciliated cells in the lower airways carry the contaminants back up to the pharynx.

There are immune cells that specifically target bacteria in the adenoids and tonsils.”

OBJECTIVE

The objectives of this study are:

(i) To understand the conditions causing chest conditions

(ii) To study the conditions resulting from chest congestion

3.3.1.1 (2) Number of research papers per teachers in the Journals notified on UGC website during the last five years 2021-22

S.N	Title of paper	Name of the author/s	Name of journal
1	'Gastroretentive Drug Delivery System: An Overview	Rageeb M D, Rupal Singhavi	Research Journal of Pharmacy and Technology
2	'Transdermal Drug Delivery System: An Overview'	Sanjay A. Nagdev1,	Research Journal of Pharmacy and Technology
3	Pharmacognostical and Preliminary Phytochemical Evaluation of Stem of S*idarhombifolia* Linn.	Md. Rageeb Md. Usman*, Zuber Shaikh , Umar	International Journal of Biology Pharmacy, and Allied Science (IJBPAS)
4	Antimicrobial and antifungal activity of bark of hardwickiabinata Roxb (fabaceae / caesalpiniaceae)	Md. Rageeb Md. Usman and Rohini Patil	International Journal of Pharmaceutical Sciences and Research (IJPSR
5	UV Spectrophotometric Method Development and Validation for the Simultaneous Estimation of Efavirenz, Emtricitabine and TenofovirDisoproxilFumarate in Marketed Formulation	Rajeev Kumar Mishra1, Neelesh Chaubey1, Harish pandey1, Satish Mishra2,	EAS Journal of Pharmacy and Pharmacology
6	Quantitative and qualitative estimation of phytoconstituents from stems of Atylosiabarbata	Bharat V Jain, MdRageebMd Usman	International Journal of Botany Studies
7	Pharmacognostical and phytochemical investigation on stems of *Cassia javanica* Linn	Bharat V Jain, MdRageebMd Usman,	International Journal of Botany Studies
8	Isolation of B-Sitosterol from methanol extract of stems of *AtylosiaBarbata* baker	Bharat V Jain,MdRageeb Md Usman	International Journal of Botany Studies
9	Qualitative Estimation of Seed of *Butea monosperma* Lam. By using Chromatography Technique	Md. Rageeb Md. Usman, Shaikh Salman Shaikh	Research Journal of Pharmacy and Technology
10	Phytochemical and in vitro assessment of antihistaminic and anticholinergic activity of leaves of *hibiscus sabdariffa* linn	Md. Rageeb Md. Usman, Mangalsing K. Kachhava	International Journal of Pharmaceutical Sciences and Research
11	A Review – Phytochemical, Pharmacological and Toxicological Properties of Ashwagandha	Kunal S. Surwade, Gautam P. Vadnere, Md.	Strad Research
12	Formulation and Evaluation of Orodispersible Tablet of Warfarin by Direct Compression Technique	Md. Rageeb Md. Usman1, Sandip R. Pawar1, Anil S.	Advances in Bioresearch [ABR]
13	Phytochemical and Haemolytic Activity on Stems of *Calotropisgigantea* Linn.	Bharat V. Jain*PakhaleRohit	International Journal of Botany Studies

14	Pharmacognostical and Phytochemical Evaluation of Stem of Calotropisgigantea Linn.	Md. Rageeb Md. Usman, PakhaleRohit Rajendra1,	International Journal of Botany Studies
15	Pharmacognostical and Antimalarial Studies of *Tamarindusindica* Leaves	Dr. Md. Rageeb Md. Usman, BadgujarPallavi	Journal of University of Shanghai for Science and Technology
16	Preliminеary Phytochemical Analysis of EmblicaOfficinalis Seed	Dr. Md. Rageeb Md. Usman, Dr. Gautam P.	Journal of University of Shanghai for Science and Technology
17	Antihelmintic effect of embeliats jeriam-cottam	Manjusha Suresh Nikam, Md. Rageeb Md. Usman*,	Journal of University of Shanghai for Science and Technology
18	Formulation and evaluation of liquid crystals containing acotiamide capsule for oral delivery	Mr Sandip R Pawar	Indo American Journal Of Pharmaceutical Sciences
19	Liquid crystals containing acotiamide capsule for oral delivery review	Mr Sandip R Pawar	Indo American Journal Of Pharmaceutical Sciences
20	Dynamic formulation of effervescent antimicrobial mouthwash review.	Mr Sandip R Pawar	Ijciras
21	To design and develop solid lipid nanoparticles based nanogel for dermal delivery of meloxicam	Mr Sandip R Pawar	Indo American Journal Of Pharmaceutical Sciences
22	Solid lipid nanoparticles based nanogel for dermal delivery of meloxicam: review	Mr Sandip R Pawar	Ijciras
23	Formulation evaluation and development of fast dissolving tablets containing solid dispersion of indomethacin	Mr Sandip R Pawar	Indo American Journal Of Pharmaceutical Sciences
24	Rizatriptan benzoate nanoemulgel for topical drug delivery system: review	Mr Sandip R Pawar	Ijciras
25	Design, development and characterization of novel in situ gel for ocular drug delivery	Mr Sandip R Pawar	Indo American Journal Of Pharmaceutical Sciences
26	Formulation evaluation and development of mucoadhesive buccal tablet of vildagliptin	Mr Sandip R Pawar	Indo American Journal Of Pharmaceutical Sciences
27	To design and develop mucoadhesive buccal tablet of vildagliptin: review	Mr Sandip R Pawar	Ijciras
28	Review of matrix type transdermal patches of benazepril hydrochloride	Mr Sandip R Pawar	Indo American Journal Of Pharmaceutical Sciences

29	Development and characterization of mucoadhesive patches of bosentan for buccal administration	Mr Sandip R Pawar	Indo American Journal Of Pharmaceutical Sciences
30	Preparation & Investigation of analytical profile of Indian traditional medicine: Mukta shoktik bhasma by using modern analytical techniques	Mr. Kundan C. Patil. Dr. Gautam P. vadnere, Dr. Mohd. Rageeb Mohd.	International Journal of Botany Studies
31	Preparation and characterization of egg shell bhasma by using modern analytical techniques	Mr. Kundan C. Patil. Dr. Gautam P. vadnere, Dr.	Journal of Medical Pharmaceutical and Allied Sciences
32	Comparative study of Phytochemicals and In vitro Antioxidant Activity of tridax P.Extracted In different solvent and their effect on calcium oxalate and brushite under in vitro condition.	Mrs. Rupali M. Patil	Bulletin of Environment, Pharmacology and Life Sciences, [BEPLS]
33	Evaluation of Flavonoid Rich Extract of Tridax procumbens Linn for Acute Toxicity Profile and Antiurolithiatic Activity	Mrs. Rupali M. Patil	Bulletin of Environment, Pharmacology and Life Sciences, [BEPLS]
34	Review on Tridax procumbense ,its phytochemical constitutions and Antilithiatic activity.	Mrs. Rupali M. Patil	Bulletin of Environment, Pharmacology and Life Sciences, [BEPLS]
35	Formulation and Evaluation of Topical Proniosomal Gel of	Suvarnalata Suhas	Int. J. Pharm. Investigation,
36	Formulation and Evaluation of Proniosomal Topical Antifungal Gel	Suvarnalata Suhas	IJPSDR

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Gastroretentive Drug Delivery System: An Overview

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ABSTRACT:

Oral route is considered as the most convenient, accepted and safest way for drug delivery, achieving better therapeutic effectiveness by delivery of drug at specific site in controlled manner is getting more attention now a days and GRDDS is one of the novel approaches which prolongs gastric residence time and releases a drug at specific targeted site of stomach for local or systemic effects. This approach is useful for drugs having narrow absorption window in upper part of GI tract. In this review we have discussed various aspects of GRDDS like merits, demerits, physiology of stomach, and potential drug candidate for GRDDS, factors affecting gastric retention, polymers and other materials used in GRDDS, Various approaches for gastric retention and evaluation of GRDDS concisely.

KEYWORDS: GRDDS, Gastro-retention, NDDS, Controlled release, Dosage form.

INTRODUCTION:

Administering a drug via oral route is the most favourable and safest way to deliver a drug due to its cost effectiveness, easy administration, fabrication and better patient compliance.[1-5] Drug having shorter half life gets out from systemic circulation very fast and constant administration of dose is essential to achieve desired therapeutic effect. Problems related to traditional conventional forms can be reduced by designing and formulating oral sustained-controlled dosage forms that allow the slow release of drug in GI Tract and maintenance of effective drug concentration in systemic circulation for prolonged period. For continuous supply to drug to absorption sites in GI tract can be achieved by administration of drug through a drug delivery system which will be retained in stomach and drug will start releasing from it in controlled manner.[6]

Since last 30 years new devices and technologies are being developed and designed to retain in the upper part of GI tract for localized and more effective drug delivery and it includes various approaches like floating systems, expanding systems, swelling systems, bioadhesive systems and low density systems etc.[7] Development of oral controlled release system is a challenging task for researchers and persons working in R&D, Formulation development for targeted delivery of drug in the areas of GI Tract. Main reason behind developing controlled drug delivery and increased interest in developments of new system is to keep drug plasma levels within therapeutic window for prolonged period that ensures sustained therapeutic effectiveness.[8]

GRDDS are designed to increase the gastric-retention time of drugs that are:

1. Poorly soluble in high pH range.
2. Having Narrow absorption window in GIT.
3. Not stable in Intestinal Environment.
4. Locally active in the stomach.[9-12]

NEED FOR GRDDS:

Conventional dosage forms are most commonly used to treat various diseases but due to major drawback associated with them are, they are not site-specific; some drugs are absorbed at specific site only or require release at targeted site to obtain maximum effect and to overcome these problems GRDDS is designed to achieve drug delivery at specific sites like stomach, intestine, colon and duodenum in controlled manner.[16]

Table No.1: Merits and Demerits of GRDDS[13-15]

Merits	Demerits
Improved Bioavailability	Not suitable for drugs causing GI lesions and irritating gastric mucosa
Improved Therapeutic effectiveness	Not suitable for unstable drugs that are less soluble in highly acidic and basic

Transdermal Drug Delivery System: An Overview

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ABSTRACT:

From the past three decades there are huge changes and developments in formulation technology. Innovations in drug delivery systems are not only associated with the development of novel dosage forms but also with the development of new formulations using existing drugs for the treatment. These innovations in delivery of drug have many advantages like better patient compliance, maintenance of steady state concentration of drug for the prolong period, reducing dosing frequency, drug targeting to desired site of action and low side effects. TDDS are designed for delivery of drugs across the skin and it provides both controlled and continuous administration drug. It terminates the pulsed entry of drug in systemic circulation due to which side effects are observed. This transdermal route of drug delivery has more benefits and convenience than oral route and enhances the safety and efficacy of drug; it is patient friendly and painless device that provides regulated, uniform administration and the continuous supply of drug to targeted site for treatment of various diseases.

KEYWORDS: Transdermal, Drug delivery, Transdermal Patch, Safety, dosage form, Formulation.

INTRODUCTION:

From the past three decades there are huge changes and developments in formulation technology. Innovations in systems of drug delivery are not only associated with the development of novel drug delivery forms but also with the development of new formulations using existing drugs for the treatment. These innovations in delivery of drug have many benefits like better patient compliance, maintenance of steady state concentration of drug for longer duration, reducing dosing frequency, targeting of drug to specific site and low side effects and this transdermal route of drug delivery has more benefits and convenience than oral route.[1]

One of the most general route for delivery of drug is through oral cavity having many pros and some cons like drug degradation in GI Tract due to enzymes and pH and Hepatic first pass metabolism and to reduce these associated problems novel drug delivery systems were developed.[2]

Table No. 1: Drug administered using TDDS

Sr. No	Name of drug	References
1	Nifedipine	6,7
2	Nitroglycerin	8,9
3	Captopril	10
4	Chlorpheniramine	11
5	Propranolol	12,13,14
6	aspirin	15
7	Norethindrone	16
8	Hydrocortisone	17
9	Acyclovir	18
10	Fentanyl	19
11	Theophylline	20
12	Nicotine	21,22
13	Testosterone	23
14	Clonidine	24,25
15	Lidocaine	26
16	Scopolamine	27
17	Estrogen	28
18	Norelgestromin	29
19	Estradiol	30,31
20	Triptolide	32
21	Rivastugmine	33
22	Terbinafine	34
23	Primaquine	35
24	Rotigotine	36
25	Methylphenidate	37
26	Seligiline	38

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PHARMACOGNOSTICAL AND PRELIMINARY PHYTOCHEMICAL EVALUATION OF STEM OF S*IDA RHOMBIFOLIA* LINN

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ABSTRACT

The objective of present studies deals with the macroscopical and microscopical studies of stems of *Sida rhombifolia* Linn. Some distinct and different characters were observed with section of young thin stems. The microscoy shows the cork, cortex, vascular bundle, medullary rays, pith, xylem element are few and phloem elements. Physiochemical parameter and Preliminary phytochemical studies of the stems powder were also carried out. The present study on Pharmacognostical investigation of stems of *Sida rhombifolia* L. might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Keywords: Pharmacognostical, Physiochemical, *Sida rhombifolia* L, Stems, methanolic extract

INTRODUCTION

A medicinal plant is any plant which, in one or more of it contains substance that can be used for therapeutic purpose or which is a precursor for synthesis of useful drugs. The plants posses therapeutic properties or exert Beneficial Pharmacological effects on the animal body are generally designated as

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ANTIMICROBIAL AND ANTIFUNGAL ACTIVITY OF BARK OF *HARDWICKIA BINATA* ROXB (FABACEAE / CAESALPINIACEAE)

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Keywords:

Antimicrobial activity, Antifungal activity, Bark, *Hardwickia binata* Roxb, Microorganisms.

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ABSTRACT: Background and Objectives: This study was carried out with the objective to investigate the antibacterial and antifungal activity of the bark of *Hardwickia binata* Roxb. **Materials and Methods:** Methanolic extract of bark of *Hardwickia binata* Roxb. exhibited an inhibitory effect towards the pathogenic organisms. Antimicrobial activity the zone of inhibition values of methanolic extract of bark of *Hardwickia binata* Roxb. in against two Gram-positive microorganisms *viz. Staphytococcus aureus* and *Bacillus subtilis* and two Gram negative microorganisms *viz. Escherichia coli* and *Pseudomonas aeruginosa* showed significant activity. Antifungal activity of methanolic extract of bark of *Hardwickia binata* Roxb. in against two microorganism, Candida albicans, and *Aspergillus niger*, showed significant activity. **Results:** The results showed that the remarkable inhibition of the bacterial growth was shown against the tested organisms. The phytochemical analyses of the plants were carried out. The microbial activity of the *Hardwickia binata* was due to the presence of various secondary metabolites. **Conclusion:** Hence, these plants can be used to discover bioactive natural products that may serve AS leads in the development of new pharmaceuticals research activities.

INTRODUCTION: Antibiotics are one of our most important weapons in fighting bacterial infections and have greatly benefited the health- related quality of human life since their introduction. However, over the past few decades, these health benefits are under threat AS many commonly used antibiotics have become less effective against certain illnesses not only because many of them produce toxic reactions but also due to the emergence of drug-resistant bacteria. It is essential to investigate newer drugs with lesser resistance. Drugs derived from natural sources playa significant role in the prevention and treatment of human diseases.

In many developing countries, traditional medicine is one of the primary healthcare systems [1, 4]. Herbs are widely exploited in traditional medicine, and their curative potentials are well documented [5, 6]. About 61% of new drugs developed between 1981 and 2002 were based on natural products, and they have been very successful, especially in the areas

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Research Article

UV Spectrophotometric Method Development and Validation for the Simultaneous Estimation of Efavirenz, Emtricitabine and Tenofovir Disoproxil Fumarate in Marketed Formulation

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Abstract: The simultaneous equation approach is based on drug absorption (X, Y and Z) at the maximum wavelength of the other drug. The three wavelengths chosen for the method are Efavirenz (EFV), Emtricitabine (EMT) and Tenofovir disoproxil fumarate (TDF) λmax, respectively, 240nm, 256nm and 316nm. Then, by using different parameters, the established method was validated. For the simultaneous estimation of the ternary mixture of Efavirenz (EFV), Emtricitabine (EMT) and Tenofovir disoproxil fumarate (TDF) in combined synthetic mixture by Vierordt method or simultaneous equation method, a simple, precise, reliable, reproducible and efficient UV spectrophotometric method has been developed and validated. In 0.1 N NaOH, the standard and sample solutions were prepared. In the concentration ranges of 10-50µg/ml for EFV, 5-25µg/ml for EMT, and 5-25µg/ml for TDF, the calibration curves are linear. Recovery studies have tested the validity and reliability of proposed approaches. At three replication and three concentration stages, the recovery of added standards (80 percent, 100 percent and 120 percent) was found. The percent value means only near 100, SD and less than 2 percent RSD imply the method's accuracy. The accuracy was calculated by repeatability and intermediate precision. The effect of repeatability implies consistency over a short interval of time under the same operating environment. In laboratory variation on different days and analyst to analyst variation by distinct analysts, the intermediate precision analysis is expressed. The value of SD and the percentage of RSD less than 2 show the method's accuracy.

Keywords: UV spectrophotometric method, Simultaneous estimation, Efavirenz, Emtricitabine and Tenofovir disoproxil fumarate, Method development, Validation.

INTRODUCTION

In 2008, around 33.4 million people were infected with HIV and there were around 2 million deaths in the same year [1]. Atripla, a combination of a fixed dose of tenofovir, emtricitabine, and efavirenz was approved for the treatment of this disease by the Food and Drug Administration (FDA) on July 12, 2006. In the United States, Atripla was the first fixed dose formulation available to combine two distinct groups of antiviral drugs into a single tablet. Also available are several generic Atripla drugs, such as Viraday fromCipla Ltd. and Vonavir from Emcure Ltd. Efavirenz (EFV, brand names Sustiva and Stocrin) is a non- nucleoside reverse transcriptase inhibitor (NNRTI) and is used as part of highly active anti-retroviral therapy (HAART) for the treatment of a human immune deficiency virus (HIV) type 1. Efavirenz is chemically described as (S)-6-chloro-(cyclopropylethynyl)-1, 4-dihydro-4-(trifluoromethyl)- 2H-3, 1-benzoxazin-2-one. Its empirical formula is C14H9ClF3NO2. 1. Efavirenz is a white to slightly pink crystalline powder with a molecular mass of 315.68 g/mol. It is practically insoluble in water (<10 µg/mL) [2]. Emtricitabine (ETB) is a nucleoside reverse transcriptase inhibitor (NRTIs). Chemically it is 5-fluoro-1-(2R, 5S)-[2-(hydroxymethyl)-1,3-oxathiolan-5-yl]cytosine (Figure1). FTC is the (-) enantiomer of thio analog of cytidine which differs from other cytidine analogs, in that it has fluorine in 5th position. FTC is an antiviral agent used for the prevention of perinatal HIV-1 reverse transcriptase [3]. It is also active against Hepatitis B virus [4, 5]. Tenofovir disoproxil fumarate (a prodrug of tenofovir), marketed by Gilead Sciences under the trade name Viread, belongs to a class of antiretroviral drugs known as nucleotide analogue reverse transcriptase inhibitors [6] (nRTIs), which block reverse transcriptase, an enzyme crucial to viral production in

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Quantitative and qualitative estimation of phytoconstituents from stems of *Atylosia barbata*

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Abstract
Background and Objective: These primary and secondary metabolites are composed of various simple and complex chemical substances. Secondary metabolites play very important role for the treatment of various disorders. The main objective of present study was to find out the active principles from the stems of *Atylosiabarbata* Baker.
Methods: Different extracts were subjected for preliminary phytochemical screening for the identification of active functional groups.
Results: It showed presence of many active phytoconstituents like carbohydrates, phytosterols, saponins, glycoside, phenolic compound and flavonoids. Further powdered drug was used for the detection of inorganic elements from the ash of the powdered drug and it showed presence of many inorganic elements like iron, chloride and nitrates. For quantitative estimations total phenolic content, total flavonoid content and total triterpenoids content was determined.
Conclusion: Purification of identified active phytoconstituents, TLC was performed by using two different standard samples i.e. beta sitosterol and lupeol. It showed significant result which is given in the figure.

Keywords: *Atylosiabarbata*, stems, qualitative estimation, quantitative estimation

Introduction
Standardization of plant based medicine is a difficult task, because plants synthesizes not only single compounds but it may vary even up to hundreds of compounds may be present in plant. Hence it is difficult to standardize herbal medicines as compared to other medicines. Correct identification and quality assurance of the starting material is therefore an essential prerequisite to ensure reproducible quality of herbal medicine, which contributes to its safety and efficacy [1-3]. The quality and quantity of safety and efficacy information on traditional medicines are not sufficient to meet the criteria to support its use worldwide. The reason behind lack of research data are not only due to health policies but also due to lack of methodologies for the evaluation of herbal medicines. The plantsposses many active therapeutically active chemical constituentsassociated with many inert substances such as cellulose,lignin and coloring agents etc. The active constituents are extracted from plants and purified for their pharmacological utility. So the quality control of herbal drugs is important for their active chemical constituents in modern system of medicine. To meet new thrustof inquisitiveness,standardization of herbal drug is mandatory [4- 8].*Atylosiabarbata*Bakerhas many medicinally active compound in it hence, present study deals with the qualitative and quantitative analysis of the stems part of the plant.

Materials and Methods
Plant material
The plant *Atylosiabarbata* Bakeris widely found throughout India. For my work the plant was collected from in the deep forest of Satpuda hills with the help of forest officers of Chopda Tahsil, Dist. Jalgaon, (M.S.) India and authenticated by Dr. C. R. Jadhav, scientist, BSI, Pune (M.S.). The leaves of the plant were dried under shade and then coarsely powdered with help of mechanical grinder. The powder was passed through sieve no. 40 and stored in an airtight container for further studies. Extraction was carried out by continuous soxhlet extraction process for 72 hr. It was then extracted successively with various solvents of increasing polarity [9-12].

Qualitative Estimations
Preliminary phytochemical screening of extracts. The above extracts obtained from the stems were subjected for the various chemical test for the identification of active phytoconstituents groups by following standard procedure. Elemental analysis of ash for detection of inorganic elements. The powdered drug was incinerated in muffle furnace to obtain ash. The ash was treated with 50% hydrochloric acid for 30 minutes and filtered. The filtrate was used for the detection of elements (calcium, iron, magnesium, potassium, sulphate, phosphate, chloride, carbonateand nitrate) by specific test [13-15].

Thin layer chromatography
For thin layer chromatography analysis, the method used was taken from quality standards of Indian medicinal plants ICMRfor β-sitosterol. Improvements were made to the sample preparation and the mobile phase used in the method.

Sample preparation
0.2g of *Atylosiabarbata* stems methanolic extract was diluted with 10ml methanol.Steroids are non-polar in nature so the methanol extract of *Atylosiabarbata* stems was then partitioned with petroleum ether (PE) so that the steroids separate in the petroleum ether layer and all the other polar components remain in the methanol layer.
The petroleum ether layer was further used for TLC.

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Pharmacognostical and phytochemical investigation on stems of *Cassia javanica* Linn

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Abstract
Objective: The objective of present studies deals with the macroscopical and microscopical studies of stems of *Cassia javanica* Linn.
Methods: Microscopic study stain toluidine blue and Physiochemical parameter and preliminary phytochemical studies of the stems powder were also carried out.
Results: Some distinct and different characters were observed with section of young thin stems. The anatomy of the stems were studied by taking transverse section. Revealed that the initial phase of secondary growth. Cortex is followed by thin discontinuous bands or strips of perivascular sclerenchyma cells, which surround the vascular cylinder. Secondary xylem is composed of vessels, xylem fibers and xylem parenchyma cells. The Centre of stem is occupied by wide, thin walled, angular or polygonal shaped parenchyma cells. Physiochemical parameter and preliminary phytochemical studies of the stems powder were also carried out.
Conclusion: The present study on Pharmacognostical investigation of *Cassia javanica* Linn. stems might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Keywords: *Cassia javanica* linn., stems, pharmacognosy, phytochemical, extract

Introduction
Cassia javanica, also known as Java cassia, pink shower, apple blossom tree and rainbow shower tree (family Fabaceae). *Cassia javanica* Linn. is a beautiful garden tree that belongs to family Leguminosae. It is cultivated throughout India for beautiful pink blossoms [1, 2]. Previous literature provides information about therapeutic uses of the plant. Bark of Cassia javanica is used as one of the ingredients in antidiabetic ayurvedic formulation [3]. Leaves are proved to be active against Herpes simplex infection [4]. Leaves are reported to contain variety of secondary metabolites, such as, flavones, sterols, several hydrocarbons, anthraquinone, glycosides etc [5, 6]. Among these flavones, glycosides and sterols are considered to be antidiabetic compounds [7, 8]. The presence of these antidiabetic phytochemicals of Cassia javanica leaves may give desired pharmacological action. As there are no scientific data available regarding antidiabetic effects of leaves, it felt relevant to assess bioactivity of leaves of *Cassia javanica*.

Traditional uses
The pods are used as medicinally as a substitute for cassia fistula. Pods are used as a purgative. The seeds may be useful as a source of industrial gum [9]. It is also traditionallyused medicinal plants in china and Southeast Asian countries. It is conventionally believed that the medical herb can reduce fever, decrease the virulence of pathogenic organisms, regulates the flow of chi and lubricate the intestine. In china it is applied to treat gastric pain, cold, malaria, measles, chickenpox, and constipation. It is also used as an antimicrobial agent [10].
The objective of present studies were focused on Pharmacognostical and Phytochemical investigatin on stems of *Cassia javanica* Linn.

Material and Method
Plant material
The plant specimens for the proposed studies were collected from in the deep forest of Satpuda hills with the help of forest officers of Chopda tahsil, Dist. Jalgaon, Maharshtra (India) in the month of Dec. 2020 care was taken to select healthy plants and for normal organs. The plant was authenticated by Prof. (Dr.) Priyanka A Ingle, scientist, BSI (Botanical Survey of India), Pune (M.S.).
The required samples of different organs were cut and removed from the plant and fixed in FAA (Formalin-5 ml + Acetic acid-5ml + 70% Ethyl alcohol-90ml). After 24 hrs of fixing, the specimens were dehydrated with graded series of tertiary-butyl alcohol as per method [11]. Infiltration of the specimens were carried out by gradual addition of paraffin wax (melting point 58-60^{0}C) until TBA solution attained super-saturation. The specimens were casted into paraffin blocks.

Sectioning
The paraffin embedded specimens were sectioned with the help of rotary Microtome. The thickness of the sections were 10-12 µm. Dewaxing of the sections were done by customary procedure [12]. The sections were stained with Toluidine blueas per the method [13]. Since Toluidine blue is a polychromatic stain, the staining results were remarkably good; and some Cytochemical reactions were also obtained. The dye rendered pink colour to the cellulose walls, blue to the lignified cells, dark green to suberin, violet to the mucilage, blue to the protein bodies etc.

Photomicrographs
Microscopical descriptions of tissues were supplementedwith micrographs wherever necessary. For normal

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Isolation of B-Sitosterol from methanol extract of stems of *Atylosia Barbata* baker

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Abstract
Natural products and herbal remedies used in traditional folklore medicine have been the source of many medically beneficial drugs because they elicit fewer side effects, relatively cheap, affordable and claimed to be effective. 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 their mechanism of action. *Atylosia barbata* Baker. (Fabaceae). is a medicinal plant widely used as a folk medicine in India. The present study deals with the isolation and partial purification of bioactive compounds from the crude methanol extracts of the leaves of *Atylosia barbata* Baker. The quantification and the identification of compounds in the crude extract and active bands isolated by preparative TLC were accomplished using spectroscopic analysis. The most important compounds β-sitosterol identified in the crude extract appreciable amounts may account for its various biological activities.

Keywords: isolation, stems, β-sitosterol, plant extraction, *Atylosia barbata*

Introduction
Standardization of plant based medicine is a difficult task; because plants synthesize not only single compounds but it may vary even up to hundreds of compounds may be present in plant. Hence it is difficult to standardize herbal medicines as compared to other medicines. Correct identification and quality assurance of the starting material is therefore an essential prerequisite to ensure reproducible quality of herbal medicine, which contributes to its safety and efficacy [1-3].

The quality and quantity of safety and efficacy information on traditional medicines are not sufficient to meet the criteria to support its use worldwide. The reason behind lackof research data are not only due to health policies but also due to lack of methodologies for the evaluation of herbal medicines. The plants posses many active therapeutically active chemical constituents associated with many inert substances such as cellulose, lignin and coloring agents etc. The active constituents are extracted from plants and purified for their pharmacological utility. So the quality control of herbal drugs is important for their active chemical constituents in modern system of medicine. To meet new thrust of inquisitiveness, standardization of herbal drug is mandatory [4-8]. *Atylosia barbata Baker*. has many medicinally active compound in it hence, focus of this paper is on the analytical methodologies, which include the extraction, isolation and characterization of active ingredients in leaves of *Atylosia barbata* Plant. β-sitosterol is reported to exhibit a spectrum of pharmacological activities against various disease conditions. These include conditions such as inflammation, arthritis, diabetes, cardiovascular ailments, renal disorder, hepatic toxicity, microbial infections and cancer [9]. The available literature suggests that β-Sitosterol is a non toxic agent and does not cause any systemic toxicity in animals at doses ranging from 30 to 2000 mg/kg [10].

Materials and Methods
Plant material
The plant *Atylosia barbata Baker*. is widely found throughout India. For my work the plant was collected from in the deep forest of Satpuda hills with the help of forest officers of Chopda Tahsil, Dist. Jalgaon, (M.S.) India and authenticated by Dr. C. R. Jadhav, scientist, BSI, Pune (M.S.). The leaves of the plant were dried under shade and then coarsely powdered with help of mechanical grinder. The powder was passed through sieve no. 40 and stored in an airtight container for further studies. Extraction was carried out by continuous soxhlet extraction process for 72_{hr} [11-14].

Qualitative estimations
Preliminary phytochemical screening of extracts. The above extracts obtained from the leaves were subjected for the various chemical test for the identification of active phytoconstituents groups by following standard procedure [15-16].

Thin layer chromatography and preparative TLC
For thin layer chromatography and preparative TLC analysis, the method used was taken from quality standards of Indian medicinal plants ICMR for β-sitosterol. Improvements were made to the sample preparation andstandard preparation.

Identification of separated compound
Pinch of sample was added in clean and dry test tube and dissolve in chloroform. Acetic anhydride (1 ml) was added in test tube. Few drops of sulphuric acid solution were added from wall of the test tube, solution shows violet color indicates presence of triterpenoids.

Qualitative Estimation of Seed of *Butea monosperma* Lam. by using Chromatography Technique

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ABSTRACT:

The objective of present studies deals with the Qualitative estimation of seed of *Butea monosperm*a Lam. By using Chromatography Technique. The phytochemical study of different extract of seed of *Butea monosperma* Lam. Were observed various active chemical constituent like phytosterol, flavonoid, saponin and sterol etc. Qualitative estimation of Gallic acid, Rutin and Quarcetin was carried out by HPTLC and HPLC system.

KEYWORDS: *Butea monosperma*, Seeds, Phytochemical, Qualitative Estimation, HPLC, HPTLC.

INTRODUCTION:

Butea monosperma Lam. (Syn. Butea frondosa Willd. Family Faboideae), a deciduous tree, is found chiefly in the mixed or dry deciduous forests of Central and Western India. This plant is popularly known as dhak or palas, palash, mutthuga, bijasneha, khakara, chichara and commonly known as 'Flame of the forest'. This tree grows to 50 ft high, with stunning flower clusters. Tree is almost leafless during spring season forming an orange red hue of flowers on the upper portion, giving the appearance of flame from a distance.[1-2]

Butea monosperma is extensively used in Ayurveda, Unani, Homeopathy and Traditional systems of medicine. [3] Flowers of B. monosperma are used as anticonvulsant, antioxidant, antistress, antigout, diuretic, antileprotic, anti-inflammatory [4-6], antiulcer, astringent, antiestrogenic activity, antihepatotoxic, eye disorder [7-9], diarrhea [10], depurative, tonic, leprosy, skin diseases and thirst.[11-15]

Phytochemical studies of flower extract have shown chemical constituents like triterpene, flavonoids and glycosides like butein, butin, isobutrin, coreopsin, isocoreopsin, sulphurein, monospermoside, isomonospermoside, chalcones, aurones and steroids.[16-22]

Each plant drug possesses unique properties in terms of its botany, chemical constituents and therapeutic potency. So it is important to study pharmacognostic characters of each medicinal plant to differentiate the genuine plant sample. Isolation and pharmacological studies have been extensively made on all parts of *B. monospema* but, very less is known about pharmacognosy.

The Present work is to frame a phytochemical and antimicrobial studies of seed of *Butea monosperma* Lam. useful in authentification and standardization of the drug, which give the quality and purity of the drug Figure 1.

MATERIAL AND METHOD:

Plant material:

The plant specimens for the proposed study were collected from Chopda Tehsil (Adawad) MS, India in the month of April 2017 care was taken to select healthy plants and for normal organs. The plant was authenticated by Botanical Survey of India (BSI), Pune, Maharashtra, India. A voucher specimen (No. SSS 01) was deposited at B.S.I., Pune, India.

The required samples of different organs were cut and removed from the plant and dried under the shed after that stored in well closed or air tight container. [23-25]

Preliminary Phytochemical Parameters:

Preliminary phytochemical test of seeds of *Butea monosperma* Lam. were performed and the chemical constituents were detected. [26- 29]

HPTLC Chromatography [30-33]

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PHYTOCHEMICAL AND *IN-VITRO* ASSESSMENT OF ANTIHISTAMINIC AND ANTICHOLINERGIC ACTIVITY OF LEAVES OF *HIBISCUS SABDARIFFA* LINN.

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Keywords:

Hibiscus sabdariffa Linn., Histamine, Acetylcholine, Leaves extract

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ABSTRACT: Objective: The aim of the present study was to find out the herbal drug which has potential antihistaminic properties. Studying the *in-vitro* antagonistic effect of crude extracts on isolated goat tracheal chain preparation for assessment of direct antihistaminic activity using two agonists like histamine and acetylcholine. **Methods:** The ethanolic extract of leaves of *Hibiscus sabdariffa* was found quite useful in showing antihistaminic activities when tested on an experimental isolated goat tracheal. They were divided into five groups. **Results:** PTEE exerted an antagonistic effect on histamine and acetylcholine-induced contraction ($P < 0.05$). Significance is seen at a dose of 2, 4, 10 mg/ml for histamine and acetylcholine Figure 6.2 and 6.4 in a dose-dependent manner. Histamine antagonistic effect seen as (70.12 ± 1.727, 56.09 ± 1.2, 48.17 ±1.321) similarly the acetylcholine antagonistic effect seen as (85.60 ± 2.489, 60.20 ± 2.456, 44.00 ± 1.141). **Conclusion:** The present study a notable contraction produced by histamine at a dose 1.6µg/ml, as 82 mm taken as 100% while notable contraction was produced by acetylcholine at a dose 1.6 µg/ml, as 92 mm taken as 100% were observed.

INTRODUCTION: *Hibiscus sabdariffa* is a medicinal plant that is consumed for its health benefits, juice/concoction prepared from the plant is taken as a preventive/curative measure against diabetes and hypertension. The antihypertensive and other pharmacological properties such as antibacterial, anti- oxidant, nephro- and hepato- protective, renal/diuretic effect, anti-cholesterol, and anti-diabetic effects of *Hibiscus sabdariffa* have been demonstrated in several studies.

Constituents of different plant parts of *Hibiscus sabdariffa* include phenolic acids, organic acid, flavonoids, and anthocyanins which may contribute to the pharmacological effects of the plant. There is a growing market for nutraceutical and functional foods, while a study on natural sources of antioxidants and their potential as nutraceutical andfunctional foods is on the increase [1].

One plant that has attracted much attention over the years for its health benefits is roselle (Hibiscus sabdariffa); many studies on the plant, its numerous preparation, and constituents focused on its antioxidant properties. *Hibiscus sabdariffa* L. (roselle) belongs to the family Malvaceae. It exists as herbs or shrubs, often with fibrous stems [2]. The leaves are deeply three- to five-lobed, 8–15 cm long, arranged alternately on the stems. Vernacular names, in addition to roselle, in English-speaking

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A REVIEW – PHYTOCHEMICAL, PHARMACOLOGICAL AND TOXICOLOGICAL PROPERTIES OF ASHWAGANDHA

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ABSTRACT:

Ashwagandha Withania *Somnifera* may be a well-known Indian herbal medicinal plant widely utilized in the treatment of the many disorders and in Covid-19 also. it's a crucial drug commonly referred to Ashwagandha has been utilized in single or together with other drugs in Unani also as Ayurvedic system medicine. Ashwagandha contained roots of *Withania Somnifera* which has various therapeutic actions like anti-inflammatory, sedative, alterative, aphrodisiac and immunomodulator. made during this review paper to explore various dimensions of the drug including phytochemical, pharmacological and toxicological studies administered on this drug.

KEYWORDS: *Withania Somnifera*, Phytochemical, Pharmacology, Immunomodulator

INTRODUCTION :

Withania Somnifera (Solanaceae). it's a desert plant, found within the drier parts of India, Sri Lanka, Afghanistan, Baluchistan and Sind and is distributed within the Mediterranean regions, the Canaries and Cape of excellent Hope. it's found in high altitude ascending to five, 500 feet within the Himalayas. and located in waste land, cultivated field and open ground throughout the India; widely cultivated in certain areas of Madhya Pradesh and Rajasthan. Roots collected in winter, washed and dig short pieces. In Unani system of drugs, roots of commonly referred to as Ashwagandha are used for the medicinal properties[1-3].

PHARMACOGNOSY[4-6]

Kingdom Plantae	Plantes, Planta, Vegetal, plants
Subkingdom	Viridiplantae – green plants
Infrakingdom	Streptophyta – land plants
Superdivision	Embryophyta
Division	Tracheophyta – vascular plants, tracheophytes
Subdivision	Spermatophytina – spermatophytes, seed plants, phanérogames
Class	Magnoliopsida
Superorder	Asteranae
Order	Solanales
Family	Solanaceae – nightshades, solanacées
Genus	Withania Pauquy
Species	Withania Somnifera (L.) Dunal – withania

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Advances in Bioresearch

ORIGINAL ARTICLE

Formulation and Evaluation of Orodispersible Tablet of Warfarin by Direct Compression Technique

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ABSTRACT
The demand for development of oral dispersible tablets (ODTs) has enormously increased as it has significant impact on the patient compliance. The aim of this investigation was to prepare orodispersible tablets of Warfarin using various concentrations of superdisintegrants agents like Polyplasdon XL, Crospovidone CL, Prosolv ODT by direct compression method. Four Tablets formulations having superdisintegrants at different concentration levels were prepared. These tablets were evaluated for weight variation, friability, hardness, drug content, and in vitro disintegration time. In vitro release studies that almost 100% of drug was release from all the formulations were within 15 minutes. Formulation F2 showed faster drug release 103.9±0.2 within 15 minutes in comparison to other formulation so it is selected as optimized batch. It was concluded that Orodispersible Tablets of Warfarin can be prepared successfully by direct compression methods as it satisfies all the criteria as mouth dissolving tablet and would be alternative to the currently available conventional tablets.

