3.3

Research Publications and Awards

3.3.1

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

INDEX

BACK TO INDEX

Summary

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

Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's

ASHOKRAO MANE COLLEGE OF PHARMACY

Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra, Affiliated to Shivaji University, Kolhapur

Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112

Web: www.amcoph.org | Phone: 0230-2471360/61 | E mail: copbpharm@gmail.com

Estd. 2006

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

Sr. No	Authors	Title	Journal	Volume: Issue; Page No.	ISSN	Indexing
AY 2021-22						
1	Sachin Patil, A Rakshe, R Jagtap, S Jagtap	Press coated Bioadhesive Pulsatile Tablet of Lisinopril for Chronotherapy of Cardiac Disorders: in-vitro Evaluation	Research Journal of Pharmacy and Technology	2022:15 (7); 3057-3062	0974-360X (Online)0974-3618	2022 Scopus
2	Swati Udugade, , Harshal Tare , Babaso Udugade ,Vijaykumar Wakale and Chetan Pulate	In silico Analysis of 4-((1-(3-Nitrophenyl)-5-oxo-3-phenyl-4,5-dihydro-1H-pyrazol-4-yl)methyl)benzoic Acid: An Emerging 3-CLpro Non-peptidic Inhibitors for COVID-19	Asian Journal of Organic & Medicinal Chemistry	2022: 7(1); 137–142	ISSN (P): 2456-8937	Google Scholar
3	Shubhangi Sutar, Veerendra Yeligar, Prafulla Choudhari and Sachinkumar Patil	Simultaneous Estimation Of Impurities In Melatonin by RP-HPLC Method Coupled With Diode Array Detection	Indian Drugs	2022;59 (2): 52-53	ISSN 0019-462X	2022 Scopus
4	Shubhangi Sutar	A Study on Drug-Induced Diseases (DIDs) and Teratogenicity	Jundishapur Journal of Microbiology	2022 15(1): 7508-16.	e: 2008-4161 | p: 2008-3645.	2022 Scopus
5	Shrirang V Kharmate[1], Akanksha U. Ingawale , Nilam B. Gurav , Rahul K. Jadhav , Meera U. Kamble , Shubhangi B. Sutar	Development and validation of UV spectrophotometric method for determination of chlorpropamide in bulk and formulation	IP International Journal of Comprehensive and Advanced Pharmacology	2022;7 (3):1–4	*2581-5555* ; E-ISSN : 2456-9542	Google Scholar
6	Aniket V. Katkar, Sharyu B. Nagare, Shubhangi B. Sutar, Sachinkumar V. Patil.	Overview of UV Spectroscopy Derivatives.	International Journal of Creative Research Thoughts	2022. 10(9). e145-e147	2320-2882	Google Scholar
7	Shubhangi B Sutar, Radhika L Shinde	A Review on: Multiple Therapeutic Targets on	IJPPR	2022: 237-44	ISSN2449-7203	Google Scholar

BACK TO INDEX

Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's
ASHOKRAO MANE COLLEGE OF PHARMACY
Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112
Web: www.amcoph.org | Phone: 0230-2471360/ 61 | E mail: copbpharm@gmail.com

	(Magdum) , Puja Patil , Sachinkumar V Patil	the Managements of Diabetes Mellitus				
8	Poournima Patil, Sureshkilledar	Improving Gallic Acid and Quercetin Bioavailability by Polymeric Nanoparticle Formulation	Drug delivery and industrial pharmacy	2022 47(10): 1656-1663	1773-2247	2022 Scopus
9	Poournima Patil, Suresh killedar	Design and Optimizationof Nanophytosomes Containing Mucunaprureins Hydroalcoholic Extract for Enhancementof Antidepressant Activity	Journal of Pharmaceuti cal Innovations	2022; 18;310-24	1872-5120	2022 Scopus
10	Ashish A. Misal, Archana.S.Murgund e, Sandeep R. Kane,Trupti P. Lade,Manisha.M.M urgude, Shrinivas .K. Mohite, Vikas R. Dhole ,Pravinkumar D. Lade, Sandip. D Chavan	Herbal Anti-Psoriatic Emulgel	Neuro Quantology	2022; 20(10)	9790-9796	2022 Scopus
11	Deepali. S. Suryavanshi1, Archana.S. Murgunde, Sadeep R. Kane,Trupti P. Lade,Manisha.M.M urgude, Shrinivas .K. Mohite, Vikas R. Dhole, Pravinkumar D. Lade,Sandip. D Chavan	A Study of Preparation, Evaluation and Antimicrobial Screening of Herbal Gel Sanitizer	Neuro Quantology	2022 :20 (18) 600-607	ISSN 1303-5150 (Onli ne)	2022 Scopus
12	Mrs. Archana Patil	Institutional Repositories of Pharmacy colleges affiliated to Savitribai Phule Pune University,Pune: A study	GRADIVA Review Journal	8(3)2022	ISSN No.0363-8057	UGC Care

BACK TO INDEX

Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's
ASHOKRAO MANE COLLEGE OF PHARMACY
Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112
Web: www.amcoph.org | Phone: 0230-2471360/ 61 | E mail: copbpharma@gmail.com

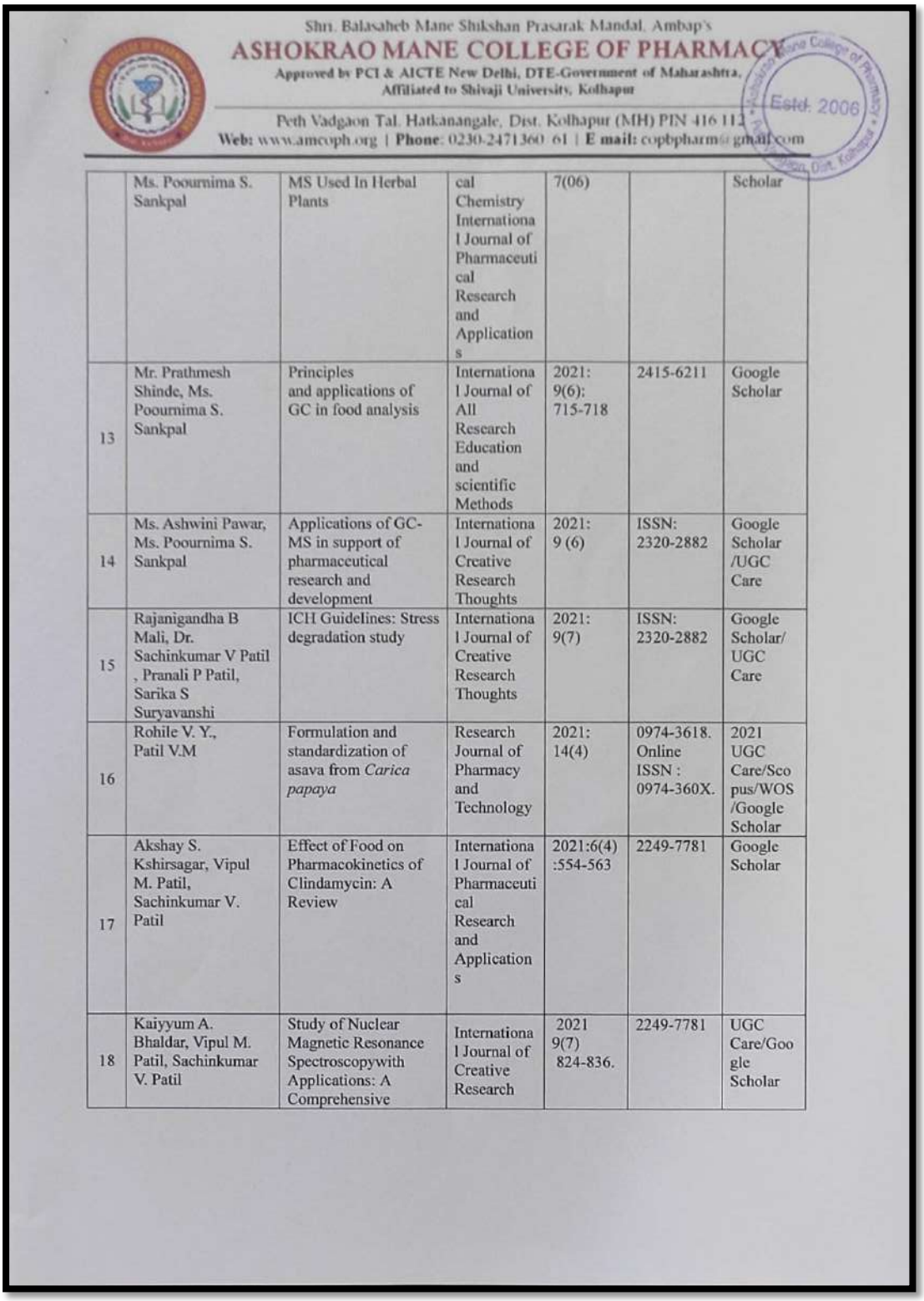
AY 2020-21						
1	Smita T. Kumbhar, Shitalkumar S. Patil, Manish S. Bhatia , Yogesh S. Thorata	A Review on Basics and Applications of Modified Carbohydrates in Drug Delivery	Indian Drugs	202158 (02)7-17	ISSN: 0019-462X (print version)	2021 UGC Care/Scopus/WOS /Google Scholar
2	Smita Tukaram Kumbhar, Shitalkumar Shivgonda Patil & Manish Sudesh Bhatia	In silico design and pharmacological evaluation of conjugates of Atenolol with modified saccharide for cardiovascular targeting	Glycoconjugate Journal	2021 38, 261-271	ISSN 0282-0080 (Print)	2021 UGC Care/Scopus/WOS /Google Scholar
3	Kumbhar, S.T., Patil, S.S. & Bhatia, M.S	Synthesis, Characterization, In Silico Analysis, and Pharmacological Evaluation of Metoprolol-Modified Saccharide Conjugates for Cardiovascular Targeting	Journal Pharm Innovation	2021 17, 921-930	1939-8042 Print ISSN 1872-5120	2021 UGC Care/Scopus/WOS /Google Scholar
04	S.A. Bandgar, N.R Jadhav	In-vivo Pharmacokinetic Study, in-vitro Cytotoxic, Cell Cycle Arresting and Proapoptotic Characteristics of Multiple Emulsions for the Co-delivery of Simvastatin and Alendronate Sodium	Indian Journal of Pharmaceutical Education and Research	55 (3s), S709-S721	0019-5464	2021 UGC Care/Scopus/WOS /Google Scholar
5	Shubhangi Bhaskarrao Sutar1, Veerendra Channabasappa Yeligar, Sachinkumar Vasantrao Patil1	Forced Degradation Studies of Drospirenone: Isolation and Characterization of Degradation Products	Indian Journal of Pharmaceutical Education and	55 (3s), S700-S708 2021	0019-5464	2021 UGC Care/Scopus/WOS /Google Scholar

BACK TO INDEX

Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's
ASHOKRAO MANE COLLEGE OF PHARMACY
Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112
Web: www.amcoph.org | Phone: 0230-2471360 61 | E mail: copbpharm@gmail.com

			Research			
6	Ms. Poournima Patil	Development and characterization of 5-Flurouracil solid lipid nanoparticles for treatment of colorectal cancer	International Journal of Pharmaceutical innovation	2021:17; 1268-81	1872-5120	2021 UGC Care/Scopus
07	SA Bandgar, DT Gaikwad, VV Shah, NR Jadhav	Simvastatin and Alendronate sodium repurposing for cancer as HER2, EGFR kinase and AR potential inhibitors: In silico approach	Annals of the Romanian Society for Cell Biology	19128-19138	2067-8282	2021 Google Scholar/UGC care
08	P V Chavan, S A Bandgar, S M Gejage, S B Patil, S S Patil	Development and validation of UV spectrophotometric method for estimation of Itraconazole in bulk drug and solid dosage form	Asian Journal of Pharmaceutical Research	11 (1), 13-16	2231-5691	2021 Google Scholar
09	S A Bandgar, N R Jadhav, S V Patil	Multiple Emulsions for the Co-delivery of Simvastatin and Alendronate Sodium: Improvement in Pharmacokinetic Profile and Oral Therapeutic Efficacy: Multiple Emulsions	Abstracts of International Conferences & Meetings	1 (4), 6-6	NA	2021 Google Scholar
10	Diptee D. Marchande, Shubhangi B. Sutar , Arati R. Rathod , Neha D. Desai, SachinkumarV. Patil.	A Review on combine study of UV spectroscopic and HPLC methods for simultaneous estimation. 2021;	International Journal of Pharmaceutical Research and Applications	2021:6(3) ; 933-40.	*ISSN-2456-4494*	2021 Google Scholar
11	Santosh S. Ghule, Shubhangi B. Sutar and Sachinkumar V. Patil	Review on Phytochemical Constituents and Phytopharmacological Activities of Senna Auriculata Linn.	International Journal of Modern Pharmaceutical Research	2021: 5(4); 1-4	*ISSN-2319-*	2021 Google Scholar
12	Ms. Komal Pawar,	Applications of GC-	Pharmaceuti	2021:	2249-778	Google

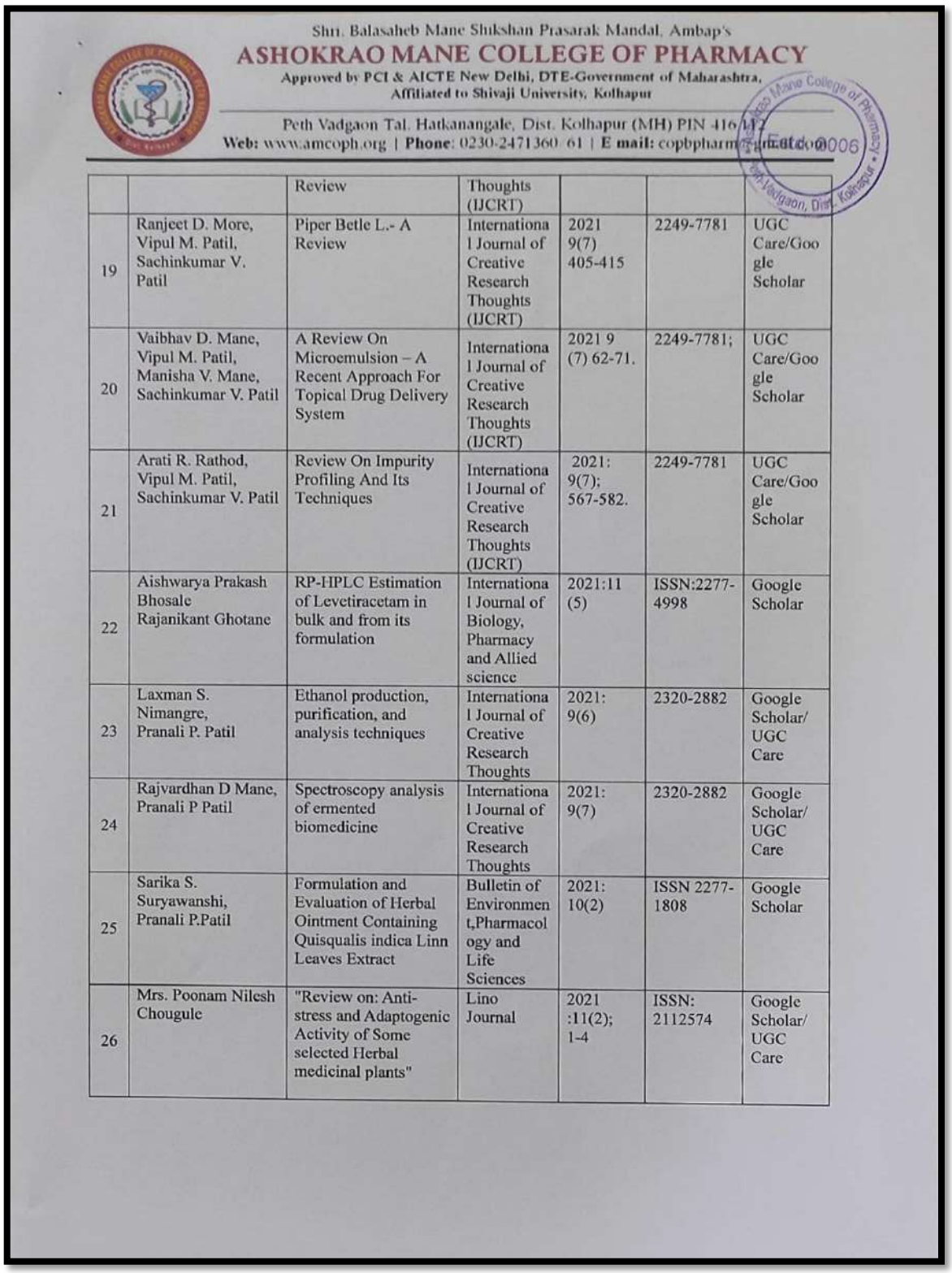
BACK TO INDEX



Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's
ASHOKRAO MANE COLLEGE OF PHARMACY
Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112
Web: www.amcoph.org | Phone: 0230-2471360/ 61 | E mail: copbpharm@gmail.com

	Ms. Poournima S. Sankpal	MS Used In Herbal Plants	cal Chemistry Internationa l Journal of Pharmaceuti cal Research and Application s	7(06)		Scholar
13	Mr. Prathmesh Shinde, Ms. Poournima S. Sankpal	Principles and applications of GC in food analysis	Internationa l Journal of All Research Education and scientific Methods	2021: 9(6): 715-718	2415-6211	Google Scholar
14	Ms. Ashwini Pawar, Ms. Poournima S. Sankpal	Applications of GC-MS in support of pharmaceutical research and development	Internationa l Journal of Creative Research Thoughts	2021: 9 (6)	ISSN: 2320-2882	Google Scholar /UGC Care
15	Rajanigandha B Mali, Dr. Sachinkumar V Patil , Pranali P Patil, Sarika S Suryavanshi	ICH Guidelines: Stress degradation study	Internationa l Journal of Creative Research Thoughts	2021: 9(7)	ISSN: 2320-2882	Google Scholar/ UGC Care
16	Rohile V. Y., Patil V.M	Formulation and standardization of asava from *Carica papaya*	Research Journal of Pharmacy and Technology	2021: 14(4)	0974-3618. Online ISSN : 0974-360X.	2021 UGC Care/Sco pus/WOS /Google Scholar
17	Akshay S. Kshirsagar, Vipul M. Patil, Sachinkumar V. Patil	Effect of Food on Pharmacokinetics of Clindamycin: A Review	Internationa l Journal of Pharmaceuti cal Research and Application s	2021:6(4) :554-563	2249-7781	Google Scholar
18	Kaiyyum A. Bhaldar, Vipul M. Patil, Sachinkumar V. Patil	Study of Nuclear Magnetic Resonance Spectroscopywith Applications: A Comprehensive	Internationa l Journal of Creative Research	2021 9(7) 824-836.	2249-7781	UGC Care/Goo gle Scholar

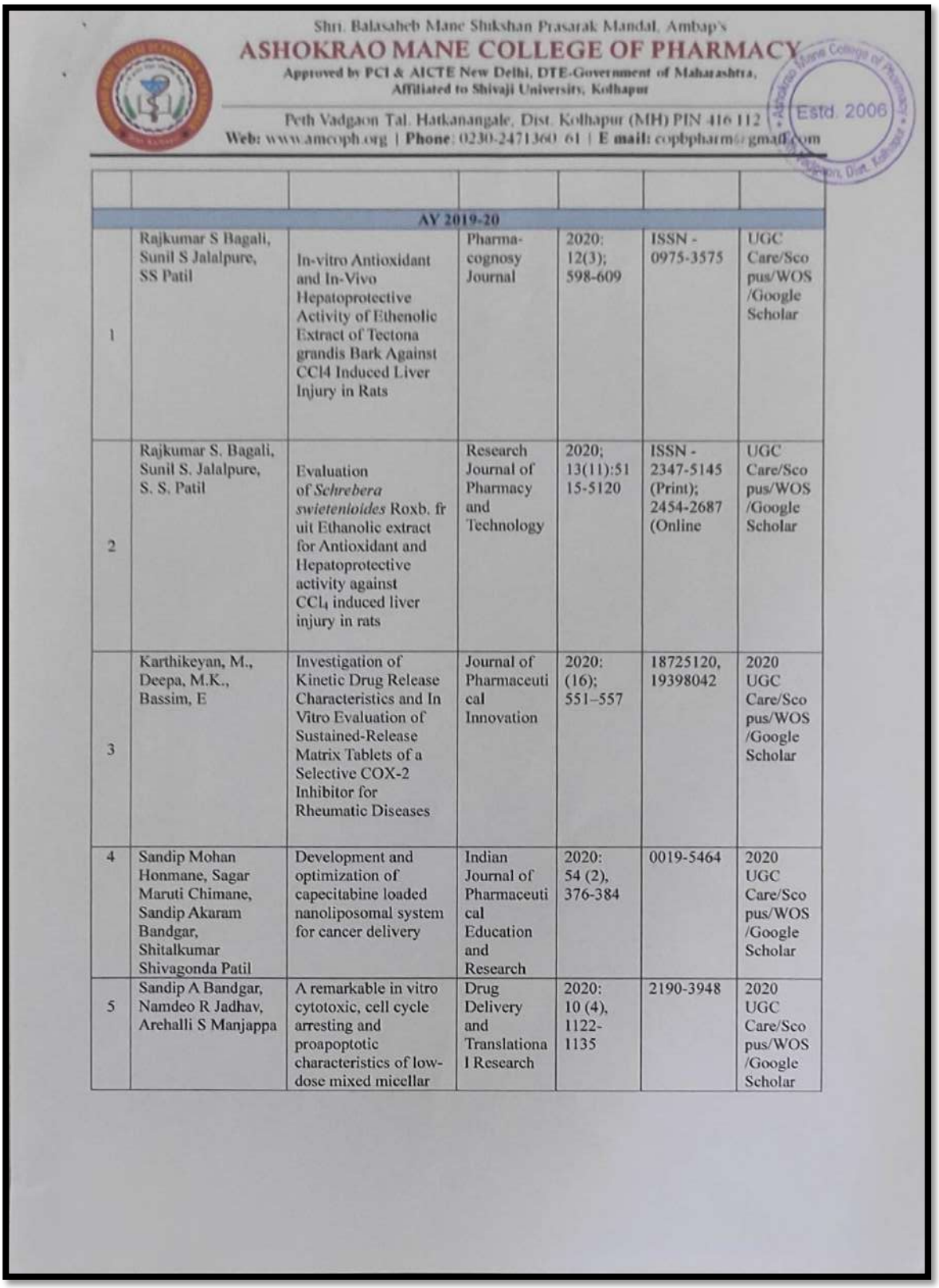
BACK TO INDEX



Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's
ASHOKRAO MANE COLLEGE OF PHARMACY
Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416112
Web: www.amcoph.org | Phone: 0230-2471360/ 61 | E mail: copbpharm@gmail.com

		Review	Thoughts (IJCRT)			
19	Ranjeet D. More, Vipul M. Patil, Sachinkumar V. Patil	Piper Betle L.- A Review	International Journal of Creative Research Thoughts (IJCRT)	2021 9(7) 405-415	2249-7781	UGC Care/Google Scholar
20	Vaibhav D. Mane, Vipul M. Patil, Manisha V. Mane, Sachinkumar V. Patil	A Review On Microemulsion – A Recent Approach For Topical Drug Delivery System	International Journal of Creative Research Thoughts (IJCRT)	2021 9 (7) 62-71.	2249-7781;	UGC Care/Google Scholar
21	Arati R. Rathod, Vipul M. Patil, Sachinkumar V. Patil	Review On Impurity Profiling And Its Techniques	International Journal of Creative Research Thoughts (IJCRT)	2021: 9(7); 567-582.	2249-7781	UGC Care/Google Scholar
22	Aishwarya Prakash Bhosale Rajanikant Ghotane	RP-HPLC Estimation of Levetiracetam in bulk and from its formulation	International Journal of Biology, Pharmacy and Allied science	2021:11 (5)	ISSN:2277-4998	Google Scholar
23	Laxman S. Nimangre, Pranali P. Patil	Ethanol production, purification, and analysis techniques	International Journal of Creative Research Thoughts	2021: 9(6)	2320-2882	Google Scholar/ UGC Care
24	Rajvardhan D Mane, Pranali P Patil	Spectroscopy analysis of ermented biomedicine	International Journal of Creative Research Thoughts	2021: 9(7)	2320-2882	Google Scholar/ UGC Care
25	Sarika S. Suryawanshi, Pranali P.Patil	Formulation and Evaluation of Herbal Ointment Containing Quisqualis indica Linn Leaves Extract	Bulletin of Environment,Pharmacology and Life Sciences	2021: 10(2)	ISSN 2277-1808	Google Scholar
26	Mrs. Poonam Nilesh Chougule	"Review on: Anti-stress and Adaptogenic Activity of Some selected Herbal medicinal plants"	Lino Journal	2021 :11(2); 1-4	ISSN: 2112574	Google Scholar/ UGC Care

BACK TO INDEX



Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's

ASHOKRAO MANE COLLEGE OF PHARMACY

Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra, Affiliated to Shivaji University, Kolhapur

Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112

Web: www.amcoph.org | Phone: 0230-2471360/ 61 | E mail: copbpharm@gmail.com

Estd. 2006

			AY 2019-20			
1	Rajkumar S Bagali, Sunil S Jalalpure, SS Patil	In-vitro Antioxidant and In-Vivo Hepatoprotective Activity of Ethenolic Extract of Tectona grandis Bark Against CCl4 Induced Liver Injury in Rats	Pharma-cognosy Journal	2020: 12(3); 598-609	ISSN - 0975-3575	UGC Care/Sco pus/WOS /Google Scholar
2	Rajkumar S. Bagali, Sunil S. Jalalpure, S. S. Patil	Evaluation of *Schrebera swietenioides* Roxb. fr uit Ethanolic extract for Antioxidant and Hepatoprotective activity against CCl_4 induced liver injury in rats	Research Journal of Pharmacy and Technology	2020; 13(11):51 15-5120	ISSN - 2347-5145 (Print); 2454-2687 (Online	UGC Care/Sco pus/WOS /Google Scholar
3	Karthikeyan, M., Deepa, M.K., Bassim, E	Investigation of Kinetic Drug Release Characteristics and In Vitro Evaluation of Sustained-Release Matrix Tablets of a Selective COX-2 Inhibitor for Rheumatic Diseases	Journal of Pharmaceuti cal Innovation	2020: (16); 551–557	18725120, 19398042	2020 UGC Care/Sco pus/WOS /Google Scholar
4	Sandip Mohan Honmane, Sagar Maruti Chimane, Sandip Akaram Bandgar, Shitalkumar Shivagonda Patil	Development and optimization of capecitabine loaded nanoliposomal system for cancer delivery	Indian Journal of Pharmaceuti cal Education and Research	2020: 54 (2), 376-384	0019-5464	2020 UGC Care/Sco pus/WOS /Google Scholar
5	Sandip A Bandgar, Namdeo R Jadhav, Arehalli S Manjappa	A remarkable in vitro cytotoxic, cell cycle arresting and proapoptotic characteristics of low-dose mixed micellar	Drug Delivery and Translationa l Research	2020: 10 (4), 1122-1135	2190-3948	2020 UGC Care/Sco pus/WOS /Google Scholar

BACK TO INDEX

Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's
ASHOKRAO MANE COLLEGE OF PHARMACY
Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112
Web: www.amcoph.org | Phone: 0230-2471360 61 | E mail: copbpharm@gmail.com

		simvastatin combined with alendronate sodium				
6	Savita R.Shejale,Veerendra Yeligar	Evaluation of Antiasthmatic Activity of Colocasia Esculenta Linn Corm	Seybold Report	2020 15(8): 533-544	ISSN 1533-9211	UGC Care /Google Scholar
7	Savita R. Shejale and Veerendra C. Yeligar 2	In-Vivo And In-Vitro Antiasthmatic Studies of Plant Michelia Champaca Linn	International Journal of Pharmaceutical Sciences and Research	2020; 11(10): 5262-5267	E-ISSN: 0975-8232; P-ISSN: 2320-5148	UGC Care/WOS /Google Scholar
8	Shubhangi V. Sutar , Veerendra C. Yeligar 2	.Degradation Kinetic Study of Melatonin In Alkaline And Acidic Medium By Validated Stability Indicating Hptlc Method.	Research Journal of Pharmacy and Technology	2020: 13 (2); 523-28.	ISSN (Online): 0975-8232, ISSN (Print): 2320-5148	2020 UGC Care/Scopus /Google Scholar
9	Shubhangi V. Sutar , Veerendra C. Yeligar Shitalkumar S. Patil	Structure Elucidation Of Oxidative Degradation Product Of Drospirenone.	International Journal of Pharmaceutical Sciences and Research	2020: 11(9); 4426-32.	ISSN (Online): 0975-8232, ISSN (Print): 2320-5148	2020 UGC Care/WOS /Google Scholar
10	Shweta R.Patil, Shubhangi B.Sutar,Shitalkumar S.Patil.	A Review: Solid Lipid Nanoparticles.	International Journal of Pharmaceutical Research.	12(1):2827-2832.	ISSN - 0975-2366	UGC Care/Scopus/ /Google Scholar
11	Shubhangi V. Sutar, Pranali P.Patil . Shitalkumar S. Patil, Soniya A. Sutar, Satwashila S. Kadam, Sagar B. Patil	Concept of Biosensor: A significant review	Journal of Seybold Report	2020;15 (8): 1592-1605	ISSN 1533-9211	UGC Care /Google Scholar
12	Sutar S. B., Kadam S. S.a , Patil S. B.a , Patil S. S.a ,Mahajan R. K.a	. Phytochemical Investigation, Anthelmintic And Antioxidant Activities Of Quisqualis Indica.	Pharmaceutical Resonance	2020; 3(1): 15-21	ISSN (P), 2581-6136.	Google Scholar

BACK TO INDEX

Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's
ASHOKRAO MANE COLLEGE OF PHARMACY
Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112
Web: www.amcoph.org | Phone: 0230-2471360 61 | E mail: copbpharm@gmail.com

13	Mayuri Shitole, Shailesh Dugam, Rahul Tade, Neha Desai, Sopan Nangare	Progress in erectile dysfunction therapy through drug delivery system	Thai Journal of Pharmaceutical Sciences	2020: 44(2)	01254685, 19054637	UGC Care/Scopus/ /Google Scholar
		AY 2018-19				
1	Pawashe Pallavi M.Patil Shital Kumar.S.Naikwade Nilofar S.	Prochlorperazine Maleate Loaded Sustained Release Floating Microspheres prepared by Ionotropic Gelation Technique: Morphology and Release Characteristics	Research Journal of Pharmacy and Technology	2011:2, (8) 3866-3872	0974-3611 0974-3607	2019 UGC Care/Google Scholar/ Scopus
2	Satwashila Shahajirao Kadam, Pravin Mhadev Salgar , priyanka Tanaji Sakate , Shitalkumar S. Patil	Effectiveness of Calotropis Gigantean Linn Flower Extract as Indicator for Acid-Base Titration and Development of Litmus Paper	Am. J. Pharm Tech Res.	2019;9(3)	ISSN: 2249-3387	Google Scholar
3	Mayuresh Shinde, Shitalkumar Patil, Manish Bhatia, Dhanashri Patil, Sanjay Mishra	Design and development of aliphatic amino acid-cholesterol biomolecular scaffold as anticancer conjugates	Journal of Current Pharma Research	2019;9(4) : 3226-3236	ISSN: 2230 -7842	UGC care
4	Namdeo R. Jadhav Sandip A. Bandgar	Validated UV Spectrophotometric method for Estimation of Simvastatin in Bulk and Pharmaceutical Formulation	Research Journal of Pharmacy and Technology	12(12), 5745-5748	0974-3618	2019 UGC Care/Google Scholar/ Scopus
5	Priyanka Sangar, Bandgar Sandip, Shelake Sardar, Patil Pravin, Bhagwat Durgacharan, Patil Shitalkumar	Design, development and evaluation of self nanoemulsifying drug delivery system of garlic oil using capryol PGMC	Indian Journal of Pharmaceutical Education and Research	53(4), S539-S547	0019-5464	2019 UGC Care/Scopus/WOS /Google Scholar
6	Nikhil A Patil, Sandip A Bandgar, Sardar S Shelake,	Design, Development and Evaluation of Fast Dissolving Tablet of	Research Journal of Pharmacy	12(1), 142-148	0974-3618	2019 UGC Care/Goo

BACK TO INDEX

Shri. Balasaheb Mane Shikshan Prasarak Mandal, Ambap's
ASHOKRAO MANE COLLEGE OF PHARMACY
Approved by PCI & AICTE New Delhi, DTE-Government of Maharashtra,
Affiliated to Shivaji University, Kolhapur
Peth Vadgaon Tal. Hatkanangale, Dist. Kolhapur (MH) PIN 416 112
Web: www.amcoph.org | Phone: 0230-2471360/61 | E mail: coptbpharm@gmail.com

Estd. 2006

	Pravin S Patil, Shitalkumar S Patil	Antiasthmatic Drug	and Technology			gle Scholar/ Scopus
7	A.A Mulik, S.S, Patil, V.M and Pawar	Isolation, Characterization and Evaluation of antiurolithiatic Activity of Caesalpinia Pulcherrima	International Journal of Recent Scientific Research	2019;10(10) 35530-35532	ISSN: 0976-3031	UGC Care
8	Shubhangi V. Sutar, Veerendra. C. Yeligar, Shitalkumar S. Patil	Stability Indicating Forced Degradation Studies	Research J. Pharm. and Tech	2019; 12(1) 429-436	0974-3618	2019 UGC Care/Google Scholar/ Scopus
9	S.V. Sutar, V. C. Yeligar.	Method Development and Validation of Drospirenone in Bulk and Pharmaceutical Dosage Form by Stability Indicating RP-HPLC Method Studies	Curr. Pharm. Res	2019, 9(3), 3031-3041	2230-7842	UGC Care
			AY 2017-18			
1	Patil, S.V. Patil, S.S.Inamdar, N.R.Mahajan, V.A. Belekar, A.M.	Formulation and standardization of Avaleha preparation from Benincasa Hispida	Indian Drugs	55: 6; 69-72	0019-462X	2018 Scopus
2	Patil,S.V. Aralelimath, V.R..Mahajan, V.A..Inamdar, N.R..Shinde, S.S.	Formulation and standardization of asava of syzygium cumini	Indian Drugs	55: 8; 63-66	0019-462X	2018 Scopus
3	Pallavi Sangave, S. V. Patil1, S. S. Patil and S. S. Shelake	Preparation and Evaluation of Mucoadhesive Nanoparticles of Rosuvastatin	Indian Journal of Pharmaceutical Sciences	2018; 80 (3):427-430.	0250-474X	2018 Scopus
4	S. S. Shelake, S. V. Patil, S. S. Patil and Pallavi Sangave	Formulation and Evaluation of Fenofibrate-loaded Nanoparticles by Precipitation Method	Indian Journal of Pharmaceutical Sciences	2018; 80(3) :420-427.	0250-474X	2018 Scopus

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

Research Publications A.Y.2021-22

Research J. Pharm. and Tech. 15(7): July 2022

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

www.rjptonline.org

RJPT

RESEARCH ARTICLE

Press coated Bioadhesive Pulsatile Tablet of Lisinopril for Chronotherapy of Cardiac Disorders: *in-vitro* Evaluation

Sachin Patil[1]*, Ashwini Rakshe[2], Rajesh Jagtap[3], Sneha Jagtap[4]

[1]Ashokrao Mane College of Pharmacy, Peth-vadgaon, Kolhapur, Maharashtra, India - 416112.
[2]Shree Santkrupa College of Pharmacy Ghogaon, Karad, Satara, Maharashtra, India - 415111.
Late Adv. Dadasaheb Chavan Memorial Institute of Pharmacy, Malwadi (Masur),
Karad, Satara Maharashtra, India 415 106.
*Corresponding Author E-mail: **sachinvpatil10000@gmail.com**

ABSTRACT:
The purpose of present investigation was to formulate bioadhesive pulsatile release tablet (BPRT) of lisinopril drug belong to antihypertensive category for chronotherapy of cardiac disorder. The concept behind this dosage form development is to investigate effect of coating polymer concentration on lag time and drug release from directly compressed tablet. The core tablets prepared by using various concentrations of disintegrants found suitable for complete release of drug in acidic medium indicating its solubility in gastric fluid. The FT-IR studies indicate that selected polymers are compatible with lisinopril since no interaction found in drug-excipient compatibility studies. The dissolution study clearly indicates that higher concentration of polymers which is HPMC K100M and Carbopol reduces free water volume and increase viscosity of the tablet coat causes reduction in drug release. The prepared Bioadhesive pulsatile release tablets showed desired hardness and good mucoadhesion strength. The obtained results showed capability of formulated bioadhesive pulsatile drug delivery system in a drug release for a programmable period of time to attain drug release after minimum 3 hr of Lag time. A stability results clearly indicate that developed pulsatile product was sufficiently stable under accelerated and controlled conditions. Thus, the developed pulsatile tablet can be considered to be a promising formulation for the relief of early morning surge in blood pressure and other cardiac disorders which follows a circadian rhythm.

