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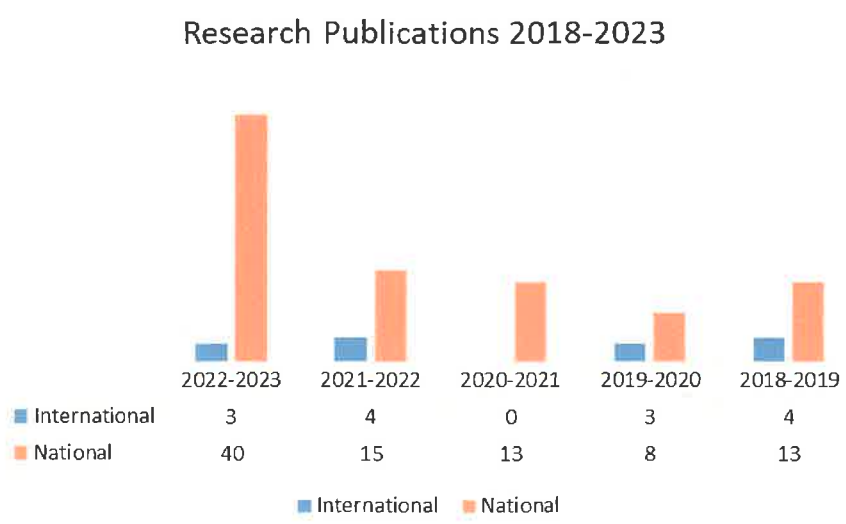
Number of research papers published per teacher in the Journals notified on UGC CARE list during 2018-2023



Calendar year	International	National	Grand Total
2022-2023	3	40	43
2021-2022	4	15	19
2020-2021	0	13	13
2019-2020	3	8	11
2018-2019	4	13	17

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Number of research papers published per teacher in the Journals notified on UGC CARE list during 2018-2023

S.No	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Calendar Year of publication	ISSN Number	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (DOI) number		
							Link to website of the Journal	Link to article/pap...a bstract of the article	Is it listed in UGC Care list
1.	A clinical review on Ulcerative colitis (colon cancer)	A Muthukumar, Bhavani Keserla, Syed Mohasin Abbas, Reena Thapa, Rumana Khatija	Pharmacology	Research Journal of Pharmacy and Technology	2023	0974-3618	RJPT - Research Journal of Pharmacy and Technology (rjptonline.org)	RJPT - A Clinical Review on Ulcerative Colitis (Colon Cancer) (rjptonline.org)	Web of Science
2.	To study the effect of pandemic restriction on quality of life and medication adherence of type 2 diabetes patients	Deekshitha L, Chandana K S, Bindu B N, Ashmita Modak, Parthasarathy G	Pharmacy Practice	International Journal of Novel Research and Development	2023	2456-4184	https://www.ijnrd.org/	https://www.ijnrd.org/papers/IJNRD2312067.pdf	YES
3.	A systematic review of the Phytochemical constituents and bioactive properties of Mussaenda Frondosa	Suvarnalakshmi Gunturu, Nidhishree S, Shravya, A. Muthukumar, Jyoti Shrivastava, Padmaa M paarakh	Pharmaceutical Chemistry	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	YMER221288.pdf (ymerdigital.com)	YES
4.	Harnessing the neuroprotective effect of oral administration of benfotiamine in MPTP induced Parkinson's disease in rats	Bushra Bashir, Swati Mittal, A. Muthukumar, Sukriti Vishwas,	Pharmacology	European Journal of Pharmacology	2023	1879-0712	European Journal of Pharmacology | ScienceDirect.com by Elsevier	https://www.sciencedirect.com/science/article/abs/pii/S0014299923007483	Elsevier/Pubmed

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		Narendra Kumar Pandey , Monica Gulati , Gaurav Gupta, Muralikrishnan Dhanasekaran , Puneet Kumar , Harish Dureja , Francisco Veiga, Ana Cláudia Paiva-Santos , Jon Adams , Kamal Dua , Sachin Kumar Singh							
5.	Advancements in Understanding and treating anxiety disorder	Bhavani K, Monisha S, Singh S, Paarakh PM	Pharmacology	International Journal of Biology, Pharmacy and Allied Sciences	2023	2277-4998	International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)	http://www.theoxford.edu/pharmacy/naac2024/3.3.1%20R_arch%20Paper1.pdf	Web of Science
6.	Investigating the Efficacy of Cichorium Intybus L. as a Therapeutic Agent for Chronic Unpredictable Mild Stress-Induced Depression in Mice	Noopur Srivastava, Shiwani Singh, A Muthukumar, Padmaa M Paarakh, Saad Ebrahim Alobid, Kuntal Das, Ali Ibrahim Almoteer, Moneer E Almadani	Pharmacology	Journal of Biological Regulators and Homeostatic agents	2023	1724-6083	Journal of Biological Regulators and Homeostatic Agents (biolifesas.org)	Investigating the Efficacy of Cichorium Intybus L. as a Therapeutic Agent for Chronic Unpredictable Mild Stress-Induced Depressio... Mice (biolifesas.org)	Web of Science

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		, Fuzail Ahmad, Syed Imam Rabbani, Syed Mohammed Basheeruddin Asdaq							
7.	Hepatoprotective-Like Efficacy of Pimenta dioica Berries against Paracetamol-Induced Hepatic Damage in an Experimental Rat Model	Keserla Bhavani, Muthukumar A, Kuntal Das, Purushotham M, Mansour Almuqbil, Moneer E. Almadani, Syed Arif Hussain, Bader Hussain Alamer, Ebtesam Abdulrahman Jibreel, Syed Imam Rabbani, Syed Mohammed Basheeruddin Asdaq	Pharmacology	Journal of Biological Regulators and Homeostatic agents	2023	1724-6083	Journal of Biological Regulators and Homeostatic Agents (biolifesas.org)	Hepatoprotective-Like Efficacy of Pimenta dioica Berries against Paracetamol-Induced Hepatic Damage in ... Experimental Rat Model (biolifesas.org)	Web of Science
8.	Manikara zapota leaves anxiolytic activity: Potential benefits in caffeine-induced experimental animal with anxiety	Monisha, Noopur Srivastava	Pharmacology	Journal of Biological Regulators and Homeostatic agents	2023	1724-6083	Journal of Biological Regulators and Homeostatic Agents (biolifesas.org)	Manilkara zapota Leaves and Anxiolytic Activity: Potential Benefits in Caffeine-Induced Experimental Animals with Anxiety (biolifesas.org	Web of Science

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9.	A review on animal models related to depression	Srivastava N, Monisha S, Muthukumar A, Paarakh PM	Pharmacology	International Journal of Biology, Pharmacy and Allied Sciences	2023	2277-4998	International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)	http://www.theoxford.edu/pharmacy/naac2024/3.3.1%20Research%20Paper2.pdf	YES
10.	Compounds Having the Radio Sensitization Effects on Cancer Cells	Pradeepa prasad, Jyothi shrivastava, Arroju Hrithik, Harsha. R, Hemanth Kumar. P, Madhan prasad. M	Pharmaceutical Chemistry	International Journal of All Research Education and Scientific Methods	2023	2455-6211	https://www.ijaresm.com/?gad_source=1&gclid=Cj0KCQjwltKxBhDMARIsAG8KnqW3scLFjYc5yb0gTuWITVaZZzIi_xMQhWZfCtuTh3WIzZ3SJ8MWRIQaAmgWEALw_wcB	https://www.ijaresm.com/compounds-having-the-radio-sensitization-effect-on-cancer-cells	YES
11.	Neuroprotective potential of Cordia dichotoma in Parkinson's syndrome induced by haloperidol: An animal study	Keserla Bhavani, A. Muthukumar, Mansour Almuqbil, Kuntal Das, Yakshitha V., Moneer E. Almadani, Ahmed Alshehrie, Adel Alghamdi, Syed Arif Hussain, Bader Hussain Alamer, Ebtesam Abdulrah	Pharmacology	Saudi Pharmaceutical Journal	2023	1319-0164	Saudi Pharmaceutical Journal | ScienceDirect.com by Elsevier	Neuroprotective potential of Cordia dichotoma in Parkinson's syndrome induced by haloperidol: An animal study - PubMed (nih.gov)	Elsevier/PubMed

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		man Jibreel , Syed Imam Rabbani , Turki Mohammed Alosaimi , Waleed Farah Alharbi , Sultan Mohammed Aldosari , Syed Mohammed Basheeruddin Asdaq							
12.	Characteristics of dopamine in mortal body	Manoj kumar M* , Silambarasan M, Vishal A, Vishnupriya S	Pharmaceutical Chemistry	International Journal of Research and Analytical Reviews	2023	2348-1269	https://ijrar.org/?gad_source=1&gclid=Cj0KCQjwltKxBhDMARIsAG8KnqU0RT2XhZyiIMOSymdIe_fXbhfwmXgIUXAcH5GmFr_BB2C7IqC2eMQaAgKNEALw_wcB	https://www.ijrar.org/papers/IJRAR23C1962.pdf	YES
13.	Revolutionizing the Pharmaceutical Industry with Artificial Intelligence	Krishnagiri Krishnababu, Gururaj S Kulkarni, Yogaraj R, Padmaa M Paarakh	Pharmaceutics	Journal of Artificial Intelligence,Machine Learning and Neural Network	2023	2799-1172	https://journal.hmjournals.com/index.php/JAIMLNN	https://journal.hmjournals.com/index.php/JAIMLNN/article/view/2047	YES
14.	Morinda citrifolia L.(Noni)-A Review on its	Pradeepa prasad, Jyoti	Pharmaceutical Chemistry	International Journal	2023	2582-2160	https://www.ijfmr.com/?ga	https://www.ijfmr.com/research-	YES

	health benefits, Phytochemistry and its recent researches	Shrivastava, Aditya J, Aparna OM, Sreelakshmi Sukumaran Swetha S, Swetha		For Multidisciplinary Research			d_source=1&gclid=Cj0KCQjwltKxBhDMARIsAG8KnqXTsRB_giX2GxZ_ciWV_vD3ZtRm5QPKkdIAMpRiv6hCh8w0KIjwjycaApitEALw_wcB	paper.php?id=2886	
15.	Boswellia Serrata Biologically Active Compounds and It's Activities	Pradeepa Prasad, Jyoti Shrivastava,Bala Krishnan S,Gowdham T, Naveen Kumar C, Pavithran V	Pharmaceutical Chemistry	International Journal of Research and Analytical Reviews	2023	2348-1269	https://ijrar.org/?gad_source=1&gclid=Cj0KCQjwltKxBhDMARIsAG8KnqU0RT2XhZyi1MOSymdIe_fXbhfwmXg1UXAcH5GmFr_BB2C7IqC2eMQaAgKNEALw_wcB	http://ww heoxford.edu/pharmacy/naac2024/3.3.1%20Research%20Paper3.pdf	YES
16.	Industry 4.0 for Pharmaceutical Manufacturing; Smart Factories for Future	Rakesh Babu SN, Surinder Kaur, Krishnagiri Krishnababu, Yogaraj R, Padmaa M Paarakh	Pharmaceutics	Journal of Community Pharmacy Practice	2023	2799-1199	https://journal.hmjournals.com/index.php/JCPP/about	https://journal.hmjournals.com/index.php/JCPP/article/view/2402	YES
17.	A Brief Introduction on Oro Dispersible Tablets	Yogaraj R, Surinder Kaur, Padmaa M. Paarakh	Pharmaceutics	Journal of Community Pharmacy Practice	2023	2799-1199	https://journal.hmjournals.com/index.php/JCPP/about	https://journal.hmjournals.com/index.php/JCPP/article/view/2356	YES

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18.	Microspheres in Pharmaceutical Science	Yogaraj R, Gururaj S Kulkarni, Krishnagiri Krishnababu, Padma M Paarakh	Pharmaceutics	Journal of Multidisciplinary Cases	2023	2799-0990	https://journal.hmjournals.com/index.php/JMC	https://journal.hmjournals.com/index.php/JMC/article/view/1532	YES
19.	Veterinary Dosage Forms	Rakesh Babu S.N., Gururaj S Kulkarni, Yuktha HJ, Padma M Paarakh	Pharmaceutics	International Journal of Agriculture and Animal Production	2023	2799-0907	https://journal.hmjournals.com/index.php/IJAAP/index#:~:text=The%20International%20Journal%20of%20Agriculture,scientific%20development%20in%20animal%20production%2C	https://journal.hmjournals.com/index.php/IJAAP/article/view/1540/1914	YES
20.	Neem: An Overview	M Padma Paarakh	Pharmacognosy	Journal of Drug Discovery, Development & Delivery	2023	2471-0288	Journal of Drug Discovery, Development and Delivery (austinpublishinggroup.com)	Neem: An Overview (austinpublishinggroup.com)	YES
21.	Understanding Nanoparticles: A Comprehensive Overview of Classification, Types, Characterization, Properties, and Applications .	Vikram T, Kavya M, Kowsalya V, Namitha M, Nandisha V, Pallavi A, Padmaa M Paarakh, A Muthuku	Pharmaceutics	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	YMER2211F3.pdf (ymerdigital.com)	YES

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22.	A New Formulation Approach of Oro-Dispersible Tablet of Bilastine by Incorporating Co-Processed Super-Disintegrants	Yogaraj R, Surnider Kaur , Gururaj S Kulkarni, A Muthu kumar , Padmaa M Paarakh, Athmaja Shetty , Rakesh Babu S.N	Pharmaceutics	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	YMER2211G3.pdf (ymerdigital.com)	YES
23.	Development and Assessment of Quick Release Mucoadhesive Buccal Tablets of Loratadine Utilizing Beta cyclodextrin Inclusion Complex Technique: A Formulation Study	Rakesh Babu S.N., Surinder Kaur, Gururaj S Kulkarni, A Muthu kumar, Athmaja Shetty, Yogaraj R, Padmaa M Paarakh	Pharmaceutics	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	YMER22[illegible]2.pdf (ymerdigital.com)	YES
24.	Gastroretentive Formulation and Characterization of Carvedilol Floating Tablets	Krishnagiri Krishnababu , Gururaj S Kulkarni , A Muthu kumar , Yuktha H J , Padmaa M Paarakh	Pharmaceutics	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	https://ymerdigital.com/uploads/YMER2211G1.pdf	YES
25.	A Comprehensive Review of Various Mycobacterium Species	S Joyce Arokiaselvi , Gowthami G N, Harini V, Harish Kumar K, Janhavi Arya, Kailash Chandra	Pharmacology	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	https://ymerdigital.com/uploads/YMER2211G6.pdf	YES

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		C, Noopur Srivastava, A. Muthukumar, Padmaa M Paarakh							
26.	A Comprehensive Review of Herbal Lotions for Treatment of Dermal Infections Caused by Various Microbial Strains	Gururaj S kulkarni* , Aditya J ,Aparna OM , Arroju Hrithik ,Sreelakshmi S ,SwethaG ,Padma M parak , A Muthukumar	Pharmaceutics	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	YMER2211E6.pdf (ymerdigital.com)	YES
27.	A comprehensive review of Nyctanthes arbor-tristis Linn	Padmaa M Paarakh , Pavan Kumar C , Pooja H J , Priya Rajkumar , Rachitha S V , Ramya D , MuthuKumar A	Pharmacognosy	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	YMER2211C1.pdf (ymerdigital.com)	YES
28.	Sida acuta Burm f.: A Comprehensive Review	Padmaa. M. Paarakh, Karthik. M , Kaviarasu .S , Kavya.N , Kavya Shree. S , Kavya.M , A.	Pharmacognosy	YMER	2023	0044-0477	YMER – An International Peer-Reviewed Journal (ymerdigital.com)	YMER2211B0.pdf (ymerdigital.com)	YES