Keywords: *Warfarin,Direct Compression, Orodispersible tablets, Crospovidone, Disintegration time.*

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INTRODUCTION

The demand for development of oral dispersible tablets (ODTs) has enormously increased as it has significant impact on the patient compliance [1]. Oral dispersible tablets offer an advantage for populations who have difficulty in swallowing [2]. It has been reported that Dysphagia (difficulty in swallowing) is common among all age groups and more specific with pediatric, geriatric population along with institutionalized patients and patients with nausea, vomiting, and motion sickness complications. ODTs with good taste and flavor increase the acceptability of bitter drugs by various groups of population [3-5]. ODTs with good taste and flavor increase the acceptability of bitter drugs by various groups of population

United States Food and drug administration defined fast disintegrating tablet as "a solid dosage form containing medicinal substance or active ingredient which disintegrate fast usually within a few seconds when placed upon the tongue [6-9]." FDTs differ from traditional tablets as they are designed to be dissolved on the tongue rather than swallowed whole. Orodispersible Tablets are also known as mouth disintegrating tablets, melt-in mouth tablets, Orodispersible tablets, porous tablets, quick dissolving tablets, fast dissolving tablets[10-12].

MATERIAL AND METHODS

Warfarin was obtained as a gift sample Maxheal Pharmaceuticals, MIDC, Nashik Polyplasdon XL, Crospovidone CL, Prosolv ODT, Avicel PH 102, PVP K30, Avicel PH 102, Orange ,Mannitol, Aspartame ,Mg. stearate, Colloidal Silicon Dioxide. From Research Lab Fine Chem. Ltd. Mumbai.

METHODS: *[13-15].*

Preformulation Study

Identification of Drug

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Phytochemical and haemolytic activity on Stems of *Calotropis gigantea* Linn

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Abstract
Since ancient times, people have used medicinal plants to treat varied diseases. Medicinal plants are the important source of drugs, and many of them that are currently available in the pharma ceutical market are obtained from plant sources. The objective of present studies deals with the preliminary phytochemical studies on the aqueous extract of stems of *Calotropis gigantea* Linn. And phytochemical test for the identification of active constituents. Saponin was identified by foam test. Since the most characteristic properties of saponin is their ability to cause haemolysis, when added to suspension of blood saponin produced changes in erythrocyte membranes, causes haemoglobin to diffuse into surrounding medium.
The aqueous extract of *Calotropis gigantea* Linn. Produce haemolysis in the test tube 11 (i.e 0.90ml of extract or 0.009gm/ml of extract) and it was calculated by using formula given in the procedure. The haemolytic activity was found to be 722 with reference to standard saponin R i.e. 1000 unit. The result of haemolytic activity is shown in Fig.1.

Keywords: *Calotropis gigantea* Linn, stem and aqueous extract

Introduction
A medicinal plant is any plant which, in one or more of it contains substance that can be used for therapeutic purpose or which is a precursor for synthesis of useful drugs. The plants Posses therapeutic properties or exert Beneficial Pharmacological effects on the animal body are generally designated as "Medicinal Plant". In current scenario of medical and pharmaceutical advancement, microbes involve in the change of their metabolism and genetic structure to acquire resistant against the drugs used in the treatment of common infection disease [1-2]. The continued emergence or persistence of drug resistant organisms and the increasing evolutionary adaptation by pathogenic organisms to commonly used antimicrobials have reduced the efficacy of antimicrobial agent currently in use [3]. Plant have the capacity to produce a large number of organic chemicals called as phytochemicals. The accumulation of phytochemicals in the plant cell cultures had been studied for than thirty years and the generated knowledge had helped in realization of using cell culture for the production of desired phytochemicals [4].
Calotropis belong to Asclepidaceae family. It is also known as Akada, Aak, Mandar, Aakh etc. It has two species procera and gigantea. Here we study about Calotropis Gigantea [5]. The roots and leaves of calotropis gigantea are used traditionally for treatment of abdominal, tumours boils,skin diseases, wound, insect bites. A literature review showed that Calotropis Gigantea contained cardenolide, glucosides, a non-protein, amino acid, flavonoids and steroids. Calotropis gigantea in small dose are also useful in the treatment of cold, cough, asthma inflammatory diseases and loss of digestive and analgesic property of Calotropis Gigantea [6-7].
The objective of present study is to focus on Phyto chemical characteristics and haemolytic activity of stems of *Calotropis gigantea* Linn.

Material and Method
Plant material
The plant specimens for the proposed studies were collected from in the deep forest of Satpuda hills with the help of forest officers of Chopda tahsil, Dist. Jalgaon, Maharshtra (India) in the month of Dec. 2020 care was taken to select healthy plants and for normal organs. The plant was authenticated by Prof. (Dr.) C. R. Jadhav, Scientist, BSI (Botanical Survey of India), Pune (M.S.).

Preliminary Phytochemical Parameters
Preliminary phytochemical test of *Calotropis gigantea* Linn. Were performed and the chemical constituents were detected [7-8].

Haemolytic Activity [9-10]
Many medicinal plant materials, especially those derivedfrom the families Caryophyllaceae, Araliaceae, Sapindaceae, and dioscoreacae contain Saponins. The most characteristic property of Saponins is their ability to cause haemolysis: when added to a suspension of blood, Saponins produce changes in erythrocyte membranes, causes haemoglobin to diffuse into the surrounding medium.
The haemolytic activity of plant materials, or a preparation containing saponins, is determined by comparison with that of a reference material, Saponins R, which has haemolytic activity of 1000 units per gm. A suspension of erythrocytes is mixed with equal volumes of serial dilution of the plant material extract. The lowest concentration of effect complete haemolysis is determined after allowing the mixtures to stand for given period of time. A similar test is carried out simultaneously with Saponins R.
Procedures proposed for the determination of haemolytic activity of saponaceous medicinal plant material are based on the same principle although the details many vary, e.g. the source of erythrocytes, methods for the preparation of the erythrocytes suspension and the plant material extract,

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Pharmacognostical and phytochemical evaluation of stem of *Calotropis gigantea* Linn

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Abstract
The objective of present studies deals with the macroscopical and microscopical studies of stems of Calotropis gigantea Linn. Some distinct and different characters were observed with section of young thin stems. The microscoy shows the cork, cortex, vascular bundle, medullary rays xylem element are few and phloem elements. Physiochemical parameter and Preliminary phytochemical studies of the stems powder were also carried out. The present study on Pharmacognostical investigation of stems of Calotropis gigantea Linn. Might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Keywords: pharmacognostical, physiochemical, *calotropis gigantea* linn, stems, methanolic extract

Introduction
A medicinal plant is any plant which, in one or more of it contains substance that can be used for therapeutic purpose or which is a precursor for synthesis of useful drugs. The plants Posses therapeutic properties or exert Beneficial Pharmacological effects on the animal body are generally designated as "Medicinal Plant". In current scenario of medical and pharmaceutical advancement, microbes involve in the change of their metabolism and genetic structure to acquire resistant against the drugs used in the treatment of common infection disease [1-2]. The continued emergence or persistence of drug resistant organisms and the increasing evolutionary adaptation by pathogenic organisms to commonly used antimicrobials have reduced the efficacy of antimicrobial agent currently in use [3]. Plant have the capacity to produce a large number of organic chemicals called as phytochemicals. The accumulation of phytochemicals in the plant cell cultures had been studied for than thirty years and the generated knowledge had helped in realization of using cell culture for the production of desired phytochemicals [4].

Calotropis belong to Asclepidaceae family. It is also known as Akada, Aak, Mandar, Aakh etc. It has two species procera and gigantea .here we study about Calotropis Gigantea [5]. The roots and leaves of calotropis gigantea are used traditionally for treatment of abdominal, tumours boils,skin diseases, wound, insect bites. A literature review showed that Calotropis Gigantea contained cardenolide, glucosides, a non-protein, amino acid, flavonoids and steroids. Calotropis gigantea in small dose are also useful in the treatment of cold, cough, asthma inflammatory diseases and loss of digestive and analgesic property of Calotropis Gigantea [6-7].

Material and Method
Plant material
The plant *Calotropis gigantea* Linn. is widely found throughout India. For my work the plant was collected from in the deep forest of Satpuda hills with the help of forest officers of Chopda Tahsil, Dist. Jalgaon, Maharshtra (India) and authenticated by Prof. (Dr.) C. R. Jadhav, scientist, BSI (Botanical Survey of India), Pune (M.S.). (Specimen no. 01). The stems of the plant were dried under shade and then coarsely powdered with help of mechanical grinder. The powder was passed through sieve no. 40 and stored in an airtight container for further studies. Extraction was carried out by continuous soxhlet extraction process for 72 hr.

The required samples of different organs were cut and removed from the plant and fixed in FAA (Formalin – 5 ml + acetic acid – 5ml + 70% Ethyl alcohol – 90ml). After 24 hrs of fixing, the specimens were dehydrated with graded series of tertiary – butyl alcohol as per method [8]. Infiltration of the specimens were carried out by gradual addition of paraffin wax (melting point 58-60^{0}C) until TBA solution attained super-saturation. The specimens were casted into paraffin blocks.

Sectioning
The paraffin embedded specimens were sectioned with the help of rotary Microtome. The thickness of the sections were 10-12 µm. Dewaxing of the sections were done by customary procedure [9]. The sections were stained with Toluidine blue as per the method [10]. Since Toluidine blue is a polychromatic stain, the staining results were remarkably good; and some Cytochemical reactions were also obtained. The dye rendered pink colour to the cellulose walls, blue to the lignified cells, dark green to suberin, violet to the mucilage, blue to the protein bodies etc.

Photomicrographs
Microscopic descriptions of tissues are supplemented with micrographs wherever necessary. Photographs of different magnifications were taken with Nikon Lab photo 2 Microscopic Unit. For normal observations bright field was used. For the study of crystals, starch grains and lignified cells, polarized light was employed. Since these structures have birefringent property, under polarized light they appear bright against dark background. Magnifications of the figures are indicated by the scale – bars [11].

Pharmacognostical and Antimalarial Studies of *Tamarindus indica* Leaves

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ABSTRACT

The present study was performing to know Antimalarial activity of Tamarind (Tamarindus indica L.) The plant T. indicus was collected further by using methanol the extract residue diluted 10% Dimethylsulphoxide extract from which were produced. The plate diffusion method was used as an antimicrobial testfor Plasmodium falciparum and Plasmodium vivax by zone of inhibition tested.TLC standardization ensure presence of tartaric acid in the extracted sample against the standard.leaves possess an near to standard Antimalarial activity which was confirmed by its effect on experimental living organism.

Keyword: Tamarindus Indica, Leaf, Antimalarial Activity, TLC.

INTRODUCTION

Tamarind (Tamarindusindica L.) belongs to the family of Fabaceae (Leguminosae), subfamily Caesalpinioideae, is a very important food within the tropics. Medicinal plants are the rear bone of traditional medicine (TM). TM is vital in tropical countries: Contrary to pharmaceuticals, pharmacological, and pharmacotherapy. T. indicais employed as TM in India, Africa, Pakistan, Bangladesh, Nigeria, and most of the tropical countries. It is used traditionally in abdominal pain, diarrhea and dysentery, helminths infections, wound healing, malaria and fever, constipation, inflammation, cell cytotoxicity, gonorrhea, and eye diseases. It is numerous chemical values and is rich in phytochemicals, and hence, the plant is reported to possess antidiabetic activity, antimicrobial activity, antivenomic activity, antioxidant activity, antimalarial activity, hepatoprotective activity, antiasthmatic activity, laxative activity, and antihyperlipidemic activity. The plant contains in leaves, seeds, roots, pulp, fruits, and flowers an excellent sort of bioactive substances that have beneficial effects on human health and therefore the possibility of application in various tropical, pharmaceutical, and industrial sectors [1-3].

Medicinal plants are the rear bone of traditional medicine (TM). TM is vital in tropical countries: Contrary to pharmaceuticals, pharmacological, and pharmacotherapy. It is often freely and readily available multipurpose tree of which just about every part finds a minimum of some use either

Preliminary Phytochemical Analysis of Emblica Officinalis Seed

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ABSTRACT

Phytochemical investigation of n-butanol extract of Emblica Officinalis Seed. This research is to check the phytochemical agent determination by various methods. Study is done to check the test for carbohydrate and protein, saponin, terpenoid, tannins, glycosides, alkaloid by the procedure performed to find the chemical observed in Emblica officinalis seed. The investing the phytochemical present in n-butanol extract of Emblica Officinalis seed by using in vitro methods to check the phytochemical agent present or absent in plant.

Keywords: Phytochemical, n-butanol, Carbohydrate, Alkaloids, Tannins.

INTRODUCTION

Plants have long been recognized for their therapeutic properties. For centuries, indigenous cultures around the world have used traditional herbal medicine to treat a myriad of maladies [1]. Emblica officinalis (Amla) are widely used in the Indian system of medicine and believed to increase defense against diseases. This article discuses and summarizes important medicinal values of Emblica officinalis (EO) [2,3]. In this communication, we reviewed the EO in cancer, diabetis, liver treatment, heart disease, ulcer, anemia and various other diseases [4,5,6,7].The use of EO as antioxidant, immunomodulatory, antifungal activity, antipyretic, analgesic, cytoprotective, antitussive and gastro protective are also reviewed [8,9]. Further for the phytochemical investigation Extraction is the first step to separate the desired natural products from the raw materials [10,11,12]. The extraction of natural products progresses through the following stages: the solvent penetrates into the solid matrix; the solute dissolves in the solvents; the solute is diffused out of the solid matrix; the extracted solutes are collected.

MATERIAL AND METHODS

Collection of the Plant sample

Emblica officinalis stem (P. Emblica L.), leaves and seeds were collected from Department of Pharmacognosy, College of Pharmacy, Chopda (Jalgaon, Maharashtra) and identified authenticated by Dr. C R. Jadhav, Botanist at Botanical Survey of India, Pune, M.H.

Preparation of Plant Extract [13]

Collected plant parts were air dried under shade and then ground to a coarse powder using a grinder. Extraction and fractionation technique was referred from standard textbboks with suitable solvents. Powdered seed material was extracted first with petroleum ether for defatting and then

ANTIHELMINTIC EFFECT OF EMBELIA TSJERIAM-COTTAM

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ABSTRACT

The present study was undertaken to investigate the anthelmintic activity of extract of Em*beliatsjeriam-cottam* using earthworm. Different concentrations of standard drug (Albendazole) and extract of *Embeliatsjeriam-cottam fruits* were employed and the average time required for paralysis and death was noted. It was found that the Paralysis time & Death time was lowest for 5% concentration of Ethanolic extract and Death time was slightly better than Albendazole Standard solution. Though Ethanolic Extract can be compared to the Standard hence establishing the pharmacological antihelminthic activity of *Embelia tsjeriam- cottam*.

Keywords: Embelia *tsjeriam-cottam* Anthelmintic Activity, Albendazole, Ethanolic Extract.

INTRODUCTION

Helminthes infections are among the most widespread infections in humans, distressing a huge population of the world. The human roundworm A. lumbricoides is one of the most common parasites in the world, infecting 1.2 billion people globally. Infections are most commonly documented in Asia, sub-Saharan Africa, the Americas and China. The spectrum of disease associated with A. lumbricoides infection is known as ascariasis, and morbidity assessed as disability adjusted life years (DALYs) is approximately 10.5 million. Furthe rmore, morbidity with serious health consequences is observed in 122 million cases per year [1,2] The World Health Organization reports that 35% diseases are because of roundworm, which is a typical parasitic worm. More than 1.5 billion individuals or 24% of the total population are tainted with soil-transmitted (STH) helminth contaminations around the world.

[3] However, ascariasis is still considered a neglected tropical disease (NTD).

The community-based control of STHs is based on mass drug administration by two synthetic anthelmintics, albendazole and mebendazole. [4] A wide spread resistance to the commercially available anthelmintic treatments has been observed in multiple nematode species. [5] Therefore, alternative anthelmintic strategies are urgently needed. In addition anthelmintic strategies such as grazing management, biological control with nematophagous fungi or food supplementation with leguminous plants accumulating high amounts of condensed tannins, phytotherapy could be a part of an integrated control system. The family

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FORMULATION AND EVALUATION OF LIQUID CRYSTALS CONTAINING ACOTIAMIDE CAPSULE FOR ORAL DELIVERY

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Abstract:

The liquid crystals called as mesophase inter mediate between the crystalline solid state and therefore the amorphous liquid state. (Lagerwall, 2012) Liquid Crystals nano carriers are an intermediary state between the solid and liquid state. it's mostly named a mesomorphic state. (Imran, 2012) From reverse cubic phase colloidal particles are interior aqueous zones also afford certain benefits in technical applications compared by means of droplets of general oil-in-water emulsions The liquid could be a substance that which is thermodynamically situated in within the middle of the isotropic liquid and therefore the crystalline phase. They show flow properties sort of a liquid and at the identical time partly hold the order of a crystal. (Dierking, 2017) The liquid are often deliberated 1 / 4 states of matter following solid, liquid, and gas. Liquid-crystal phases, as their name suggests, be existent between the predictable crystal phase and therefore the liquid phase.

Keywords- Acotiamide, Poloxamer 407, Liquid crystal.

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LIQUID CRYSTALS CONTAINING ACOTIAMIDE CAPSULE FOR ORAL DELIVERY REVIEW

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Article Received: April 2022 **Accepted:** April 2022 **Published:** May 2022

Abstract:

The liquid may be a substance that which is thermodynamically situated in within the middle of the isotropic liquid and also the crystalline phase. They show flow properties sort of a liquid and at the identical time partly hold the order of a crystal. The liquid will be deliberated 1 / 4 states of matter following solid, liquid, and gas. Liquid-crystal phases, as their term suggests, be existing between the expected crystal phase and therefore the liquid phase. Typically, liquid-crystal molecules keep rod-like structure or disc-like anisotropic structures. The distinctive characteristic of liquid crystals is that the propensity of the molecules to support them with long-range direction.

KEYWORDS- Liquid Crystals, Acotiamide, Functional Dyspepsia.

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DYNAMIC FORMULATION OF EFFERVESCENTANTIMICROBIAL MOUTHWASH REVIEW.

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Abstract

Mouthwashes (mouthrinses) are generally classified as either cosmetic or therapeutic or a mixture of the

2. Cosmetic rinses are commercial products that remove oral debris before or after brushing, temporary suppress bad breath, diminish bacteria within the mouth and refresh the mouth with a nice taste. Therapeutic rinses often have the advantages of their cosmetic counterparts, but also contain an additional active ingredient, (for example fluoride or chlorhexidine), that help protect against some oral diseases. The number of the various ingredients in mouthwashes varies from product to product. Some practically have the identical composition as toothpastes, although they are doing not contain abrasives. Different from toothpastes most mouth-washes contain alcohol, as a preservative and a semi-active component. The number of alcohol is sometimes starting from 18 - 26 %..

Keyword: Effervescent, Antimicrobial, Mouthrinses

1. INTRODUCTION

As health awareness in population is increasing day by day within the present era, healthcare systems are finding an ample scope for growth, e.g. Community based health programs. Community based healthprograms are the health programmes arranged by a corporation to supply basic help and treatment to theircommunity. Programs are arranged for mental state, maternity health (prenatal, obstetric), AIDS and cancer related programs, Counseling's for STD's tuberculosis etc. Besides, there are screening programs for preventing examination like Pap test, HPV Testing, Blood testing for Cholesterol, glucose, checking pressure level, vaccination programs etc. In some developed countries like ny, programs for diabetes also are being arranged. together with of these programs, there are programs for oral health care also, which has increasing the notice amongst community, setting goals and objectives and respective plans and techniques to satisfy the identical. Many community-based programs and efforts to forestall oral disease by promoting science-based prevention strategies and monitoring oral health status and risk factors are established1. Many committees and bodies like Healthy People are engaging programs and setting their objectives for oral health care. a number of the objectives of healthy people 2020 are2, 3:

- To increase the detection of the oral and pharyngeal cancers at the earliest stage
- To increase the proportion of population served by community water systems with optimallyfluoridated water.
- To increase the proportion of youngsters and adults who use the oral health care systemannually.
- To increase the proportion of low-income children and adolescents who received any preventive dental service during the past year.
- To increase the amount of Stares and also the District that has an oral and craniofacial health closed-circuit television
- To reduce the proportion of kids and adolescents who have tooth decay experience in their primary or permanent teeth.
- To reduce the proportion of young children aged 3 to five years with tooth decay experience in their primary teeth.
- To reduce the proportion of adolescents age 13 to fifteen years with the decay experience in their permanent teeth.

1.1 Why oral health important

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TO DESIGN AND DEVELOP SOLID LIPID NANOPARTICLES BASED NANOGEL FOR DERMAL DELIVERY OF MELOXICAM

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Article Received: April 2022 **Accepted:** April 2022 **Published:** May 2022

Abstract:

Topical drug delivery can be defined as application of medication containing formulation to the skin to directly treat the cutaneous or subcutaneous disorders and diseases like acne or fungal infections by providing the drug to the surface of the skin or within the skin. In spite of many advantages of transdermal and dermal drug delivery over other drug delivery system, relatively few topical drug formulations are commercially available in market. The main challenging step in the topical delivery is the crossing of most impermeable epithelia of human body that is stratum corneum. Stratum corneum becomes a barrier for the exogenetic substances. Hence this fact is to be considered at the time of formulating a new formulation for the topical administration of drug so that maximum penetration of the drug into the skin without irreversible disturbing the skin barrier function can be achieved.

KEYWORDS- Nanoparticles, Nanogel, Meloxicam

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SOLID LIPID NANOPARTICLES BASED NANOGEL FOR DERMAL DELIVERY OF MELOXICAM: REVIEW

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Abstract

Nanogels composed of nanosize particles formed by physically or chemically cross linked polymernetworks that swells in a good solvent. The nanogelmethods have verified their potential to carry drugsin controlled, continuous and targetable mode.Through the promising field of polymer sciences ithas now develop predestinated to make smart nano-system which can found effectual for treatment,diagnosing as well as experimental trials progress. Nanogels is been proving as a promising drugdelivery system and offers variety of characteristicslike on site drug delivery system, sustained releaseformulation, high drug entrapment properties, watersolubility, biodegradability, low toxicity etc. Due to these multi functionality properties and featuresnanogel utilized extensively in many drug deliverfields. Composite with polymers, metals and otheractive molecules nanogel turned out as excellentdrug delivery system.

Keyword: Nanogel, Meloxicam, Epidermis.

1. INTRODUCTION

1.1 General introduction to topical drug delivery system

For the successful delivery of any new developed pharmaceutical formulation it is expected to deliver the therapeutic active drug to the target site at minimum effective concentration with negligible discomfort, maximum patient compliance to the therapeutic use and minimum side effects. Among various routes of administration, the topical route is the most favored route for local delivery of therapeutic agent. Due to its advantage of easy of application, low cost of production and convenience, topical route has become more popular over last few years. Current trend of oral and parenteral route offer the challenges related to adverse effects of drug and dosage form along with patient compliance and issue related to stability. However, conventional topical drug delivery systems have limitations such as less retention time and low bioavailability. Hence existing topical drug delivery and innovations in this system aims to improve the efficacy of drug and to achieve an optimal concentration of a certain drug at its site of action for an appropriateduration [1,2].

Topical route of administration have several advantagesover other drug delivery systems.

These advantages are enlisted below.

1.1.1. Advantages of topical drug delivery system[3-6]:

1. It avoids first pass metabolism.
2. Expedient and easy to apply.
3. Avoids the disadvantages and risks of intravenous therapy
4. Avoids the problem associated with oral therapy like the varied conditions of absorption, like pH changes, presence of enzymes, gastric emptying time etc.
5. Lowers the total drug administration.
6. Avoids wavering in drug levels.
7. Medication can be easily terminated whenever needed.
8. Availability of larger application area than other like buccal or nasal cavity
9. Target the drug more selectively to a specific site.
10. Avoids the gastro-intestinal incompatibility.
11. The drugs with short biological half-life and narrow therapeutic window can be administered.

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FORMULATION EVALUATION AND DEVELOPMENT OF FAST DISSOLVING TABLETS CONTAINING SOLID DISPERSION OF INDOMETHACIN

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Abstract:

The effectiveness of drug is depending upon the power of the dosage form to deliver the medicament to its site of action at a rate and amount sufficient to elicit the required pharmacological response. This property of dosage form is cited as physiologic availability, biologic availability or just bioavailability. Thus the term bioavailability is defined because the rate and extent of unchanged drug from its dosage forms.[1] The In-vivo performance of orally administered drugs depends upon their solubility and tissue permeability characteristics. BCS may be a scientific framework for classifying drug substances in line with their aqueous solubility and permeability. BCS guidelines are provided by U.S. Food and Drug Administration (USFDA), world Health Organization (WHO), European Medicines Agencies (EMEA). According to BCS classification, drug substances are grouped into four major classes

KEYWORDS- Solid Dispersion, Fast Dissolving,

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RIZATRIPTAN BENZOATE NANOEMULGEL FOR TOPICAL DRUG DELIVERY SYSTEM: REVIEW

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Abstract

Drug delivery through the skin to the circulation is convenient for variety of clinical conditions because of which there has been a substantial interest during this area. It offers the advantage of steady state controlled drug delivery over extended periods of your time, with self- administration also being possible, which cannot be the case with parental route. The drug input may be eliminated at any time by the patient just by washing off the applied dosage. an additional advantage is that the total absence of gastrointestinal side effects like irritation and bowel ulcers which are invariably related to oral delivery. Topical delivery has been developed for variety of disease and disorders. The treatment of skin diseases additionally as musculoskeletal disorders may well be advantageous from topical administration obtaining a substantial reduction in oral side effects with improved patient compliance. Many anti-inflammatory drugs are poorly water soluble and Nano suspension is that the techniques which is employed to enhance this characteristic, so anti-inflammatory drugs are chosen as a model for this study. Rizatriptan is employed to treat migraines. It helps to alleviate headache, pain, and other migraine symptoms (including nausea, vomiting, and sensitivity to light/sound). Prompt treatment helps you come back to your normal routine and should decrease your need for other pain medications. Rizatriptan belongs to a category of medicine called triptans. It affects a specific natural substance (serotonin) that causes narrowing of blood vessels within the brain. It's going to also relieve ache by affecting certain nerves inside the brain. Rizatriptan don't prevent future migraines or lessen how often you get migraine attacks the improved adoption of topical medication in current years has been impressive. this can be largely thanks to the very fact that the medication has proven to own more advantages than drawbacks.

Keyword: NanoEmulgel, Rizatriptan, Migraine

1. INTRODUCTION

1.1 Topical Drug Delivery System

Topical drug delivery system could be a route of administration of medicine via the skin to produce topical therapeutic effects. As skin is one in every of the most important and most superficial organs within the shape, pharmacists utilise it to deliver various drugs. This technique usually provides an area effect on certain positions of the body. In past, people used herbs to place on wounds for relieving the inflammatory effect or as pain relievers. the utilization of topical drug delivery system is far broader now, from smoking cessation to beauty purposes. Nowadays, there are numerous dosage forms which will be used topically, including cream, ointment, lotion, patches, toilet powder and far more.[citation needed] There are many advantages for this drug delivery system - avoiding first pass metabolism which might increase its bioavailability, being convenient and straightforward to use to an oversized area, being easy to terminate the medication and avoiding gastro-intestinal irritations. of these can increase the patient compliance. However, there are several disadvantages for this method - causing skin irritations and symptoms like rashes and itchiness may occur.

Topical formulation has mainly three functions:

- To help hydrate the skin because of their emollient properties.

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TO DESIGN, DEVELOPMENT AND CHARACTERIZATION OF NOVEL IN SITU GEL FOR OCULAR DRUG DELIVERY

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Abstract:

In-situ Gel for ocular drug delivery is prepares by using mucoadhesive polymers to increase ocular residence time and minimize preco

KEYWORDS- In-situ Gelling System, Ketorolac Tromethamine, Sodium Alginate, HPMC K4M, Benzalkonium Chloride,

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FORMULATION EVALUATION AND DEVELOPMENT OF MUCOADHESIVE BUCCAL TABLET OF VILDAGLIPTIN

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Abstract:

Mucoadhesive drug delivery systems interact with the mucus layer covering the mucosal epithelial surface, and mucin molecules increase the duration of the dosage form at the positioning of absorption. Mucosal coating characterizes potential sites for the add-on of any bio adhesive systems for the reason that mucosal layer lines number of the body with the gastric tract, the urogenital tract, vaginal tract, the eye, ear, and nose. The mucoadhesive layer tablets containing of dual various forms of drug particles and that they display on set of actions on their specific sites. This analysis defines the structure of mucosal layer, mechanism of action of mucoadhesion, and planning of tablets and evaluation parameters of tablets

KEYWORDS- Buccal Tablet, Vildagliptin, Mucoadhesive

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To Design and Develop Mucoadhesive Buccal Tablet of Vildagliptin: Review

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Abstract

Drug actions are improved by new drug delivery system, like mucoadhesive system. This method remains in close interaction with the absorption tissue, the membrane; release the medicine at the action site resulting in enhancement in both local and systemic effects. Oral route is that the most ancient furthermore as chosen by patient being suitable to require. However, perioral route has short comings like hepatic first pass breakdown and enzymatic degradation in Gastro Intestinal Tract which can remain a hindrance to the absorption of most proteins and peptides groups of medicine. The mucosa of the rima oris presents a formidable barrier to drug penetration, and one technique of optimizing drug delivery is by the use of adhesive dosage forms and also the mucosa contains a ridiculous blood supply and it's relatively permeable. Laminated devices are developed to attain sustained drug release.

Keyword: Mucoadhesive, Vildagliptin, Anti-Diabetic.

1. INTRODUCTION

The Mucoadhesive drug delivery systems which apply the property of bio adhesion of assured polymers which develop adhesive on hydration and from now will be used for aiming a drug to a specific region of the body for extended periods of your time. During which two materials, a minimum of one amongst which is biotic, are held together by means of interfacial forces. The attachment can be between a man-made substantial and biotic substrate, like adhesion between a polymer and a biological membrane. Within the situation of polymer committed to the mucin layer of a mucosal tissue, the term "mucoadhesion" is employed.

Mucoadhesive drug delivery methods are delivered by many routes:-

- Buccal delivery system
- Oral delivery system
- Vaginal delivery system
- Rectal delivery system
- Nasal delivery system
- Ocular delivery system

1.1 Mucoadhesive Oral Drug Delivery Systems

This route is that the most desired route for the delivery of several drug. Drug delivery via the membranes of the oral fissure will be subdivided as:

- Sublingual delivery: this can be systemic delivery of medicine over the mucosal membranes lining the ground of the mouth.
- Buccal delivery: this is often drug administration through the mucosal membranes lining the cheeks (buccal mucosa).
- Local delivery: this is frequently drug delivery into the rima. Inside the oral mucosal cavity, the buccal area offers a horny route of administration for controlled systemic drug delivery

Buccal delivery is that the administration of medication through the mucosal membrane lining the cheeks. While the sublingual mucosa is thought to be further permeable than the buccal mucosa, the concluding is that the preferred route for systemic transmucosal drug delivery. This can be because the buccal mucosa has an expanse of smooth muscle and comparatively immobile mucosa, which makes it a more desirable region for retentive systems.

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REVIEW OF MATRIX TYPE TRANSDERMAL PATCHES OF BENAZEPRIL HYDROCHLORIDE

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Abstract:
Transdermal drug delivery systems are defined as self-contained, discrete dosage forms which, when applied to the intact skin, delive

KEYWORDS- Transdermal Patches, Benazepril Hydrochloride, Eudragit L100.

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DEVELOPMENT AND CHARACTERIZATION OF MUCOADHESIVE PATCHES OF BOSENTAN FOR BUCCAL ADMINISTRATION

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Abstract:

Maximum of the preparations of anti-hypertensive drugs are presented within the market within the style of tablets. The disadvantage in terms of efficacy, absorption and bioavailability, undesirable side effects are because of fluctuating plasma drug level. Inability to keep up adequate drug concentrations in plasma for therapeutic effect, larger doses than those required by the cells should be administered so as to realize the therapeutic concentration. to beat all the shortcomings within the conventional tablet dosage forms, there's a desire to formulate mucoadhesive buccal patches which provides an honest advantage of easy accessibility and needle free drug application without the need of a trained personnel facilitating self-medication.

KEYWORDS- Nanoparticles, Bosentan, HPMC K-100M.

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Preparation and investigation of analytical profile of Indian traditional medicine: Mukta shouktic bhasma by using modern analytical techniques

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Abstract
Among the various essential elements calcium is important for human being. Various natural and synthetic calcium supplements are in market. According to Rasaratnasamuchchaya Calcium *bhasma* is rich calcium supplements. *Mukta shouktic bhasma* is a traditional Ayurvedic formulation. Raw *Muktashukti* is subjected to calcination to transform it into *MSB*. In raw *mukta shoukti* calcium carbonate is present in aragonite form. After transformation of *Mukta shoukti* into *MSB*, the aragonite form changes to a calcite form. The *MSB* should be analysed for percentage of calcium content. Physicochemical analysis of *MSB* is studied by modern analytical tools as SEM, XRD, and FTIR. In present work structural and chemical characterization of *MSB* was performed to develop analytical profile of it. There is marked improvement in the therapeutic efficacy of bhasma due to reduction of particle to nano size. XRD analysis revealed that calcium is the major element present in *Mukta shouktic bhasma.*

Keywords: mother of pearl, shodhana, marana, calcination, XRD

Introduction
In India various traditional systems of medicine were practiced, Ayurveda is one them. Ayurveda first recognized important role of metals, marine substances and minerals in curing ailments. *Bhasmas* are inorganic formulations of mineral and metal which transform them to their carbonates, oxides, etc [1]. Lead, calcium, iron, silver, gold, zinc are commonly employed for formulation *of Bhasmas*. Potency, stability and lower therapeutic dose make the *Bhasma* superior than any other preparations [2]. The improper understanding and processing of traditional methods put a question mark on genuineness of preparations. *MSB* is reported as rich sources of calcium. The *MSB* is formulated by calcination of raw mother of pearl [3]. *MSB* is mainlyused as calcium supplement in deficiency. It is also useful for an antacid and anti-pyretic and anti-inflammatory activity [4, 5]. Analytical studies of *MSB* confirm presence of calcium carbonate in calcite form. Thus it is worthwhile to investigate the analytical profile of *MSB* so as to find out nature of raw material as well as final formulation [6]. The aim of present work is to develop analytical profile of *MSB* by assessing physicochemical parameters and using modern analytical techniques such as XRD, FTIR, and SEM.

Methodology
Preparation of *Muktashukti Bhasma*
Muktashukti (mother of pearl) is procured from local market of Nashik (Maharashtra), India. The *MSB* is formulated as per method mentioned in classical Ayurvedic texts. The formulation process includes following main stages.

a. Shodhana
First *Mukta-Shukti* was crushed with the help of mortar and pestle. These fragments were placed in clean cloth *Pottali.* The *Pottali* was suspended with the help of glass rod into an earthen container containing *Kanji* so that *pottali* will not touch the inner surface of container. Then boil it for about 3 hours, during boiling adequate amount of kanji was addedso as to maintain its level. After boiling pottali was removedfrom container and let the content cool. After cooling, fragments were removed and washed with warm water and then allowed to dry [7, 8].

b. Marana
After shodhana the purified *Mukta-Shukti* was sandwiched between cow dung. Then it was heated and after cooling fragments was removed from ash. These fragments were triturated for 2 days. After trituration pellets are formed and put in between two *Shoraws* which was sealed with clay dipped clothes. The *Shoraws* were processed in *Gazaputa* for *Marana.* The *Mukta Shukti* obtained from the *Sharava* was subjected to *Bhasma Pariksha*. If sample does not pass the *Bhasma Pariksha***,** then it is processed in same manner for 4 more time to obtain *Mukta-shukti bhasma* [9].

Result and Discussion

Table 1: Organoleptic evaluation

Sr. no.	Parameter	Observation
1	Number of Putas required	5
2	Weight of Shodhita *Muktashukti*	200 gm
3	Weight of *Muktashukti Bhasma*	45 gm
4	Weight loss	155 gm
5	Colour	white
6	Odour	Odorless
7	Taste	Tasteless
8	Touch	Soft smooth
9	Nature	Very fine powder

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Research article

Preparation and characterization of egg shell bhasma by using modern analytical techniques

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ABSTRACT

Calcium is one of the essential elements for living beings. As a supplement, it is used to treat Calcium deficiencies due to a calcium deficient diet. In *Rasaratnasamuchchaya* Calcium bhasma (Eggshell bhasma) is included as a rich calcium supplement. There is a need for work on the determination of the percentage of Calcium in the eggshell and its limit of acceptance. Easy absorption of bhasma in the body is possible when its preparation is carried out in an acidic medium. Lemon juice is one of the acidic mediums employed for this purpose at pH 2.4. The eggshell powder issubjected to five calcination cycles to convert it into the Bhasma. Analysis of Eggshell Bhasma has been done by various modern analytical techniques to determine its exact chemical compositions. Various instrumental methods like XRD, FTIR, and SEM have been incorporated for analysis of raw materials, intermediates as well as final products. The calcium carbonate present in eggshells is in calcite form. In the present work, structural and chemical characterization of eggshell bhasma was carried out to develop an analytical profile of it.

Keywords: Ayurvedic**,** Calcination, XRD, Egg shell Bhasma.

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INTRODUCTION

Ayurveda is one of the ancient medicine systems practiced in India. Rasashastra deals with the study of metals, nonmetals as well as herbomineral formulations known as Bhasmas [1]. Bhasma actually is ash. These are inorganic preparations, which transform minerals and metals into carbonates and oxides [2]. Potency, Stability, lower therapeutic dose is certain advantages of bhasmas over other herbal formulations. The validation issue of these conventional medicines puta question mark on their authenticity.

In Ayurveda, the Egg Shell Bhasma is referred to as a calcium-rich mineral medicinal formulation [3]. At the present large amount of eggshells were wasted as disposal in landfills which is contains a highamount of Calcium as well as Magnesium. Literature study reveals thatthis eggshell can be utilized as an important source for the preparation of Calcium-rich supplements. The calcium form of eggshell bhasma is well absorbed; also the efficiency of this natural calcium from bhasmasis far better than the synthetic one. To find out the biological role of eggshells it is necessary to determine their chemical composition [4]. Chemical evaluation of eggshells confirms that about 97% Calcium carbonate is present in it [5]. The synonym for Egg shell bhasma is *Kukutandatwak* bhasma. The ayurvedic calcium preparations were widely used as healing packages. Kukutandtwak bhasma possess higher acid-neutralizing capacity [6]. As per the classical Ayurvedic text, the eggshell powder is heated to transform it into bhasma. Analytical studies of eggshell powder confirm the presence of calcium carbonate in calcite form [7]. Investigation of the analytical profile of Eggshell bhasma is necessaryto find out the nature of the final formulation. The present work was undertaken to reveal the analytical profile of Eggshell bhasma by assessing physicochemical parameters and using modern analytical techniques such as XRD, FTIR, and SEM.

MATERIALS AND METHODS

Hen egg shells were collected from local market of Amalner. Purification of egg shells was done by following classical guidelines [8]. Raw egg shells was taken and washed with potable water and driedunder shade for 12 hr. Purification was carried out by boiling (Swedana) in salt water for 3 hr. And then, it was cooled. After cooling,it was rubbed with hands and washed with hot water until separation of the inner layer from egg shell.