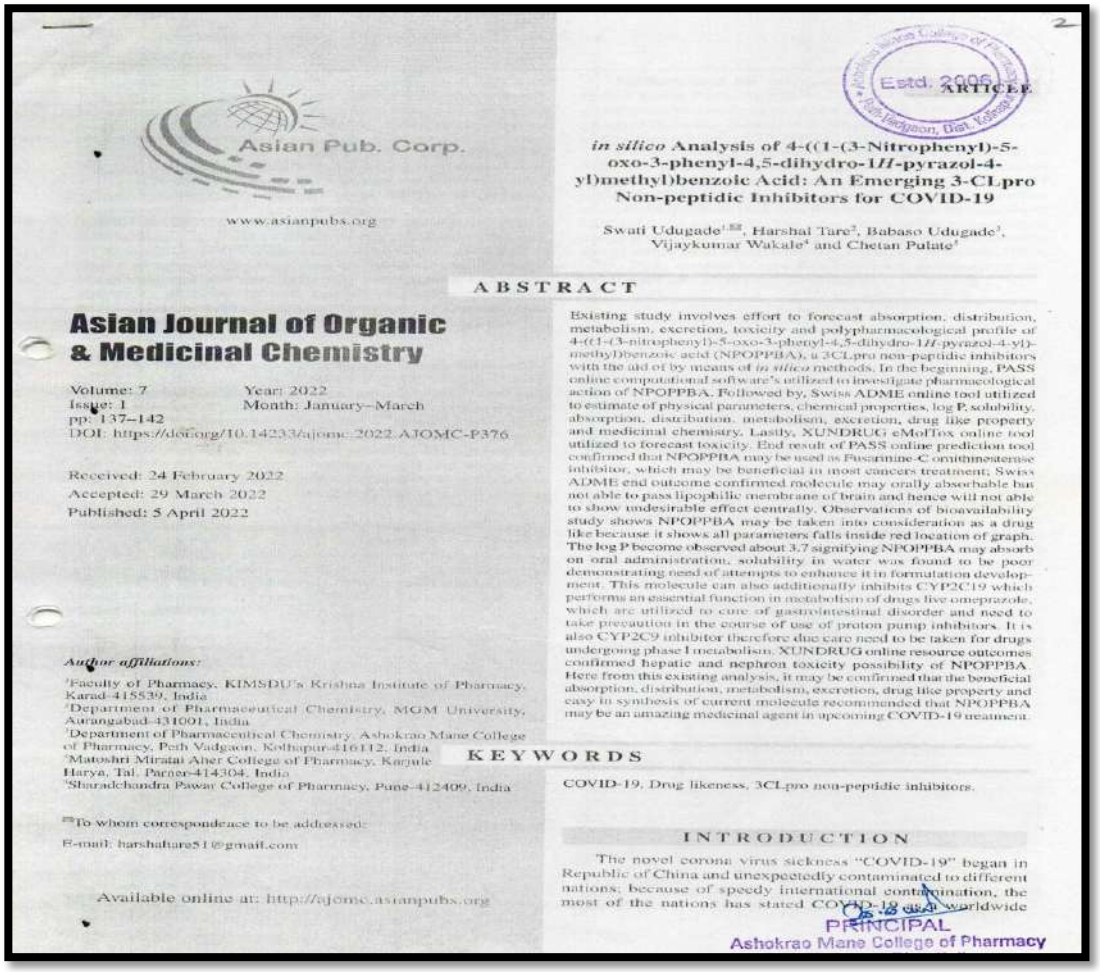
KEYWORDS: Lisinopril, Bioadhesive, Pulsatile tablet, Chronotherapy, Cardiac disorder.

INTRODUCTION:
Modified release dosage form show different release profiles depending on its type. This dosage form is used to describe products that alter the timing and rate of release of drug substance. Pulsatile drug delivery system is the most interesting time dependent system. Bioadhesive Pulsatile Drug Delivery Systems are gaining a lot of interest as they deliver the drug at the right site of action, at the right time and in the right amount as well as they have capacity to bind to the mucus membrane thus prolongs retention time in the Gastro-intestinal tract resulting in maximum absorption and hence enhanced bioavailability and spatial and temporal delivery and increasing patient compliance.

The release of the drug as a pulse after a lag time has to be designed in such a way that a complete and rapid drug release follows the lag time[1]. Pulsatile drug delivery system is an important and focusing part among time-controlled release systems. It is characterized by a predetermined lag time period in the beginning stage of drug release followed by a burst drug release phase in the drug release profiles[2-4]. The pulsatile release has some advantages like it can avoid drug tolerance and control of tissue and the drug release can be controlled by time, by site or by combination of both parameters[5,6]. As far as coating technology is concerned, compression coating is the most popular method to achieve pulsatile drug release due to the simplicity of the formulation process compared to the traditional liquid coating processes which are time-consuming and often not solvent-free. Compression-coating provides thick coatings within short processing time which can

Received on 29.05.2021 Modified on 27.07.2021
Accepted on 13.09.2021 © RJPT All right reserved
Research J. Pharm. and Tech. 2022; 15(7):3057-3062.
DOI: 10.52711/0974-360X.2022.00511

BACK TO INDEX



Asian Pub. Corp.

www.asianpubs.org

Asian Journal of Organic & Medicinal Chemistry

Volume: 7 Year: 2022
Issue: 1 Month: January–March
pp. 137–142
DOI: https://doi.org/10.14233/ajomc.2022.AJOMC-P376

Received: 24 February 2022
Accepted: 29 March 2022
Published: 5 April 2022

Author affiliations:
[1]Faculty of Pharmacy, KIMSDU's Krishna Institute of Pharmacy, Karad-415539, India
[2]Department of Pharmaceutical Chemistry, MGM University, Aurangabad-431001, India
[3]Department of Pharmaceutical Chemistry, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Kolhapur-416112, India
[4]Matoshri Miratai Aher College of Pharmacy, Karjule Harya, Tal. Parner-414304, India
[5]Shivadchandra Pawar College of Pharmacy, Pune-412409, India

*To whom correspondence to be addressed:
E-mail: harshatare51@gmail.com

Available online at: http://ajomc.asianpubs.org

Estd. 2006 ARTICLE

in silico Analysis of 4-((1-(3-Nitrophenyl)-5-oxo-3-phenyl-4,5-dihydro-1*H*-pyrazol-4-yl)methyl)benzoic Acid: An Emerging 3-CLpro Non-peptidic Inhibitors for COVID-19

Swati Udugade[1,*], Harshal Tare[2], Babaso Udugade[3], Vijaykumar Wakale[4] and Chetan Pulate[5]

ABSTRACT

Existing study involves effort to forecast absorption, distribution, metabolism, excretion, toxicity and polypharmacological profile of 4-((1-(3-nitrophenyl)-5-oxo-3-phenyl-4,5-dihydro-1*H*-pyrazol-4-yl)-methyl)benzoic acid (NPOPPBA), a 3CLpro non-peptidic inhibitors with the aid of by means of *in silico* methods. In the beginning, PASS online computational software's utilized to investigate pharmacological action of NPOPPBA. Followed by, Swiss ADME online tool utilized to estimate of physical parameters, chemical properties, log P, solubility, absorption, distribution, metabolism, excretion, drug like property and medicinal chemistry. Lastly, XUNDRUG eMolTox online tool utilized to forecast toxicity. End result of PASS online prediction tool confirmed that NPOPPBA may be used as Fusarinine-C ornithinesterase inhibitor, which may be beneficial in most cancers treatment. Swiss ADME end outcome confirmed molecule may orally absorbable but not able to pass lipophilic membrane of brain and hence will not able to show undesirable effect centrally. Observations of bioavailability study shows NPOPPBA may be taken into consideration as a drug like because it shows all parameters falls inside red location of graph. The log P become observed about 3.7 signifying NPOPPBA may absorb on oral administration, solubility in water was found to be poor demonstrating need of attempts to enhance it in formulation development. This molecule can also additionally inhibits CYP2C19 which performs an essential function in metabolism of drugs live omeprazole, which are utilized to cure of gastrointestinal disorder and need to take precaution in the course of use of proton pump inhibitors. It is also CYP2C9 inhibitor therefore due care need to be taken for drugs undergoing phase I metabolism. XUNDRUG online resource outcomes confirmed hepatic and nephron toxicity possibility of NPOPPBA. Here from this existing analysis, it may be confirmed that the beneficial absorption, distribution, metabolism, excretion, drug like property and easy in synthesis of current molecule recommended that NPOPPBA may be an amazing medicinal agent in upcoming COVID-19 treatment.

KEYWORDS

COVID-19, Drug likeness, 3CLpro non-peptidic inhibitors.

INTRODUCTION

The novel corona virus sickness "COVID-19" began in Republic of China and unexpectedly contaminated to different nations; because of speedy international contamination, the most of the nations has stated COVID-19 as a worldwide

PRINCIPAL
Ashokrao Mane College of Pharmacy

BACK TO INDEX

3

SIMULTANEOUS ESTIMATION OF IMPURITIES IN MELATONIN BY RP-HPLC METHOD COUPLED WITH DIODE ARRAY DETECTION

Shubhangi Sutar[a]*, Veerendra Yeligar[b], Prafulla Choudhari[c] and Sachinkumar Patil[a]

(Received 15 December 2019) (Accepted 07 September 2020)

ABSTRACT

In the present research work, RP-HPLC method coupled with diode array detection for separation and quantitation of impurity-I (2-(5-methoxy-1*H*-indol-3-yl)ethanamine), impurity-II (3-(2-aminoethyl)-1*H*-indol-5-ol) along with melatonin was developed. Mobile phase containing 10 mMolL^{-1} sodium dihydrogenphosphate: acetonitrile (75:25 V/V) was found to give good resolution, effectively separating melatonin and its impurities. Calibration curve for melatonin was found to be linear in the concentration range 2.5 µg mL^{-1} to 7.5 µg mL^{-1}. Calibration curve for impurity-I was found to be linear in concentration range 2.5 µg mL^{-1} to 7.5 µg mL^{-1} and the calibration curve for impurity-II was found to be linear in concentration range of 1.8 µg mL^{-1} to 5.4 µg mL^{-1}. The percentage recovery estimated of melatonin, impurity-I and impurity-II was found to be within 98.20 to 99.91, 97.42 to 104.04, 98.35 to 100.06, respectively with R.S.D. The reported method is simple, precise, accurate and rapid for quantitation of melatonin impurities along with melatonin.

Keywords: Melatonin, RP-HPLC, Simultaneous estimation, Impurity

INTRODUCTION

Melatonin, *N*-acetyl -5-methoxy tryptamine(MT) Fig .1A, is a neurohormone produced mainly at night by the pineal gland, subsequently decreasing to minimum during the day. It helps to treat sleep disorders with diminishing latency of sleep inception, effective as free radicals remover and seeing that endogenous antioxidant. Melatonin has been used with magnificent therapeutic results in Alzheimer treatment, indicated for the neurotoxicity induced by glutamate and in jet lag treatment. It is found available as tablets and capsules for human consumption and is sold without medical prescription in many countries, including Canada and United States of America and off the shelves even in nutrition supplement stores.

Now a days there is a range of methods for determining melatonin, its pharmaceutical dosage form, such like HPLC method, spectrophotometric method and thin layer chromatography scanning method and so on[1-11]. Despite the existence of these methods, till date none of methods for performing identification and simultaneous

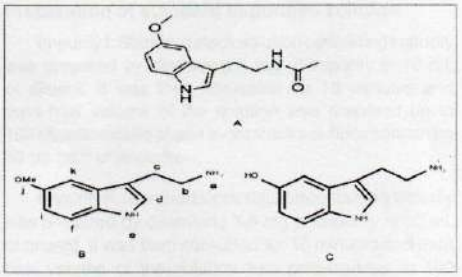


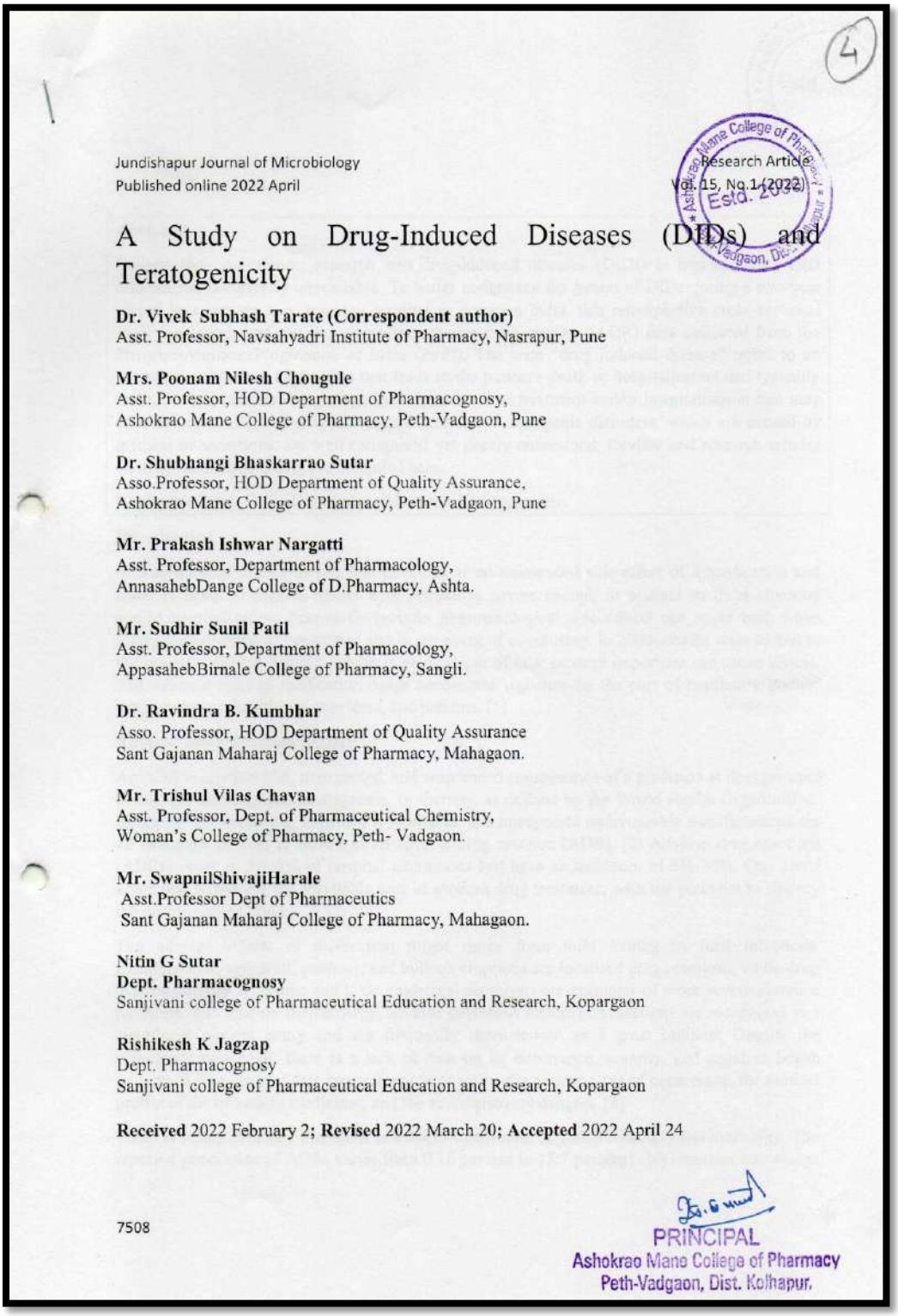
Fig.1: A) Structure of melatonin B) Structure of Impurity –I:2-(5-methoxy-1*H*-indol-3-yl) ethanamine) C) Structure of Impurity-II: 3-(2-aminoethyl)-1*H*-indol-5-ol))

estimation of melatonin and its two impurities has been reported. Hence, on the basis of literature survey the main intention of this work was to establish a precise, accurate, simple, reliable, sensitive, validated method for melatonin in the presence its impurities (impurity-I,2-(5-methoxy-1*H*-indol-3-yl)ethanamine) (Fig. 1B), (impurity-II, 3-(2-aminoethyl)-1*H*-indol-5-ol) (Fig. 1C) for estimation of the purity of the bulk drug and furthermore the stability of its dosage forms. The method was validated in accordance with ICH guidelines[12-15].

[a] Department of Pharmaceutical Quality Assurance, Ashokrao Mane College of Pharmacy, Peth-Vadgaon- 416 112, Maharashtra, India
[b] Department of Pharmaceutical Chemistry, Krishna Institute of Pharmacy Malkapur, Karad - 415 539, Maharashtra, India
[c] Department of Pharmaceutical Chemistry, Bharati Vidyapeeth College of Pharmacy, Kolhapur – 416 013, Maharashtra, India
*For Correspondence: E-mail: shubhangi.sutar28@gmail.com

https://doi.org/10.53879/id.59.02.12254

BACK TO INDEX



Jundishapur Journal of Microbiology
Published online 2022 April

Research Article
Vol. 15, No.1 (2022)

A Study on Drug-Induced Diseases (DIDs) and Teratogenicity

Dr. Vivek Subhash Tarate (Correspondent author)
Asst. Professor, Navsahyadri Institute of Pharmacy, Nasrapur, Pune

Mrs. Poonam Nilesh Chougule
Asst. Professor, HOD Department of Pharmacognosy,
Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Pune

Dr. Shubhangi Bhaskarrao Sutar
Asso.Professor, HOD Department of Quality Assurance,
Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Pune

Mr. Prakash Ishwar Nargatti
Asst. Professor, Department of Pharmacology,
AnnasahebDange College of D.Pharmacy, Ashta.

Mr. Sudhir Sunil Patil
Asst. Professor, Department of Pharmacology,
AppasahebBirnale College of Pharmacy, Sangli.

Dr. Ravindra B. Kumbhar
Asso. Professor, HOD Department of Quality Assurance
Sant Gajanan Maharaj College of Pharmacy, Mahagaon.

Mr. Trishul Vilas Chavan
Asst. Professor, Dept. of Pharmaceutical Chemistry,
Woman's College of Pharmacy, Peth- Vadgaon.

Mr. SwapnilShivajiHarale
Asst.Professor Dept of Pharmaceutics
Sant Gajanan Maharaj College of Pharmacy, Mahagaon.

Nitin G Sutar
Dept. Pharmacognosy
Sanjivani college of Pharmaceutical Education and Research, Kopargaon

Rishikesh K Jagzap
Dept. Pharmacognosy
Sanjivani college of Pharmaceutical Education and Research, Kopargaon

Received 2022 February 2; **Revised** 2022 March 20; **Accepted** 2022 April 24

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

IP International Journal of Comprehensive and Advanced Pharmacology 2022;7(3):163–166

Content available at: https://www.ipinnovative.com/open-access-journals

IP International Journal of Comprehensive and Advanced Pharmacology

Journal homepage: https://www.ijcap.in/

Original Research Article

Development and validation of UV spectrophotometric method for determination of chlorpropamide in bulk and formulation

Shrirang V Kharmate[1,*], Akanksha U. Ingawale[1], Nilam B. Gurav[1], Rahul K. Jadhav[1], Meera U. Kamble[1], Shubhangi B. Sutar[1], Sachinkumar V. Patil[1]

[1]Ashokrao Mane College of Pharmacy,Peth-Vadgaon, Kolhapur, Maharashtra, India

ARTICLE INFO

Article history:
Received 23-03-2022
Accepted 18-04-2022
Available online 23-08-2022

Keywords:
UV Spectrophotometry
Chlorpropamide
Colorimetry

ABSTRACT

The current work focuses on the development and validation of a UV spectrophotometric technique for determining chlorpropamide in bulk and formulation. According to ICH criteria, UV spectrophotometric method was validated for a number of parameters, including linearity, precision, accuracy, sensitivity, limit of detection (LOD), and limit of quantification (LOQ). The maximum wavelength of chlorpropamide was discovered to be 580 nm, and a colorimetric method was created for the quantitative estimation of colour and to quantify the absorbance of a particular wavelength of light by a particular solution. The maximal wavelength of chlorpropamide in the complex mixture was discovered to be 710 nm. The UV spectrophotometric technique and colorimetry are simple, sensitive, accurate, repeatable, and exact. Chlorpropamide in bulk can be determined effectively using the suggested method.

1. Introduction

Chlorpropamide is an antidiabetic drug. It is a type 2 antidiabetic drug and used in treatment of diabetes mellitus. It entails triggering the release of insulin from pancreatic beta cells. By raising the number of receptors, it also improves the impact of insulin on the liver and promotes the use of peripheral glucose. BCS class of chlorpropamide is class 2 that is high permeability low solubility.[1–4]

Toxicity produced is hyperinsulinemia. The food interaction occurs due to alcohol consumption is facial flushing. The chlorpropamide is administered by oral route. The capacity of protein binding is 90%. It is soluble in organic solvent, practically insoluble in water at pH 7.3 the pka value of chlorpropamide is 5.0 at 20°C. Chlorpropamide stored at 20 to 25°C in well closed container. Chemical name is 4-chloro-N-(propylcarbonyl) benzene-sulfonamide. Trade name of chlorpropamide is Diabinese. Several researchers have focused on development and validation of chlorpropamide.

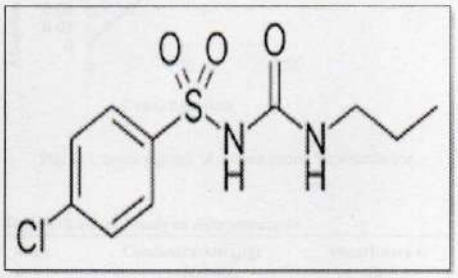


Fig. 1: Structure of chlorpropamide.

*Corresponding author.
E-mail address: shubhangi.sutar28@gmail.com (S. V. Kharmate).

https://doi.org/10.18231/j.ijcap.2022.033

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

www.ijcrt.org © 2022 IJCRT | Volume 10, Issue 9 September 2022 | ISSN: 2320-2882

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

OVERVIEW OF UV SPECTROSCOPY DERIVATIVES

[1]Aniket V. Katkar, [2]Sharyu B. Nagare, [3]Shubhangi B. Sutar, [4]Dr. Sachinkumar V. Patil

[1,2]M. Pharm 2nd Year, [3]Assistant Professor, [4]Principal

[1,2]Department of Pharmaceutical Quality Assurance, [3]Department of Pharmaceutical Chemistry, [4]Department of Pharmaceutics

Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, India 416112

Abstract:

Multi component analysis uses the analytical method of derivative UV spectrophotometry. It has significant implications for getting both qualitative and quantitative information in order from unresolved band spectra, and it frequently uses the first or higher derivatives of absorbance in accordance with wavelength for both qualitative and quantitative analysis. The most straightforward technique for derivatizing spectra to increase selectivity is derivative spectroscopy. When a drug sample demonstrates significant, irrelevant absorption, this approach is employed. As long as Beer's law is followed by the fundamental spectrum, it entails converting the normal spectrum to its first, second, and higher derivative spectra, where its amplitude is proportional to the analyte concentration.

Index Terms: Derivative spectroscopy, Wavelength, First, second and third order spectra.

1. INTRODUCTION:

With regard to qualitative and quantitative analysis, derivative UV-spectrophotometry uses the first or higher derivatives of absorbance in accordance with wavelength [1]. It is a method that is frequently used to obtain quantitative and qualitative information in order from spectra of unresolved bands. When derivative spectroscopy was first introduced in the 1950s, it had a wide range of applications. However, because it was difficult to produce derivative spectra using UV-Visible spectroscopy, the approach wasn't widely used. Microcomputers helped to overcome this problem in the 1970s by providing derivative spectra in a method that was more specialised, straightforward, quick, and repeatable. This was done in order to broaden the applicability of the derivative approach; spectrum derivatization improves selectivity by eliminating spectral interferences [2-3].

2. GENERAL ASPECTS OF DERIVATIVE SPECTROPHOTOMETRY:

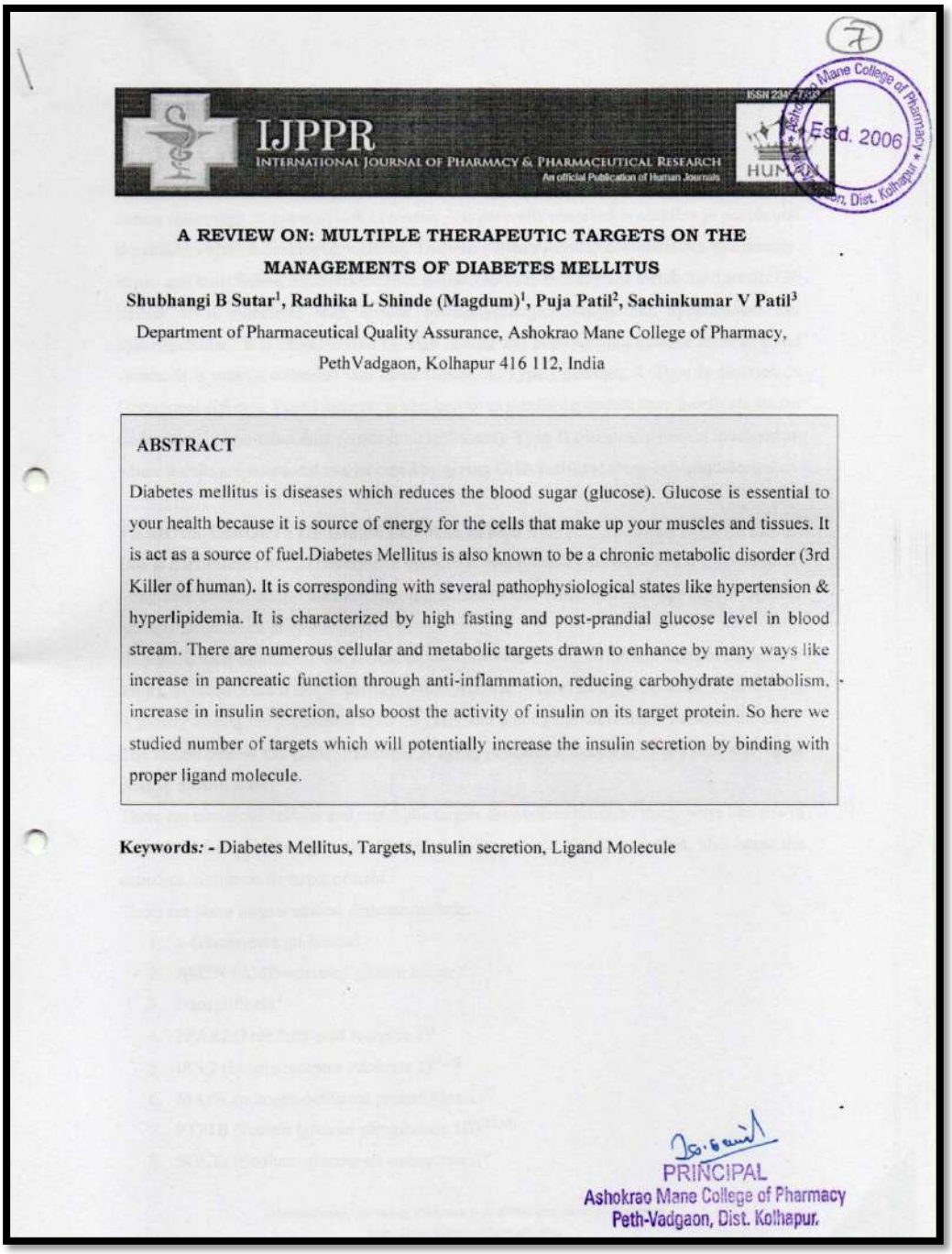
The absorption spectra that occur from electron transitions between different energy levels in a molecule are the focus of UV-VIS spectrophotometry. A quantum of energy is absorbed along with such a transition in the UV-VIS region, and this energy absorption is depicted by an absorption curve on the intensity of radiation-wavenumber (wavelength) plot. The value of the transition energy is related to the band's placement in the ultraviolet or visible regions, which is typically described as "-max. Molar absorptivity is the band parameter associated with this transition, and the intensity of the band is related to the likelihood of an electron transition from the ground state to the excited state. These variables qualitatively describe the system ("-max) and numerically (E) in conventional molecular spectrophotometry. As opposed to atomic transitions, molar electron transitions are not as narrow. The cause of this is due to interactions between the molecules of the substance and the solvent, as well as the overlapping of ground state energy, oscillation energy, and rotational energy of molecules. The so-called half-width (L), or peak width at half of its height, is a band characteristic that is particularly significant in derivative spectrophotometry[4-5].

2.1 Derivative Spectroscopy:

It is a spectroscopic method that distinguishes spectra primarily in fluorescence, IR, and UV-Visible absorption spectrometry. The goal of analytical chemistry's usage of derivative methods is:

- Spectral differentiation
- Spectral resolution enhancement
- Quantitative analysis

BACK TO INDEX



IJPPR
INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals
ISSN 2349-7203

A REVIEW ON: MULTIPLE THERAPEUTIC TARGETS ON THE MANAGEMENTS OF DIABETES MELLITUS

Shubhangi B Sutar[1], Radhika L Shinde (Magdum)[1], Puja Patil[2], Sachinkumar V Patil[3]
Department of Pharmaceutical Quality Assurance, Ashokrao Mane College of Pharmacy,
PethVadgaon, Kolhapur 416 112, India

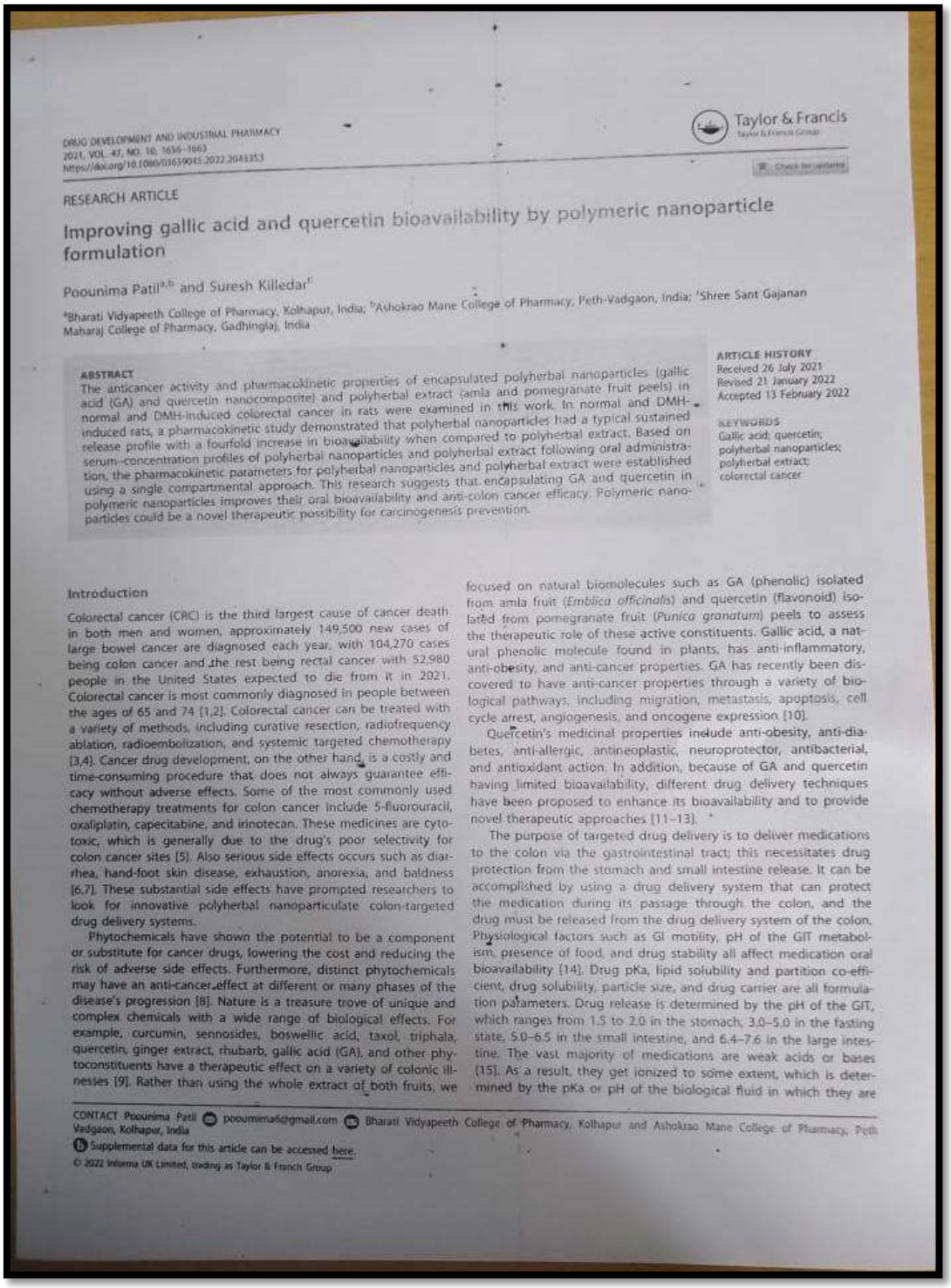
ABSTRACT

Diabetes mellitus is diseases which reduces the blood sugar (glucose). Glucose is essential to your health because it is source of energy for the cells that make up your muscles and tissues. It is act as a source of fuel.Diabetes Mellitus is also known to be a chronic metabolic disorder (3rd Killer of human). It is corresponding with several pathophysiological states like hypertension & hyperlipidemia. It is characterized by high fasting and post-prandial glucose level in blood stream. There are numerous cellular and metabolic targets drawn to enhance by many ways like increase in pancreatic function through anti-inflammation, reducing carbohydrate metabolism, increase in insulin secretion, also boost the activity of insulin on its target protein. So here we studied number of targets which will potentially increase the insulin secretion by binding with proper ligand molecule.

Keywords: - Diabetes Mellitus, Targets, Insulin secretion, Ligand Molecule

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX



DRUG DEVELOPMENT AND INDUSTRIAL PHARMACY
2021, VOL. 47, NO. 10, 1656–1663
https://doi.org/10.1080/03639045.2022.2048353

Taylor & Francis
Taylor & Francis Group

RESEARCH ARTICLE

Improving gallic acid and quercetin bioavailability by polymeric nanoparticle formulation

Poounima Patil[a,b] and Suresh Killedar[c]

[a]Bharati Vidyapeeth College of Pharmacy, Kolhapur, India; [b]Ashokrao Mane College of Pharmacy, Peth-Vadgaon, India; [c]Shree Sant Gajanan Maharaj College of Pharmacy, Gadhinglaj, India

ABSTRACT

The anticancer activity and pharmacokinetic properties of encapsulated polyherbal nanoparticles (gallic acid (GA) and quercetin nanocomposite) and polyherbal extract (amla and pomegranate fruit peels) in normal and DMH-induced colorectal cancer in rats were examined in this work. In normal and DMH-induced rats, a pharmacokinetic study demonstrated that polyherbal nanoparticles had a typical sustained release profile with a fourfold increase in bioavailability when compared to polyherbal extract. Based on serum–concentration profiles of polyherbal nanoparticles and polyherbal extract following oral administration, the pharmacokinetic parameters for polyherbal nanoparticles and polyherbal extract were established using a single compartmental approach. This research suggests that encapsulating GA and quercetin in polymeric nanoparticles improves their oral bioavailability and anti-colon cancer efficacy. Polymeric nanoparticles could be a novel therapeutic possibility for carcinogenesis prevention.