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		Muthukumar.							
29.	Detailed insight on Pathophysiology and treatment of neurodegenerative disorder-Parkinson's disease	Yakshitha V, Keserla Bhavani, P.Kiran, Padmaa M Paarakh	Pharmacology	Indian Journal of Natural Sciences	2023	0976-0997	Tamilnadu Scientific Research Organization (TNSRO) i (tnsroindia.org.in)	http://www.theoxford.edu/pharmacy/naac2024/3.3.1%20Research%20Paper4.pdf	Web of Science
30.	Exploring the exquisite Averrhoa Carambola: A comprehensive review	Yakshitha M, Noopur Srivastava, A Muthu Kumar, Padmaa M Paarakh, Monisha KC, Nithin Kumar C, Purushotham M	Pharmacology	Bulletin of Environment, Pharmacology and Life Sciences	2023	2277-1808	Bulletin of Environment, Pharmacology and Life Sciences (ISSN: 2277-1808) (researchbib.com)	https://bepls.com/oct_2023/46.pdf	YES
31.	Exploring the phytochemistry and medicinal significance of Artocarpus Heterophyllus (Jackfruit) leaves: A comprehensive review	Monsiha KC, Noopur Srivastava, Padmaa M Paarakh, A Muthu Kumar, Yakshitha M, Nithin Kumar C, Purushotham M	Pharmacology	Bulletin of Environment, Pharmacology and Life Sciences	2023	2277-1808	Bulletin of Environment, Pharmacology and Life Sciences (ISSN: 2277-1808) (researchbib.com)	http://www.theoxford.edu/pharmacy/naac2024/3.3.1%20Research%20Paper5.pdf	YES
32.	Herbal Interventions for Parkinson's disease: A systematic review on Anti-parkinson activity and natural remedies	Nithin Kumar C, Noopur Srivastava, Padma M Paarakh, A Muthu Kumar,	Pharmacology	Bulletin of Environment, Pharmacology and Life Sciences	2023	2277-1808	Bulletin of Environment, Pharmacology and Life Sciences (ISSN:	http://www.theoxford.edu/pharmacy/naac2024/3.3.1%20Research%20Paper6.pdf	YES

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		Yakshitha M, Purushotham M, Monsiha KC					2277-1808) (researchbib.com)		
33.	Neuroprotective Effects Of Garcinia Morella And Ficus Religiosa Extract Against Rotenone-Induced Mouse Model Of Parkinson's In Swiss Albino Mice	Manish Yadav, Sunishtha Kalra, Himanshu Sachdeva, Balwan Singh, Praveen kumar, Kamini Kalia, Noopur Srivastava, Govind Singh	Pharmacology	Latin American Journal of Pharmacy	2023	0326-2383	Latin American Journal of Pharmacy (latamjpharm.org)	http://actafarmbonaerense.com.ar/index.php/latamjpharm/article/view/505	YES
34.	Future Well-Being with Digital Health Technologies	Athmaja Shetty, Surinder Kaur, Yuktha HJ	Pharmaceutics	Journal Healthcare Treatment Development	2023	2799-1148	https://journal.hmjournals.com/index.php/JHTD	https://journal.hmjournals.com/index.php/JHTD/article/view/1449	YES
35.	A Review on: Metaverse in Health Care and Pharma	Athmaja Shetty, Gururaj S Kulkarni, Rakesh Babu SN, Padma M Paarakh	Pharmaceutics	Journal of Community Pharmacy Practice	2022	2799-1199	https://journal.hmjournals.com/index.php/JCPP/about	https://journal.hmjournals.com/index.php/JCPP/article/view/1391	YES
36.	A Review On The Marketing Strategy Of Aloe Vera Extracts	Akshay C, Ayati Kar, Bhaskar Saha, Badepalli Reddaiah Reddy	Pharmaceutical Chemistry	International Journal of Research and Analytical Reviews	2023	2348-1269	https://ijrar.org/?gad_source=1&gclid=Cj0KCQjwltKxBhDMARIsAG8KnqU0RT2XhZyiJMOSymdIe_IXbhfwmXg1UXAeH5GmPr_BB2C7lqC2eMQaAgKNE	https://www.ijrar.org/papers/IJRAR22D2551.pdf	YES

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37.	A review on therapeutic and biological diversity of ophiorrhiza species	Vishnupriya S*, Anil Kumar R, Ankitha Nidhi Reddy, Anushree R, Arsha Mohan K, Ashwini Kurabet	Pharmaceutical Chemistry	International Journal of Research and Analytical Reviews	2023	2348-1269	https://ijrar.org/?gad_source=1&gclid=Cj0KCQjwltKxBhDMARIsAG8KnqU0RT2XhZyiJMQSyndIe_fXbhfwmXg1UXAeH5GmFr_BB2C7IqC2eMQaAgKNEALw_wcB	http://www.theoxford.edu/pharmacy/naac2024/3.3.1%20Research%20Paper7.pdf	YES
38.	Formulation and evaluation of oral dispersible tablet of an anticoagulant drug	Pooja Kulkarni, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	Journal of Emerging Technologies and Innovative research (JETIR)	2022	2349-5162	https://www.jetir.org/	https://www.jetir.org/papers/JETIR2211437.pdf	YES
39.	Formulation and evaluation of topical antimicrobial herbal cream	Deepa V, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	World Journal of Biology Pharmacy and Health Sciences	2022	2582-5542	https://wjbphs.com/	https://wjbphs.com/sites/default/files/WJBPHS-2022-0196.pdf	YES
40.	Technologies in the Pharmaceutical Industries and Medical Health Care	Yuktha H J, Gururaj S Kulkarni, Athmaja Shetty, Padmaa M Paarakh	Pharmaceutics	International Journal of Information technology and Computer Engineering	2022	2455-5290	https://www.ijitee.com/	https://www.researchgate.net/publication/367096126_Technologies_in_the_Pharmaceutical_Industries_and_Medical_Health_Care	YES
41.	Phytosomes: A novel drug delivery system for herbal extracts	Pooja Kulkarni, Gururaj S Kulkarni, Padmaa	Pharmaceutics	International Journal of Creative	2022	2320-2882	https://ijcrt.org/	https://ijcrt.org/viewfull.php?&p_id=IJCRT2210293	YES

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		M Paarakh		Research Thoughts					
42.	Formulation and evaluation of mouth dissolving tablets for Halitosis (bad odour)	Kavya MS, Surinder Kaur	Pharmaceutics	International Journal of Pharmaceutical Research and applications	2022	2456-4494	https://www.ijprajournal.com/	https://ijpr_journal.com/issue_dcp/Formulation%20and%20Evaluation%20of%20Mouth%20Dissolving%20Tablets%20for%20Halitosis%20(bad%20Odour).pdf	YES
43.	Nanoparticles in Pharmaceutical Science	Yuktha HJ, Gururaj S Kulkarni, Athmaja Shetty, Padma M Paarakh	Pharmaceutics	Journal of Community Pharmacy Practice	2022	2799-1199	https://journal.hmjournals.com/index.php/JCPP/about	https://journal.hmjournals.com/index.php/JCPP/article/view/1455	YES
44.	Anticancer Studies on the leaves and stem bark of Cordia dichotoma G. Forst	Yakshitha M, Yakshitha V, Tilak Kumar M, Vadivel G, Swetha R, Padmaa M Paarakh	Pharmacognosy	International Journal of Innovative Research in Technology	2022	2349-6002	https://www.ijirt.org/index	https://ijirt.org/master/publishedpaper/IJIRT156432_PAPER.pdf	YES
45.	A review on anxiolytic activity of various essential oils by using light dark box and open field models	Mythili Priyanka C, Noopur Srivastava	Pharmacology	Strad Research	2022	0039-2049	https://stradresearch.org/	3.3.1. Research Paper 9.pdf (theoxford_du)	YES
46.	A review on anxiety with its herbal treatment using EPM Model	Divyashree T, Noopur Srivastava	Pharmacology	Strad Research	2022	0039-2049	https://stradresearch.org/	http://www.theoxford.edu/pharmacy/naac2024/3.3.1%20Research%20Paper8.pdf	YES
47.	Role of silver nanoparticles in the treatment of	Ahalya R, Noopur Srivastav	Pharmacology	International Journal	2022	2456-4184	https://www.ijnrd.org/	IJNRD2207006.pdf	YES

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	hyperlipidemia	a, Padmaa M Paarakh		of Novel Research and developm ent					
48.	Formulation and evaluation of orodispersible tablet of Rosuvastatin	Syeda Tasmiya Yaseen Huda, R. Uma Prabha and Surinder Kaur	Pharmaceuti cs	World Journal of Pharmac y and Pharmace utical Sciences	2022	2278-4357	https://w ww.wjpp s.com/	https://www wjpps.com/W jpps_controlle r/abstract_id/1 7095	YES
49.	overview of mouth dissolving tablet of antiemetic in post operative condition	Praveen M,R.Uma prabha, Mrs.Surin der kaur, Prabuku mar V, Suriya Prakash Rao S	Pharmaceuti cs	Internatio nal Journal of Pharmace utical Research and applicatio ns	2022	2456-4494	https://w ww.ijpraj ournal.co m/	https://ijprajo urnal.com/iss ue_dep/Overv iew%20Of%2 0Mouth%20D issolving%20 Tablet%20Of %20Antiemet ic%20In%20P ost%20Operat ive%20Condit ion.pdf	YES
50.	A review on alternative approaches for Parkinson's disease treatment	Astik, Chitra V, Noopur Srivastav a, Anjali Raj	Pharmacolo gy	World Journal of Pharmac y and Pharmace utical Sciences	2022	2278-4357	https://w ww.wjpp s.com/	https://www. wjpps.com/W jpps_controlle r/abstract_id/1 7039	YES
51.	Review on Immuno-Oncology: The role of immune system against cancer	Chitra V, Noopur Srivastav a, Ahalaya R, Astik, Divyashre e T, Mythili Priyanka C	Pharmacolo gy	World Journal of Pharmac y and Pharmace utical Sciences	2022	2278-4357	https://w ww.wjpp s.com/	https://www. wjpps.com/W jpps_controlle r/abstract_id/1 7030	YES
52.	A Review: Analgesic Cream As Topical Drug Delivery System	Suriya Prakash Rao S.,Vikra m Choudhar y, Surinder Kaur, Prabuku mar V., Praveen	Pharmaceuti cs	World Journal of Pharmac y and Pharmace utical Sciences	2022	2278-4357	https://w ww.wjpp s.com/	https://www. wjpps.com/W jpps_controlle r/abstract_id/1 7014	YES

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		M.							
53.	Development and evaluation of Gemcitabine-loaded carboxymethyl cellulose grapahene quantum dots nanocomposite hydrogel films as an anticancer drug delivery system	Keerthana CK	Pharmaceutics	World Journal of Pharmacy and Pharmaceutical Sciences	2022	2278-4357	https://www.wjpps.com/	https://www.wjpps.com/_jpps_controller/abstract_id/16775	YES
54.	Novel Nutraceuticals	Divya S Kumar, Deepa V, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	World Journal of Pharmaceutical research	2022	2277-7105	https://www.wjpr.net/	https://wjpr.net/abstract_show/19549	YES
55.	A review on the mitochondrial dysfunction in sporadic parkinson's disease	Saniya Tabassum and Anjali Raj	Pharmacology	International Journal of Pharmaceutical Sciences & Research	2022	2320-5148	https://ijpsr.com/	https://ijpsr.com/bft-article/a-review-on-the-mitochondrial-dysfunction-in-sporadic-parkinsons-disease/	YES
56.	Review on activity of Cannabis treatment on Parkinson's disease	Douglas Zorinmawia Chhakchhuak, G. Swetha, Saniya Tabassum and Anjali Raj	Pharmacology	International Journal of Pharmaceutical Sciences & Research	2022	2320-5148	https://ijpsr.com/	https://ijpsr.com/bft-article/review-on-activity-of-cannabis-treatment-on-parkinsons-disease/	YES
57.	Cordia Dichotoma G Forest: A Comprehensive review	M. Padmaa Paarakh	Pharmacognosy	International Journal of Advance Research and Innovative Ideas in Educatio	2022	2395-4396	http://ijariie.com/	https://ijariie.com/AdminUploadPdf/CORDIA_DICHOTOMA_G_FORST_A_COMPREHENSIVE_REVIEW_ijariie18257.pdf	YES

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				n					
58.	Phyto Fungicidal Activities	Deepa V, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	International Journal of Advance Research and Innovative Ideas in Education	2022	2395-4396	http://ijariie.com/	http://ijariie.com/FormDetails.aspx?MenuScriptId=217011	YES
59.	Effect of Non-steroidal Anti-inflammatory drugs on reserpine induced parkinsonism in rats	Douglas Zorinmawia Chhakchhuak and Anjali Raj	Pharmacology	International Journal of Pharmaceutical Sciences & Research	2022	2320-5148	https://ijpsr.com/	https://ijpsr.com/bft-article/effect-of-non-steroidal-anti-inflammatory-drugs-on-reserpine-induced-parkinsonism-in-rats/	YES
60.	Anti-tubercular activity of methanol and aqueous extract of leaves of Tinospora Cordifolia (Wild) Miers	M. Padmaa Paarakh, Geetha Patel, Harshita M, Sathi D	Pharmacognosy	International Journal of Advance Research and Innovative Ideas in Education	2022	2395-4396	http://ijariie.com/	http://ijariie.com/FormDetails.aspx?MenuScriptId=?32	YES
61.	Assessment in improving knowledge, attitude, and practice towards inhalers used in asthma and COPD patients	Merin Susan Abraham, C Sripriya, Vasanth C, Vidhyasree N	Pharmacy Practice	International journal of pharmacy and pharmaceutical Research	2021	2349-7203	https://ijppr.humanjournals.com/	https://ijppr.humanjournals.com/wp-content/uploads/2021/11/36.Merin-Susan-Abraham-C.Sripriya-Vasanth.C-Vidhya-Sree.N.pdf	YES
62.	Pharmacist participation in antimicrobial stewardship and	Aswathi V, Carina Tony, Chaithan	Pharmacy Practice	International journal of pharmacy	2021	2349-7203	https://ijppr.humanjournals.com/	https://ijppr.humanjournals.com/wp-content/uploa	YES

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	evaluation of antibiotic drug interaction in hospitalized patients in a tertiary care center	ya K, Merin Susan Abraham, Mintu Mathew		and pharmaceutical Research				ds/2021/11/18.Aswathi-V-Carina-Tony-Chaithanya-K-Merin-Susan-Abraham-Mintu-Mathew.pdf	
63.	Gastro retentive Floating Drug Delivery System A review	Abhishek Yadav Surinder Kaur Gururaj S Kulkarni Padmaa M Paarakh	Pharmaceutics	International Journal of Pharmaceutical Research and applications	2021	2249-7781	https://www.ijprajournal.com/	https://ijprajournal.com/issue_dcp/Gastroretentive%20Floating%20Drug%20Dilivery%20System%20A%20Review.pdf	YES
64.	Formulation and evaluation of antifungal cream of chlorphenesin	Veena s., surinder kaur, gururaj kulkarni	Pharmaceutics	International journal of current pharmaceutical research	2021	0975-7066	https://journals.innovareacademics.in/index.php/ijcpr	https://journals.innovareacademics.in/index.php/ijcpr/article/view/43163	YES
65.	Formulation & evaluation of orodispersible tablets: A detailed review	Syeda Tasmiya Yaseen Huda, Surinder Kaur, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	International Journal of Pharmaceutical Research & applications	2021	2249-7781	https://www.ijprajournal.com/	https://ijprajournal.com/issue_dcp/Formulation%20And%20Evaluation%20Of%20Orodispersible%20Tablets%20A%20Detailed%20Review.pdf	YES
66.	A review on topical cream	Veena S, Surinder Kaur, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	International Journal of Pharmaceutical Research & applications	2021	2249-7781	https://www.ijprajournal.com/	https://ijprajournal.com/issue_dcp/A%20Review%20On%20topical%20Cream.pdf	YES
67.	A review on mucoadhesive buccal tablets	Tejaswini B, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	International Journal of Pharmaceutical Research & applications	2021	2249-7781	https://www.ijprajournal.com/	https://ijprajournal.com/issue_dcp/A%20Review%20on%20Mucoadhesive%20Buccal%20Tablets.pdf	YES