Preparation of egg shell bhasma

The egg shell powder was purified and converted to micro fine size. Then this powder was transformed to egg shell bhasma by

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ORIGINAL ARTICLE **OPEN ACCESS**

Comparative Studies of Phytochemicals and *In vitro* Antioxidant activity of *Tridax Procumbens* Extracted in Different Solvents and their Effect on Calcium Oxalate And Brushite under *In Vitro* Conditions

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ABSTRACT
Kidney stone is the hard deposit form in the kidney. It affects 13% and 7 % of male and female globally. The aim of the present work was to investigate the antioxidant and antiurolithiatic activity of Tridax procumbens (stem and leaves) in the extracted in the different solvents. Also study the effect of extracts on in-vitro crystallization of CaOx and brushite crystals.The plant (stem and leaves) was extracted using soxhlet apparatus in various solvents such as toluene, ether, ethanol, aqueous flavonoid rich extract by hot percolation method. The extracts were screened for antioxidant action by DPPH, ABTS, lipid peroxidation inhibition, xanthine oxidase, Superoxide radical scavenging assay. The findings concluded that flavonoid rich extract possesses the greater inhibition on nucleation of calcium oxalate as compared to other extract-derived fractions of aerial parts and roots. Flavonoids and phenolics chiefly exhibit antioxidant activity and hence, can serve as antiurolithiatic agents.
Keywords: *Tridax procumbens, Antioxidant activity, calcium oxalate, antiurolithiatic activity, total phenolic content, total flavonoid content*

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INTRODUCTION

The hard deposit of that form in the kidney termed as renal stone or kidney stone. When it enters in the ureter termed as ureteral stone. The occurrence of kidney stone is 12 % of total population. The occurrence of disease in male and female was found to be 13 % and 7 % respectively [1]. These stones are smaller in size carried out of the human body through the urine. The smaller size stones were removed by taking painkillers and plenty of water. Medium size stones can be removed with the help of medicines used as muscles relaxant. The large stones take longer time to exit through the ureter leads to severe pain.The stones in large size need to break in small pieces by using sound wave through minor surgery. The treatment of kidney stone involves utilization of drug and extracorporeal shock wave lithotripsy (ESWL). The recurring of disorders such as hyperoxaluria and hypercalciuria which leads to the formation of calculi can be prevent by alkali citrate and diuretic. The effectiveness by the treatment was found to be low [2].The removal of stone through extracorporeal shock wave lithotripsy and surgical endoscopy used in the treatment of kidney stone. Both the methods unable to prevent the formation of new stone (50- 80%) [3]. The utilization of wave methods causes renal injury also decrease the renal function. The treatment cost was also high. The awareness about the potential benefits of herbal drugs in the treatment of kidney stone was growing. The present study involved the utilization of herbal plant Tridax procumbens. The common name of Tridax procumbens is Ghamara, also termed as coat buttons. The plant Tridax procumbens belongs to family Asteraceae. It is mostly prescribed from the practitioners of Ayurveda. The plant occurs mostly in course textured soil in tropical area. It is a small, semi prostate, annual or perennial and herbaceous creeper weed having short, hairy blade-like leaves. The stem is elongated to the height of 20-60 cm tall, branched, sparsely hairy, rooting at nodes. Flowers are tubular, yellow with hairs, inflorescence capitulum. The plant has two types flower, ray florets and disc florets. Leaves are simple, opposite, stipulate, lanceolate or ovate. 4-8 cm long, toothed margin, base wedge- shaped, shortly and petiole, hairy on both surfaces [4- 6]. The plant was studied for their phytochemical constituents and their pharmacological effects[7, 8] such as antioxidant activity [9, 10, 11], anti-

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Evaluation of Flavonoid Rich Extract of *Tridax procumbens* Linn for Acute Toxicity Profile and Antiurolithiatic Activity

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ABSTRACT
Now-a-days interest of human in the use of traditional medicines has growing. To improve the acceptance, the variety of dosage forms were formulated and developed. In the present work Tridaxprocumben has been developed in the form of liquid dosage. The developed formulation evaluated for different parameters and antilithiatic activity. Flavonoid rich extract was obtained from Tridaxprocumben stem. The extract was further used to develop formulation of the syrup. The physicochemical properties of the syrup were studied. The syrup was evaluated for antiurolithiatic action. The accelerated stability of syrup was evaluated during the period 6 months. The product was light brown semi-transparent syrup with sweet taste and characteristic odor. The pH and density were found to be 5.39± 0.01, 1.061± 0.13 g/ml respectively for selected formulation (F2). There was no significant change observed in the evaluation parameters during the accelerated stability studies. The overall results concluded that the Tridax syrup formulated showed to have good antiurolithic property. This herbal syrup successfully reduced kidney stones by a non-toxic and convenient way.
Keywords: *Tridaxprocumbens, Acute toxicity, Antiurolithiatic activity, Flavonoid rich extract*

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INTRODUCTION

'Urolithiasis' is a problem world over, affecting people from thousands of years. It is also called as 'Nephrolithiasis', kidney stones or renal calculi. It is a condition wherein crystal formation occurs in the urinary tract eventually leading to stony structures. There are multiple factors contributing to the formation of these calculi/stones related to lifestyle or dietary habits of an individual. Even congenital tendencies or geographical impact cannot be denied in certain cases. Calculi are made up of deposits of polycrystalline aggregates. These aggregates are made up of varying amounts of crystalloid and organic matrix. These stones can be found in different sizes, shapes and colours. Stone formation and prevalence may be found in any part of the entire urinary tract, (renal area to the bladder) [1].Along with surgical and other conventional treatment management, Ayurveda treatment option has been explored over the past few years. Numerous Ayurvedic medicinal herbs as single drugs or combined formulations have become exposed to potential research and studies. These medicines are being used for management of urinary disorders since thousands of years as the history of Ayurveda dates back to. These drugs are known to have litholytic (disintegration of stones) and litho-preventive (non-formation of stones) properties. T. procumbens is a medicinal herb used since a very long time in Ayurveda and later in Unani, folklore or tribal traditional medicinal practices. The usage of plants in earlier system of medicine was based on using the whole plant whereas in the modern era, the technological advancements have made it possible to identify, isolate and validate active chemical principles from the medicinal plants. These discrete lead molecules may prove to more efficient that the whole plant extracts in the applicability in treatment of various disease conditions. The plant has been therapeutically found to be useful in the management of non-healing wounds [2], dysentery [3], epileptic seizures, malarial infection [4], stomach upset, diarrhoea, hypertension, diabetes mellitus [5] and metabolic syndrome [6]. It also known to possess antimicrobial, antiseptic and hepatoprotective properties. It also shows a strong depressant action on the respiratory system [7-9]. This paper aims to explore the actions of formulation containing Tridax Procumbens extract with respect to the management of renal calculi. The study also reveals the evaluation and standardization of the developed formulation.

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REVIEW ARTICLE **OPEN ACCESS**

A Review on *Tridex procumbens*, Its Phytochemical Constitution & Anti-Lithiatic Action

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ABSTRACT
T. procumbens known as JAYANTI VEDA in Ayurvedic pharmacopeia is commonly known as Coat Button/Tridax daisy in English or Kansariin Hindi or Ghamara (in local language) and belongs to the family Asteraceae. It has been used in significant number of health issues as mentioned in Ayurvedic classical texts and also in the folklore remedies throughout the Asian subcontinent. It shows various pharmacological actions like anti-microbial, anti-inflammatory, hypotensive, leishmanicidal, lithotripitic, wound healing& repair, hepatoprotective, anti-malarial and immunomodulatory etc. This review paper is an attempt to understand the phytochemical constitution of Tridexprocumbens and its anti-lithiatic action. Kidney stones are a major lifestyle disorder of the present era and there is a wider need and scope for the research of better lithotripsic and anti-lithiatic drug alternatives.
Keywords:*Tridax procumbens, kidney stones, ayurveda, herbs, herbal, lithiasis etc*

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INTRODUCTION

A kidney stone (renal calculus), is a solid congregation or crystallized aggregation that forms in the vulnerable spaces of kidneys by accumulation of various minerals. Multiple factors are attributed to the process of stone formation including heredity, diet, geographical and infective diseases. The recurrence is on the higher side, as much as 50% [1- 7].
The commonest kidney stones are the calcium stones, constituting about 80% of the cases. Herbal medications have aroused lot of interest amongst the patients because of its clinically proven effects like immunomodulation, adaptogen and antimutagenic. The excessive usage of synthetic medication results inhigher incidence of adverse drug reactions which has motivated humans to return to nature for safe remedies [8-20].
Ayurvedic medical literature has an elaborate description of various types of renal calculi under the concept of VRUKKA ASHMARI. The classification is broadly based on the appearance, nature and the symptoms of the disorder which are majorly influenced by the involvement of the specific dosha viz. Vata,pitta, kapha or their combinations[32- 39]. There is also a comprehensive approach towards the management of calculi in Ayurveda in terms of prevention as well as the management of kidney stones with shaman and shodhan therapy [40- 61].
Tridax procumbens belongs to the family Asteraceae or Compositae. It is an annual or perennial shrub and found throughout in Indian subcontinent especially in the states of Maharashtra, Madhya Pradesh, Chhattisgarh as weed. It often seen rooting at the nodes with singular, longitudinally stalked, yellow composite, bisexual flowers that bear white heads and hairy, coarsely serrated, petiolateor lanceolate leaves. The arial part is completely useful in terms of medicinal usage. The leaves are extremely useful in healing of wounds and skin tissue repair, insecticidal activity, antisecretory action and also are anti- hypertensive. Whereas the seeds are useful in arresting haemorrhage [62-65]. The phytochemical screening of T. procumbens revealed the presence of alkaloids, saponins, flavonoids (catechins and flavones), fumaric acid, carotenoids and tannins. It is rich in carotenoids, saponins, oleic acid and ions sodium, potassium and calcium. Its flower reported to be rich in Luteolin, gluco-luteolin, quercetin and iso-quercetin. It is known for its number of pharmacological activities. It is primarily antimicrobial, immunomodulator, antidiabetic, anti-inflammatory, hepatoprotective, wound-healing, anti- dysentery, anti-diarrhoea and a hair promoter. Traditionally it is used to control haemorrhagic cuts, and

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Research Article

Formulation and Evaluation of Proniosomal Topical Antifungal Gel of Miconazole Nitrate

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ABSTRACT

Proniosomal gel formulations of miconazole nitrate (MCZ) were prepared by using combinations of different grades of (non-ionic surfactant) span, cholesterol, and lecithin by coacervation phase separation method. Developed 10 proniosomal gel formulations were characterized for particle size, shape, % entrapment efficiency, drug content, in vitro drug permeation, scanning electron microscopy (SEM), DSC, stability study. The fourier transform infrared spectroscopy (FTIR) studies confirmed the compatibility of the drug with excipients. The results showed that all the formulations were pale yellow to pale brown in color, pH was is in the range of 5.60 to 7.20, and encapsulation efficiency was found is in the range of 83 to 91.25% and particle size in between 5.81 ± 0.2 to 07.52 ± 0.07. Among the ten formulations MF2, MF3, MF5, MF6, and MF8 showed maximum drug release in a controlled manner at 12 hours of study and developed into carbopol proniosomal topical gel and evaluated for ex-vivo drug permeation. Formulation- optimized formulation C5MF8 showed higher drug permeation 74.19 ± 0.16% at 12 hr. with a flux value of 6.829 ± 0.12 µg/cm^2/hr. The permeability coefficient of 0.341 ±0.08 cm^2/hrs., higher correlation coefficient R2 0.9944 for zero-order drug release kinetic model, and follows zero-order release kinetics.

Among the 5 formulations, optimized carbopol proniosomal topical gel formulation C5MF8 drug release and in-vitro antifungal activity was compared with marketed formulation cream.C5MF8 showed sustain drug release and zone of inhibition value was very near to marketed preparation. Hence it was concluded that developed carbopol proniosomal topical gel had the potential to act asa controlled release drug carrier, which sustains the drug release for many hours and exhibit good antifungal activity

INTRODUCTION

For topical drug delivery, skin acts as a main barrier, and the stratum corneum has a major role in barrier function for topical drug delivery. The low permeability of the stratum corneum limits the application of topical drug delivery. A novel drug delivery system is used to overwhelmthese limitations, offering control of drug release in the body. Sustain drug release at a pre-determined rate is occur through novel drug delivery systems, and relatively constant effective drug level is maintained with minimization of undesirable side effects. Such novel drug carriers are niosomes, liposomes, lipoproteins, and microcapsules, which can degrade slowly to target specific

sites.[1] Drug administration through topical is a localized system of drug delivery anywhere in the body through ophthalmic, rectal, vaginal, and the skin as topical routes. Skin is one of the most readily easily reached organs on the human body for topical administration and is the mainroute of topical drug delivery.[2]

Miconazole nitrate is an antifungal agent of an azole class and lipophilic in nature. It is a weak base with pKa 6.7, high log octanol/water partition coefficient, and poor aqueous solubility.[3] Miconazole is an imidazole antifungal agent used as miconazole base or miconazole nitrate to treat superficial candidiasis and skin infections dermatophytosis pityriasis Versicolor. The drug has also

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Original Article

Formulation and Evaluation of Topical Proniosomal Gel of Ciclopirox for Antifungal Therapy

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ABSTRACT

Objectives: The objective of existent effort was topical proniosomal gel formulation and evaluation from the proniosomes of Ciclopirox to improve poor skin penetration and residence of the topical antifungal drugs. **Methods:** The co-acervation phase separation method was used to prepare proniosomes by using combination of different grades of non-ionic surfactant, cholestrol and lecithin. Characterized for pH, encapsulation efficiency, Particle size, *in vitro* drug permeation. Selected batches were converted into topical proniosomal gel and evaluated for *ex vivo* permeation. Then best fitted formulation batch C5CF8 were differentiate with marketed preparation for *ex vivo* drug release and anti-fungal activity. **Results:** Proniosomal gel pH be there 5.61± 0.25 to 7.31± 0.06 and encapsulation
efficiency 82.40 to 92.20% and particle size 3.20 ± 0.15 to 6.45 ± 0.20. *In vitro* drug release is in between 37.65 to 57.04 %. Among the formulations CF1, CF2, CF3, CF4 and CF5 were developed into carbopol topical gel as C1CF2, C2CF32, C3CF5, C4CF6 and C5CF8 and evaluated for *ex vivo* drug permeation. Among these optimized formulation C5CF8 showed drug permeation 59.39 ± 0.10 % at 12 hr. with a flux value of 5.24µg/ cm^2/hr., permeability coefficient of 0.262 cm^2/hr. and higher correlation coefficient R^2 0.9949 for zero order drug release and hence follows zero order release kinetics. The C5F8 showed prolonged drug release and zone of inhibition value higher for carbopol gel as compared to marketed preparation **Conclusion:** Developed carbopol topical gel had potential to act as controlled release drug carrier which prolonged the drug release for number of hours.

Key words: Non-ionic surfactant, Permeation, Entrapment efficiency, Gel, Topical, *in vitro* antifungal.

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INTRODUCTION

Ciclopirox, a broad-spectrum antifungal, is hydroxypyridone derivativethat has mechanism of action unlike from other marketed antifungal agents like the azoles and therefore the allylamines. It has a widerange of action against dermatophytes, yeasts, filamentous fungi and bacteria. It has a biological half-life of 1.7 hr and bioavailability of
< 5% with prolonged use.[1] Ciclopirox does not affect sterol synthesis. Ciclopirox inhibits cellular uptake of essential compounds and at high concentrations can alter cell permeability.[2]

Proniosomes are vesicular systems, during which the vesicles are made from non-ionic based surfactants, cholesterol and other additives These semisolid liquid gel means proniosomes get arranged by liquefying the surfactant during small quantity of an appropriate solvent explicitly ethanol and this upon hydration with bit of water to get a gel. These liquidcrystal-like compact niosomes crossbreeds which will be transformed into niosomes upon hydration or intrinsically are often utilized in transdermal /topical applications. Proniosomal gel is usually present during a transparent, luminous, or white semisolid gel consistency, which was physically stable during storage and transport.[3] The surfactantmolecule direct themselves such the hydrophilic ends of the non-ionic surfactant face outer, whereas the hydrophobic ends are within the opposed direction to make the bilayer.[4]

Proniosomes are dehydrated formulations of surfactant-covered carrier, which will be taken out as required and rehydrated by short- term agitation in warm water. Reduced the problems associated with niosomes like physical stability, clump formation, fusion and dripping. Proniosomes providing accessibility in delivery, transport, storage and dosing. Dehydrated proniosomes stability is more than a pre- manufactured niosomal formulation. Proniosomes are equivalent to conventional niosomes in respect to release studies. This Proniosomal drug delivery have fascinated towards transdermal drug delivery since surfactants perform the role of penetration enhancers as well as they can entangle both hydrophilic and lipophilic drugs.[5] Both phospholipids and non-ionic surfactants act as penetration enhancers. Non-ionic surfactant and cholesterol ratio could effect on entrapment efficiency and on releasecharacteristics of the incorporated drugs.[6]

The purpose of present study to formulate proniosomes as transporters for topical delivery of Ciclopirox. Proniosomes converts into niosomes upon hydration which can prove as substitute to increase poor skin penetration and residence time of the topical antifungal drugs.[7]

MATERIALS AND METHODS

Materials

Soya lecithin, cholesterol, carbopol 934, Non-ionic surfactants span 20,40,60,80 were purchased from Himedia Laboratories Pvt. Ltd., Mumbai. Ciclopirox drug purchased from Swapnroop Drugs and Pharmaceuticals, Aurangabad. Ethanol and other reagents and solvents were purchased from Research Lab. Fine Chem Industries, Mumbai. Dialysis membrane (Himedia Laboratories Pvt. Ltd., Av. flat width: 32.34 mm; Av. diameter: 21.5 mm)

Methods

Drug -excipients compatibility study by FTIRspectroscopy

Drug–excipient interaction was studied by FTIR spectroscopy. The FTIRspectrum were noted for pure Ciclopirox and with different excipient

A REVIEW – PHYTOCHEMICAL, PHARMACOLOGICAL AND TOXICOLOGICAL PROPERTIES OF ASHWAGANDHA

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ABSTRACT:

Ashwagandha Withania *Somnifera* may be a well-known Indian herbal medicinal plant widely utilized in the treatment of the many disorders and in Covid-19 also. it's a crucial drug commonly referred to Ashwagandha has been utilized in single or together with other drugs in Unani also as Ayurvedic system medicine. Ashwagandha contained roots of *Withania Somnifera* which has various therapeutic actions like anti-inflammatory, sedative, alterative, aphrodisiac and immunomodulator. made during this review paper to explore various dimensions of the drug including phytochemical, pharmacological and toxicological studies administered on this drug.

KEYWORDS: *Withania Somnifera*, Phytochemical, Pharmacology, Immunomodulator

INTRODUCTION :

Withania Somnifera (Solanaceae). it's a desert plant, found within the drier parts of India, Sri Lanka, Afghanistan, Baluchistan and Sind and is distributed within the Mediterranean regions, the Canaries and Cape of excellent Hope. it's found in high altitude ascending to five, 500 feet within the Himalayas. and located in waste land, cultivated field and open ground throughout the India; widely cultivated in certain areas of Madhya Pradesh and Rajasthan. Roots collected in winter, washed and dig short pieces. In Unani system of drugs, roots of commonly referred to as Ashwagandha are used for the medicinal properties[1-3].

PHARMACOGNOSY[4-6]

Kingdom Plantae	Plantes, Planta, Vegetal, plants
Subkingdom	Viridiplantae – green plants
Infrakingdom	Streptophyta – land plants
Superdivision	Embryophyta
Division	Tracheophyta – vascular plants, tracheophytes
Subdivision	Spermatophytina – spermatophytes, seed plants, phanérogames
Class	Magnoliopsida
Superorder	Asteranae
Order	Solanales
Family	Solanaceae – nightshades, solanacées
Genus	Withania Pauquy
Species	Withania Somnifera (L.) Dunal – withania

Preliminary Phytochemical Analysis of Emblica Officinalis Seed

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ABSTRACT

Phytochemical investigation of n-butanol extract of Emblica Officinalis Seed. This research is to check the phytochemical agent determination by various methods. Study is done to check the test for carbohydrate and protein, saponin, terpenoid, tannins, glycosides, alkaloid by the procedure performed to find the chemical observed in Emblica officinalis seed. The investing the phytochemical present in n-butanol extract of Emblica Officinalis seed by using in vitro methods to check the phytochemical agent present or absent in plant.

Keywords: Phytochemical, n-butanol, Carbohydrate, Alkaloids, Tannins.

INTRODUCTION

Plants have long been recognized for their therapeutic properties. For centuries, indigenous cultures around the world have used traditional herbal medicine to treat a myriad of maladies [1]. Emblica officinalis (Amla) are widely used in the Indian system of medicine and believed to increase defense against diseases. This article discuses and summarizes important medicinal values of Emblica officinalis (EO) [2,3]. In this communication, we reviewed the EO in cancer, diabetis, liver treatment, heart disease, ulcer, anemia and various other diseases [4,5,6,7].The use of EO as antioxidant, immunomodulatory, antifungal activity, antipyretic, analgesic, cytoprotective, antitussive and gastro protective are also reviewed [8,9]. Further for the phytochemical investigation Extraction is the first step to separate the desired natural products from the raw materials [10,11,12]. The extraction of natural products progresses through the following stages: the solvent penetrates into the solid matrix; the solute dissolves in the solvents; the solute is diffused out of the solid matrix; the extracted solutes are collected.

MATERIAL AND METHODS

Collection of the Plant sample

Emblica officinalis stem (P. Emblica L.), leaves and seeds were collected from Department of Pharmacognosy, College of Pharmacy, Chopda (Jalgaon, Maharashtra) and identified authenticated by Dr. C R. Jadhav, Botanist at Botanical Survey of India, Pune, M.H.

Preparation of Plant Extract [13]

Collected plant parts were air dried under shade and then ground to a coarse powder using a grinder. Extraction and fractionation technique was referred from standard textbboks with suitable solvents. Powdered seed material was extracted first with petroleum ether for defatting and then

ANTIHELMINTIC EFFECT OF EMBELIA TSJERIAM-COTTAM

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ABSTRACT

The present study was undertaken to investigate the anthelmintic activity of extract of Em*beliatsjeriam-cottam* using earthworm. Different concentrations of standard drug (Albendazole) and extract of *Embeliatsjeriam-cottam fruits* were employed and the average time required for paralysis and death was noted. It was found that the Paralysis time & Death time was lowest for 5% concentration of Ethanolic extract and Death time was slightly better than Albendazole Standard solution. Though Ethanolic Extract can be compared to the Standard hence establishing the pharmacological antihelminthic activity of *Embelia tsjeriam- cottam*.

Keywords: Embelia *tsjeriam-cottam* Anthelmintic Activity, Albendazole, Ethanolic Extract.

INTRODUCTION

Helminthes infections are among the most widespread infections in humans, distressing a huge population of the world. The human roundworm A. lumbricoides is one of the most common parasites in the world, infecting 1.2 billion people globally. Infections are most commonly documented in Asia, sub-Saharan Africa, the Americas and China. The spectrum of disease associated with A. lumbricoides infection is known as ascariasis, and morbidity assessed as disability adjusted life years (DALYs) is approximately 10.5 million. Furthe rmore, morbidity with serious health consequences is observed in 122 million cases per year [1,2] The World Health Organization reports that 35% diseases are because of roundworm, which is a typical parasitic worm. More than 1.5 billion individuals or 24% of the total population are tainted with soil-transmitted (STH) helminth contaminations around the world.

[3] However, ascariasis is still considered a neglected tropical disease (NTD).

The community-based control of STHs is based on mass drug administration by two synthetic anthelmintics, albendazole and mebendazole. [4] A wide spread resistance to the commercially available anthelmintic treatments has been observed in multiple nematode species. [5] Therefore, alternative anthelmintic strategies are urgently needed. In addition anthelmintic strategies such as grazing management, biological control with nematophagous fungi or food supplementation with leguminous plants accumulating high amounts of condensed tannins, phytotherapy could be a part of an integrated control system. The family

3.3.1.1 (3) Number of research papers per teachers in the Journals notified on UGC website during the last five years 2020-21

S.N	Title of paper	Name of the author/s	Name of journal
1	Formulation and Evaluation of Sustained Release Tablets of Metoprolol Succinate	Muzammil Husain1*, Sufiyan Ahmad1, Sajjad Husain1, Md. Rageeb	Advances in Bioresearch
2	Antioxidant activity of leaves solvent extract of *mimusopselengi* linn.	Ansari Asif * 1, Sufiyan Ahmad 1, Md. Rageeb Md. Usman 2, Tanvir	International Journal of Pharmaceutic Science and Research
3	Stability indicating RP-HPLC Method For Estimation of Saxagliptin And Dapagliflozin In Bulk And Dosage Form	Sufiyan Ahmad * 1, Md. Rageeb Usman 1,Tanvir Shaikh 1, Md. Imran	International Journal of Pharmaceutic Science and Research
4	Formation Development And Evaluation Of Microsphere Of Quercetin For The 7 Treatment Of Colon Disease Or Inflammatory Bowel Diseases	M. K. Patel*1, S. K. Shah1, C. K. Tyagi1 and Md. RageebMd. Usman2	Journal of Advanced Scientific Research
5	Antiulcer Activity of Petroleum Ether and Ethanolic Extracts of Tuber of *Pueraria tuberose* Roxb. in Albino Rats	Md. Rageeb Md. Usman*, Gautam P. Vadnere, Nikita P. Patel	International Journal of Pharmaceutic Sciences Review
6	Lantana camara: Secondary Metabolite Isolation by Analytical Techniques	Mohammed Rageeb Mohammed Usman	Journal of Drug Delivery and Therapeutics
7	Antihyperlipidemic effect of different extract of whole plant Of diplocyclospalmatuslinn. In atherogenic diet induced rats	Md. Rageeb Md. Usman*1, Gautam P. Vadnere1, KiranD. Patil2	GIS Science Journal
8	Preliminary phytochemical and antibacterial studies of seed oil of Butea Monosperma Lam	MdRageebMd Usman1*, Shaikh Salman Shaikh Babu2	International Journal of Botany Studie
9	Break the Chain of Coronavirus Disease (Covid-19) Infection: A Review	Sufiyan Ahmad*, Md. Rageeb Md. Usman1, Kiran D. Baviskar2, Tushar	International Journal of Pharmaceutic Sciences Review and Research
10	Pharmacognostical and preliminary phytochemical evaluation of Diplocyclospalmatuslinn	Gautam P Vadnere1*, MdRageebMd Usman1,Kiran D Patil2	International Journal of Botany Studie
11	Corona Virus (Covid-19) Pandemic: A Systematic Review	Uma G. Daryai, Kashmira G.	Journal of Pharmaceutical Sciences an
12	Pharmacognostical and Anthelmintic studies on leaf of *Mimusopselengi* Linn	Ansari Asif, SufiyanAhmad, Md. Rageeb Md. Usman[1], ,Snadip R.	International Journal of Botany Studie
13	Mouth Dissolving Tablets: A Modern Approach to Delivery of Drug	Prevesh Kumar, NavneetVerma, AdityaSharma[a], Diskha[a], Munesh	Research Journal of Pharmacy and Technology (RJPT
14	Antibacterial and antifungal activities from leaf extracts of *Mimusopselengi Linn* .	Ansari Asif , Sufiyan Ahmad, MuzammilHusain[1], Md. Rageeb Md.	International Journal of Pharmacogno and Phytochemical Research (IJPPR)

15	Antimicrobial Activity Of AnacardiumOccidentale On Some Microorganisms Associated With Dental Diseases	Md. Rageeb Md. Usman*, Ansari Asif Husain[1], SufiyanAhmad[1], Mohammed	Research Journal of Pharmaceutical, Biological and Chemical
16	Development and evaluation of oral fast disintigreting tablets of warfarin prepared by Wet granulation technique	Sandip R. Pawar, Anil S. Mahajan, Md. Rageeb Md. Usman, Tanvir Y.	International Journal Of Pharmaceutical Sciences Review And
17	Colonic drug delivery system: a review	Pooja P. Chaudhari, Sudhir G. Patil1, Sandip R. Pawar1, Md. Rageeb Md.	International Journal Of Pharmaceutical Sciences Review And
18	Pharmacognostical and anthelmintic studies on leaf of mimusopselengi linn	Mr Sandip R Pawar	International Journal Of Botany Studi
19	Proniosomal gel: a novel therapeutic topical / transdermal drug delivery system,	S. S. Mahajan, R. Y. Chaudhari, T. Y. Shaikh, P. V. Patil	Int. J. Pharm. Sci. Res.
20	Formulation and Evaluation of Mouth Dissolving Tablet of Lornoxicam Using Novel Natural Superdisintegrants	Mr. K. D Baviskar	American Journal of Pharm Tech Research
21	Ameliorative Effect of Polysaccharide Rich Fraction from Eulophia herbacea Against Methotrexate Induced Liver Damage in Rats	Gautam P. Vadnere, Kiran D. Patil, ,Mohan Lal Kori, Santram Lodhi	Pharmaceutical Chemistry Journal
22	Formulation and Evaluation of Sustained Release Matrix Tablets of Valsartan	Dr. Bharat V jain	World Journal of Pharmacy and Pharmaceutical Sciences
23	Synthesis and Biological Evaluation of Novel Triazolyl Quinazolin-4-one Deriv	N. S. Khairnar, A. V. Patil, M. N.	European Journal of Molecular & Clinical Medicine
24	Review on pyrimidine analogs as potential antihyperlipidemic agents	Prashant Chavan1 , Amitkumar Raval1 , Avinash V. Patil2	Indo American Journal of Pharmaceutical Research
25	FORMULATION AND EVALUATION OF BI-LAYERED TABLET OF ANT	Purushottam Suresh Mahajan and Dr. Bharat Vijaykumar Jain*	World Journal of Pharmacy and Pharmaceutical Sciences

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Advances in Bioresearch

ORIGINAL ARTICLE

Formulation and Evaluation of Sustained Release Tablets of Metoprolol Succinate

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ABSTRACT
Sustained release matrix tablets reduce the frequency of the dosing and increase the effectiveness of the drug by localization at the site of action, providing uniform drug delivery. The work aims to formulate Metoprolol Succinate sustained release matrix tablet using combination of HPMC K100M, Carbopol 934P and PVP K30. Metoprolol Succinate is a beta 1-selective (cardioselective) adrenergic receptor blocking agent, antihypertensive agent. It is having half-life of 3-7 hours with the usual oral dose of 25 to 100 mg once daily. An attempt was made to sustain the release of Metoprolol Succinate up-to 24 hrs using minimum amount of polymers. The Eight formulations were prepared using 2^3 factorial design. The tablets produced were evaluated for thickness, hardness, friability, weight variation, content uniformity and in vitro dissolution studies. The dissolution data obtained were fitted to the various kinetic models of dissolution. Model fitting depicted that the formulations followed Korsmeyer Peppas Equation. The similarity factor (f2) was found to be 51.69 for the developed formulation indicating the release was similar to that of the marketed formulation. Thus, a combination of HPMC K100M and Carbopol 934P sustained the release of Metoprolol Succinate for a period of 24 hrs. From this study it conclude that using the combination of HPMC K100M, Carbopol 934P and PVP K30 the Metoprolol Succinate SR tablet shows 85.010±0.784% of the cumulative drug release within 20 hours without burst release and followed Korsmeyer peppas model.
Keywords: *Metoprolol Succinate (MS), Matrix Tablet(MT), Sustained Release (SR), HPMC(Hydroxypropyl methyl cellulose).*

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INTRODUCTION

Metoprolol Succinate is a beta 1-selective adrenergic receptor blocking agent, antihypertensive agent [1]. The elimination half-life of Metoprolol Succinate is 3 to 7 hour. So frequent dosing of drug is necessary. A sustained- release formulation that would maintain plasma levels of the drug for 10 to16 hours might be sufficient for once-daily dosing of Metoprolol Succinate [2, 3]. The objective of study is to develop suitable formulae and procedure for the manufacture of sustained release Metoprolol Succinate tablets in a relatively economical way. To decrease the number of polymers used for Sustaining the release as compared to marketed product and to Study the effect of excipients (polymers) on Mechanism of Drug Release System. Sustained-release oral delivery systems are designed to achieve therapeutically effective concentrations of drug in the systemic circulation over an extended period of time [4, 5, 6]. Possible therapeutic benefits of a properly designed sustain release dosage form include low cost, simple processing, improved efficacy, reduced adverse events, flexibility in terms of the range of release profiles attainable and patient compliance [7,8].

So the Sustained Release tablet is suitable dosage form for Metoprolol Succinate. Many innovative methods have been developed for obtaining modified drug release. From the practical view point, hydrophilic matrix tablet is one of the least complicated approaches for developing modified release

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ANTIOXIDANT ACTIVITY OF LEAVES SOLVENT EXTRACT OF *MIMUSOPS ELENGI* LINN.

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Keywords:
Mimusops elengi Linn., Antioxidant, Leaves extract, Phytochemicalaqueous

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ABSTRACT: The present study was to estimate the total phenolic content, flavonoids content and evaluate the in vitro antioxidant activity of alcoholic and extract of the leaves of plant Mimusops elengi Linn. Total phenolic content was determined calorimetrically using Folin ciocalteu reagent, and Total flavonoid content was determined by aluminum chloride method. The total phenolic content of methanol, ethyl acetate soluble fraction, and aqueous extract was found 23.22, 22.44, and 15.88%w/w respectively. In the case of total flavonoid content was found 33, 31, and 24%w/w respectively. Antioxidant activity was measured based on the DPPH radical scavenging assay, Nitric oxide scavenging assay, and reducing power assay. A methanol extract of the leaves of the plant showed potent free radical scavenging activity with an IC_{50} value of 65.00 µg/ml. However, standard ascorbic acid activity was significantly higher than that of all extracts. The IC_{50} value of the standard (Ascorbic acid) was 7.779µg/ml. In the case of nitric oxide scavenging assay, the methanolic & aqueous extract of the leaves of the plant Mimusops elengi showed a potential antioxidant effect. For reducing power assay, all extracts showed an increase in absorbance with an increase in concentration. Because the highest reducing power was observed with the methanol extract of the leaves. However, it may be due to the presence of the highest total antioxidant content of this extract that is mg of ascorbic acid equivalent per gram of plant extract, which is a potent reducing agent.

INTRODUCTION: Antioxidant means "against oxidation" and the work to protect lipid from per oxidation by radicals. The human body is an elaborate antioxidant defense system. The main characteristic of an antioxidant is its ability to trap free radicals.

QUICK RESPONSE CODE

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Highly reactive free radicals and oxygen species are present in biological systems from a wide variety of sources. These free radicals may oxidize nucleic acid, proteins, lipids or DNA and can initiate degenerative disease.

An antioxidant compound like phenolic acids, polyphenols, and flavonoids scavenge free radicals such as peroxide, hydroperoxide, or lipid peroxyl, thus inhibiting the oxidative mechanism that leads to degenerative diseases. Several clinical studies suggest that the antioxidant in fruits, vegetables, tea, and red wine are the main factors for the observed efficacy of these foods in reducing the

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Stability Indicating RP-HPLC Method for Determination of Saxagliptin and Dapagliflozin in Bulk and Tablet Dosage Forms

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Abstract

In the present work, An accurate, precise and reproducible high performance liquid chromatographic method wasdeveloped for quantitative estimation of Saxagliptin (SAXA) and Dapagliflozin (DAPI)simultaneously intablet dosageforms. Agilent (S. K.) gradient system UV Detectorand RP C18 (Thermo)with 250mm x4.6 mm i.d. and 5µm particle size.Methanol 0.1 % o- phosphoric acid(60:40) was used as the mobile phase for the method. The detection wavelength was 220 nm and flow rate were1ml/min. In the developed method, the retention time of Saxagliptin and Dapagliflozinwere found to be 5.41min and 7.30minrespectively. The drug was subjected to oxidation, acid hydrolysis, alkaline hydrolysis and heat to apply stress condition for degradation. The method was validated for specificity, linearity, precision, accuracy, robustness and solution stability. The linearity, precision, range, robustness was within the limits as specified by the ICH guidelines. Hence the method was found to be simple, accurate, precise, economic and reproducible. So the proposed methods can be used for the routine quality control analysis of Saxagliptin and Dapagliflozinin bulk drug as well as in formulations.

Keywords: Saxagliptin, Dapagliflozin, RP- HPLC, stress condition, degradation, stability

INTRODUCTION

Stability testing and stress degradation studies play a very crucial role in drug development. Stability is fundamental to all product characteristics, and the term "Stability indicating assay" has been used to describe a procedure which affords specific determination of drug substance in the presence of its degradation products. The prime goal of studying the stability of a drug is to determine the shelf life of the drug. The various conditions specified for stress degradation studies include acidic, alkaline, oxidation, photolytic and thermal.[1]

Type 2 diabetes mellitus (T2DM) is a chronic progressive metabolic disorder characterized by absolute or relative insulin deficiency.[2] Expected rise in prevalence of diabetes is mainly due to increased life span because of better healthcare facilities and increasein diabetic risk factors, especially physical inactivity and obesity due to sedentary life style.

Pancreatic β-cell function is gradually deteriorated in patients of T2DM which is reflected into inadequate glycemic control on a long run. [3]

Dapagliflozin (Figure 1) is chemically known as (1s)-1, 5-anhydro- 1- C- [4- chloro- 3- [(4-ethoxyphenyl) methyl] phenyl]-D-glucitol. It has a molecular formula of C24H33ClO8 with molecular weight 408.98 g/mol.[4] Dapagliflozin is selective Sodium Glucose Co Transporter 2 inhibitor (SGLT 2). It acts by reducing the re absorption of glucose by the kidney, leading to excretion of excess glucose in the urine, thereby improving glycemic control in patients with type 2 diabetes mellitus.[5]

Saxagliptin(Figure 2) is chemically known as (1S, 3 S, 5S)-2[(2S)-2- amino- 2- (3- hydroxy- 1- adamantyl) acetyl]-2azabicyclo hexane-3-carbonitrile) with molecular formula of C18H25N3O2 and molecular weight of 315.41 g/mol.[6]Saxagliptin is a selective and potent

dipeptidyl peptidase (DPP)-4 inhibitor, approved as an adjunct to diet and exercise to improve glycemic control in type 2 diabetes mellitus (T2DM). In patients with T2DM, once-daily administration of Saxagliptin before breakfast achieves sustainedinhibition of plasma DPP-4 activity and reduction of postprandial hyperglycaemia, including after dinner, associated with an increase in plasma glucagon-like peptide-1 levels.[7-9] Combination of Dapagliflozin and Saxagliptin is marketed as a Tablet (Qtern) containing 10 mg of Dapagliflozin, 5 mg of Saxagliptin.

Combination of these two drugs is indicated for the treatment of type-2 Diabetes. Using Dapagliflozin leads to heavy glycosuria (glucose excretion in theurine), which can lead to weight loss and tiredness. The purpose of this study was to develop a stability-indicating method for the simultaneous determination of Saxagliptin and Dapagliflozinin bulk drugs and to apply the developed method for the quantitative determination of these drugs from tablets. The HPLC technique was chosen because of its previously mentioned advantages. The proposed method was able to separate the compounds of interest and their degradation products within 10min. Thereafter, this method was validated as per International Conference on Harmonization (ICH) guidelines .[10, 11]

Literature survey revealed a variety of analytical methods viz. HPLC, LC-MS and, GC has been reported for estimation of Dapagliflozin and Saxagliptin individually or in combination with other drugs. The reported methods are Spectrohotometric[12-18], HPLC[19-38], LC-MS [39-40]and GC[41]method are

reported for the simultaneous estimation of DAPI and SAX in combined pharmaceutical formulation.