ARTICLE HISTORY
Received 26 July 2021
Revised 21 January 2022
Accepted 13 February 2022

KEYWORDS
Gallic acid; quercetin; polyherbal nanoparticles; polyherbal extract; colorectal cancer

Introduction

Colorectal cancer (CRC) is the third largest cause of cancer death in both men and women, approximately 149,500 new cases of large bowel cancer are diagnosed each year, with 104,270 cases being colon cancer and the rest being rectal cancer with 52,980 people in the United States expected to die from it in 2021. Colorectal cancer is most commonly diagnosed in people between the ages of 65 and 74 [1,2]. Colorectal cancer can be treated with a variety of methods, including curative resection, radiofrequency ablation, radioembolization, and systemic targeted chemotherapy [3,4]. Cancer drug development, on the other hand, is a costly and time-consuming procedure that does not always guarantee efficacy without adverse effects. Some of the most commonly used chemotherapy treatments for colon cancer include 5-fluorouracil, oxaliplatin, capecitabine, and irinotecan. These medicines are cytotoxic, which is generally due to the drug's poor selectivity for colon cancer sites [5]. Also serious side effects occurs such as diarrhea, hand-foot skin disease, exhaustion, anorexia, and baldness [6,7]. These substantial side effects have prompted researchers to look for innovative polyherbal nanoparticulate colon-targeted drug delivery systems.

Phytochemicals have shown the potential to be a component or substitute for cancer drugs, lowering the cost and reducing the risk of adverse side effects. Furthermore, distinct phytochemicals may have an anti-cancer effect at different or many phases of the disease's progression [8]. Nature is a treasure trove of unique and complex chemicals with a wide range of biological effects. For example, curcumin, sennosides, boswellic acid, taxol, triphala, quercetin, ginger extract, rhubarb, gallic acid (GA), and other phytoconstituents have a therapeutic effect on a variety of colonic illnesses [9]. Rather than using the whole extract of both fruits, we focused on natural biomolecules such as GA (phenolic) isolated from amla fruit (*Emblica officinalis*) and quercetin (flavonoid) isolated from pomegranate fruit (*Punica granatum*) peels to assess the therapeutic role of these active constituents. Gallic acid, a natural phenolic molecule found in plants, has anti-inflammatory, anti-obesity, and anti-cancer properties. GA has recently been discovered to have anti-cancer properties through a variety of biological pathways, including migration, metastasis, apoptosis, cell cycle arrest, angiogenesis, and oncogene expression [10].

Quercetin's medicinal properties include anti-obesity, anti-diabetes, anti-allergic, antineoplastic, neuroprotector, antibacterial, and antioxidant action. In addition, because of GA and quercetin having limited bioavailability, different drug delivery techniques have been proposed to enhance its bioavailability and to provide novel therapeutic approaches [11–13].

The purpose of targeted drug delivery is to deliver medications to the colon via the gastrointestinal tract; this necessitates drug protection from the stomach and small intestine release. It can be accomplished by using a drug delivery system that can protect the medication during its passage through the colon, and the drug must be released from the drug delivery system of the colon. Physiological factors such as GI motility, pH of the GIT metabolism, presence of food, and drug stability all affect medication oral bioavailability [14]. Drug pKa, lipid solubility and partition co-efficient, drug solubility, particle size, and drug carrier are all formulation parameters. Drug release is determined by the pH of the GIT, which ranges from 1.5 to 2.0 in the stomach, 3.0–5.0 in the fasting state, 5.0–6.5 in the small intestine, and 6.4–7.6 in the large intestine. The vast majority of medications are weak acids or bases [15]. As a result, they get ionized to some extent, which is determined by the pKa or pH of the biological fluid in which they are

CONTACT Poounima Patil poounima6@gmail.com Bharati Vidyapeeth College of Pharmacy, Kolhapur and Ashokrao Mane College of Pharmacy, Peth Vadgaon, Kolhapur, India
Supplemental data for this article can be accessed here.

BACK TO INDEX

Journal of Pharmaceutical Innovation
https://doi.org/10.1007/s12247-022-09646-w

ORIGINAL ARTICLE

Design and Optimization of Nanophytosomes Containing *Mucuna prureins* Hydroalcoholic Extract for Enhancement of Antidepressant Activity

Poonam Karekar[1,2] · Suresh Killedar[3] · Sudhanshu Kulkarni[2] · Amir Shaikh[2] · Poournima Patil[4]

Accepted: 30 March 2022

Abstract

Purpose In this study, the herbal formulation containing nanophytosomes of *Mucuna prureins* extract (MPE) was engineered to ameliorate its rate of drug release, in vivo antidepressant profile, and stability.

Method The *Mucuna prureins* nanophytosomes (MPP) were designed by using a full factorial design approach, taking into consideration various variables that could give optimized formulation. Then, pure extract and optimized formulation showing higher entrapment efficiency were studied for in vitro dissolution and in vivo antidepressant activity in depression models like forced swimming test (FST) and tail suspension test (TST) in Swiss albino mice. The physicochemical characterization was carried out using particle size analysis and zeta potential, Fourier transformation infrared spectroscopy, differential scanning calorimetry, proton nuclear magnetic resonance, powder X-ray diffractometer, scanning electron microscopy, and solubility studies. Moreover, the stability of nanophytosomes was assessed by subjecting optimized formulation to freeze–thaw cycle stability testing and calculating entrapment efficiency at the end of the cycle.

Results PXRD and SEM revealed a decrease in the crystalline nature of nanophytosomes. ^{1}H NMR, DSC, and FTIR asserted the formation of the phyto-phospholipids complex. The rate and extent of dissolution were also found enhanced and sustained in nanophytosomes as compared to pure extract. In vivo antidepressant activity depicted a significant reduction of immobility in mice treated with nanophytosomes as compared to those treated with the pure extract. Moreover, optimized formulation was found stable as entrapment efficiency values were not reduced significantly.

Conclusion Thus, nanophytosomes drug delivery could be the best strategy to improve physicochemical properties of extract and thus could be exploited for the extracts having poor solubility, poor permeability, and poor stability.

Keywords Nanophytosomes · *Mucuna prureins* extract · Antidepressant activity · Physicochemical characterization

Introduction

Depression is considered a life-threatening psychological disorder nowadays as almost 20% of the world's population is affected by such a chronic and recurring one. [1–3] The disorder has established its relation to psychosocial, behavioral abnormalities, although the complete etiology of it has not been fully explored. The disorder is regarded as a common cause of suicidal tendencies. [4, 5] Depression is characterized by aberration of emotional, behavioral

✉ Poonam Karekar
poonamkarekar16@rediffmail.com

Suresh Killedar
sureshgk_64@rediffmail.com

Sudhanshu Kulkarni
sudhanshukulkarni968@gmail.com

Amir Shaikh
amir.shaikh@indiraicp.edu.in

Poournima Patil
poournima6@gmail.com

[1] Department of Pharmaceutics, Bharati Vidyapeeth College of Pharmacy Kolhapur, Kolhapur, Maharashtra, India

[2] Department of Pharmaceutics, Indira College of Pharmacy, Pune, Maharashtra, India

[3] Department of Pharmacognosy, Shree Sant Gajanan Maharaj College of Pharmacy, Gadhiglaj Mahagaon, Kolhapur, Maharashtra, India

[4] Department of Pharmaceutical Chemistry Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, India

Published online: 11 April 2022

BACK TO INDEX

NeuroQuantology |September 2022 | Volume 20 | Issue 10 |Page 9790-9796| doi: 10.14704/nq.2022.20.10.NQ55953
Ashish A. Misal et al / Herbal Anti-Psoriatic Emulgel

Herbal Anti-Psoriatic Emulgel

Ashish A. Misal[1*], Archana.S. Murgunde[1], Sadeep R. Kane[1], Trupti P. Lade[1], Manisha.M.Murgude[1], Shrinivas .K. Mohite[1], Vikas R. Dhole[2], Pravinkumar D. Lade[3], Sandip. D Chavan[4]

Abstract

The main aim for the preparation of herbal anti-psoriatic emulgel is "preventing skin disorder like psoriasis". It is a vital principal in the prevention, control and reduction of any acquired infection. An herbal formulation avoids adverse effect like itching, irritation, dermatitis etc. So as the prime criteria instead of using some synthetic drugs, an attempt has been made to formulate and prepare herbal emulgel by using extract of commonly available plants like Psoralea corylifolia linn. The formulation was evaluated for its physical parameters. It is sure that the combination of ingredients behaves as an effective, and provides better results of evaluations. All the prepared formulations showed acceptable physical properties concerning color, homogeneity, consistency, spreadability, and pH value. The drug release was found to be higher for optimized formulation.

Key Words: Emulgel, Psoralea corylifolia linn, extraction, drug release
DOI Number: 10.14704/nq.2022.20.10.NQ55953 **NeuroQuantology 2022; 20(10): 9790-9796**

Introduction

Topical drug delivery refers to the application of a drug-containing formulation to the skin to treat a cutaneous condition. This system is used when other routes of drug administration (such as oral, sublingual, rectal, and parental) fail, or when a local skin infection, such as a fungal infection, Psoriasis occurs. Topical drug administration is a common treatment method for both local and systemic conditions. In the topical delivery system, the drug is absorbed by the skin and reaches the site of action to provide a therapeutic effect. [1]The rate of drug release from a topical preparation is dependent directly on the physiological features of the carrier. For the most part, pharmaceutical preparations applied to the skin are intended to serve some local action and as such are formulated to provide prolonged local contact with minimal systemic drug absorption.

Topical drug delivery system has several advantages such as the ability to deliver drug more selectively to a specific site and prevention of incompatibility associated with gastro-intestinal. Moreover, topical deliveries by avoiding first pass metabolism provide an increased bioavailability and consistent delivery for an extended period.[2] In topical drug delivery system, drug reaches to the site of action via diffuses out of the delivery system and their absorption takes the place of the skin. Percutaneous absorption can be improved by increasing the release rate of the drug from dosage form. The release rates of medications from topical preparations depend straightforwardly on various physical, chemical properties of the carrier and the medication utilized.[3]

Emulgel

Since the mid-1980s, emulsion gels have been picking up significance in pharmaceutical topical semisolid dosage forms. Their wide usage as pharmaceutical dosage form originates from the wide use of emulsion systems, especially for dermatological formulae. Emulgel are emulsions, either of the water-in-oil or oil-in-water type, which are gelled by mixing with a gelling agent

Corresponding author: Ashish A. Misal
Address: [1]Rajarambapu College of Pharmacy, Kasegaon, Maharashtra, [2]Ashokraomane College of Pharmacy, Peth Vadgaon, Maharashtra, [3]Nootan College of Pharmacy, Kavathemahankal , Maharashtra, [4]Tatyasaheb Kore College of Pharmacy, Warananagar, Maharashtra

eISSN 1303-5150

BACK TO INDEX

NeuroQuantology | November2022 | Volume 20 | Issue 18| Page 600-607|Doi: 10.48047/NQ.2022.20.18. NQ88053
Deepali. S. Suryavanshi et al / A Study of Preparation, Evaluation and Antimicrobial Screening of Herbal Gel Sanitizer.

A Study of Preparation, Evaluation and Antimicrobial Screening of Herbal Gel Sanitizer

Deepali. S. Suryavanshi[1*], Archana.S. Murgunde[1], Sadeep R. Kane[1], Trupti P. Lade[1], Manisha.M.Murgude[1], Shrinivas .K. Mohite[1], Vikas R. Dhole[2], Pravinkumar D. Lade[3], Sandip. D Chavan[4]

Abstract

In this study of preparation, evaluation and antimicrobial screening of herbal gel sanitizer. Use herbal Extract to reduce the toxic effects of hand sanitizer. The use of hand sanitizer has now become critical in recently to meet the objective of preventing nosocomial infections puton by many opportunistic microorganisms. The plant material of this research was Symplocos racemosa roxb. (lodhra) and Pterocarpus santalinus Linn. (Red sandalwood),two herbal mixtures with a number of uses, and to evaluate the antimicrobial efficacy and hand safety of the each product. By applying a culture sensitivity test, the formulation's activity against the target microorganism was evaluated. (Bacteria- E. coli, taphylococcus aureus, and Bacillus subtilis). Evaporation rate of this formulation is less than 1min and Irritancy, redness, dry hand was not found. In comparison to the reference, it was found the itsignificance was more. On the basis of the results so, it may be observed that the formulation and evaluation of a herbal gel sanitizer comprising extracts of Symplocos racemose roxb and Pterocarpus santalinus linn were successful and that the extracts showed antimicrobial properties.

Key Words: Sanitizer , Herbal , Gel , Antimicrobial , Symplocos racemosa roxb , lodhra

DOI Number: 10.48047/NQ.2022.20.18. NQ88053 **NeuroQuantology 2022; 20(18):600-607**

Introduction

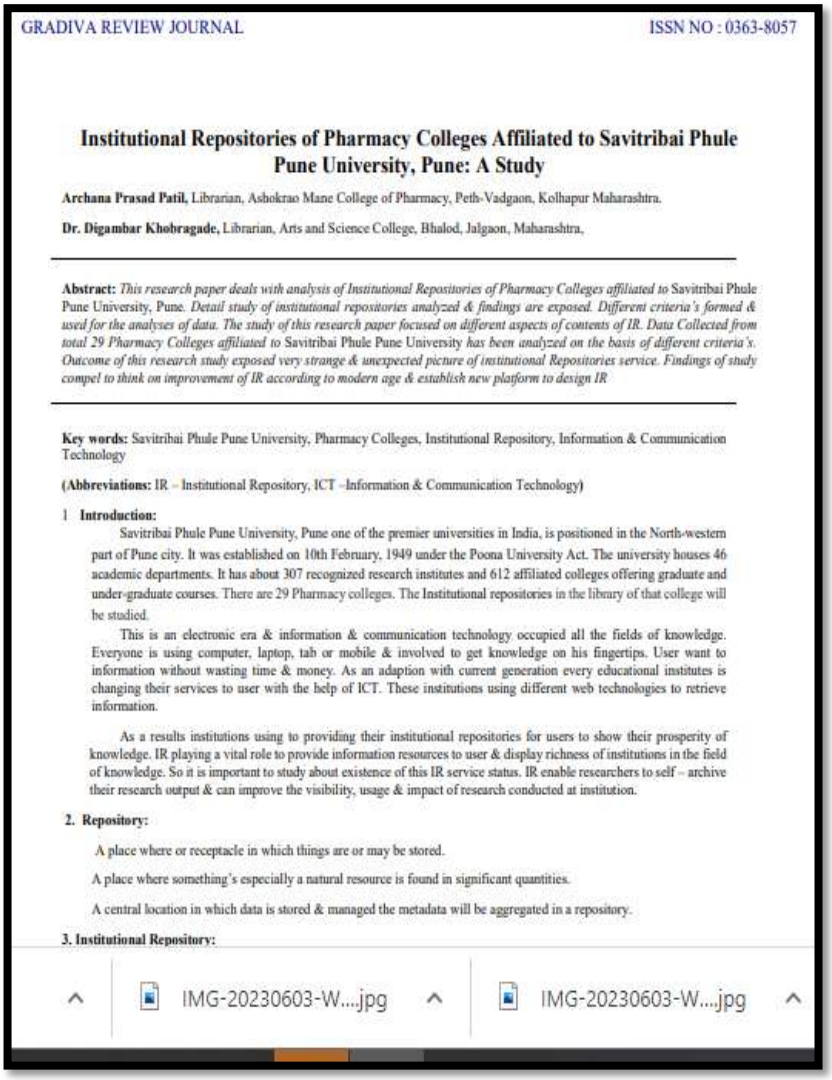
In 1966, hand sanitizers were also use in healthcare settings like hospitals. Early in the 1990s,the product grew in popularity. The story began in Bakersfield, California, in 1966, when young Latina nursing student Lupe Hernandez proposed an idea on how to deliver a disinfecting alcohol, solution in gel form. I looked for a patent that had been issued to Lupe Hernandez, but I cannot find any.Around the same time, I did come into patents for hand sanitizers. but those were for devices that one would put their hands into to sanitizer them.For a "Rapid Hand Sanitizer," which Stevenson shows as "a device for quickly and efficientlyrendering the hands sanitary,". [1]"It is a matter of observation that peoples handling foods and similar products in public, often at lunch counters, drug stores, etc., children's pickup objects from the floor, touch their hair, or otherwise soil their hands, then immediately pick up and handle food or other supplies," he noted.

Hands are the best mode of the spread of infections and microbes. Thus, the most common methodology to slow the speed o harmful germs. Cleaning is the solely significant, least hard,and simplest methods to stop nosocomial infections. Hands specific to particular contaminated can split the transmission of microorganisms. Pathogenic Epidemic-causing bacteria are disseminated when the food handler's hands are transferred to others', the handling the food enters his or her hands and retrieves these consumers of food or drink contact the thumb to microorganisms. [2]The consumer is bared after eating these germs, It might give rise in gastrointestinal issues. Clinging digits Using frozen meals denotes a very significant chances that pathogens may acquire

Corresponding author: Deepali. S. Suryavanshi
Address: [1]Rajarambapu College of Pharmacy, Kasegaon, Maharashtra, [2]Ashokraomane College of Pharmacy, Peth Vadgaon, Maharashtra, [3]Nootan College of Pharmacy, Kavathemahankal , Maharashtra, [4]Tatyasaheb Kore College of Pharmacy, Warananagar, Maharashtra

eISSN 1303-5150

BACK TO INDEX



GRADIVA REVIEW JOURNAL ISSN NO : 0363-8057

Institutional Repositories of Pharmacy Colleges Affiliated to Savitribai Phule Pune University, Pune: A Study

Archana Prasad Patil, Librarian, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur Maharashtra.

Dr. Digambar Khobragade, Librarian, Arts and Science College, Bhalod, Jalgaon, Maharashtra,

Abstract: *This research paper deals with analysis of Institutional Repositories of Pharmacy Colleges affiliated to* Savitribai Phule Pune University, Pune. *Detail study of institutional repositories analyzed & findings are exposed. Different criteria's formed & used for the analyses of data. The study of this research paper focused on different aspects of contents of IR. Data Collected from total 29 Pharmacy Colleges affiliated to* Savitribai Phule Pune University *has been analyzed on the basis of different criteria's. Outcome of this research study exposed very strange & unexpected picture of institutional Repositories service. Findings of study compel to think on improvement of IR according to modern age & establish new platform to design IR*

Key words: Savitribai Phule Pune University, Pharmacy Colleges, Institutional Repository, Information & Communication Technology

(Abbreviations: IR – Institutional Repository, ICT –Information & Communication Technology)

1 **Introduction:**

Savitribai Phule Pune University, Pune one of the premier universities in India, is positioned in the North-western part of Pune city. It was established on 10th February, 1949 under the Poona University Act. The university houses 46 academic departments. It has about 307 recognized research institutes and 612 affiliated colleges offering graduate and under-graduate courses. There are 29 Pharmacy colleges. The Institutional repositories in the library of that college will be studied.

This is an electronic era & information & communication technology occupied all the fields of knowledge. Everyone is using computer, laptop, tab or mobile & involved to get knowledge on his fingertips. User want to information without wasting time & money. As an adaption with current generation every educational institutes is changing their services to user with the help of ICT. These institutions using different web technologies to retrieve information.

As a results institutions using to providing their institutional repositories for users to show their prosperity of knowledge. IR playing a vital role to provide information resources to user & display richness of institutions in the field of knowledge. So it is important to study about existence of this IR service status. IR enable researchers to self – archive their research output & can improve the visibility, usage & impact of research conducted at institution.

2. Repository:

A place where or receptacle in which things are or may be stored.

A place where something's especially a natural resource is found in significant quantities.

A central location in which data is stored & managed the metadata will be aggregated in a repository.

3. Institutional Repository:

IMG-20230603-W....jpg IMG-20230603-W....jpg

BACK TO INDEX

Research Publications A.Y.2020-21

REVIEW ARTICLE

A REVIEW ON BASICS AND APPLICATIONS OF MODIFIED CARBOHYDRATES IN DRUG DELIVERY

Smita T. Kumbhar*, Shitalkumar S. Patil, Manish S. Bhatia, Yogesh S. Thorat and Prafulla B. Choudhari

(Received 09 October 2019) (Accepted 24 February 2020)

ABSTRACT

Polysaccharides demonstrate a wide diversity in their structural features as well as physicochemical properties owing to a variety of functional groups, chemical structure and a broad array of molecular mass. The most important feature of modified polysaccharides is their amphiphilic character which allows the application of these conjugates as an emulsifier, modifiers of surface in liposomes and micro/nanoparticles, viscosity modifiers and drug delivery vehicles. Recently, the lipophilic modification of polysaccharides, which serve as a nano-container for water-insoluble or poorly water-soluble drugs, has gained attention in the biomedical applications due to their ability to form self-assembled nanoparticles. The natural polysaccharides are readily available, stable, biodegradable, economical, safe and biocompatible. It is difficult to synthesize compounds with such diversity in characteristics. In recent decades, many researchers have taken interest in polysaccharides and their derivatives for use in nanoparticulate systems. This review focuses on the chemical modification of mono and polysaccharides and the mechanisms involved in the formation of polysaccharide-based nanoparticles.

Keywords: Chitosan, Galactose, Pectin, Polysaccharide, Targeted drug delivery system

INTRODUCTION

Carbohydrates

Carbohydrates are known as polyhydroxy aldehydes or polyhydroxy ketones and classified as monosaccharides, disaccharides, and polysaccharides held together by glycosidic bonds. Carbohydrates are sources of energy. They also serve as structural constituents in the living creatures[1,2].

Carbohydrates are a complex group of natural products they can be broadly classified as simple carbohydrates (monosaccharides, disaccharides, trisaccharides, and tetrasaccharides), polysaccharides (glucans, fructosans, galactans, pentosans), mucopolysaccharides (natural mucopolysaccharides, simple acid mucopolysaccharides, sulfomucopolysaccharides) and complex carbohydrates (glycosides, glycoprotein, glycolipids, nucleotides, nucleic acid)[3].

Targeted Drug Delivery System

The drug is directly released in the systemic circulation from the traditional drug delivery systems leading to the drug distribution to the entire body[4]. The non-specific drug distribution causes lesser concentration of active medicament at the site of action, resulting in poor pharmacological response, as well as the presence of drug at the other sites, resulting in the unwanted adverse effects of the drug[5,6]. Paul Ehrlich[7] proposed the magic bullet concept which was the earliest form of today's concept of targeted drug delivery system (TDDS). Such system directs the drug to the desired pharmacological target at the concentration in the therapeutic range with the concomitant constraint of its distribution to the normal cells and tissues. Major purposes of the drug targeting are for example, prolonging the drug action[8] if required, localization of active pharmaceutical ingredient in a site-specific manner for improved drug interaction with the diseased cells[9]. Thus, drug targeting improves therapeutic efficacy while minimizing the adverse effects. The targeted delivery system may also cause a reduction in the dose, dosing frequency and fluctuation index. The factors

[1]Department of Pharmaceutical Chemistry, DSTS Mandal's College of Pharmacy, Solapur - 413 004, Maharashtra, India
[2]Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth Vadgaon - 416 112, Maharashtra, India
[3]Department of Pharmaceutical Chemistry, Bharati Vidyapeeth College of Pharmacy, Kolhapur - 416 013, Maharashtra, India
*For Correspondence: E-mail: smitakumbhar@gmail.com

https://doi.org/10.53879/id.58.02.12588

BACK TO INDEX

Glycoconjugate Journal (2021) 38:261–277
https://doi.org/10.1007/s10719-021-09983-x

ORIGINAL ARTICLE

In silico design and pharmacological evaluation of conjugates of atenolol with modified saccharide for cardiovascular targeting

Smita Tukaram Kumbhar[1] · Shitalkumar Shivgonda Patil[2] · Manish Sudesh Bhatia[3]

Received: 22 December 2020 / Revised: 19 February 2021 / Accepted: 22 February 2021 / Published online: 9 March 2021

Abstract

Amongst a wide range of biological macromolecules, saccharides exhibit the potential to be specifically recognized by cell-surface receptors and hence can be utilized as ligands in targeted drug delivery. The current study aims to use saccharides viz. Galactose, Pectin and Chitosan to improve targeting of Atenolol by oxalyl chloride mediated grafting. Conjugates were engineered by grafting Atenolol, a cardiovascular agent with the modified saccharide units. The conjugates were characterized by FTIR, DSC and ^{1}H NMR study. Drug release analysis and cellular uptake study was carried out using H9c2 cell lines which represent that concentration of drug in cells treated with all atenolol-saccharide conjugates is enhanced by almost two-folds in comparison with cells treated with atenolol solution. Thus cell line study confers the evidence of selective cardiac delivery. No significant cytotoxicity was observed in case of all synthesized conjugates in the Brine shrimp lethality bioassay. Possible binding of the developed conjugates with the GLUT-4 receptors was assessed by *in silico* analysis using homology model developed by Swiss Model server. Hence it was concluded that the application of these conjugates with saccharides in selective cardiovascular drug delivery can be a promising approach to increase bioavailability, minimize drug loss by degradation and prevent harmful side effects by increasing specific cell targeting.

Keywords Sugar macromolecules · Chemical grafting · Targetal delivery

Introduction

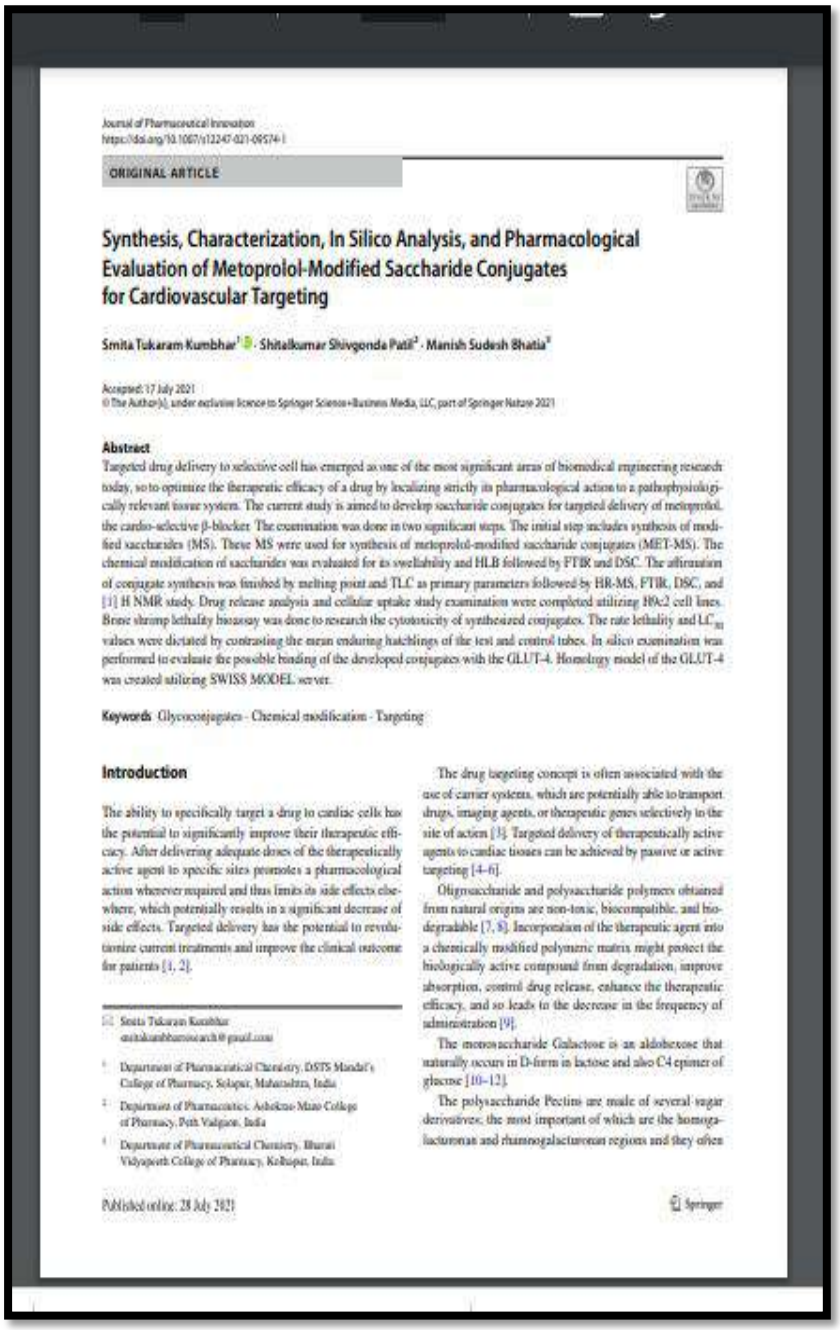
At the beginning of the twentieth century, cardiovascular diseases turned out to be the leading cause of mortality in India. In 2016, the likely prevalence of cardiovascular diseases in India was estimated to be 54.5 million. The cardiovascular diseases accounts for 1 in 4 deaths in India. Cardiovascular patients need lifelong treatment and finding the right individualized medicine for every patient is decisive. The β-adrenergic blockers have been used for decades in the treatment of cardiovascular diseases [1]. Atenolol is a second-generation β_1-selective blocker employed in the treatment of hypertension, angina pectoris, and acute myocardial infarction. Additionally, it is also being used for the management of arrhythmias, migraine prophylaxis, paroxysmal supraventricular tachycardia, alcohol withdrawal, thyrotoxicosis, and prophylaxis against secondary myocardial infarction.

Cardiovascular disease, principally heart disease and stroke are the leading cause of death and morbidity in industrialized nations and are becoming an urgent health problem for all nations due to the unstoppable trend of an ageing and obese population [2]. Lukyanov [3] reported that lack of target-specific therapy is a major hurdle in the treatment of cardiovascular diseases and most of the other diseases. Several biological macromolecules are used as the carrier in designing targeted drug delivery system (TDDS) which restrict the drug distribution to the target site. Ideally, the carrier should possess properties like physical & chemically stable, free from toxicity, biocompatible as well as biodegradable [4, 5]. In addition to this carrier should be easy to manufacture, precise, economic and preferably, capable to release the drug at a controllable & predictable rate [6]. Several studies have reported that the macromolecules like natural polysaccharides which are readily available, stable, biodegradable, economic, safe and biocompatible also fulfill the state of affairs to be used as ideal carriers for designing the targeted drug delivery system [7, 8].

✉ Smita Tukaram Kumbhar
smitakumbharresearch@gmail.com

[1] Department of Pharmaceutical Chemistry, DSTS Mandal's College of Pharmacy, Solapur, Maharashtra, India
[2] Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth Vadgaon, India
[3] Department of Pharmaceutical Chemistry, Bharati Vidyapeeth College of Pharmacy, Kolhapur, India

BACK TO INDEX



Journal of Pharmaceutical Innovation
https://doi.org/10.1007/s12247-021-09574-1

ORIGINAL ARTICLE

Synthesis, Characterization, In Silico Analysis, and Pharmacological Evaluation of Metoprolol-Modified Saccharide Conjugates for Cardiovascular Targeting

Smita Tukaram Kumbhar[1] · Shitalkumar Shivgonda Patil[2] · Manish Sudesh Bhatia[3]

Accepted: 17 July 2021

Abstract
Targeted drug delivery to selective cell has emerged as one of the most significant areas of biomedical engineering research today, so to optimize the therapeutic efficacy of a drug by localizing strictly its pharmacological action to a pathophysiologically relevant tissue system. The current study is aimed to develop saccharide conjugates for targeted delivery of metoprolol, the cardio-selective β-blocker. The examination was done in two significant steps. The initial step includes synthesis of modified saccharides (MS). These MS were used for synthesis of metoprolol-modified saccharide conjugates (MET-MS). The chemical modification of saccharides was evaluated for its swellability and HLB followed by FTIR and DSC. The affirmation of conjugate synthesis was finished by melting point and TLC as primary parameters followed by HR-MS, FTIR, DSC, and [1] H NMR study. Drug release analysis and cellular uptake study examination were completed utilizing H9c2 cell lines. Brine shrimp lethality bioassay was done to research the cytotoxicity of synthesized conjugates. The rate lethality and LC_{50} values were dictated by contrasting the mean enduring hatchlings of the test and control tubes. In silico examination was performed to evaluate the possible binding of the developed conjugates with the GLUT-4. Homology model of the GLUT-4 was created utilizing SWISS MODEL server.

Keywords Glycoconjugates · Chemical modification · Targeting

Introduction

The ability to specifically target a drug to cardiac cells has the potential to significantly improve their therapeutic efficacy. After delivering adequate doses of the therapeutically active agent to specific sites promotes a pharmacological action wherever required and thus limits its side effects elsewhere, which potentially results in a significant decrease of side effects. Targeted delivery has the potential to revolutionize current treatments and improve the clinical outcome for patients [1, 2].

The drug targeting concept is often associated with the use of carrier systems, which are potentially able to transport drugs, imaging agents, or therapeutic genes selectively to the site of action [3]. Targeted delivery of therapeutically active agents to cardiac tissues can be achieved by passive or active targeting [4–6].

Oligosaccharide and polysaccharide polymers obtained from natural origins are non-toxic, biocompatible, and biodegradable [7, 8]. Incorporation of the therapeutic agent into a chemically modified polymeric matrix might protect the biologically active compound from degradation, improve absorption, control drug release, enhance the therapeutic efficacy, and so leads to the decrease in the frequency of administration [9].

The monosaccharide Galactose is an aldohexose that naturally occurs in D-form in lactose and also C4 epimer of glucose [10–12].

The polysaccharide Pectins are made of several sugar derivatives; the most important of which are the homogalacturonan and rhamnogalacturonan regions and they often

✉ Smita Tukaram Kumbhar
smitakumbharresearch@gmail.com

[1] Department of Pharmaceutical Chemistry, DSTS Mandal's College of Pharmacy, Solapur, Maharashtra, India
[2] Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth Vadgaon, India
[3] Department of Pharmaceutical Chemistry, Bharati Vidyapeeth College of Pharmacy, Kolhapur, India

Published online: 28 July 2021

BACK TO INDEX

Original Article

In-vivo Pharmacokinetic Study, *in-vitro* Cytotoxic, Cell Cycle Arresting and Proapoptotic Characteristics of Multiple Emulsions for the Co-delivery of Simvastatin and Alendronate Sodium

Sandip Akaram Bandgar[1,2], Namdeo Ramhari Jadhav[2,*]

[1]Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Kolhapur, Maharashtra, INDIA.
[2]Department of Pharmaceutics, Bharati Vidyapeeth College of Pharmacy, Kolhapur, Maharashtra, INDIA.

ABSTRACT

Purpose: Development of nanocarriers that can provide efficient co-delivery of immiscible hydrophilic/ hydrophobic drugs with established technology for industrial production is crucial. Due to this reason, multiple emulsions (MEs) were selected as the desired carriers to achieve the co-delivery ability of many drugs and the improvement of cancer therapeutic effect. MEs could entrap the drug in the inner oil phase and hence avoid the drug leaking and co-deliver the drugs into the tumor sites. Therefore, in the present study, an attempt is made to develop w/o/w multiple emulsion for co-delivery of lipophilic Simvastatin (SVS) and hydrophilic Alendronate Sodium (ADS) with improved oral pharmacokinetics. **Methods:** The MEs were formulated by the use of Poloxamer-407, TPGS and Soyabean Oil. Tween 80 and Span 80 were used as surfactant and co-surfactant respectively. The MEs was prepared by the process of primary and secondary emulsification and evaluated in terms of visual assessment, turbidity, viscosity, particle size and zeta potential. The optimized batch was evaluated in terms of TEM analysis, X-Ray diffraction, FTIR study, *in-vitro* release and screened for cytotoxicity study, cell cycle arresting, apoptosis study and quantification of SVS and ADS in Rat Plasma. **Results:** The MEs treatment inhibited the cell growth with low IC_{50} value against all cells (A549: 0.030 ± 0.014 µg/mL, MDAMB-231: 0.088 ± 0.013 µg/mL, PC-3: 0.019 ± 0.002 µg/mL).The AUC in case of ADS and SVS was found to be 710.01 ng/mL and 14.413 ng/mL respectively by oral administration and 42.308 ng/mL and 28.902 ng/mL in 12 and 1 hr respectively by IV administration. **Conclusion:** This strategy has improved simultaneous oral bioavailability of very poorly bio-available both ADS and SVS and thus improved the oral therapeutic efficacy of this combination therapy.

Key words: Simvastatin, Alendronate Sodium, *In-vivo* Pharmacokinetic Study, Cytotoxicity Study, Cell cycle arresting, Apoptosis Study.