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68.	Evaluation of plant-derived compounds to inhibit COVID-19 through in silico studies	M Padmaa Paarakh, Sruthi SD, Sharath BS	Pharmacognosy	Indian Journal of Natural Products & Resources	2021	0976-0504	http://op.niscair.res.in/index.php/IJNPR	http://op.niscair.res.in/index.php/IJNPR/article/view/34500	Scopus/ WOS
69.	Review on approaches to develop orodispersible tablets (ODT's)	Divya R, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	European Journal of Pharmaceutical & Medical Research	2021	2394-3211	https://www.ejpmr.com/	https://www.ejpmr.com/home/abstract_id/8085	YES
70.	In vitro anticancer activity of silver nanoparticle synthesised from punica granatum dried peel against cancer cell lines	M Padmaa Paarakh, Preethi Ani Jose	Pharmacognosy	Indian Journal of Natural Products & resources	2020	0976-0504	http://op.niscair.res.in/index.php/IJNPR	http://op.niscair.res.in/index.php/IJNPR/article/view/29583	Scopus/ WOS
71.	Study the susceptibility pattern of bacteria isolated from infected wounds & determine various risk factors associated with foot ulcer	Divya C Reddy, Ashin Vareeth, Bonnie Ascah Joseph, Anu Thomas, Sheba Baby John, Parthasarathy G	Pharmacy practice	International journal of research in phytochemistry & pharmacology	2020	2231-010X	https://journals.indexcopernicus.com/search/details?id=33223	https://www.scilit.net/publications/d62586caa65f1b9175194389640b7488	YES
72.	An interventional study to assess the quality of life in abnormal uterine bleeeding in a medical college teaching hospital	Manikanth BN, Konudula Revati Sindhu, Juveria Banu, Jennilyn James, Sheba Baby John, Parthasarthy G	Pharmacy practice	International journal of pharmaceutical research & life science	2020	2321-4589	https://scienztech.org/index.php/ijprls	https://scienztech.org/index.php/ijprls/article/view/1298/1420	YES
73.	Assessment of	Priyanka	Pharmacy	Internatio	2020	2231-	https://sci	https://scienzt	YES

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	knowledge & risk factor about gestational diabetes mellitus among the pregnant women in a tertiary care hospital	G, Preethu Elsa Prasad, Muhammad Sabit, Rafiunnisa, Parthasarathy G	practice	nal journal of review in life sciences		2935	enztech.org/index.php/ijrls	ech.org/in' _ php/ijrls/article/view/1287/1384	
74.	A view on herbal medicines & food habits of Indians & it's effects on COVID-19 & mortality rate	Divya R, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	International journal of modern pharmaceutical research	2020	2319-5878	https://www.ijmpronline.com/	https://ijmpronline.com/home/article_abstract/281	YES
75.	Formulation development & evaluation of novel pediatric suspension for antidiabetic drug glibenclamide	Vanitha K, Divya S Kumar, Gururaj S Kulkarni, Padmaa M Paarakh	Pharmaceutics	World Journal of Pharmaceutical Research	2020	2277-7105	https://www.wjpr.net/	https://wjpr.net/abstract_show/15493	YES
76.	A study on prescription patterns of water-soluble vitamins in a medical college teaching hospital	Anju K Abraham, Anit Babu, Anaswara S Nair , Ansu Mary Kurian , Rini Susan Varghese , Sheba Baby John	Pharmacy practice	International Journal of Pharmacology & Toxicology	2019	2249-7668	https://www.ijpt.org/	MTU3a2FsYWkxNDc4NTIzNjk= (ijpt.org)	YES
77.	Catharanthus Roseus Linn- A review	M Padmaa Paarakh*, S Swathi, Tasneem Taj, V Tejashwini and B Tejashwini	Pharmacognosy	Acta Scientific Pharmaceutical Sciences	2019	2581-5423	https://actascientific.com/ASPS.php	3.3.1. Research Paper 10.pdf (theoxford.edu)	YES
78.	Evaluation of medication adherence among osteoporotic women in a tertiary care teaching hospital	Kaveri Bopanna M , Neelam Singh D , Nithya Indian R ,	Pharmacy practice	Acta Biomedica Scientia	2019	2348-2168	http://mcmed.us/journal/abs	https://www.mcmed.us/dart/abstract/1994/abs	YES

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		Nimisha K Joseph, Sheba Baby John							
79.	In vitro, anticancer activity of silver nanoparticles synthesized from leaves of Murraya koenigii against cancer cell lines	M. Padmaa Paarakh and Preethy Ani Jose	Pharmacognosy	International Journal of Current Medical and Pharmaceutical Research.	2019	2395-6429	http://www.journalcmpr.com/	http://www.journalcmpr.com/issues/vitro-anticancer activity-silver-nanoparticle-synthesised-leaves-murraya-koenigii-against	YES
80.	A study on the prescribing pattern and rationality of fixed dose combinations of antidiabetic drugs in a medical college teaching hospital	Abbu Venkata Varun Kumar, Abin Sabu, Akhil Varghese P, Rini Susan Varghese, Sheba Baby John	Pharmacy practice	International Journal of Pharamcotherapy	2019	2249-7765	http://www.ijopjournal.com/	https://www.ijopjournal.com/abstract/MTMxa2FsYWk=	YES
81.	Osteoporosis: A prospective study on risk factors	Nithya Indian R, Nimish K Joseph, M Kaveri Bopanna, Neelam Singh, Sheba Baby John	Pharmacy practice	Inventi Journals	2019	0976-3848	https://www.inventi.in/	https://inventi.in/journal/article/7/29423/Inventi%20Impact:%20Pharmacy%20Pract/Pharmaceutical	YES
82.	Anti-tubercular activity of silver nanoparticle synthesized from the leaves of Murraya koenigii Linn and fruit peel of Punica granatum Linn.	M. Padmaa Paarakh	Pharmacognosy	Acta Scientific Pharmaceutical Sciences	2020	2581-5423	https://actascientific.com/ASPS.php	theoxford.edu/pharmacy/pdfnaac/3.3.1 Research Paper 11.pdf	YES
83.	In vitro anticancer activity of silver nanoparticle synthesised from dried peel of Zingiber officinale	M. Padmaa Paarakh and Preethy Ani Jose	Pharmacognosy	British Journal of Pharmaceutical and Medical	2020	2456-9836	https://www.bjpmr.org/	3.3.1. Research Paper 12.pdf (theoxford.edu)	YES

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	against cancer cell lines.			Research,					
84.	Current review on COVID-19 pandemic: a global perspective	Hyma Sara Varghese	Pharmacology	International Journal of Basic and clinical pharmacology	2020	2319-2003	https://www.ijbcp.com/index.php/ijbcp/index	https://www.ijbcp.com/index.php/ijbcp/article/view/4202	YES
85.	A cross sectional study on assessment of risk of diabetes mellitus using Indian diabetic risk score in a medical college teaching hospital	Singam sivasankar reddy, Syeda Rahat, Rakshitha HN, Godson K Lal, Swathi S, Merin Susan Abraham	Pharmacy practice	International Journal of pharmaco metrics & Integrated Biosciences	2020	2455-8842	https://scienztech.org/index.php/ijpib	https://scienztech.org/index.php/ijpib/article/view/1292	YES
86.	Development & validation of knowledge, attitude practice questionnaire for hypothyroidism	Aishwarya M, Akshatha VS,Alba Rachel John, Anjitha Venu M, Parthasarathy G	Pharmacy practice	International journal of research in phytochemistry & pharmacology	2020	2231-010X	https://journals.indexcopernicus.com/search/details?id=33223	https://scienztech.org/index.php/ijrpp/article/view/1277	YES
87.	Antidiabetic and antioxidant activity of coccinea grandis voigt stem extract in streptozotocin induced diabetic rats	YASMIN HAMID MOMIN, VEERENDRA CHANNABASAPPA YELIGAR	Pharmaceutical Chemistry	Journal of Drug Delivery and Therapeuties	2019	2250-1177	https://jddtonline.info/index.php/jddt	https://jddtonline.info/index.php/jddt/article/view/3438	YES
88.	Evaluation of video-assisted patient counselling on the management of polycystic ovarian syndrome and assessment of its risk factors	Sneha Mariam Varghese, Sony Mariyam Sunny, Vineesha Vinodkumar, Parthasarathy G	Pharmacy Practice	international journal of pharmacy practice and drug research	2019	2249-7625	https://www.ijppdr.com/	https://www.ijppdr.com/abstract/MTUwa2FsYWk=	YES
89.	Effect of nausea,	Osheen	Pharmacy	Acta	2019	2348-	http://mc	https://www.	YES

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	vomiting and nutritional status on quality of life during first trimester pregnancy	Asha Mathew, Rahi Jacob Edavaparambil, Santwana Olive Xalxo , Parthasarathy G	Practice	Biomedica Scientia		2618	ined.us/journal/abs	mcmed.us/dart/abstract/1991/abs	
90.	A study on multivitamin utilisation pattern and pharamcoeconomics in a medical teaching care hospital	Anit Babu, Anaswara S Nair , Ansu Mary Kurian , Anju K Abraham , Rini Susan Varghese , Sheba Baby John	Pharmacy practice	International Journal of Pharmacy & Therapeutics	2019	0976-0342	http://www.ijptjournal.com/	https://ww ..ptjournal.com/File_Folder/129-132.pdf	YES
91.	Formulation and evaluation of Maltodextrin based doxorubicin Hcl proniosomes	Srikanth, Y Anand Kumar, C. Mallikarjuna Setty	Pharmaceutics	Research Journal of Pharmacy and Technology	2019	0974-3618	https://www.rjptonline.org/Home.aspx	https://rjptonline.org/AbstractView.aspx?PID=2019-12-6-29	Scopus
92.	Design and optimization of capecitabine niosomes derived from proniosomes	Srikanth, Y Anand Kumar, C. Mallikarjuna Setty	Pharmaceutics	International Journal of Pharmaceutical Sciences and Research	2019	0975-8232	https://ijpsr.com/	https://ijpsr.com/bft-article/design-and-optimization-of-capecitabine-niosomes-derived-from-proniosomes/	YES
93.	Design and optimization of zidovudine loaded uriddall mucilage microspheres using box behnken method	Santosh G Gada Y Anand Kumar, C. Mallikarjuna Setty	Pharmaceutics	International Journal of Pharmaceutical Sciences and Research	2019	0975-8232	https://ijpsr.com/	https://ijpsr.com/bft-article/design-and-optimization-of-zidovudine-loaded-uriddall-mucilage-microspheres-using-box-behnken-	YES

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								method/	
94.	Preparation, characterization and evaluation of solid dispersions of rilpivirine	Bhrati Arali, Y Anand Kumar, C. Mallikarjuna Setty	Pharmaceutics	World Journal of Pharmaceutical sciences	2018	2321-3310	https://wjpsonline.com/index.php/wjps/index	https://wjpsonline.com/index.php/wjps/article/view/characterization-evaluation-solid-dispersions-rilpivirine	YES
95.	Preparation and evaluation of nateginide-cyclodextrin inclusion complex	Venkatesh, Y Anand Kumar, C. Mallikarjuna Setty	Pharmaceutics	Research Journal of Pharmacy and Technology	2018	0974-3618	https://www.rjptonline.org/Home.aspx	https://rjptonline.org/AbstractView.aspx?PID=2018-11-3-37	Scopus
96.	Development of acrocyanosis associated with pain and increased creatinine level in histoplasmosis patient: Medication therapy	Chittiboyena Sai Chaitanya Yadhav, Karthikeyan Elumalai, Shaik Sana Nishad, Srinivasan Sivannan Sivaneswari Srinivasan	Pharmacy practice	Aging Medicine	2018	2475-0360	AGING MEDICINE - Wiley Online Library	Development of acrocyanosis associated with pain and increased creatinine level in histoplasmosis patient: Medication therapy - Yadhav - 2018 - AGING MEDICINE - Wiley Online Library	Scopus
97.	Isoniazid-induced liver disorder in the treatment of tuberculosis	Srinivasan Sivannan, Atukuri Vishnuvardhan, Karthikeyan Elumalai, Sivaneswari Srinivasan, Kalpana Eluri, Manogaran Elumalai, Ramasam	Pharmacy Practice	Chronic Diseases and Translational Medicine	2018	2095-882X	Chronic Diseases and Translational Medicine - Wiley Online Library	Isoniazid-induced liver disorder in the treatment of tuberculosis - Sivannan - 2018 - Chronic Diseases and Translational Medicine - Wiley Online Library	Scopus

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		y Muthu.							
98.	A review on anticancer activity of punica granatum linn	M. Padmaa Paarakh and Preethy Ani Jose	Pharmacognosy	European Journal of Biomedical and Pharmaceutical Sciences	2018	2349-8870	https://www.ejbps.com/ejbps/index	https://www.ejbps.com/ejbps/abstract_id/4289	YES
99.	The high lymophadenopathy and subcutaneous edema are associated with development of foot ulcers in type 2 diabetes: A collagen implanted antibiotic therapy	Karthikeyan Elumalai, Chittiboyena Sai Chaithanya Yadhav , Shaik Sana Nishad , Sivaneswari Srinivasan , Kamani Mounika , Srinivasan Sivannan , Kota Supriya	Pharmacy Practice	Bulletin of Faculty of Pharmacy, Cairo University	2018	1110-0931	https://www.sciencedirect.com/journal/bulletin-of-faculty-of-pharmacy-cairo-university	https://www.sciencedirect.com/science/article/pii/S1110093118300036	YES
100.	A Study on Prevalence of Polypharmacy and the drug related problems in surgical ward of Department of Surgery in a tertiary care Hospital	Blessy mariathomas, John johny, Milu A. george, Pramit Chakraborty,		International Journal of Pharmacotherapy	2018	2249-7765	http://www.ijopjournal.com/	http://www.ijopjournal.com/abstract/MTEva2FsYWk=	YES
101.	Anti cancer activity of murraya koengnii-an overview	M. Padmaa Paarakh and Preethy Ani Jose	Pharmacognosy	European Journal of Biomedical and Pharmaceutical Sciences	2018	2349-8870	https://www.ejbps.com/ejbps/index	https://www.ejbps.com/ejbps/abstract_id/4012	YES
102.	curcumin loaded fish scale collagen-HPMC nanogel for wound healing application: Ex	Inayat B.Pathan, Santosh J Munde, Santosh Shelke,	Pharmaceutics	International Journal of Polymeric	2018	0091-4037	https://www.tandfonline.com/journals/gpom20	https://www.tandfonline.com/doi/abs/10.1080/00914037.2018.14[illegible]37	Scopus

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	vivo and in vivo evaluation	Wahid Ambekar, C. Mallikarjuna Setty		Materials and Polymeric Biomaterials					
103.	Green synthesis of nanoparticles using plant extracts of Punica granatum and Murraya koenigii-a review	M. Padmaa Paarakh and Preethy Ani Jose	Pharmacognosy	European Journal of Biomedical and Pharmaceutical Sciences	2018	2349-8870	https://www.ejbps.com/ejbps/index	https://www.ejbps.com/ejbps/abstract_id/3786	YES

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REVIEW ARTICLE

A Clinical Review on Ulcerative Colitis (Colon Cancer)

A. Muthukumar[1]*, Bhavani Keserla[2], Syed Mohasin Abbas[3], Reena Thapa[4], Rumana Khatija[5]

[1,2]Department of Pharmacology, Oxford College of Pharmacy, Bangalore, Karnataka, India.
[3,4,5]Department of Pharmacology, Krupanidhi College of Pharmacy, Bangalore, Karnataka, India.
*Corresponding Author E-mail: **drmkresearch14@gmail.com, bhavanik76@gmail.com, syedmohasinabbas14@gmail.com, reenathakur@gmail.com, rumanakhatija@gmail.com**

ABSTRACT:

Ulcerative colitis (UC) is also known as colon cancer or colorectal cancer, a chronic inflammatory condition of the large intestine (colon and rectum). It comes under blood in stool, bowel urgency, fatigue, low energy, and rarely fever. Inulcerative colitis, the part of the colon's inner lining of unknown etiology involves the gastrointestinal tract. More than 80% of ulcerative colitis patients have the lining tissue of the inner rectum inflamed or has proctosigmoiditis, and less than 20% of patients haveextensive colitis. The case of UC has risenworldwide in the recent few decades, particularly in growing countries. The high-risk factors are family history, gender, race, and environmental factors contributing are smoking, infection taking Antibiotics, and NSAIDs. In 2013, Over 350,000 new cases of ulcerative colitis and over 125,000 Patients deaths were reported in the USA. Ulcerative colitis is different from Crohn's disease. However,in more the 50% of patients with mildsymptoms of proctosigmoiditis, some patients show proximal extension, and for some patients,opposition occurs with mild symptoms. Moreover, it is essential to identify the patients with some symptoms of ulcerative colitis to clinical risk factors that will help identify which patients are in the critical or higher stage of the disease proximal extension.The ulcerative colitis usually devolves between 20 to 30 years.