FORMATION DEVELOPMENT AND EVALUATION OF MICROSPHERE OF QUERCETIN FOR THE TREATMENT OF COLON DISEASE OR INFLAMMATORY BOWELDISEASES.

- **Source:** Journal of Advanced Scientific Research . 2020 Supplement, Vol. 11, p316-321. 6p.

- **Author(s):** Patel, M. K.; Shah, S. K.; Tyagi, C. K.; Md. Usman, Md. Rageeb

- **Abstract:** Microspheres constitute an important part of oral drug delivery system by virtue of their small size and efficient carrier capacity. However, the success of these microspheres is limited due to their short residence time at the site of absorption. The purpose of the present study was to prepare, characterize and evaluate the colon-targeted microspheres of quercetin for the treatment and management of inflammatory bowel diseases. Microspheres were prepared by the solvent evaporation method using ethyl cellulose and HPMC. Microspheres prepared were coated with eudragit S-100 using an oil-in-oil solvent evaporation method. Eudragit S-100 was used as enteric coating polymer with the aim to release the drug in small intestine. The effect of varying drug/polymer (D/P) ratios on microspheres characteristics were studied by 3^2 FFD. Desirability function was used to search the optimum formulation. The microspheres prepared were characterized by particle size, zeta potential, polydispersity index, shape and surface morphology, in vitro drug release and stability studies. The results of measurement of mean particle size of formulation F1, F2, and F3 microsphere were found 192±5, 196±4 and 195±6nm respectively. The drug entrapment of different formulations was found as 68.45±0.85, 73.32±0.45 and 65.58±0.35 percentage w/w. The microspheres formed have rough surface and spherical shape as observed in scanning electron microscopy. All values are statistically significant. It was observed that the coated microspheres showed no release in the simulated gastric fluid, negligible release in the simulated intestinal fluid and maximum release in presence of rat caecal content. It was concluded from the study that Eudragit-coated microspheres were promising carriers for colon-targeted delivery of quercetin.

Research Article

Antiulcer Activity of Petroleum Ether and Ethanolic Extracts of Tuber of Pueraria tuberosa Roxb. in Albino Rats

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ABSTRACT

Peptic ulcer is one of the most common gastrointestinal disorders and a major cause of morbidity. The incidence and prevalence of peptic ulcer has been increasing worldwide. Persisting peptic ulcer leads to complications like gastrointestinal bleeding, gastric perforation and pyloric obstruction. The complications further increase the morbidity and mortality. The objectives of this study were to evaluate the antiulcer activity of pet. ether and ethanolic extracts of tuber of *Pueraria tuberose Roxb*. in albino rats. Healthy wistar albino rat of male weighing about 120-180 grams were divided randomly into 4 groups (n=6). The drugs were given as

0.1 ml of 6% acetic acid once intrarectally. 7 day pretreatment with extract + on 8th day 0.1 ml of 6% acetic acid once intrarectally 3 cm from the anal margin (Iton, 2000), Drug treatment continued up to 10th day. Started on day of acetic acid treatment, given orally as a suspension containing 0.5 % sodium CMC. Dose- 1.14 mg/Kg for 3 days. + On 8th day 0.1 ml of 6% acetic acid once intrarectally. Parameters like free acid, gastric volume and ulcer index were observed. Result from ulcer index showed better protective effect by ethanol extract of Pueraria tuberose. Acetic acid caused increase in MPO level in blood and tissue up to 362 U/ml and 375 U/mg, respectively. After treatment with ethanol extract of Pueraria tuberosa, the MPO level in blood and tissue was decreased significantly to 260 U/ml and 332 U/mg respectively. Significant dose dependent reduction was observed after treatment with individual extract.

Keywords: *Pueraria tuberose*, Tubers, anti-ulcer, Phytochemical, ethanolic extract.

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INTRODUCTION

Peptic ulcer being one of the most uncontrolled gastrointestinal problems representing a chief health hazards in terms of morbidity and mortality.

The etiology of gastroduodenal ulcers is influenced by diverse aggressive and defensive factors for example acid- pepsin secretion, mucosal barrier, mucus secretion, bloodflow, cellular regeneration, and endogenous protective agents.[1,2] Mucosal injury may happen when noxious factors "overwhelm" an intact mucosal protection or when the mucosal defense is somehow disrupted. [3]

Medicinal plants are being used by mankind as a source of medicine since immemorial time. Medicinal plants are generally known as "Chemical Goldmines" as it contain a variety of natural chemicals, which are acceptable to human being and animal systems [4]. A medicinal plant possesses curative properties due to the existence of various complex chemical substances of different composition known as secondary metabolites [5]. According to World Health Organization more than 80% of the World's population depends on traditional medicine for their primary healthcare requirements [6].

Approximately

indigenous system of Indian medicine as antirheumatic, aphrodisiac, tonic for strength, diuretic and galactogogue[8]. Tubers are consumed as supplementary food and for birth control by assured Indian tribes [9].

Pueraria tuberose Roxb., commonly known as kudzu [10]. Indian kudzu, or Nepalese kudzu [11] is a climber with woodytuberculated stem. It is a climbing, coiling and trailing vinewith large tuberous roots. The tubers are globose or pot- like, about 25 centimeters (9.8 in) across and the insides are white, starchy and mildly sweet. Leaves are trifoliate and alternate, while the leaflets are egg-shaped, with round base and unequal sides. They are 18 cm (7.1 in) long and 16 cm (6.3 in) wide and are hairless above. Flowers arebisexual, around 1.5 cm (0.59 in) across and blue or purplish-blue in color. The fruit pods are linear, about 2–5 cm (0.79–1.97 in) long and constricted densely between the seeds. They have silky, bristly reddish-brown hair. Seeds vary from 3 to 6 in number. Indian Kudzu or Puerariatuberosa Linn (Fabaceae) is an important medicinal plant of the Indian traditional system of medicine that is Ayurveda, and is mentioned in the Ayurvedic Pharmacopoeia of India under the name of Vidari. It is used in traditional medicine as a fertility control agent and as an aphrodisiac, cardiotonic, diuretic and galactogogue. It has exhibited antihyperglycemic, antihyperlipidemic, andantifertility in male rats, hepatoprotective, and anti- implantation activities[12]. It is a constituent of various formulations used as nutritive, diuretic, expectorants, and for the management of rheumatism, fever, and

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Open Access Research Article

Lantana camara: Secondary Metabolite Isolation by Analytical Techniques

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ABSTRACT

The Plant Lantana camara belongs to the family Verbenaceae, have always been an important source of phytomedicinal agents since ancient times, Until today, it continue to provide modern medicine with novel treatments and to support to identify and isolate compounds from Indian flora with potential biological activity and medicinal value. It has been reported to be used in folk remedies For instance, used for antibacterial, antiulcer, antioxidant, and also ~~treatment for malaria, rheumatisms, asthma, tumors. Many Literature review and phytochemical in~~vestigations have been done on this plant, reported to contain various compounds like triterpenoids, proteins, carbohydrates, lactones, furfural, flavonoids, alkaloids, glycosides, tannins, steroids.

The ethanolic extract were subjected for column chromatography for the isolation of secondary metabolites by using stationary phase as silica gel with mesh number of 230-400 and the mobile phase was 20% & 30% ethyl acetate/hexane. The Functional groups, structural analysis of the isolated metabolites identified from IR spectrum resembled functional groups of flavonoid chemical structure, Yellow color is characteristic of flavonoids.

Keywords: *Lantana camara, secondary metabolites, Column chromatography, TLC, IR spectroscopy.*

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INTRODUCTION

The natural plants have a significant use in the finding and production of new pharmaceuticals which are then clinically useful [1]. They can be used as primary materials to produce some drugs of synthetic origin or they can be used to make products, which then assist in making fully synthetic drugs [2].

The main objective of the present study is to investigate and scientifically look to isolate and chemically identify secondary metabolite(s) of potential medicinal value from Indian L. camara [3-4].

The IR spectra and Chromatography of the important biological compound isolated from Lantana camara plant, It has been reported to be used in folk remedies For instance, used for antibacterial, antiulcer, antioxidant, and also treatment for malaria, rheumatisms [5], asthma, tumors. Many Literature review and phytochemical investigations have been done on this plant, reported to contain various compounds like triterpenoids, proteins [6], carbohydrates, lactones, furfural, flavonoids, alkaloids, glycosides, tannins, steroids [7].

Figure 1: Plant of *Lantana camara*

ANTIHYPERLIPIDEMIC EFFECT OF DIFFERENT EXTRACT OF WHOLE PLANT OF *DIPLOCYCLOS PALMATUS* LINN. IN ATHEROGENIC DIET INDUCED RATS

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ABSTRACT

Herbal medicines are in great demand in the developed as well as developing countries for primary healthcare because of their wide biological and medicinal activities, higher safety margins and lesser costs. The objective of present studies deals with the Antihyperlipidemic effect of different extract of whole plant of Diplocyclos palmatus Linn. of in atherogenic diet induced rats. The lipid parameters studied are Total cholesterol (TC), low density lipoprotein cholesterol (LDL-C), High density lipoprotein cholesterol (HDL-C), very low density lipoprotein cholesterol (VLD-C), Triglycerides and atherogenic index. Extract was administered orally for eight days at a dose of 200 mg/kg in atherogenic diet induced rats. The level of TC, LDL-C, VLDL-C and triglycerides were reduced significantly. ($p<0.001$) while HDL-C level was significantly increased when compared to control groups of rats. In conclusion these suggested that ethanolic extract of plant can reduce the lipid levels significantly.

Key words: *Diplocyclos palmatus* Linn., Stem, Antihyperlipidemic. Rats, Pharmacognostical.

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Preliminary phytochemical and antibacterial studies of seed oil of *Butea Monosperma* Lam

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Abstract
The objective of present studies deals with the Preliminary Phytochemical and antimicrobial studies oil of seed of *Butea monosperma* Lam. Seed oil exhibited antimicrobial activity against all five microorganisms the paper disc diffusion method was employed. From zone of inhibition oil showed prominent antibacterial activity. Seed oil of *Butea monosperma* Lam. was more active against *B. subtilis* and fungus *C. albicans* (zone of inhibition 13.66 ± 2.08 mm, 13.66 ± 0.5 mm respectively). Oil of seed of *Butea monosperma* Lam. was also active against gram positive bacteria *S. aureus* (zone of inhibition 11.33 ± 0.57 mm) while it is less effective against gram negative bacteria *P. aeruginosa* and *E. coli* (zone of inhibition 6.4 ± 0.30 mm, 7.3 ± 0.26 mm). It can also be seen that the MIC and MBC values of the oil on *S. aureus* was same that is 156.25µg/ml.
The present study on preliminary phytochemical and antibacterial studies of Seed oil of Butea monosperma Lam. might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Keywords: *Butea monosperma*, seeds, pharmacognosy, phytochemical

Introduction
Butea monosperma (Lam.) Taub (Syn. Butea frondosa Willd. Family Faboideae), a deciduous tree, is found chiefly in the mixed or dry deciduous forests of Central and Western India. This plant is popularly known as dhak or palas, palash, mutthuga, bijasneha, khakara, chichara and commonly known as 'Flame of the forest'. This tree grows to 50 ft high, with stunning flower clusters. Tree is almost leafless during spring season forming an orange red hue of flowers on the upper portion, giving the appearance of flame from a distance [1, 2].
Butea monosperma is extensively used in Ayurveda, Unani, Homeopathy and Traditional systems of medicine. Flowers of B. monosperma are used as anticonvulsant, antioxidant, antistress, antigout, diuretic, antileprotic, anti-inflammatory, antiulcer, astringent, antiestrogenic activity, antihepatotoxic, eye disorder [3, 4], diarrhea, depurative, tonic, leprosy, skin diseases and thirst [5].
Phytochemical studies of flower extract have shown chemical constituents like triterpene, flavonoids and glycosides like butein, butin, isobutrin, coreopsin, isocoreopsin, sulphurein, monospermoside, isomonospermoside, chalcones, aurones and steroids [6-8]. Each plant drug possesses unique properties in terms of its botany, chemical constituents and therapeutic potency. So it is important to study pharmacognostic characters of each medicinal plant to differentiate the genuine plant sample. Isolation and pharmacological studies have been extensively made on all parts of *B. monospema* but, very less is known about pharmacognosy.
The Present work is to frame a standard Preliminary Phytochemical and antibacterial studies for the seeds of *Butea monosperma* useful in authentification and standardization of the drug, which give the quality and purity of the drug Figure 1.

Material and Method
Plant material
The plant specimens for the proposed study were collected from Chopda Tehsil (Adawad) MS, India in the month of April 2017 care was taken to select healthy plants and for normal organs. The plant was authenticated by Botanical Survey of India (BSI), Pune, Maharashtra, India. A voucher specimen (No. SSS 01) was deposited at B.S.I., Pune, India [11].

Preliminary phytochemical parameters
Preliminary phytochemical test of seeds of *Butea monosperma* Lam. were performed and the chemical constituents were detected Table 1 [9, 15].

Antibacterial Activity [16, 22]
The paper disc diffusion method was employed for antibacterial activity.
Microbial strains used: The test organisms was gram-positive bacteria *Bacillus subtilis* (ATCC 6633), *Staphylococcus aureus* (ATCC 6538), gram negative *Escherichia coli* (ATCC 10538), *Pseudomonas aeruginosa* (ATCC 27853) and fungus *Candida albicans* (ATCC 10239) were obtained from the microbiology department, R. C. Patel Art Science and Commerce college, Shirpur (NMU University), Maharashtra, India. The Nutrient agar medium composition are shown in Table 2
Preparation of test solution: Stock solution of was prepared in dimethyl sulfoxide (DMSO) at a concentration 5000 µg/ml. Accurately weighed 2 gm of the each extract dissolved in 400 ml of DMSO solution. Stored the solutions in the refrigerator at 4ºC.
Preparation bacterial stock culture: Stock cultures were maintained at 4°C on slopes of nutrient agar in test tubes. Active cultures for experiments were prepared by selecting

Review Article

Break the Chain of Coronavirus Disease (Covid-19) Infection: A Review

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ABSTRACT

In December 2019, several patients from Wuhan, China were admitted with symptoms of pneumonia. As the number of patients presenting with similar symptoms started to rise, the causative agent was eventually isolated from samples. It was initially called the 2019 novel coronavirus (2019-nCoV) and has been recently relabelled as severe acute respiratory syndrome coronavirus 2 (SARS-CoV- 2); the disease it causes has been named coronavirus disease 2019 (COVID-19). Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol based rub frequently and not touching your face. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow). At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments. WHO will continue to provide updated information as soon as clinical findings become available. Since the virus is spreading worldwide, on March 31, 2020, the WHO officially described the COVID-19 outbreak as a pandemic.

Keywords: COVID-19, Causes, Prevention and control, outbreak, Review.

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INTRODUCTION

Over the last few decades, the world has seen the existence of new viruses that posed serious threats to global health. In late December 2019, several patients in Wuhan, China started reporting symptoms that resembled pneumonia. A new virus was identified and initially called the 2019 novel coronavirus (2019-nCoV). The World Health Organization (WHO) eventually changedthe name of the virus to severe acute respiratorysyndrome coronavirus 2 (SARS-CoV-2). [1-5] The disease it causes has been named coronavirus disease 2019 (COVID- 19). The SARS-CoV is a positive-stranded RNA virus that originates from the Coronaviridae family. Other viruses from the same family include the severe acute respiratory syndrome coronavirus (SARS-CoV), which appeared in 2002, and Middle East respiratory syndrome coronavirus (MERS-CoV), which was reported in 2012. [6]

In response to the outbreak, the Chinese Center for Disease Control and Prevention (China CDC) dispatched a rapid response team to accompany health authorities of Hubei province and Wuhan city to con duct epidemiological and etiologic al investigations. The WHO confirmed that the outbreak of the coronavirus epidemic was associated with the Huanan South China Seafood Marketplace, but no specific animal association was identified.[7] Scientists immediately started to research the source of the new coronavirus, and the first genome of COVID-19 was published by the research team led by Prof. Yong-Zhen Zhang, on 10 January 2020. [8] Within 1 month, this virus spread quickly throughout China during the Chinese New Year – a period when there is a high level of human mobility among Chinese people. Although it is still too early to predict susceptible populations , early patternshave shown a trend similar to Severe Acute Respiratory Syndrome (SARS) and Middle East respiratory syndrome (MERS) coronaviruses. Susceptibility seems to be associated with age, biological sex, and other health conditions. [9] COV ID-19 has now been declared as a Public Health Emergency of International Concern by the WHO. [10] Since the virus is spreading worldwide, on March 11, 2020, the WHO officially described the COVID-19 outbreak as a pandemic.

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Pharmacognostical and preliminary phytochemical evaluation of *Diplocyclos palmatus* linn

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Abstract
Objective: Herbal medicines are in great demand in the developed as well as developing countries for primary healthcare because of their wide biological and medicinal activities, higher safety margins and lesser costs. The objective of present studies deals with the macroscopical and microscopical studies of stem of *Diplocyclos palmatus* Linn. **Method:** This Pharmacognostic study comprises taxonomic details, macro and microscopic characters, physicochemical details and study of phytochemical components of all successive extracts were also carried out.
Results: Seeds of *Diplocyclos palmatus* Linn. powder showed the presence of total ash 12.14% w/w, acid insoluble ash 0.8% w/w, water soluble ash be 3.6% w/w, alcohol soluble extractive 18.85% w/w water soluble extractive 32.48% w/w and moisture content 8.9% w/w.
Conclusion: The present study on Pharmacognostical investigation of stem *of Diplocyclos palmatus* Linn. Whole plant or stem might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Keywords: *Diplocyclos palmatus* linn, stem, pharmacognosy, phytochemical

Introduction
Diplocyclos palmatus (L) C. Jeffrey It is belonging to the family Cucurbitaceae plant locally known as 'Shivlingi' is distributed throughout India, an annual climber with bright red fruit and is reported to be highly medicinal [1]. Locally in India its seeds are being used for promoting conception in women. Plant is used against snake-bite. Its leaves are used in inflammation [2]. Roots are used for treatment of asthma. The seeds are used for increasing sperm count also as an aphrodisiac [3]. The main active constituents of the plants are Bryonin, a bitter principle [4] punicic acid, source of seed oil
[5] non-ionic glucomannon 3 and goniothalamin [6].
Nonsteroidal anti-inflammatory drugs (NSAIDs), steroidal drugs, and immuno-suppressant drugs, which have been used usually in the relief of inflammatory diseases by the people of the world for a long time. However, these drugs were often associated with severe adverse side effects, such as gastrointestinal bleeding and peptic ulcers [7]. Recently, many natural medicines derived from plants, marine organisms were considered as the effective and safer for the treatment of various diseases including inflammation and pain [8].
The Present work is to frame a standard Pharmacognostic parameters for the stems of *Diplocyclos palmatus* Linn. useful in authentification and standardization of the drug, which give the quality and purity of the drug Figure 1.

Material and Method
Plant material
The plant specimens for the proposed study were collected from Chopda Tehsil (Adawad) MS, India in the month of April 2017 care was taken to select healthy plants and for normal organs. The plant was authenticated by Botanical Survey of India (BSI), Pune, Maharashtra, India. A voucher specimen (No. SSS 01) was deposited at B.S.I., Pune, India.

The required samples of different organs were cut and removed from the plant and microscopical character was studied by using motic microscope. The transverse sections of seed was taken and stained with Phloroglucinol: Conc. HCl (1:1) and Sudan red III. Observed under microscope (Motic) & further photo documentation were reported [9, 10, 11].

Physicochemical Parameters
Physicochemical parameter of whole plant of *Diplocyclos palmatus* Linn. were determined such as Total ash, Acid insoluble ash, Water soluble ash, Sulphated ash, moisture content etc [12, 13, 14, 15].

Preliminary Phytochemical Parameters
Preliminary phytochemical test of whole plant of *Diplocyclos palmatus* Linn. were performed and the chemical constituents were detected [16, 17, 18, 19, 20, 21, 22, 23, 24].

HPTLC Profile of bioactive ethyl alcohol extract of whole over ground part of Diplocyclos palmatus
Sample Preparation: 10 mg of ethyl alcohol extract was dissolved in 10 ml ethyl alcohol.
Stationary Phase: Precoated TLC plates of Silica gel G 60 F254 (E. Merck), 5 x 10 cm in size were used as stationary phase.
Mobile Phase: Chloroform: n-Hexane: Toluene: Ethyl acetate: Glacial acetic acid = 8: 26: 2: 1.8: 0.2 (v/v) was used as mobile phase.
Procedure: 100 µl and 50 µl of the sample solution were applied as band length 5 mm to 8 mm from lower edge ofthe plate using 100 µl syringe on CAMAG LINOMATE V automatic sample applicator.
Development: Plate was developed in 20 x 20 cm twin trough (CAMAG) chamber. Developing distance was 8 cm

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Corona Virus (Covid-19) Pandemic: A Systematic Review

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Abstract

The recently emerged CORONAVIRUS (COVID-19) is now considered as a pandemic threat worldwide. It is novel class of virus that affects the respiratory tract and leads to difficulty in breathing. The virus originated in bats and was transmitted to humans. It has been known to infect human hosts and cause respiratory diseases. Currently, there is still dearth of information on foremost source of viral transmission along with exact pathogenic mechanism of action. Besides this, the hospital outbreak of super-spreading virus has made a greater concern about global health due to SARS-CoV and MERS-CoV which are highly pahogenic. There have been around 1,519,503 reported cases of coronavirus disease worldwide and 88,549 reported deaths along with 3,30,916 total recovered patients to date (9/4/2020).The disease is transmitted by inhalation of infected droplets .The symptoms are usually fever, sputum production, nasal congestion, pneumonia, sore throat ,breathlessness. Diagnosis of disease is done by routine lab findings, specimen examination using RT - PCR and by using diagnostic kits. Prevention entails regular hand washing, covering mouth and nose and home isolation of suspected cases. Treatment is usually supportive of ayurvedic, herbal medicines and allopathic combinations mostly antiviral drugs. This revelation may exert crucial guidance for understanding the viral infection and measures to prevent and treat infection.

Keywords: COVID -19, Respiratory infection, Pneumonia, SARS-CoV, MERS-CoV.

INTRODUCTION

Coronaviruses are a group of enveloped viruses with nonsegmented, single-stranded, and positive sense RNA genomes. Apart from infecting a variety of economically important vertebrates (such as pigs and chickens), six coronaviruses have been known to infect human hosts and cause respiratory diseases. Among them, severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) are zoonotic and highly pathogenic coronaviruses that have resulted in regional and global outbreaks. According to the International Committee on Taxonomy of Viruses, coronaviruses are classified under the order Nidovirales, family Coronaviridae, subfamily Coronavirinae. Based on early serological and later genomic evidence, Coronavirinae is divided into four genera: Alphacoronavirus, Betacoronavirus, Gammacoronavirus, and Deltacoronavirus[1]

The updated classification scheme of HCoV and other coronaviruses[1]

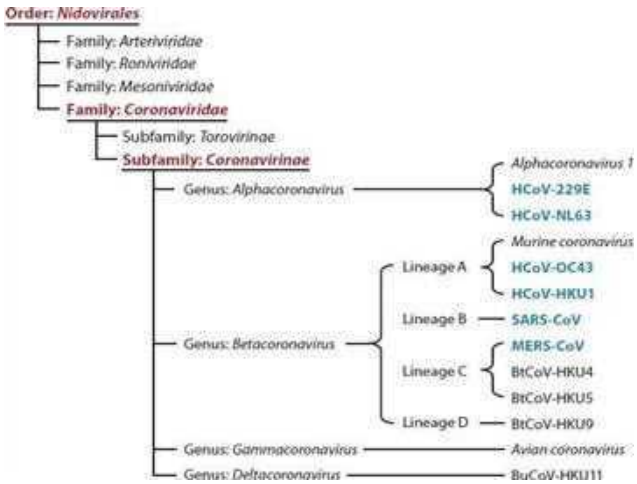

Fig. 1: Taxonomy of HCoVs: the updated classification scheme of HCoV and other coronaviruses

The six known HCoVs are in blue. Abbreviations: BtCoV, bat coronavirus; BuCoV, bulbul coronavirus; HCoV, human coronavirus; MERS-CoV,Middle East respiratory syndrome coronavirus; SARS-CoV, severe acute respiratory syndrome coronavirus.

PAST HISTORY

Human coronaviruses were first discovered in the late 1960s.The earliest ones discovered were an infectious bronchitis virus in chickens and two in human patients with the common cold (later named human coronavirus 229E and human coronavirus OC43).Other members of this family have since been identified, including SARS-CoV in 2003, HCoV NL63 in 2004, HKU1 in 2005,

A newly emerged highly pathogenic beta-coronavirus called Middle East Respiratory Syndrome Coronavirus (MERS-CoV) formerly known as HCoV-EMC (Human Coronavirus Erasmus Medical Center) was recognized as the causal agent of 50% lethality and fatal respiratory disease in humans during 2012.[2] As the first case was detected on June, 2012 in Saudi Arabia and the next was in Qatar where a 49 years old man was infected by the novel coronavirus (MERSCoV) in September 2012 and there was a 99.5% sequence match between the two viruses separated from the patients. The viral transmission from discriminating animal species to human has been evidenced and another study has also demonstrated that the pathogen has spread worldwide largely by human to human infection.[3]Globally, since September 2012, WHO has been alerted about 1,595 laboratory-confirmed cases of infection with MERS-CoV, including at least 571 related decease. Till August 2015, 498 deaths were found among 1165 cases in the Saudi Arabian territory (ECDC 2015).[4,5] SARS-CoV2 (formerly known as 2019-nCoV) was found in 2019. Most of these have involved serious respiratory tract infections.[6]

SOURCES OF INFECTION AND TRANSMISSION ROUTES

Respiratory infections can be transmitted through droplets of different sizes: when the droplet particles are >5-10 μm in diameter they are referred to as respiratory droplets, and

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Pharmacognostical and anthelmintic studies on leaf of *Mimusops elengi* linn

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Abstract
Objective: The plant *Mimusops elengi* is an annual or perennial ayurvedic plant, is widely distributed in India. It is used in traditional medicine, especially for skin disease, disease of the gum and teeth, astringent, diuretic, etc.
Methods: The present paper report the macroscopically and microscopically studies of leaf of *Mimusops elengi* linn. Some distinct and different characters were observed with section of fresh leaf. Physiochemical parameter and preliminary phytochemical studies of the leaf powder were also carried out.
Results: Anthelmintic activity of different extracts of leaves of *Mimusops elengi* Linn were investigated against *Pheretima posthuma* at various concentrations (10, 25, 50 mg/ml) of each extract were tested in the bioassay, which involved determination of time of paralysis and time of death of worms. Albendazole was included as standard reference and distilled water as control. The methanolic and ethyl acetate shows more potent anthelmintic activity.
Conclusion: The present study on Pharmacognostical investigation of *Mimusops elengi* Linn. leaves might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Keywords: pharmacognostical, anthelmintic, *Mimusops elengi* linn, leaves

Introduction

Anthelminticsare drugs that are used in the treatment of helminthiasis (vomiting of worms) or to treat infections with parasitic worms. The different type of worms.
Round worms: they are of two types, Adult intestinal Nematodes and Larval Tissue Nematodes.
Tape worms: They are found in the intestine or Larva in the tissue. *Flukes:* These are hermaphrodites with an exception of blood flukes. They are found in blood vessels, the intestine, biliary tract, lungs.
Symptoms of Helminthiasis are as follows; Abdominal pain, Diarrhea, Fever, Fatigue, Enlarged liver, gastrointestinal inflammation, Eosinophilia and Dehydration.
Mode of transmission: The disease is transmitted through
1. Fecal- oral route for ascaris, trichuris, and hookworm.
2. Skin penetration for hookworms.

Prevention and control: Following measure can be taken for prevention control of the disease.
Personal hygiene, environmental sanitation, cleans food and drinking water and use of slippers and shoes [1].
They are of huge importance for human tropical medicine and for veterinary medicine. The World Health Organization estimates that a staggering 2 billion people harbor parasitic worm infections (http://www.who.int/wormcontrol/statistics/). Parasitic worms also infect livestock and crops, affecting food production with a resultant economic impact. Also of importance is the infection of domestic pets. Indeed, the companion animal market is a major economic consideration for animal health companies undertaking drug discovery programmes.

Intestinal helminthes infections, such as ascariasis, trichuriasis, hookworm and tapeworm infections, continue to be a cause of major concern to human health in several parts of the world, particularly in the developing nations, causing malabsorption, diarrhea, anemia and other states of poor health. Globally, over 3.5 billion people are infected with intestinal worms, of which children between 5– 15 years account for the highest infection rate of about 400 million cases of worm burden that are mainly attributed to poor sanitation and hygiene. In India, infections with these parasites are regarded as amongst the most common public health problems, particularly in rural areas and urban slums [2].
The genus Mimusops elengi belongs to the family Sapotaceae and comprises of thirty species which are distributed in the tropical parts of hemispheres of these *Mimusops elengi*, commonly known as mulsari or bakul cultivated in gardens due to its scented lowers is indigenous to the subcontinent. The plant has been studied through many years phytochemically.
The seed Kernels from *Mimusops elengi* have been investigated previously by Boorsma in 1902 who found 21% fatty oil and 2% saponin [3, 4, 5, 6, 7].
The bark mainly contains saponin and tannins [8, 9, 10, 11, 12].
The leaves contain steroids. The pulp of the fruit contains mainly sugars and saponin. While the lowers contain volatile oil. The parts of its mostly used in medicines [13, 14, 15, 16, 17, 18, 19, 20]. Bark is tonic and febrifuge. Unripe fruit is a useful masticator and therefore recommended to be chewed for fixing loose teeth. Pulp of ripe fruit is eaten as diet in diarrhea and is used in snake bite. Fruits and lowers are used to prepare a lotion for wounds and ulcers. The bark and

Mouth Dissolving Tablets: A Modern Approachto Delivery of Drug

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ABSTRACT:

Recently pharmaceutical preparations used for elderly patients have been investigated to improve the treatment compliances and quality of life of patients. Recent advances in Novel Drug Delivery System (NDDS) aims to enhance safety and efficacy of drug molecule by formulating a convenient dosage form for administration and to achieve better patient compliance. One such approach is "Mouth Dissolving Tablet" are disintegrates instantaneously when placed on tongue, releasing the drug that dissolves or disperses in the saliva. Mouth Dissolving Drug Delivery System emerged from the desire to provide patient with conventional mean of taking their medication. Difficulty in swallowing (Dysphagia) is a common problem of all age groups, especially elderly and pediatrics, because of physiological changes associated with these groups of patients. The saliva containing the dissolved or dispersed medicament is then swallowed and the drug is absorbed in the normal way. Some drugs are absorbed from the mouth, pharynx and esophagus as the saliva passes down into the stomach & it may produce rapid onset of action. Bioavailability of drug is significantly greater than those observed from conventional tablet dosage form.

KEYWORDS: Novel Drug Delivery System (NDDS); Patient compliance; Mouth Dissolving Drug Delivery System; Dysphagia; Rapid onset of action; Bioavailability.

INTRODUCTION:

Oral routes of drug administration have wide acceptance up to 50-60% of total dosage forms. Solid dosage forms are popular because of ease of administration, accurate dosage, self-medication, pain avoidance and most importantly the patient compliance. The most popular solid dosage forms are being tablets and capsules; one important drawback of this dosage forms for some patients, is the difficulty to swallow. Drinking water plays an important role in the swallowing of oral dosage forms. For these reason, tablets that can rapidly dissolve or disintegrate in the oral cavity have attracted a great deal of attention Or dispersible tablets are not only indicated for people who have swallowing difficulties. United States Food and Drug Administration (FDA) Center for Drug Evaluation and Research (CDER)

define orally disintegrating tablets in the ‘Orange Book’ as “A solid dosage form which contain a medicinal substance oractive ingredient which disintegrates rapidly within a matter of seconds when placed upon a tongue”. Mouth dissolving drug delivery systems are a new generation of formulations which combine the advantages of both liquid and conventional tablet formulations and at the same time, offer added advantages over both the traditional dosage forms, which can be seen in (Fig. 1). MDT offers the luxury of much more accurate dosing than the primary alternative oral liquids. Dysphagia or difficulty in swallowing is common among all age groups. Dysphagia is common in about 35% of the general population, well as an additional 30–40% of elderly institutionalized patients and 18–22% of all persons in long-term care facilities. Preparation of mouth dissolving tablet can be manufactured by several techniques such as Freeze drying or Lyophilization, Spray Drying, Direct Compression, Sublimation, Cotton Candy Process, Mass Extrusion, Molding, Nanonization, Fast Dissolving Films, Phase transition process, Melt granulation

Requirements for mouth dissolving drug:[3-6]

The tablets should-

Not require water to swallow, but it should dissolve or disintegrate in the mouth within seconds.

- Be compatible with taste masking.
- Have a pleasant mouth feel and leave no residue in the mouth after oral administration.
- Less friable and have sufficient hardness

RESEARCH ARTICLE

Antibacterial and Antifungal Activities from Leaf Extracts of *Mimusops elengi* Linn.

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ABSTRACT

This study was carried out with an objective to investigate the antibacterial and antifungal potentials of leaves of *Mimusopselengi* Linn. 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 different extracts of leaves of *M. elengi* Linn. was evaluated for potential antimicrobial activity against medically important bacterial and fungal strains. The antimicrobial activity was determined in the extracts using agar disc diffusion method. The antibacterial and antifungal activities of different extracts of *M. elengi* Linn. were tested against two gram-positive *Staphylococcus aureus*, *Bacillus*, and two gram-negative *Escherichia coli*, *Xanthomonas* human pathogenic bacteria, and one fungal strain—*Candida albicans*. Zone of inhibition of different extracts were compared with that of standards like ampicillin for antibacterial activity and clotrimazole for antifungal activity. The results showed that the remarkable inhibition of bacterial growth was shown against the tested organisms. The phytochemical analyses of the plants were carried out. The microbial activity of the *M. elengi* Linn. 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.

Keywords: *In vitro* antibacterial and antifungal activity, *Mimusops elengi* Linn., Phytochemical screening. International Journal of Pharmacognosy and Phytochemical Research (2020); DOI: 10.25258/phyto.12.2.8

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Conflict of interest: None

INTRODUCTION

An infectious disease has become a serious problem for mankind, particularly in developing countries. It is the second-largest cause of death after cardiovascular diseases. The treatment of infectious diseases often fail because of the rise of drug-resistant microbes. Therefore, it is necessary to discover new antimicrobial drugs, especially from natural sources. Plants have a place and play an important role in therapy. This is evident by the fact that a number of drugs used today is derived from plant sources, which was initially used as medicinal herbs.[1]

Many medicinal plants are considered to be potential antimicrobial crude drugs as well as a source for novel compounds with antimicrobial activity, with possibly new modes of action. This expectation that some naturally occurring plant compounds can kill antibiotic-resistant strains of bacteria such as *Bacillus cereus*, *E. coli*, *Micrococcus luteus*, and *S. aureus* has been confirmed.[2]

Due to indiscriminate use of antimicrobial drugs, microorganisms have developed resistance to many antibiotics, and that has created immense clinical problems in the treatment of infectious disease strains of beta-lactam resistant *S. aureus*, methicillin-resistant *S. aureus* (MRSA) is posing a serious problem to hospitalized patients and their care providers. In addition, antibiotics are sometimes associated with adverse effect on host, which include depletion of beneficial gut and mucosal microorganism, immune-suppression, hypersensitivity, and allergic reaction. The drug-resistant bacteria have further complicated the treatment of infectious disease in immune-compromised, aids, and cancer patients, specially in the case of nosocomial infection. There is not only the loss of effect of antibiotic against multi drug-resistant

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Antimicrobial Activity Of *Anacardium occidentale* On Some Microorganisms Associated With Dental Diseases.

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ABSTRACT

Dental disease has become a major problem in all over the world, and current antibiotics has almost become ineffective for its treatment. Hence there is a need to find alternative ways of treatment for dental disease. *Anacardium occidentale L.* having family Anacarddiaceae is frequently used to treat infections. *Anacardium occidentale* is a medium size tree spreading evergreen, much branched, costal sandy areas. There is different information on the pharmacological activitie of *Anacardium occidentale (*cashew tree) byproducts in various dental disease such as periodontal disease, dental plaque, dental biofilm bacteria etc. The objective of this review is the current knowledge on the phytochemestry and pharmacology of *Anacardium occidentale* is updated with some description of their uses in dental diseases.

Keywords: *Anacardium occidentale,* dental disease, periodontal disease, dental plaque, dental biofilm bacteria etc.

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Advances in Bioresearch

ORIGINAL ARTICLE

Formulation and Evaluation of Orodispersible Tablet of Warfarin by Direct Compression Technique

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ABSTRACT
The demand for development of oral dispersible tablets (ODTs) has enormously increased as it has significant impact on the patient compliance. The aim of this investigation was to prepare orodispersible tablets of Warfarin using various concentrations of superdisintegrants agents like Polyplasdon XL, Crospovidone CL, Prosolv ODT by direct compression method. Four Tablets formulations having superdisintegrants at different concentration levels were prepared. These tablets were evaluated for weight variation, friability, hardness, drug content, and in vitro disintegration time. In vitro release studies that almost 100% of drug was release from all the formulations were within 15 minutes. Formulation F2 showed faster drug release 103.9±0.2 within 15 minutes in comparison to other formulation so it is selected as optimized batch. It was concluded that Orodispersible Tablets of Warfarin can be prepared successfully by direct compression methods as it satisfies all the criteria as mouth dissolving tablet and would be alternative to the currently available conventional tablets.

Keywords: *Warfarin,Direct Compression, Orodispersible tablets, Crospovidone, Disintegration time.*

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INTRODUCTION

The demand for development of oral dispersible tablets (ODTs) has enormously increased as it has significant impact on the patient compliance [1]. Oral dispersible tablets offer an advantage for populations who have difficulty in swallowing [2]. It has been reported that Dysphagia (difficulty in swallowing) is common among all age groups and more specific with pediatric, geriatric population along with institutionalized patients and patients with nausea, vomiting, and motion sickness complications. ODTs with good taste and flavor increase the acceptability of bitter drugs by various groups of population [3-5]. ODTs with good taste and flavor increase the acceptability of bitter drugs by various groups of population

United States Food and drug administration defined fast disintegrating tablet as "a solid dosage form containing medicinal substance or active ingredient which disintegrate fast usually within a few seconds when placed upon the tongue [6-9]." FDTs differ from traditional tablets as they are designed to be dissolved on the tongue rather than swallowed whole. Orodispersible Tablets are also known as mouth disintegrating tablets, melt-in mouth tablets, Orodispersible tablets, porous tablets, quick dissolving tablets, fast dissolving tablets[10-12].

MATERIAL AND METHODS

Warfarin was obtained as a gift sample Maxheal Pharmaceuticals, MIDC, Nashik Polyplasdon XL, Crospovidone CL, Prosolv ODT, Avicel PH 102, PVP K30, Avicel PH 102, Orange ,Mannitol, Aspartame ,Mg. stearate, Colloidal Silicon Dioxide. From Research Lab Fine Chem. Ltd. Mumbai.