Submission Date: 25-07-2020;
Revision Date: 13-06-2021;
Accepted Date: 25-09-2021

DOI: 10.5530/ijper.55.3s.178

Correspondence:
Dr. Namdeo Ramhari Jadhav,
Bharati Vidyapeeth College of Pharmacy, Kolhapur, Maharashtra, INDIA.
Phone: +91-09823751579,
Email – nrjadhav16@rediffmail.com

INTRODUCTION

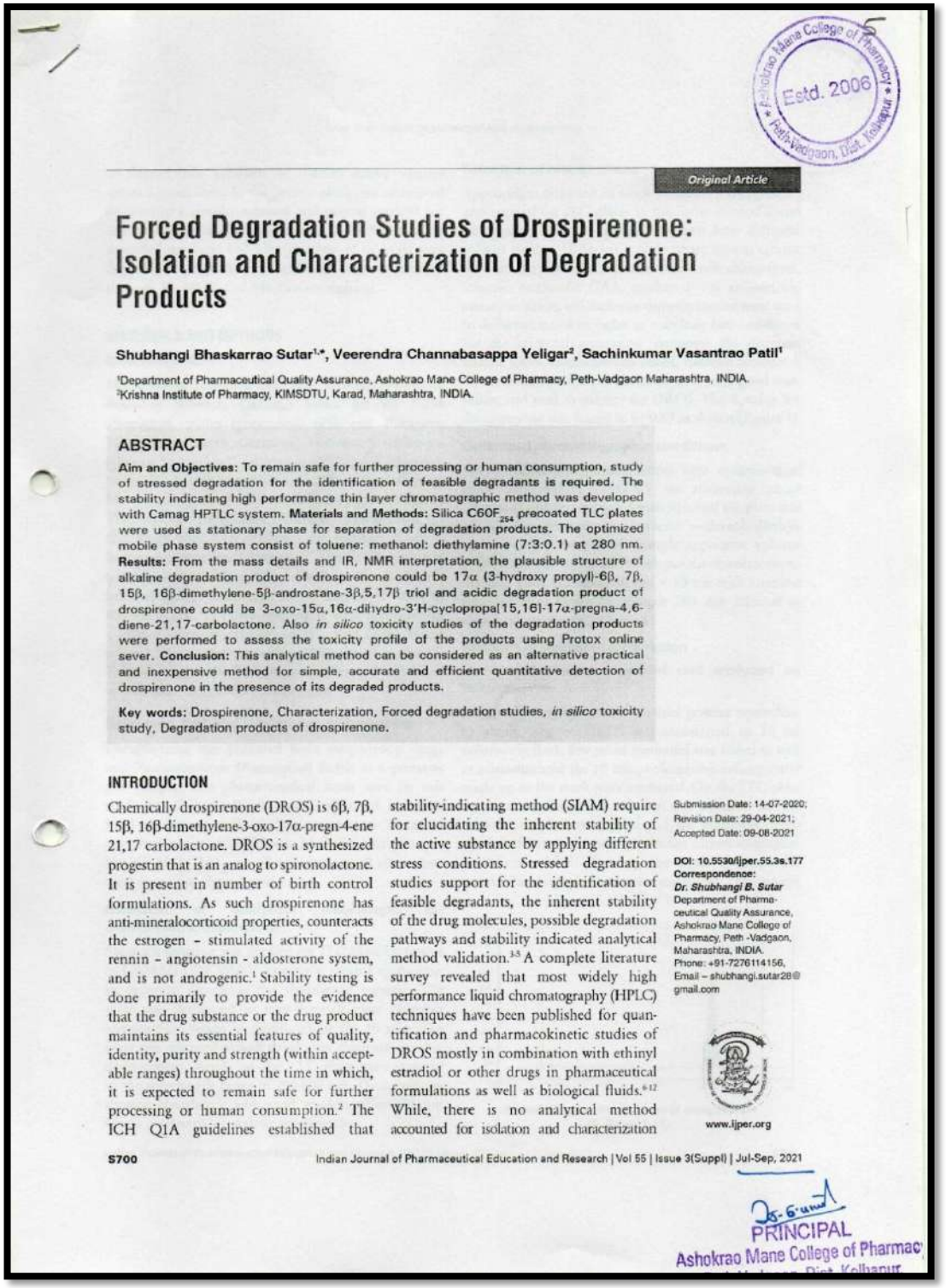
Statins clinically used to reduce blood cholesterol levels, are the second-most prescribed drugs after analgesics and are considered to be the safest drugs.[1] In cell-based experiments, the hydrophobic statins displayed inhibitory effects on many cancers.[1,2]

Alendronate Sodium is the sodium salt of alendronate, a second generation bisphosphonate and synthetic analogue of pyrophosphate with bone anti-resorption activity. Alendronate sodium binds to and inhibits the activity of geranyl transtransferase, an enzyme involved in terpenoid biosynthesis. Nitrogen containing Bisphosphonates have been proved to reduce and delay bone complications from bone metastasis, and have been used worldwide for the treatment of bone metastasis from solid tumors, bone complications and pain from multiple myeloma.

www.ijper.org

PRINCIPAL
Ashokrao Mane College of Pharmacy

BACK TO INDEX



Original Article

Forced Degradation Studies of Drospirenone: Isolation and Characterization of Degradation Products

Shubhangi Bhaskarrao Sutar[1,*], Veerendra Channabasappa Yeligar[2], Sachinkumar Vasantrao Patil[1]

[1]Department of Pharmaceutical Quality Assurance, Ashokrao Mane College of Pharmacy, Peth-Vadgaon Maharashtra, INDIA.
[2]Krishna Institute of Pharmacy, KIMSDTU, Karad, Maharashtra, INDIA.

ABSTRACT

Aim and Objectives: To remain safe for further processing or human consumption, study of stressed degradation for the identification of feasible degradants is required. The stability indicating high performance thin layer chromatographic method was developed with Camag HPTLC system. **Materials and Methods:** Silica $C60F_{254}$ precoated TLC plates were used as stationary phase for separation of degradation products. The optimized mobile phase system consist of toluene: methanol: diethylamine (7:3:0.1) at 280 nm. **Results:** From the mass details and IR, NMR interpretation, the plausible structure of alkaline degradation product of drospirenone could be 17α (3-hydroxy propyl)-6β, 7β, 15β, 16β-dimethylene-5β-androstane-3β,5,17β triol and acidic degradation product of drospirenone could be 3-oxo-15α,16α-dihydro-3′H-cyclopropa[15,16]-17α-pregna-4,6-diene-21,17-carbolactone. Also *in silico* toxicity studies of the degradation products were performed to assess the toxicity profile of the products using Protox online sever. **Conclusion:** This analytical method can be considered as an alternative practical and inexpensive method for simple, accurate and efficient quantitative detection of drospirenone in the presence of its degraded products.

Key words: Drospirenone, Characterization, Forced degradation studies, *in silico* toxicity study, Degradation products of drospirenone.

INTRODUCTION

Chemically drospirenone (DROS) is 6β, 7β, 15β, 16β-dimethylene-3-oxo-17α-pregn-4-ene 21,17 carbolactone. DROS is a synthesized progestin that is an analog to spironolactone. It is present in number of birth control formulations. As such drospirenone has anti-mineralocorticoid properties, counteracts the estrogen - stimulated activity of the rennin - angiotensin - aldosterone system, and is not androgenic.[1] Stability testing is done primarily to provide the evidence that the drug substance or the drug product maintains its essential features of quality, identity, purity and strength (within acceptable ranges) throughout the time in which, it is expected to remain safe for further processing or human consumption.[2] The ICH Q1A guidelines established that stability-indicating method (SIAM) require for elucidating the inherent stability of the active substance by applying different stress conditions. Stressed degradation studies support for the identification of feasible degradants, the inherent stability of the drug molecules, possible degradation pathways and stability indicated analytical method validation.[3-5] A complete literature survey revealed that most widely high performance liquid chromatography (HPLC) techniques have been published for quantification and pharmacokinetic studies of DROS mostly in combination with ethinyl estradiol or other drugs in pharmaceutical formulations as well as biological fluids.[6-12] While, there is no analytical method accounted for isolation and characterization

Submission Date: 14-07-2020;
Revision Date: 29-04-2021;
Accepted Date: 09-08-2021

DOI: 10.5530/ijper.55.3s.177

Correspondence:
Dr. Shubhangi B. Sutar
Department of Pharmaceutical Quality Assurance, Ashokrao Mane College of Pharmacy, Peth -Vadgaon, Maharashtra, INDIA.
Phone: +91-7276114156,
Email – shubhangi.sutar28@gmail.com

www.ijper.org

BACK TO INDEX

20 - 6

Journal of Pharmaceutical Innovation
https://doi.org/10.1007/s12247-021-09605-x

ORIGINAL ARTICLE

Development and Characterization of 5-Fluorouracil Solid Lipid Nanoparticles for Treatment of Colorectal Cancer

Poournima Patil[1,2] · Suresh Killedar[3] · Harinath More[2] · Ganesh Wabhujkar[4]

Accepted: 12 November 2021

Abstract

Purpose In this study, the oral nanotherapeutic approach of 5-fluorouracil solid lipid nanoparticles (5-FU SLNs) for the synergistic treatment of colorectal cancer in preclinical DMH rat model is studied.

Method 5-Fluorouracil solid lipid nanoparticles with solvent evaporation emulsification method by using different ratios of polymer and surfactant.

Result 5-FU SLNs with chitosan and poloxamer 407 ratio of 2.4:0.1 has shown better particle size (147.9 ± 1.48 nm) with entrapment efficiency 90.60 ± 0.01% and loading content 3.40 ± 0.03%. In vitro, drug release studies were done by using simulated fluids at various pHs (1.2, 4.5, 7.5, and 7.0) to mimic the GIT tract and achieve 85.16 ± 0.26% at 24 h in a sustained manner. In the current investigation, treatment with 5-FU SLNs increased levels of SOD, CAT, and GSH in the colonic tissue which were considerably DMH-treated rats having lower level. It should be highlighted that the 5-FU SLNs anticancer activity on colorectal was superior over the course of the study, utilizing an in vivo model. Colonic tumour incidence, speed, size, and multiplicity, as well as the number of ACFs, have all decreased.

Conclusion Collectively, based on the chitosan-TPP platform, these results suggest that both 5-fluorouracil solid lipid nanoparticles confirmed in vitro and in vivo has shown to provide a promising oral delivery for colorectal cancer.

Keywords 5-Fluorouracil · Solid lipid nanoparticles · Colorectal cancer

Introduction

Colorectal cancer (CRC) is one of the third commonly diagnosed malignancies in many countries, especially in western civilization dreaded and threatening cancer [1, 2]. Different treatments available to control or eradicate CRC such as tumor removal, radiotherapy, and chemotherapy are used in advanced stages, but the inability of the drug to function especially to target site results in a lack of site specificity leading to side effects of both healthy cells and cancerous cells. Unfortunately, a commonly used chemotherapeutic agent results with inadequate therapeutic results because of their hydrophobic type, improper biodistribution, and their tendency to develop drug resistance [3]. All of these conventional treatments have direct effects on cancerous tissues, the toxicities in normal tissues approaches to treat cancer [4]. Different cytotoxic medications, such as 5-fluorouracil, oxaliplatin, and cisplatin, are used to treat colorectal cancer because of their hydrophobic properties and their tendency to develop drug resistance [5, 6]. In this case, multiple cytotoxic drugs are used to treat colorectal cancer, but their toxicity to the normal cells is the reason, which can be due to the rapid proliferation of cancer cells [7].

5-Fluorouracil (5-FU) that belongs to the antimetabolite category has been used alone or in combination with another drug in the treatment of many cancers, such as colorectal, breast, liver, and stomach cancers, as a first-line agent. 5-FU is water soluble with a short circulation half-life in the plasma; a high dose is recommended over a longer period to get desired therapeutic effect; it is also

✉ Poournima Patil

1 Department of Pharmaceutical Chemistry, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, India

2 Department of Pharmaceutical Chemistry, Bharati Vidyapeeth College of Pharmacy, Kolhapur, Maharashtra, India

3 Department of Pharmacognosy, Shree Sant Gajanan Maharaj College of Pharmacy, Mahagaon, Maharashtra, India

4 Department of Pharmaceutical Chemistry, Rajarambapu College of Pharmacy, Kasegaon, Maharashtra, India

BACK TO INDEX

Annals of R.S.C.B., ISSN: 1583-6258, Vol.25, Issue 4, 2021, Pages. 19128-19138
Received 05 March 2021; Accepted 01 April 2021

Simvastatin and Alendronate sodium repurposing for cancer as HER2, EGFR kinase and AR potential inhibitors: *In silico* approach

S. A. Bandgar[1,2*], D. T. Gaikwad[2], V. V. Shah[3], N. R. Jadhav[2]
[1]Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur (MS), India 416112
[2]Department of Pharmaceutics, Bharati Vidyapeeth College of Pharmacy, Kolhapur (MS), India 416013
[3]Department of Pharmaceutical Chemistry, Krishna Institute of Pharmacy, Karad (MS), India 415539
*bandgarsandip21@gmail.com

ABSTRACT

The aim of this work was to test repurposing of Simvastatin and Alendronate sodium against three targets HER2, EGFR kinase and AR involved in breast cancer, lung cancer and prostate cancer respectively using molecular docking. *In silico* screening was carried out by grip-based docking methodology. The molecular coupling analysis was performed with PyRx version 0.8 and the Biovia visualization study. *In silico* investigation resulted promising BE score with all HER2, EGFR kinase and AR targets. Docking study resulted hydrogen bonding interaction with amino acids like ASP863, LYS753, LYS745, THR854, THR790, LYS808, ARG752, GLN711 and GLY683. The molecular docking study resulted detail valuable insights on the new therapeutic indication to cancer treatment. Conclusively, this study provides a suitable platform for drug repurposing for cancer management.

Keywords
Alendronate sodium; Cancer; Molecular docking; Repurposing; Simvastatin

Introduction

Drug repurposing also called as drug repositioning or drug re-profiling showed potential future that allows large number of methods in the discovery of novel treatments for diseases which are systematic and substantially less expensive while compared to traditional drug development[1-2]. It is a constructive strategy in drug molecule which is extremely efficient, time saving, low-cost and minimum risk of failure[3-4]. Thus, drug repositioning is an effective option to traditional drug discovery process[5].

Simvastatin is a lipid-lowering agent derived from a fermentation product of the fungus Aspergillus terreus which is associated with mild, asymptomatic and self-limited serum amino transferase elevations throughout therapy and infrequently with clinically apparent acute liver injury[6-7]. Alendronate Sodium is the sodium salt of alendronate, a second-generation bisphosphonate and synthetic analog of pyrophosphate with bone anti-resorption activity[8].
Human epidermal growth factor receptor 2 (HER2) is a member of the epidermal growth factor receptor family having tyrosine kinase activity[9]. Dimerization of the receptor results in the autophosphorylation of tyrosine residues within the cytoplasmic domain of the receptors and initiates a variety of signaling pathways leading to cell proliferation and tumorigenesis. Amplification or overexpression of HER2 occurs in approximately 15–30% of breast cancers[10].

Epidermal growth factor receptor kinase (EGFR kinase) is a trans-membrane glycoprotein with an extracellular epidermal growth factor binding domain and an intracellular tyrosine kinase domain that regulates signaling pathways to control cellular proliferation. Epidermal growth factor receptor binding to its ligand results in autophosphorylation by intrinsic tyrosine/kinase activity, triggering several signal transduction cascades[11]. Constitutive or sustained activation of these sequences of downstream targets is thought to yield more aggressive tumor phenotypes. Mutations in epidermal growth factor receptor have been discovered in association with some lung cancers. Lung adenocarcinomas with mutated epidermal growth factor receptor have significant responses to tyrosine kinase inhibitors[12].
Androgen receptor (AR) is a steroid receptor transcriptional factor for testosterone and dihydrotestosterone consisting of four main domains, the N-terminal domain, DNA-binding domain, hinge region, and ligand-binding domain. AR plays pivotal roles in prostate cancer, especially castration-resistant prostate cancer (CRPC). Androgen deprivation therapy can suppress hormone-naive prostate cancer, but prostate cancer changes AR and adapts to

BACK TO INDEX

ISSN 2231-5683 (Print)
2231-5691 (Online)
DOI: 10.5958/2231-5691.2021.00004.6
Vol. 11 | Issue-01|
January - March | 2021

Available online at
www.anvpublication.org
Asian Journal of Pharmaceutical Research
(AJPRes.)
Home page www.asianjpr.com

RESEARCH ARTICLE

Development and Validation of UV Spectrophotometric method for Estimation of Itraconazole in Bulk Drug and Solid Dosage Form

Pavan Chavan, Sandip Bandgar*, Santosh Gejage, Sagar Patil, Shitalkumar Patil
Department of Pharmaceutics, Ashokrao Mane College of Pharmacy Peth-Vadgaon (Kolhapur) MS 416112.
*Corresponding Author E-mail: **bandgarsandip21@gmail.com**

ABSTRACT:
A simple, robust, reliable, and economical method for Itraconazole as UV spectrophotometric estimation in bulk and tablet dosage form was developed using the method of absorbance ratio and validated according to the ICH guidelines. In the present analysis, Itraconazole was calculated using the absorbance values at 262nm. The findings of the study were statistically checked for Linearity, precision, exactness, LOD and LOQ. The procedure was found to be linear in the concentration range of 2-14µg/ml through a 99.40 per cent Itraconazole recovery. The results of the validation parameters also showed that the proposed method was found to be effective, precise, reproducible, responsive and suitable for regular quality assurance analyzes for Itraconazole in bulk and solid estimation.

KEYWORDS: Itraconazole, Absorbance ratio method, LOD and LOQ, ICH guidelines.

INTRODUCTION:
Itraconazole is a powerful antifungal triazole agent prescribed to patients with fungal infections that are used to treat mycoses. The product can be administered orally or intravenously.

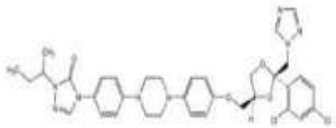


Figure 1: Chemical structure of Itraconazole

Itraconazole (ITZ) is used orally in capsule-shaped treatment of dermatophyte infections, superficial fungal infections and systemic fungal infections. In pharmaceutical formulations, few methods have been published for quality control and stability testing of Itraconazole, as the drug is the product of spectro fluorimetry used in the raw material and dosage forms for Itraconazole assay. RP-HPLC method is used for Itraconazole determination in human plasma. In this method, the chromatographic separation was performed using the fluorescence detector on an octadecylsilane column. It does have the downside to be time-consuming though. Both of these studies have also emphasized the need for a rapid and efficient quality-control review of the pharmaceutical formulations containing Itraconazole. Because these methods are costly, we have attempted to develop a more reliable, quick, and economical spectrophotometric method for analyzing Itraconazole in bulk and dosage forms with greater precision, accuracy, and sensitiveness[1,2].

Received on 15.08.2020 Revised on 17.09.2020
Accepted on 05.10.2020

MATERIALS AND METHODS:

5.pdf | Publication SVP 1.pdf | FT 2-1 (1).pdf

BACK TO INDEX

Krispon
ADVANCING SCIENCE

Abstracts of International Conferences & Meetings (AICM)

Received: 20 July 2021/ Accepted: 26 July 2021/ Published: 31 July 2021
DOI: https://doi.org/10.5281/zenodo.5149810

Multiple Emulsions for the Co-delivery of Simvastatin and Alendronate Sodium: Improvement in Pharmacokinetic Profile and Oral Therapeutic Efficacy

Sandip A. Bandgar[1*], Namdeo R. Jadhav[2], Sachin V. Patil[1]
[1]Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur (MS) India 416112
[2]Bharati Vidyapeeth College of Pharmacy, Kolhapur (MS) India 416013
*Corresponding author: Sandip Bandgar (bandgarsandip21@gmail.com)

*This work was presented at the **First International Online Conference on Blends, Composites, Bio-Composites and Nanocomposites (ICNC-2020)** held during 9 – 11, October 2020 at **Mahatma Gandhi University, Kerala, India, 686560***

Introduction: Blooming of nanocarriers that deliver efficient co-delivery of immiscible hydrophilic/ hydrophobic drugs with conventional technology for industrial invention is critical. Due to such reasons, multiple emulsions (MEs) were chosen as required carriers to accomplish the co-delivery capability of various drugs and the enhancement of cancer therapeutic effect. MEs could capture the drug in the inner oil phase and escape the leaking of the drug and co-deliver the drugs into the tumor sites (1). Therefore, in the current study, an effort is taken to develop w/o/w multiple emulsions for co-delivery of lipophilic Simvastatin (SVS) and hydrophilic Alendronate Sodium (ADS) with improved oral pharmacokinetics (2).

Methods: MEs were formulated by the use of Poloxamer-407, TPGS and Soyabean Oil. Tween 80 and Span 80 were used as surfactant and co-surfactant correspondingly. The MEs was prepared by the process of primary and secondary emulsification and evaluated in terms of visual assessment, turbidity, viscosity, particle size and zeta potential. The optimized batch was evaluated in terms of TEM analysis, X-Ray diffraction, FTIR study, In-Vitro release and screened for cytotoxicity study, cell cycle arresting, apoptosis study and quantification of SVS and ADS in Rat Plasma.

Results & Discussions: The TEM analysis of optimized batch revealed the formation of spherical shape system and uniform size. X-Ray diffraction study revealed absence of obvious peaks which represents the drug is in amorphous form. SVS and ADS in SEDDS showed narrow release pattern as compared with plain drugs by which simultaneous delivery of both the drugs can be achieved. The MEs treatment retards the cell growth with short IC50 value besides every cell. The AUC in case of ADS and SVS was found to be 710.01 ng/mL and 14.413 ng/mL respectively by oral administration and 42.308 ng/mL and 28.902 ng/mL in 12 and 1 hr respectively by IV administration.

Conclusions: This strategy has improved simultaneous oral bioavailability of very poorly bio-available both ADS and SVS and thus improved the oral therapeutic efficacy of this combination therapy.

Keywords: *Alendronate Sodium, Simvastatin, In-vivo Pharmacokinetic Study, Apoptosis Study, Cell cycle Analysis, Cytotoxicity study*

Acknowledgment: Authors thanks to BVCP, Kolhpaur and AMCP, Peth Vadgaon for supporting to carry out the said research work.

References

1. Kamila Sroda Pomianek, Krystyna Michalak, Anna Palko, Labuz, Anna Uryga, Berenika Szczesniak Siega, Olga Wesolowska. Simvastatin Strongly Augments Proapoptotic, Anti-inflammatory and Cytotoxic Activity of Oxicam Derivatives in Doxorubicin resistant Colon Cancer Cells. Anticancer Research. 2019; 39: 727-734.
2. Nagaraja Sree Harsha, Arshia Shariff, Yogesh A Shendkar, Bandar E. Al-Dhubiab, Girish Meravanige. Development and Evaluation of a (SEDDS) Self-Emulsifying Drug Delivery System for Darifenacin Hydrobromide. Indian Journal of Pharmaceutical Education and Research. 2019; 53 (2s): s204-s212.

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth Vadgaon, Dist. Kolhapur.

BACK TO INDEX

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 3 May - June 2021, pp: 933-940 www.ijprajournal.com ISSN: 2249-7781

A Review on combine study of UV spectroscopic and HPLC methods for simultaneous estimation

Diptee D. Marchande [1*], Shubhangi B. Sutar [1], Arati R. Rathod [1], Neha D. Desai [2], Sachinkumar V. Patil [2]

[1]*Department of Pharmaceutical Quality Assurance, Ashokrao Mane College of Pharmacy, Peth -Vadgaon, Dist-Kolhapur, Maharashtra, pin-416112, India*

[2]*Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Dist-Kolhapur, Maharashtra, pin-416112, India*

Date Of Submission: 01-06-2021 Date Of Acceptance: 14-06-2021

ABSTRACT: In pharmaceutical world, simultaneous estimation shows a vital desirability as it is very realistic. For multi component analysis,various ultra violet (UV) spectroscopic and chromatographic practices are used. Analysis of samples holding numerous components is a main task in modern analysis. In this estimation, spectroscopic and chromatographic techniques provide high grade of specificity and far along deliver high steps of assurance and selectivity. There are number of separation methods that can be use for identification purpose of the analytes of interest. Different UV spectrophotometric approaches are used in multicomponent study. This evaluation is primarily focused on simultaneous estimation techniques. Because of the some benefits like speed, specificity, accurateness, precision and comfort of modernization in this process, number of drugs in multi component dosage forms can be studied by high performance liquid chromatography (HPLC) method.This analysis also gives material regarding several platforms involved in growth and authentication of HPLC method. Method development and validation in HPLC shows main characters in new discovery, expansion and production of pharmaceutical drugs. These multi-component preparations are gaining attention due to better patient suitability, amplified effectiveness, multiple action, low side effects and quicker relief. And so, it is desired that these preparations meet all-inclusive morals related to their excellence, safety and ability. This can only be possible if diverse analytical practices are offered for their determination.

KEYWORDS: Simultaneous estimation, Spectroscopic methods, HPLC, Method development, Validation.

I. INTRODUCTION

Analytical chemistry is related to study of quantification, separation and chemical extracts identification of herbal and synthetic ingredients constituted byone or extra mixtures. Analytical chemistry is separated into two major classes, a qualitative assessment thatis identification of chemical extracts exists in the sample, whereas quantitative assessment is the mass of compound within the material(the sample)[1].In formulations, the analytical system plays the significant role in identification of physical as well as chemicalassets of the formulations [2].In currentage, marketplace is flooded with severaldosageforms. The present multicomponent preparations due to patient suitability, increasedeffectiveness, multipleact and fasterrelief are gaining attention. Therefore, it is desired that these preparations meet all values related to their quality, safety and efficacy and this can only be possible if they are analyzed by different approaches [3].Various analytical techniques can be applied for simultaneous estimation including; spectrophotometry,chromatography and electrophoresis. Spectrophotometric methods and high performance liquid chromatography (HPLC)process for simultaneous determination are highlighted in this review [4].

Ultra violet spectroscopic methods

Spectrophotometric methods areleading instrumental methods which are offeredtowardsdrug analyst. Measuring the interaction of an electromagnetic radiations with sample in quantized form are the basics of spectroscopic methods. There are number of spectrophotometricmethods which are use in pharmaceuticalsphere for the study of active pharmaceutical ingredients (API) and pharmaceutical constituents [2].

PRINCIPAL
Ashokrao Mane College of Pharmacy

BACK TO INDEX

eSign
Signed by: Sachinkumar Vasantrao Patil
Reason: NAAC
Location: Peth Vadgaon, India
Date: 04-Jun-2023 (11:35 AM)

IJMPR 2021, 5(4), 324-327

International Journal of Modern Pharmaceutical Research
www.ijmpronline.com

ISSN: 2319-5878
IJMPR
Review Article
SJIF Impact Factor: 5.273

REVIEW ON PHYTOCHEMICAL CONSTITUENTS AND PHYTOPHARMACOLOGICAL ACTIVITIES OF SENNA AURICULATA LINN

Santosh S. Ghule*, Shubhangi B. Sutar and Sachinkumar V. Patil

Department of Pharmaceutical Quality Assurance College Name: Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur 416112.

Received on: 30/06/2021
Revised on: 20/07/2021
Accepted on: 10/08/2021

***Corresponding Author**
Santosh S. Ghule
Department of Pharmaceutical Quality Assurance College Name: Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur 416112.

ABSTRACT

Senna Auriculata has been used since ancient times to treat various ailments, this plant is widely used in the Ayurvedic medicine treatment. About the *senna auriculata* more specific information in the form of medicine is mentioned in old golden heritage Ayurvedic literature and other alternative medicine practices. It is screening of variety phytochemical constituents such as steroids, proteins, quinines, alkaloids, phenols, tannins, flavonoids, and terpenoids. Thephytopharmacological survey revealed that the different senna auriculata part was used in as treatment of antidiabetic, antioxidant, anti-anthelmintic, antibacterial, antimicrobial and anticancer and support ancient use. The present review focuses on its phytochemical constituents and phytopharmacological activities.

KEYWORD: *Senna Auriculata* Antibacterial Activity, Antidiabetic Activity, Anthelmintic activity, Antioxidant Activity, Antimicrobial activity and Anticancer Activity.

INTRODUCTION

Senna auriculata was traditionally used to treat of various disease, it belongs to the Fabaceae family. There synonym is Cassia auriculata L. The local name is known as Cassia auriculata, Tarvad, Matura tea tree, Avaram. It is mainly found in the arid regions of India ana Sri Lanka. The leaves are alternate, stipulate, paripinnate compound, very numerous, closely place, rachis 8.8-12.5 cm long, narrowly furrowed, slender, pubescent, with an erect linear gland between the leaflets of each pair, leaflets 16-24, very shortly stalked 2-2.5 cm long 1-1.3 cm broad, slightly overlapping, oval oblong, obtuse, at both ends, mucronate, glabrous or minutely downy, dull green, paler beneath, stipules very large, reniform-rotund, produced at base on side of next petiole into a filiform point and persistent.

It's flowers are irregular, bisexual bright yellow and large (nearly 5 cm across), the pedicels glabrous and 2.5 cm long. The racemes are few-flowered, short, erect, crowded in axils of upper leaves so as to form a large terminal inflorescence stamens barren, the ovary is superior, unilocular, with marginal ovules.

The fruit is a short legume, 7.5-11 cm long, 1.5 cm broad, obtuse, tipped, with long style base, flat, thin papery, undulately crimpled, pilose, pale brown. 12-20 seeds per fruit are carried eachin its separate cavity.

This plant different part is used in treatment of Antibacterial, Antidiabetic, Anthelmintic activity, Antioxidant, Antimicrobial activity and Anticancer Activity and traditional Medicine in Ayurvedic system. Also used in the dietary supplement to living organisms but also use traditionally treat of various ailments.

Scientific Classification

- Kingdom: Plantae
- Clade: Tracheophytes, Eudicots, Rosids.
- Order: Fabales
- Family: Fabaceae
- Genus: Senna
- Species: S. auriculata
- Bionomial Name: Senna Auriculata
- Synonyms: Cassia auriculata L. and Cassia densistipulata Taub.
- English Name: Tanner & acutes cassia
- Marathi Name: Taravad
- Status: Native
- Edible parts: Young leaves and flowers

Phytochemical Constitutions of *Senna Auriculata*

Phytochemical constituent is responsible for the specific activity. The several chemical constituents are differentiated form different morphological parts of the plant using different isolated methods that shows the various pharmacological activities.

Root: Phytochemical examination of plant roots isolated new flavonoid, glycosides and that were identified as 7, 4-dihydroxy flavone-5-O-beta-D-galactopyranoside and also anthraquinone glycosides and that was found to be

PRINCIPAL
Ashokrao Mane College of Pharmacy

BACK TO INDEX

eSign
Signed by: Sachinkumar Vasantrao Patil
Reason: NAAC
Location: Peth Vadgaon, India
Date: 04-Jun-2023 (11:35 AM)

12.

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 3 May - June 2021, pp: 1193-1196 www.ijprajournal.com ISSN: 2249-778

Applications of GC-MS Used In Herbal Plants

Komal Pawar, [1] *Poournima Sankpal, [2] Dr. Sachin Patil, [3] Pranali Patil, [4] Ashwini Pawar, [5] Prathamesh Shinde[6]

[1, 2, 3, 4, 5, 6] Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur (Maharashtra)

Date Of Submission: 01-06-2021 Date Of Acceptance: 17-06-2021

ABSTRACT-Most drug based on herbal plants for manufacturing of chemicals; hence herbal plants are major importance in biotechnology research. Many herbal constituents used as flavours, fragrances, pharmaceutical chemicals and food colors in India. The most of the herbal product were prepared from plant extracts, which contain different Phytochemical constituents (plant secondary metabolite). The amount and identity of produced compound was correlated with therapeutic effect. The GC-MS used to analyze the extracted extract, that is useful for the determining the quantity of active principles in herbal plants used in cosmetics, medicines, food industries and pharmaceutical. The purpose of this study was to use gas chromatography and mass spectroscopy to identify the bioactive compound from entire plants. The GC-MS analyze the presence of various alkaloid, terpenoid, flavonoidal and glycoside phytoconstituents in herbal plants.

Keywords- Gas chromatography-mass spectroscopy.

I. INTRODUCTION-

Plants have been used to treat diseases since the dawn of civilization, and complementary medicine continues to perform most valuable role in the treatment of a variety of ailments. Complementary medicine, in general, has a long history of helping people from all over the world. Folk medicine has risen in prominence in recent years, owing to historical, cultural, and other factors, particularly in developing countries. The lack of scientific assessment of medicinal plants, on the other hand, may have significance consequences. (1) Herbal research include isolating and elucidating the structures of plant chemicals in order to better understand and assessment of their therapeutic effect. An increasing approach towards immediate identification of active phytochemical constituents from various matrices and the exact analysis of these phytoconstituents necessitated the improvement of the experimental design in order to obtain higher recoveries, less solventintake, and a more precise study of these active herbal constituents. Spectrophotometry, high-performance liquid chromatography, capillary electrophoresis, and gas chromatography are only a few of the extraction and analytical methods that have been developed to research plant active chemicals. (2)

Herbal medicine was the life-saving drug in comparison to contemporary medicine. Just 6% of the 4, 00,000 plant species have been researched for biological function, and only a few have been explored phytochemicals. This demonstrates that many medicinal plants require further research into their activity and pharmacological qualities. For phytochemical analysis, Gas Chromatogram Mass Spectrometric technique was used, followed by qualitative and quantitative assessment of the components. (3)

Principle of Gas chromatography-

Chromatography is a process that causes the separation of mixtures of components by the partitioning performance between mobile and stationary phase. It is one of the most widely used chromatography process for separation of volatile substances. Helium is used as mobile phase, and high boiling point liquid as stationary phase that is absorbed on a solid. It is most important tool in analytical chemistry. Mixtures of various substances are partitioning between mobile and stationary phase. Substance in mobile phase attracted towards stationary phaseand passes through it. (4)

- **Principle of Mass spectroscopy-**

It is analytical process that detects the mass to charge ratio of electrically charged species. It is play very important role in determine the mass of various species. The principle of MS consists of chemical components that are ionized to produce charged species or molecules or their fragments and detect their mass to charge ratio by applying various process. (5)

PRINCIPAL
Ashokrao Mane College of Pharmacy

BACK TO INDEX

International Journal of All Research Education and Scientific Methods (IJARESM), ISSN: 2455-6211
Volume 9, Issue 6, June -2021, Impact Factor: 7.429, Available online at: www.ijaresm.com

Principles and Applications of Gas Chromatography in Food Analysis

Prathamesh Shinde[1], Poournima Sankpal[2], Dr. Sachin Patil[3], Pranali Patil[4], Ashwini Pawar[5], Komal Pawar[6]

[1,2,3,4,5,6]Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur (Maharashtra)

ABSTRACT

Gas chromatography (GC) is a common type of chromatography used for isolating and examining compound that can be disintegrated without crumbling. Normal businesses of GC are attempting the isolating of the unmistakable sections of a mixture. Advancement of the scientific strategies, virtue assessment and measurement of medications as well as food gotten a lot of consideration in the area of partition This survey portrays GC standards and applications in food examination advancement for the detachment of compound in food examination was talked about.

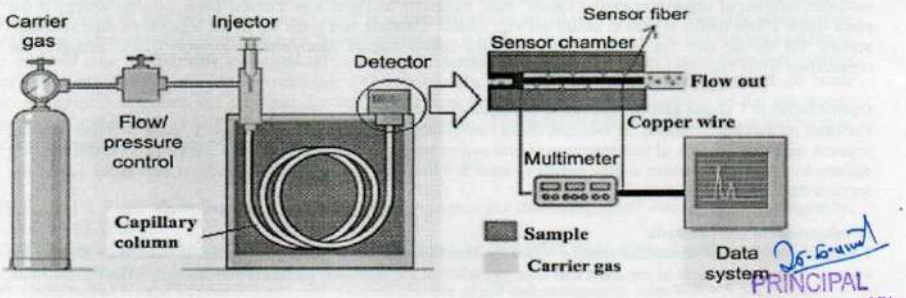
Keywords: Gas Chromatography, Applications in food analysis.

INTRODUCTION

Chromatography is Greek word "Chroma" signifying 'shading' and "graphien" which means to compose' invented by M.S. Tswett, a Russian botanist, it in 1903. It is a scientific procedure used for the detachment, decontamination and recognizable proof of constituents from the combination. It chips away at the standards of differential connection of solute with two unique stages, the fixed stage and portable stage.