KEYWORDS: Colorectal cancer, Corticosteroids, Immunomodulators, Crohn's disease, Antibiotics, Nonsteroidal anti-inflammatory drugs (NSAIDs).

INTRODUCTION:

Ulcerative colitis is an inflammatory disease in which the inner lining of the gastrointestinal tract is affected, leading to a severe condition. Ulcerative colitis can be seen in both men and women in which the men are most affected than women[1,2]. Ulcerative colitis develops between 15 to 35,and it stays for 40 years. It is affected worldwide in many countries, with which Europe and USA being the most affected countries among them[3,4]. The research shows that over 350,000 people have ulcerative colitis in Europe with a death toll of 130,000 in 2013, while in the USA, almost 400,000 people have ulcerative colitis with a death toll of 200,000 in 2013[4,5,6]. The significant symptoms of ulcerative colitis arebloody diarrhoea, soft blood stools, abdominal pain,fatigue, mild fever, and sometimes anaemia[7].

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DOI: 10.52711/0974-360X.2023.00982

It is essential to identify the patients affected by UC to avoid the high risk of ulcerative colitis. UC mainly does not spread to transmission but develops in abdominal regions known as thegastrointestinal region, in which the inner lining is inflamed. Diagnosis is the only treatment for ulcerative colitis. The most used diagnosis is colonoscopy and surgery[8,9]. Ulcerative colitis will develop due to our distinctive lifestyle and dietary requirements, and many countries in the world are suffering from this disease,especially developing countries.We must control and prevent the disease through proper health mad diet[10,11].

Prevalence:

Ulcerative colitis has increased in the few decades. As the number of cases of ulcerative colitis increases, it is challenging to control the disease[12,13,14]. Many researchers have said that ulcerative colitis is more evident in developing countries. The mortality ratio of ulcerative colitis patients has decreased in recent years. To avoid the risk of ulcerative colitis, people should not regularly smoke, and the appendectomy[15,16,17]. Appendectomy means a surgical operation in which the

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vermiform appendix is removed. Ulcerative colitis causes can be detected or cured at the easy stage of developing the disease[18,19,20]. If Ulcerative colitis develops, this treatment is very effective and cannot be cured. Here are some measures of the rate of disease per 100000 people inEurope in recent years, as shown in (Figure-1).

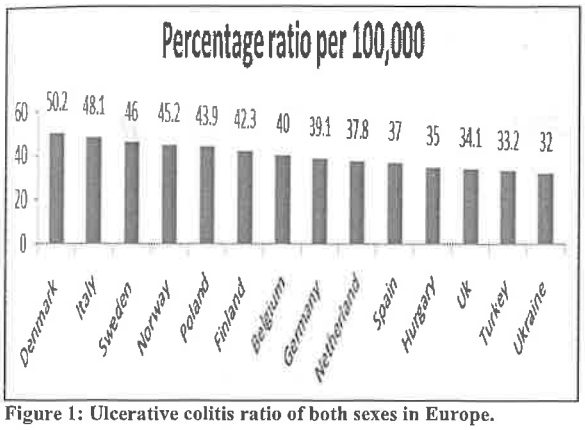

Figure 1: Ulcerative colitis ratio of both sexes in Europe.

CAUSES AND RISK FACTORS[21.22]

Ulcerative colitis occurs when a person's immune system makes a mistake or nor work adequately. It will first occur as a common cold in the body. White blood cells (WBC) mainly help protect against the attack on the colon's lining. This will lead to inflammation and ulcer. Genes play a significant role in this process to protect from ulcerative colitis. Some Risk factors are shown in (Table-1).

Colon cancer develops when the person's healthy cells change their DNA. The DNA cell will guide a person to do work. These cells will grow and divide, keeping the body regular for functioning. If the cell is damaged, it leads to cancerous cells,which will continue to divide if new cells are not formed. Furthermore, these cancerous cells will travel to various other body parts and be storedthere[29].

SYMPTOMS:

Colon cancer can occur for many years without any initial symptoms. The symptoms develop according to where the tumour's large intestine is located[30]. The standard part of the large intestine to develop colon cancer is the right side, and this can grow in large size and become an abdominal symptomdevelop[31]. This right-side cancer may lead to Iron deficiency anaemia due to the slow loss of blood for a long time. The left colon is thinner than the right colon. Therefore, the left colon cancer cause may be cured quickly, and left colon symptoms include constipation, narrowed stools, bloody diarrhoea,and abdominal pain[32]. If the person has any of the above symptoms forfour weeks more, it is their responsibility to seek the doctor as soon as possible to avoid the growth of cancerous cells and leave a peaceful life[33].

Table 1: Risk Factors of Ulcerative colitis

Risk factors	Reason and Range
Age[23]	Ulcerative colitis occurs between the age of 15 to 30 years old, and the duration is of 40 years
Family history[24]	There are 35% chance of getting ulcerative colitis if the person's close family members are in the condition of ulcerative colitis.
Diet[25,26]	If your food content is less in fiber, having high saturated fats and more animal protein may have chances of developing ulcerative colitis
Physical health[27]	If the person is not maintaining the physical activity, the risk of getting ulcerative colitis will be more
Smoking[28]	Regularly smoking and taking alcohol also increase the risk of ulcerative colitis.

Treatment:

Ulcerative colitis treatment depends on the type and stage of cancer andthe patient's age, and even physical health. There are many ulcerative colitis treatments, not a single for any cancer[34]. The standard treatment used in ulcerative colitis issurgery, radiation therapy, and chemotherapy. This process removes the cancer cells and spreads, prevents, and reduces the symptoms(*Table-2*).

Table-2 treatment parameter for ulcer colitis

Common treatment	Purpose and rational
Body weight[35]	If the person's body weight is more or is obese, there will be chances of getting ulcerative colitis and many cancers, so it is essential to maintain body weight.
Surgery[36]	Colectomy means removing the affected part of the colon. The doctor or surgeon will remove the colon during this process, which contains cancer, and some closely affected area. It will remove to spreading the risk of cancer. Then they re-join the healthy portion of the colon or make a stoma. A surgical opening of the wall in the abdomen is called a stoma. A few types of surgeries are Endoscopy, laparoscopic and palliative surgery.
Chemotherapy[37]	During this process, a cancer care team will administer the medication to avoid the division of cells, and during the process, they disrupt the protein of DNA to damage and kill the cancer cells and inhibit the rapid division of cells.
Radiation therapy[38]	In this process, the radiation therapy will Directly kill all the cancer cells with the help of high-energy gamma rays, and in this process, a cancer care team will administer the medications externally, and the radioactive materials are brought near to site of cancer in the form of seed.

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TO STUDY THE EFFECT OF PANDEMIC RESTRICTION ON QUALITY OF LIFE AND MEDICATION ADHERENCE OF TYPE 2 DIABETES PATIENTS

Deekshitha L[1], Chandana K S[1], Bindu B N[1], Ashmita Modak[1], Parthasarathy G[2]*

Department of Pharmacy Practice, The Oxford college of Pharmacy, Bengaluru, India

ABSTRACT

Objectives: To study the effect of covid 19 pandemic restrictions on quality of life and medication adherence in diabetic patients.

Methods: A prospective cross-sectional study was conducted in The Oxford Medical College and Research Centre with 124 patients diagnosed with a-history of Type 2 diabetes(Type 2 DM). Consent was taken, and information was collected through a data entry form between May 2022 and October 2022. These subjects were interviewed using WHOQOL BREF and MORISKY MEDIATION ADHERENCE SCALE -8(MMAS-8) used to measure the effect of pandemic restriction in detail on quality of life and medication adherence. A follow-up was done after 2 weeks to measure the improvement in medication adherence.

Result: A total of 124 Type 2 DM patients were included in this study. 33.05% of patients rated poor quality of life (QOL), and 71.75% were dissatisfied with their health during the pandemic period. Medication adherence during pandemic was low with mean score of (5.12±1.86) evaluated with MMAS-8

Conclusion: The study suggests that the pandemic restrictions have widely impacted the QOL, physical activity, lifestyle and adherence. From the study we conclude that there are significant changes in Quality of life and medication adherence of diabetic patient during pre-pandemic and pandemic period.

KEY WORDS: Type II DM, Quality of life, WHOQOL BREF, MORISKY MEDICATION ADHERENCE SCALE 8.

P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 619, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

"A Systematic Review of the Phytochemical Constituents and Bioactive Properties of *Mussaenda Frondosa*"

Suvarnalakshmi Gunturu[1], Nidhishree[1] S, Shravya, A. Muthukumar[2], Jyoti Shrivasthava[1], Padmaa M Paarakh[3]

[1]Department of Pharmaceutical Chemistry, The Oxford College of Pharmacy, Bangalore, Karnataka 560068

[2]Department of Pharmacology, The Oxford College of Pharmacy, Bangalore, Karnataka 560068

[3]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, Karnataka 560068

Corresponding author

Mrs. Suvarnalakshmi Gunturu
Assistant Professor,
Department of pharmaceutical Chemistry,
The Oxford College of Pharmacy, Bengaluru, Karnataka, India.
Ph. No: 8073056075
E-Mail. ID: *suvarnapharmacy2023@gmail.com*

ABSTRACT

Mussaenda frondosa (M. frondosa) is a plant with significant botanical importance and has been identified as a promising source of bioactive compounds with diverse biological activities. This review provides a comprehensive analysis of the current knowledge of the various biological roles that M. frondosa plays. The phytochemical profile of the plant is explored in great detail, revealing a rich array of alkaloids, flavonoids, terpenoids, and other compounds that contribute to its multifaceted therapeutic potential. In addition, the interplay between the chemical constituents of the plant and their potential medicinal attributes, including their anti-inflammatory, analgesic, antioxidant, hypolipidemic, diuretic, and other properties, is discussed. This review is intended to serve as a guide for researchers interested in exploring the diverse biological activities of M. frondosa and to pave the way for future studies that could harness its potential for human health and well-being.

Keywords: M. frondosa, phytochemicals, bioactivity, medicinal potential, anti-bacterial activity, anti-inflammatory

INTRODUCTION

Plant-based traditional remedies have been celebrated for centuries for their potential to offer various health benefits across various human ailments. These remedies remain an undiscovered resource within the field of medicine. Traditional Medicines encompass health practices, methods, accumulated wisdom, and beliefs employed individually or in synergy to address, diagnose, prevent illness, or promote well-being. The use of traditional herbal medicines continues to thrive in numerous regions, particularly in tribal and rural communities worldwide. Numerous traditionally significant medicinal plants

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Harnessing the neuroprotective effect of oral administration of benfotiamine in MPTP induced Parkinson's disease in rats

Bushra Bashir [a], Swati Mittal [b], A. Muthukumar [c], Sukriti Vishwas [a], Narendra Kumar Pandey [a], Monica Gulati [n d], Gaurav Gupta [e f n], Muralikrishnan Dhanasekaran [g], Puneet Kumar [h], Harish Dureja [i], Francisco Veiga [j k], Ana Cláudia Paiva-Santos [j k], Jon Adams [d], Kamal Dua [d l m], Sachin Kumar Singh [a d]

[a] School of Pharmaceutical Sciences, Lovely Professional University, Phagwara, Punjab, India
[b] Al-Ameen College of Pharmacy, Bengaluru, Karnataka, India
[c] Oxford College of Pharmacy, Bengaluru, Karnataka, India
[d] Faculty of Health, Australian Research Centre in Complementary and Integrative Medicine, University of Technology Sydney, Ultimo, NSW, 2007, Australia
[e] Centre for Global Health Research, Saveetha Medical College, Saveetha Institute of Medical and Technical Sciences, Saveetha University, India
[f] School of Pharmacy, Graphic Era Hill University, Dehradun 248007, India
[g] Department of Drug Discovery and Development, Harrison College of Pharmacy, Auburn University Auburn, AL, 36849, USA
[h] Department of Pharmacology, Central University of Punjab, Ghudda, Punjab, India
[i] Department of Pharmaceutical Sciences, Maharshi Dayanand University, Rohtak, 124001, Haryana, India
[j] Department of Pharmaceutical Technology, Faculty of Pharmacy of the University of Coimbra, University of Coimbra, Coimbra, Portugal
[k] REQUIMTE/LAQV, Group of Pharmaceutical Technology, Faculty of Pharmacy of the University of Coimbra, University of Coimbra, Coimbra, Portugal
[l] Discipline of Pharmacy, Graduate School of Health, University of Technology Sydney, Ultimo, NSW, 2007, Australia
[m] Uttaranchal Institute of Pharmaceutical Sciences, Uttaranchal University, Dehradun, India
[n] School of Pharmacy, Suresh Gyan Vihar University, Jagatpura, Mahal Road, Jaipur, India

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ADVANCEMENTS IN UNDERSTANDING AND TREATING ANXIETY DISORDER

BHAVANI K*, MONISHA S[1], SINGH S[1] AND PAARAKH PM[2]

Department of pharmacology, The Oxford College of Pharmacy, Bengaluru, Karnataka, India

*Corresponding Author: Dr. Keserla Bhavani: E Mail: bhavanik76@gmail.com

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ABSTRACT

Anxiety is a typical human feeling that everyone occasionally feels. Anxiety may, nevertheless, be regarded as an anxiety disorder when it manifests itself excessively and interferes with daily life. A set of mental health illnesses known as anxiety disorders are characterised by extreme, ongoing worry or fear. Therapy and medication are frequently used in the treatment of anxiety disorders. Anxiety disorders are frequently treated using cognitive-behavioural therapy, which assists patients in recognising and altering harmful thought patterns and behaviours. To help alleviate symptoms, doctors may also prescribe drugs like benzodiazepines and selective serotonin reuptake inhibitors (SSRIs). In order to enhance outcomes and quality of life, it is crucial for people with anxiety disorders to get professional assistance as soon as possible. A good diet and regular exercise can also help manage the symptoms of anxiety disorders. Stress management practises can also be useful.