METHODS: *[13-15].*

Preformulation Study

Identification of Drug

Research Article

Development and Evaluation of Oral Fast Disintigreting Tablets of Warfarin Prepared by Wet Granulation Techni

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ABSTRACT

The objective of the present study was to develop Warfarin Oral Fast Disintegrating Tablets by using wet granulation techniques which are simple and cost effective such as use of super disintegrant technology. In this study, Polyplasdon XL and Crospovidone CL were used in the rapid disintegration of the tablets. In this various trials were conducted for the selection of optimum concentration of super disintegrants. The optimized formula aids in the stabilization of final product. The blend and compressed tablets were evaluated for physical characteristics like bulk density, tapped density, angle of repose, hardness, friability, disintegration time, In-vitro dissolution, content uniformity. From the in vitro disintegration test it was found that in range of 11 to 28 seconds , Optimized F8 has lower disintegration time 11seconds. Based on the dissolution data of all the prepared ODTs, the F8 batch shows 102.6% drug release in 30 minutes. The Stability Study was conducted for the optimized batch F8 & found stable. In conclusion, Oral Fast Disintegrating Tablets of Warfarin prepared using wet granulation seems to be promising formulations.

Keywords: Warfarin, Wet granulation, Disintegration time, Polyplasdon XL, Stability Study.

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INTRODUCTION

Difficulty in swallowing (Dysphasia) is common among all age groups, especially in elderly, and is also seen in swallowing of conventional tablets and capsules[1]. Geriatric and pediatric patients and travelling patients who may not have ready access to water are mostin need of easy swallowing dosage forms[2-5]. 50% of the population suffers from this problem[6].

To overcome these problems, mouth dissolving tablets (MDT) have been developed, which having good hardness, dose uniformity, easy administration and serves as the first choice of dosage form for pediatrics, geriatrics and travelling patients. MDTs are also known as "fast-melting, fast-dissolving, oral disintegrating or disperse[7-10].

Mouth dissolving tablets can define as "A solid dosage form containing medicinal substances, which disintegrates rapidly, usually within a matter of seconds, when placed under the tongue Fast disintegrating drug delivery (FDDTs,)can be achieved by various conventional methods like direct compression, wet granulation, moulding, spray drying, freeze drying, and sublimation. Orodispersible Tablets are also known as mouth disintegrating tablets, melt-in mouth tablets, Orodispersible tablets, porous tablets, quick dissolving tablets, fast dissolving tablets.Mouth Dissolving Tablet has a pleasing mouth feel, and it not required water to swallow. MDT easily dissolved or disintegrates in saliva within a few seconds (15 s to 3 min) without the need of drinking water or chewing, leaves no residue in the mouth when administered and less sensitive to environmental conditions like temperature, humidity[10-13].

MATERIALS AND METHOD

Warfarin was obtained as a gift sample Maxheal Pharmaceuticals, MIDC, Nashik Polyplasdon XL, Crospovidone CL, Avicel PH 102, PVP K30, Avicel PH 102, Orange, Mannitol, Aspartame, Mg. stearate, Colloidal Silicon Dioxide. From Research Lab Fine Chem. Ltd. Mumbai.

METHODS

Formulation of Oral Fast Disintegrating Tablets by Wet Granulation[14-16].

Weighted and sifted Warfarin, Diluents (Mannitol, MCC) and superdisintegrants Crospovidone CL, Polyplasdone XL passed through #40 sieves. Mixed Warfarin and diluents in octagonal blender for 5 minutes. Weighted and Dissolved the binder (PVP K30) into pure water (approximately 25%).Then slowly add above binder solution into the mix powder in Rapid Mixer Granulator. At last allowed to dry the obtained granules into a tray dryer for around 2 hr at 60℃& passed the drying granules through #20 sieve. Weighted and sifted Colloidal Silicon Dioxide, Sweetener, Flavors, and Lubricant through 60# sieve.Mixed all ingredients in poly beg for 5 minutes. Lubricated granules were compressed into tablets using 12mm FFBE (Flat FaceBevel Edge) punch set using an eight station tablet press. Compression was carried out using "B" tooling punches sets.

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Review Article

Colonic Drug Delivery System: A Review

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ABSTRACT

Targeted drug delivery into the colon is highly desirable for local treatment of a variety of bowel diseases such as ulcerative colitis, crohn's disease, amoebiosis, colonic cancer, local treatment of colonic pathologies, and systemic delivery of protein and peptide drugs. To achieve successful colon targeted drug delivery, a drug need to be protect from degradation, release and absorption in upper portion of the GI tract and then to be ensured abrupt or controlled release in proximal colon. This review is focused on the merits and demerits, novel approaches in the colon targeted drug delivery, clinical evaluation techniques and some information on the marketed dosage forms.

Keywords: G.I.T, Colon Drug Delivery System, Colonic.

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INTRODUCTION

Day by day there are new developments in field of colon specific drug delivery system. Colonic drug delivery has gained increased importance not just for the delivery of the drugs for the treatment of local diseases associated with the colon like crohn's disease, etc. but also for the systemic delivery of anti-asthmatic drugs, antihypertensive drugs and anti-diabetic agents. New systems and technologies have been developed for colon targeting and to overcome previous method's limitations. Colon targeting holds a great potential and still need moreinnovative work.

Traditionally solid oral dosage forms have been designed to release their drug load in upper region of G.I.T. where conditions are generally more suited to drug dissolution and absorption[1]. Recently greater emphasis has been placed on controlling the rate and site of drug release from oral formulations for the purpose of patient compliance and treatment efficiency.

The colonic region of G.I.T. is one of that would benefit from the development and such modified release technologies. Although considered by many to be an innocence organ that may simple functions in the form of water and electro light absorption and the formation storage and explosion of fecal material, the colon is valuable to a no of disorders including alternative qualities corn's disease irritable bower syndrome and carcinomas[1,2]. Targeted drug delivery to the colon would therefore ensure direct treatment at the disease site lower closing and favour systemic side effects.

In addition to local therapy, the color can also be utilized as a portal for entry of drug into the systemic circulation. E.g.:- molecules that are degraded parry absorbed in upperget, such as peptides and proteins, may be better absorbedfrom more being environment of colon. In addition, systemic absorption from colon can also be used as a means of achieving chemotherapy for diseases that are sensitive to circadian rhythms such as asthma, angina,orthotics[1,2].

TARGETING MECHANISM OF DRUG ACTING ON COLON

1. Pre-dependent delivery
2. Time-dependent delivery
3. Pressure-dependent delivery
4. Bacteria dependent delivery

Successful colonic drug delivery requires careful considerations of a number of factors, including the properties of drug, the type of delivery system and its interaction with the healthy or diseased gut[1].

1. Pre-dependent Delivery

Pre-sensitive enteric coatings have been used routing to deliver drugs to small intensive. These polymer coatings are insensitive to the acidic conditions of stomach yetdissolve at the higher PH environment of small intestine. This PH differential principle has also been attempted for colonic delivery purposes although polymers used for solenoid targeting and to have a threshold PH for dissolution that is higher than those used in conventional enteric coating application[1,7]. Most commonly co-

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Pharmacognostical and anthelmintic studies on leaf of *Mimusops elengi* linn

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Abstract
Objective: The plant *Mimusops elengi* is an annual or perennial ayurvedic plant, is widely distributed in India. It is used in traditional medicine, especially for skin disease, disease of the gum and teeth, astringent, diuretic, etc.
Methods: The present paper report the macroscopically and microscopically studies of leaf of *Mimusops elengi* linn. Some distinct and different characters were observed with section of fresh leaf. Physiochemical parameter and preliminary phytochemical studies of the leaf powder were also carried out.
Results: Anthelmintic activity of different extracts of leaves of *Mimusops elengi* Linn were investigated against *Pheretima posthuma* at various concentrations (10, 25, 50 mg/ml) of each extract were tested in the bioassay, which involved determination of time of paralysis and time of death of worms. Albendazole was included as standard reference and distilled water as control. The methanolic and ethyl acetate shows more potent anthelmintic activity.
Conclusion: The present study on Pharmacognostical investigation of *Mimusops elengi* Linn. leaves might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Keywords: pharmacognostical, anthelmintic, *Mimusops elengi* linn, leaves

Introduction

Anthelminticsare drugs that are used in the treatment of helminthiasis (vomiting of worms) or to treat infections with parasitic worms. The different type of worms.
Round worms: they are of two types, Adult intestinal Nematodes and Larval Tissue Nematodes.
Tape worms: They are found in the intestine or Larva in the tissue. *Flukes:* These are hermaphrodites with an exception of blood flukes. They are found in blood vessels, the intestine, biliary tract, lungs.
Symptoms of Helminthiasis are as follows; Abdominal pain, Diarrhea, Fever, Fatigue, Enlarged liver, gastrointestinal inflammation, Eosinophilia and Dehydration.
Mode of transmission: The disease is transmitted through
1. Fecal- oral route for ascaris, trichuris, and hookworm.
2. Skin penetration for hookworms.

Prevention and control: Following measure can be taken for prevention control of the disease.
Personal hygiene, environmental sanitation, cleans food and drinking water and use of slippers and shoes [1].
They are of huge importance for human tropical medicine and for veterinary medicine. The World Health Organization estimates that a staggering 2 billion people harbor parasitic worm infections (http://www.who.int/wormcontrol/statistics/). Parasitic worms also infect livestock and crops, affecting food production with a resultant economic impact. Also of importance is the infection of domestic pets. Indeed, the companion animal market is a major economic consideration for animal health companies undertaking drug discovery programmes.

Intestinal helminthes infections, such as ascariasis, trichuriasis, hookworm and tapeworm infections, continue to be a cause of major concern to human health in several parts of the world, particularly in the developing nations, causing malabsorption, diarrhea, anemia and other states of poor health. Globally, over 3.5 billion people are infected with intestinal worms, of which children between 5– 15 years account for the highest infection rate of about 400 million cases of worm burden that are mainly attributed to poor sanitation and hygiene. In India, infections with these parasites are regarded as amongst the most common public health problems, particularly in rural areas and urban slums [2].
The genus Mimusops elengi belongs to the family Sapotaceae and comprises of thirty species which are distributed in the tropical parts of hemispheres of these *Mimusops elengi*, commonly known as mulsari or bakul cultivated in gardens due to its scented lowers is indigenous to the subcontinent. The plant has been studied through many years phytochemically.
The seed Kernels from *Mimusops elengi* have been investigated previously by Boorsma in 1902 who found 21% fatty oil and 2% saponin [3, 4, 5, 6, 7].
The bark mainly contains saponin and tannins [8, 9, 10, 11, 12].
The leaves contain steroids. The pulp of the fruit contains mainly sugars and saponin. While the lowers contain volatile oil. The parts of its mostly used in medicines [13, 14, 15, 16, 17, 18, 19, 20]. Bark is tonic and febrifuge. Unripe fruit is a useful masticator and therefore recommended to be chewed for fixing loose teeth. Pulp of ripe fruit is eaten as diet in diarrhea and is used in snake bite. Fruits and lowers are used to prepare a lotion for wounds and ulcers. The bark and

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PRONIOSOMAL GEL: A NOVEL THERAPEUTIC TOPICAL / TRANSDERMAL DRUG DELIVERY SYSTEM

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Keywords:

Vesicular systems, Proniosomes, Non-ionic surfactant, Topical

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widely used for leading new dosage forms.
ling as one of advanced nanotechnology.

Delivery of drugs using colloidal particulate carriers and liquid crystalline compact niosomal hybrid such as niosome and proniosomes has peculiar advantages over conventional dosage forms. Proniosomes is a dry formulation using suitable carrier coated with non-ionic surfactant and can be converted into niosome immediately before use by hydration. These vesicles are amphiphilic molecules having capability of entrapping both hydrophilic and hydrophobic drugs. Vesicular systems are lamellar structures composed of amphiphilic molecules surrounded by an aqueous environment. The non-ionic surfactants are preferred in the proniosomes preparation than cationic, anionic, and ampholytic surfactants because they have the ability to increase solubility which helps in increasing solubility and bioavailability of poorly water soluble drugs. The versatile vesicular drug delivery through the transdermal route is advantageous due to the vesicles tendency to attach and adhere to the cell surface and causes increased permeation rate. However, the major pathways for drug permeation in the tissues is through sweat glands, stratum corneum layer, and hair follicle associated with sebaceous glands. Primarily, proniosomal gel is a compact semi-solid liquid crystalline (gel) product of non-ionic surfactants easily prepared on dissolving the surfactant in a minimal amount of acceptable solvent and the least amount of aqueous phase. This article provides an overview of the formulation, evaluation, and application of proniosomal gel as a carrier for topical drug delivery.

INTRODUCTION: The transdermal route is acceptably used nowadays as it is appropriate over the conventional dosage forms. The transdermal route bypasses the GI tract; hence the gastric irritation is avoided, reduces the number of doses, improved patient compliance, and improved bioavailability, and can preserve suitable plasmaconcentration.

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In recent years it has been shown that the skin is a useful route for drug delivery to the system circulation. Increasing numbers of drugs are being added to the list of therapeutic agents that can be delivered to the systemic circulation *via* the skin. Drug targeting can be defined as the ability to direct a therapeutic agent specifically to the desiredsite of action with little or no interaction with non- target tissue [1].

In niosome, the vesicles forming amphiphile are a non-ionic surfactant such as Span-60, Span 40, which is usually stabilized by the addition of cholesterol and a small amount of anionic surfactant such as dicetyl phos

ch

AMERICAN JOURNAL OF PHARMTECH RESEARCH

Journal home page:

Formulation and Evaluation of Mouth Dissolving Tablet of Lornoxicam Using N

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ABSTRACT

The present research is focused on development of mouth dissolving tablet of Lornoxicam using novel superdisintegrants from natural resources. The research is carried out to potentiate the use of natural excipients instead of synthetic ones. Lornoxicam B cyclodextrin complex is formed as it increases the solubility of drug and to mask the taste of drug while having many advantages such as improve dissolution, and bioavailability. Tablets were prepared using natural superdisintegrants like gum karaya, *Plantago ovata husk.* and synthetic superdisintegrants like Crospovidone, Kyron T-314, Croscarmellose Sodium. Tablet containing 6 % of gum karaya shows better results over the formulation containing synthetic or other natural superdisintegrants like *Plantago ovata husk.* The formulated tablet melts in mouth within fraction of seconds with promising release of drug. The present study demonstrated potentials for rapid absorption, improved bioavailability, effective therapy, acceptable taste and patient compliance. The accelerated stability study of batch (F2) revealed that no significant change in physical properties and could be considered as stable formulation even after 3 months.

Keywords: Gum karaya; Mouth dissolving tablet; Lornoxicam; Superdisintegrant.

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Ameliorative Effect of Polysaccharide Rich Fraction from *Eulophia herbacea* Against Methotrexate Induced Liver Damage in Rats

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The present study was aimed to investigate a protective effect of polysaccharide rich fraction from *Eulophia herbacea* Lindl. tubers against methotrexate (MTX) induced liver damage in rats. The polysaccharide-rich extract fraction of *E. herbacea* (PEEH) was isolated from tubers by maceration and then evaluated for its hepatoprotective effect on MTX induced liver damage in rats through measurement of the liver enzymes function and the levels of proinflammatory cytokines and antioxidants. A group of 30 Wistar albino rats were randomly selected and divided into five groups, each containing six rats. Normal control group received saline, negative control group received MTX (20 mg/kg, i.p.) at a single dose, and test groups

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Pharmacognostical and preliminary phytochemical evaluation of *Diplocyclos palmatus* linn

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Abstract
Objective: Herbal medicines are in great demand in the developed as well as developing countries for primary healthcare because of their wide biological and medicinal activities, higher safety margins and lesser costs. The objective of present studies deals with the macroscopical and microscopical studies of stem of *Diplocyclos palmatus* Linn. **Method:** This Pharmacognostic study comprises taxonomic details, macro and microscopic characters, physicochemical details and study of phytochemical components of all successive extracts were also carried out.
Results: Seeds of *Diplocyclos palmatus* Linn. powder showed the presence of total ash 12.14% w/w, acid insoluble ash 0.8% w/w, water soluble ash be 3.6% w/w, alcohol soluble extractive 18.85% w/w water soluble extractive 32.48% w/w and moisture content 8.9% w/w.
Conclusion: The present study on Pharmacognostical investigation of stem *of Diplocyclos palmatus* Linn. Whole plant or stem might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Keywords: *Diplocyclos palmatus* linn, stem, pharmacognosy, phytochemical

Introduction
Diplocyclos palmatus (L) C. Jeffrey It is belonging to the family Cucurbitaceae plant locally known as 'Shivlingi' is distributed throughout India, an annual climber with bright red fruit and is reported to be highly medicinal [1]. Locally in India its seeds are being used for promoting conception in women. Plant is used against snake-bite. Its leaves are used in inflammation [2]. Roots are used for treatment of asthma. The seeds are used for increasing sperm count also as an aphrodisiac [3]. The main active constituents of the plants are Bryonin, a bitter principle [4] punicic acid, source of seed oil
[5] non-ionic glucomannon 3 and goniothalamin [6].
Nonsteroidal anti-inflammatory drugs (NSAIDs), steroidal drugs, and immuno-suppressant drugs, which have been used usually in the relief of inflammatory diseases by the people of the world for a long time. However, these drugs were often associated with severe adverse side effects, such as gastrointestinal bleeding and peptic ulcers [7]. Recently, many natural medicines derived from plants, marine organisms were considered as the effective and safer for the treatment of various diseases including inflammation and pain [8].
The Present work is to frame a standard Pharmacognostic parameters for the stems of *Diplocyclos palmatus* Linn. useful in authentification and standardization of the drug, which give the quality and purity of the drug Figure 1.

Material and Method
Plant material
The plant specimens for the proposed study were collected from Chopda Tehsil (Adawad) MS, India in the month of April 2017 care was taken to select healthy plants and for normal organs. The plant was authenticated by Botanical Survey of India (BSI), Pune, Maharashtra, India. A voucher specimen (No. SSS 01) was deposited at B.S.I., Pune, India.

The required samples of different organs were cut and removed from the plant and microscopical character was studied by using motic microscope. The transverse sections of seed was taken and stained with Phloroglucinol: Conc. HCl (1:1) and Sudan red III. Observed under microscope (Motic) & further photo documentation were reported [9, 10, 11].

Physicochemical Parameters
Physicochemical parameter of whole plant of *Diplocyclos palmatus* Linn. were determined such as Total ash, Acid insoluble ash, Water soluble ash, Sulphated ash, moisture content etc [12, 13, 14, 15].

Preliminary Phytochemical Parameters
Preliminary phytochemical test of whole plant of *Diplocyclos palmatus* Linn. were performed and the chemical constituents were detected [16, 17, 18, 19, 20, 21, 22, 23, 24].

HPTLC Profile of bioactive ethyl alcohol extract of whole over ground part of Diplocyclos palmatus
Sample Preparation: 10 mg of ethyl alcohol extract was dissolved in 10 ml ethyl alcohol.
Stationary Phase: Precoated TLC plates of Silica gel G 60 F254 (E. Merck), 5 x 10 cm in size were used as stationary phase.
Mobile Phase: Chloroform: n-Hexane: Toluene: Ethyl acetate: Glacial acetic acid = 8: 26: 2: 1.8: 0.2 (v/v) was used as mobile phase.
Procedure: 100 µl and 50 µl of the sample solution were applied as band length 5 mm to 8 mm from lower edge ofthe plate using 100 µl syringe on CAMAG LINOMATE V automatic sample applicator.
Development: Plate was developed in 20 x 20 cm twin trough (CAMAG) chamber. Developing distance was 8 cm

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SYNTHESIS AND BIOLOGICAL EVALUATION OF NOVEL TRIAZOLYL QUINAZOLIN-4-ONE DERIVATIVES AS ANTICANCER AGENTS

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ABSTRACT
A novel series of triazolylquinazolin-4-one derivatives have been synthesized and characterized by TLC, melting point, FT-IR, 1H NMR and mass spectroscopy data. The synthesized series of title compounds were subjected for docking studies using Schrodinger Glide software, evaluated for their potential to inhibit enzyme EGFR-tyrosine kinase followed by in-vitro anticancer activity by SRB assay method on HeLa, MCF-7, A-549 cell lines. The series of compounds shows anticancer activity probably by inhibiting the enzyme EGFR-tyrosine kinase.

KEYWORDS: Anticancer activity, EGFR, Molecular Docking, SRB assay, Synthesis, Tyrosine Kinase, triazolylQuinazolin-4-ones.

1. INTRODUCTION

Cancer is a disease category in which unregulated cells in the body form, spreading between organ and other body bodies, according to the World Health Organization (WHO). In India as well as internationally, cancer is the leading cause of death. Cancer diagnosis and care remain a significant health concern in low- and middle-income countries. In several cell phases including metabolism, cell proliferation, apoptosis, and survival, tyrosine kinases are essential. Cancer is commonly observed in all ages and gender[1]. Tyrosine kinase's overexpression triggers the development of the tumour [2]. The best approach in designing modern cancer therapies is blocking tyrosine kinases. The main targets for cancer inhibition are EGFR, VEGFR, HER2, PDGFR, mTOR, HGF, FGFR [3]. Quinazolin-4-ones have a range of pharmacological potentials, including antimicrobial, antifungal, anticonvulsant, antifungal, anti-oxidant, alpha glucosidase inhibitor[4-7]. Nitrogen, which comprises five chemicals, is known as anti-microbial, antifungal, antitumor, antiureasis and anti-bacterial [8-11]. [8-11]. In our current study, we have synthesised 9 replacements, TLC, Melting point, FT-IR, 1H NMR and Mass spectral tests for triazolylquinazoline-4-ones. Molecular docking of synthesised compounds with EGFR protein was performed to control molecular interactions. EGFR tyrosin kinase was tested by enzymes, and the title compounds were inhibited. Synthesized compounds anti-cancer operation was also carried out by SRB research procedure on three separate cancer cell lines.

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REVIEW ON PYRIMIDINE ANALOGS AS POTENTIAL ANTIHYPERLIPIDEMIC AGENTS

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ABSTRACT

Hypercholesterolemia is considered as one of the most important risk factors and thereby a primary therapeutic target. Measurement of serum lipid concentration helps in identifcation of the subject with cardio metabolic abnormalities or risk of cardiovascular diseases. Although, the benefits of lowering cholesterol level has been widely known for the prevention of heart diseases. AcetylCoenzyme A: cholesterol acyltransferase (ACAT) and cholesteryl ester transfer protein (CETP) are the new targets which are directly or indirectly involved in hyperlipidemia. The rising tide of obesity, diabetes and hypertension are collectively attributed to our reluctance to exercise and desire for fast food. Cessation of smoking, control of blood pressure and blood levels of glucose, low density lipoprotein cholesterol (LDLC), as well as elevation of high density lipoprotein cholesterol (HDLC) levels remain the most effective long-term options for controlling atherosclerosis. Raised Cholesterol Situation and trends in india and globally is described. A variety of drugs used in the therapy belong to the classes of fibrates, statins, bile acid sequestrants, niacin derivatives, as well as, some newer drugs like ezetimibe, avasimibe, eflucimibe, lapaquinstat acetate, lomitapide mesylate, etc., are available in the present antihyperlipidemic therapy, but still there are problems associated with most of these currently available lipid lowering drugs. Current new drug discovery efforts to develop new molecules for antihyperlipidemic research involve focussing on various new molecular mechanisms of hyperlipidaemia and thereby several attractive molecular targets involved thereof in this process are being exploited. Peroxisome proliferation activated receptors (PPARs) [agonists of PPARs] is one of the most important target identified as antihyperlipidemic agents. This review deals with many new molecules may offer an insight for developing new leads for antihyperlipidemic therapy to budding researchers in this field.

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FORMULATION AND EVALUATION OF SUSTAINED RELEASE MATRIX TAB

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ABSTRACT

The main aim of present work was to formulate and evaluate sustain release matrix tablets of Valsartan, an angiotensin II Receptor type 1 antagonist. Sustain release formulation are those which delivers the drug locally or systemically at a predetermined rate for a fixed period of time. The powder mixtures were subjected to various pre-compression parameters such as angle of repose, bulk density, tapped density and Carr"s index shows satisfactory result and the compressed tablets are evaluated for post-compression parameters such as weight variation, thickness, hardness, friability, drug content, *in-vitro* dissolution and stability studies. *In-vitro* dissolution studies were carried out for 24 hours using 0.1 N HCL for first 2 hours and pH 6.8 phosphate buffer for 24 hours and the result showed that formulations F_4 and F_7 showed good dissolution profile to control the drug release respectively. Formulation containing higher concentration of chitosan and sodium alginate along with polymers sustained the drug release for the period of 24 hours. The compatibility of the drug, polymers and other excipients were determined by FT-IR Spectroscopy. Results showed that the drug was compatible with polymers and other excipients. The release data was fitted to various mathematical models such as Zero-order, First-order, Higuchi equation and Korsmeyer-Peppas model to evaluate the kinetics and the drug release. The stability studies were carried out for 3 months and result indicates that the selected formulations (F_4 and F_7) were stable.

KEY WORDS: Carbopol 934P, Chitosan, sodium alginate, sustain release matrix tablet, Valsartan.

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3.3.1.1 (4) Number of research papers per teachers in the Journals notified on UGC website during the last five years 2019-20

S.N	Title of paper	Name of the author/s	Name of journal
1	BarleriaPrionitis: It's Pharmacognosy, Phytochemicals and Its Potential Beneficial Effects in Common Oro-Dental Diseases	Sufiyan Ahmad, Md. Rageeb Md. Usman,	Current Pharma Research
2	Pharmacognostical And Phytochemical Assessment Of Leaves Of Hibiscus Sabdariffa Linn	Md. Rageeb Md. Usman*1, Bharat V.	International Research Journal of Humanities, Engineering & Pharmaceutical Sciences
3	Development And Validation Of Stability Indicating Rp-Hplc Method Of BisoprololAndAmlodipine In Bulk And Pharmaceutical Dosage Form	Sufiyan Ahmad*,Md. Rageeb Md. Usman*1, Mohammed Imran2,	Indian Journal of Applied Research
4	Analytical Development and validation of UV Spectrophotometric method of Bisoprolol and Amlodipine in bulk and pharmaceutical dosage form	Sufiyan Ahmad, Avinash Khedkar, Mohammed Imran, Md. Rageeb Md.	Journal of Hospital Pharmacy
5	Evaluation and Formulation of Floating Microspheres of Clarithromycin Solid Dispersion	Mr Sandip R Pawar	Our Heritage
6	Evaluation and Formulation of Floating Microspheres of Metronidazole Solid Dispersion	Mr Sandip R Pawar	Our Heritage
7	Evaluation and Formulation of Floating Microspheres of Lansoprazole Solid Dispersion	Mr Sandip R Pawar	Our Heritage
8	Solubility enhancement (Solid dispersions) novel boon to increase Bioavailability	Mr Sandip R Pawar	Journal of Drug delivery and Therapeutics
9	Bhasma: The effective Nano medicine	Mr. Kundan C. Patil. Dr. Gautam P. vadnere, Dr.	Journal of Emerging Technologies and Innovative Research
10	Role of hyaluronic acid based hydrogel in management of wound healing effect	Kiran Baviskar	Advance Pharmaceutical Journal
11	Investigation on antibacterial effect of Eulophiaherbacea against Streptococcus Mutans.	Mr. K.D. Baviskar	Advance Pharmaceutical Journal
12	Design and synthesis of Novel Imidazopyridine analogues and Evalu	R.S. SONAWANE, J.C. HUNDIWALE and A.V. PATIL	Asian Journal of Chemistry
13	Design, synthesis and biological evaluation of novel quinoline analo	K. D. Deo, I. J. Singhvi, S. Murugesan, G. P. Vadnere and A. V. Patil	International Journal of Pharmaceutical Sciences and Research

14	Protective effects of Luteolin on injury induced inflammation throug	Santram Lodhi a , Gautam P. Vadnere a, * , Kiran D. Patil b , Tushar P. Patil b	Journal of traditional & complementary Medicine

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Review Article

Barleria Prionitis: It's Pharmacognosy, Phytochemicals and Its Potential Beneficial Effects in Common Oro-Dental Diseases.

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ABSTRACT
Natural products are a rich source of chemical constituents with wide structural diversity, along with tremendous therapeutic potential. So that the medicine derived from natural sources such as plants, microorganisms, marine, etc. are the endowments of nature for the endurance of life. Barleria prionitis is a famous perennial plant commonly known as porcupine flower or Vajradanti. It is a shrub with yellow flowers and two flat seeds shielded with matted hairs, inhabit most parts of India. Various parts of the plant such as leaves, roots, aerial parts, flowers, and stems are used in the traditional system of medicine. Conventionally, various infusions are prepared using the plant parts and utilized for the treatment of different kinds of diseases. It is one of the vital ingredients of many herbal teeth formulations. From the pharmacological point, the plant has been effectively screened for antibacterial, antifungal, antiviral, anti-inflammatory, antifertility, antioxidant, anticancer, and anticataract activities. Compounds such as tannins, saponins, glycosides, phenolic acids, phytosterols, and terpenes have been identified in the plant. The plant contains some specific compounds such as barlenoside, barlerine, acetylbarlerine, and balarenone and some common secondary metabolites such as lupeol, β-sitosterol, vanillic acid, and syringic acid. This review gives insight into the botany, ethnomedicinal uses, phytochemistry, pharmacological activities, clinical study, quality control, and formulations of Barleria prionitis.

KEYWORDS
Barleria prionitis, Procupine flower, Vajradanti, ethnomedicinal uses, iridoids, phytochemistry, formulations.

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"PHARMACOGNOSTICAL AND PHYTOCHEMICAL ASSESSMENT OF LEAVES OF *HIBISCUS SABDARIFFA* LINN"

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Abstract:

The objective of present studies deals with the macroscopical and microscopical studies of leaves of Hibiscus sabdariffa Linn. Some distinct and different characters were observed with section of young thin leaves. The midrib is flat on the adaxial side and shallowly hemispherical on the abaxial side. The vascular bundle is collateral. The xylem elements are few and phloem elements are as a thin band beneath the xylem on the abaxial part. Palisade mesophyll tissue is present on both abaxial and adaxial sides of the lamina. Physiochemical parameter and Preliminary phytochemical studies of the leaves powder were also carried out. The present study on Pharmacognostical investigation of Hibiscus sabdariffa Linn. leaves might be useful to supplement information in regard to its identification parameters assumed significantly in the way of acceptability of herbal drugs in present scenario lacking regulatory laws to control quality of herbal drugs.

Introduction:

Hibiscus sabdariffa is a medicinal plant that is consumed for its health benefits, juice/concoction prepared from the plant is taken as a preventive/curative measures against diabetes and hypertension.The antihypertensive and other pharmacological properties such as antibacterial, anti-oxidant, nephro- and hepato-protective, renal/diuretic effect, anti-cholesterol, and anti-diabetic effects of Hibiscus sabdariffa have been demonstrated in several studies. Constituents of different plant parts of Hibiscus sabdariffa include phenolic acids, organic acid, flavonoids and anthocyanins which may contribute to the pharmacological effects of the plant.

There is growing market for nutraceutical and functional foods, while study on natural sources of antioxidantsand their potential as nutraceutical and functional foods is on the increase [(1)]. One plant that have attracted much attention over the years for its health benefits is roselle (Hibiscus sabdariffa), many studies on the plant,its numerous preparation and constituents focused on its antioxidant properties. Hibiscus sabdariffa L. (roselle) belongs to the family Malvaceae. It exists as herbs or shrubs, often with fibrous stems[(2)]. The leaves are deeply three- to five-lobed, 8–15 cm long, arranged alternately on the stems.

Vernacular names, in addition to roselle, in English-speaking regions are rozelle, sorrel, red sorrel, and Floridacranberry. In North Africa and the Near East Hibiscus sabdariffa is called karkadé or carcadé [(3)]. Hibiscus sabdariffa is believed to have originated from India and Malaysia. In India, Africa and Mexico, all above- ground parts of the Hibiscus sabdariffa plant are valued in native medicine. Infusions of the leaves or calycesare regarded as diuretic, cholerectic, febrifugal and hypotensive, decreasing the viscosity of the blood and stimulating intestinal peristalsis. The fresh calyx of Hibiscus sabdariffa is eaten raw in salads, is cooked andused as a flavouring in cakes, presently, it is consumed worldwide as a cold beverage and as a hot drink (sour tea)[(4-6)]. The red anthocyanin pigments in the calyces are used as food colouring agents [(7)]. Seeds of Hibiscus sabdariffa are used in oily soups, sauces and coffee substitute [(8-9)]. Root of Hibiscus sabdariffa is

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Corona Virus (Covid-19) Pandemic: A Systematic Review

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Abstract

The recently emerged CORONAVIRUS (COVID-19) is now considered as a pandemic threat worldwide. It is novel class of virus that affects the respiratory tract and leads to difficulty in breathing. The virus originated in bats and was transmitted to humans. It has been known to infect human hosts and cause respiratory diseases. Currently, there is still dearth of information on foremost source of viral transmission along with exact pathogenic mechanism of action. Besides this, the hospital outbreak of super-spreading virus has made a greater concern about global health due to SARS-CoV and MERS-CoV which are highly pahogenic. There have been around 1,519,503 reported cases of coronavirus disease worldwide and 88,549 reported deaths along with 3,30,916 total recovered patients to date (9/4/2020).The disease is transmitted by inhalation of infected droplets .The symptoms are usually fever, sputum production, nasal congestion, pneumonia, sore throat ,breathlessness. Diagnosis of disease is done by routine lab findings, specimen examination using RT - PCR and by using diagnostic kits. Prevention entails regular hand washing, covering mouth and nose and home isolation of suspected cases. Treatment is usually supportive of ayurvedic, herbal medicines and allopathic combinations mostly antiviral drugs. This revelation may exert crucial guidance for understanding the viral infection and measures to prevent and treat infection.

Keywords: COVID -19, Respiratory infection, Pneumonia, SARS-CoV, MERS-CoV.

INTRODUCTION

Coronaviruses are a group of enveloped viruses with nonsegmented, single-stranded, and positive sense RNA genomes. Apart from infecting a variety of economically important vertebrates (such as pigs and chickens), six coronaviruses have been known to infect human hosts and cause respiratory diseases. Among them, severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) are zoonotic and highly pathogenic coronaviruses that have resulted in regional and global outbreaks. According to the International Committee on Taxonomy of Viruses, coronaviruses are classified under the order Nidovirales, family Coronaviridae, subfamily Coronavirinae. Based on early serological and later genomic evidence, Coronavirinae is divided into four genera: Alphacoronavirus, Betacoronavirus, Gammacoronavirus, and Deltacoronavirus[1]

The updated classification scheme of HCoV and other coronaviruses[1]

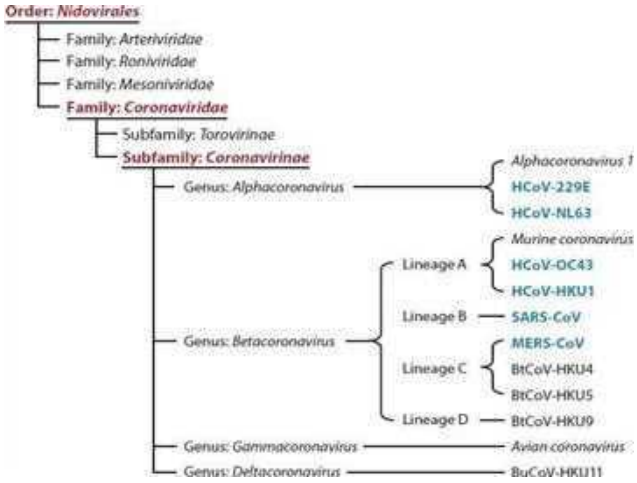

Fig. 1: Taxonomy of HCoVs: the updated classification scheme of HCoV and other coronaviruses

The six known HCoVs are in blue. Abbreviations: BtCoV, bat coronavirus; BuCoV, bulbul coronavirus; HCoV, human coronavirus; MERS-CoV,Middle East respiratory syndrome coronavirus; SARS-CoV, severe acute respiratory syndrome coronavirus.

PAST HISTORY

Human coronaviruses were first discovered in the late 1960s.The earliest ones discovered were an infectious bronchitis virus in chickens and two in human patients with the common cold (later named human coronavirus 229E and human coronavirus OC43).Other members of this family have since been identified, including SARS-CoV in 2003, HCoV NL63 in 2004, HKU1 in 2005,

A newly emerged highly pathogenic beta-coronavirus called Middle East Respiratory Syndrome Coronavirus (MERS-CoV) formerly known as HCoV-EMC (Human Coronavirus Erasmus Medical Center) was recognized as the causal agent of 50% lethality and fatal respiratory disease in humans during 2012.[2] As the first case was detected on June, 2012 in Saudi Arabia and the next was in Qatar where a 49 years old man was infected by the novel coronavirus (MERSCoV) in September 2012 and there was a 99.5% sequence match between the two viruses separated from the patients. The viral transmission from discriminating animal species to human has been evidenced and another study has also demonstrated that the pathogen has spread worldwide largely by human to human infection.[3]Globally, since September 2012, WHO has been alerted about 1,595 laboratory-confirmed cases of infection with MERS-CoV, including at least 571 related decease. Till August 2015, 498 deaths were found among 1165 cases in the Saudi Arabian territory (ECDC 2015).[4,5] SARS-CoV2 (formerly known as 2019-nCoV) was found in 2019. Most of these have involved serious respiratory tract infections.[6]

SOURCES OF INFECTION AND TRANSMISSION ROUTES

Respiratory infections can be transmitted through droplets of different sizes: when the droplet particles are >5-10 μm in diameter they are referred to as respiratory droplets, and

HEB JOHP

Analytical Development and Validation of UV Spectrophotometric Method of Bisoprolol and Amlodipine in Bulk and Pharmaceutical Dosage Form

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ABSTRACT

Objective: In the present work, A Simple, rapid, sensitive, precise and reproducible specific UV spectrophotometric method for the determination of Amlodipine and Bisoprolol Fumarate in bulk drug and pharmaceutical dosage form were developed and validated**. Methods:** A simple double beam UV spectrophotometric method has been developed and validated with different parameters such as linearity, precision, repeatability, limit of detection (LOD), Limit of Quantification (LOQ), accuracy as per ICH guidelines. **Results:** UV-visible spectrophotometric method, measurement of absorption at maximum wavelength in 10 ml methanol and volume make with water solvent system as reference Amlodipine and Bisoprolol Fumarate were found to be at 237nm and 272 nm respectively. The drug obeyed the Beer's law and showed good correlation. Beer's law was obeyed in concentration range 0.5-2.5µg/ml for Amlodipine and 2-10 µg/ml for Bisoprolol respectively with correlation coefficient was 0.999. The LOD and LOQ of Amlodipine was found to be 0.040 µg/ml and 0.01230 µg/ml, Bisoprolol were found to be 0.1230 µg/ml and 0.5460 µg/ml, respectively. Percentage assay of Amlodipine and Bisoprolol Fumarate in tablets was found to be 100-101%. **Conclusion:** The proposed method is simple, precise, accurate and reproducible can be used for routine analysis of Amlodipine and Bisoprolol Fumarate in bulk and tablet dosage form.

Keywords: UV spectrophotometric method, Amlodipine, Bisoprolol Fumarate, Validation.

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Research Article

Development and Evaluation of Oral Fast Disintigreting Tablets of Warfarin Prepared by Wet Granulation Tech

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ABSTRACT

The objective of the present study was to develop Warfarin Oral Fast Disintegrating Tablets by using wet granulation techniques which are simple and cost effective such as use of super disintegrant technology. In this study, Polyplasdon XL and Crospovidone CL were used in the rapid disintegration of the tablets. In this various trials were conducted for the selection of optimum concentrationof super disintegrants. The optimized formula aids in the stabilization of final product. The blend and compressed tablets were evaluated for physical characteristics like bulk density, tapped density, angle of repose, hardness, friability, disintegration time, In- vitro dissolution, content uniformity. From the in vitro disintegration test it was found that in range of 11 to 28 seconds , Optimized F8 has lower disintegration time 11seconds. Based on the dissolution data of all the prepared ODTs, the F8 batch shows 102.6% drug release in 30 minutes. The Stability Study was conducted for the optimized batch F8 & found stable. In conclusion, Oral Fast Disintegrating Tablets of Warfarin prepared using wet granulation seems to be promising formulations.