Gas Chromatography:
Gas Chromatography has grown quickly which is dependent on parceling analytes between two immiscible stages vaporous portable stage (transporter gas) and a fixed strong or immobilized fluid stage (pressed or empty slim section). The example is first disintegrated by a warmed channel framework to be gone through a vaporous transporter into GC segment. The passed analytes ingested on the fixed period of the GC segment, the retained analytes eluted by the applying warming project. In this way GC is appropriate for investigation of volatile or semi-volatile and thermally stable analyte. Gas Chromatography is a profoundly complex logical system where the portable stage is vaporous. [2]

Gas chromatography principle:
The premise of the division is an impediment the individual's part because they are traveled over a period of time section because of a transporter gas, generally either helium or nitrogen. The segment comprises in the form of a steel or glass tube loaded up with a latent pressing material like glass or earthenware dots, in the case of a gas-fluid chromatography (GLC), these are covered with an in unpredictable fluid, as well as the surface space in terms of fluid in touch it is with gas enormous for specific applications, the pressing might take part in strong with no fluid covering; It is then referred to as gas strong chromatography (GSC) however this is less broadly utilized than GLC. [3]



PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

eSign
Signed by: Sachinkumar Vasantrao Patil
Reason: NAAC
Location: Peth Vadgaon, India
Date: 04-Jun-2023 (11:35 AM)

www.ijcrt.org © 2021 IJCRT | Volume 9, Issue 6 June 2021 | ISSN: 2320-2882

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

APPLICABILITY OF GASS CHROMATOGRAPHY /MASS SPECTROMETRY IN SUPPORT OF PHARMACEUTICAL RESEARCH AND DEVELOPMENT

Ashwini Pawar, [1*] Poournima Sankpal, [2] Dr. Sachin Patil, [3] Pranali Patil, [4] Komal Pawar, [5] Prathamesh Shinde [6]

[1, 2, 3, 4, 5, 6] Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur (Maharashtra)

Abstract

Gas chromatography -Mass spectrometry is analytical techniques that combine the advantages of gas chromatography and mass spectrometry. It is used to measure individual components of complex mixture in both quantitative and qualitative ways. GC-MS is the most suitable for the analysis unknown compound and volatile component. Application of GC-MS includes drug detection, explosive academy of investigation researches, and identification of unknown sample using iatochemistry. It can be used to find trace elements in material that had previously been assumed to have decomposed beyond recognition. Many field research involving organic chemical detection and determination use GC-MS as an integral and complementary tool.

Keywords: Gas- chromatography-Mass spectrometry, Quantitative Analysis, Qualitative Analysis, Identification, and detection of compounds.

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth Vadgaon, Dist. Kolhapur.

BACK TO INDEX

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

ICH GUIDELINES: STRESS DEGRADATION STUDY

Rajanigandha B Mali[1*], Dr. Sachinkumar V Patil[2], Pranali P Patil[3], Sarika S Suryavanshi[4]

[1234]Ashokrao Mane College of pharmacy Peth-Vadgaon, Kolhapur Maharashtra

Approved by A.L.C.T.E., PCI, New Delhi, affiliated to Shivaji University, DTE

ABSTRACT

The ICH Guidelines were developed by the International Council for Harmonization (ICH) of Capacity of producing of Therapeutics for Human Use. The International Conference on Harmonization (ICH) aims to create uniform technical specifications for pharmaceuticals intended for human health. Various degrading conditions, such as light, oxidation, dry heat, acidic, basic, hydrolysis, and so on, are shown in the ICH guidelines. The forced degradation investigations are represented by ICH Q1A, QIB, and Q2B. degrading conditions, such as light, oxidation, dry heat, acidic, basic, hydrolysis, and so on, are shown in the ICH guidelines. The forced degradation investigations are represented by ICH Q1A, QIB, and Q2B. Stress degradation studies are a method for determining a drug's stability. These forced degradation studies can identify the drug's stability, which impacts the drug's purity, potency, and safety. Studies on forced degradation of drug molecules are very important to develop and validate a stability indicating method also to resolve stability-related problems.

Keyword: Introduction, Regulatory guidelines, degradation condition, Factors affecting stress condition.

INTRODUCTION

Stress degradation is a process in which varied stress conditions are applied to therapeutic compounds, leading to the production of various chemical compounds. Stress analysis or stress degradation studies are some other names for these experiments. The International Conference on Harmonization (ICH) standards make it necessary to perform stress degradation studies, and stress degradation of innovative medicinal products is clearly recommended. The stability of the molecule, various degradative mechanisms, and implementation of the proposed stability methods are examined utilizing forced decomposition experiments, according to the International Committee for Harmonization (ICH) recommendations. Stress testing, stress studies, stress decomposition studies, and forced decomposition studies are all terms are called as stress deterioration study. [1]

Stress Degradation studies are important in following aspects;

- Methods for determining stability are being developed.
- To investigate molecular physicochemical properties.

PRINCIPAL
Ashokrao Mane College of Pharmacy

BACK TO INDEX

1 / 5 — 50% +

Research J. Pharm. and Tech. 14(4): April 2021

ISSN 0974-3618 (Print)
0974-360X (Online)
www.rjptonline.org
RJPT

RESEARCH ARTICLE

Formulation and Standardization of Asava from *Carica papaya*

Rohile V. Y.[1]*, Patil V. M.[2], Patil S. S.[2], Desai A. V.[1], Inamdar N. R.[3]

[1]Ashokrao Mane Institute of Pharmacy, Ambap, Kolhapur, Maharashtra, India, 416112.
[2]Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur, Maharashtra, India, 416112.
[3]Annasaheb Dange College of B Pharmacy, Ashta, Sangli, Maharashtra, India, 416301.
*Corresponding Author E-mail: **rohilevinayak@gmail.com**

ABSTRACT:
Asava and Arishta are alcoholic medicaments prepared by allowing the herbal juices or their decoctions to undergo fermentation with the addition of sugar. Standardization of ayurvedic formulation is important so as to assess the standard of medication. Within the present study standardization of asava from fruit tree *Carica papaya*, known to be effective in Dengue fever, Cancer cell growth inhibition, Antimalarial has been performed. Asava formulation was prepared by the normal method of Ayurveda. The formulation has been standardized by modern scientific control procedures for the finished products. Standardization of asava was achieved by organoleptic study, physicochemical parameters like PH, denseness, total solid content, amount, alcohol content, index of refraction, total reducing sugars, and stability study. The results have revealed that the physicochemical parameters were within the bounds and also the values may be went to establish and formulate procedures for standardization and quality controlling of those ayurvedic formulations.

KEYWORDS: Asava, Standardization, *Carica papaya*, Dengue fever.

INTRODUCTION:
Ayurveda is an ancient Indian medical system dating back to the Vedic period about 3000-1500 BC. The word Ayurveda is composed of two parts ayur and veda, Ayur means life and veda means knowledge. India is having a rich heritage of traditional medicine constituting with its different components like *Ayurveda, Siddha* and *Unani*. Botanical constituents are the major part of these traditional medicines. The development of these traditional systems of medicine with the perspectives of safety, efficacy, and quality will help not only to preserve the traditional heritage but also to rationalize the use of natural products in healthcare. Ayurveda is considered as oldest healing science. In Sanskrit, Ayurveda means "The Science of Life".[1] Asava and Arishta are alcoholic medicaments prepared by allowing the herbal juices or their decoctions to undergo fermentation with the addition of sugars.[2]

Formulation of Asava and Arishta has done by soaking the drugs, either in coarse powder form or in the form of decoction, in a solution of sugar or jaggery, for a specified period of time, during which it undergoes a process of fermentation.[3,4] Asava it is liquid preparations containing self generated alcohol, thus contain water soluble as well as alcohol soluble substances of the drugs. Due to their medicinal value, sweet taste, and easy availability people are prone to consume higher doses of these drugs for longer periods. As per Samhita Asava is Madya which is prepared with spakwa Aushada. The compound which is prepared by 'asutpraktiya' is called as Asava.[5,6] Asava and arishta i.e. sadhanakalpna are considered to be the unique and best dosage form discovered by Ayurveda. Asavas are prepared by the fermentation of herbal juices and arishtas are prepared by the fermentation of the decoction of plants.[7] The preparation of asava involves the mixing of the powdered drugs, jaggery or honey or both in plant juices or water whereas in arishtas a decoction of some plant ingredients is prepared, filtered, cooled and mixed with powdered drugs, honey or jaggery or both.[7] Vagbhatahas also defined Asava as Madya prepared using fresh tubers, roots, fruits etc. and Madya with medicinal properties is called as Asava.[8,9] The aim of present study was formulation and standardization of the Asava an

Received on 24.04.2020 Modified on 30.05.2020
Accepted on 26.07.2020 © RJPT All right reserved
Research J. Pharm. and Tech. 2021; 14(4): 2211-2215.
DOI: 10.52711/0974-360X.2021.00392

BACK TO INDEX

International Journal of Pharmaceutical Research and Applications
Volume 6, Issue 4 July-Aug 2021, pp: 554-563 www.ijprajournal.com ISSN: 2249-7781

Effect of Food on Pharmacokinetics of Clindamycin: A Review

Akshay S. Kshirsagar*, Vipul M. Patil, Sachinkumar V. Patil.
Department of Pharmaceutical Quality Assurance,
Ashokrao Mane College of Pharmacy, PethVadgaon, Maharashtra, India-416112

Date of Submission: 15-07-2021 Date of Acceptance: 30-07-2021

ABSTRACT:
The term "bioavailability" refers to that proportion of a drug which reaches the systemic circulation unchanged after a particular route of administration. To produce a clinical response, a drug must achieve an effective concentration at its site of action, which must be maintained for an adequate length of time. For orally administered systemic agents, this involves the transfer of the drug from the gut to the systemic circulation. In order to achieve this, the drug must first enter solution, and then pass into the portal blood-i.e. it must undergo absorption. Among all the routes of drug administration the oral route administration of drugs is convenient, and linking drug doses to daily routines such as meal times can improve compliance.

Keywords: Food effect on bioavailability, Bioequivalence

I. INTRODUCTION:

Inter-individual variation in drug response, particularly following oral administration, has long been a problem. Since this variation can result in therapeutic failure or drug toxicity, the 'art of bespoke prescribing' remains a major goal of clinical pharmacology.[1-3] In the past variation in the composition, strength or formulation of the drug has often been responsible for such problems. Nowadays, at least in the developed world[4], such formulation problems are rare, but even so dose-response relationships still vary from patient to patient. When drugs are taken by mouth their bioavailability is determined by factors in the drug-which include the nature of the molecule, its stability, and the formulation administered and in the patient-such as a reduced intestinal surface area as a result of cocliac disease or intestinal resection and whether or not the drug is taken with a meal. [5-6]

For oral route of administration the absorption process can be affected by a number of factors including:

1) Physicochemical properties of the drug and the dosage form;
2) Gastric acidity;
3) Gastric and intestinal motility;
4) Gastro-intestinal (GI) related diseases; and
5) Concurrent food administration.

Amongst these, concurrent food administration is the most common and yet most easily controllable factor. The two pharmacokinetic parameters that may be affected are the extent of absorption i.e. oral bioavailability, and the rate of absorption. Many of the factors which influence bioavailability can be changed by food, both 'acutely', if a drug is taken with a meal, and 'chronically', where regularly consumed food items influence drug disposition. The nature of these interactions is complicated, and is influenced by the quantity and composition of food. It should also be noted that as well as changing the pharmacokinetics of some drugs, food can alter their pharmacodynamic effects. [7-8]

With increasing generic substitution, food– drug interaction studies have gained considerable importance. Food–drug interaction studies focus on the effect of food on the release and absorption of a drug. In view of dramatic and clinically relevant food effects observed with certain Theophylline sustained release formulations, bioequivalence between a Test and a Reference formulation under only one nutritional condition, e.g. fasting, is by no means sufficient to allow generic substitution.[9-12] The reported food effects, with AUC increases of 100 % and decreases of 50 % for certain formulations, are far beyond the usually accepted 25 % increase and 20 % decrease in bioequivalence studies between formulations.[13] The CPMP (2001) guidance on bioequivalence also addresses this issue with particular emphasis on controlled release formulations. The FDA (2002) guidance recommends a study comparing the bioavailability under fasting and fed conditions for all orally administered modified release drug products. Modified release formulations include two

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

www.ijcrt.org © 2021 IJCRT | Volume 9, Issue 7 July 2021 | ISSN: 2320-2882

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

STUDY OF NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY WITH APPLICATIONS: A COMPREHENSIVE REVIEW

Kaiyyum A. Bhaldar*, Vipul M. Patil, Sachinkumar V. Patil

Ashokrao Mane College of pharmacy, Peth-Vadgaon, Kolhapur, Maharashtra, India. (416112)

Affiliated to Shivaji university, Kolhapur, Maharashtra.

❖ ABSTRACT:

Nuclear magnetic resonance (NMR) spectroscopy is one of the most significant analytical techniques that has been developed in the past few decades. A broad range of biological and non biological applications ranging from an individual cell to organs and tissues has been investigated through NMR. Various aspects of this technique are still under research, and many functions of the NMR are still pending a better understanding and acknowledgment. Therefore, this review is aimed at providing a general overview of the main principles, types of this technique, and the advantages and disadvantages of NMR spectroscopy. In addition, an insight into the current uses of NMR in the field of medicine and dentistry and ongoing developments of NMR spectroscopy for future applications has been discussed.

❖ Keywords:

Nuclear Magnetic Resonance, metabolism, multiple sclerosis, spectroscopy, Magnetic Resonance Imaging,

❖ INTRODUCTION:

The electromagnetic spectra have been routinely used in the field of medicine to detect abnormalities and fractures and to observe healing tissues, but this worthy detection tool comes with a risk of exposing the patients to excessive radiations. Although X-rays are swift and painless, long-term exposure to their radiations could cause harmful effects including cellular damage. Many new powerful analytical tools have been developed in recent years which can deliver precise results with minimal potential damage to the body tissues. [1] Nuclear magnetic resonance (NMR) was first discovered in the 1940s. [2] The NMR uses the magnetic properties of assured atomic nuclei and is widely being used in physics and chemistry. In dentistry, this technique is predominantly beneficial to explore the structure of amorphous glasses and dental cements, bioactive glasses interaction with oral tissues, identification of salivary metabolites for disease detection, [3 4] and understanding the periodontal diseases by gingival crevicular fluid biomarkers analysis. [5 6] It

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth Vadgaon, Dist. Kolhapur.

BACK TO INDEX

www.ijcrt.org © 2021 IJCRT | Volume 9, Issue 7 July 2021 | ISSN: 2320-2882

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

PIPER BETLE L.- A REVIEW

Ranjeet D. More*, Vipul M. Patil, Sachinkumar V. Patil.

Department of Pharmaceutical Quality Assurance,

Ashokrao Mane College of Pharmacy, Pethvadgaon, Maharashtra, India- 416112

Abstract- Betel vine (*Piper betle* L.) belongs to genus *Piper* of the family Piperaceae. Leaves of *Piper betle* posses several bioactivities and are used in traditional medicinal systems. Many research studies on *Piper betle* has reported that it contains important chemical constituents and are acts to arouse action for its medicinal properties like anticancer, anti-allergic, anti-malaria, anti-filarial, antibacterial, antifungal study, insecticidal, antioxidant, anti-diabetic, gastro-protective, cytotoxic, wound healing activity, chlorophyllase activity, oral hygiene and anti-asthmatic effect.

Key words: *Piper betle*, activity, diseases

INTRODUCTION

The most common are several varieties of leaves: Calcutta, Banarasi, Magahi, and so on. Bangladesh's best-produced districts are Dinajpur, Rangpur, Chittagong, Faridpur, Jessore, Narayanganj, Barisal and Sylhet. Both local and for sale to Middle East, European nations, USA, United Kingdom, Pakistan and Myanmar are utilized in the collected leaves. Paan is one of rural Bangladesh's main economic sources. The best Betel leaf is "Magadhi" (meaning from the region of Magadha), which is cultivated in Bihar, India in the vicinity of Patna. The famous type of betel leafs in Kerala is found in Venmony near the village of Chengannur. Betel leaves are of good quality grown in Tirur, Kerala, Hinjilicut and Odisha. The export of Betel leaves from Tirur in Pakistan is known as the Tirur Pan. Piper betle is one of the most precious herbs used for therapeutic applications in its leaves. Piper betel is also recognized in India as a part of the vast plant family of Piperaceae, and in Malaysia and Indonesia as Paan is known, shown in figure 1. Since ancient times, the fresh betel leaves have been wrapped with areca nut, mineral slaked lemon, catechu, flavoring materials and spices[1].

As a possible therapeutic agent, medicinal plants have been demonstrated with increased resistance to frequently used antibiotics and the development of new infectious illnesses. Ethno-medicines have traditionally been utilized all throughout India, because of low cost, ease of availability and lower side impacts[2]. The Piper betle leaf extracts are found to be beneficial against many infections in humans[3]. Piper betle is a medicinal herb used as a vaginal or oral candidiasis by Indonesians. The Piper betle leaves extract includes a variety of bioactive compounds, a preliminary investigation found. Biologically active chemicals, the concentration of which is based on plant, season and climate diversity, are found in piper betles. A novel approach to acquire an antibacterial component without needing to extract from medical plants was by using bacterial endophytes from medicinal plants[4]. Many researchers have provided a great number of important information on Piper betle

BACK TO INDEX

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A REVIEW ON MICROEMULSION – A RECENT APPROACH FOR TOPICAL DRUG DELIVERY SYSTEM

Vaibhav D. Mane*, Vipul M. Patil, Manisha V. Mane, Sachinkumar V. Patil.

Department of Pharmaceutics,

Ashokrao Mane College of Pharmacy, Peth-vadgaon, Maharashtra, India-416112

Abstract: A drug delivery method has been explored as microelectric emulsions that are optically isotropical, and thermodynamically stable water, oil, surfactant and/or surfactants due to their potential to solubilize poorly water soluble medicines and to their increased topical and systemic availability. The lipophilic drugs mobility may be solubilized and the skin can be entered quickly and effectively. Thus the topical administration of drugs is helpful. Many commonly utilized topical treatments such as salts, creams and lotions have numerous drawbacks such as sticky texture, causing discomfort when applied, They have a lower coefficient of propagation so applied by rubbing and they also show a stability concern. The difficulty of stability of the microemulsion is low viscosity, but it may be solved by adding viscosity and the moisturizing stratum corneum into topical DDS, which increases dermal penetration and skin flow of medical devices. Because of all these considerations, the use of transparent gels in pharmaceutical preparations has grown in the main semi-solid preparation category.

Key words- Microemulsion, Topical drug delivery, Polymers.

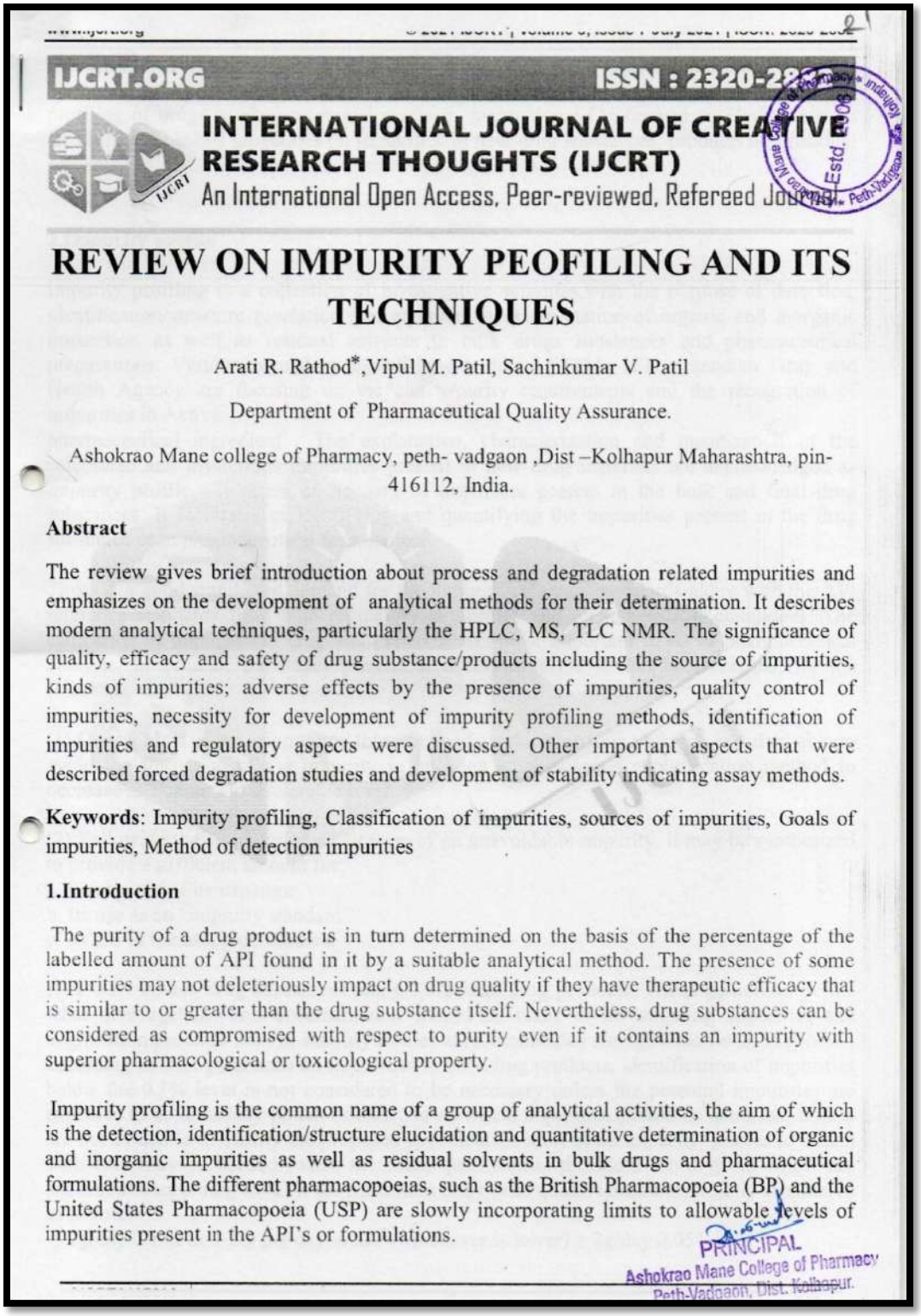
INTRODUCTION

Application of a medication containing formulation in the skin to directly treat cutaneous diseases can be characterized as the topical drug delivery. The topical mode of medication delivery is normally utilized in cases when other routes, such as oral, sublingual, rectal, parental or local infections, such as fungal infections, fail. Human skin is a remarkable organ that allows earth life by controlling bodily heat and water loss and prevents harmful substances or germs from entering. Also the largest organ in the human body, with an average body weight of about 10 percent, is 2 square meters in average. While such a big, easy-to-use organ seems to offer an excellent and multiple location for the administration of therapeutic medicines, the human skin remains a highly efficient barrier that allows the inside and the outside to be remedied. Many commonly used topical medications have a lot of drawbacks such as oints, creams and lotions. Usually they become quite stubborn, creating discomfort for the sufferer. In addition, the spreading coefficient is also smaller and must be used with rubbing.

Micro-emulsion is dispersion of the anisotropic, dispersed domain diameter of about 1 to 100 nm, generally 10 to 50 nm, water, oil and surfactant(s)[1].

microemulsion, usually combined with a co-extractive agent, are transparent, thermodynamically stable, isotropic mixes of oil, water and surfactants. In this aqueous phase, salt(s) and other components may be found and in fact, "oil" can be a complicated mix of many olefins and hydrocarbons[2]. The word "microemulsion" covers a combination including at least three components. The term is oily, aqueous and a surface active species, known as surfactants. The fourth component, i.e., may or should be

BACK TO INDEX



IJCRT.ORG ISSN : 2320-2

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

REVIEW ON IMPURITY PEOFILING AND ITS TECHNIQUES

Arati R. Rathod*, Vipul M. Patil, Sachinkumar V. Patil

Department of Pharmaceutical Quality Assurance.

Ashokrao Mane college of Pharmacy, peth- vadgaon ,Dist –Kolhapur Maharashtra, pin-416112, India.

Abstract

The review gives brief introduction about process and degradation related impurities and emphasizes on the development of analytical methods for their determination. It describes modern analytical techniques, particularly the HPLC, MS, TLC NMR. The significance of quality, efficacy and safety of drug substance/products including the source of impurities, kinds of impurities; adverse effects by the presence of impurities, quality control of impurities, necessity for development of impurity profiling methods, identification of impurities and regulatory aspects were discussed. Other important aspects that were described forced degradation studies and development of stability indicating assay methods.

Keywords: Impurity profiling, Classification of impurities, sources of impurities, Goals of impurities, Method of detection impurities

1.Introduction

The purity of a drug product is in turn determined on the basis of the percentage of the labelled amount of API found in it by a suitable analytical method. The presence of some impurities may not deleteriously impact on drug quality if they have therapeutic efficacy that is similar to or greater than the drug substance itself. Nevertheless, drug substances can be considered as compromised with respect to purity even if it contains an impurity with superior pharmacological or toxicological property.

Impurity profiling is the common name of a group of analytical activities, the aim of which is the detection, identification/structure elucidation and quantitative determination of organic and inorganic impurities as well as residual solvents in bulk drugs and pharmaceutical formulations. The different pharmacopoeias, such as the British Pharmacopoeia (BP) and the United States Pharmacopoeia (USP) are slowly incorporating limits to allowable levels of impurities present in the API's or formulations.

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

IJBPAS, May, 2022, 11(5): X-X

ISSN: 2277-4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

RP-HPLC ESTIMATION OF LEVETIRACETAM IN BULK AND FROM ITS FORMULATION

BHOSALE AP*, GHOTANE RB AND PATIL SV

Department of Quality Assurance, Ashokrao Mane College of Pharmacy, Pet-Vadgaon, Maharashtra 416112

***Corresponding Author: Aishwarya P. Bhosale: E Mail: aishubhosale1010@gmail.com**

Received 19th May 2021; Revised 18th July 2021; Accepted 10th Aug. 2021; Available online 1st May 2022

https://doi.org/10.31032/IJBPAS/2022/11.5.6117

ABSTRACT

The intention of current explore was to develop and validate suitable RP-HPLC method for analyzing Levetiracetam in single and combined dosage form as per ICH Guidelines. Separation was completed by using mobile phase consisting of HPLC grade water and acetonitrile in a proportion of 50:50. The separations were carried out on a Agilent Zorbax SB-Aq (250 x 4.6 mm, 5µ) at a flow rate of 1 mL/min. The injection volume was 10 µl and the peaks were detected at 205 nm. The calibration graph was plotted with concentration of the drug against the peak area was found to be linear in the range of 20-30µg/ml and coefficient of correlation was found to be 0.9989. In the accuracy study of developed method the percentage recovery of levetiracetam ranging from 99.81-100.47.The %RSD value was less than 2.0 for intraday and interday precision indicated that the method was highly precise. Linearity range was observed in concentration range 20-30 µg/ml. The Limit of Detection and Limit of Quantitation was found to be 2.20µg/ml and 6.66µg/ml respectively. The system suitability parameters for the developed method found as, the average asymmetry factor found to be 0.992 which indicates asymmetric nature of peak. The average number of Theoretical plates was found to be 9154 which indicates efficient performance of the column. Hence, the developed RP-HPLC method was reliable, linear, accurate, specific method.

Keywords: Levetiracetam, Accuracy, Precision, Estimation, Validation, Tablets, RP-HPLC.

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

ETHANOL PRODUCTION, PURIFICATION, AND ANALYSIS TECHNIQUES

Laxman S. Nimangre*, Pranali P. Patil , Poournima S. Sankpal,

Dr. Sachinkumar V. Patil,

Ashokrao Mane College of pharmacy, Peth-Vadgaon, Kolhapur, Maharashtra, India. (416112)

Affiliated to Shivaji university, Kolhapur, Maharashtra.

➢ **Abstract:**

World ethanol production rise to nearly 13.5 billion gallon in 2006. Ethanol has been part of alcoholic beverages for long time, but its application has expanded much beyond that during the 20th Century. Much of the recent interest is in the use of ethanol as fuel. In this paper, we have reviewed published literature on current ethanol production and separation methods, and chemical and sensory analysis techniques. Ethanol produced by fermentation, called bioethanol, accounts for approximately 95% of the ethanol production. It is recently widely used as an additive to gasoline. Corn in the Unites States and sugarcane in Brazil are widely used as raw materials to produce bioethanol. Cellulosic materials are expected to be the ultimate major source of ethanol and also represent a value-adding technology for agricultural coproducts. While bioethanol is considered as a sustainable energy source, it requires further purification for uses other than fuel. The most common purification technique utilized in the ethanol industry is rectification by further distillation. However, distillation has critical disadvantages including high cost and limited separation capacity. Several alternatives have been proposed to replace distillation such as non-heating fractional distillation by ultrasonic irradiation, oxidation of impurities by ozone, and adsorption of impurities by activated carbon or zeolite. Chemical and sensory analyses are used to determine the quality of alcohol and to optimize various steps in production. Near-infrared (NIR) spectrometry, high performance liquid chromatography (HPLC), gas chromatography (GC), and mass spectrometry (MS), have been developed for chemical analyses. Also, olfactometry is common for sensory analysis. This paper summarizes the state-of-the art of ethanol production, purification, and analytical techniques.

➢ **Keywords:**

Activated carbon, chemical analysis, ethanol, ozone, production process, purification, renewable fuels, substrates.

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

24

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

SPECTROSCOPY ANALYSIS OF ERMENTED BIOMEDICINE

Rajvardhan D Mane[1*], Dr. Sachinkumar V Patil[2], Pranali P Patil[3], Avdhut P Jadhav[4]

[1234]Ashokrao Mane College of pharmacy Peth-Vadgaon, Kolhapur (Maharashtra)

Approved by A.L.C.T.E., PCI, New Delhi, affiliated to Shivaji University, DTE

ABSTRACT

Spectroscopy is branch of science dealing with the study of interaction of electromagnetic radiation with matter. Spectroscopy is the exact study of color as it applies to all bands of the electromagnetic spectrum, including visible light. Spectroscopy is one of the most powerful tools available for the study of atomic and molecular structure and is used in analysis of wide range of sample. Many type of spectroscopy analysis are used different types of fermentation process like UV Visible, Infrared, and Raman Spectroscopy. Dairy products that were fermented have a long history of manufacture. Ayurveda has a variety of medications, including fermented forms such as arishtas (fermented decoctions) and asavas (fermented powders).This study explains the fundamentals and recent advanced study in fermented biomedical spectroscopic analysis. The goal of this review is to describe and analyze commonly fermented foods (kefir, kombucha, aristha, asava, yoghurt, and sourdough bread), their modes of action (including the influence of spectroscopic analysis), and the evidence for impacts on human digestive health and diseases.

Keyword: Introduction, Methods of spectroscopy analysis, Fermented biomedicine, Application and example of spectroscopy analysis of fermented biomedicine etc.

INTRODUCTION

Spectroscopy is the interaction of waves from the electromagnetic spectrum with molecules in the sample matrix under investigation. UV Visible, Infrared and Raman spectroscopic method are used to utilize fermented biomedicine but also Atomic and molecular spectroscopy are the two primary spectroscopic methods utilized in fermentation process. The development and use of these spectroscopic technologies in the field of food analysis is based on absorbance, fluorescence, and dispersion processes that occur when matter and light interact. These implementations in fermentation are based on a number of spectroscopic methods and techniques that take use of various wavelength ranges, such as UV-Visible, Near, Mid and Far Infrared, Raman and nuclear magnetic resonance. UV-Vis spectroscopy is a tool for detecting spectroscopic method that permits ultraviolet and visible light at a wavelength extending from 200 to 780 nm. When a molecule's

BACK TO INDEX

Bulletin of Environment, Pharmacology and Life Sciences
Bull. Env. Pharmacol. Life Sci., Vol 10 [2] January 2021 : 75-78

Online ISSN 2277-1808
Journal's URL:http://www.bepls.com
CODEN: BEPLAD

ORIGINAL ARTICLE OPEN ACCESS

Formulation and Evaluation of Herbal Ointment Containing *Quisqualis indica* Linn Leaves Extract

Sarika S. Suryawanshi*[1], Pranali P.Patil[1], S. S. Kadam[2], S. V. Patil[3], R. G. Gaikwad[4]
1-Ashokrao Mane College of Pharmacy. Peth-Vadgaon, Maharashtra - 416112.
2- Womens College of Pharmacy, Peth-Vadgaon, Maharashtra - 416112.
3-Bharati Vidyapeeth's College of Pharmacy. C.B.D. Belapur, Navi Mumbai, Maharashtra- 400 614.
4- Bharati Vidyapeeth College of Pharmacy. Kolhapur, Maharashtra - 416013.
Corresponding Author's Email: satwashila@gmail.com

ABSTRACT

Present study was to extent ointment formulation by using herbal extract of Quisqualis indica linn leaves. First methanol and then water extract of Quisqualis indica linn leaves was prepared by maceration process. By using levigation method ointment base was prepared and extract was incorporated. Prepared formulation was analyzed for its physicochemical parameter like colour, odour, consistency, pH, melting point, spreadability, loss on drying, solubility, washability and penetration.

Key words: *Quisqualis indica* linn, Herbal ointment, Levigation, spreadability.

Received 01.12.2020 Revised 04.01.2021 Accepted 11.01.2021

INTRODUCTION

Ointments are semisolid systems which usually behave as viscoelastic materials when shear stress is applied. They generally contain medicaments and are intended to be applied externally to the body or to the mucous membrane. Non-medicated ointments commonly referred to as ointment bases meant for the preparation of medicated ointments or used as such for emollient or lubricating effects. In prescription practice, various other terms are also used as such for emollient used to designate several variation i.e. creams, pastes, cerates .Many medicaments meant for topical application to intact or broken skin or to mucous membranes, have been presented in the form of semisolid consistency variously designated as ointment, creams, salves, pastes etc and used mainly as protective or emollient for the skin. Modern day ointments too serve the purpose but they also carry the medicaments to the blood stream [1, 2, 3].

The products which are obtained from the natural source such as plants, microorganisms, animals or minerals is the basic needs of making drugs used for the treatment of disease which are synthesized now a days for the making of a novel drugs. In the ancient time the herbal medicines is the only source which are used for the treatment of most of the disease and today also in many places it have been using for healthcare purpose so we can say that the herbal medicines remedy is an traditional system of medicine which are used in medical practices since from antiquity. During the past two decades, there has been an increasing interest in the industrialized nations to use medicinal plants. Sources of details are pharmacopoeias, indigenous knowledge, scientific literature, and other documented sources. The practices continue today because of its biomedical benefits as well as place in cultural beliefs. In many parts of world and have made a great contribution towards maintaining human health. The demand of herbal medicines is currently increasing day by day because of the side effects of the Allopathic drug. India is a vast repository of medicinal plants that are used in traditional medical treatments. About 80% of people in developing countries still relays on traditional medicines which are based largely on plants and animals for their primary health care. Herbal products are defined as the materials that are administered to patients and are mixtures of herbal substances and other constituents which are made by using herbals. Herbal medicine has become more popular in recent era in the purpose of healthcare. Herbal medicines are generally regarded as safe based on their long-standing use in various cultures [4]. Total global herbal market is of size 62.0 billion dollars. European Union is the biggest market with the share 45% of total herbal market and the India's contribution is only one billion dollars. But there are positive signals also for us in the global market a fresh green leaf set off the clusters of pendent pink and white blossoms and the attractive appearance is enhanced by the delicious perfume [5, 6]. *Quisqualis*

BACK TO INDEX

ISSN: 0211-2574

LINO

CERTIFICATE OF PUBLICATION

This is to certify that the paper entitled

"Review on: Anti-stress and Adaptogenic Activity of Some selected Herbal medicinal plants"

Authored By

Mrs. Poonam Nilesh Chougule

From

Assistant Professor in AMCP Peth- Vadgaon, Maharashtra, India

Has been published in

LINO JOURNAL,VOLUME 11 ISSUE 02 - 2021

PAPER ID: LN-0221-05

EDITOR-IN-CHIEF

http://linojournal.com

latindex Google Scholar ELSEVIER Scopus

BACK TO INDEX

eSign Signed by: Sachinkumar Vasantrao Patil
Reason: NAAC
Location: Peth Vadgaon, India
Date: 04-Jun-2023 (11:35 AM)

Research Publications A.Y.2019-20

Pharmacogn J. 2020; 12(3): 598-602
A Multifaceted Journal in the field of Natural Products and Pharmacognosy
www.phcogj.com

Research Article

In-vitro Antioxidant and *In-Vivo* Hepatoprotective Activity of Ethenolic Extract of *Tectona grandis* Bark Against CCl4 Induced Liver Injury in Rats

Rajkumar S Bagali[1,*], Sunil S Jalalpure[2], SS Patil[3]

[1]*Department of Pharmacology, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, INDIA.*
[2]*Department of Pharmacognosy and Phytochemistry, K.L.E University, College of Pharmacy, Nehrunagar, Belgaum-10, Karnataka, INDIA.*
[3]*Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, INDIA.*

Correspondence
Dr. Rajkumar S. Bagali
Professor, Department of Pharmacology, Ashokrao Mane College of Pharmacy, Peth Vadgaon 416112 Tal-Hatkanangle Dist-Kolhapur, Maharashtra, INDIA.
Phone no: +91-230-2471360, +91-9421201986
E-mail: bagaliraj@rediffmail.com, jalalpuresunil@rediffmail.com

History
- Submission Date: 11-01-2020;
- Review completed: 22-01-2020;
- Accepted Date: 14-03-2020.