Keywords: Panic disorder, Generalised anxiety disorder, Specific phobia, GABA, Benzodiazepines

INTRODUCTION:

The most common central nervous system disorder is anxiety. "It is characterised as an uncomfortable emotional state accompanied by restlessness, distress, and worry or fear around certain known or unknown potential harm." One-eighth of the population suffers from anxiety, which has been a crucial topic of research in psychopharmacology during the past ten years. Anxiety is the most widespread mental ailment [1]. Nails licking, twitching fingertips, heart palpitations, sleeplessness, shyness, bad

NOV 23

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Ms. Viviana Ric... 09:08

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PRINCIPAL
The Oxford College Of Pharmacy
No 59, 1st Cross, Bargur Road, Hongasandra
Bangalore - 560 068

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PRINCIPAL
The Oxford College Of Pharmacy
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Bangalore - 560 068

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A REVIEW ON ANIMAL MODELS RELATED TO DEPRESSION

SRIVASTAVA N*, SINGH S, MONISHA S, MUTHUKUMAR A AND PAARAKH PM

Department of Pharmacology, The Oxford College of Pharmacy, Bengaluru, Karnataka, India

*Corresponding Author: Dr. Noopur Srivastava: E Mail: srivastava.n25@gmail.com

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ABSTRACT

The enormous health burden associated with depression is a result of both, the high prevalence of depressive disease and the inadequate efficacy of currently available pharmacological therapies. It is impossible to reproduce depression in animal models because there is a lack of a fundamental grasp of the underlying illness mechanisms in this condition. The current models of depression aim to create in experimental animals measurable correlates of human symptoms. The extent to which the models generate characteristics like a depressive state varies, and models that take stress exposure into account are frequently used. Learned helplessness, the forced swim test and tail suspension test are paradigms that use acute or sub-chronic stress exposure paradigms. Modern models are either based on modifying the environment to which rodents are exposed (during development or adulthood) or on genetic components (e.g., gene deletion or overexpression of candidate genes, targeted lesions of specific brain regions, electrophysiological control of specific neuronal populations, etc.). These modifications can change behavioral and biological results that are connected to various main depressive symptomatic and pathophysiological features. These techniques use brief exposure to unavoidable or uncontrollable stress and can accurately detect an antidepressant drug response. Long-term models, which may more precisely reflect the processes that result in depression, include chronic mild stress models, early-life stress models, and social conflict models.

Keywords: Depression, Antidepressant, Animal models, Validity

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Compounds Having the Radio Sensitization Effect on Cancer Cells

Pradeepaprasad[1], Jyotishrivastava[2], Arroju Hrithik[3], Harsha. R[4], Hemanth Kumar.P[5], Madhanprasad. M[6]

[1]Professor, Department of Pharmaceutical Chemistry, The Oxford College of pharmacy, Bengaluru, India
[2]Head of the Department, The Oxford College of pharmacy, Bengaluru, India
[3,4,5,6]Student, The Oxford College of pharmacy, Bengaluru, India

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ABSTRACT

Radiosensitization, often known as RT or XRT, is a popular cancer therapy strategy. It is based on radio-sensitizing substances that only target cancer cells, slowing the proliferation of aberrant cells and preventing the formation of new ones. This therapy is crucial because it protects healthy tissues while damaging the DNA of cancer cells, effectively eradicating them from the body.The subject of our review paper is a variety of radiodensity compounds that demonstrate radiosensitivity against distinct cancer kinds. These substances provide prospective ways to enhance the inhibition of cancer cell proliferation, perhaps raising the effectiveness of cancer treatments. Radio sensitization, often known as RT or XRT, is a popular cancer therapy strategy. It is based on radio-sensitizing substances that only target cancer cells, slowing the proliferation of aberrant cells and preventing the formation of new ones. This therapy is crucial because it protects healthy tissues while damaging the DNA of cancer cells, effectively eradicating them from the body.The subject of our review paper is a variety of radiodensity compounds that demonstrate radiosensitivity against distinct cancer kinds. These substances provide prospective ways to enhance the inhibition of cancer cell proliferation, perhaps raising the effectiveness of cancer treatments.

Keywords: Cell oxidization, Radio sensitization, Reactive oxygen species (ROS), Radiotherapy.

INTRODUCTION

Cancer is the most life-threatening condition caused by various type of processed food, radiations, pollution etc. The main treatments available are radiotherapy, chemotherapy, surgeryand the most effective treatment is IR.

The longtime exposure to IR may cause resistance to the cancer cells to induces resistance radiodensity compounds are introduces in IR treatment [8]. The radio therapy has the main problem in the IR radiation will kill cancer cells and noncancer cells and it is time taking process so IR radiation will provide with radiosensitization compounds these compounds will weak the cell to the radiosensitization by oxidization process and radiosensitizing [5].

Compounds are highly reactive and toxic in nature, most of the compounds will break the double strand of the DNA and inhibit the proliferation of cells [5,6].

These compounds will be administered through oral in rare conditions and it is administered through the direct implantation of the tumor and it will allowand release the drug in controlled manner. Some drugs have different mechanism like they will increase the ROS levels which is produced in mitochondria will be released in to the cytoplasm of the cell.[9,10].

One of the major considerations in radiotherapy is exposure of tumor to hypoxia condition it shows limitation to radiotherapy they show more resistance to radiation when compared to normal oxygen microenvironmentenhancement ratio will refer the therapeutic effect in presence of oxygen [15].

Therefore pancreatic cancer is the major problem which is diagnostic which is demonstrated by inhibition of ChK1 sensitizes, The pancreatic cancer it also found the inhibition of HRR, G2 receptors which will cause the radiosensitisestion effect it also causes the DNA Damages Which gives the selective sensitization of tumors [15]

P. Padwa
PRINCIPAL
The Oxford College Of Pharmacy
No 619, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

10).

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Neuroprotective potential of *Cordia dichotoma* in Parkinson's syndrome induced by haloperidol: An animal study

Keserla Bhavani [a], A. Muthukumar [a,*], Mansour Almuqbil [b], Kuntal Das [c], V. Yakshitha [a], Moneer E. Almadani [d], Ahmed Alshehri [e], Adel Alghamdi [f], Syed Arif Hussain [g], Bader Hussain Alamer [h], Ebtesam Abdulrahman Jibreel [i], Syed Imam Rabbani [j], Turki Mohammed Alosaimi [k], Waleed Farah Alharbi [l], Sultan Mohammed Aldosari [k], Syed Mohammed Basheeruddin Asdaq [m].

[a] Department of Pharmacology, The Oxford College of Pharmacy, Bengaluru, Karnataka 560068, India
[b] Department of Clinical Pharmacy, College of Pharmacy, King Saud University, Riyadh 11451, Saudi Arabia
[c] Research Director, Dept of Pharmacognosy, Mallige College of Pharmacy, #71, Silvepura, Chikkabanavara Post, Bangalore 560090, India
[d] Department of Clinical Medicine, College of Medicine, AlMaarefa University, Dariyah, 13713 Riyadh, Saudi Arabia
[e] Department of Pharmacology, College of Clinical Pharmacy, Imam Abdulrahman Bin Faisal University, King Faisal Road, Dammam 31441, Saudi Arabia
[f] Department of Pharmaceutical Chemistry, Faculty of Clinical Pharmacy, Al Baha University, P.O. Box 1988, Al Baha, Saudi Arabia
[g] Respiratory Care Department, College of Applied Sciences, AlMaarefa University, Dariyah, 13713 Riyadh, Saudi Arabia
[h] Department of Emergency Medical Services, College of Applied Sciences, AlMaarefa University, Riyadh, Saudi Arabia
[i] Department of Nursing, College of Applied Sciences, AlMaarefa University, Riyadh, Saudi Arabia
[j] Department of Pharmacology and Toxicology, College of Pharmacy, Qassim University, Buraydah 51452, Saudi Arabia
[k] Department of Pharmacy, King Abdulaziz Medical City, Ministry of National Guard, Riyadh, Saudi Arabia
[l] Department of Pharmacy Practice, College of Pharmacy, AlMaarefa University, Ad Diriyah 13713, Saudi Arabia

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ABSTRACT

Background: Parkinson's disease (PD) is one of the major neurodegenerative disorders and the prevalence is expected to increase during the next couple of decades. There is a need for safe and effective therapeutic regimen that can effectively manage this neurotoxicity. The leaves and several other parts of *Cordia dichotoma* are known to possess number of medicinal properties. The purpose of this study was to examine the neuroprotective role of *Cordia dichotoma* in an experimental model of haloperidol-induced PD.

Materials and methods: Five groups of rats were randomly assigned into different groups. Intraperitoneal haloperidol 1 mg/kg was given to the inducer group and 0.5% CMC to the normal control. The reference standard was syndopa 10 mg/kg, p.o., and the test group animals received *C. dichotoma's* ethanolic extract at 200 and 400 mg/kg orally for one week. Rats exposed to haloperidol were assessed for behavioral, neurochemical, and histopathological parameters.

Results: *C. dichotoma* leaves extract dose dependently increased behavioral activity and muscle coordination. The extract at 400 mg/kg was found to increase significantly ($P < 0.001$) the central square activity in open-field test, compared to haloperidol treated rats. In stepping test, both tested doses of *C. dichotoma* (200 mg and 400 mg/kg) were found to significantly ($P < 0.001$) reduce akinesia, besides these doses also decreased the catatonic responses induced by haloperidol. Further, the extraction treatment (200 mg and 400 mg/kg) significantly ($P < 0.001$) decreased malonaldehyde and increased antioxidant enzymes like catalase compared to the control group. Histopathological changes in the test group showed a significant reduction in haloperidol damage to normal morphology in cortical, hippocampus, substantia nigra, and pyramidal.

Conclusion: The observations of the study suggest that *Cordia dichotoma* attenuated the haloperidol-induced neurological changes, indicating that the plant might benefit in the treatment of Parkinson's disease. The activity of *Cordia dichotoma* could be linked to its antioxidant property. Since, the drug is traditionally used in different parts of world; it could be a promising agent if more research establishes its safety and efficacy in other experimental models of Parkinson's Disease.

Peer review under responsibility of King Saud University.

* Corresponding author at: Department of Pharmacy Practice, College of Pharmacy, AlMaarefa University, Dariyah, 13713 Riyadh, Saudi Arabia.
** Department of Pharmacology, The Oxford College of Pharmacy, Bengaluru, Karnataka 560068, India
E-mail addresses: [illegible] (A. Muthukumar), [illegible] (M. Almuqbil), dkkdasl@gmail.com (K. Das), [illegible] (M.E. Almadani), [illegible] (A. Alshehri), [illegible] (A. Alghamdi), pulsarit@gmail.com (S.A. Hussain), [illegible] (B.H. Alamer), [illegible] (E. Abdulrahman Jibreel), [illegible] (S.I. Rabbani), Alosaimitu@ngha.med.sa (T.M. Alosaimi), [illegible] (W.F. Alharbi), [illegible] (S.M. Aldosari), [illegible], smadaq@mmu.edu.sa (S.M. Basheeruddin Asdaq).

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CHARACTERISTICS OF DOPAMINE IN MORTAL BODY

Manoj kumar M*, Silambarasan M, Vishal A, Vishnupriya S
Department of Pharmaceutical Chemistry
The oxford college of pharmacy, Bangalore, India.

Corresponding Author*
Manoj kumar M
The oxford college of pharmacy-Bangalore

I. ABSTRACT

Dopamine is a synapse that is created in the substantia nigra, ventral tegmental region, and nerve center of the mind. Brokenness of the dopamine framework has been ensnared in various sensory system sicknesses. The degree of dopamine transmission expansions because of a prize and by countless unequivocally added substance drugs. The job of dopamine brokenness as a result of oxidative pressure is engaged with wellbeing and sickness. Present new possible focuses for the improvement of helpful intercessions in view of mortal body. The current audit centers around the remedial capability of dopamine in human body and the variable that is been setting off the dopamine levels.

Index terms: Dopamine action, Factors affecting, drugs

II. INTRODUCTION

Dopamine is a type of neurotransmitter in nerous system. It is also a hormone. Which is the mainly mad in your brain[hypothalamus]. It plays a role as a 'reward center' and in many body function, including memory, movement ,motivation, mood, attention and more.

High [or] low levels of dopamine leads to diseases such as Parkinson's disease, restless legs syndrome and attention deficit hyperactivity disorder[ADHD].

Dopamine plays multiple functions in the brain. Dopamine was first identified with reward function from anatomical and pharmacological evidence. The dopamine had earlier been identified as an intermediary in the synthesis of nor adrenaline and adrenaline from tyrosine. It also act as chemical messenger communicating messages between nerve cells in your brain and the rest of human body. As in the brain the hypothalamus will be releasing the dopamine.

P. Padma

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PRINCIPAL
The Oxford College of Pharmacy
Bangalore - 560 068

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Revolutionizing the Pharmaceutical Industry with Artificial Intelligence

Krishnagiri Krishnababu[1*], Gururaj S Kulkarni[2], Yogaraj R[3], Padmaa M Paarakh[4]

[1,2,3]Department of Pharmaceutics, the Oxford College of Pharmacy, Bangalore. India.*
[4]Department of Pharmacognosy, the Oxford College of Pharmacy, Bangalore. India.

Corresponding Email: [1]k.krishnababu2020@gmail.com*

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Abstract: ***The pharmaceutical industry is one of the most important industries in the world. It provides essential medicines and treatments that help people live longer and healthier lives. The industry is also one of the most regulated and complex, with drugs taking years to develop and billions of dollars in investment. However, the emergence of artificial intelligence (AI) is transforming the way drugs are developed, tested, and brought to market. AI has the potential to revolutionize the pharmaceutical industry by accelerating drug discovery, reducing costs, and improving patient outcomes. In this article, we will explore the ways in which AI is transforming the pharmaceutical industry and how it is changing the way drugs are developed and delivered to patients. AI simplifies labour by analyzing, filtering, sorting, forecasting, scoping, and recognizing massive data volumes to follow the best implementation techniques for coming up with the optimum solution. Artificial intelligence has the potential to lower prices and provide new, effective medicines, but most significantly, it has the potential to save lives. It can be successfully applied to develop a robust, long-lasting pipeline of new medications. We would be able to produce medicines more quickly and affordably by utilizing the power of current technology.***

Keywords: ***Artificial Intelligence, Technology and Tools, Trends in Pharma, Drug Development, AI in Pharma.***

1. INTRODUCTION

A significant change must be made to the current drug discovery process and technologies in the pharma field. AI imitates human behaviour in terms of the thought processes involved in problem-solving. The pharmaceutical business has a genuine opportunity to change how it does research and development (R&D), making it more effective and dramatically raising the success of early drug development with the use of artificial intelligence (AI) and machine

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learning. Big pharma is using artificial intelligence to help with the research and development of new drugs to treat diseases that are challenging to treat. using AI to analyze clinical data more effectively and understand it; speeding up the selection of reliable trial participants; and using robotic automated pharmacies to dispense medication, fill prescriptions, and oversee supply chains, logistics, and marketing.