Keywords: Warfarin, Wet granulation, Disintegration time, Polyplasdon XL, Stability Study.

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INTRODUCTION

Difficulty in swallowing (Dysphasia) is common among all age groups, especially in elderly, and is also seen in swallowing of conventional tablets and capsules[1]. Geriatric and pediatric patients and travelling patients who may not have ready access to water are mostin need of easy swallowing dosage forms[2-5]. 50% of the population suffers from this problem[6].

To overcome these problems, mouth dissolving tablets (MDT) have been developed, which having good hardness, dose uniformity, easy administration and serves as the first choice of dosage form for pediatrics, geriatrics and travelling patients. MDTs are also known as "fast-melting, fast-dissolving, oral disintegrating or disperse[7-10].

Mouth dissolving tablets can define as "A solid dosage form containing medicinal substances, which disintegrates rapidly, usually within a matter of seconds, when placed under the tongue Fast disintegrating drug delivery (FDDTs,)can be achieved by various conventional methods like direct compression, wet granulation, moulding, spray drying, freeze drying, and sublimation. Orodispersible Tablets are also known as mouth disintegrating tablets, melt-in mouth tablets, Orodispersible tablets, porous tablets, quick dissolving tablets, fast dissolving tablets.Mouth Dissolving Tablet has a pleasing mouth feel, and it not required water to swallow. MDT easily dissolved or disintegrates in saliva within a few seconds (15 s to 3 min) without the need of drinking water or chewing, leaves no residue in the mouth when administered and less sensitive to environmental conditions like temperature, humidity[10-13].

MATERIALS AND METHOD

Warfarin was obtained as a gift sample Maxheal Pharmaceuticals, MIDC, Nashik Polyplasdon XL, Crospovidone CL, Avicel PH 102, PVP K30, Avicel PH 102, Orange, Mannitol, Aspartame, Mg. stearate, Colloidal Silicon Dioxide. From Research Lab Fine Chem. Ltd. Mumbai.

METHODS

Formulation of Oral Fast Disintegrating Tablets by Wet Granulation[14-16].

Weighted and sifted Warfarin, Diluents (Mannitol, MCC) and superdisintegrants Crospovidone CL, Polyplasdone XL passed through #40 sieves. Mixed Warfarin and diluents in octagonal blender for 5 minutes. Weighted and Dissolved the binder (PVP K30) into pure water (approximately 25%).Then slowly add above binder solution into the mix powder in Rapid Mixer Granulator. At last allowed to dry the obtained granules into a tray dryer for around 2 hr at 60℃& passed the drying granules through #20 sieve. Weighted and sifted Colloidal Silicon Dioxide, Sweetener, Flavors, and Lubricant through 60# sieve.Mixed all ingredients in poly beg for 5 minutes. Lubricated granules were compressed into tablets using 12mm FFBE (Flat FaceBevel Edge) punch set using an eight station tablet press. Compression was carried out using "B" tooling punches sets.

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Review Article

Colonic Drug Delivery System: A Review

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ABSTRACT

Targeted drug delivery into the colon is highly desirable for local treatment of a variety of bowel diseases such as ulcerative colitis, crohn's disease, amoebiosis, colonic cancer, local treatment of colonic pathologies, and systemic delivery of protein and peptide drugs. To achieve successful colon targeted drug delivery, a drug need to be protect from degradation, release and absorption in upper portion of the GI tract and then to be ensured abrupt or controlled release in proximal colon. This review is focused on the merits and demerits, novel approaches in the colon targeted drug delivery, clinical evaluation techniques and some information on the marketed dosage forms.

Keywords: G.I.T, Colon Drug Delivery System, Colonic.

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INTRODUCTION

Day by day there are new developments in field of colon specific drug delivery system. Colonic drug delivery has gained increased importance not just for the delivery of the drugs for the treatment of local diseases associated with the colon like crohn's disease, etc. but also for the systemic delivery of anti-asthmatic drugs, antihypertensive drugs and anti-diabetic agents. New systems and technologies have been developed for colon targeting and to overcome previous method's limitations. Colon targeting holds a great potential and still need moreinnovative work.

Traditionally solid oral dosage forms have been designed to release their drug load in upper region of G.I.T. where conditions are generally more suited to drug dissolution and absorption[1]. Recently greater emphasis has been placed on controlling the rate and site of drug release from oral formulations for the purpose of patient compliance and treatment efficiency.

The colonic region of G.I.T. is one of that would benefit from the development and such modified release technologies. Although considered by many to be an innocence organ that may simple functions in the form of water and electro light absorption and the formation storage and explosion of fecal material, the colon is valuable to a no of disorders including alternative qualities corn's disease irritable bower syndrome and carcinomas[1,2]. Targeted drug delivery to the colon would therefore ensure direct treatment at the disease site lower closing and favour systemic side effects.

In addition to local therapy, the color can also be utilized as a portal for entry of drug into the systemic circulation. E.g.:- molecules that are degraded parry absorbed in upperget, such as peptides and proteins, may be better absorbedfrom more being environment of colon. In addition, systemic absorption from colon can also be used as a means of achieving chemotherapy for diseases that are sensitive to circadian rhythms such as asthma, angina,orthotics[1,2].

TARGETING MECHANISM OF DRUG ACTING ON COLON

1. Pre-dependent delivery
2. Time-dependent delivery
3. Pressure-dependent delivery
4. Bacteria dependent delivery

Successful colonic drug delivery requires careful considerations of a number of factors, including the properties of drug, the type of delivery system and its interaction with the healthy or diseased gut[1].

1. Pre-dependent Delivery

Pre-sensitive enteric coatings have been used routing to deliver drugs to small intensive. These polymer coatings are insensitive to the acidic conditions of stomach yetdissolve at the higher PH environment of small intestine. This PH differential principle has also been attempted for colonic delivery purposes although polymers used for solenoid targeting and to have a threshold PH for dissolution that is higher than those used in conventional enteric coating application[1,7]. Most commonly co-

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Evaluation and Formulation of Floating Microspheres of Clarithromycin Solid Dispersion

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ABSTRACT

Drug absorption in the preferred amount means, first to achieve the useful plasma degree in an acceptable brief period of time; next, to stay away from an overshoot in the situation of quickly assimilated medications and 3rd to keep highly effective plasma amounts with the sought-after period of time. Even though the intensity of pharmacological outcome is connected to the medication focus in the website of measures, that is in turn, associated to the plasma medication focus, a great circumstance is obtained once the focus is continually maintained between least powerful as well as optimum secure amounts (Therapeutic Index). Invariably, standard medication dosage styles don't conserve the medication. DDS effort to experience medication bloodstream focus during fairly continuous as well as powerful pH levels in the entire body by temporal shipping or spatial positioning. Therefore, CRDDS offer different benefits viz. decrease blood amount variations, reduce medication build-up, use much less complete medication, enhance patient conformity, and also reduce systemic and local side effects.

Keywords: *DDS (Drug Delivery System), Solid Dispersion, Medication.*

1. INTRODUCTION

FLOATING MICROSPHERES

The oral course of drug administration is the central way of administering medicines for systemic consequences. The parental course isn't regularly utilized or perhaps not feasible to self-administration of drugs. The topical course of administration has just been already used to provide prescriptions on the body for systemic consequences. It's likely that more than 90% of all medications utilized to create systemic consequences are administered by the oral course. Whenever a new medication is discovered, one of the primary issues a

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Section Articles

Evaluation and Formulation of Floating Microspheres of Metronidazole Solid Dispersion

Dr. Sandip R Pawar

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Download

Abstract

Solid dispersions are among the best ways to boost medication release of improperly soluble prescriptions. In 1961 Obi along with Sekiguchi had been the very amorphous precipitations in 1a 1crystalline 1carrier, Simple eutectic mixtures along with mixture of the prior 5 kinds.

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Evaluation and Formulation of Floating Microspheres of Lansoprazole Solid Dispersion

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ABSTRACT

Current medical and also patent literature displays increased interest in manufacturing study organizations and academics about the novel dosage types which may be kept in the tummy for a predictable and prolonged time to time. One of the more achievable methods for attaining a predictable and prolonged medication distribution profile in the GI tract is usually to manage the GRT, utilizing GRDDS which provides us with different as well as crucial healing choices. Gastroretentive system is able to stay in the gastric area for many hours and hence greatly extend the gastric residence period of medications. Extended gastric retention betters bioavailability, lowers medication trash, as well as increases solubility of medications which are much less soluble in a very high pH atmosphere. It's uses too for regional drug distribution on the tummy and also proximal little intestines. Gastro retention helps you to provide much better accessibility of goods that are new with innovative healing choices as well as advantages that are sizable for individuals. This paper focuses on the evaluation and formulation of floating microspheres of Lansoprazole solid dispersion.

Keywords: *Floating Microsphere, Drug Administration, Lansoprazole*

1. INTRODUCTION

Floating Microspheres

The oral course of drug administration is the central way of administering medicines for systemic consequences. The parental course isn't regularly utilized or perhaps not feasible to self-administration of drugs. The topical course of administration has just been already used to provide prescriptions on the body for systemic consequences. It's likely that more than 90% of all medications utilized to create systemic consequences are administered by the oral course. Whenever a new medication is discovered, one of the primary issues a pharmaceutical business asks is if the medication could be successfully administered for the

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Open Access Review Article

Solubility enhancement (Solid Dispersions) novel boon to increasebioavailability

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ABSTRACT

The solubility of a solute is the maximum quantity of solute that can dissolve in a certain quantity of solvent or quantity of so lution at a specified temperature. Solubility is one of the important parameter to achieve desired concentration of drug in systemic circulation for pharmacological response to be shown. Solubility is essential for the therapeutic effectiveness of the drug, independent of the route of administration. Low aqueous solubility is the major problem encountered with formulation development of new chemical entities as well as for the generic development. Poorly soluble drugs are often a challenging task for formulators in the industry Conventional approaches for enhancement of solubility have limited applicability, especially when the drugs are poorly soluble simultaneously in aqueous and in non-aqueous media. Drug with poor water solubility cause slow dissolution rates, generally show erratic and incomplete absorption leading to low bioavailability when administered orally. Solubilization may be affected by cosolvent water interaction, micellar solubilization, reduction in particle size, inclusion complexes, solid dispersion, and change in polymorph. Some new technologies are also available to increase the solubility like micro emulsion, self-emulsifying drug delivery system and supercritical fluid technology. This present review details about the different approaches used for the enhancement of the solubility of poorly water-soluble drugs include particle size reduction, nanonization, pH adjustment, solid dispersion, complexation, co-solvency, hydrotropy etc. The purpose of this article is to describe the techniques of solubilization for the attainment of effective absorption and improved bioavailability.

Keywords: *Solubility, Solubility Enhancement, bioavailability, solid dispersion, Solid Dispersion, Solubilization.*

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INTRODUCTION

It has been estimated that nearly 35-40 % of drugs suffer from poor aqueous solubility and it affects the absorption of drug from gastrointestinal tract that leads to high inter and intra subject variability, poor oral bioavailability, increase in dose, reduction in therapeutic efficiency and finally failure in formulation development[2,4]. Various formulation strategies like micronization, solubilization, complexation, dendrimers for drug solubilization, formation of solid solutions/dispersions with hydrophilic carriers, self-micro emulsifying drug delivery systems (SMEDDS). Nano particulate approaches spray drying, pro-drug approaches and salt synthesis had been attempted for solubility enhancement[12]. An attractive possibility would be represented by implementing a simple solid dispersion technique by utilizing several hydrophilic carriers. Such technique impart a means of reducing particle size to a nearly molecular level, presenting a variety of processing and excipients options which allow for flaccidity when formulating oral delivery systems of low water soluble drugs with cost effectiveness and denoting dose reduction. Solubility and dissolution. The solubility behaviour of a drug is a crucial determinant of its oral bioavailability[1]. There have been always certain drugs, for which solubility has conferred a challenge to the development of a suitable formulation for oral administration. With the recent advent of high throughput screening of potential therapeutic agents, the number of poorly soluble drug moieties has increased suddenly and thus the formulation of poorly soluble compounds for oral delivery now presents one of the most frequent and greatest challenges to formulation scientists in the pharmaceutical industry[6]. The free energy (G) is a measure of the energy available to the system to perform work. Its value decreases during a continuously occurring process unless and until an equilibrium position is achieved when no further energy can be made available, i.e., ΔG=0 at equilibrium[2,3,5]. The solution was developed when equilibrium is established between un-dissolved and dissolved solute components in a dissolution process is termed as saturated solution. The amount of substance that

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Bhasma: The Effective Nanomedicine

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Abstract

Nanotechnology is very significant in the area of healthcare, diagnosis of disease, cure and prevention of disease. It is the technology of material dealing with very smalldimension usually in the range of 1-100nm. Nano drug delivery systems can reduce dose of drug and side-effects by lowering the deposition of the active agent in the non targeted sites. Ayurveda is one of the old system of Indian medicine. Various herbs, metals and non-metals preparations are used as medicine in Ayurveda. In the Ayurveda, several metallic preparations called *Bhasma* are in clinical use. A *Bhasma* means an ash obtained through incineration; the starter material undergoes an elaborate process of purification and this process is followed by incorporation of some other minerals or herbal extract. The therapeutic effect of *Bhasma* may be due to small particle size by which they can easily transport into cell nucleus and to specific target sites as desired. There are various importance of *Bhasma* like maintaining optimum alkalinity for optimum health, neutralizing harmful acids, because *Bhasma* do not get metabolized so they don't produce any harmful metabolite, rather it breakdowns heavy metals in the body. Methods for *Bhasma* preparation include parpati, rasayoga, sindora, etc.Standardization of *Bhasma* is necessary to determine its quality, purity safety, effectiveness and acceptability of the product. But the most important challenges faced by these formulations are the lack of complete standardization by physiochemical parameters.

Keywords: Ayurveda, B*hasma*, Herbomineral formulation, nano-particle, shodhna, standardization.

Introduction

In the last 3 decades applications of nonmaterial has widely progressed. Nonmaterial possess very unique features due to their small size, as compared with larger bulk materials, making them suitable for novel applications[1]. Pharmacokinetics and bio-distribution of active ingredients can be improved remarkably with nano drug delivery systems by targeting them to the specified site, thereby efficacy and bio availability can be improved and drug toxicity will be reduced.

Ayurveda is one of the oldest systems of medicine, practiced in Indian sub-continent. At the time of *Charka* and *Sushuruta* medicinal plants were primarily used for the preparation of remedial agents[2]. In 8th century AD the Indian alchemist *Nagarjuna* first introduced the use of metals and minerals like – gold,silver, copper, *and* mercury as medicinal agent. The branch of Ayurveda dealing with herbo-metallic preparation is known as *RasaShastra*[3].

Bhasma

Bhasmas are unique metal based drugs and are suggested with herbal juices or fruits for treating various chronic diseases. A *Bhasma* is ash obtained by incineration. The material undergoes an elaborate process of purification, followed by the reaction phase. In reaction phase some other mineral and herbal extracts are incorporated. Then the material in pellet form is incinerated in a furnace. Animal derivatives such as horns, shells, feathers, metallic and nonmetallic minerals are normally administered as *Bhasma*. The Examples are SwarnaBhasma, Shankha Bhasma, and Tamra Bhasmaetc[4, 5].

Classification of Bhasmas

Bhasmas are generally classified based on the basis of their colour and appearance or based on the dominant metal or mineral group. Usual colour of Bhasma is yellowish black, dark, white, grey, reddish black and red depending upon the drug used[6].

- Metal-based Bhasma
- Mineral-based Bhasma
- Herbal Bhasma.

Importance of Bhasma

Bhasmas are most ancient form of administration having pharmacological activities like analgesic, anti-inflammatory, immune-modulatory, and antioxidant. By the use of nanotechnology bhasmas are made target oriented with increased therapeutic efficacy [8, 9].

The main advantages of Bhasmas are:-

- Potent in smalldose

Original Research Paper

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Pharmacy

D VALIDATION OF STABILITY INDICATING RP-HPLC METHOD OF BISOPROLOL AND AMLODIPINE IN BULK AN

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ABSTRACT The objective of the recent study was to develop a simple, accurate and precise RP-HPLC method with subsequently validate as per ICH guidelines for the determination of Amlodipine (AMLO) and Bisoprolol Fumarate (BISO) using mobile phase (mixture of a Methanol: Water (0.1%OPA) 65:35 v/v) as the solvent. The proposed method involves the measurement of Retention time at analytical wavelength 230 nm was selected. The Retention time of Amlodipine and Bisoprolol Fumarate was found to be 3.49 and 6.52 min respectively. The linearity of the proposed method was investigated in the range of 5 -25 µg/ml for both the drugs Amlodipine and Bisoprolol Fumarate. The method was validated for its linearity, accuracy and precision. Both inter-day and intra-day variation was found to be showing less 2 % RSD.

KEYWORDS : RP-HPLC method, Amlodipine, Bisoprolol Fumarate, Validation.

INTRODUCTION

Pharmaceutical Analysis plays a vital role in quality assurance and quality control of bulk drugs and their formulations. Pharmaceutical analysis is a particular branch of analytical chemistry, which includes isolating, identifying and determining the relative amounts of compounds in a sample matter. It is concerned with chemical characterization of matter both quantitative and qualitative. In recent years many analytical techniques have been developed. Analytical method is a particular utilization of a procedure to solve a problem. Analytical instrumentation assumes an imperative part in the production and evaluation of new products and protection of Consumers and the environment. This instrumentation provides the lower detection limits required to assure safe foods, medications, water and air.

Validation of an analytical method is the process by which it is established, by laboratory studies, that the performance characteristics of the method meet the requirements for the intended analytical applications. There are two important reasons for validating assays in the pharmac[redacted]al industry. The rst, and by for the most important, is that assay validation is an integral part of the quality control system. The second is that current good manufacturing practice regulation requires assay validation.

Bisoprolol Fumarate **Fig. 1** is chemically (RS) -1- {4-[(2 – isopropoxyethoxy) methyl] phenoxy } -3- (isopropyl amino) propan - 2-ol. It is β1 selective 2nd generation drug. B – blocker lacking intrinsic sympathomimetic activity; suitable for once daily administration in angina, hypertension and CHF. It is o[redacted]al in United State Pharmacopoeia. . It is freely soluble in ethanol and methanol. Molecular formula of Bisoprolol Fumarate is (C18H31NO4)2. C4H4O4 and molecular weight is 766.96 g/mol.

Amlodipine **Fig. 2** is chemically a 2-[(2-Aminoethoxy)methyl]-4-(2-chlorophenyl)-1,4-dihydro-6-methyl-3,5-pyridine dicarboxylic acid-3-ethyl 5-methyl ester and it belongs to the class of calcium channel blocker [1-5].

Literature review reveals that several methods such as HPLC, HPTLC, UV Spectrophotometry, UPLC etc [7-20]. Methods have been reported for the individual drugs as well as in combination with others drugs in formulation. But no method was reported for the simultaneous estimation of Cilnidipine and Bisoprolol Fumarate in tablet dosage form by HPLC method. Therefore main objectives of study were to develop simple, accurate and precise method for estimation of Cilnidipine and Bisoprolol Fumarate. Validation of the developed method done in accordance with ICH guidelines [6].

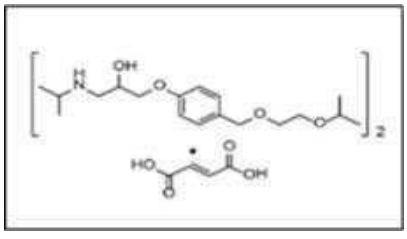

Fig. no.1- Structure of Bisoprolol Fumarate

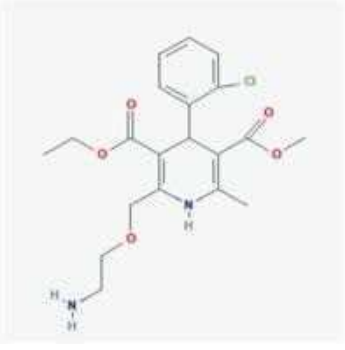

Fig. 2: Structure of Amlodipine

MATERIALSAND METHODS

Materials and Reagents

The analysis of the drug was carried out on Agilent (S. K.) Gradient System UV Detector. Equipped with reverse phase (Grace) C_{18} column (4.6mm x 250mm; 5µm), a SP940D pump, a 20µl injection loop and UV740D Absorbance detector and running Chemstation software. Amlodipine and Bisoprolol Fumarate were procured from R.S.I.T.C Jalgaon. Orthophopsphoric acid (OPA) (Avantor Performance

Research Article

Investigation on antibacterial effect of *Eulophia herbacea* against Streptococcus mutans

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Abstract

Objective: The study was aimed to evaluate *in vitro* antibacterial effect of various extract of *Eulophia herbacea* against Streptococcus mutans, and Lactobacillus. **Materials and methods:** Plant leaves material was collected, washed, dried, coarselygrinded and defatted with petroleum ether and extracted byusing ethanol and water. The both extracts were taken and performed the preliminary phytochemical tests, powder character and antimicrobial activity on Staphylococcus mutans and lactobacillus. Pure strains of test organisms were obtained from Hi media (Mumbai). Using Agar well diffusion method, zone of inhibition of various extract of *Eulophia herbacea* against test organism were performed. All tests were performed in triplicates manner. **Results:** Phytochemical studies of different extracts of *Eulophia herbacea* revealed the presence of carbohydrates, proteins, amino acids, tannins, saponins, flavonoids and alkaloids. The various extracts of *Eulophia herbacea* were showed significant antibacterial efficacy against the oral test microbes. Zone of inhibition showed good efficacy against S. mutans and moderate efficacy against Lactobacillus. Overall non toxic and equally efficacious herbal product can be an interesting alternative to synthetic drug. **Conclusion:** The study reveals that the various extracts of *Eulophia herbacea* can be used as anticariogenic or antiplaque agent.

***Keywords*:** *Eulophia herbacea*, agar well diffusion, Streptococcus mutans, dental caries, antimicrobial

Introduction

In developing countries as well as in India, dental problems due to microbial infections are a very common (Rajalaxami and Lakshami, 2017). In the development of dental caries and periodontal disease bacteria existing in the dental plaque or biofilm play an important role (Marsh, 2006). The biofilm is the main factor that causes dental caries by encourages the aggregation of bacteria on the tooth surface. Dental caries, also known as tooth decay (Saini et al., 2003). Streptococcus mutans is one of the most cariogenic microorganisms that are involved in the development of dental caries and dental plaque in humans. The major source of dental plaque or biofilm is S. mutans which can produce acid and synthesizes water insoluble glucan by the action of glucosyltransferase (GTFase) (Dos Santos et al., 2002; Wiater et al., 1999). Oral cavity pathogens other than Streptococcus mutans include lactobacilli, *Streptococcus salivarius*, Halobacterium sp., Veilonella sp. etc. These bacteria grow and attack the tissues causing gingivitis, characterized by inflamed gums that bleed easily (Ghada et al., 2013). Approximately 60- 65% Indian population suffers from dental caries (Shouri, 1941; Ramchandran et al., 1973). Pathogenic bacteria had developed or increased the resistance to currently used antibiotics and chemotherapeutics. There are many products for the oral cavity such as toothpastes, gums, or mouthwashes that can reduce the risk of tooth decay Numbers of commercially chemical agents are available, such as chlorhexidine, triclosan, or sodium fluoride which is used as antibacterial and antiplaque agents in the oral cavity. Unfortunately, these agents cause oral mucosa irritation and have undesirable side effects such as vomiting, diarrhea, and tooth staining (Park et al., 2003). Hence, there is a need to develop some alternative products against dental caries. Various traditional plants and natural

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Review Article

Role of hyaluronic acid based hydrogel in management of wound healing effect

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Abstract

Hyaluronic acid (HA) is a natural polymer of the body capable of reaching high molecular weights leading to a excess of properties. HA is a high molecular weight biopolysaccharides, it is a natural linear dipolysaccharides consists of β- (1,4)-linked D-glucuronic acid and β-(1,3) N-acetyl-D-glucosamine units. HA is naturally degraded by hyaluronidases, reactive oxygen species, and by endothelial cells of the lymphatic vessels. HA plays an important role in regulating cell differentiation, migration, angiogenesis and inflammation responses. HA has been widely researched and applied in dermatology. It has shown to be effective as dermal fillers, anti-wrinkle agents, and in tissue regeneration. Serving as volumetric fillers, HA can treat superficial depressions thus improving skin quality. Hydrogels have several unique characteristic properties, including their similarity to tissue extracellular matrix (ECM), support for cell proliferation and migration, controlled release of drugs or growth factors, minimal mechanical irritation to surrounding tissue, and nutrient diffusion, that support the viability and proliferation of cells. Since HA is rich in carboxyl and hydroxyl groups, it can form a hydrogel under mild conditions like chemical modification, crosslinking or photo-crosslinking. HA's utilization in wound healing is an extremelyintriguing area of research for the future. Most notably, HA is an effective alternative to mainstay treatment since it is a natural polymer of the body, thus having limited adverse reactions. Hyaluronic acid is a promising candidate for the tissue engineering field because of its unique physicochemical and biological properties. Thus, this review provides compilation of selective studies have been investigated to develop biocompatibility of hyaluronic acid based hydrogel for effective wound healing applications.

Keywords: Hyaluronic acid, hydrogel, wound healing, dermatology, drug delivery

Introduction

Hyaluronic acid (HA) is an unbranched biopolysaccharides having high molecular weight. It is a natural linear dipolysaccharides consists of β-(1,4)-linked D-glucuronic acid and β-(1,3) N-acetyl-D-glucosamine units (Figure 1). It is a polyanionic polymer with unique physicochemical properties and distinctive biological functions. A is presented in the human body specifically in neural and epithelial tissues. Thus, HA was chosen as a good polymer due to its biological, endogenic and natural origin. Recently HA is known for its widespread biomedical applications such as ophthalmic surgery, arthritis treatment, polymeric scaffolds for wound healing, tissue engineering, cartilage repair, and drug delivery, and it has been used also as components for implant or scaffold materials. HA is naturally degraded by hyaluronidases, reactive oxygen species, and by endothelial cells of the lymphatic vessels. Hyaluronidases and reactive oxygen species degrade about 30% of HA while 70% is degraded

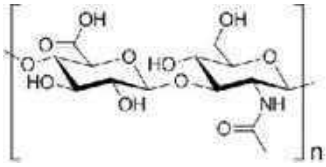

Figure 1. Chemical structure of Hyaluronic acid

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Protective effects of luteolin on injury induced inflammation through reduction of tissue uric acid and pro-inflammatory cytokines in rats

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ABSTRACT

Background and aim: Luteolin belongs to flavone group of flavonoids, present in many plants with potent antioxidant, anti-inflammatory and anti-proliferative effects. The objective of present study was to investigate protective effect of luteolin on injury induced inflammation via Monosodium urate (MSU) crystals induced and Acetaminophen (AMP) induced liver injury in rats.

Experimental procedure: Protective effect of luteolin was observed by measurement of rat paw edema, lysosomal enzymes, antioxidants status and cytokine level. Measurement of uric acid level and neutrophil infiltration were done in AMP induced liver injury in rats. Luteolin was tested at 30 and 50 mg/kg doses and compare with colchicine.

Results and conclusion: Luteolin significantly decreases paw edema in dose dependent manner compare to control group in MSU crystal-induced rats. Luteolin (50 mg/kg) was showed significant decrease in serum level of oxidative and lysosomal enzymes, proinflammatory cytokines i.e. tumor necrosis factor (TNF)-α (39.28 ± 3.17), interleukin (IL)-1β (12.07 ± 1.24), and IL-6 (24.72 ± 2.52) in MSU crystal-induced rats. In AMP induced liver injury, tissue uric acid level and myeloperoxidase were decreased significantly after treatment with luteolin as well as N-acetylcysteine. Serum level of liver enzymes was significantly reduced after treatment with luteolin. Histological observation of ankle joints and liver was support to protective effect of luteolin at both doses. In conclusion, luteolin showed anti -inflammatory effect through restoration of cytokine level, lysosomal enzymes level and antioxidants status. The reduction of liver tissue uric acid content may be one of the mechanisms for protective effect of luteolin. It can contribute to reduce injury induced inflammation.

1. Introduction

In the innate immunity, the role of immune responses to the initiation of any injury inflammation, and infection has prominently increased. In comparison to the acquired immune system, innate responses notch the instant and early phases of host defense against foreign microbes as well as to injury, originating the inflammatory reaction. These developments focus our reflection to be linked between cells of the innate immune system and the prod- ucts of tissue damage and cell death.[1,2] In an in vivo study, as a result of necrotic cell death it produces an acute inflammatory response that resulting further tissue damage and can cause disease condition. This inflammatory response induced by releasing pro-inflammatory intracellular components, such as uric acid.[3]

Gout arthritis is an inflammatory joint disorder which occurs due to increasing amount of uric acid deposited as monosodium urate crystals in the joints leading to an intense inflammatory process and pain. This deposition of uric acid occurs in the body due to poor metabolism of uric acid which leads to the formation of monosodium urate (MSU) crystals.[4] Diabetes, hypertension, obesity, cancer and hyperlipidaemia are the risk factors of arthritis. MSU crystals interact with various immune cells such as macro- phages, neutrophils and synovial cells that induces the secretion of various inflammatory mediators such as tumor necrosis factor alpha (TNF-α), interleukin-1 (IL-1), IL-6, IL-8, and oxygen-derived free radicals, resulting in tissue damage. These cytokines are

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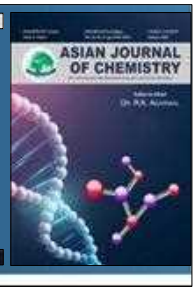

Design and Synthesis of Novel Imidazopyridine Analogues and Evaluation as H^+/K^+-ATPase Antagonist

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CID data base were explored considering AZD0865 as standard and docked in proton pump ATPase pocket (PDB ID: 4ux2) to find out novel imidazopyridine derivatives as proton pump inhibitors. A number of compounds showed good proton pump ATPase inhibitory activity as per the molecular docking study as compared to standard compound AZD0865. The compound AZD0865showed a docking score of -7.11 and revealed the interactions with amino acids Asn 138 and Asp 137. A series of novel imidazopyridine derivatives as proton pump inhibitors were docked, synthesized and characterized by IR, NMR, CHN and MS spectral analysis. The target imidazopyridines were prepared from the intermediate substituted 2-aminonicotinic acid and 2-bromo-1-substituted ethanone. *in vitro* pharmacological studies explained that some compounds exhibited moderate to good proton pump ATPase inhibitory activity in comparison with the reference drugs *i.e*. AZD0865. Compound *N*-(3-(aminomethyl)benzyl)-3-(benzylamino)-2-(*o*-tolyl)imidazo[1,2-*a*]pyridine-8-carboxamide and *N*-(3-(aminomethyl)benzyl)-3-(benzylamino)-2-(4-ethylphenyl)imidazo[1,2-*a*]pyridine-8-carboxamide showed higher activities with the IC_{50} 6.2 and 6.0 µg. Many compounds showed IC_{50} as weak antiulcer activity as compared to positive control AZD0865.

Keywords: Acid Pump Antagonist, Imidazopyridines, Antiulcer activity, Docking study.

INTRODUCTION

The common traits of ulcer is mild to moderate-severe pain just below the breastbone may last for once or a few times dailytypically after eating. Etiology of gastric ulcer and gastroesophagal reflux disease reveals with the erosion of the inner liningof the stomach due to acidic food, stress and infection by bacteria *Helicobacter pylori*. There are some contributory factors for ulcer diseases includes cigarette smoking, chronic consum- ption of ulcerogenic drugs like non- steroidal anti-inflammatory drugs, consumption of alcohol for prolonged periods, age, emotional stress and hereditory [1-4].

Large number of benzimidazole sulfoxide pyridine classes as proton pump inhibitors (PPIs), significantly progressed in this field with the interruption of H^+/K^+-ATPase [5-7]. Extremeacid suppression also leads to achlorohydria and leads to entericinfections like typhoid, cholera and dysentery. Some time drug interplay leads to reduced absorption of some drugs like griseo-fulvin, ketoconazole, vitamin B_{12}, iron salts, *etc*. Unpredictable action shows hypergastrinemia, gastricpolyps and carcinoma[8-10]. The main drawback of recent available proton pump inhibitors (PPIs) requires a long time to achieve almost acid inhibition at therapeutic doses. Primarily may be a chemical structural modification and irreversible inhibition of H^+/K^+- ATPase. Therapy is not reliable to control sustained acid inhi- bition throughout the twenty-four hours even dosing the drug in twice daily. Therefore, many novel strategies are used to solve the unmet needs of PPI therapy.

Acid pump antagonists (APAs) could play a significant role, due to their faster onset and longer duration of action thanirreversible PPIs by their ability to reversibly bind to the proton pump. Many researchers worked to find out novel APAs but currently none is marketed. The imidazopyridine based compounds SCH28080 and AZD0865 (Fig. 1) are the prototype of this class. In comparison to omeprazole, SCH 28080 is a comp-etitive inhibitor of the high affinity luminal K^+ site of the gastric proton pump. In contrast to Na^+/K^+- ATPase, it is highly selective to Na^+/K^+-ATPase activity. Compound SCH 28080 is a proton-


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DESIGN, SYNTHESIS AND BIOLOGICAL EVALUATION OF NOVEL QUINOLINE ANALOGUES AS HIV-1 INTEGRASE INHIBITOR

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Medicinal Chemistry Research Laboratory [3], Department of Pharmacy, Birla Institute of Technology and Science, Pilani Campus, Pilani - 333031, Rajasthan, India.
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Keywords:

Quinoline, Elvitegravir, Docking, HIV-1 integrase, Raltegravir, Syncytium

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ABSTRACT: A progression of fourteen narrative quinolonyl diketo acid analogs were planned, synthesized, identified by IR, NMR, CHN and MS supernatural analysis and evaluated as potential HIV-1 Integrase hinders. Compounds of Zinc database were surfed considering Elvitegravir as standard. Nearly 99 compounds were identified and docked in the active site of HIV-1 integrase. Molecular docking study of compounds 1, 4 and 7 showed docking score -10.38, -9.31 and -10.12 respectively as that of set drug Elvitegravir -4.93. The docking poses to open the interaction of the ligands with preferred amino acids. The standard drug Elvitegravir displayed connections with lys156, Asn155, Lys159 and Thr66. Raltegravir showed hydrogen bonding with Asp 116. A round fourteen target diketoquinolines were chosen for advance synthesis with the help of substituted oxoquinoline-3-carboxylate as starting material. *In-vitro* biological evaluation open that some of the upper-class compounds exhibited moderate to good inhibitory activity besides HIV1 Integrase compared to the reference drugs Raltegravir and Nevirapine. Compounds 1, 2, 3 and 4 weakly inhibited HIV-1 integrase at EC50 of 0.31, 0.25, 0.22 & 0.21 with the therapeutic index 242, 260, 266 and 278 respectively. The cytotoxicity of upper- class compounds on C8166 cells was very low, the CC50 value was higher than 200 µM, except for few compounds. As an optimistic control drug, Nevirapine showed significant anti-HIV-1 activity (EC_{50} = 0.015~0.016 µM) *in-vitro*, and the CC_{50} was higher than 200 µM, with a therapeutic index value of 12418.50. Compound 14 exhibited significant inhibition of HIV-1 syncytium and integrase at EC_{50} 0.25 and 0.12 respectively.

INTRODUCTION: Retrieving the first case of acquired immunodeficiency syndrome (AIDS) of 1981 the Disease Expert Group (DEG) recently put forth the fact about nearly 40 million individuals were infected by HIV/ AIDS.

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The extent of antiretroviral therapy posing the success to change the infection of HIV from a deadly disease to controllable chronic disease significantly for the last three decades. Thus, the endurance in life expectancy has surged amongst folk infected with HIV [1, 2].

Etiology and prevalence of the infection shown to have very rapid development of drug resistance to many existing drug classes and warrant for the discovery of new targets. Among the three major enzymes, *i.e.* HIV-1 protease, HIV-1 reverse transcriptase and HIV-1 integrase [IN]) of the viral

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Protective effects of luteolin on injury induced inflammation through reduction of tissue uric acid and pro-inflammatory cytokines in rats

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In the innate immunity, the role of immune responses to the initiation of any injury inflammation, and infection has prominently increased. In comparison to the acquired immune system, innate responses notch the instant and early phases of host defense against foreign microbes as well as to injury, originating the inflammatory reaction. These developments focus our reflection to be linked between cells of the innate immune system and the prod- ucts of tissue damage and cell death.[1,2] In an in vivo study, as a result of necrotic cell death it produces an acute inflammatory response that resulting further tissue damage and can cause disease condition. This inflammatory response induced by releasing pro-inflammatory intracellular components, such as uric acid.[3]

Gout arthritis is an inflammatory joint disorder which occurs due to increasing amount of uric acid deposited as monosodium urate crystals in the joints leading to an intense inflammatory process and pain. This deposition of uric acid occurs in the body due to poor metabolism of uric acid which leads to the formation of monosodium urate (MSU) crystals.[4] Diabetes, hypertension, obesity, cancer and hyperlipidaemia are the risk factors of arthritis. MSU crystals interact with various immune cells such as macro- phages, neutrophils and synovial cells that induces the secretion of various inflammatory mediators such as tumor necrosis factor alpha (TNF-α), interleukin-1 (IL-1), IL-6, IL-8, and oxygen-derived free radicals, resulting in tissue damage. These cytokines are

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Antimicrobial Activity Of *Anacardium occidentale* On Some Microorganisms Associated With Dental Diseases.

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ABSTRACT

Dental disease has become a major problem in all over the world, and current antibiotics has almost become ineffective for its treatment. Hence there is a need to find alternative ways of treatment for dental disease. *Anacardium occidentale L.* having family Anacarddiaceae is frequently used to treat infections. *Anacardium occidentale* is a medium size tree spreading evergreen, much branched, costal sandy areas. There is different information on the pharmacological activitie of *Anacardium occidentale (*cashew tree) byproducts in various dental disease such as periodontal disease, dental plaque, dental biofilm bacteria etc. The objective of this review is the current knowledge on the phytochemestry and pharmacology of *Anacardium occidentale* is updated with some description of their uses in dental diseases.

Keywords: *Anacardium occidentale,* dental disease, periodontal disease, dental plaque, dental biofilm bacteria etc.