DOI : 10.5530/pj.2020.12.89

Article Available online
http://www.phcogj.com/v12/i3

ABSTRACT

Objectives: The systematic screening of *Tectona grandis* bark with the purpose of discovering new bioactive compounds as a hepatoprotective agent and to establish the scientific basis for the therapeutic actions of traditional plant medicines. **Methods:** *Tectona grandis* bark ethenolic extract was studied for the hepatoprotective activity against CCl_4 induced liver injury in rats. Serum enzymes level, total bilirubin and histopathological study of liver were performed. This extract's DPPH radical scavenging potential was also studied. **Results:** Oral administration of ethenolic extract of *Tectona grandis* bark (200 mg/kg) exhibited significant reduction ($p<0.05$) in CCl_4-induced increased levels of SGPT, SGOT, ALP and bilirubin (Total) concentration. Treatment with Liv 52 syrup also reversed the hepatotoxicity significantly ($p<0.05$). Histopathological studies also provided supportive evidence for biochemical analysis. This extract also showed better activity in quenching DPPH radical. **Conclusion**: *Tectona grandis* bark ethenolic extract shown to have hepatoprotective and antioxidant action due to presence of quinones and tannin like phytoconstituents.

Key Words: *Tectona grandis*, Hepatotoxicity, Antioxidant, CCL_4 induced hepatopathy, Histopathology, Quinones.

INTRODUCTION

Liver plays a pivotal role in metabolism, secretion and storage. Any injury to liver can result in many disorders ranging from transient elevation in liver enzymes to life threatening liver cirrhosis and hepatic failure. The common causative agents of liver injuries are toxic chemicals (e.g. CCl_4, aflatoxin etc.), therapeutic drugs (e.g., antibiotics, anti-tubercular drugs etc), alcohol and microbial agents (e.g. hepatitis virus, leptospira, malarial parasites).[1]

The role of free radical reactions in disease pathology is well established. It suggests that these reactions are necessary for normal metabolism but can be detrimental to health as well including outcome of various diseases like diabetes, immunosupression, neurodegenerative diseases and others.[2] Free radicals lead to cellular necrosis, which is implicated in some membrane pathophysiological conditions, including atherosclerosis, rheumatoid arthritis as well as toxicity of many xenobiotics.[3]

Liver diseases remain a serious health problem. It is well known that free radicals cause cell damage through mechanisms of covalent binding and lipid peroxidation with subsequent tissue injury. Antioxidant agents of natural origin have attracted special interest because they can protect human body from free radicals.[4] Numerous medicinal plants and their formulations are used for liver disorders in ethnomedical practices as well as in traditional systems of medicine in India.[5] Many plant species have been utilized as traditional medicines but it is necessary to establish the scientific basis for the therapeutic actions of traditional plant medicines as these may serve as the source for the development of more effective drugs.

Tectona grandis Linn (Verbenaceae) tree commonly known as Sagvan tree, found throughout the India. It is a huge tree, bark ash colored. The wood has a characteristic aromatic odor. The roots are useful in anuria. The bark is useful in bronchitis, hyperacidity, diabetes, leprosy and skin diseases. The flowers are useful in leprosy, skin diseases, burning sensation and diabetes. Leaves are useful in inflammation, leprosy, in skin diseases[6] wound healing[7], diabetes.[8,9] The Ethenolic extract of this plant is used in the treatment of anemia.[10]

The literature screened in the process of the proposed work indicates that the selected plant contain classes of chemical constituents which have shown antioxidant activity. Literature survey revealed that *Tectona grandis* bark ethenolic extract has no scientific claims for hepatoprotective and antioxidant activity. Phytochemical and pharmacological investigations of this plant may yield useful information and material for better management for preventing the production of the free radicals and diabetes.

MATERIALS AND METHODS

Animals

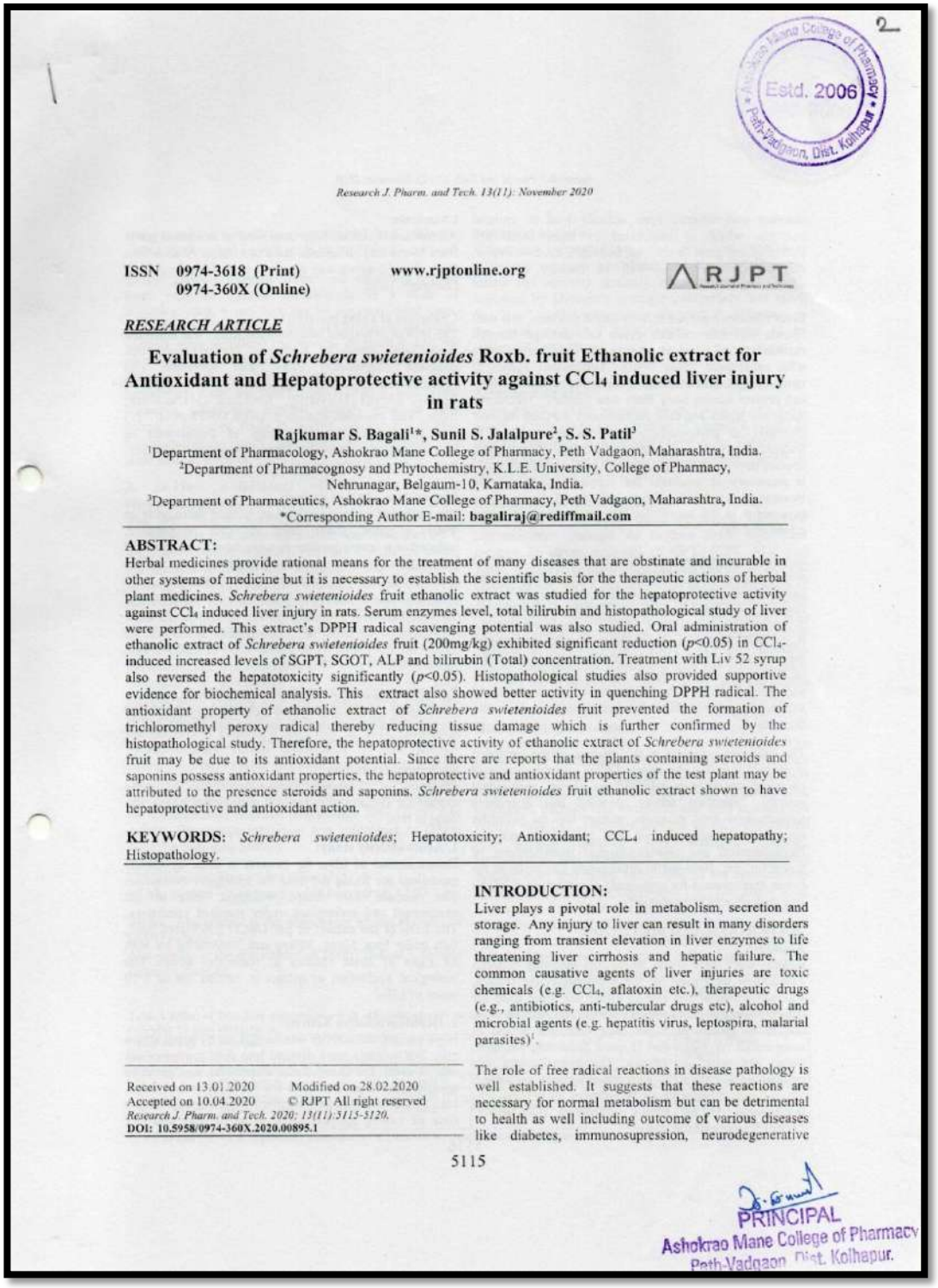
Healthy adult male wistar albino rats weighing between 170-200 gm were used for the Hepatoprotective studies, whereas wistar albino rats of either sex were used for determination of acute

Cite this article: Bagali RS, Jalalpure SS, Patil SS. *In-vitro* Antioxidant and *In-Vivo* Hepatoprotective Activity of Ethenolic Extract of *Tectona grandis* Bark Against CCl4 Induced Liver Injury in Rats. Pharmacogn J. 2020;12(3):598-602.

Phcogj.com

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth Vadgaon, Dist. Kolhapur.

BACK TO INDEX



2

Research J. Pharm. and Tech. 13(11): November 2020

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

www.rjptonline.org

RJPT

RESEARCH ARTICLE

Evaluation of *Schrebera swietenioides* Roxb. fruit Ethanolic extract for Antioxidant and Hepatoprotective activity against CCl_4 induced liver injury in rats

Rajkumar S. Bagali[1]*, Sunil S. Jalalpure[2], S. S. Patil[3]

[1]Department of Pharmacology, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, India.
[2]Department of Pharmacognosy and Phytochemistry, K.L.E. University, College of Pharmacy, Nehrunagar, Belgaum-10, Karnataka, India.
[3]Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, India.
*Corresponding Author E-mail: **bagaliraj@rediffmail.com**

ABSTRACT:

Herbal medicines provide rational means for the treatment of many diseases that are obstinate and incurable in other systems of medicine but it is necessary to establish the scientific basis for the therapeutic actions of herbal plant medicines. *Schrebera swietenioides* fruit ethanolic extract was studied for the hepatoprotective activity against CCl_4 induced liver injury in rats. Serum enzymes level, total bilirubin and histopathological study of liver were performed. This extract's DPPH radical scavenging potential was also studied. Oral administration of ethanolic extract of *Schrebera swietenioides* fruit (200mg/kg) exhibited significant reduction ($p<0.05$) in CCl_4-induced increased levels of SGPT, SGOT, ALP and bilirubin (Total) concentration. Treatment with Liv 52 syrup also reversed the hepatotoxicity significantly ($p<0.05$). Histopathological studies also provided supportive evidence for biochemical analysis. This extract also showed better activity in quenching DPPH radical. The antioxidant property of ethanolic extract of *Schrebera swietenioides* fruit prevented the formation of trichloromethyl peroxy radical thereby reducing tissue damage which is further confirmed by the histopathological study. Therefore, the hepatoprotective activity of ethanolic extract of *Schrebera swietenioides* fruit may be due to its antioxidant potential. Since there are reports that the plants containing steroids and saponins possess antioxidant properties, the hepatoprotective and antioxidant properties of the test plant may be attributed to the presence steroids and saponins. *Schrebera swietenioides* fruit ethanolic extract shown to have hepatoprotective and antioxidant action.

KEYWORDS: *Schrebera swietenioides*; Hepatotoxicity; Antioxidant; CCL_4 induced hepatopathy; Histopathology.

INTRODUCTION:

Liver plays a pivotal role in metabolism, secretion and storage. Any injury to liver can result in many disorders ranging from transient elevation in liver enzymes to life threatening liver cirrhosis and hepatic failure. The common causative agents of liver injuries are toxic chemicals (e.g. CCl_4, aflatoxin etc.), therapeutic drugs (e.g., antibiotics, anti-tubercular drugs etc), alcohol and microbial agents (e.g. hepatitis virus, leptospira, malarial parasites)[1].

The role of free radical reactions in disease pathology is well established. It suggests that these reactions are necessary for normal metabolism but can be detrimental to health as well including outcome of various diseases like diabetes, immunosupression, neurodegenerative

Received on 13.01.2020 Modified on 28.02.2020
Accepted on 10.04.2020
Research J. Pharm. and Tech. 2020; 13(11):5115-5120.
DOI: 10.5958/0974-360X.2020.00895.1

BACK TO INDEX

Journal of Pharmaceutical Innovation
https://doi.org/10.1007/s12247-020-09459-9

RESEARCH ARTICLE

Investigation of Kinetic Drug Release Characteristics and In Vitro Evaluation of Sustained-Release Matrix Tablets of a Selective COX-2 Inhibitor for Rheumatic Diseases

M. Karthikeyan[1] · M. K. Deepa[2] · E. Bassim[3] · C. S. Rahna[3] · K. R. Sree Raj[3]

Abstract

Purpose The prevalence of rheumatic disease patients was estimated at 25% of the population. Rheumatic diseases are the leading cause of disability. The main objective of the study was to investigate the kinetic drug release characteristics of aceclofenac sustained-release (SR) matrix tablets for the management of rheumatic diseases.

Methods The novel formulation of aceclofenac was prepared by using hydrophilic polymers such as HPMC K4M with a fixed concentration along with the varying concentration of Carbopol 946 and cationic guar gum in the formulation FA1–FA3 and FB1–FB3 respectively. The powder mixture was compressed by the direct compression method into tablets using a rotary tablet compression machine. Prepared SR matrix tablets were evaluated for uniformity of content, hardness, thickness, weight variation, friability, and in vitro dissolution studies.

Results The drug content, hardness, thickness, weight variation, and friability of prepared tablets were found to be within the acceptable range. The optimized formulation was subjected to various kinetic release studies such as first-order model, zero-order model, Higuchi model, and Korsmeyer-Peppas model. When the data were plotted according to the Higuchi model, the formulations showed the best linearity, with regression values 0.9248 and diffusion mechanism of the formulation FB1 follows super case II transport mechanism.

Conclusion The optimized formulation FB1 with the super case II transport mechanism prolonged the drug release, due to the polyionic interaction between the polymers. It could be an ideal formulation for the management of rheumatic diseases.

Keywords Rheumatic diseases - Sustained release - Matrix tablets - Aceclofenac - HPMC K4M - Carbopol 946 and cationic guar gum

Introduction

affect the joints, tendons, ligaments, bones, and muscles. The various drugs used for the treatment of rheumatic diseases

BACK TO INDEX

Original Article

Development and Optimization of Capecitabine loaded Nanoliposomal System for Cancer Delivery

Sandip Mohan Honmane[1], Sagar Maruti Chimane[2], Sandip Akaram Bandgar[2,*], Shitalkumar Shivagonda Patil[2]

[1]Department of Pharmaceutics, Annasaheb Dange College of B. Pharmacy, Ashta, Shivaji University, Kolhapur, Maharashtra, INDIA.
[2]Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Shivaji University, Kolhapur, Maharashtra, INDIA.

ABSTRACT

Objectives: The Main objective of this study was to develop and optimize Capecitabine loaded nanoliposomes for prolonged drug delivery in cancer treatment. **Methods:** Liposomes were prepared by the thin film hydration method followed by sonication. The parameters affecting the vesicle size and percentage drug entrapment of liposome are amount of soyaphosphatidyl choline and cholesterol used in their preparation. The Capecitabine liposomal formulation was optimized using 3^2 factorial design in this amount of soya Phosphatidylcholine and cholesterol were selected as two independent variables to obtain stable liposome with small vesicle size and maximum entrapment efficiency. **Results:** Compatibility studies were carried out by using FT-IR and DSC, the results showed that there was no significant interaction between drug and excipients. The formulated liposomal prepartions were evaluated for various parameters and results were obtained for optimized batch (B3) Showed vesicle size 178.9nm, zeta potential -77.9mV to -82.7mV, entrapment efficiency 79.65% and percentage drug release 92.07% up to 12 h. **Conclusion:** Liposomal drug delivery is targeted as to provide more drug concentration at the site of action and with a sustainable drug release followed Higuchi-matrix model. Ultimately, reducing the dosing frequency with minimizing the side effects related to high drug intake. Liposome has been provided a spectrum of options and opportunities for designing and practicing site specific, targeted drug therapy.

Key words: Capecitabine, Liposome, 3^2 Factorial design, Percent drug entrapment, Release kinetics.

INTRODUCTION

Nowadays cancer is the main cause of death in human beings after cardiovascular disease. The most common forms of cancer are breast, prostate, colon and lung cancers. Presently chemotherapy, hormonal, gene, surgery and radiation therapies are used to treat cancer. But chemotherapeutic agents are commonly preferred to treat cancer. However, due to high doses of these drugs cause toxic effects. Most common side effects like gastrointestinal problems and systemic side effects will appear in anticancer therapy.[1] Successfully translating anticancer nano medicines to demonstration of therapeutic value in the clinic is challenging. Despite liposomes have been proven to be an ideal drug carrier that has a strong impact on the pharmacokinetics and tissue distribution of incorporated drugs, resulting in enhanced efficacy as well as greatly reduced systematic toxicity of drugs. Liposome have gained attention as a carrier system for a therapeutically active agent, owing to their unique characteristics, biocompatible, biodegradable, low toxicity, lack of opsonization and improves the pharmacokinetics and pharmacodynamics profile of therapeutic agent.[2] Structurally, liposomes are concentric bilayer vesicles of natural or synthetic phospholipid.[3,4] Due to their hydrophobic, hydrophilic and small size; liposomes are promising systems for drug

Submission Date: 30-08-2019;
Revision Date: 18-11-2019;
Accepted Date: 04-02-2020

DOI: 10.5530/ijper.54.2.43

Correspondence:
Mr. Sandip Akaram Bandgar
Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Shivaji University, Kolhapur-416112, Maharashtra, INDIA.
Phone: +91-8600009719
E-mail: sandiphonmane@gmail.com

www.ijper.org

BACK TO INDEX

Drug Delivery and Translational Research
https://doi.org/10.1007/s13346-020-00752-1

ORIGINAL ARTICLE

A remarkable in vitro cytotoxic, cell cycle arresting and proapoptotic characteristics of low-dose mixed micellar simvastatin combined with alendronate sodium

Sandip A. Bandgar [1,2] · Namdeo R. Jadhav [2] · Arehalli S. Manjappa [3]

Abstract
The objective of the present study was to screen the effect of increased simvastatin (SVS) solubility, through mixed micelles as a model approach, on in vitro anticancer efficacy in combination with hydrophilic alendronate sodium (ADS) as a strategy to improve therapeutic efficacy and to repositioning the existing drugs. The SVS-loaded mixed micelles (SVS-MMs) composed of TPGS and Poloxamer-407 were prepared using the film dispersion method and characterized for SVS loading and mean particle size. The optimized SVS-MMs were physically mixed with plain ADS (SVS + ADS MMs) and screened for in vitro cytotoxicity using MTT assay and cell cycle arresting and apoptotic activities using FACS technique. The optimized SVS-MMs showed maximum SVS loading (97.3 ± 2.3%) with minimum particle size (206 ± 8 nm). The SVS + ADS MM treatment significantly ($P < 0.001$) inhibited the cell growth with low IC_{50} values against all cells (A549: 0.037 ± 0.028 μg/mL, MDAMB-231: 0.172 ± 0.031 μg/mL, PC-3: 0.022 ± 0.015 μg/mL). Further, the SVS + ADS MM treatment significantly inhibited the cell multiplication in the S phase and resulted in high % of late apoptotic and necrotic cells at low concentration (0.05 and 0.15 μg/mL) as compared other test samples. The above results revealed the significance of encapsulating SVS in the core of MMs (improved solubility), and high efficacy and quick effect of SVS + ADS MM treatment against all cell lines screened.

Keywords Simvastatin · Bisphosphonate · Mixed micelles · Cytotoxicity · Cell cycle arresting and apoptosis

Introduction

Statins [3-hydroxy-3-methylglutaryl-CoA (HMG-CoA) reductase inhibitors], clinically used to reduce blood cholesterol levels, are the second-most prescribed drugs after analgesics and are also considered to be among the safest drugs [1]. In cell-based experiments (in vitro and experimental animal models), the hydrophobic statins (simvastatin, lovastatin, and fluvastatin) have displayed inhibitory effects on many cancers [1, 2]. Schmidmaier et al. have proved (in phase II clinical study) the pivotal role of simvastatin (SVS) in reducing drug resistance by inhibition of HMG-CoA reductase and antimyeloma activity in humans [3]. Besides, many researchers are investigating SVS in clinic for the treatment and management of various cancers and associated metastasis (https://clinicaltrials.gov/).

Nitrogen-containing bisphosphonates (NBPs; alendronate sodium (ADS)) have been proved to reduce and delay bone complications from bone metastasis, and have been used in over 4 million patients worldwide for the treatment of bone metastasis from solid tumors, bone complications, and pain from multiple myeloma. In the clinic, NBPs have been demonstrated additional direct anticancer effects [4].

SVS and ADS are known to affect cholesterol metabolism and biosynthesis by inhibiting the mevalonate pathway via potentially inhibiting the critical enzymes of the mevalonate pathway (HMG-CoA reductase and farnesyl pyrophosphate synthase (FPPS) respectively), thus having the negative effects at

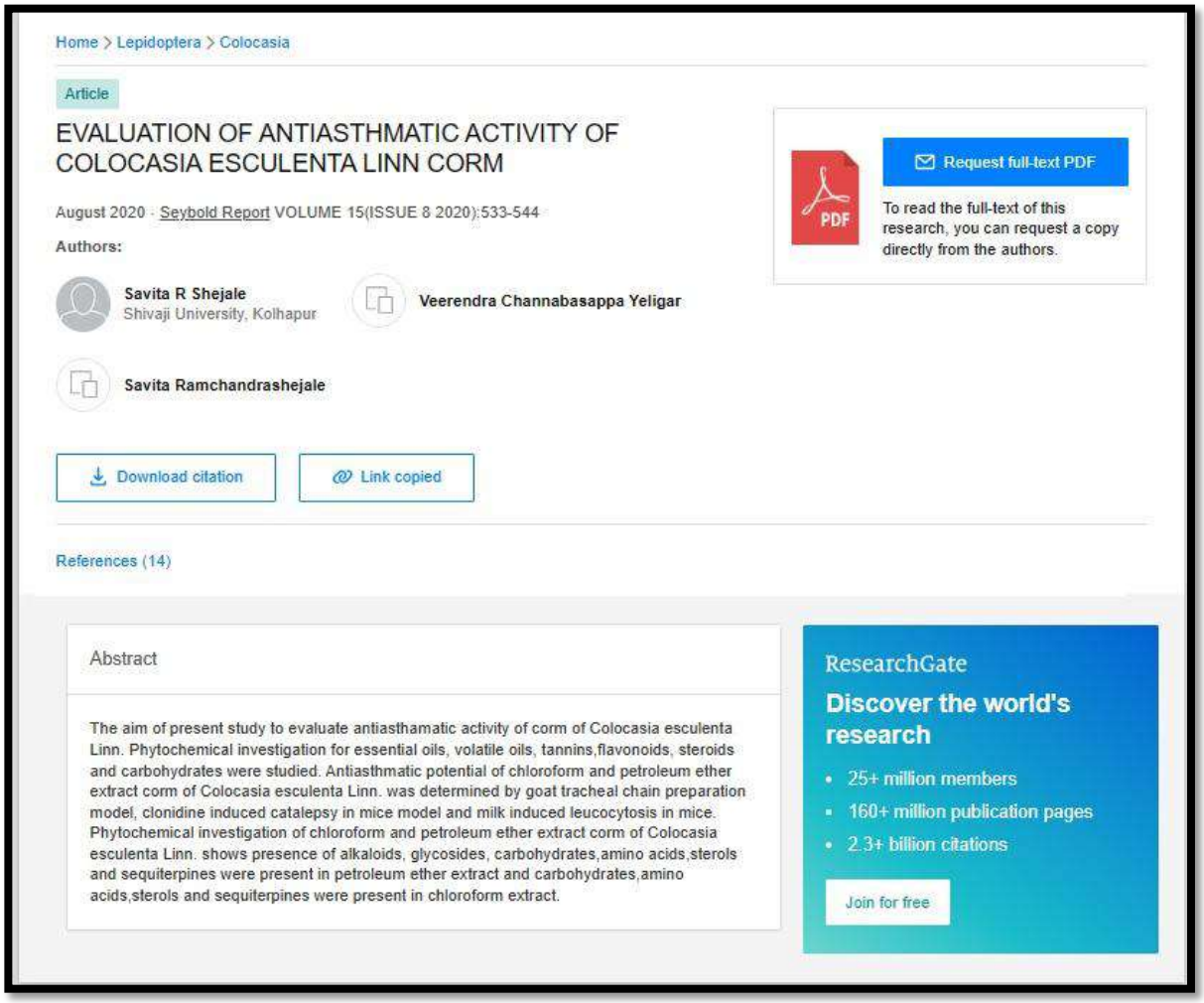
Electronic supplementary material The online version of this article (https://doi.org/10.1007/s13346-020-00752-1) contains supplementary material, which is available to authorized users.

✉ Namdeo R. Jadhav
nrjadhav18@rediffmail.com

[1] Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra 416112, India
[2] Department of Pharmaceutics, Bharati Vidyapeeth College of Pharmacy, Kolhapur, Maharashtra 416013, India
[3] Department of Pharmaceutics, Tatyasaheb Kore College of Pharmacy, Warananagar, Maharashtra 416113, India

Published online: 27 March 2020

BACK TO INDEX



Home > Lepidoptera > Colocasia

Article

EVALUATION OF ANTIASTHMATIC ACTIVITY OF COLOCASIA ESCULENTA LINN CORM

August 2020 · Seybold Report VOLUME 15(ISSUE 8 2020):533-544

Authors:

Savita R Shejale
Shivaji University, Kolhapur

Veerendra Channabasappa Yeligar

Savita Ramchandrashejale

Download citation | Link copied

Request full-text PDF

To read the full-text of this research, you can request a copy directly from the authors.

References (14)

Abstract

The aim of present study to evaluate antiasthamatic activity of corm of Colocasia esculenta Linn. Phytochemical investigation for essential oils, volatile oils, tannins,flavonoids, steroids and carbohydrates were studied. Antiasthmatic potential of chloroform and petroleum ether extract corm of Colocasia esculenta Linn. was determined by goat tracheal chain preparation model, clonidine induced catalepsy in mice model and milk induced leucocytosis in mice. Phytochemical investigation of chloroform and petroleum ether extract corm of Colocasia esculenta Linn. shows presence of alkaloids, glycosides, carbohydrates,amino acids,sterols and sequiterpines were present in petroleum ether extract and carbohydrates,amino acids,sterols and sequiterpines were present in chloroform extract.

BACK TO INDEX

Shejale and Yeligar, IJPSR, 2020; Vol. 11(10): 5262-5267. E-ISSN: 0975-8232; P-ISSN: 2320-5148

IJPSR (2020), Volume 11, Issue 10 (Research Article)

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 18 October 2019; received in revised form, 04 February 2020; accepted, 04 March 2020; published 01 October 2020

IN-VIVO AND *IN-VITRO* ANTIASTHMATIC STUDIES OF PLANT *MICHELIA CHAMPACA* LINN.

Savita R. Shejale * [1] and Veerendra C. Yeligar [2]

Department of Pharmaceutical Chemistry [1], Ashokrao Mane College of Pharmacy, Peth - Vadgaon - 416412, Maharashtra, India.
Department of Pharmaceutical Chemistry [2], Oxford College of Pharmacy, Bangalore - 560068, Karnataka, India.

Keywords:

Asthma, Anti-asthmatic agents, *Michelia champaca* Linn. Medicinal plants

Correspondence to Author:
Savita R. Shejale

Assistant Professor, Department of Pharmaceutical Chemistry, Ashokrao Mane College of Pharmacy, Peth - Vadgaon - 416412, Maharashtra, India.

E-mail: satputesavita@gmail.com

ABSTRACT: *Michelia champaca* known as champaca is belonging to family of Magnoliaceae. The present work consist of extraction and evaluation of anti-asthmatic activity of flowers of *Michelia champaca* Linn. Flowers was evaluated for anti-histaminic activity using isolated goat tracheal chain preparation and histamine induced Broncho-constriction in Albino mice. *Michelia champaca* Linn. expressively inhibited dose reliant contraction of goat tracheal chain produced by histamine and also exhibited significant protection by prolonging preconvulsion dyspnea time (PCD) in mice. Thus, *Michelia champaca* Linn. showed anti-allergic activity against histamine and hence possesses potential role in the treatment of asthma.

INTRODUCTION: It consists of 12 genera and 220 species of evergreen trees and shrubs. In recent times there are several reports of medical speciality roles and activities of *Michelia champaca* and its active principles on the circulatory system, antipyretic, diuretic [1]. Flowers and the fruit in combination with other drugs are recommended as an antidote to snake and scorpion venoms. Asthma is one of the most common disorder characterized by airway inflammation. It can be various factors like allergens, drugs, respiratory infection, dust, cold air, exercise, emotion, occupational stimuli, chemicals, histamine [2].

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.11(10).5262-67

This article can be accessed online on www.ijpsr.com

DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.11(10).5262-67

Drugs effective in the Asthma are mostly steroidal in nature. Phytochemical profile of this plant reveals the presences of flavonoids, steroidal nucleus in the form of triterpenoids and various saponin [3].

Asthma originates from a Greek term denoting 'panting' or 'breathless'. It is a syndrome of the bronchial tubes that typically presents with wheezing, shortness of breath coughing, particularly in children. Asthma is an allergic reaction triggering inflammation and narrowing of the airways, causing spasm and difficulty in breathing.

Asthma is a chronic lung disorder that occurs commonly in both children and adults in economically developed as well as developing countries. It is increasing in prevalence and severity especially in allergic patients. Asthma prevalence, (the percentage of people who have ever been diagnosed with asthma and still have asthma)

BACK TO INDEX

Research J. Pharm. and Tech. 13(2): February 2020

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

www.rjptonline.org

RJPT

RESEARCH ARTICLE

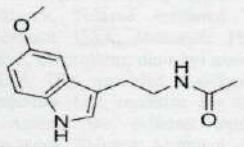
Degradation Kinetic Study of Melatonin in Alkaline and Acidic Medium by Validated Stability Indicating HPTLC Method

Shubhangi V. Sutar*[1], Veerendra C. Yeligar[2]
Ashokrao Mane College of Pharmacy, Peth-Vadgaon
*Corresponding Author E-mail: **shubhangi.sutar28@gmail.com**

ABSTRACT:
Background: Chemical stability of pharmaceutical molecules is a matter of great concern as it affects the safety and efficacy of the drug product. Some degradation products and impurities may even have a toxic effects. Therefore, it is very important to develop proper stability indicating method for Melatonin which possibly be used for stability testing and routine analysis. **Method:** A rapid, sensitive with stability indicating HPTLC method be developed and validated to study degradation kinetics of Melatonin (MT) in alkaline, acidic and oxidative conditions. All degraded samples be chromatographed on Silica gel 60F 254 plates, developed using solvent system toluene: Methanol: formic acid (7:3:0.1) and scanned at 290nm.The developed method was validated as per ICH guidelines using validation parameters such as specificity, linearity and range, precision, accuracy, LOD and LOQ. **Result:** Degradation kinetics of MT in acidic and alkaline medium was studied by degrading it underneath three distinct concentrations of alkali and acid at three different time interval. Degradation of Melatonin into the alkaline and acidic medium was found to follow First order kinetics. Acid, alkaline and oxidative degradation reactions studied to determine the rates of the reaction and susceptibility of Melatonin. **Conclusion:** The HPTLC technique established in this work is precise, specific, and accurate stability indicating statistical analysis proves the method is suitable for analysis of Melatonin. Melatonin degraded in acidic, alkaline, oxidative stress conditions. Alkaline and acidic degradation of Melatonin followed first order kinetics and higher degradation was found in 1N NaOH and 1N HCl.

KEYWORDS: Melatonin (MT), Degradation Kinetics, HPTLC, Method Validation.

1. INTRODUCTION:



Melatonin, N-acetyl -5-methoxy tryptamine, MT, is a neuroharmone produced mainly at night by the pineal gland, subsequently decreasing to minimum during the day.

Received on 27.03.2019 Modified on 28.06.2019
Accepted on 28.08.2019
Research J. Pharm. and Tech 2020; 13(2):523-528.
DOI: 10.5958/0974-360X.2020.00099.2

It helps to treat sleep disorders with diminishing latency of sleep inception, effective as free radicals remover and seeing that endogenous antioxidant. The MT has been use with magnificent therapeutic results in Alzheimer treatment, intended for the neurotoxicity induced by glutamate and throughout jet lag treatment. MT is found available as tablets and capsules for human consumption and is sold without medical prescription in many countries, including Canada and United States of America and off the shelves even in nutrition supplement stores.

However, there are no reported methods intended for determination of degradation kinetics of Melatonin in Alkaline and Acidic medium. Now days there are various methods for determining Melatonin, its pharmaceutical dosage form, such like HPLC method, spectrophotometric method and thin layer chromatography scanning method and so on[1-11].

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

Sutar et al., IJPSR, 2020; Vol. 11(9): 4426-4432. E-ISSN: 0975-8232; P-ISSN: 2320-5148

IJPSR (2020), Volume 11, Issue 9 (Research Article)

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 15 September 2019; received in revised form, 01 December 2020; accepted, 31 March 2020; published 01 September 2020

STRUCTURE ELUCIDATION OF OXIDATIVE DEGRADATION PRODUCT OF DROSPIRENONE

Shubhangi V. Sutar * [1], Veerendra C. Yeligar [2] and Shitalkumar S. Patil [1]

Ashokrao Mane College of Pharmacy [1], Peth - Vadgaon - 416112, Maharashtra, India.
Oxford College of Pharmacy [2], Bangalore - 560068, Karnataka, India.

Keywords:

Drospirenone, Stress conditions, Oxidative degradation, LC

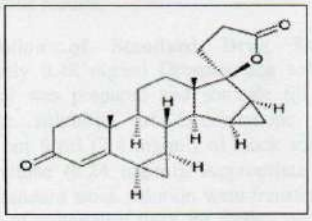
Correspondence to Author:
Shubhangi V. Sutar

Assistant Professor,
Ashokrao Mane College of Pharmacy,
Peth - Vadgaon - 416112,
Maharashtra, India.

E-mail: shubhangi.sutar28@gmail.com

ABSTRACT: Stressed degradation study of Drospirenone in H_2O_2 and characterization of degradants by IR, NMR, LC-MS was done. Stressed degradation study of Drospirenone in H_2O_2 and characterization of degradants by IR, NMR, and LC-MS was done. To evaluate the stability of Drospirenone under stress conditions, it was subjected to oxidative degradation, according to ICH guideline Q1A (R2). The analysis was carried out on C18 Thermo Hypersil BDS (250 × 4.6 × 5 mm) column, using ammonium acetate: acetonitrile (70:30) pH 6.8 as mobile phase with flow rate 1ml/min and analysis was done using PDA detector at an ambient temperature where 3.15 min was retention time of the drug. The Linearity, precision, and accuracy were found to be satisfactory over the concentration range of 10 to 60 µg/ml of the drug. The correlation coefficient was 0.987. Drospirenone was found to degrade in 1% H_2O_2 to the extent of 19% after 1 h. More degradation was observed by using 3% H_2O_2 at 80 °C. Interestingly, in the applied conditions, the new compound was found out in a significant amount with oxidative stress conditions. FT-IR, NMR, LC-MS data demonstrated that the oxidative stressed impurity of Drospirenone (Biphenyl moiety) is reported. The method was effectively applied to the determination of Drospirenone with decomposed products in quality control laboratories.

INTRODUCTION: Drospirenone is 6β, 7β, 15β, 16β- dimethylene- 3- oxo- 17α-pregn-4-ene-21, 17 carbolactone. Drospirenone is a synthetic progestin that is an analog to spironolactone. It is present in number of birth control formulations. Drospirenone be different from other synthetic progestins as its pharmacological outline in preclinical studies shows it to be closer to the natural progesterone. As such Drospirenone has anti-mineralocorticoid properties, counteracts the estrogen-stimulated activity of the renin-angiotensin-aldosterone system, and is not androgenic [1].