Reading, observation, planning, interpretation, reasoning, correction, voice recognition, linguistics, and other approaches are among the strategies used in these procedures, which are drawn from the study of human cognition. By training machines from past experiences, relating actions and effort to results, finding and correcting errors, adapting to new and irregular input values, and doing human-like tasks with ease through careful scenario analysis, artificial intelligence (AI) streamlines employment. Artificial intelligence achieves this by employing Natural Language Processing to convert spoken language from humans into a language that computers can comprehend. Deep learning is also a requirement for AI to finish this assignment. By analyzing huge quantities of data and identifying new or recurring patterns in the data, AI trains computers to carry out certain tasks with the least amount of human participation. [1]

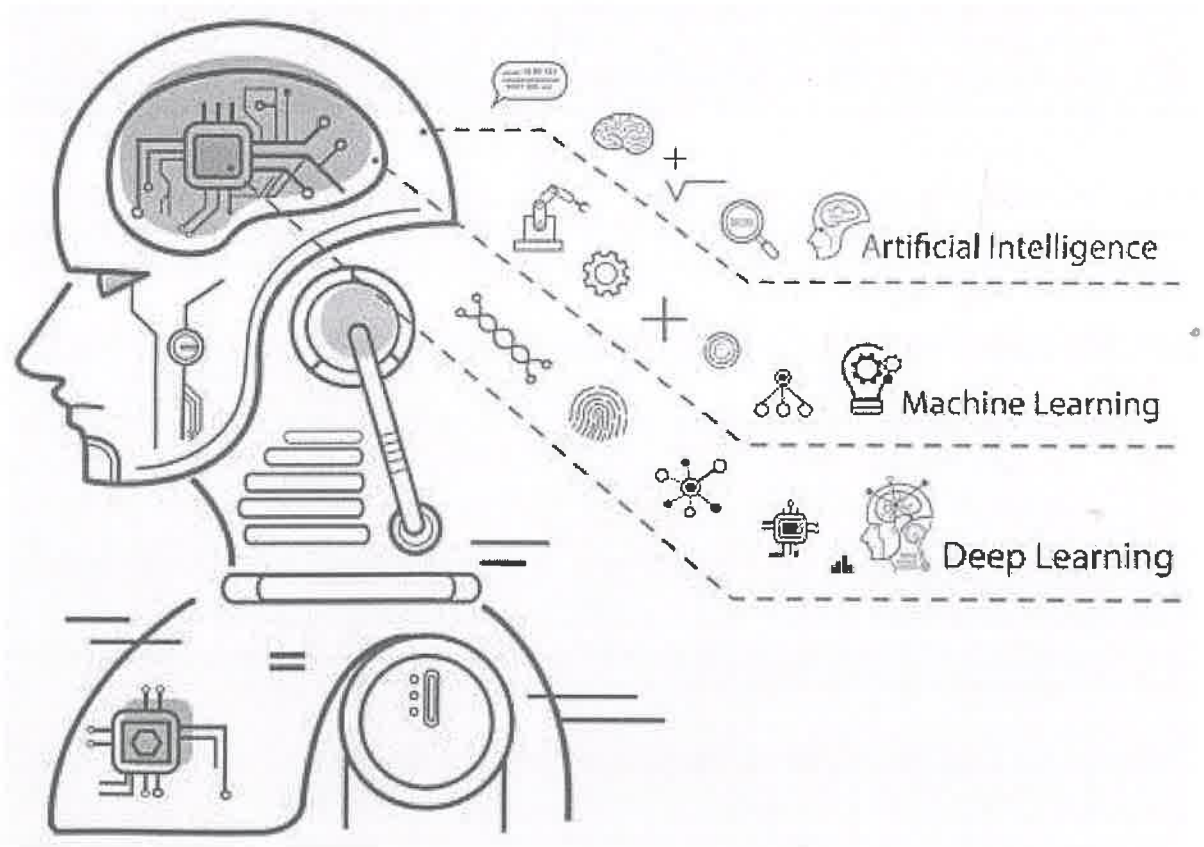

Figure No. 2: Development of AI

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Morinda Citrifolia L. (Noni)-A Review on Its Health Benefits, Phytochemistry and Its Recent Researches

Jyothi shrivastava[1], Pradeepa Prasad[1*], Aditya J[2], Aparna O M[3], Sreelakshmi sukumaran[4], Swetha G[5]

[1]Professor, Department of Pharmaceutical chemistry, The Oxford College of Pharmacy
[1*]Assistant Professor, Department of Pharmaceutical chemistry, The Oxford College of Pharmacy
[2,3,4,5]Student, Department of Pharmaceutical chemistry, The Oxford College of Pharmacy

Abstract

Morinda citrifolia, a fruit commonly known as "Noni", has been habitually used in parts of East Asia to relieve many diseases. Noni juice is a globally popular health beverage originating in the tropics. Traditional healers believe the noni plant to be useful for a wide range of health issues and noni juice consumers throughout the world have similar perceptions. Product derived from the fruit *Morinda citrifolia* (Noni) have been commercialized in USA since 1990's and are increasing distributed all over the world. In European countries fruit juice of noni has been approved as novel food by European commission in, 2003. Noni has tradionally used to relieve inflammatory disease, Fermented noni has effect on atopic dermatis(AD) to study the improving effect of fermented noni treatment on atopic dermatitis like skin lesions and elucidate molecular mechanism. It is most effective against colon and rectal cancer. Morindone and damnacanthal have significant cytotoxicity effect and selectivity and activity against colorectal cancer cell lines has also been identified. The aim of this review study is to identify more such health benefits and chemical compounds or phytochemicals in recent researches.

Keywords: fermented citrifolia, noni, Morindone, colorectal cancer, anthraquinone compounds

Introduction :

Noni(*Morinda citrifolia* L) is a fruit bearing tree in coffee family, Rubiaceae. Noni juice became a popular health supplement. It is a small to medium size tree (3-10m height) with pantropical distribution[1]. Noni fruit and leaves have a history of food used among pacific island as well as in Southern and southeast Asia. In recent times the fruit has been used to produce dietary supplement.

Product derived from fruit and leaves are being sold as capsules, tea and juice, the fruit juice being the predominant form. Juice can be pasteurized or obtained by fermentation process.In USA the noni product attributed claims of "cure all" for a variety of diseases

An active 'alkaloid' named "Xeronine" is present and is derived from Proxeronine found in noni. It has a wide range of potential indications for noni juice, like hypertension, menstrual cramp, gastric ulcer, sprains, atherosclerosis, blood vessel disorders, relief of pain.

P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 619, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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Boswellia Serrata Biologically Active Compounds and It's Activities

[1]Pradeepa Prasad*,[2]Jyoti Shrivastava,[3]Bala Krishnan S,[4]Gowdham T,[5]Naveen Kumar C, [6]Pavithran V

[1]Assistant Professor, [2]Head of the department, [3]Student ,[4]Student,[5]Student,[6]Student

Department of Pharmaceutical Chemistry

The Oxford College Of Pharmacy, Bangalore, India.

I.ABSTRACT

In recent days plant extracts are used in treating disease as it shows good activity against the diseases and they shows reduced ADR when administered. In this review we are discussing about the extract of plant Boswellia serrata belonging to the family of BURSERACEA. The major compound extracted from the oleoresin gum of *Boswellia serrata* is boswellic acid, which shows many biological activities. The plant resin from the bark is called as Salai Guggul, Indian Olinanum and Indian frankincense etc. It deals with many biological activities like Anti inflammatory,Anti Cancer, Hyperlipidaemic, Hypoglycaemic ,Anti Asthmatic and Anti fungal activities.

INDEX TERMS: *Boswellia serrata*, Boswellic acid.

II.INTRODUCTION

The Boswellia genus , which includes *Boswellia serrata* and Boswellia sacra ,has been used in traditional medicine for centuries and is commonly grow in Oman, Yemen and Saudi Arabia as well as in some parts of India and Africa .The Oleo-gum-resin from the bark of *Boswellia serrata* tree known as salia guggul or Indian Frankincense is used in Ayurveda to treat various inflammatory disease including asthma and bronchitis .The resin contains Boswellic acid a pentacyclic triterpenes acid that has been shown to have Anti inflammatory effects and may be useful in managing chronic inflammatory disease such as ulcerative colitis and rheumatoid arthritis. It is observed that *Boswellia serrata* shows more than 45% of anti inflammatory activity[1,2].Chronic inflammation will cause severe health issues such as cardiovascular disease, neurodegeverative disorder, cancer and diabetes, but research has shown that certain dietary poly phenols such as those found in olive, green tea and turmeric have anti inflammatory properties and many reduce the risk of these disease . The plant LIBRA[Levels of Intake, Benefits and Risk Assessment, Conducted by European commission] project aims to evaluate the health benefits and risk of plant food supplements, including those with anti-inflammatory properties, and promotes science based decision making in the regulation of these supplements [3].Nile tilapia is a popularly cultured species in many tropical countries, and the use of *Boswellia Serrata* resin extract as a feed additives could potentially improve its growth performance ,immune response, disease resistance and anti oxidant status according to a new study [4].Recent findings suggest that inhibition of inflammatory pathway constitutes a new therapeutic strategy for Osteoarthritis which is a most common type arthritis in adults and characterised by excessive degradation of the extracellular matrix leading to pain in the affected joints. This loss pf aggrecan, an increase in matrix metalloproteinases and the involvement of inflammatory component induced symptoms are closely associated with OA(osteoarthritis) MMP's(matrix metalloproteinases) are endogenous proteolytic enzymes induced by proinflammatory .Cytokines ,which can contribute to the pathogenesis of several condition including arthritis ,tumour invasion and metastasis ,suppression of proinflammatory cytokines and MMP's(matrix metalloproteinases) therefore may be valid approach to OA(osteoarthritis) treatment[5]. *Boswellia serrata* ,commonly known as Sallai or frankincense is a highly effective herbal drug extracted from the oleogum resin of Boswellia trees .This extract rich in boswellic acid and pentacyclic triterpene ,has been found to be effective in

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Industry 4.0 for Pharmaceutical Manufacturing; Smart Factories for Future

Rakesh Babu SN[1*], Surinder Kaur[2], Krishnagiri Krishnababu[3], Yogaraj R[4], Padmaa M Paarakh[5]

[1,2,3,4]Department of pharmaceutics, The Oxford College of Pharmacy, Karnataka, India*
[5]Principal, Department of Pharmacognosy, the Oxford College of Pharmacy, Karnataka, India

Email: [2]pharmacysk77@gmail.com, [3]k. krishnababu2020@gmail.com, [4]yogarajr1999@gmail.com, [5]padmaampaarakh@gmail.com
Corresponding Email: [1]baburakesh286@gmail.com*

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Abstract: ***The use of cutting-edge technology like artificial intelligence, machine learning, the Internet of Things (IoT), and big data analytics in manufacturing processes is referred to as industry 4.0, also referred to as the fourth industrial revolution. Industry 4.0 has the potential to completely transform medication research, production, and supply chain activities in the pharmaceutical sector, resulting in more productivity, reduced prices, and better quality. Real-time monitoring of manufacturing processes and supply chain operations is made possible by the implementation of Industry 4.0 technologies in the pharmaceutical manufacturing industry. This can help identify potential problems and enhance decision-making. IoT devices can be used to monitor and improve equipment performance and anticipate maintenance requirements, resulting in less downtime and more productivity. Large data sets can be examined by advanced analytics and machine learning algorithms to spot patterns and abnormalities. Advanced analytics and machine learning algorithms can also scan huge data sets to find trends and abnormalities, making it possible to discover quality problems more quickly and to comply with regulations. Faster medication development, more effective manufacturing techniques, and ultimately improved patient outcomes can result from this.***

Keywords: Data Security, Internet of Things, Small Factories, Supply Chain Management.

1. INTRODUCTION

Brief overview of Industry 4.0 and its application in the pharmaceutical industry

The Fourth Industrial Revolution, or Industry 4.0, is the integration of cutting-edge technologies into manufacturing processes to create intelligent factories. Examples of these

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technologies include the Internet of Things (IoT), artificial intelligence (AI), and big data analytics. Industry 4.0 aims to increase production, lower costs, and increase efficiency by giving machines the ability to connect with people and other machines in real-time.
Industry 4.0 is changing how medicines are produced, distributed, and consumed in the pharmaceutical sector. Pharmaceutical businesses are using cutting-edge technologies to improve product quality, decrease waste, and expedite production processes. Pharmaceutical businesses are now able to create customised medications that are catered to the unique needs of patients thanks to Industry 4.0.

Among the specific uses of Industry 4.0 in the pharmaceutical sector are:

1. Smart Manufacturing: The real-time monitoring and optimization of manufacturing processes using IoT sensors and big data analytics to increase productivity and decrease waste.
2. Quality Control: The process of using AI and machine learning to find and fix minor flaws in products before they turn into major issues, enhancing product quality and lowering the likelihood of product recalls.
3. Personalized medicine: The analysis of patient data using big data analytics to create treatments that are unique to each patient.
4. Supply Chain Management: Tracking drug distribution through the supply chain with IoT sensors and blockchain technology increases transparency and lowers the risk of fake goods.

Small factories must implement Industry 4.0 to be competitive.

- Larger corporations with the means to invest in cutting-edge technologies and automation compete fiercely with smaller facilities in the pharmaceutical sector. Small factories must implement Industry 4.0 and utilise its advantages if they want to stay competitive.
- A major advantage of Industry 4.0 is increased production and efficiency. Small manufacturers may automate repetitive jobs, improve production processes, and cut waste by incorporating cutting-edge technology like IoT, AI, and robotics into manufacturing processes. Higher productivity, a shorter time to market, and cheaper costs result from this.
- Small factories can improve quality assurance and product quality with the help of Industry 4.0. Small manufacturers can detect and address quality problems in real-time using AI and machine learning, lowering the likelihood of recalls and raising customer satisfaction. Due to the high costs associated with fixing product flaws and recalls, this may also result in cost savings.
- Improved safety and security is another advantage of Industry 4.0. Small factories can increase safety by decreasing the likelihood of accidents and injuries by utilising sophisticated sensors and automation. By keeping an eye on production procedures and making sure that pharmaceuticals are not being repackaged or diverted, they can also improve security.
- In general, for small manufacturers in the pharmaceutical business to remain competitive, Industry 4.0 adoption is crucial. They may streamline their production procedures, cut expenses, raise product quality, and increase security and safety. Small factories can grow

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A Brief Introduction on Oro Dispersible Tablets

Yogaraj R[1]*, Surinder Kaur[2], Padmaa M Paarakh[3]

[1,2]Department of Pharmaceutics, The Oxford College of Pharmacy, Bengaluru, India.*
[3]Department of Pharmacognosy, The Oxford College of Pharmacy, Bengaluru, India.

Corresponding Email: [1]yogarajr1999@gmail.com*

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Abstract: ***Oro dispersible tablets (ODTs), which have improved solubility and stability over the past three decades, have drawn a lot of interest as a superior alternative to traditional tablets and capsules. ODTs—solid dosage forms with medications that dissolve on the tongue fast, usually in a few seconds. New ODT technologies answer a wide range of pharmaceutical preparations and patient needs, to enhance the lifecycle management to straightforward dosage regimen for dysphagic, children, old, and mentally imbalanced patients. Methods for administering orally dispersible drugs are frequently used to improve patient compliance and bioavailability. Researchers in academia and business have been motivated by this to create novel technologies and orally disintegrating formulations in this field. This article's main objective was to cover the development of ODTs, formulation concerns, novel oral dispersible technology, different types of methodology to evaluate, the selection of drug candidates, and novel possibilities in future.***

Keywords: ***Super Disintegrants, Oro Dispersible Technology, Bioavailability, Oro Dispersible Tablets, Oro Dispersible Technologies.***

1. INTRODUCTION

The tablets are the most popular solid dosage form, which is ideal for taking medicine without any trained person or self. compact, accurate in dosage, and simple to produce. As a result, several efforts have been undertaken to create chemicals that are most effective in solid dosage forms and deliver reliable and effective plasma concentrations following delivery. The biggest issue with oral dosage forms is swallowing problems, particularly for young patients and older patients who are bedridden and experiencing nausea or mental illnesses. A solid dose form that may swiftly dissolve even when taken orally without water has been created in order to address this issue and enhance the patient's intake and compliance.

A relatively new dosage form technology is the rapidly disintegrating oral dosage form (tablet or film), which swiftly disperses in the oral cavity in absence of water. The dosage form starts to break down as soon as it comes into contact with saliva, and full breakdown

P Padma
PRINCIPAL
The Oxford College Of Pharma
No 619, 1st Cross, Begur Road, Hongasan
Bangalore - 560 068

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normally happens 30 to 50 seconds after administration. The active ingredient is absorbed by the gastrointestinal tract's epithelium after the solution containing it enters the body, serving the intended function and having the desired effect. The clinical effect is more pronounced the faster the medicine dissolves and is absorbed.