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3.3.1.1. (5) Number of research papers per teachers in the Journals notified on UGC website during the last five years 2018-19

S.N	Title of paper	Name of the author/s	Name of journal
1	Preparation and evaluation of mucoadhesivebuccal tablet for oral infection disease	Surajj Sarode1, S. D. Barhate1, P. R. Patil2, Md.	Journal of Pharmaceutical and BioSciences
2	Contribution of poisonous plants in herbal remedies	Surekha D. Salgar, Md.	Journal of Pharmaceutical and BioSciences
3	Preparation and evaluation of itraconazole liposome using ether injection solvent evaporation method	Virendra Tripathi1*, Md. Rageeb Md. Usman2-3,	International Journal of Pharmacy & Life Sciences
4	Nanosuspensions as a promising approach to enhance bioavailability of poorly soluble drugs : An update	StanekzaiAzimullah *, Vikrant1, Sudhakar CK1,	Journal of Drug Delivery & Therapeutics
5	Development and Evaluation of Disintegration Control Matrix Tablets of Febuxostat By Using 2^3 Factorial Design	Kanke Pralhad*1, Sawant Pankaj1, Md. Rageeb Md. Usman2,Baviskar Kiran3	Asian Journal of Pharmaceutical Research and Development
6	A Review on Disintegration Control Matrix Tablets	Pralhad K. Kanke*1, Pankaj Sawant1, Ajit	Journal of Drug Delivery & Therapeutics
7	Nanoemulsion: A brief review on development and application in Parenteral Drug Delivery	Gautam P. Vadnere, Tushar Hemant Nikam,	Advance Pharmaceutical Journal
8	Design, Synthesis and Pharmacological Evaluation of Novel Imidazo	SONAWANE1, KIRAN	Asian Journal of Chemistry
9	Docking, Synthesis and Biological Evaluation of Novel Diketoquino	SINGHVI1 , S.R. PATIL2	Asian Journal of Chemistry
10	A Review on techniques to improve solubility of poorly soluble drug	S. Salunkhe, Dr. M. J.	World Journal of Pharmacy and Pharmaceutical Sciences
11	Synergistic effect of herbal plants on diabetic rats from Satpuda regi	Kiran D. Patil, V. Vaidhyalingam, K. L. Shentilkumar	Journal of Pharmaceutical Biosciences

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Original Article

Preparation and evaluation of mucoadhesive buccal tablet for oral infection disease

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ABSTRACT

In recent years, significant interest has been shown in the development of novel bioadhesive dosage forms for mucosal delivery of drugs. A drug administered through the buccal mucosa enters directly to the systemic circulation, thereby minimizing the first-pass hepatic metabolism and adverse gastrointestinal effect.The objective of the project was to develop a stable and robust formulation of buccal tablet of the selected antifungal drug miconazole nitrate for the treatment of oral candidiasis. Oral candidiasis is an opportunistic infection of the mouth, highly prevalent in a specific group of patients includingAIDS patients. Without treatment, the lesion may spread to the esophagus, causing invasive esophageal candidiasis, which is categorized as an AIDS-defining illness. Miconazole nitrate has a broad-spectrum of activity against most pathogenic fungi and Gram-positive bacteria.The drug has poor aqueous solubility. It has the potential to be used in the treatment of all forms of both mucosal and systemic candidiasis.The result of the project would provide a process that would provide stable formulation of buccal tablet. In this project, buccal tablet was prepared by direct compression. Among different trials with direct compression, the trial batch showed satisfactory *in vitro* drug release profile as compared to that of innovator for sustained release formulation

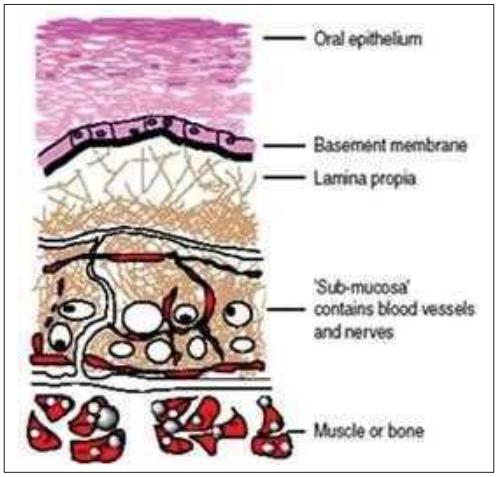
Keywords: Miconazole nitrate, mucoadhesion, mucosal drug delivery, oral candidiasis

Introduction

Buccal drug delivery system

Among the various routes of drug delivery, the peroral has been one of the most convenient and widely accepted routes of delivery for most therapeutic agents. However, peroral administration of drugs has disadvantages, such as hepatic first-pass metabolism and enzymatic degradation within the gastrointestinal tract.These disadvantages may limit or prevent the oral administration of certain classes of drugs, especially peptides and proteins.Transmucosal routes of drug delivery offer distinct advantages over peroral administration for systemic drug delivery. These advantages include possible bypass of first-pass effect and avoidance of presystemic elimination within the gastrointestinal tract (Bruschi *et al*., 2005).The mucosal layer lines a number of regions of the gastrointestinal tract, the airways, the ear, nose, and the eye, and hence, the mucoadhesive drug delivery system includes the following.

1. Buccal delivery system
2. Sublingual delivery system
3. Vaginal delivery system
4. Rectal delivery system
5. Nasal delivery system
6. Ocular delivery system.



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Review Article

Contribution of poisonous plants in herbal remedies

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ABSTRACT

The aim of this study concludes that toxic medicinal plants have some medicinal values. Certain precautions about those plants are enough to use these toxic plants as medication purpose. Since plant toxins show many useful effects, they can be used in treating respective diseases. They can be modified to show better affinity and efficacy. Poisonous, medicinal plants are used for various ailments. This study reveals that wide numbers of phytochemical constituents have been reported from various medicinal plants which possess pharmacological activities, herbal remedies, and other important medicinal properties.This information is the most important for pharmaceutical companies could formulate drug.

Keywords: Toxic medicinal, poisonous medicinal plants, herbs, formulate drug and medicinal properties

Introduction

In India, the use of the different parts of several medicinal plants to cure specific ailments has been in vogue from ancient times. The indigenous system of medicine, namely,Ayurvedic, Siddha, and Unani has been in existence for several centuries. In Siddha medicinal system use of poisonous plants helps to cure some disease. It is important to have an awareness regarding the poisonous plants which when used in the proper, prescribed dose, acts as potent therapeutics agents. According to the World Health Organization, 80% of the population of developing countries depends on plant drugs for a regular source of medicines. Poisonous principles are classified based on the chemistry of toxic compounds present in it: Alkaloids, glycosides, oxalates, photosensitizing compounds, phytotoxins, polypeptides and resins.[1]

There are several species which are poisonous or injurious to human body and can be found in the garden or planted by the forest department as a roadside tree with or without the knowledge about their effects on human body system. Poisoning can be by contact causing skin irritation, ingestion causing internal poisoning and absorption. Some plants which are considered as harmless are actually not so. Many plants are used in some way or the other in medicines especially in homeopathic pharmacology.[2]

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Classification of Poison

According to their mode of action, poisons are broadly classified into three groups; these three broad groups are sub-divided on the basis of their effect on the body, type of composition, etc., which are available in the literature[3-5] and summarized as shown in Figure 1.

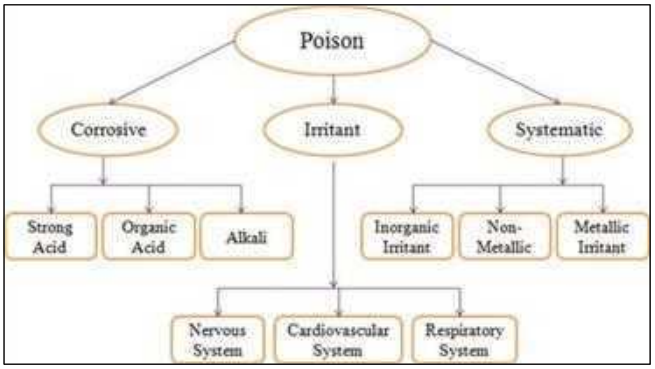

Figure 1: Types of poison in clinical point of view

Classification

Plant toxins are classified based on their structural and chemical properties. They are grouped into alkaloids, glycosides, tannins, proteins, oxalates, enzyme inhibitors, antivitamins, phytoestrogens, volatile etheric layers, and photosensitizing substances.[1,5-8]

- Alkaloids include indole alkaloids, pyrrolizidine alkaloids, tropane alkaloids, opium alkaloids, vicine and covicine alkaloids.

Bhasma: The Effective Nanomedicine

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Abstract

Nanotechnology is very significant in the area of healthcare, diagnosis of disease, cure and prevention of disease. It is the technology of material dealing with very smalldimension usually in the range of 1-100nm. Nano drug delivery systems can reduce dose of drug and side-effects by lowering the deposition of the active agent in the non targeted sites. Ayurveda is one of the old system of Indian medicine. Various herbs, metals and non-metals preparations are used as medicine in Ayurveda. In the Ayurveda, several metallic preparations called *Bhasma* are in clinical use. A *Bhasma* means an ash obtained through incineration; the starter material undergoes an elaborate process of purification and this process is followed by incorporation of some other minerals or herbal extract. The therapeutic effect of *Bhasma* may be due to small particle size by which they can easily transport into cell nucleus and to specific target sites as desired. There are various importance of *Bhasma* like maintaining optimum alkalinity for optimum health, neutralizing harmful acids, because *Bhasma* do not get metabolized so they don't produce any harmful metabolite, rather it breakdowns heavy metals in the body. Methods for *Bhasma* preparation include parpati, rasayoga, sindora, etc.Standardization of *Bhasma* is necessary to determine its quality, purity safety, effectiveness and acceptability of the product. But the most important challenges faced by these formulations are the lack of complete standardization by physiochemical parameters.

Keywords: Ayurveda, B*hasma*, Herbomineral formulation, nano-particle, shodhna, standardization.

Introduction

In the last 3 decades applications of nonmaterial has widely progressed. Nonmaterial possess very unique features due to their small size, as compared with larger bulk materials, making them suitable for novel applications[1]. Pharmacokinetics and bio-distribution of active ingredients can be improved remarkably with nano drug delivery systems by targeting them to the specified site, thereby efficacy and bio availability can be improved and drug toxicity will be reduced.

Ayurveda is one of the oldest systems of medicine, practiced in Indian sub-continent. At the time of *Charka* and *Sushuruta* medicinal plants were primarily used for the preparation of remedial agents[2]. In 8th century AD the Indian alchemist *Nagarjuna* first introduced the use of metals and minerals like – gold,silver, copper, *and* mercury as medicinal agent. The branch of Ayurveda dealing with herbo-metallic preparation is known as *RasaShastra*[3].

Bhasma

Bhasmas are unique metal based drugs and are suggested with herbal juices or fruits for treating various chronic diseases. A *Bhasma* is ash obtained by incineration. The material undergoes an elaborate process of purification, followed by the reaction phase. In reaction phase some other mineral and herbal extracts are incorporated. Then the material in pellet form is incinerated in a furnace. Animal derivatives such as horns, shells, feathers, metallic and nonmetallic minerals are normally administered as *Bhasma*. The Examples are SwarnaBhasma, Shankha Bhasma, and Tamra Bhasmaetc[4, 5].

Classification of Bhasmas

Bhasmas are generally classified based on the basis of their colour and appearance or based on the dominant metal or mineral group. Usual colour of Bhasma is yellowish black, dark, white, grey, reddish black and red depending upon the drug used[6].

- Metal-based Bhasma
- Mineral-based Bhasma
- Herbal Bhasma.

Importance of Bhasma

Bhasmas are most ancient form of administration having pharmacological activities like analgesic, anti-inflammatory, immune-modulatory, and antioxidant. By the use of nanotechnology bhasmas are made target oriented with increased therapeutic efficacy [8, 9].

The main advantages of Bhasmas are:-

- Potent in smalldose

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Tripathi *et al.*, 10(2): Feb., 2019:6091-6097]
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(Int. J. of Pharm. Life Sci.)

Preparation and evaluation of itraconazole liposome using ether injection solvent evaporation method

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Abstract

Itraconazole is an antifungal drug, is a frequently and widely used drug to treat fungally infected skin. The presently available ITZ formu
techniques to determine the drug concentration during various studies were studied out (e.g., drug entrapment, in- vitro characterization
obtained it was concluded that out of four formulations prepared, F3 was optimized formulation.

Key- words: Itraconazole, Fungal infection, liposomes

Introduction

A liposome is a tiny bubble (vesicle), made out of the same material as a cell membrane. Liposomes can be filled with drugs, and used to deliver drugs for cancer and other diseases. Liposomes were first described by British haematologist Dr Alec D Bangham FRS in 1961 (published 1964), at the Babraham Institute, in Cambridge. They were discovered when Bangham and R. W. Horne were testing the institute's new electron microscope by adding negative stain to dry phospholipids. The resemblance to the plasmalemma was obvious, and the microscope pictures served as the first real evidence for the cell membrane being a bilayer lipid structure.[1-2]

Itraconazole [3-4]

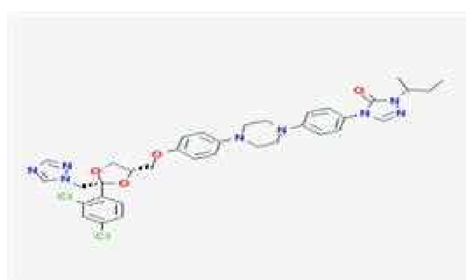
Itraconazole is an antifungal medication used to treat a number of fungal infections. This includes aspergillosis, blastomycosis, coccidioidomycosis, histoplasmosis, and paracoccidioidomycosis. It may be given by mouth or intravenously. Itraconazole is a triazole antifungal agent that inhibits cytochrome P-450-dependent enzymes required for ergosterol synthesis.

* Corresponding Author

Itraconazole is a synthetic agent with antimycotic properties. Formulated for both topical and systemic use, itraconazole preferentially inhibits fungal cytochrome P450 enzymes, resulting in a decrease in fungal ergosterol synthesis. Because of its low toxicity profile, this agent can be used for long-term maintenance treatment of chronic fungal infections.

Chemical formula: $C_{35}H_{38}Cl_2N_8O_4$

IUPAC: 2-butan-2-yl-4-[4-[4-[4-[[(2R,4S)-2-(2,4-dichlorophenyl)-2-(1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-4-yl]methoxy]phenyl]piperazin-1-yl]phenyl]-1,2,4-triazol-3-one



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Open Access Review Article

Nanosuspensions as a promising approach to enhance bioavailability of poorly soluble drugs : An update

Stanekzai Azimullah *, Vikrant[1], Sudhakar CK[1], Kumar Pankaj[1], Patil Akshay[2], Md. Rageeb Md. Usman[2], Mohammed Zuber Shaikh Usman[3], Bharat V. Jain[2]

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ABSTRACT

Solubility is a vital factor for devloping drug delivery systems for poorly water soluble drugs. Several conventional approaches for enhancement of solubility have li

Keywords : *Solubility, fabrication, Characterization, Applications, Nanosuspension.*

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INTRODUCTION

In recent years, more than 40% of the new chemical moities being generated by drug discovery projets are lipophilic in nature or poorly soluble in water. Developing poorly water soluble drug has always been a challenging issue confronted by the pharmaceutical researchers. To tackle this issue, nano sized formulation of these compunds can be implemented to all drug compounds belonging to biopharmaceutical classification system (BCS) classes II and IV to increase their solubility and attaining higher bioavability. Micronization is used for class II drugs of (BCS), i.e. drugs having a good permeability and poor solubility [1,2].

Nanosuspension is a colloidal formulation of very small particles (nanosized) of drug in which stabilized by surface active agents. The termNanosuspension was derived from two words nano and suspension. Nano is related to very small (nano range) and suspension is biphasic dosage form which is the combination of two phases, namely dispersed phase and another one is dispersion medium. Generally, nanosuspensions are mainly used to increase physicochemical properties as well as safety and efficacy of drugs which have low solubility[3].

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DEVELOPMENT AND EVALUATION OF DISINTEGRATION CONTROL MATRIX TABLETS OF FEBUXOSTAT BY USING 2^3 FACTORIAL DESIGN

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ABSTRACT

Disintegration control matrix tablet (DCMT) is a new approach for poorly water soluble drugs which successfully sustain therelease up to 24hrs by controlling the disintegration rate of tablet. DCMT mainly forms the granules containing drug febuxostat and disintegrant sodium alginate which controls the release of febuxostat by controlling the rate of disintegration in wax coating plays an important role. The sustained release of drug is maintained by increasing the wax coating or decreasing the amount of disintegrant.The release of drug from tablet is uniform throughout till all the drug releases from tablet and it is justified by in-vitro dissolution studies.DCMT increases the solubility of drug and improves the bioavailability without disturbing gastrointestinal transit.

Key Words:-DCMT, Wax, Disintegrating agent, Solid dispersion, Febuxostat.

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INTRODUCTION

Disintegration control matrix tablet (DCMT):

DCMT is the novel approach employed for sustaining the drug release and increasing the solubility and bioavailability of drug. The drug release is controlled by the penetration of water in the matrix which is the rate determining step for dissolution of the DCMT. It contains water soluble matrix forming polymer HPMC, disintegrating agent sodium alginate, and carnauba wax which is insoluble or hardly soluble in aqueous body fluids and the release of drug is controlled by means of resistance of coating layer or matrix against the diffusion of drug therein[1,2,4]. Febuxostat is poorly water soluble drug belongs to BCS Class-II which is used in the treatment of gout [3]. Poor solubility of drug is an issue in the formulation so it is firstly prepared with the solid dispersion which helps to enhance the solubility of drug upto some extent, the SD is prepared with HPMC and sodium alginate which after SD coated with carnauba wax, Febuxostat is chemically 2- [3- cyano-4- (2- methlypropoxy) phenyl]- 4- methlythiazole- 5 carboxylic acid. It is a non purine selective inhibitor of xanthine oxidase that is indicated for use in the treatment of hyperuricemia and gout [4-7]

MATERIALS AND METHODS

Materials

Febuxostat is provided as a gift sample by Ajanta Pharma Ltd., Aurangabad. The HPMC and magnesium st is provided by Colorcon, mumbai as gift sample.

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Open Access Review Article

A REVIEW ON DISINTEGRATION CONTROL MATRIX TABLETS

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ABSTRACT

A number of sustained release formulations are available in the market which successfully sustained the drug release over a prolonged period of
Keywords: Disintegration control matrix tablet (DCMT), Wax, Disintegrating agent, Solid dispersion.

Article Info: Received 12 July, 2018; Review Completed 07 Aug 2018; Accepted 10 Aug 2018; Available online 15 Sep 2018

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INTRODUCTION

Disintegration control matrix tablet (DCMT):

DCMT is the novel approach employed for sustaining the drug release and increasing the solubility and bioavailability of drug. The drug release is controlled by the penetration of water in the matrix which is the rate determining step for dissolution of the DCMT. It contains water soluble matrix forming polymer, disintegrating agent, and wax which is insoluble or hardly soluble in aqueous body fluids and the release of drug is controlled by means of said resistance of coating layer or matrix against the diffusion of drug therein. In this preparation, the rate of the release decreases due to the decrease in the concentration gradient and the increase in the distance of diffusion, and therefore the amount of the release is approximately proportional tothe square root of the time. [1, 2]

This system releases the drug from the matrix bydifferent types of the mechanism such as follows

These system release the drug from the matrix bydifferent types of the mechanism such as follows

1. Diffusion controlled: DCMT mainly contains disintegrating agent in various concentrations along with matrix forming polymer which are coated by wax and makes the drug release diffusion control, the coating material used is insoluble or hardly soluble in aqueous body fluids which resist the penetration of water in the tablet and due to the presence of water soluble polymer and disintegrants on the surface of tablet gets swells and diffuses the

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Open Access Review Article

Solubility enhancement (Solid Dispersions) novel boon to increase bioavailability

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ABSTRACT

The solubility of a solute is the maximum quantity of solute that can dissolve in a certain quantity of solvent or quantity of solution at a specified temperature. Solubilit

Keywords: *Solubility, Solubility Enhancement, bioavailability, solid dispersion, Solid Dispersion, Solubilization.*

Article Info: *Received 08 Feb 2019; Review Completed 18 March 2019; Accepted 19 March 2019; Available online 22 March 2019*

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INTRODUCTION

It has been estimated that nearly 35-40 % of drugs suffer from poor aqueous solubility and it affects the absorption of drug from gastrointestinal tract that leads to high inter and intra subject variability, poor oral bioavailability, increase in dose, reduction in therapeutic efficiency and finally failure in formulation development[2,4]. Various formulation strategies like micronization, solubilization, complexation, dendrimers for drug solubilization, formation of solid solutions/dispersions with hydrophilic carriers, self-micro emulsifying drug delivery systems (SMEDDS). Nano particulate approaches spray drying, pro-drug approaches and salt synthesis had been attempted for solubility enhancement[12]. An attractive possibility would be represented by implementing a simple solid dispersion technique by utilizing several hydrophilic carriers. Such technique impart a means of reducing particle size to a nearly molecular level, presenting a variety of processing and excipients options which allow for flaccidity when formulating oral delivery systems of low water soluble drugs with cost effectiveness and denoting dose reduction. Solubility and dissolution. The solubility behaviour of a drug is a crucial determinant of its oral bioavailability[1]. There have been always certain drugs, for which solubility has conferred a challenge to the development of a suitable formulation for oral administration. With the recent advent of high throughput screening of potential therapeutic agents, the number of poorly soluble drug moieties has increased suddenly and thus the formulation of poorly soluble compounds for oral delivery now presents one of the most frequent and greatest challenges to formulation scientists in the pharmaceutical industry[6]. The free energy (G) is a measure of the energy available to the system to perform work. Its value decreases during a continuously occurring process unless and until an equilibrium position is achieved when no further energy can be made available, i.e., ΔG=0 at equilibrium[2,3,5]. The solution was developed when equilibrium is established between un-dissolved and dissolved solute components in a dissolution process is termed as saturated solution. The amount of substance that

Review Article

Nanoemulsion: A brief review on development and application in Parenteral Drug Delivery

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Abstract

An advanced mode of drug delivery system has been developed to overcome the major drawbacks associated with conventional drug delivery systems. This review gives a detailed idea about a nanoemulsion system. Nanoemulsions are nano-sized emulsions, which are manufactured for improving the delivery of active pharmaceutical ingredients. These are the thermodynamically stable isotropic system in which two immiscible liquids are mixed to form a single phase by means of an emulsifying agent, i.e., surfactant and co-surfactant. The droplet size of nanoemulsion falls typically in the range 20–200 nm. Nanoemulsions are biphasic dispersion of two immiscible liquids: either water in oil (W/O) or oil in water (O/W) droplets stabilized by an amphiphilic surfactant. These come across as ultrafine dispersions whose differential drug loading; viscoelastic as well as visual properties can cater to a wide range of functionalities including drug delivery. However there is still relatively narrow in sight regarding development, manufacturing, fabrication and manipulation of nanoemulsions which primarily stems from the fact that conventional aspects of emulsion formation and stabilization only partially apply to nanoemulsions. This general deficiency sets up the premise for current review. We attempt to explore varying intricacies, excipients, manufacturing techniques and their underlying principles, production conditions, structural dynamics, prevalent destabilization mechanisms, and drug delivery applications of nanoemulsions to spike interest of those contemplating a foray in this field.

Keywords: Nanoemulsions, amphiphilic surfactant, water in oil (W/O), oil in water (O/W)

Introduction

Perspective drug delivery systems can be defined as mechanisms to introduce therapeutic agents into the body. Chewing leaves and roots of medical plants and inhalation of soot from the burning of medical substances are examples of drug delivery from the earliest times. However, these primitive approaches of delivering drugs lacked a very basic need in drug delivery; that is, consistency and uniformity (a required drug dose). This led to the development of different drug delivery methods in the later part of the eighteenth and early nineteenth century. Those methods included pills, syrups, capsules, tablets, elixirs, solutions, extracts, emulsions, suspension, cachets, troches, lozenges, nebulizers, and many other traditional delivery mechanisms. Many of these delivery mechanisms use the drugs derived from plant extracts (Paolino and Webster, 2006). As the technological advancements been made some new formulation approaches have been devised by the scientists. Most of the new chemical entities being invented pose the problem of poor solubility. Nanotechnology and nanoscience are widely seen as having a great potential to bring benefits to many areas of research and applications where poor solubility is an issue withAPI.

Nanoemulsions are a colloidal particulate system in the submicron size range acting as carriers of drug molecules.

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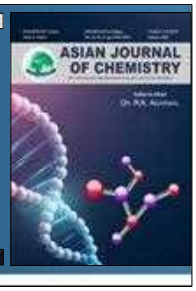

Design, Synthesis and Pharmacological Evaluation of Novel Imidazopyridine Analogues as Proton Pump Antagonist

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A series of novel imidazopyridine derivatives as proton pump inhibitors was designed with compounds of CID data base and explored considering AZD0865 as standard. Many compounds were identified and docked in proton pump ATPase pocket (PDB ID: 4ux2). Molecular docking studies revealed that many compounds showed good proton pump ATPase inhibitory activity. The docking poses revealed the interaction of ligands with amino acid. The standard drug AZD0865 had docking score of -7.112302 and displayed interactions with Asn138 and Asp137. A series of novel imidazopyridine derivatives as proton pump inhibitors were docked, synthesized and characterized by IR, NMR, CHN and MS spectral analysis. The target imidazopyridines were prepared from substituted 2-aminonicotinic acid and 2- bromo-1-substituted ethanone. *in vitro* Studies explained that few compounds exhibited moderate to good proton pump ATPase inhibitory activity in comparison with the reference drugs *i.e*. AZD0865. Compounds **11** and **12** shown higher activities with the IC_{50} 4.3. Compounds **1**, **4**, **6**, **7**, **8**, **10** and **13** showed weak anti-ulcer activity with its IC_{50} 5.2, 5.8, 5.5, 5.1, 4.9, 4.6 and 5.9 and positive control AZD0865 shown IC_{50} 2.0.

Keywords: Imidazopyridine, Proton pump ATPase, Antiulcer, Molecular docking.

INTRODUCTION

Gastric acid secretion is involved in the etiology of ulcerand gastroesophagal reflux disease with the erossion of the inner lining of the stomach. From many years, it is believed thatacidic food, stress and infection by bacteria *Helicobacter pylori* cause ulcers. Other factors associated with recurrence of ulcer diseases includes cigarette smoking, chronic consumption of ulcerogenic drugs like NSAID, consumption of alcohol for prolonged periods, age, emotional stress and family history. The common symptom of ulcer is mild to moderate severe pain just below the breastbone may last for once or a few times daily typically after eating. Other symptoms include heartburnand nausea and vomiting [1-4].

Inhibition of H^+/K^+-ATPase, therefore, blocks the basal and stimulated acid secretion. Many benzimidazole sulfoxide pyridine classes as proton pump inhibitors (PPIs), significantly progressed in this field. Starting from 1974, timoprazole, pico-prazole, omeprazole, pantoprazole, rabeprazole, *etc*. were discovered [5-7]. Extreme acid suppression also shown achloro- hydria and that may produce enteric infections like typhoid, cholera and dysentery. Some time drug interactions leads to decreased absorption of some drugs like griseofulvin, ketoco- nazole, vitamin B_{12}, iron salts, *etc*. Unpredictable action shows hypergastrinemia, gastric polips and carcinoma [8-10].

The currently available PPIs requires long time to achieve maximum acid inhibition at therapeutic doses, primarily dueto their chemical structural modification and irreversibleinhibition of H^+/K^+-ATPase. Therapy failed to control sustainedacid inhibition throughout the day and night, in spite of twicedaily administration. Therefore, many novel strategies are usedto solve the unmet needs of PPI therapy. Acid pump antagonists(APAs) could play a promising role, due to their faster onset and longer duration of action than irreversible PPIs by their ability to reversibly bind to the proton pump. The imidazo- pyridine based compound SCH28080 and AZD0865 (Fig. 1)was the prototype of this class. In comparison to omeprazole,SCH 28080 is a competitive inhibitor of high affinity luminal

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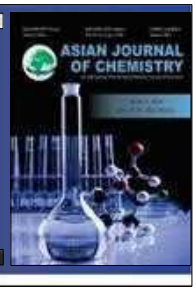

Docking, Synthesis and Biological Evaluation of Novel Diketoquinoline Analogues as HIV-1 Integrase Inhibitor

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A series of novel diketoquinoline acid derivatives as potential anti-HIV-1 Integrase inhibitors were docked, synthesized and characterized by IR, NMR , CHN and MS spectral analysis. Many compounds were identified and docked in integrase pocket. The target diketoquinolines were prepared from substituted oxoquinoline-3-carboxylate. *In vitro* biological evaluation revealed that some of the titled compounds exhibited moderate to good anti-HIV-1 Integrase inhibitory activity in comparison with the reference drugs *i.e.* raltegravir and nevirapine. The cytotoxicity of most of testing compounds on C8166 were very low, the CC_{50} value of them were higher than 200 µM, except the few compounds. Compounds **1-5** showed weak anti-HIV-1 activity, its therapeutic index was 457, 531, 583, 869 and 909 respectively. As a positive control drug, Nevirapine has the best anti-HIV-1 activity (EC_{50} = 0.015-0.016 µM) *in vitro* and the CC_{50} of was higher than 200 µM, its therapeutic index was higher 12418.50. In integrase assay compound **6** and **7** showed EC_{50} value 0.08 µM as compared with standard drug raltegravir.

Keywords: Elvitegravir, Diketoquinoline, Docking, HIV-1 integrase, Raltegravir, Nevirapine, Syncytium.

INTRODUCTION

Integrase (IN) is a key enzyme for HIV-1 replication, catalyzing the integration of reverse transcribed DNA into the hostcell genome. In the past decade, integrase has emerged as an attractive target. Whereas structural studies of integrase reveala single binding site for Mg^{2+}, the number of metal ions presentand required in the active site during the process remains con-troversial. A great number of HIV-1 integrase inhibitors with metal binding properties have been described and numerous reviews have been published [1-4].

Among all reported integrase inhibitors, the β-diketo acid (DKA) class of compounds has emerged as the most potent and the most promising. Raltegravir is the first approved integrase inhibitor whereas Elvitegravir and GSK364735 reached clinical development Fig. 1. Like other well-known DKA inhibitors, these also share two common structuralchemotypes essential for the anti-integrase activity: a diketo acid chain able to interact with Mg^{2+} metal ions and a properly oriented hydrophobic benzyl moiety. They selectively inhibit ST (strand transfer) reaction, suggesting that they bind at the IN/DNA interface, acting as "interfacial inhibitors". Elvite- gravir binds to magnesium cations and inhibits the strand transfer reaction. Designing such drug targeting integrase maygive rise to newer ideal drug to treat AIDS and overcome the side effects of previous compounds and may generate secondgeneration integrase inhibitors [5-7].

The target diketoquinolines were first selected from zinc database and few active compounds with their derivatives were prepared from the carboxylate compounds reacted with substi- tuted piperazine, benzoic acid, 2-phenoxyacetic acid and benzene-1-sulfonyl chloride to form diketoquinoline series. In the present study, structures were docked in integrase pocket. In this context, we synthesized new diketoquinoline derivatives(**1-7**) by the replacement of various substituent's present on elvitegravir. All these compounds were evaluated for their anti-integrase activity.

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A REVIEW ON TECHNIQUES TO IMPROVE SOLUBILITY OF POORLY SOLUBLE DRUGS

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ABSTRACT

Solubility is the phenomenon in which the conversion of solute into solution, and it is very important for the absorption, bioavailability and pharmacological response. About 40% new drug has water solubility, which is difficult to formulate. This review gives details about techniques to improve solubility of poorly water soluble drugs, includes particle size reduction, nanosuspension, self emulsifying drug delivery system, liquisolid compact, solid dispersion etc. The selection of solubility enhancement techniques depends on drug property, site of absorption and required dosage form characteristics.

KEYWORDS: Solubility, bioavailability, solid dispersion, self emulsifying drug delivery system, microemulsion, nanosuspension.

INTRODUCTION

Solubility is the ability of substance that is solute to dissolve in a solvent. It is measured amount of solute dissolved in a solvent at equilibrium. The resulting solution is called as a saturated solution.[1] Therapeutic response of drug depends upon the bioavailability and solubility of drug.[2,3] The solubility property that can be altered by physical and chemical modification of drug molecule. The defination of solubility as per United States Pharmacopoeia given in the Table no - 1.[4]

Research Article

Investigation on antibacterial effect of *Eulophia herbacea* against Streptococcus mutans

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Abstract

Objective: The study was aimed to evaluate *in vitro* antibacterial eff ect of various extract of *Eulophia herbacea* against Streptococcus mutans, and Lactobacillus. **Materials and methods:** Plant leaves material was collected, washed, dried, coarsely grinded and defatted with petroleum ether and extracted by using ethanol and water. The both extracts were taken and performed the preliminary phytochemical tests, powder character and antimicrobial activity on Staphylococcus mutans and lactobacillus. Pure strains of test organisms were obtained from Hi media (Mumbai). Using Agar well diff usion method, zone of inhibition of various extract of *Eulophia herbacea* against test organism were performed. All tests were performed in triplicates manner. **Results:** Phytochemical studies of diff erent extracts of *Eulophia herbacea* revealed the presence of carbohydrates, proteins, amino acids, tannins, saponins, flavonoids and alkaloids. The various extracts of *Eulophia herbacea* were showed significant antibacterial efficacy against theoral test microbes. Zone of inhibition showed good efficacy against S. mutans and moderate efficacy against Lactobacillus. Overall non toxic and equally efficacious herbal product can be an interesting alternative to synthetic drug. **Conclusion:** The study reveals that the various extracts of *Eulophia herbacea* can be used as anticariogenic orantiplaque agent.

***Keywords*:** *Eulophia herbacea*, agar well diff usion, Streptococcus mutans, dental caries, antimicrobial

Introduction

In developing countries as well as in India, dental problems due to microbial infections are a very common (Rajalaxami and Lakshami, 2017). In the development of dental caries and periodontal disease bacteria existing in the dental plaque or biofilm play an important role (Marsh, 2006). The biofilm is the main factor that causes dental caries by encourages the aggregation of bacteria on the tooth surface. Dental caries, also known as tooth decay (Saini et al., 2003). Streptococcus mutans is one of the most cariogenic microorganisms that are involved in the development of dental caries and dental plaque in humans. The major source of dental plaque or biofilm is S. mutans which can produce acid and synthesizes water insoluble glucan by the action of glucosyltransferase (GTFase) (Dos Santos et al., 2002; Wiater et al., 1999). Oral cavity pathogens other than Streptococcus mutans include lactobacilli, *Streptococcus salivarius*, Halobacterium sp., Veilonella sp. etc. These bacteria grow and attack the tissues causing gingivitis, characterized by inflamed gums that bleed easily (Ghada et al., 2013). Approximately 60- 65% Indian population suffers from dental caries (Shouri, 1941; Ramchandran et al., 1973). Pathogenic bacteria had developed or increased the resistance to currently used antibiotics and chemotherapeutics. There are many products for the oral cavity such as toothpastes, gums, or mouthwashes that can reduce the risk of tooth decay Numbers of commercially chemical agents are available, such as chlorhexidine, triclosan, or sodium fluoride which is used as antibacterial and antiplaque agents in the oral cavity. Unfortunately, these agents cause oral mucosa irritation and have undesirable side effects such as vomiting, diarrhea, and tooth staining (Park et al., 2003). Hence, there is a need to develop some alternative products against dental caries. Various traditional plants and natural

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Original Article

Synergistic effect of herbal plants in diabetic rats from Satpuda region

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ABSTRACT

The incidence of diabetes mellitus is reportedly on the rise, especially in the developing countries, and it is estimated that these countries will witness a 69% increase between 2010 and 2030.A high cost of medical care of diabetes is forcing an increasing number of people into the use of herbal alternatives for cure. Till now, so many researchers have evaluated many plants for their antihyperglycemic and antihyperlipidemic activities. However, still, we are lacking to prepare effective ayurvedic dosage form which can complete the allopathic drugs.This difficulty can be overcome using the synergism. Synergism can be defined as the interaction or cooperation of two or more substances to produce a combined effect greater than of their separate effects. Hence, in this present study, we therefore assessed the combinatorial effect of the extracts of fresh fruit of *Lagenaria siceraria* and *Eulophia herbacea* in diabetic rats. The significant reduction of glucose and lipid levels in combinatorial extracts was superior as compared with the respective monotherapies. Finally, the combinatorial effect of extracts proved the hypothesis of the synergistic effect of selected plants.

Keywords: Hyperglycemia, *Lagenaria siceraria*, *Eulophia herbacea*, cholesterol, alloxan Introduction

Introduction

Diabetes mellitus is a group of metabolic diseases characterized by high blood sugar (glucose) levels that result from defects in insulin. Normally, blood glucose levels are tightly controlled by insulin, a hormones produced by the pancreas. Insulin lowers the blood glucose level.When the blood glucose elevates (e.g., after eating food), insulin is released from the pancreas to normalize the glucose level. In patients with diabetes, the absence or insufficient production of insulin causes hyperglycemia.[1] Diabetes is a chronic medical condition, called as silent killer because it is often diagnosed too late on the damage may already have been done. It impacts not only people with the disease but also their families and costing societies heavily in treating many serious complication that arise in undiagnosed or poorly rated diabetes.[2]

The incidence of diabetes mellitus is reportedly on the rise, especially in the developing countries, and it is estimated that these countries will witness a 69% increase between 2010 and 2030.[3] According to the International Diabetes Federation (IDF), diabetes is turning out to be bigger monster than aids. As for the recent statistics released by IDF, every ten seconds, a person dies from diabetes-related causes across the world. Every year 3.8 million people die of this disease, and more than 246 million people ranging from 20 to 79 years live with diabetes.[4] theWorld Health Organization (WHO) estimates that by 2025 as many as 200–300 million people worldwide will develop diabetes.[5] Pathogenesis of diabetes mellitus is managed by insulin and oral administration of hypoglycemic drugs such as sulfonylureas and biguanides.[2] Development of an adverse event is one of the complications in the treatment of any systemic disorder; hence, many of the research institutes and pharmaceutical companies are involved in drug development to find the molecules with good therapeutic potential and less adverse events.[6] Toxicity of oral antidiabetic agents differs widely in clinical manifestations, severity, and treatment. The use of herbal medicines for the treatment of diabetes mellitus has gained importance throughout the world. The WHO also recommended and encouraged this practice, especially in countries, where access to the conventional treatment of diabetes is not adequate. There is an increased demand to use natural products with antidiabetic activity due to the side effects associated with the use of insulin and oral hypoglycemic agents. The available literature showed that there are more than 400 plant species having hypoglycemic activity.[7] Therefore, it is a need of the day to search other materials from natural sources that are less toxic and less expensive and provides better safety and efficacy on long use. Herbal medicines have been used for many

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3.3.1.1 (6) Number of research papers per teachers in the Journals notified on UGC website during the last five years 2017-18

S.N	Title of paper	Name of the author/s	Name of journal
1	MarrubiumVulgare L. : A Review on Phytochemical and Pharmacological Aspect	Santram Lodhi1, Gautam Prakash Vadnere1, Vimal	Journal of Intercultural Ethnopharmacology
2	Phytochemical Investigation and In Vitro Antimicrobial Screening of Santalum Album Seeds Extracts	Gautam P. Vadnere*, RageebUsman,	International Journal of Pharmacy and Pharmaceutical Sciences (IJPPS)
3	Analytical Method Development and Validation for The Simultaneous Estimation of Emtricitabine and Tenofovir by Reversed-Phase High Performance Liquid Chromatography In Bulk and Tablet Dosage Forms	Sufiyan Ahmad*, Md. Rageeb Md. Usman[1]	Asian Journal of Pharmaceutical & Clinical Research
4	Development and Validation of RP- HPLC Method for Simultaneous Estimation of Metformin and Miglitol in Bulk and Dosage Form	Sufiyan Ahmad*; Ansari Sajjad; Md. Rageeb Md.Usman; Mohammed	Asian Journal of Pharmaceutical & Clinical Research
5	Novel RP-HPLC Method Development and Validation of Meloxicam Suppository	Sufiyan Ahmad[1]*, Sharma Deepika[1], Patil Amol[1],	International Journal of Pharmaceutical Education and Research (IJPER)
6	Pharmacognostic and Antioxidant Studies of PyrostegiaVenusta Pres. Stem	Md. Rageeb Md. Usman*	Indo American Journal of Pharmaceutical Sciences (IAJPS)
7	Pesticides: An Overeview	Md. Rageeb Md. Usman* ,Koli Deepak Ramdas,	Journal of Drug Delivery & Therapeutics (JDDT)
8	Hyphenated Techniques of Drug Analysis	Md. Rageeb Md. Usman*, Swapnil R. Badgujar,	Scholars Academic Journal of Pharmacy (SAJP)
9	Niosomes: A Novel Trend of Drug Delivery	Md. Rageeb Md. Usman*,Prasanna R.	European Journal of Biomedical and Pharmaceutical sciences (EJBPS)
10	Effect of Size Reduction and Drying Technology on Granules Production	Md. Rageeb Md. Usman*, Arun S. Mahajan and	World Journal of Pharmacy and Pharmaceutical Sciences (WJPPS)
11	Analytical method development and validation abacavir and lamivudine	Sufiyan Ahmad, Lalit Patil, Md. Rageeb Md.	Pharmacognosy Research (PR)
12	Relevance and Perspectives of Experimental Wound Models in Wound healing Research	Gautam P. Vadnere. Santram Lodhi,	Asian Journal of Pharmaceutical and Clinical Research

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Review Article

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Marrubium vulgare L.: A review on phytochemical and pharmacological aspects

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ABSTRACT

Marrubium vulgare L. (family: Lamiaceae), also known as the white horehound, is widely used as an herbal remedy for chronic coughs and colds. It is used in various disorders related to skin, liver, gastric, heart, and immune system. This review abridges phytochemical, pharmacological studies, and medicinal uses of *M. vulgare* and provides scientific proof for various ethnobotanical claims to identify gaps, which will give impulsion for novel research on *M. vulgare* based herbal medicines. This review summarizes selected scientific evidence on phytochemistry and pharmacological properties of *M. vulgare* over the past 48 years (1968-2016). Works related to *M. vulgare* was reviewed from various sources such as books, internet source, i.e., Google Search engine, PubMed, and Science Direct, and chemical abstract. The exhaustive literature was studied, and critical analysis was performed according to their phytochemical and pharmacological properties. Phytochemical investigations on different parts of *M. vulgare* have been reported the presence of flavonoids, steroids, terpenoids, tannins, saponins, and volatile oils (0.05%). The aerial parts contain marrubiin, together with ursolic acid and choline. Pharmacological activities such as antinociceptive, antispasmodic, antihypertensive, antidiabetic, gastroprotective, anti-inflammatory, antimicrobial, anticancer, antioxidant, and antihepatotoxic activity have been reported. *M. vulgare* has therapeutic potential in the treatment of inflammatory conditions, liver disorders, pain, cardiovascular, gastric, and diabetic conditions. Aerial parts of *M. vulgare* is a good source of labdane type diterpene especially marrubiin which is present in high concentrations. However, further scientific studies are needed to explore clinical efficacy, toxicity and to explore the therapeutic effect of major secondary metabolites such as diterpenes, phenylpropanoid, and phenylethanoid glycosides of *M. vulgare*.