Stability testing is done primarily to provide the evidence that the drug substance or the drug product maintains its essential features of quality, identity, purity, and strength (within acceptable ranges) throughout the time in which it is expected to remain safe for further processing or human consumption. Study of stressed degradation support for the identification of feasible degradants, the inherent stability of the drug molecules, possible degradation pathways, and stability indicated

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.11(9).4426-32

This article can be accessed online on www.ijpsr.com

DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.11(9).4426-32

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

ISSN 0975-2366
DOI: https://doi.org/10.31838/ijpr/2020.SP1.362

Review Article

A Review: Solid Lipid Nanoparticles

SHWETA R. PATIL[1]*, SHUBHANGI B. SUTAR[2], SHITALKUMAR S. PATIL[3]
[1,2,3]Department of Pharmaceutical Quality Assurance, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Dist. - Kolhapur, Maharashtra, Pin-416112, India.
*Corresponding Author
Email ID: Shwetarpatil12961296@gmail.com.
Received: 10.07.20, Revised: 09.08.20, Accepted: 10.09.20

ABSTRACT
Nanotechnology introduced as a novel ambidextrous way in medical treatment.Nanotechnology is the study of super-small structures.The potential to integrate drugs in Nano carriers provides a new drug delivery technology that could be used for drug targeting. Solid lipid nanoparticles therefore hold great promise to achieve the goal of safe and site-specific delivery of drugs and thus attracted broad attention of researchers.From last two decades, SLN have been captured the focus towards the cancer treatment. Nanoparticles were designed to increase their diffusion time in the bloodstream for optimum size and surface properties to enhance the bio distribution of cancer medications. This article reviews different aspects of SLNs including structure, composition, advantages and method of preparation and characterization of SLNs.

Keywords: Solid lipid nanoparticles, Homogenization, Nano scaled structure, GRAS, Nanostructured Lipid Carriers.

INTRODUCTION

Most prevalent anticancer agents do not generally distinguish between cancerous and normal cells, leading to toxicity and major side effects. Nanotechnology has great ability to make an important role in prevention, detection, diagnosis and cure cancer. Nanoparticles have been used to deliver imaging agents for cancer diagnostics. Due to their Nano scaled structure they are easily and more readily taken up by the human body [1]. Nanoparticles are classified into 3 groups as Metallic nanoparticle, Polymeric nanoparticle, Lipid nanoparticles. In that the metallic and polymeric nanoparticles shows the toxic effects in the preparation of nanoparticles. The lipids which are used in the preparation are classified as GRAS (Generally Recognized as Safe) substances.

Solid Lipid Nanoparticles (SLN) and Nanostructured Lipid Carriers (NLC) are the two types of lipid nanoparticles. SLNs are one of novel potential colloidal carriers system during last few years because SLNs blend several advantages and reduce the disadvantages of other colloidal carriers. SLNs presented in 1991 as a substitute and suitable system for classic colloidal carriers. These carriers may include emulsions, liposomes and polymeric micro and nanoparticles. [2]
SLNs are biocompatible and decomposable. They have been used for controlled drug delivery and specific targeting. Due to these properties SLNs have been tested for several routes of administration including oral and per oral routes. [3]

Structure and composition of SLN [4]:

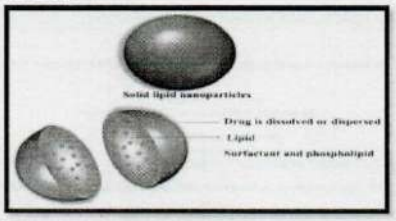
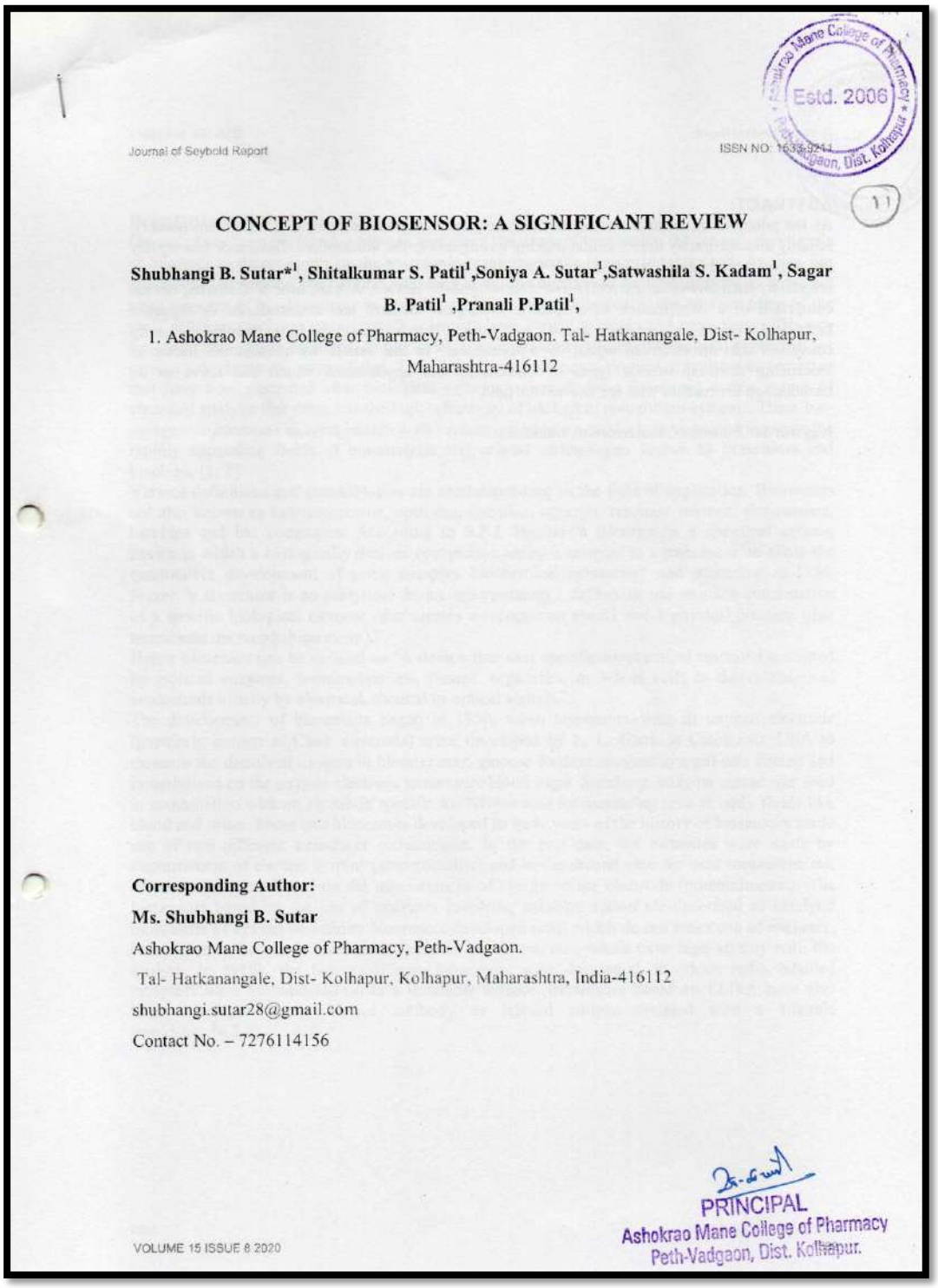


Fig.1: Structure of Solid lipid nanoparticles.

Structure of SLN consist of spherical solid lipid particle in nanometer range of 50-500nm which are dispersed in water or aqueous surfactant solution.
Composition of SLN:

BACK TO INDEX



Journal of Seybold Report ISSN NO: 1533-9211

11

CONCEPT OF BIOSENSOR: A SIGNIFICANT REVIEW

Shubhangi B. Sutar*[1], Shitalkumar S. Patil[1],Soniya A. Sutar[1],Satwashila S. Kadam[1], Sagar B. Patil[1] ,Pranali P.Patil[1],

1. Ashokrao Mane College of Pharmacy, Peth-Vadgaon. Tal- Hatkanangale, Dist- Kolhapur, Maharashtra-416112

Corresponding Author:

Ms. Shubhangi B. Sutar

Ashokrao Mane College of Pharmacy, Peth-Vadgaon.

Tal- Hatkanangale, Dist- Kolhapur, Kolhapur, Maharashtra, India-416112

shubhangi.sutar28@gmail.com

Contact No. – 7276114156

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

VOLUME 15 ISSUE 8 2020

BACK TO INDEX

Pharmaceutical Resonance 2020 Vol 3 - Issue 1

RESEARCH ARTICLE

DPU

PHYTOCHEMICAL INVESTIGATION, ANTHELMINTIC AND ANTIOXIDANT ACTIVITIES OF *QUISQUALIS INDICA*

Sutar S. B.[*a], Kadam S. S.[a], Patil S. B.[a], Patil S. S.[a], Mahajan R. K.[a]

[a]Ashokrao Mane College of Pharmacy. Peth-Vadgon, Kolhapur, Maharashtra, India-416112

ABSTRACT : Rangoon Creeper scientifically known as Quisqualis indica belonging to family Combretaceae. Almost all of its parts are used to different ailments like antiflatulence, coughs; diarrhea, body pains, toothache, and cardiovascular system. To explore the phytoconstituent from the extracts and evaluate the anti-oxidant activity and anthelmintic activity of Quisqualis indica. Extraction, isolation, molecular characterization of secondary metabolites and pharmacological evaluation of Quisqualis indica is done in present study. Characterization of isolated compounds was done by thin layer chromatography, GC-MS, NMR and FTIR. 2-Dodecenal, 2-Tridecenal was isolated from Quisqualis indica plant. Screening for anti-oxidant activity by using DPPH radical scavenging activity, scavenging of superoxide radical by alkaline DMSO method and anthelmintic activity by using Pheretimaposthuma as test worms; mebendazole as reference standard. The alcoholic extract of Quisqualis indica exhibited significant anti-oxidant and anthelmintic activity.

Keyword *: Quisqualis indica Linn, Anthelmintic activity, Antioxidant activity, DPPH radical scavenging activity, Superoxide radical.*

1. INTRODUCTION:

The treatment of diseases with pure pharmaceutical agent is a relatively modern phenomenon. Today we are more concentrated with life-style disease like depression, cancer and heart troubles caused by faulty nutrition and stress. The need of alternatives therapy is to cover a good health for all. Herbal therapy is one of the best practices to overcome the illness. The plant-based, traditional medicine system continues to play an essential role in health care, with about 80% of the world's inhabitants relying mainly on traditional medicines for their primary health care. India has several traditional medical systems, such as Ayurveda and Unnani, which has survived through more than 3000 years.

Rangoon Creeper scientifically known as Quisqualis indica belonging to Combretaceae. It is a solid climber, ligneous vine that can reach from 2.5 meters to up to 8 meters. Leaves contain rutin, trigonelline, L -proline, laspargine and quisqualic corrosive though blossom gum contains pelargonidin-3-glucoside. Seed Oil contains linoleic, oleic, palmitic, stearic and arachidic acids. ellagitannins, quisqualin An and quisqualin B is available in products of this plant and bloom contains linalool oxides (furanoid and pyranoid), 2, 2, 6 - trimethyl - 6 - vinyl - 3 - oxo tetra -hydropyran, (E,E) - alphafarnesene, (Z) - 3 - hexenyl benzoate and benzyl benzoate. 4 - Diphhenyl propanoids were disengaged from stem bark of Quisqualis indica1.

Quisqualis indica Linn also contains trigonelline (alkaloid), L-proline (α-amino acid), L-asparagine (α-amino acid), quisqualic acid (agonist for both AMPA receptors), rutin (flavonoid) and two forms of the cysteine synthase, isoenzyme A and isoenzyme B (enzyme). Rutin and pelargonidin-3-glucoside have also been isolated from flowers. Fruits contain a sugary substance similar to levulose and an organic acid similar to cathartic acid. Seeds contain a fixed oil, which consists of linoleic, oleic, palmitic, stearic and arachidic acids, a sterol, an alkaloid with anthelmintic properties and a neuroexcitatory amino acid, quisqualic acid2.Some medicinal properties of Quisqualis indica has been documented in Ayurveda, Siddha, Unnani and other medicinal system. Almost all of its parts are used individually or mixed with other ingredients as remedy to different ailments like antiflatulence, coughs, diarrhea, body pains, toothache, and cardiovascular system, Herbs that are rich in flavonoids, vitamin C or the carotenoids may

Satwashila Shahajirao Kadam
Department of Pharmaceutical Chemistry
Ashokrao Mane College of Pharmacy,
Peth-Vadgaon, Kolhapur - 416 112, India
Email : satwashilakadam@gmail.com
Contact : +91 99754 77743

BACK TO INDEX

Review Article

Thai Journal of Pharmaceutical Sciences

Progress in erectile dysfunction therapy through drug delivery system

Mayuri Shitole[1], Shailesh Dugam[1], Rahul Tade[2], Neha Desai[3], Sopan Nangare[2]*

[1]Department of Pharmaceutics, Bharati Vidyapeeth College of Pharmacy, Kolhapur, Maharashtra, India, [2]Department of Pharmaceutical Chemistry, H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur, Maharashtra, India, [3]Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Maharashtra, India

Corresponding Author:
Mr. Sopan Nangare,
H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur, Maharashtra - 425 405, India.
Phone: +91-9561141110.
E-mail: snangareopan@gmail.com

Received: Mar 06, 2020
Accepted: May 21, 2020
Published: May 30, 2020

ABSTRACT

A man's aptitude to acquire and continue an erection is frequently equated with masculinity and virility and can greatly influence men's confidence. The sexual healthiness is a significant determinant of the worth of life. Erectile dysfunction (ED) as the inability to have or sustain a penile erection long enough to have momentous sexual intercourse with a partner. As per the literature, it is revealed that the millions of men populations are suffering from ED and there is an extreme need to overcome the ED. The various natural traditional herbs, synthetic pioneered chemical entities/potentials are preferred to treat ED. The present review discusses ED therapy including drug selection, application site, and choice of formulation. Moreover, this review updates the various pharmaceutical formulation such as liposomes, ethosomes, transfersomes, nanoemulsion, self-nano-emulsifying drug delivery system, solid dispersion, penetrosomes, solid lipid nanoparticles, and nanostructured lipid carriers development in ED therapy through the oral route, topical and nasal route, etc., which are helpful for researchers to develop new nanocarriers based formulations.

Keywords: Erectile dysfunction, formulation development, nasal route, oral formulation, transdermal route

INTRODUCTION

The millions of men's population affected not only by erectile dysfunction (ED) but also premature ejaculation (PE).[1,2] ED is an inability to maintain/initiate an adequate erection throughout satisfying sexual intercourse.[2-6] The sufficient erected penis has been a representation of a man's virility and sexual ability. Although it is not a lethal situation, the attention surrounding ED and its remedies have been invariable throughout the ages.[7] ED is a general disorder that increases with age and majorly observed in men aged 50 and older than.[8] A literature survey evinced that 75% of people aged over 70 years are the sufferer of ED in the United States,[9] while one more study claimed that the 40% man population over 60 years of age are probable to have ED.[10] In addition to this, 30 millions of the men population has been added to the ED each year, of which, only 2 lakhs men pursue treatment from a physician. Moreover, a large number of the population remains unrecognized as people do not discuss the sexual dysfunction issue with their doctors.[11] Furthermore, it is a depending on majorly observed more common chronic disordered such as cardiovascular, neurological, and diabetes in older age men's.[12] It may be the partial reason for prevalence in older males. In addition, it is more common in the obese age group and more specifically in the existence of hypertension, diabetes, dyslipidemia, etc.[13,14] Hence, the prevalence and incidence of ED problems are highly correlated with the known risk factors, aging factors, and comorbidities. Moreover, lifestyle-based individual factors such as obesity, tobacco chewing, and frequency of exercise have all been associated with ED.[15] Nowadays, predominantly ED is a rising issue in under 40 age men's.[16] A literature survey resolved that near about 20–25% of cases of ED observed in the same age group.[17] ED influences unsatisfactory sexual life and severely impaired the quality of life of men and their sex partners also.[18,19] Moreover, it is a major route cause of depression, anxiety etc.[20]

Hence, there is a huge demand from the suffered population to investigators for the treatment of ED. The

BACK TO INDEX

Research Publications A.Y. 2018-19

Research J. Pharm. and Tech. 12(8): August 2019

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

www.rjptonline.org

RJPT

RESEARCH ARTICLE

Prochlorperazine Maleate Loaded Sustained Release Floating Microspheres prepared by Ionotropic Gelation Technique: Morphology and Release Characteristics

Pallavi M. Pawashe[1]*, Shital Kumar S. Patil[2], Nilofar S. Naikwade[3]

[1]Research Scholar, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Dist-Kolhapur, MS, India
[2]Principal and Head Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Dist-Kolhapur, MS, India
[3]HOD, Department of Pharmacology, Appasaheb Birnale College of Pharmacy, Sangli, MS, India
*Corresponding Author E-mail: **pallavipati2007@gmail.com**

ABSTRACT:
Once a daily oral sustained release microsphere based floating formulation of Prochlorperazine Maleate (PCZM) was prepared with intent of reduction in frequency of administration which will increase the bioavailability and further to enhance the patient compliance thus avoiding treatment failure. For treatment of vomiting and nausea, PCZM is a drug of choice. PCZM, phenothiazine antipsychotic, has low biological half life and required multiple dosing frequency (3-4 times daily). Ionotropic gelation technique was used to prepare a sustained release floating microsphere using calcium chloride as complexing agent, sodium alginate release retarding agent, and sodium bicarbonate as gas generation mediator. Different formulation batches F1 to F7 were prepared andevaluated for percent yield, entrapment efficiency, micromeritic properties, floating lag time, total floating time and *In-vitro* dissolution study. Optimized formulation batch F6was subjected for physical characterization and morphological study like DSC, PXRD, FTIR and SEM respectively. Results of *In-vitro* dissolution study of optimized formulation batch F6 showed sustained release property with floating characteristic of PCZM microspheres for more than 24 hrs. Release study of Optimized formulation F6 followed Korsmeyer's Peppas model release kinetics with non-fickian diffusion. SEM study revealed spherical shape of the microspheres with rough and porous surface.

KEYWORDS: Floating microsphere, Prochlorperazine Maleate, Ionotropic gelation, floating time, bioavailability.

1. INTRODUCTION:

Oral drug delivery is the most preffered way for the drug administration however suffers with drawbacks like short gastrointestinal transit time, rapid gastric emptying time, thereby reduce the bioavailability. Oral drug delivery dosage forms developed with the intention to increase the residence time of the dosage forms in the upper gastrointestinal tract (GI) or the stomach until the drug is absorbed completely and thus enhancing the bioavailability[1-2].

Floating drug delivery system (FDDS) has the benefit of specific density lower than gastric fluid, stay buoyant in stomach content and prolonged GI transit time thus improvement in bioavailability. FDDS has benefit of local and sustained drug delivery to the stomach and proximal small intestine thus releasing the drug in the locality of the absorption window[3-5].

Sodium alginate, natural biopolymer composed of mannuronic acid and glucuronic acid in varying proportions and arrangements. Polymer mainly bind and cross linked with divalent or polyvalent cations like Ca^{2+} and Zn^{2+}, Ca^{2+} is preferred as they mainly bind to glucuronic acid. Sodium alginate acts as sustained release agent by formation of gel containing calcium alginate complex, mainly act on gastric mucosa and enhance the bioavailability. Moreover bioadhesive

Received on 14.03.2019 Modified on 19.04.2019
Accepted on 21.05.2019
Research J. Pharm. and Tech 2019; 12(8): 3868-3872.
DOI: 10.5958/0974-360X.2019.00664.4

BACK TO INDEX

RESEARCH ARTICLE Am. J. PharmTech Res. 2019; 9(03) ISSN: 2249-3387

AMERICAN JOURNAL OF PHARMTECH RESEARCH
Journal home page: http://www.ajptr.com/

Effectiveness of *Calotropis Gigantean* Linn Flower Extract as Indicator for Acid-Base Titration and Development of Litmus Paper

Satwashila Shahajirao Kadam[1]*, Pravin Mhadev Salgar[1], priyanka Tanaji Sakate[1], Dr. Shitalkumar S. Patil[1]

1.Department of Pharmaceutical Chemistry. Ashokrao Mane College of Pharmacy, Peth Vadgaon, Maharashtra, India. 416112

ABSTRACT

A study has been done to examine the indicator action of methanolic extract of flower *Calotropis gigantean* Linn and development of litmus paper. *Calotropis gigantean* Linn belongs to family Apocynaceae, Methanolic extract of flower *Calotropis gigantean* Linn was examined and compared with that of previously present synthetic indicators. Flowers were extracted using methanol, a specific volume was added which gave perfect and reliable results for all the four different types of neutralization titrations. Developed litmus paper shows changed colour in Basic medium. The work shows that natural indicator and developed litmus paper was very useful, economical, simple and accurate.

Keywords: Acid-base titration, natural indicator, *Calotropis gigantean* Linn.

*Corresponding Author Email: satwashilakadam@gmail.com
Received 12 April 2019, Accepted 21 April 2019

Please cite this article as: Kadam SS *et al.*, Effectiveness of Calotropis Gigantean Linn Flower Extract as Indicator for Acid-Base Titration and Development Of Litmus Paper. American Journal of PharmTech Research 2019.

PRINCIPAL
Ashokrao Mane College of Pharmacy

BACK TO INDEX

Curr. Pharm. Res. **2019**, *9(4)*, 3226-3236

Current Pharma Research
ISSN-2230-7842
CODEN-CPRUE6
www.jcpronline.in/

Research Article

Design and development of aliphatic amino acid-cholesterol biomolecular scaffold as anticancer conjugates.

Mayuresh Shinde[1*], Shitalkumar Patil[2], Manish Bhatia[3], Dhanashri Patil[4], Sanjay Mishra[4]

[1]Department of Pharmaceutical Chemistry, Tatyasaheb Kore College of Pharmacy, Warananagar, 416113, Maharashtra, India.

[2]Ashokrao Mane College of Pharmacy, Peth Vadgaon, 416112, Maharashtra, India.

[3]Department of Pharmaceutical Chemistry, Bharati Vidyapeeth College of Pharmacy, Kolhapur, 416013, Maharashtra, India.

[4]KAHER's Dr. Prabhakar Kore Basic Science and Research Center, Belagavi, 590010, Karnataka, India.

Received 22 March 2019; received in revised form 18 June 2019; accepted 20 June 2019

***Corresponding author E-mail address:** *mvshinde.tkcp@gmail.com*

ABSTRACT

We have developed lipoprotein macromolecular motif to target multiple type of cancerous cells. These scaffold moieties linked with anticancer agents for targeting release at specific site. Biomolecular network increases cellular penetration, specificity and efficacy. Molecular motifs containing these agents are readily degradable by enzymatic cleavage. Structural functionalities of these modified molecules generate response against cancerous cells. Lipids and protein conjugates improve drug delivery towards target tissues. Bioactive lipoprotein exerts inhibitory effect for progressing tumor tissues. Lipid-protein bioconjugates interact with tumor tissue proteins selectively for reducing toxicity of antitumor agents. Complexation of cholesterol with bioactive aliphatic amino acid yields complex scaffold possessing anticancer activity. Reaction was conducted using dicyclohexyl carbodiimide (DCC) and 4-dimethylamino pyridine (DMAP) in pyridine solvent. Developed conjugates were characterized by using TLC, IR, NMR and HRMS studies. Conjugates were screened for anticancer activity by using MTT assay for human lung cancer (A549), liver hepatocellular carcinoma (HepG2), Human colon cancer (HT-29), Breast carcinoma (MCF-7), Glioblastoma cell lines (U87 MG).All molecular motifs exhibited remarkable antitumor activity against specified cell lines. Non-toxicity towards normal mouse fibroblast (L-929) is the promising feature of synthetic biomolecular scaffold which indicates selectivity of molecular complexes on tumor tissues. Current synthetic protocol can be used for development of biochemical molecular motif with high specificity, selectivity and antitumor potential.

KEYWORDS

Cholesterol, aliphatic amino acids, anticancer, bioconjugates.

Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Dist. Kolhapur. Estd. 2006

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

eSign Signed by: Sachinkumar Vasantrao Patil
Reason: NAAC
Location: Peth Vadgaon, India
Date: 04-Jun-2023 (11:35 AM)

3.3.1 FINAL TEMPLATE.docx - Go

le.com/mail/u/0/?tab=rm&ogbl#search/sandip/FMfcgzGmtNkTXHtXzCgfxgpBThRhvzlb?projector=1&messagePartId=0.8

Research J. Pharm. and Tech. 12(12): December 2019

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

www.rjptonline.org

RJPT

RESEARCH ARTICLE

Validated UV Spectrophotometric method for Estimation of Simvastatin in Bulk and Pharmaceutical Formulation

Sandip A. Bandgar[1]*, Namdeo R. Jadhav[2]

[1]Ashokrao Mane College of Pharmacy, Peth-Vadgaon MS (India)
[2]Bharati Vidyapeeth College of Pharmacy, Kolhapur MS (India)
*Corresponding Author E-mail: **bandgarsandip21@gmail.com**

ABSTRACT:

A new simple, precise spectrophotometric method was developed and validated for estimation of simvastatin from bulk and pharmaceutical formulation . In the present study, methanol as solvent and absorption maxima at 238 nm was used for estimation of simvastatin. The drug obeyed Beers law and showed good correlation. The linearity was observed between 2-18 µg/ml. The correlation coefficient was found to be 0.999. There was no significant difference in the precison analysis of simvastatin. The proposed method was validated statistically as per ICH guidelines with respect to recovery, linearity, Limit of detection (LOD) and Limit of quantitation (LOQ) and were found to be satisfactory. The method was developed and validated successfully for the quantitative analysis of simvastatin in bulk and pharmaceutical formulation.

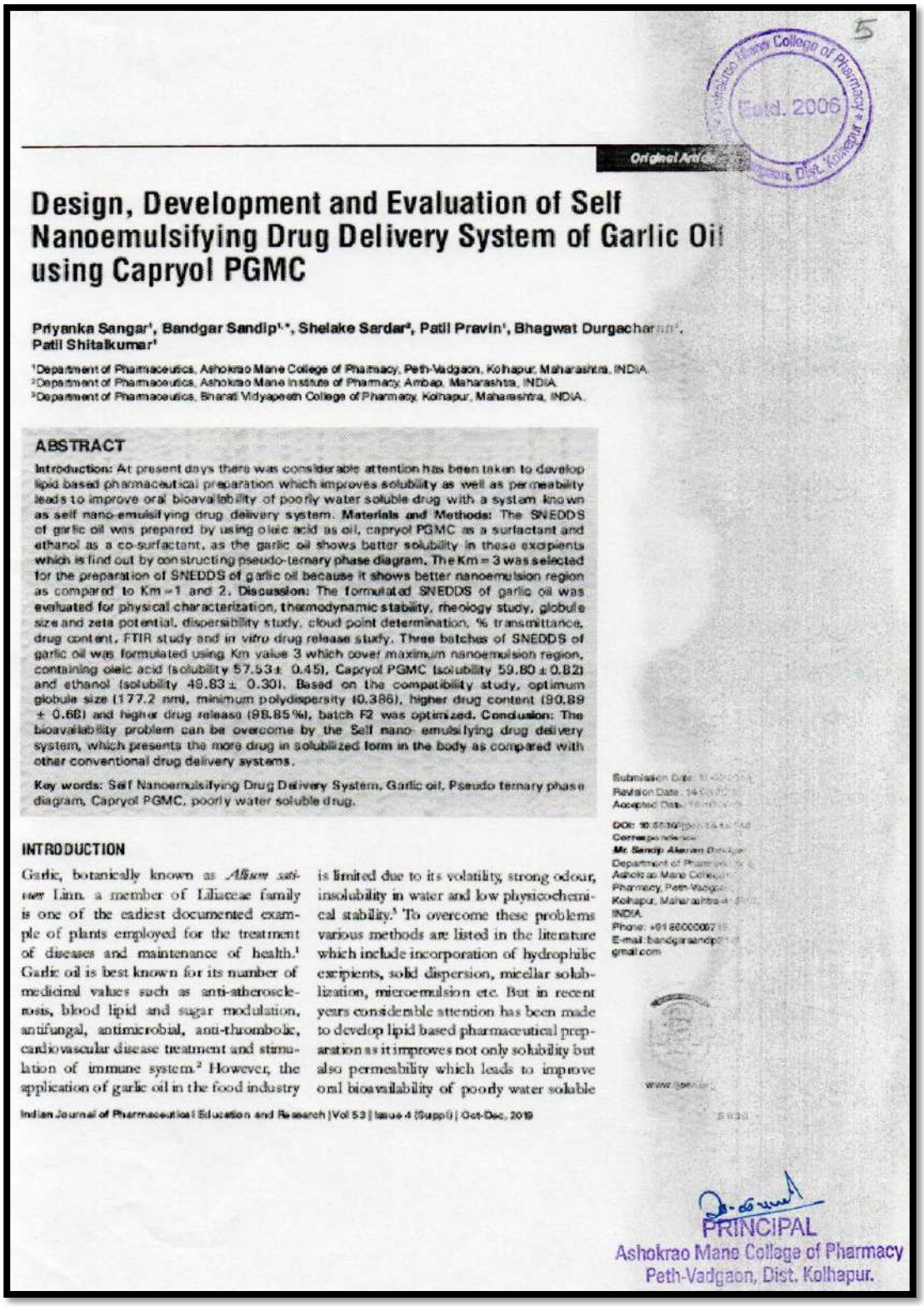
KEYWORDS: Simvastatin, UV Spectrophotometric method, Accuracy.

INTRODUCTION:

Simvastatin is lipid lowering agent, chemically 2, 2-Dimethyl butanoic acid (1S,3R,7S,8S,8a R)-1,2,3,7,8,8a hexahydro- 3,7- dimethyl-8- [2- [(2R,4R)- tetrahydro-4-hydroxy-6 oxo2H pyran-2yl]ethyl]1-napthalenyl ester used as a HMG CoA reductase inhibitors. It is derived

Simvastatin is prodrug which is converted into its β-hydroxy which inhibits HMG CoA reductase (3-hydroxy-3- methyl glutaryl Coenzyme A) enzyme, responsible for catalyzing the conversion of HMG CoA to mevalonate a rate limiting step in the synthesis of cholesterol in liver. Literature survey revealed that there

BACK TO INDEX



5

Ashokrao Mane College of Pharmacy Estd. 2006 Peth-Vadgaon, Dist. Kolhapur

Original Article

Design, Development and Evaluation of Self Nanoemulsifying Drug Delivery System of Garlic Oil using Capryol PGMC

Priyanka Sangar[1], Bandgar Sandip[1,*], Shelake Sardar[2], Patil Pravin[1], Bhagwat Durgacharan[3], Patil Shitalkumar[1]

[1]Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur, Maharashtra, INDIA.
[2]Department of Pharmaceutics, Ashokrao Mane Institute of Pharmacy, Ambap, Maharashtra, INDIA.
[3]Department of Pharmaceutics, Bharati Vidyapeeth College of Pharmacy, Kolhapur, Maharashtra, INDIA.

ABSTRACT

Introduction: At present days there was considerable attention has been taken to develop lipid based pharmaceutical preparation which improves solubility as well as permeability leads to improve oral bioavailability of poorly water soluble drug with a system known as self nano-emulsifying drug delivery system. **Materials and Methods:** The SNEDDS of garlic oil was prepared by using oleic acid as oil, capryol PGMC as a surfactant and ethanol as a co-surfactant, as the garlic oil shows better solubility in these excipients which is find out by constructing pseudo-ternary phase diagram. The Km = 3 was selected for the preparation of SNEDDS of garlic oil because it shows better nanoemulsion region as compared to Km = 1 and 2. **Discussion:** The formulated SNEDDS of garlic oil was evaluated for physical characterization, thermodynamic stability, rheology study, globule size and zeta potential, dispersibility study, cloud point determination, % transmittance, drug content, FTIR study and in vitro drug release study. Three batches of SNEDDS of garlic oil was formulated using Km value 3 which cover maximum nanoemulsion region, containing oleic acid (solubility 57.53 ± 0.45), Capryol PGMC (solubility 59.80 ± 0.82) and ethanol (solubility 49.83 ± 0.30). Based on the compatibility study, optimum globule size (177.2 nm), minimum polydispersity (0.386), higher drug content (90.89 ± 0.66) and higher drug release (98.85 %), batch F2 was optimized. **Conclusion:** The bioavailability problem can be overcome by the Self nano- emulsifying drug delivery system, which presents the more drug in solubilized form in the body as compared with other conventional drug delivery systems.

Key words: Self Nanoemulsifying Drug Delivery System, Garlic oil, Pseudo ternary phase diagram, Capryol PGMC, poorly water soluble drug.

INTRODUCTION

Garlic, botanically known as *Allium sativum* Linn. a member of Liliaceae family is one of the earliest documented example of plants employed for the treatment of diseases and maintenance of health.[1] Garlic oil is best known for its number of medicinal values such as anti-atherosclerosis, blood lipid and sugar modulation, antifungal, antimicrobial, anti-thrombolic, cardiovascular disease treatment and stimulation of immune system.[2] However, the application of garlic oil in the food industry is limited due to its volatility, strong odour, insolubility in water and low physicochemical stability.[3] To overcome these problems various methods are listed in the literature which include incorporation of hydrophilic excipients, solid dispersion, micellar solubilization, microemulsion etc. But in recent years considerable attention has been made to develop lipid based pharmaceutical preparation as it improves not only solubility but also permeability which leads to improve oral bioavailability of poorly water soluble

Indian Journal of Pharmaceutical Education and Research | Vol 53 | Issue 4 (Suppl) | Oct-Dec, 2019

Submission Date:
Revision Date:
Accepted Date:
DOI:

Correspondence:
Mr. Sandip Akaram Bandgar
Department of Pharmaceutics
Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur, Maharashtra, INDIA.
Phone: +91 8600000000
E-mail: bandgarsandip@gmail.com

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

Research J. Pharm. and Tech. 12(1): January 2019

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

www.rjptonline.org

RJPT

RESEARCH ARTICLE

Design, Development and Evaluation of Fast Dissolving Tablet of Antiasthmatic Drug

Nikhil A Patil, Sandip A Bandgar*, Sardar S Shelake, Pravin S Patil, Shitalkumar S Patil
Ashokrao Mane College of Pharmacy, Dept. of Pharmaceutics, Peth Vadgaon, 416112, Kolhapur, Maharashtra, India.
*Corresponding Author E-mail: **sardarshelake289@gmail.com**

ABSTRACT:
The aim of the work is an attempt to design, development and evaluation of fast dissolving tablets of Levosalbutamol sulphate by direct compression method with the aid of superdisintegrant addition. Levosalbutamol (LS) is the R – enantiomer of short acting beta2 adrenergic receptor agonist of salbutamol used to treat asthma and Chronic obstructive pulmonary disease. Nine formulations were prepared by using three different superdisintegrants in varying concentration in such way that total weight of the tablet remains same. The drug-polymer incompatibility was analysed by FTIR studies. All the formulated tablets were subjected for pre and post-compression evaluation parameters. From the FTIR studies the drug-polymer compatibility were confirmed. The pre-compression parameters like bulk density, tapped density, Carr's index and angle of repose was determined. The optimized formulation showed acceptable flow properties. The post-compression parameters like the thickness, hardness, friability and in vitro dispersion time, wetting time, water absorption ratio and *in- vitro* drug release were carried out and the values were found to be within IP limits. Among the nine formulations, the formulation containing Kyron T 314 (F9) showed highest drug release of 97.71 % than other formulations.

KEYWORDS: Levosalbutamol sulphate, Fast dissolving tablet, Direct Compression, Superdisintegrants.

INTRODUCTION:

Fast dissolving tablets (FDTs) when put on tongue get disintegrate immediately and thus it releases the drug which dissolve or disperse in the saliva. Some drug are absorbed from the mouth,pharynx and esophagus as the saliva passes down into the stomach. In such cases,bioavailability of drug is considerably larger than observed from conventional dosage form.[1]

Fast dissolving tablets (FDTs) are also called as orodispersible tablets, quick disintegrating tablets, mouth dissolving tablet, rapid dissolving tablets, porous tablets and rapimelts.

Received on 30.08.2018 Modified on 02.10.2018
Accepted on 18.11.2018
Research J. Pharm. and Tech 2019; 12(1): 142-148.
DOI: 10.5958/0974-360X.2019.00027.1

However of all the above terms, United state of pharmacopoeia (USP) approved these dosage forms as ODTs (orally disintegrating tablets). United State of Food and Drug Administration (USFDA) defined FDT as "A solid dosage form containing medicinal substance of active ingreedient which disintegrates quickly within matter of second when placed upon the tongue," The disintegrating time for FDTs generally ranges from several seconds to about a minute.[2]

CHALLENGES IN FORMULATING FDT[3-5]:

Palatability:

Most of the drugs are unpalatable through orally disintegrating drug delivery systems generally contain the medicament in taste-masked form. Fast dissolving tablet disintegrate or dissolve in patient's oral cavity, thus releasing drug which comes in contact with taste buds, so taste-masking become a vital to patient compliance.