Oro dispersible tablets are "unit solid dosage form containing a therapeutic agent, which typically disintegrates immediately and with in less than few seconds on contact with the tongue," according to the U.S. FDA. ODT typically disintegrates within a few seconds or a minute. The medication is absorbed through the mouth, pharynx, and oesophagus when saliva enters the stomach. A portion of the drug's pre gastric absorption may stop the metabolism of gastric acid. When compared to conventional tablet dose forms, the drug's bioavailability in this instance is noticeably higher. The term "Oro dispersible tablet" was recently coined by the European Pharmacopoeia to describe pills that dissolve easily in the mouth before being swallowed.

The terms mouth-dissolving tablets, rapid disintegrating tablets, and quick dissolving tablets are all used to describe oral disintegrating tablets. These dosage forms have been assigned an ODT by the United States Pharmacopeia (USP) for each of the aforementioned conditions.

Advantages of ODTs

ODT are ideal for patients who cannot swallow tablets or capsules, such as the old patients and also people who have had strokes, people who are bedridden, geriatric patients, and patients who are in psychiatric facilities, enhancing patient compliance.

1. Cost effective.
2. Rapid drug therapy intervention.
3. It includes research that showed enhanced bioavailability and shown quick drug absorption through stomach absorption of drugs from the mouth, throat, and oesophagus as saliva starts flow down.
4. Therefore, ODT is more ideal for passengers and people who sometimes do not have easy access to water.
5. No need to chew.
6. ODT has a pleasant mouthfeel, which alters how people view medications.
7. Allows rapid administration.
8. The risk of suffocation caused by the oral conventional preparations due to disability in the movement is avoided, thereby improving patient compliance.
9. Quick onset of action.
10. Suitable for motion sickness (motion sickness), sudden allergic attacks or coughs that require quick onset.

Disadvantages

1.ODTs requires proper packaging for safety and stabilization of drugs.
2.ODTs are hygroscopic in nature, so must kept in dry place.
3.ODTs shows the fragile, effervescence granules property.
4.ODTs if not formulated properly, it will leave unpleasant taste in mouth.

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Microspheres in Pharmaceutical Science

Yogaraj R[1], Gururaj S Kulkarni[2]*, Krishnagiri Krishnababu[3], Padma M Paarakh[4]

[1,2,3]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, India*
[4]Department of Pharmacognosy, the Oxford College of Pharmacy, Bangalore, India

Corresponding Email: [2]k.krishnababu2020@gmail.com*

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Abstract: ***Microcapsules are multi-particulate drug-delivery systems that can be configured to accomplish extended or controlled drug delivery to improve bioavailability, balance, and to target the medication to a specific webpage online at a set rate. They are made of polymers that are natural, semi-natural, and artificial, as well as polymeric wax or other shielding substances. Usually made of free-flowing powders with protein or synthetic polymer particles, microspheres have sizes between 1 to 1000 micrometer. The range of microsphere training approaches offers multiple ways to manipulate them as drug management components and to enhance the therapeutic potency of a particular medicine. In comparison to normal dose forms, these transport structures offer various advantages, including increased efficacy and decreased toxicity. Stepped forward affected person compliance and convenience.***

Keywords: ***Microcapsules, Microspheres, Types of Microspheres, Methods and Preparation of Microcapsules Etc.***

1. INTRODUCTION

Oral instructions the greatest effective method of taking pharmaceuticals is through a long shot drug management. However, the ability of many medications to repair is constrained by their rapid circulation in half of lifestyles and limited absorption via a specified segment of stomach. Such a pharmacokinetic barrier frequently results in a common dosage of medication to provide a therapeutic effect. A controlled and site-specific medication launch is a rational strategy to enhance bioavailability and the pharmacokinetic and pharmacodynamic characteristics. Microspheres are tiny, round debris with dimensions ranging from 1 m to 1 000 m. They are globular, freely flowing detritus made up of proteins or synthetic polymers that may naturally degrade. Microspheres come in two different varieties: micromatrices and microcapsules, each of which is described as: The chemical that is imprisoned is largely enclosed by an outstanding tablet wall in microcapsules. and micromatrices, in which the imprisoned substance is dispersed throughout the matrix. Microparticles is another name for microspheres. A range of synthetic and natural materials can be used to synthesise microspheres. They are crucial for

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boosting the bioavailability of traditional drugs and minimising unwanted effects. features that make microspheres ideal. (sree giri prasad et al., 2014)

1) The capacity to hold relatively high drug concentrations.
2) Stability of the teaching upon synthesis with a shelf life that can be used in therapeutic settings.
3) Aqueous motors for injection with controlled particle length and dispersibility.
4) A fantastically controlled, lengthy release of a live reagent.
5) Biodegradability is regulated and there is biocompatibility.
6) The ability to be altered chemically.

Bio adhesive microspheres:

The process of adhesion is how a drug sticks to a membrane using the adhesive qualities of water-soluble polymers. The attachment of a medication delivery device to a mucosal membrane, such as the nasal, buccal, ocular, or rectal, is known as bio adhesion. These microspheres stay on the application site for a longer amount of time, resulting in close contact with the absorption site and accelerating the healing process. (Mohan et al., 2014)

Magnetic microspheres:

This kind of transport mechanism may be very important in locating the medicine at the site of the problem. In this circumstance, a significant amount of freely circulating medication can be changed with a modest amount of medication that is magnetically targeted. (Mukherjee et al., 2012) Magnetic vendors receive magnetic reactions to a magnetic discipline from materials like chitosan, dextran, and other substances that could be used to create magnetic microspheres. The various types of

a. Chemotherapeutic agents are delivered to liver tumours using therapeutic magnetic microspheres. Drugs like proteins and peptides can also be focused with these agents.
b. Diagnostic microspheres By producing nano-sized garbage that is supra-magnetically oxidised, diagnostic microspheres that are used to imaging liver metastases can also be utilised to identify bowel loops from other gastrointestinal systems.(Batra et al., 2012)

Floating microspheres:

By having a predominant density that is much lower than that of the gastric fluid, they remain buoyant in the stomach without reducing the rate at which the stomach empties. Drug introduction is done gradually and at the desired rate, and it is determined that the machine will increase stomach space, float on gastric content, and cause a greater variation in plasma concentration. Additionally, it lessens the likelihood of dosage dumping. It has a longer-lasting healing effect, which lowers dose frequencies. (Najmuddin et al., 2010) The medication (ketoprofen) is administered inside floating microspheres.

Radioactivemicrospheres:

Microspheres used in radioembolization therapy are tapped into the first capillary mattress as soon as they arrive. These microspheres have a diameter between 10 and 30 nm and are larger than capillaries. Since they are injected inside the arteries that lead to the tumour of interest, radioactive microspheres typically give a substantial radiation dose to the focused regions

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Veterinary Dosage Forms

Rakesh Babu S.N.[1], Gururaj S Kulkarni[2]*, Yuktha HJ[3], Padma M Paarakh[4]

[1]Student, Department of Pharmaceutics, The Oxford College of Pharmacy Banglore Karnataka, India
*[2]*Professor and HOD, Department of Pharmaceutics, The Oxford College of Pharmacy Banglore Karnataka, India*
[3]Student, Department of Pharmaceutics, The Oxford College of Pharmacy Banglore Karnataka, India
[4]Principal Department of Pharmacognosy, The Oxford College of Pharmacy Banglore Karnataka India

Email: [1]baburakesh286@gmail.com, [3]yukthajagadish07508@gmail.com
*Corresponding Email: [2]*oxfordceutics@gmail.com*

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***Abstract:** In the field of science known as veterinary medicine, non-human animals such as cattle, working animals, and domestic animals are treated using medical, surgical, public health, dental, diagnostic, and therapeutic concepts. The development of veterinary dosage forms holds promise for the future of biotechnology, medication therapy, and diagnostics. Brief explanations of the classification of animals, the requirement for veterinary dosage forms, the flavorings used in animals, the various routes of administration, and the dosage form in animals are the main points of this overview. A brief discussion has been had on stability studies and control agencies from various nations that concentrate on the legal requirements for veterinary pharmaceuticals.*

***Keywords:** Veterinary, Bolus, Feed Additives, Drenches, Tubing Product.*

1. INTRODUCTION

Pharmaceutical preparations known as veterinary dosage forms are meant for use or topical application to one or more domestic animal species as well as other species of veterinary interest. Some veterinary preparations contain medications that are not frequently used in people, despite the fact that most veterinary dosage forms contain the same medication as human dosage forms. . When compared to human pharmacology, veterinary pharmacology is more diverse in terms of species and places a greater emphasis on particular medication classes. Certain dose formulations can be used on both humans and specific animal species.

P. Padma
PRINCIPAL
The Oxford College of Pharmacy
No 32, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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Veterinary Dosage Forms

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Special Article: Pharmacognosy

Neem: An Overview

M Padma Paarakh*

Department of Pharmacognosy, The Oxford College of Pharmacy, Bengaluru 560 068, Karnataka, India

***Corresponding author: M Padma Paarakh**

Department of Pharmacognosy, The Oxford College of Pharmacy,

6/9, I Main, Begur Road, Bengaluru 560 068, Karnataka, India.

Tel: 9880681532

Email: padmaampaarakh@gmail.com

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Abstract

Neem (*Azadirachta indica)* belonging to the Meliaceae family is popular tree. In Traditional System of Medicine, bark, leaf, flower, seed, oil and other parts are used for number of aliments. Number of patents has been filed for neem for pharmacological uses. This review provides a detailed view on Pharmacognosy, phytochemistry and pharmacological activity reported so far.

Keywords: Neem; *Azadirachta indica;* Pharmacognosy; Phytochemistry; Pharmacological activity; Review

Introduction

Azadirachta indica is an adaptable medicinal tree belonging to Meliaceae family. Every part of neem has some beneficial effects on human ailments and hence it has gained worldwide importance. 4000 years existence plant in India is *Azadirachta indica* [1].

A.indica also known as Margosa tree, as *'arista'* or *'nimba'* and 'nimbati *swasthyamdadati* in Sanskrit *meaning 'to give good health'*. The biological benefits of neem are enlisted in *'Charak-Samhita'* and *'Susruta-Samhita',* which forms the basis of Ayurvedic system of treatment. *'Azad- Darakth- E- Hind'* means 'Free tree of India' in Persian. Neem is considered genetic diverse plant. In India, Neem was used for chicken pox and small pox from antiquity. It has been used for environment protection such as soil erosion, soil fertility, insecticide, pesticide etc [2].

Habitat

Although the exact native region of Neem tree is not known, it is thought to be originating naturally in south Asia and it grows in natural forests with drier-climatic condition of southern India and Burma. For many millennia, neem has been cultivated in India, Pakistan, Sri Lanka, Bangladesh, Myanmar, Thailand, Southern Malaysia, and the drier Indonesian islands from Java eastward. Neem was introduced to Fiji and Mauritius during early 19th century [3].

Climate

It is a drought resistant tree and the mean annual temperature ranges from 21 to 32°C for its growth. In India, neem grows at temperatures between 0 to 49°C and annual rainfall of less than 600 mm. The plant is also used in afforestation programmes in arid and semi-arid regions [4].

Propagation and Cultivation

It is a hard tree, grows well in saline soils and drought conditions. Growth is slow in water-logged conditions. Propagated from seeds, which should be sown immediately after ripening, as their viability is very short. Seeds germinate within three weeks time. Root suckers and stem cuttings are also used for planting. It can be grown in all types of soil, but black-loam soil is more suitable. Within one year, the seedlings grow up to a height of 120 cm. Rapid multiplication through leaf culture has been found successful. Tissue culture techniques have been reported for the production of azadirachtin from cultures of leaves and flowers. 20 weeks old callus of leaves is reported to yield maximum concentration of azadirachtin upto 2.68 % and the 12 weeks old flower callus 2.46 % of azadirachtin on dry weight basis [5,6].

Scientific Classification of Neem

Kingdom: Plantae

Division: Magnoliophyte

Class: Magnoliopsida

Order: Sapindales

Family: Meliaceae

Genus: *Azadirachta*

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Understanding Nanoparticles: A Comprehensive Overview of Classification, Types, Characterization, Properties, and Applications

Vikram T[1*], Kavya M[1], Kowsalya V[1], Namitha M[1], Nandisha V[1], Pallavi A[1], Padmaa M Paarakh[2], A Muthukumar[3]

[1]*Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, Karnataka India*

[2]*Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, Karnataka India*

[3]*Department of Pharmacology, The Oxford College of Pharmacy, Bangalore, Karnataka India*

[1]*nandishav2001@gmail.com*

Abstract:

As per ISO standards, nanoparticles are minuscule materials, measuring between 1 and 100nm, and they come in various forms. They are classified as inorganic organic and carbon-based NPs based on their size, shape, and properties. Because of their small size, NPs display enhanced physical and chemical characteristics like a large surface area, heightened reactivity, stability, and sensitivity. Recently, NPs have found extensive use in numerous industrial and environmental applications, making them of paramount significance. This review article mainly focuses on categorization, its properties, characterization, and wide-ranging applications.

Keywords: Nanoparticles (NPs), Johnson-Kendall-Roberts (JKD) theory, Derjaguin-Landau-Verwey–Overbeek (DLVO), and Derjaguin-Muller-Toporov (DMT) theory.

Introduction:

Nano is derived from the Greek word "Nanos," meaning "dwarf." The IUPAC (International Union of Pure and Applied Chemistry) adopted the word "nano" as a prefix in 1947 to refer to 109 [1]. The prefix "Nano" is commonly used to represent small particles and materials in modern science. In the early stages of nanotechnology, people unknowingly used nanosized objects and nanoscale particles [2]. For example, in ancient Egypt, dyeing hair black was typical. It was previously thought that hair dye was created using plant substances like henna. Recent studies on hair samples obtained from ancient Egyptian burial sites have revealed that the shade used to color the hair was made from a mixture of lead oxide, lime, and water. This dye contained galenite (lead sulfide, PbS), a nanomaterial.

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P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 810, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

A New Formulation Approach of Oro-Dispersible Tablet of Bilastine by Incorporating Co-Processed Super-Disintegrants

Yogaraj R[1], Surnider Kaur[2] , Gururaj S Kulkarni[3]*,A Muthu kumar[4] , Padmaa M Paarakh[5], Athmaja Shetty[6] , Rakesh Babu S.N[7]

[1,2,3,6,7] Department of Pharmaceutics, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,

[4] Department of Pharmacology, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,

[5] Department of Pharmacognosy, The Oxford College of Pharmacy, Bengaluru, Karnataka, India.

1 yogarajr1999@gmail.com, 2 pharmacysk77@gmail.com

3 skguru2006@gmail.com, 4 drmkresearch14@gmail.com,

5 padmaampaarakh@gmail.com, 6 athmi99@gmail.com,

7 baburakesh286@gmail.com

Corresponding author

Dr. Gururaj S Kulkarni[3*]

Ph. No: +91 9886564346

E-Mail id: skguru2006@gmail.com

Abstract

The major goal of this study is to prepare an Oro-dispersible tablet of Bilastine, to treat the symptoms of allergic rhinitis and chronic urticaria. It has a high level of selectivity for the H1 histamine receptor. It is under BCS class II medicines and has a 61% oral bioavailability, which limits its absorption dissolution rate. To provide the greatest therapeutic benefit, the bioavailability must be increased. This study uses superdisintegrants to make Bilastine more soluble and dissolve more easily. Nine formulations were produced employing varying quantities of superdisintegrants and co-processed super-disintegrants, such as Crospovidone, sodium starch glycolate, and croscarmellose sodium. Mannitol, microcrystalline cellulose as diluents, magnesium stearate, and talc were the additional excipients utilized. The pre-compression parameters and post-compression parameters were performed and were found within the limit. The drug and excipient compatibility study was carried out by FTIR and DSC and found there was no interactions.