KEY WORDS: Diterpenoids, marrubiin, *Marrubium vulgare*, marrubenol, phenylpropanoid

INTRODUCTION

Natural products originated from plant, animal, and minerals have been the basis of treatment of human disease. Herbal medicines are currently in demand and their popularity is increasing day by day. According to the WHO, about 70-80% of world population uses herbal medicines for their therapeutic effects [1]. Traditional system of medicine is based largely on plants species and animals for primary health care. Herbal medicines have an important value in the developing countries for their medicinal value, sociocultural and spiritual use in rural and tribal [2]. About 50,000-80,000 of flowering plants are uses for medicinal purposes by the peoples worldwide. Different indigenous systems such as Ayurveda, Siddha, Unani, and Allopathy use a number of plant species to treat different ailments [3,4] and becoming more popular due to toxicity and side effects of allopathic medicines. The practices continue today because of its biomedical benefits as well as place in cultural beliefs in many parts of the world and have made a great contribution toward maintaining human health [5].

A clear understanding of the herb's benefits and possible risks, as well as, a clearly defined patient diagnosis are essential for the practitioner to safely and effectively counsel patients as to safe and effective choices in the herb use [6]. In addition, the objective is to separate active constituents of medicinal plants in pure form, that can be possible to clarify its mode of action, and this study is major in phytotherapy. Thus, the subject of phytochemistry demonstrated characterization of number of chemical constituents and establishes their exact chemical formulae [7].

The Lamiaceae is most diverse plant family in terms of ethnomedicine. Due to high volatile content, it has great

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PHYTOCHEMICAL INVESTIGATION AND *INVITRO* ANTIMICROBIAL SCREENING OF *SANTALUM ALBUM* SEEDS EXTRACTS

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ABSTRACT

Objective: Aim of the present study was to perform phytochemical evaluation and antimicrobial screening of petroleum ether and ethanol extracts of *Santalum album* seeds.

Methods: Petroleum ether and ethanol extracts were screened for the presence of chemical constituents. Petroleum ether extract was investigated detail by using chromatographic and spectroscopic methods. *In vitro* antimicrobial activity of both extracts were investigated using disc diffusion method on two gram-positive bacteria, *Bacillus subtilis, Staphylococcus aureus*, gram-negative *Pseudomonas aeruginosa, Escherichia coli* and fungus *Candida albicans.*

Results: Santalbic acid was identified in petroleum ether extract and content determined by HPTLC was

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Research Article

ANALYTICAL METHOD DEVELOPMENT AND VALIDATION FOR THE SIMULTANEOUS ESTIMATION OF EMTRICITABINE AND TENOFOVIR BY REVERSED-PHASE HIGH PERFORMANCE LIQUID CHROMATOGRAPHY IN BULK AND TABLET DOSAGE FORMS

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ABSTRACT

Objective: *A simple rapid, accurate, precise, and reproducible validated reversed-phase high performance liquid chromatography method was developed for the determination of emtricitabine (EMB) and tenofovir (TEN) in bulk and tablet dosage forms.*

Methods: *The quantification was carried out using symmetry Premsil C_{18} (250 mm×4.6 mm, 5 µm) Younglin (S.K.) gradient way using mobile phase comprising of methanol:water (70:30 v/v) pH 3 and a detection wavelength of 273 nm, and injection volume of 20 µL, with a flow rate of 1 ml/minutes.*

Results: *In the developed method, the retention time of EMB and TEN were found to be 3.1667 minutes and 7.5000 minutes. The developed method was validated according to the International Conference on Harmonization (ICH) guidelines.*

Conclusion: *The linearity, precision, range, robustness was within the limits as specified by the ICH guidelines. Hence, the method was found to be simple, accurate, precise, economic, and reproducible. Hence, it is worthwhile that the proposed methods can be successfully utilized for the routine quality control analysis EMB and TEN in bulk drug as well as in formulations.*

Keywords: *Emtricitabine and tenofovir, Method development, Validation, Simultaneous estimation, High performance liquid chromatography.*

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INTRODUCTION

Emtricitabine (EMB) and tenofovir (TEN) are antiretroviral drugs used for the treatment of Human Immune Syndrome [1]. Forstavir - EM is the combination of the two drugs containing 150 mg of EMB and 300 mg of TEN. EMB is chemically 4-Amino-5-fluoro-1-[2-(hydroxyl methyl)-1, 3-oxathiolan-5-yl]-pyrimidin-2-one [2,3]. It is a nucleoside reverse transcriptase inhibitor (Fig. 1). Chemically TEN is 1-(6-aminopurin- 9-yl)-prapan-2-yl-oxymethylphosphonic acid [3,4]. It is a nucleotide analogue reverse transcriptase inhibitor (Fig. 2). Extensive literature survey revealed thatonly liquid chromatography massspectroscopy (LC-MS/MS) and reversed-phase high performance liquid chromatography (RP-HPLC) [5,6] methods for the determination of EMB and TEN in human plasma, RP-HPLC [7] for determination of TEN in plasma, LC/MS/MS for determination of plasma TEN concentrations [8], LC-MS method for determination of plasma TEN concentrations [9], and HPLC with fluorimetric detection for determination of EMB in human plasma [10] have been reported so far. There is no evidence of determination of the drug combination by HPLC. Thus, this study is to develop simple, precise, and accurate HPLC methods for the quantification of EMB and TEN in combined dosage form.

METHODS

Reagents and materials

The analysis of the drug was performed on Youngline (S.K.) gradient system ultraviolet (UV) detector. Equipped with Reverse Phase (premsil) c18 column (4.6 mm×250 mm; 5 µm), a SP930D pump, a 20 µl injection loop and UV730D Absorbance detector and running autochro-3000 software.

EMB and TEN in the form of gift samples were kindly supplied by R. S. I. T. C, Jalgaon. AR grade methanol used for HPLC method and methanol: Water (0.1% orthophosphoric acid [OPA]), prepared in solvent double distilled water was used as solvent throughout the study. A combination of EMB (20 mg) and TEN (30 mg) in tablet formulation was procured from local pharmacy (Travin-EM, Emcure Pvt., Ltd).

Chromatographic conditions

Column C18 (250 mm×4.6 mm); particle size packing 5 µm; detection wavelength 271 nm; flow rate 0.5 ml/minutes; temperature ambient; sample size 20 µl; mobile phase acetonitrile: Water (0.05% OPA with pH 3) (50+50% v/v); run time 10 minutes.

Preparation of standard stock solution

Preparation of standard EMB solution: (Stock I)

From the freshly prepared standard stock solution (1000 µg/ml), 0.1 ml stock solution was pipette out in 10 ml of volumetric flask and volume was made up to 10 ml with mobile phase to get final concentration of 10 µg/ml (Fig. 3).

Preparation of standard TEN solution: (Stock II)

From the freshly prepared standard stock solution (1000 µg/ml), 0.1 ml stock solution was pipette out in 10 ml of volumetric flask and volume was made up to 10 ml with mobile phase to get final concentration 10 µg/ml (Fig. 4).

Preparation of standard EMB and TEN solution: (Stock III)

From the freshly prepared standard stock solution (1000 µg/ml), 0.1 ml stock solution was pipette out in 10 ml of volumetric flask and volume was made up to 10 ml with mobile phase to get final concentration 10 µg/ml. In the standard mixture of EMB and TEN theoretical plates (TP) were found above 2000, i.e., for EMB 4085.3 and TEN 11229.0 at minimum retention time (RT) 3.1667 and 7.500, respectively (Fig. 5 and Table 1).


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Development and Validation of RP- HPLC Method for Simultaneous Estimation of Metformin and Miglitol in Bulk and Dosage Form

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ABSTRACT:

Attempts were made to develop RP-HPLC method for simultaneous estimation of Metformin and Miglitol from tablet. For the RP − HPLC method, Younglin (S.K.) Gradient system UV detector and C_{18} column with 150mm x 4.6 mm i. d. and 5µm particle size Acetonitrile: ph. Buffer (40: 60v/v) pH 3.2was used as the mobile phase for the method. The detection wavelength was 235 nm and flow rate was 0.7 ml/min. In the developed method, the retention time of Metformin and Miglitol sodium were found to be 3.4667 min and 7.4833 min. The developed method was validated according to the ICH guidelines. The linearity, precision, range, robustness was within the limits as specified by the ICH guidelines. Hence the method was found to be simple, accurate, precise, economic and reproducible.

A new, simple, accurate, precise, linear and rapid RP-HPLC method was developed and validated for the simultaneous estimation of Metformin and Miglitol in bulk drugs and formulations a s per ICH guidelines. Hence the method can be used for the routine and stability analysis in various pharmaceutical industries in bulk drugs and formulations.

KEY WORDS: Metformin and Miglitol, Method development, Validation, HPLC.

INTRODUCTION:

Metformin (MET) [Figure 1] is an oral anti- diabetic drug in the biguanide class. It is most widely prescribed anti-diabeticdrug in the world used to treat type 2 diabetes. Metformin helps to control the amount of glucose (sugar) in blood. It decreases the amount of glucose and also increases body's response to insulin, a natural substance that controls the amount of glucose in the blood. It is not used to treat type I diabetes.

It is also used for treatment of gestational diabetes, polycystic ovary syndrome (PCOS) [1]. It works by decreasing hyperglycemia primarily by suppressing glucose production by the liver (hepatic gluconeogenesis). It helps to reduce LDL cholesterol and triglyceride levels, and is not associated with weight gain. MET comes as a liquid, as a tablet, and as an extended- release (long - acting) tablet taken orally. It is used alone or with other medications. Very rare but serious side effectwith Metformin is lactic acidosis. Other than that common side effect are gastrointestinal irritations, including diarrhea, cramps, nausea, vomiting and increased flatulence. Literature survey revealed

The HPLC methods for estimation of metformin in Bulk, human plasma and pharmaceutical dosage forms [2–7]. LC-MS-MS method was reported for the determination of MET in human plasma [8]. Literature survey reveals several analytical and bio- analytical methods for the analysis of MET. These methods reported with Metformin alone or in combination with another drug. These include, HPLC [9-11] and spectrophotometric analysis of MET in tablets [12 -13].

Miglitol (MIG) [Figure 2] belongs to a class of drug called alpha-glucosidase inhibitors used to control blood glucose (sugar) levels in type 2 diabetes (non-insulin dependent diabetes). It is approved by FDA in December 1996. Miglitol inhibits glycoside hydrolase enzymes called alpha-glucosidases thereby slowing the appearance of sugar in the blood after meal. It works by slowing down the absorption of carbohydrates from diet so that blood sugar does not rise as much after meal

Original Article

Novel RP-HPLC Method Development and Validation of Meloxicam Suppository

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ABSTRACT

A simple reversed-phase high-performance liquid chromatographic (RP-HPLC) method has been developed and validated for simultaneous determination of Meloxicam drug (MLX) in pharmaceutical mixture. Effective chromatographic separation achieved using a phenomenex luna C_{18} (4.6 mm, 250 mm, 5 µm) column with isocratic elution by the mobile phase composed of 0.02 M Potassium dihydrogen orthophosphate, pH adjusted to 4 with orthophosphoric acid (filtered): acetonitrile (50:50) respectively. The flow rate is 1.0 ml/min on detecting wavelength 220nm. The proposed HPLC method was statistically validated with respect to linearity, ranges, precision, accuracy, selectivity, LOD, LOQ and robustness. The retention time (RT) of Meloxicam was found to be 6.0 min. respectively. All parameters were found to be within the acceptance limit. The calibration curve was linear in ranges of 3-6, 6-9, and 15-18 mg/ml for Meloxicam. The R^2 of Meloxicam was found to be 0.996 respectively. A novel simple, simple, sensitive, precise, rapid, accurate and economical and reliable RP-HPLC method was developed and validated for the Meloxicam suppository.

INTRODUCTION

Meloxicam is chemically designated as 4-hydroxy- 2- methyl- N-(5 -methyl-2 -thiazolyl)-2H-1,2-benzothiazine-3-carbox-amide-1,1-dioxide [Figure 1] The molecular weight is 351.4 gm/moles. Its empirical formula is $C_{14}H_{13}N_3O_4S_2$. Meloxicam is highly soluble in strong acids and bases. It has pKa values of 1.1 and 4.2.[1-3]

Meloxicam is an NSAID of the oxicam class that acts by inhibiting the prostaglandin synthesis and inducible COX-2, thereby exerting anti-inflammatory, analgesic and antipyretic effects. The molecule is highly plasma protein bound when circulating in the body (95-99%). It has a long plasma half-life, enabling less frequent dosage schemes.[4-7]

The detailed literature survey divulges bio analytical method for the analysis of Meloxicam individually and in various com-binations in biological matrices.[8] and few RP- HPLC methods for the determination of assay of Meloxicam in bulk and in tablet and capsule dosage form .[9-10]

Method validation is an important issue in drug analysis according to conventional regulations such as FDA, EMEA and ICH. The process confirms that the analytical procedure employed for the analysis is suitable for its intended use and to show reliability of the results produced by any method. Therefore method validation is essential in drug analysis.

However, to best of our knowledge, no reported RP-HPLC method have ever been reported in literature for the development and validation of Meloxicam suppository. The aim of present study, the authors report a simple, sensitive, sensitive, precise, rapid, accurate and economical and reliable RP-HPLC method was developed and validated for the Meloxicam suppository.

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PHARMACOGNOSTIC AND ANTIOXIDANT STUDIES OF *PYROSTEGIA VENUSTA* PRES. STEM

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Abstract:

The objective of present studies deals with the Pharmacognostic and antioxidant studies of stems of Pyrostegia venusta Pres. Some dis

Key Words: Pyrostegia venusta Pers., Stems, Pharmacognostical, Physiochemical, Antioxidant, DPPH.

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Open Access Review Article

PESTICIDES: AN OVEREVIEW

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ABSTRACT

Majority of the farmers are unaware of pesticide types, level of poisoning, safety precautions and potential hazards on health and environment. According to the latest estimate, the annual import of pesticides in Nepal is about 211t a.i. with 29.19% insecticides, 61.38% fungicides, 7.43% herbicides and 2% others. The gross sale value accounts US $ 3.05 million per year. Average pesticid es use in Nepal is 142 g a.i./ha, which is very low as compared to other Asian counties. Pesticidal miss use is being a serious concern mainly in the commercial pocket areas of agricultural production, where farmers are suffering from environmental pollution. Incidence of poisoning is also increasing because of intentional, incidental and occupational exposure. Toxic and environmentally persistent chemicals are being used as pesticides. Many studies showed that the chemical pollution of the environment has long-term effects on human life. It is therefore essential that manufacture, use, storage, transport and disposal of chemical pesticides be strictly regulated.

Key words: Environment, Human-health, Misuse, Pesticides, Pesticide-consumption.

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INTRODUCTION[1-4]

Pesticides were employed to protect crops in classical times using, for example, arsenic compounds and sulphur Smith and Secoy (1975). Since these classical times, pesticides have been used to control harmful organisms to crops, animals and humans (e.g. control of mosquitoes carrying malaria using DDT). Pesticides ensure good crop production and protect animals and humans against pests and diseases Pesticides are chemicals that may be used to kill fungus, bacteria, insects, plant diseases, snails, slugs, or weeds among others. These chemicals can work by ingestion or by touch and death may occur immediately or over a long period of time.

Insecticides are a type of pesticide that is used to specifically target and kill insects. Some insecticides include snail bait, ant killer, and wasp killer. Herbicides are used to kill undesirable plants or “weeds”. Some herbicides will kill all the plants they touch, while others are designed to target one species.

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Review Article

Hyphenated Techniques of Drug Analysis

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Abstract: A Hyphenated technique is combination or coupling of two different analytical techniques. Which is used as a separation techniques and an online spectroscopic detection technology? . The remarkable improvements in hyphenated analytical methods over the last two decades have significantly broadened their applications in the analysis of biomaterials, natural products, elemental species, explosives, trace elements, etc. and show specificity and sensitivity. in this article recent advance application about hyphenated techniques and information about analytical techniques, GC-MS,CE-MS, LC-MS, LC-FTIR, LC-NMR, etc. the different areas like forensic science, environment, biotechnology, geography, pharmaceutical etc. are discussed with appropriate examples for various purpose.
Keywords: Hyphenated technique, GC-MS, LC-MS, LC-FTIR, LC-NMR, natural products, separation technique, Chromatographic Techniques, Spectroscopic Techniques.

INTRODUCTION

A couple of decades ago, Hirschfield introduced the term –hyphenation‖ to refer to the on-line combination of a separation technique and one or more spectroscopic detection techniques. This technique, developed from a marriage of a separation technique and a spectroscopic detection technique, is nowadays known as hyphenated technique [1]. Hyphenated separation techniques refer to a combination of two or more techniques to separate chemicals from solutions and detect them. Most often the other technique is some form of chromatography. Hyphenated techniques are widely used in chemistry and biochemistry. A slash is sometimes used instead of hyphen, especially if the name of one of the methods contains a hyphen itself Combinations of the above techniques produce "hybrid" or "hyphenated" techniques. Several examples are in popular use today and new hybrid techniques are under development. For example, gas chromatography-mass spectrometry, LC-MS, GC-IR, LC-NMR, LC-IR, CE-MS, ICP-MS, and so on Hyphenated techniques combine chromatographic and spectral methods to exploit the advantages of both. [2-5]Chromatography produces pure or nearly pure fractions of chemical components in a mixture. Spectroscopy produces selective information for identification using standards or library spectra. [6] (Figure 1).

ANALYTICAL TECHNIQUES {HYPHENATED TECHNIQUES

The coupling of a separation technique and an on-line separation technique leads to the development of hyphenated technique. A hyphenated technique in analytical chemistry is _the marriage of two separate analytical techniques via appropriate interfaces, usually with backup of a computer tying everything together‘. –Hyphenation‖ term was first coined by Hirschfield alt3hough the idea itself began with coupling of GC & MS in the early 1970`s .In recent years, hyphenated techniques have received ever-increasing attention as the principal means to solve complex analytical problems. The power of combining separation technologies with spectroscopic techniques has been demonstrated over the years for both quantitative and qualitative analysis of unknown compounds in complex natural product extracts or fractions. To obtain structural information leading to the identification of the compounds present in a crude sample, liquid chromatography (LC), usually a high-performance liquid chromatography (HPLC), gas chromatography (GC), or capillary electrophoresis (CE) is linked to spectroscopic detection. Fourier-transform infrared (FTIR), photodiode array (PDA) UV-vis absorbance or fluorescence emission, mass spectroscopy (MS), and nuclear magnetic resonance spectroscopy (NMR), are sum of the modern hyphenated techniques. A variety of hyphenated techniques such as LC-MS, GC-MS, LC-NMR, ICP-MS, and CE-MS have been applied in the

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ABSTRACT
Niosome are non-ionic surfactant vesicles obtained on hydration of synthetic nonionic surfactants, with or without incorporation of ch

KEYWORDS: Niosomes, Compositions, Preparation Methods, Factors affecting, Characterizations, Invitro methods and Application

INTRODUCTION

Paul Ehrlich, in 1909, initiated the development for targeted delivery when he envisaged a drug delivery mechanism that would target directly to diseased cell. Drug targeting can be defined as the ability to direct a therapeutic agent specifically to desired site of actionwith little or no interaction with non target tissue[1]. In noisome, the vesicles forming amphiphile is a non-ionic surfactant such as Span-60 which is usually stabilized by addition of cholesterol and small amount of anionic surfactant such as dicetyl phosphate. The first report of non-ionic surfactant vesicles came from the cosmetic applications devised by L'Oreal. The concept of incorporating the drug into noisome for a better targeting of the drug at appropriate tissue destination is widely accepted by researchers and academicians. Various types of drug deliveries can be possible using niosomes like targeting, ophthalmic, topical, parental, etc.

ORIGIN OF NIOSOMES

The first niosome formulations were developed and patented by L'Oreal in 1975. Niosomes were first utilized in drug delivery for anticancer drugs. The developed niosome formulations were capable of altering the pharmacokinetic profile, organ distri-bution and metabolism of methotrexate in mice. Niosomes are versatile in structure, morphology and size; they can entrap hydrophilic drugs in aqueous compartments or lipophilic drugs by partitioning of these molecules into bilayer domain.Furthermore, they can be formulated as unilamellar, oligolamellar or multilamellar vesicle. Niosomes also possess good physical stability, are cost- effective, and are relatively straight forward for routine and large-scale production.

DEFINITIONS

A niosome is a non-ionic surfactant-based liposome. Niosomes are formed mostly by cholesterol incorporation as an excipient. Other excipients can also be used. Niosomes have more penetrating capability than the previous preparations of emulsions. They are structurally similar to liposomes in having a bilayer, however, the materials used to prepare niosomes make them more stable and thus niosomes offer many more advantages over liposomes. [1]The sizes of niosomes are microscopic and lie in nonometric scale. The particle size ranges from 10nm-100nm.[1,2]

STRUCTURE OF NIOSOME

A typical niosome vesicle would consist of a vesicle forming amphiphile i.e. a non-ionic surfactant such as Span-60, which is usually stabilized by the addition of cholesterol and a small amount of anionic surfactant such as dicetyl phosphate, which also helps in stabilizing the vesicle.[3, 4]

[redacted]

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EFFECT OF SIZE REDUCTION AND DRYING TECHNOLOGY ON GRANULES P

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ABSTRAT

Granulation is well known important unit operation in the Production of pharmaceutical solid oral dosage forms. Granulation process must be forwarded to improve from, compressibility of powder characteristic, improve the content uniformity, decreases isolation rate and avoided excessive fines practical. The result will be improve yields, reduction defects, increased productivity and reduce down time. The pharmaceutical Industry has employs several techniques like as direct compression, wet granulation, dry granulation methods for production of granules. The granules typically have a size rang between 0.2 to 0.4 mm bases on subseques several use. The aim of present work is focus on the factors affecting granulation like as size reduction and moisture contents. Also addition Information of drying technology and applicable use of granulation.

KEYWORDS: Granulation, Techniques, factors, Application, Production.

INTRODUCTION[1-4]

Granulation may be defined as a size enlargement process which converts fine or coarse particles. The process in which primary powder particles are made to adhere to form larger, multiparticle that's called granules.

Reasons for granulation[5-7]

1. To prevent segregation of the constituents of the powder mixture.
2. To improve the flow properties of the mixture.
3. Increase the uniformity of drug distribution in the product.
4. Improve appearance of the product.

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ORIGINAL ARTICLE

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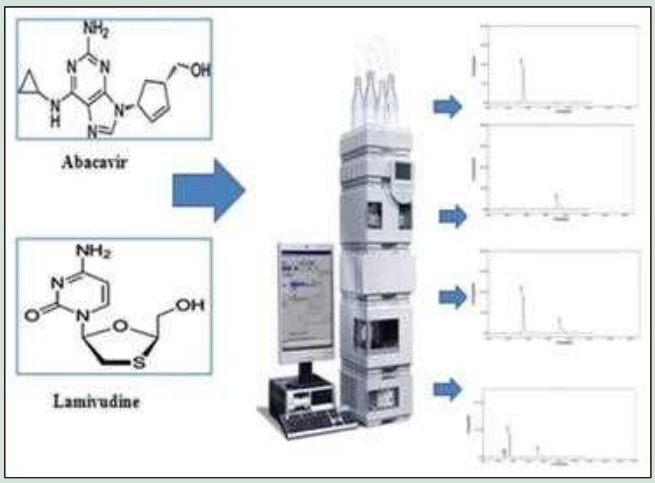
(#'

Objective: A simple rapid, accurate, precise, and reproducible validated reverse phase high performance liquid chromatography (HPLC) method was developed for the determination of Abacavir (ABAC) and Lamivudine (LAMI) in bulk and tablet dosage forms. **Methods:** The quantification was carried out using Symmetry Premsil C18 (250 mm × 4.6 mm, 5 µm) column run in isocratic way using mobile phase comprising methanol: water (0.05% orthophosphoric acid with pH 3) 83:17 v/v and a detection wavelength of 245 nm and injection volume of 20 µl, with a flow rate of 1 ml/min. **Results:** In the developed method, the retention times of ABAC and LAMI were found to be 3.5 min and 7.4 min, respectively. The method was validated in terms of linearity, precision, accuracy, limits of detection, limits of quantitation, and robustness in accordance with the International Conference on Harmonization guidelines. **Conclusion:** The assay of the proposed method was found to be 99% – 101%. The recovery studies were also carried out and mean % recovery was found to be 99% – 101%. The % relative standard deviation from reproducibility was found to be <2%. The proposed method was statistically evaluated and can be applied for routine quality control analysis of ABAC and LAMI in bulk and in tablet dosage form. **Key words:** Abacavir, dosage forms, lamivudine, method development, reverse phase high performance liquid chromatography, validation

- #2

- Attempts were made to develop RP HPLC method for simultaneous es timation of Abacavir and Lamivudine for the RP HPLC method. The devel oped method was validated according to the ICH guidelines. The linearity, precision, range, robustness were within the limits as specified by the ICH guidelines. Hence the method was found to be simple, accurate, precise, economic and reproducible. So the proposed methods can be used for the routine quality control analysis of Abacavir and Lamivudine in bulk drug as well as in formulations.



Abbreviations Used: HPLC: High performance liquid chromatography, UV: Ultraviolet, ICH: International Conference on Harmonization, ABAC: Abacavir, LAMI: Lamivudine, HIV: Human immunodeficiency virus, AIDS: Acquired immunodeficiency syndrome, NRTI: Nucleoside reverse transcriptase inhibitors, ARV: Antiretroviral, RSD: Relative standard deviation, RT: Retention time, SD: Standard deviation.

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Abacavir (ABAC) and lamivudine (LAMI) are synthetic nucleoside analogs that show a potent and synergistic effect on the inhibition of human immunodeficiency virus-1 (HIV-1), the causative agent of acquired immunodeficiency syndrome (AIDS).[1] HIV encodes at least three enzymes: protease, reverse transcriptase, and endonuclease. ABAC and LAMI belong to the class of nucleoside reverse transcriptase inhibitors (NRTIs). New therapeutic strategy of AIDS treatment requires the combination of these antiretroviral (ARV) drugs. The introduction of highly effective combination regimens of ARV drugs has led to substantial improvements in morbidity and mortality. ABAC tablets in combination with other ARV agents in tablet form are indicated for the treatment of HIV-1 infection. ABAC should not be added as a single agent when ARV regimens are changed due to loss of virologic response.

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Review Article

RELEVANCE AND PERSPECTIVES OF EXPERIMENTAL WOUND MODELS IN WOUND HEALING RESEARCH

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ABSTRACT

The wound healing process consists of four highly integrated and overlapping phases: Hemostasis, inflammation, proliferation, and tissue remodeling. These phases and their biophysiological functions must occur in the proper sequence, at a specific time and continue for a specific duration at an optimal intensity. There are many factors that can affect wound healing which interferes with one or more phases in this process, thus causing improper or impaired tissue repair. This review was aimed to collect data and made a critical analysis. This will provide concise information regarding different models and parameters used for wound healing study. The data related to different wound models are collected using popular search engines as well as relevant science search engines and database including Google Scholar, Science Direct, and PubMed. A new drug substance can be evaluated for wound healing activity using different in vitro models such as cell culture, chick chorioallantoic membrane model, tube formation on metrigel and capillary growth model. The in vivo wound models such as incision, excision, dead space, burn wound, ischemic wound, and diabetic wound models are frequently used. Each model has specific importance. The limitations and advantages of each are described in this review. Although animal wound repair is an imperfect reflection of human wound healing and its clinical challenges, these models can be fundamental tools for the development of new approaches to rational wound therapy.

Keywords: *Wound healing, Animal models, Cell culture, Burn, Ischemic wound, Diabetic.*

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INTRODUCTION

Wound can be defined as any process which leads to the disruption of the normal architecture of a tissue. They may be closed or open, e.g. abrasions, lacerations, avulsions, ballistic and excised, or surgical wounds. Open wounds are by for the most common and are characterized by a break in the skin. Wounds may be classified according to the number of skin layer affected. Damage limited to the epithelial tissue along (epidermis) is regarded as superficial wound, which will heal rapidly by regeneration of epithelial cells [1]. A partial thickness wound involves the deeper dermal layer and includes blood vessel damage. A full thickness wound affects the subcutaneous fat layer and beyond. Its healing requires the synthesis of new connective tissue, and it takes the larger time to heal because it contracts whereas partial thickness wound do not [2].

Healing restores the cellular and anatomic continuity of an organism. It minimizes tissue damage, debris nonviable tissue, maximizes tissue perfusion and oxygenation, proper nutrition provides moist wound healing environment. Major events in the wound healing include inflammation, proliferation, and migration of connective tissue cells production of extracellular matrix including collagen synthesis, epithelial cell migration and proliferation leading to re-epithelialization and endothelial cell migration and proliferation leading to neovascularization of the wounded tissue [3]. Healing of a wound can be divided into several stages: The inflammatory phase includes alteration of capillary permeability, transudation, and cellular migration, followed by a proliferative phase which requires a proliferation of fibroblasts, endothelial cells and epithelial cells in the injured area. Finally, there is the remolding phase in which cell production is balanced by cell death, collagen production by degradation and absorption and capillary formation by capillary obliteration. A plethora of cytokines attractant, proteolytic enzymes, fibrin degradation factors, growth factors matrix proteins prostaglandins kinins, autacoids such as histamine, serotonin, and other factors such as oxygen free radicals, nitric oxide, and various trace elements take part in wound healing [4].

To demonstrate a pharmacological effect, nothing can replace observation of animal models, but as they are expensive and often difficult to interpret, simpler tests are used. These tests require less effort and also make possible a better understanding of the mechanisms of action of substances being tested. Non-animal models are becoming smaller and smaller while still remaining representative of a living organism [5]. The advantages of an in vivo model in wound healing research are that the wounded tissue is similar to wound found in clinical practice and in the case of skin wounds, can be made in human subjects. The disadvantages are that direct examination of single tissue components is difficult, and in the case of human skin wounds, only small, clean wounds can be produced, and even this may be an ethical problem [6]. An experimental animal model, therefore, can be defined as a living organism with an intensified, naturally acquired or induced a pathological process that, in one or more respects to closely resembles the same phenomenon in man. This review focus on the different wound models used for evaluation of a drug substance for wound healing activity.

MECHANISM OF WOUND HEALING

Epidermal wound healing

In an epidermal wound, central portion of wound may extend to the dermis while the edge of usually involves only slight damage to superficial epidermal cells. Epidermal wound is an abrasion and also it is a first-degree or second-degree burn. In response to injury, basal epidermal cells in wound area, break their contact with basement membrane and then enlarge migrate as a sheet across the wound until advancing cell from opposite sides of the wound meet. When epidermal cells encounter each other, their continue migration is stopped by contact inhibition. Contact inhibition appears to occur only among like cells (epidermal cells) and stops when it is finally in contact on

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Original Article

PHYTOCHEMICAL INVESTIGATION AND *IN VITRO* ANTIMICROBIAL SCREENING OF *SANTALUM ALBUM* SEEDS EXTRACTS

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ABSTRACT

Objective*: Aim of the present study was to perform phytochemical evaluation and antimicrobial screening of petroleum ether and ethanol extracts of Santalum album seeds.*

Methods*: Petroleum ether and ethanol extracts were screened for the presence of chemical constituents. Petroleum ether extract was investigated detail by using chromatographic and spectroscopic methods. In vitro antimicrobial activity of both extracts were investigated using disc diffusion method on two gram-positive bacteria, Bacillus subtilis, Staphylococcus aureus, gram-negative Pseudomonas aeruginosa, Escherichia coli and fungus Candida albicans.*

Results*: Santalbic acid was identified in petroleum ether extract and content determined by HPTLC was 4.7%w/w. It was seen that petroleum ether extract have MIC value for B. subtilis, P. aeruginosa, E. coli and C. albicans were 78.125 µg/ml, 19.331 µg/ml, 625 µg/ml and 39.062 µg/ml respectively while MBC was 39.062 µg/ml, 4.882 µg/ml, 312.5 µg/mland 9.765 µg/ml, respectively. Petroleum ether extract showed MIC and MBC values for S. aureus was similaras 156.25µg/ml. So, the petroleum ether extract showed significant antimicrobial activity against both grams positive, gram negative and fungal strain.*

Conclusion*: The results of present investigations were indicative of possible high potency of petroleum ether extract due to santalbic acid which could serve as chemotherapeutic agent.*

Keywords*: Santalum album, Antimicrobial, Santalbic acid, HPTLC, Sandalwood*

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INTRODUCTION

Santalum album Linn. (family: Santalaceae) is an evergreen small tree, a partial root parasite, attaining a height of 12 to 13 meters and girth of 1 to 2.4 meters with slender drooping as well as erect branching [1].Historical review reveals that sandalwood has been referred to in Indian mythology, folklore and ancient scriptures. In India, S. album L. is found all over the country, with over 90% of the area in Karnataka and Tamil Nadu [2, 3].Medicinally S. album is useful in biliousness, fever and thirst. Extremely, a paste of S. album is used at scorpion bites, inflamed site and skin eruption. It is commonly used in cosmetic and hair oil. Sandalwood oil relieves itching, pruritus, inflammation of the skin. It is most effective in relieving dehydrated skin so that it making great for anti-ageingskincare. The sandalwood oil is apopular remedy in gonorrhoea, chronic bronchitis, cystitis, gleet, urethral haemorrhage and scabies. S.album L. is bitter, cooling, sedative diuretic, expectorant, stimulant and has astringent actions. It is disinfectant to mucous membrane in genitor-urinary and bronchial tracts. Good for memory and act as blood purifier[2, 3].The essential oil has antibacterial, antifungal action and used in dysuria, urethral discharges and gallbladder diseases. Sandalwood is bacteriostatic against gram-positive bacteria and used as a urinary antiseptic in chronic cystitis and sexually transmitted diseases [4].

The heartwood contains essential oil, dark resin and tannic acid [2]. The essential oilcontains amixture of sesquiterpene alcohols especially α-trans-bergamotol, cis-α-santalol, cis-β-santalol, epi-cis- β-santalol with asmallamount of trans-β-santalol and cis-lanceol [5]. Other chemical constituent'spresents in the heartwood of S. album L. includes hydrocarbons α-santene and β-santene, the alcohols santenol, teresantalol, the aldehydes nortricycloecasantalol and isovaleraldehyde, the ketones santenone, santalone with santalic acids [6]. Other hydrocarbons such as α-santalene, β-santalene, α-bergamotene and epi-β-santalene are also present in the oil as well as α-curcumene, β-curcumene, γ-curcumene, β-bisabolene and α-bisabolol are also reported in heartwood [6]. New antitumor sesquiterpenoid from S. album L. also reported in methanolic extract of heartwood[7].From Indian origin heartwood of S. album, some new bisabolane and santalane type of sesquiterpenoids along with (+) α-nuciferol, (+) citronellol and geraniol were isolated[8].More oil constituents including santalone, 3-dien-1-yl methyl ketone, 4-methylcyclohexa-1, (E)-5-(2, 3-dimethyl-3-nortricyclyl)-pent-3-en- 2-one and 5, 6-dimethyl-5-norbornen-exo-2-olwere identified [9].Indian sandalwood oil also confirmed two new sesquiterpene aldehydes as Cyclosantalal and epicyclosantalal[10]. The heartwood oil of S. albumL. Contains bisabolenals A to E and α-trans- bergamotenol [11].

The seed oil of S. albumis dark red viscid fixed oil containing santalbic acid (or Ximenynic acid) and stearolic acid (9- octadecynoicacid) [12,13]. The seed oil from young and mature trees contains santalic acid, saturated fatty acid, nitrogen, protein, K_2O, CaO, MgO, Fe_2O_3, P_2O_5. A calcium-dependent protein kinase is expressed in sandalwood seeds under developmental regulation, and it is localized with spherical storage organelles in the endosperm [14]. Aim of the present study was to perform phytochemical evaluation and antimicrobial screening of petroleum ether and ethanol extracts of Santalum album seeds to find out the most effective extract.

MATERIALS AND METHODS

Chemicals and reagents

All reagents and chemicals were of analytical grade. Silica gel GF254, was purchased fromMerck Life Science Private Limited, Mumbai, India. Dimethyl sulfoxide and other reagents were purchased from Sigma Chemical Co. (USA). Santalbic acid marker was obtained from the Sami Labs Ltd., Bangalore. All media were used of Hi media Pvt Ltd.

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