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur

BACK TO INDEX

eSign
Signed by: Sachinkumar Vasantrao Patil
Reason: NAAC
Location: Peth Vadgaon, India
Date: 04-Jun-2023 (11:35 AM)

Available Online at http://www.recentscientific.com
CODEN: IJRSFP (USA)
International Journal of Recent Scientific Research
Vol. 10, Issue, 10(F), pp. 35530-35532, October, 2019
ISSN: 0976-3031
International Journal of Recent Scientific Research
DOI: 10.24327/IJRSR

Research Article

ISOLATION, CHARACTERIZATION AND EVALUATION OFANTIUROLITHIATIC ACTIVITY OF CAESALPINIA PULCHERRIMA

*Mulik, S.S, Patil, V.M and Pawar, A.A

Department of Quality Assurance Techniques, Ashokrao Mane College of Pharmacy, PethVadgaon, Kolhapur-416112, Maharashtra, India

DOI: http://dx.doi.org/10.24327/ijrsr.2019.1010.4122

ARTICLE INFO

Article History:

Received 10th July, 2019
Received in revised form 2nd August, 2019
Accepted 26th September, 2019
Published online 28th October, 2019

Key Words:

Caesalpinia pulcherrima, antiurolithiatic activity, calcium oxalate assay, cystone.

ABSTRACT

*Caesalpinia pulcherrima*is also commonly known as peacock flower. Reported biological activities of the plant *Caesalpinia pulcherrima* L. are antimicrobial, antiulcer, anti-inflammatory, antinociceptive, antibacterial, antiwrinkle. The present study was undertaken to isolate, characterise and evaluate the in-vitro antiurolithiatic activity of the plant of *Caesalpinia pulcherrima* L using Calcium oxalate assay method. The main components identified were 8-methoxybonducellin, 6-methoxypulcherrimin, myricitroside and isobonducellin. It was observed that highest calcium oxalate dissolution was observed in ethanolic extract and lowest was recorded in chloroform extract. The efficacy of petroleum ether extract, chloroform extract, ethanol extract of *Caesalpinia pulcherrima* plant has shown that chloroform and petroleum ether was found less efficient to dissolve calcium oxalate stone whereas ethanolic extract was very efficient and near to the standard drug cystone. Our results have clearly indicated that the ethanolic extract of whole plant of *Caesalpinia pulcherrima* L. was quite promising for further studies in this regard.

INTRODUCTION

Urolithiasis is a condition of formation of calculus in the urinary system, i.e. in the kidney, ureter, and urinary bladder or in the urethra (B.Shakkariz *et al* 2001). Generally there are five different types of stones of which calcium oxalate is the most common (80%), struvite stone (10%), uric acid stone (9%) and (1%) is due to cysteine and ammonium urate (Coe *et al* 2005). There are two types of calcium oxalate crystals i.e. monohydrate type (in the form of dump bell or oval in shape) and the dihydrate type (in the form of double pyramid) (K. Kannabiran *et al*.1997). The cause is multifactorial including diet, genetic and environment (C.KAnderson *et al*. 1979). Many treatments have been tried for the treatment of urolithiasis in Malaysia and other parts of the world. It recurs back within five years (50%) and there is not one standard treatment that can prevent the recurrences (I.HBurkhill *et al*. 1994).

Herbal medicines are naturally occurring, plant derived substances used to treat illness. Traditional medicines have received attention in global health debates (J.C Tilburta *et al*., 2008). *Caesalpinia pulcherrima* is commonly known as peacock flower. The plant is an evergreen shrub which grows 3m tall. The leaves are bipinnate, 20-40 cm long, 3-11 pairs of pinnae, each with 6-10 pairs of leaflets with oblong to ovate shape (C.R. Pawar *et al*. 2011). It is a common medicinal plant in India, Taiwan and South-East Asian countries. In ayurvedic system this plant has been used for asthma and it's reported biological activites are antimicrobial (P.S. Dhaked *et al*. 2011), antiulcer (H. Takawale *et al*. 2011), anti-inflammatory, antinociceptive (S.Pulipati *et al*. 2012), antibacterial (S. Soisuwan *et al*.2010), anti-wrinkle (M. Kumbhare 2011). Phytochemical investigations on *Caesalpinia pulcherrima* have revealed the presence of various phytoactive constituents such as glycosides, rotenoids, isoflavones, flavanones, chalcones, flavanols, flavones and sterols (K.R. Khandelwal 2004). Previously no scientific work has been reported on antiurolithiatic activity of whole plant of *caesalpiniapulcherrima*. Therefore present study was undertaken to evaluate the antiurolithiatic activity of *Caesalpinia pulcherrima* extracts on calcium oxalate stones.

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur

*Corresponding author: **Mulik, S.S**
Department of Quality Assurance Techniques, Ashokrao Mane College of Pharmacy, Peth Vadgaon, Kolhapur-416112, Maharashtra, India

BACK TO INDEX

Research J. Pharm. and Tech. 12(2): February 2019

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

www.rjptonline.org

RJPT

REVIEW ARTICLE

A Review: Stability Indicating Forced Degradation Studies

Shubhangi V. Sutar*, Veerendra. C. Yeligar, Shitalkumar S. Patil
Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Maharashtra, India. 416112
*Corresponding Author E-mail: **shubhangi.sutar28@gmail.com**

ABSTRACT:
Forced degradation study (FD) studies (stress testing) are an intrinsic part of pharmaceutical product development. It is procedure whereby the natural degradation rate of a product or material is increased by the application of additional stress condition. It manifests chemical behaviour of the molecule which helps in the development of formulation and packaging of pharmaceutical development. It is necessary to specify the specificity of the stability indication methods and provide insight into degradation pathways and degradation products of the drug substance and aid in an elucidation of the structure of the degradation products. This review discusses the regulatory aspects of force degradation and the study of stability and also the analytical hyphenated methods used for the development of the forced degradation study.

KEYWORDS: Forced degradation, regulatory aspects, degradation products.

INTRODUCTION:

Product quality, efficacy and safety of drugs have always been a major concern for pharmaceutical industries. Stability of drugs is a quality attribute, which is connected with drug substance or product in terms of strength, purity, identity, safety, apparent physical, chemical, microbiological and biological change, and their effect on biological performance of the drug product. Any change with time in any of the quality attributes of drug product is considered as a potential instability, and assessment of this change becomes mandatory as it is directly related to the safety and efficacy of the drug. Stability testing is done primarily to provide the evidence that the drug substance or the drug product maintains its essential features of quality, identity, purity and strength (within acceptable ranges) throughout the time in which, it is expected to remain safe for further processing or human consumption.

Forced Degradation studies provide data to support identification of possible degradants; degradation pathways, intrinsic stability of the drug molecule and validation of stability indicating analytic procedure. Knowledge of stability of molecule help in selecting proper formulation and package and providing proper storage condition and shelf life, which is essential for regulatory documentation.

The FDA and International Conference on Harmonization guideline states that stress testing is deliberate to identify the likely degradation products which more helps in determination of the inherent stability of the molecule and establishing degradation pathways, and to validate the stability indicating procedure. But these guidelines are very indefinite in conduct of forced degradation and do not provide particular about the practical approach towards stress testing. Force Degradation studies are regulatory requirement and scientific necessity during drug development. It has become mandatory to perform stability studies of new drug moiety before filing in registration. The FDA and ICH guidance's state the requirement of stability testing data to understand how the quality of a drug substance and drug product changes with time under the influence of various environmental factors in several conditions.[1-2]

Received on 30.08.2018 Modified on 18.09.2018
Accepted on 02.10.2018
Research J. Pharm. and Tech 2019; 12(2):885-890.
DOI: 10.5958/0974-360X.2019.00152.5

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

Curr. Pharm. Res. **2019**, *9(3)*, 3031-3041

Current Pharma Research
ISSN-2230-7842
CODEN-CPRUE6
www.jcpronline.in/

Research Article

Method Development and Validation of Drospirenone in Bulk and Pharmaceutical Dosage Form by Stability Indicating RP-HPLC Method Studies.

S.V. Sutar*, V. C. Yeligar

Ashokrao Mane College of Pharmacy, Peth-Vadagoan-416112, Maharashtra, India.

Received 02 February 2019; received in revised form 08 March 2019; accepted 10 March 2019

***Corresponding author E-mail address:** shubhangi.sutar28@gmail.com*

ABSTRACT

To assess the stability of Drospirenone under stress conditions, it was subjected to acidic, alkaline, oxidative, thermal and light degradation according to ICH guideline Q1A (R2). The analysis was carried out on C18 Thermo Hypersil BDS (250×4.6×5 mm) column, using Ammonium acetate: Acetonitrile (70:30) pH6.8-7.2 as mobile phase with flow rate 1ml/min and analysis was performed using PDA detector at ambient temperature where 3.15min was retention time of the drug .The Linearity, precision and accuracy was found to be acceptable over the concentration range of 10 to 60 ug/ml of Drospirenone. The correlation coefficient was 0.987. Drospirenone was found to be more sensitive to alkaline hydrolysis and somewhat stable to acidic degradation. The peaks of degraded products were resolved from the pure drug with significant variation in their retention time values. The method was effectively applied to the determination of Drospirenone with decomposed products in Quality control laboratories.

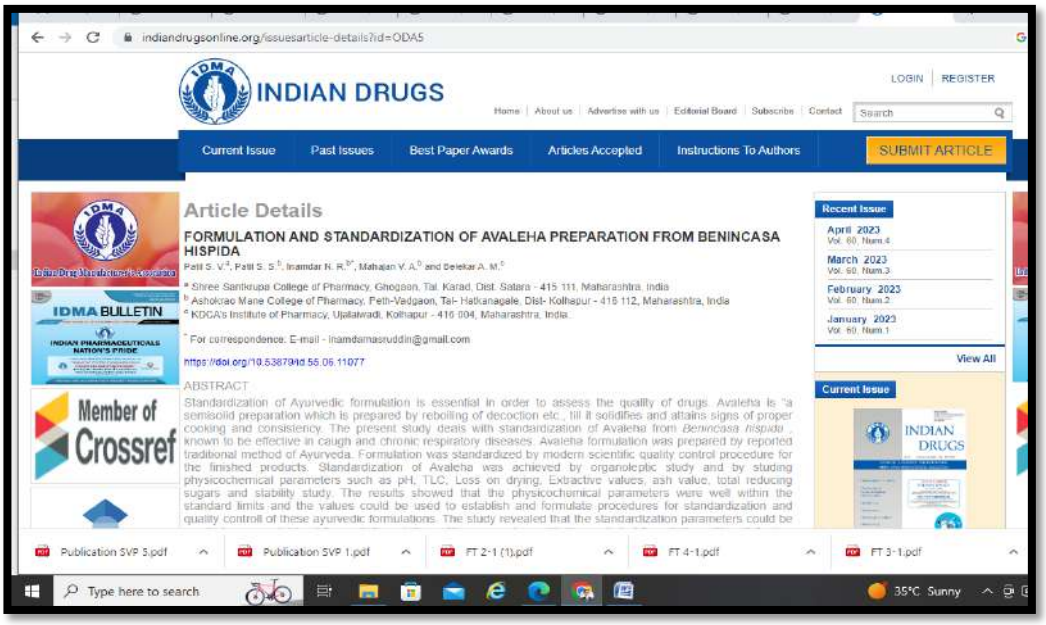
KEYWORDS

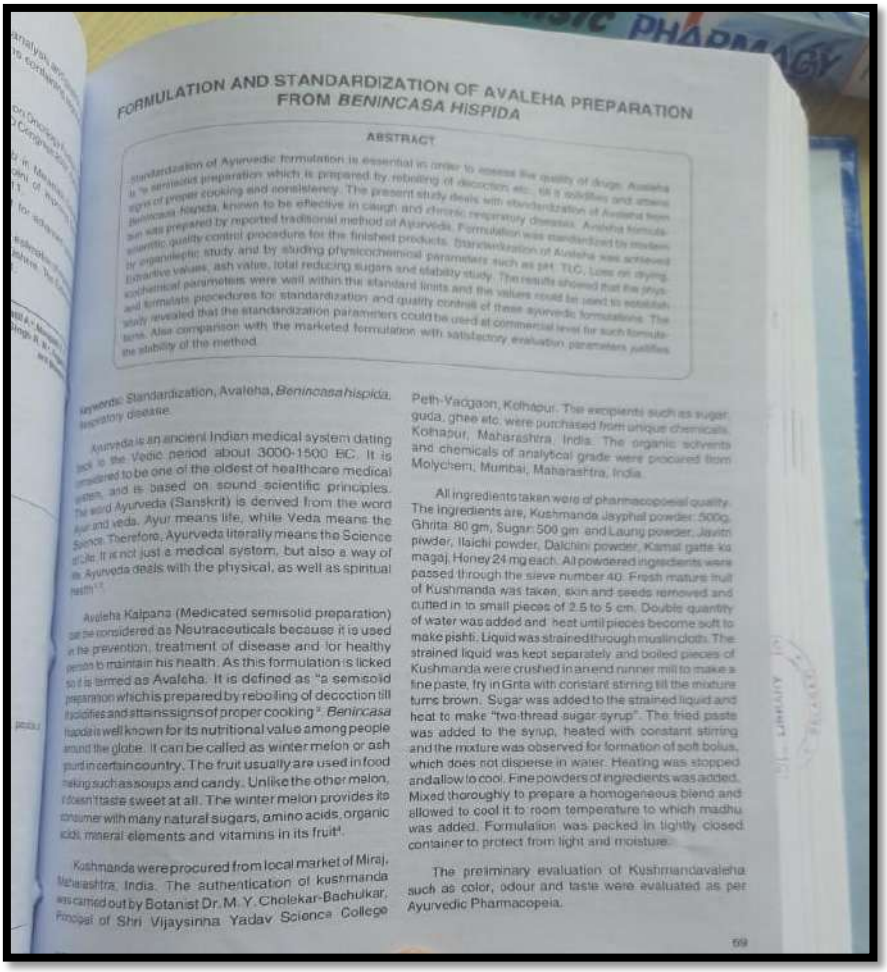
Drospirenone, degradation, stress conditions.

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.

BACK TO INDEX

Research Publications A.Y. 2017-18




FORMULATION AND STANDARDIZATION OF AVALEHA PREPARATION FROM *BENINCASA HISPIDA*

ABSTRACT

Keywords: Standardization, Avaleha, *Benincasa hispida*, respiratory disease

Ayurveda is an ancient Indian medical system dating back to the Vedic period about 3000-1500 BC. It is considered to be one of the oldest of healthcare medical system, and is based on sound scientific principles. The word Ayurveda (Sanskrit) is derived from the word Ayur and veda. Ayur means life, while Veda means the Science. Therefore, Ayurveda literally means the Science of life. It is not just a medical system, but also a way of life. Ayurveda deals with the physical, as well as spiritual health[1,2].

Avaleha Kalpana (Medicated semisolid preparation) can be considered as Neutraceuticals because it is used in the prevention, treatment of disease and for healthy person to maintain his health. As this formulation is licked so it is termed as Avaleha. It is defined as "a semisolid preparation which is prepared by reboiling of decoction till it solidifies and attains signs of proper cooking"[3]. *Benincasa hispida* is well known for its nutritional value among people around the globe. It can be called as winter melon or ash gourd in certain country. The fruit usually are used in food making such as soups and candy. Unlike the other melon, it doesn't taste sweet at all. The winter melon provides its consumer with many natural sugars, amino acids, organic acids, mineral elements and vitamins in its fruit[4].

Kushmanda were procured from local market of Miraj, Maharashtra, India. The authentication of kushmanda was carried out by Botanist Dr. M. Y. Cholekar-Bachulkar, Principal of Shri Vijaysinha Yadav Science College Peth-Vadgaon, Kolhapur. The excipients such as sugar, guda, ghee etc. were purchased from unique chemicals, Kolhapur, Maharashtra, India. The organic solvents and chemicals of analytical grade were procured from Molychem, Mumbai, Maharashtra, India.

All ingredients taken were of pharmacopoeial quality. The ingredients are, Kushmanda Jayphal powder: 500g, Ghrita: 80 gm, Sugar: 500 gm and Laung powder, Javitri powder, Ilaichi powder, Dalchini powder, Kamal gatte ka magaj, Honey 24 mg each. All powdered ingredients were passed through the sieve number 40. Fresh mature fruit of Kushmanda was taken, skin and seeds removed and cutted in to small pieces of 2.5 to 5 cm. Double quantity of water was added and heat until pieces become soft to make pishti. Liquid was strained through muslin cloth. The strained liquid was kept separately and boiled pieces of Kushmanda were crushed in an end runner mill to make a fine paste, fry in Grita with constant stirring till the mixture turns brown. Sugar was added to the strained liquid and heat to make "two thread sugar syrup". The fried paste was added to the syrup, heated with constant stirring and the mixture was observed for formation of soft bolus, which does not disperse in water. Heating was stopped and allow to cool. Fine powders of ingredients was added. Mixed thoroughly to prepare a homogeneous blend and allowed to cool it to room temperature to which madhu was added. Formulation was packed in tightly closed container to protect from light and moisture.

The preliminary evaluation of Kushmandavaleha such as color, odour and taste were evaluated as per Ayurvedic Pharmacopeia.

69

BACK TO INDEX

INDIAN DRUGS

SUBMIT ARTICLE

Article Details

FORMULATION AND STANDARDIZATION OF ASAVA OF SYZYGIUM CUMINI

IDMA BULLETIN

Member of Crossref

Google Scholar

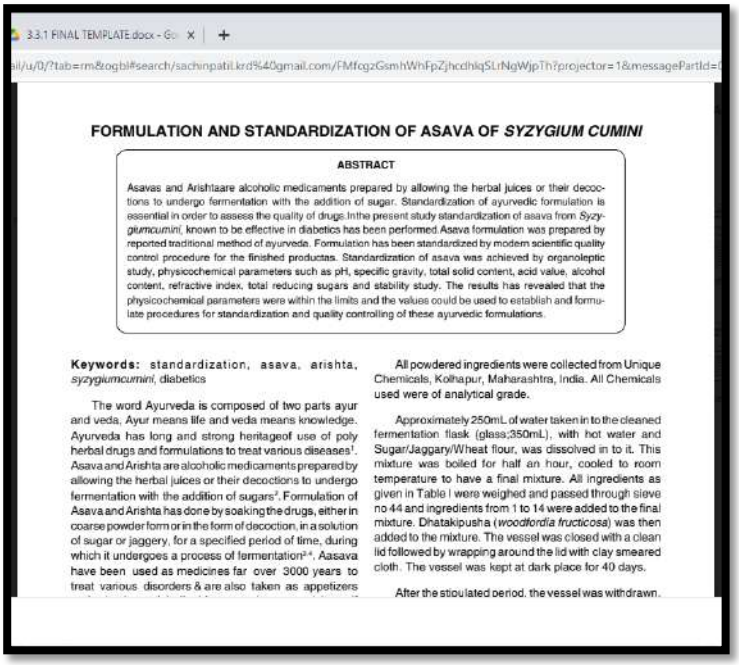
DOWNLOAD ARTICLE

ABSTRACT

Asavas and Arishtaare alcoholic medicaments are prepared by allowing the herbal juices or their decoctions to undergo fermentation with the addition of sugar. Standardization of ayurvedic formulation is essential in order to assess the quality of drugs. In the present study standardization of asava from Syzygium cumini, known to be effective in diabetics, has been performed.Asava formulation was prepared by reported traditional method of ayurveda. Formulation has been standardized by modern scientific quality control procedure for the finished productas. Standardization of asava was achieved by organoleptic study, physicochemical parameters such as pH, specific gravity, total solid content, acid value, alcohol content, refractive index, total reducing sugars and stability study. The results has revealed that the physicochemical parameters were within the limits and the values could be used to establish and formulate procedures for standardization and quality controlling of these ayurvedic formulations.

Copyright © 2013 by Indian Drugs Online. All Rights Reserved.
Powered by LIVEPAGES

PRINCIPAL
Ashokrao Mane College of Pharmacy
Peth-Vadgaon, Dist. Kolhapur.



3.3.1 FINAL TEMPLATE.docx

FORMULATION AND STANDARDIZATION OF ASAVA OF *SYZYGIUM CUMINI*

ABSTRACT

Asavas and Arishtaare alcoholic medicaments prepared by allowing the herbal juices or their decoctions to undergo fermentation with the addition of sugar. Standardization of ayurvedic formulation is essential in order to assess the quality of drugs.Inthe present study standardization of asava from *Syzygiumcumini*, known to be effective in diabetics has been performed.Asava formulation was prepared by reported traditional method of ayurveda. Formulation has been standardized by modern scientific quality control procedure for the finished productas. Standardization of asava was achieved by organoleptic study, physicochemical parameters such as pH, specific gravity, total solid content, acid value, alcohol content, refractive index, total reducing sugars and stability study. The results has revealed that the physicochemical parameters were within the limits and the values could be used to establish and formulate procedures for standardization and quality controlling of these ayurvedic formulations.

Keywords: standardization, asava, arishta, *syzygiumcumini*, diabetics

The word Ayurveda is composed of two parts ayur and veda, Ayur means life and veda means knowledge. Ayurveda has long and strong heritageof use of poly herbal drugs and formulations to treat various diseases[1]. Asava and Arishta are alcoholic medicaments prepared by allowing the herbal juices or their decoctions to undergo fermentation with the addition of sugars[2]. Formulation of Asava and Arishta has done by soaking the drugs, either in coarse powder form or in the form of decoction, in a solution of sugar or jaggery, for a specified period of time, during which it undergoes a process of fermentation[3,4]. Aasava have been used as medicines far over 3000 years to treat various disorders & are also taken as appetizers

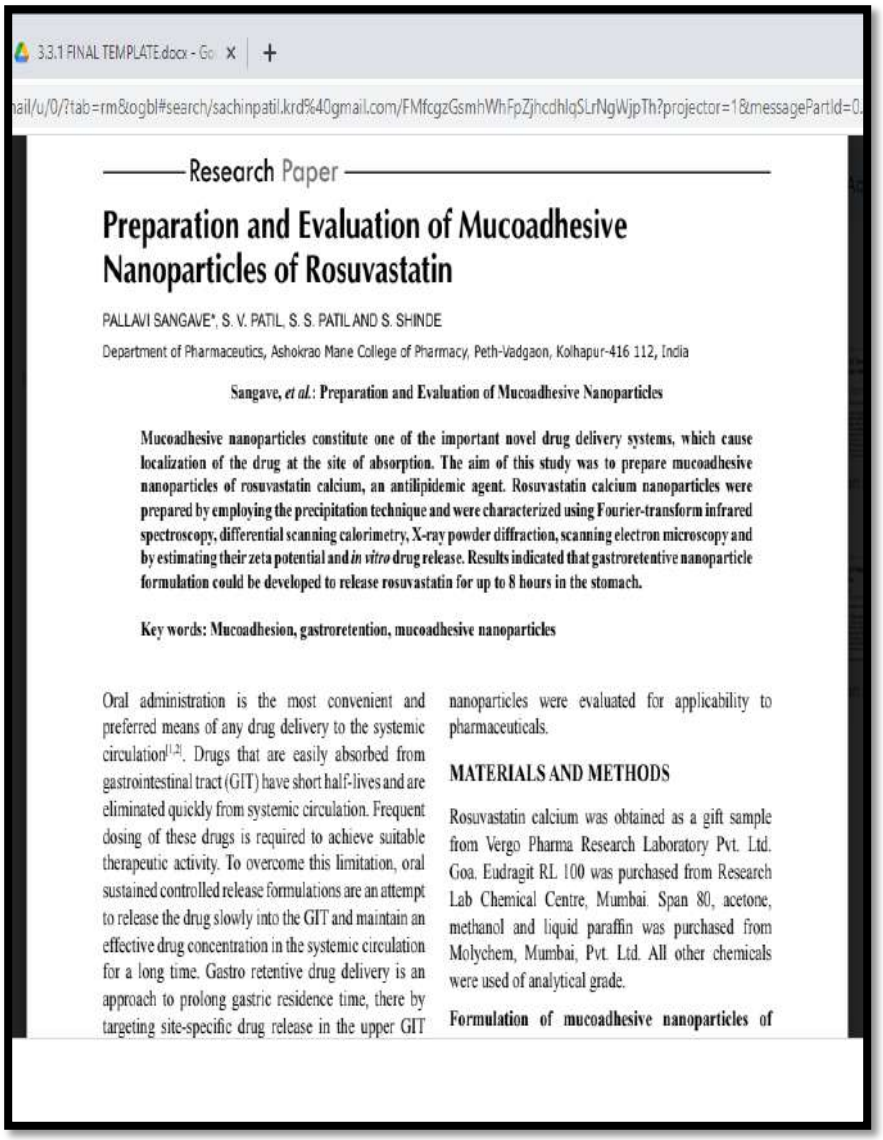
All powdered ingredients were collected from Unique Chemicals, Kolhapur, Maharashtra, India. All Chemicals used were of analytical grade.

Approximately 250mL of water taken in to the cleaned fermentation flask (glass;350mL), with hot water and Sugar/Jaggary/Wheat flour, was dissolved in to it. This mixture was boiled for half an hour, cooled to room temperature to have a final mixture. All ingredients as given in Table I were weighed and passed through sieve no 44 and ingredients from 1 to 14 were added to the final mixture. Dhatakipusha (*woodfordia fructicosa*) was then added to the mixture. The vessel was closed with a clean lid followed by wrapping around the lid with clay smeared cloth. The vessel was kept at dark place for 40 days.

After the stipulated period, the vessel was withdrawn.

eSign
Signed by: Sachinkumar Vasantrao Patil
Reason: NAAC
Location: Peth Vadgaon, India
Date: 04-Jun-2023 (11:35 AM)

BACK TO INDEX



3.3.1 FINAL TEMPLATE.docx - Go

ail/u/0/?tab=rm&ogbl#search/sachinpatil.krd%40gmail.com/FMfcgzGsmhWhFpZjhcdhlqSLrNgWjpTh?projector=1&messagePartId=0.

Research Paper

Preparation and Evaluation of Mucoadhesive Nanoparticles of Rosuvastatin

PALLAVI SANGAVE*, S. V. PATIL, S. S. PATIL AND S. SHINDE

Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon, Kolhapur-416 112, India

Sangave, *et al.*: Preparation and Evaluation of Mucoadhesive Nanoparticles

Mucoadhesive nanoparticles constitute one of the important novel drug delivery systems, which cause localization of the drug at the site of absorption. The aim of this study was to prepare mucoadhesive nanoparticles of rosuvastatin calcium, an antilipidemic agent. Rosuvastatin calcium nanoparticles were prepared by employing the precipitation technique and were characterized using Fourier-transform infrared spectroscopy, differential scanning calorimetry, X-ray powder diffraction, scanning electron microscopy and by estimating their zeta potential and *in vitro* drug release. Results indicated that gastroretentive nanoparticle formulation could be developed to release rosuvastatin for up to 8 hours in the stomach.

Key words: Mucoadhesion, gastroretention, mucoadhesive nanoparticles

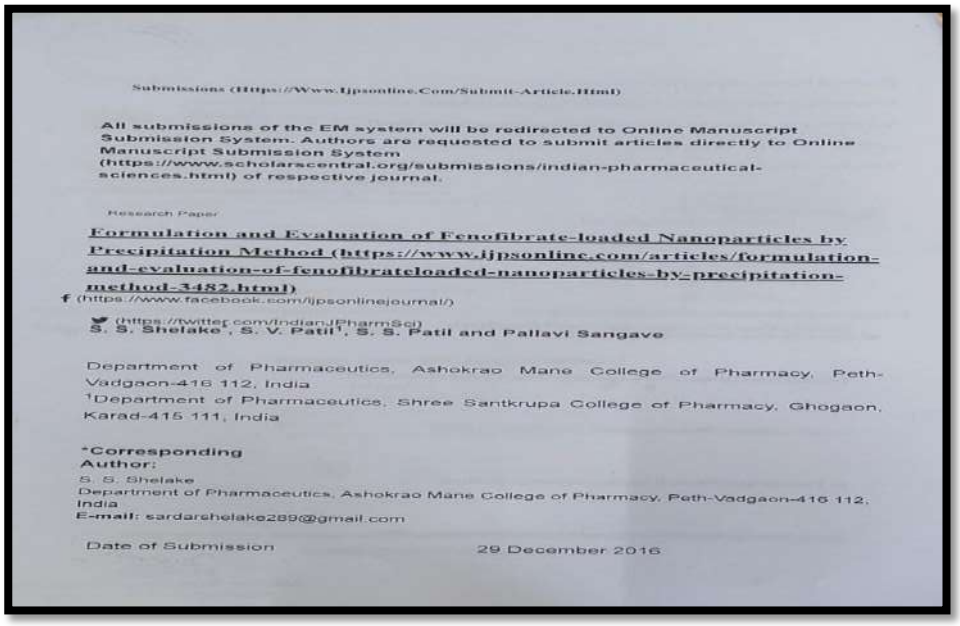
Oral administration is the most convenient and preferred means of any drug delivery to the systemic circulation[1,2]. Drugs that are easily absorbed from gastrointestinal tract (GIT) have short half-lives and are eliminated quickly from systemic circulation. Frequent dosing of these drugs is required to achieve suitable therapeutic activity. To overcome this limitation, oral sustained controlled release formulations are an attempt to release the drug slowly into the GIT and maintain an effective drug concentration in the systemic circulation for a long time. Gastro retentive drug delivery is an approach to prolong gastric residence time, there by targeting site-specific drug release in the upper GIT nanoparticles were evaluated for applicability to pharmaceuticals.

MATERIALS AND METHODS

Rosuvastatin calcium was obtained as a gift sample from Vergo Pharma Research Laboratory Pvt. Ltd. Goa. Eudragit RL 100 was purchased from Research Lab Chemical Centre, Mumbai. Span 80, acetone, methanol and liquid paraffin was purchased from Molychem, Mumbai, Pvt. Ltd. All other chemicals were used of analytical grade.

Formulation of mucoadhesive nanoparticles of

BACK TO INDEX



Submissions (Https://Www.Ijpsonline.Com/Submit-Article.Html)

All submissions of the EM system will be redirected to Online Manuscript Submission System. Authors are requested to submit articles directly to Online Manuscript Submission System (https://www.scholarscentral.org/submissions/indian-pharmaceutical-sciences.html) of respective journal.

Research Paper

Formulation and Evaluation of Fenofibrate-loaded Nanoparticles by Precipitation Method (https://www.ijpsonline.com/articles/formulation-and-evaluation-of-fenofibrateloaded-nanoparticles-by-precipitation-method-3482.html)

f (https://www.facebook.com/ijpsonlinejournal/)

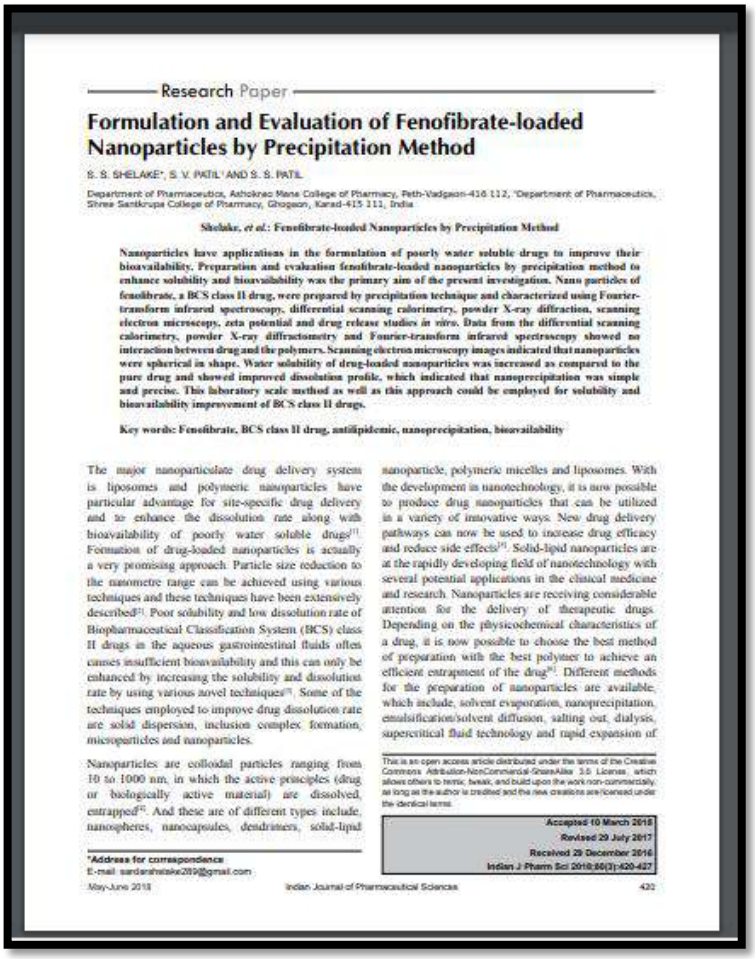
(https://twitter.com/IndianJPharmSci)

S. S. Shelake*, S. V. Patil[1], S. S. Patil and Pallavi Sangave

Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon-416 112, India
[1]Department of Pharmaceutics, Shree Santkrupa College of Pharmacy, Ghogaon, Karad-415 111, India

*Corresponding Author:
S. S. Shelake
Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon-416 112, India
E-mail: sardarshelake289@gmail.com

Date of Submission 29 December 2016



Research Paper

Formulation and Evaluation of Fenofibrate-loaded Nanoparticles by Precipitation Method

S. S. SHELAKE*, S. V. PATIL[1] AND S. S. PATIL

Department of Pharmaceutics, Ashokrao Mane College of Pharmacy, Peth-Vadgaon-416 112, [1]Department of Pharmaceutics, Shree Santkrupa College of Pharmacy, Ghogaon, Karad-415 111, India

Nanoparticles have applications in the formulation of poorly water soluble drugs to improve their bioavailability. Preparation and evaluation fenofibrate-loaded nanoparticles by precipitation method to enhance solubility and bioavailability was the primary aim of the present investigation. Nano particles of fenofibrate, a BCS class II drug, were prepared by precipitation technique and characterized using Fourier-transform infrared spectroscopy, differential scanning calorimetry, powder X-ray diffraction, scanning electron microscopy, zeta potential and drug release studies *in vitro*. Data from the differential scanning calorimetry, powder X-ray diffractometry and Fourier-transform infrared spectroscopy showed no interaction between drug and the polymers. Scanning electron microscopy images indicated that nanoparticles were spherical in shape. Water solubility of drug-loaded nanoparticles was increased as compared to the pure drug and showed improved dissolution profile, which indicated that nanoprecipitation was simple and precise. This laboratory scale method as well as this approach could be employed for solubility and bioavailability improvement of BCS class II drugs.

Key words: Fenofibrate, BCS class II drug, antilipidemic, nanoprecipitation, bioavailability

The major nanoparticulate drug delivery system is liposomes and polymeric nanoparticles have particular advantage for site-specific drug delivery and to enhance the dissolution rate along with bioavailability of poorly water soluble drugs[1]. Formation of drug-loaded nanoparticles is actually a very promising approach. Particle size reduction to the nanometre range can be achieved using various techniques and these techniques have been extensively described[2]. Poor solubility and low dissolution rate of Biopharmaceutical Classification System (BCS) class II drugs in the aqueous gastrointestinal fluids often causes insufficient bioavailability and this can only be enhanced by increasing the solubility and dissolution rate by using various novel techniques[3]. Some of the techniques employed to improve drug dissolution rate are solid dispersion, inclusion complex formation, microparticles and nanoparticles.

Nanoparticles are colloidal particles ranging from 10 to 1000 nm, in which the active principles (drug or biologically active material) are dissolved, entrapped[4]. And these are of different types include, nanospheres, nanocapsules, dendrimers, solid-lipid nanoparticle, polymeric micelles and liposomes. With the development in nanotechnology, it is now possible to produce drug nanoparticles that can be utilized in a variety of innovative ways. New drug delivery pathways can now be used to increase drug efficacy and reduce side effects[5]. Solid-lipid nanoparticles are at the rapidly developing field of nanotechnology with several potential applications in the clinical medicine and research. Nanoparticles are receiving considerable attention for the delivery of therapeutic drugs. Depending on the physicochemical characteristics of a drug, it is now possible to choose the best method of preparation with the best polymer to achieve an efficient entrapment of the drug[6]. Different methods for the preparation of nanoparticles are available, which include, solvent evaporation, nanoprecipitation, emulsification/solvent diffusion, salting out, dialysis, supercritical fluid technology and rapid expansion of

Accepted 10 March 2018
Revised 29 July 2017
Received 29 December 2016
Indian J Pharm Sci 2018;80(3):420-427

*Address for correspondence
E-mail: sardarshelake289@gmail.com

BACK TO INDEX