Keywords: *Orodispersible tablets, Bilastine, Co-processed superdisintegrants, Direct compression, Invitro dispersion time.*

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P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No.32, 1st Cross, Bangalore - 560 068

Development and Assessment of Quick Release Mucoadhesive Buccal Tablets of Loratadine Utilizing Beta cyclodextrin Inclusion Complex Technique: A Formulation Study

Rakesh Babu S.N.[1], Surinder Kaur[2], Gururaj S Kulkarni[3*], A Muthu kumar[4], Athmaja Shetty[1], Yogaraj R[1], Padmaa M Paarakh[5]

[1]*Department of Pharmaceutics, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,*
[2]*Department of Pharmaceutics, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,*
[3*] *Department of Pharmaceutics, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,*
[4]*Department of Pharmacology, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,*
[5]*Department of Pharmacognosy, The Oxford College of Pharmacy, Bengaluru, Karnataka, India.*

[1]*haburakesh286@gmail.com*, [2]*pharmacysk77@gmail.com*
[3]*skguru2006@gmail.com*, [4]*drmkresearch14@gmail.com*,
[1]*athmi99@gmail.com*,[1]*yogarajr1999@gmail.com*,[5]*padmaampaarakh@gmail.com*

Corresponding author*
Gururaj S Kulkarni [3*]
Professor and Head
Department of the Pharmaceutics,
The Oxford College of Pharmacy, Bengaluru, Karnataka, India.
Ph. No: +91 988656434
E-Mail id: skguru2006@gmail.com

Abstract

The buccal mode of administration has various benefits, including increasing patient compliance and avoiding the first pass effects on the liver and GIT. The objective of the current study was to develop and assess mucoadhesive buccal tablets of the anti-histaminic drug loratadine, 10 mg. The inclusion complex (a kneading procedure) and direct compression methods are used to make the tablets. The mucoadhesive tablet formulations were created by combining different amounts of sodium starch glycolate, crospovidone, and beta-cyclodextrin as carriers and super disintegrants. By using FTIR and DSC investigations to check the components' compatibility with the medication, it was determined that there were no physicochemical interactions. The formulations were made in the following ratios: from F1 to F3, the dug to carrier (-cyclodextrin) ratio was (1:2), and from F4 to F6, the ratio was (1:4). And it was discovered that the ratio was 1:6 from F7 to F9. Dissolution was carried out in the USP dissolution apparatus-II (paddle) at a speed of 50 rpm and a temperature of 37±5 °C. The evaluation result of the formulations F-7 containing β-CD of ratio 1:6 and Crospovidone were selected as best formulation.

Key words: *Loratadine, Buccal tablets, beta-cyclodextrin, Crospovidone, SSG, FTIR, Dissolution, Mucoadhesion strength*

P. Padma

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Bangalore - 560 068

Gastroretentive Formulation and Characterization of Carvedilol Floating Tablets

Krishnagiri Krishnababu[1], Gururaj S Kulkarni[2*], A Muthu kumar[3], Yuktha H J[4], Padmaa M Paarakh[5]

[1,2,4] Department of Pharmaceutics, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,

[3] Department of Pharmacology, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,

[5] Department of Pharmacognosy, The Oxford College of Pharmacy, Bengaluru, Karnataka, India.

[1]k.krishnababu2020@gmail.com, [2]skguru2006@gmail.com, [3]drmkresearch14@gmail.com, [4]yukthajagadish07508@gmail.com, [5]padmaampaarakh@gmail.com

Corresponding author

Dr. Gururaj S Kulkarni[2*]

Professor & Head, Department of Pharmaceutics, The Oxford College of Pharmacy, Bengaluru, Karnataka, India,

Ph. No: +91 9886564346

E-Mail id: skguru2006@gmail.com

Abstract

Objective:

The main objective of this current study is to formulate gastroretentive tablets of carvedilol using different concentrations of polymers and excipients for retaining the medication in the stomach, as solubility is higher at an acidic pH.

Methods:

The direct compression method was used for preparing GRDDS with varying concentrations of polymers. The drug-excipient compatibility study was conducted. A total of nine formulation batches were developed and evaluated for pre and post compression parameters. The buoyancy behaviour and swelling index were conducted for all formulation batches. The optimized formulation batch studied the impact of the pH on floating and drug release.

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Bangalore - 560 068

UG-05

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A Comprehensive Review of Various Mycobacterium Species

S Joyce Arokiaselvi [1*], Gowthami G N[1], Harini V[1], Harish Kumar K[1], Janhavi Arya[1], Kailash Chandra C[1], Noopur Srivastava[1], A. Muthukumar[1], Padmaa M Paarakh [2]

[1] *Department of Pharmacology, The Oxford College of Pharmacy, Bengaluru*

[2] *Department of Pharmacognosy, The Oxford College of Pharmacy,Bengaluru*

Corresponding author:

S Joyce Arokiaselvi

Department of Pharmacology, The Oxford College of Pharmacy,

6/9,1 main, Begur Road, Hongasandra, Bengaluru,560 068, Mob:8884364650.

Email: sjoyce2k20@gmail.com , kailashchandragehlot7@gmail.com

Abstract

Mycobacterium species are pathogenic to animals and humans. These Mycobacterium species are gram-positive, non-motile, non-spores forming rod-shaped bacteria. The Mycobacterium genus comprises over 190 species, such as Mycobacterium leprae (M. leprae), tuberculosis (TB), Mycobacterium bovis (M.bovis) , and many more. These different species of mycobacterium affect the other organs in the body parts. M. leprae mainly invades and affects the skin and Schwan cells.M. leprae is gram-positive and multiplies slowly for 12 to 13 days. Different drug regimens are given to treat leprosy drugs, such as dapsone, rifampicin, and clofazimine. Mycobacterium bovis causes TB in animals and humans. In humans, M.bovis lesions are primarily extrapulmonary and transmitted to humans by ingestion of infected milk and milk products. The treatment of M.bovis involves using antibiotics together, including rifampicin, isoniazid, and ethambutol. Mycobacterium tuberculosis (M. tuberculosis) causes TB, affects the lungs, and attacks other body parts such as kidneys, brain, spine, etc. It is spread through tiny droplets of infected persons. TB can be fatal if not treated; different drug regimens are provided for 3 to 6 months. The most common medication includes isoniazid, rifampicin, pyrazinamide and ethambutol. This review shows other mycobacterium species, their etiology, pathogenesis, and treatment.

Keywords: Mycobacterium tuberculosis, TB, Mycobacterium bovis, Mycobacterium leprae, pathogenesis, etiology, treatment.

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P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 6/9,1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

UG-04

A Comprehensive Review of Herbal Lotions for Treatment of Dermal Infections Caused by Various Microbial Strains

Gururaj S kulkarni[1*], Aditya J[1], Aparna OM[1], Arroju Hrithik[1], Sreelakshmi S[1], Swetha G[1], Padma M parak [2], A Muthukumar[3]

[1]Department of pharmaceutics The Oxford College of Pharmacy, [2]Department of pharmacognosy The Oxford College of Pharmacy, [3]Department of pharmacology The OxfordCollege of Pharmacy.

[1]adityaj1607@gmail.com

Abstract:

Several research studies show that herbal medicines have more benefits than synthetic ones. Most infection, especially (skin infections) are affected by bacteria like Staphylococcus aurous, Pseudomonas acruginosa, Escherichia coli, Klebsiella pneumonia, conform bacteria by incorporating several herbs like Azardirachta indica, Tabebuia impetiginosa, Zizipus Rhamnaceae, Hazy strict, Asp ilia Africana. Which can inhibit the growth of micro-organism with minimum toxic or side effects. This study's main aim is to know the importance of herbs for preventing several skin infections because herbal cosmetics have played an essential role since ancient times.

Keywords:

Herbal lotion, anti-bacterial, skin infections, Azardirachta indica, Aspilla Africana, s.aureus, E.coli.

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P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 5 8, 1st Cross, Dr. Rajkumar Road, Hongasandra
Bangalore - 560 068

A comprehensive review of Nyctanthes arbor-tristis Linn

Padmaa M Paarakh [1]*, Pavan Kumar C [1], Pooja H J [1], Priya Rajkumar [1], Rachitha S V [1], Ramya D [1], MuthuKumar A[2]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, India.

[2] Department of Pharmacology, The Oxford College of Pharmacy, Bangalore, India.

Corresponding author :

Dr Padmaa M Paarakh

Department of Pharmacognosy, The Oxford College of Pharmacy , 6/9, I main, Begur Road, Hongasandra, Bengaluru 560 068, Mob:9880681532, e-mail: padmaampaarakh@gmail.com

Abstract:

Nyctanthes arbor-tristis Linn.(N. arbor) is a traditional medicinal herb used in India, belongs to Oleaceae family, having numerous uses viz, as an anthelmintic, anti-inflammatory, anti-malarial, anti-viral, anti-cancer, anti-leishmanial, anti-allergic, anti-pyretic, hepatoprotective, anti-histaminic, anti-tryptaminergic, anti-nociceptive, anti-choline esterase, bronchodilatory, pesticidal, anti-spermatogenic, purgative, CNS depressant, hypoglycaemic, hypolipidemic and immunomodulatory agent. The following study is to give comprehensive review on pharmacognostical, pharmacological and scientifically proved activities of Nyctanthes arbor-tristis.

Keywords: *Nyctanthes arbor-tristis Linn., therapeutic uses, pharmacognosy, pharmacological activity, phytoconstituents, comprehensive review.*

Introduction:

Medicinal herbs are used vastly in Indian subcontinent and various other countries. Flora and fauna consist of enormous number of species of plants from various parts from around the globe. Since ancient times, natural plants and their preparations have been used and approximately 80% of the population (according to senses from WHO) are dependent on medicinal plants. There are about 4.25 million species of flowering plants and over 50,000 medicinal plants. Various research was performed to explore the possible sources of therapeutic activities for curing numerous diseases[1].

P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 6/9, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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UG-02

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Sida acuta Burm f.: A Comprehensive Review

Padmaa.M. Paarakh[1*], Karthik.M[1], Kaviarasu.S[1], Kavya.N [1], Kavya Shree. S[1], Kavya.M[1], A. Muthukumar.[2]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, India.
[2] Department of Pharmacology, The Oxford College of Pharmacy, Bangalore, India.

Corresponding author :
Dr Padmaa M Paarakh
Department of Pharmacognosy
The Oxford College of Pharmacy
6/9, I main, Begur Road, Hongasandra,
Bengaluru 560 068
Mob:9880681532
e-mail: padmaampaarakh@gmail.com

Abstract:

Major source of food and medicine comes from plants and herbs. Sida acuta Burm f [S. acuta] has various pharmacological activities like, antioxidant, antibacterial, antimalarial, cardiovascular, anti-inflammatory, antiulcer, hepatoprotective, anticancer. Plant extract also has various phytochemical constituents like carbohydrates, steroids, tannins, cardiac glycosides, saponins, flavonoids etc. It also proved that there was no mortality when it was administered to rats with dose up to 2000 mg/kg.

Key words: *Antibacterial activity, Antipyretic activity, Analgesic activity, Hepatoprotective activity, Antiulcer activity, Sida acuta, Review.*

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To,

Yakshitha.V[1], Keserla Bhavani[2]*, P. Kiran[1] and Padmaa M. Paarakh[3]
[1]Student, The Oxford College of Pharmacy, Bengaluru, Karnataka, India
[2]Assistant Professor, The Oxford College of Pharmacy, Bengaluru, Karnataka, India
[3]Principal, The Oxford College of Pharmacy, Bengaluru, Karnataka, India
*Corresponding author

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Congratulation!!! According to my record, your manuscript entitled "Detailed insight on Pathophysiology and Treatment of Neurodegenerative Disorder- Parkinson's Disease" has been accepted for publication in the Indian Journal of Natural Sciences (IJONS) VOL- 14 / ISSUE 80 / OCT 2023. Furthermore, you are responsible for any error in the published paper due to your oversight. Thank you very much for submitting your article to the Indian Journal of Natural Sciences (IJONS).

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Acceptance Letter

Exploring the Exquisite Averrhoa Carambola: A Comprehensive Review

Yakshitha M 1 , Noopur Srivastava 2 , A Muthu Kumar, Padmaa M Paarakh, Monisha K C, Nithin Kumar C, Purushotham M

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The Oxford College Of Pharmacy
No.81/1, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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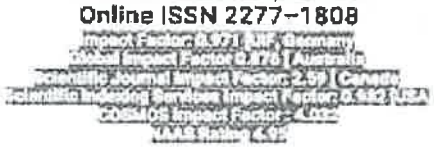

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Acceptance Letter

EXPLORING THE PHYTOCHEMISTRY AND MEDICINAL SIGNIFICANCE OF ARTOCARPUS HETEROPHYLLUS (JACK FRUIT) LEAVES: A COMPREHENSIVE REVIEW

Monisha K C 1*, Noopur Srivastava 2, Padmaa M Paarakh 3, A Muthu kumar 4, Yakshitha M S 5, Nithin Kumar C 6, Purushotham M 7

Department of Pharmacology, The Oxford College of Pharmacy, Hongasandra, Bangalore- 560068
monishakcreddy1999@gmail.com
*Department of Pharmacology, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068.
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Herbal Interventions for Parkinson's Disease: A Systematic Review on Anti-Parkinson Activity and Natural Remedies

Nithin Kumar C , Noopur Srivastava , Padma M Paarakh, A Muthu Kumar, Yakshitha M, Purushotham M, Monisha KC

Department of Pharmacology, The Oxford College of Pharmacy, Hongasandra, Bangalore- 560068.

nithimpharma19@gmail.com

srivastava.n23@gmail.com

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P. Padmaja

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Neuroprotective Effects Of Garcinia Morella And Ficus Religiosa Extract Against Rotenone-Induced Mouse Model Of Parkinson's In Swiss Albino Mice

Manish Yadav[1], Sunishtha Kalra[1], Himanshu Sachdeva[1], Balwan Singh1[2], Praveen kumar[1], Kamini Kalia[3], Noopur Srivastava[4], Govind Singh[1]*

[1]Department of Pharmaceutical Sciences, Maharshi Dayanand University, Rohtak, Haryana, India-124001
[2]KIET School of Pharmacy, KIET Group of Institutions, Delhi-NCR, Ghaziabad, UP, India-201206
[3]ABESIT College of Pharmacy, ABESIT Group of Institutions, Ghaziabad, UP -201009
[4]The Oxford College of Pharmacy, Bangalore, Karnataka-560068.

Abstract:
Parkinson Disease is a severe neurodegenerative condition marked by the gradual decline of dopaminergic neurons, resulting in significant debilitation, which is believed to be influenced by neuroinflammation and various signaling pathways. Experimental procedures involved the allocation of mice into six distinct groups: a control group, a vehicle group receiving ROT (to induce Parkinson's-like symptoms), and three treatment groups receiving herbal extracts of Garcinia morella and Ficus religiosa and a combination of both extracts with ROT at doses of 400 mg/kg, 200 mg/kg, and 600 mg/kg, respectively. A sixth standardised treatment group was administered with a combination of (L-dopa and carbidopa) sinemet, alongside ROT (1.5 mg/kg s.c.). Throughout the 1st, 7th, 14th, and 21st days of the experiment, behavioural parameters were measured to evaluate motor manifestations of PD in mice. On the 22nd day, biochemical analyses were conducted to estimate the Oxidative stress, neurotransmitters, and histology of the substantia nigra and striatal brain tissues. The results of this study indicated that 600 mg/kg p.o. of herbal extracts exhibited significant neuroprotective effects against rotenone-induced PD. These effects were comparable to the standard treatment of sinemet, as supported by behavioural, biochemical, and histological results. Consequently, it can be concluded that the combination dose of herbal extracts has a beneficial antiparkinsonian effect, likely attributed to its potential to alleviate oxidative stress by reducing free radicals and enhancing dopamine and glutamate levels. Based on these findings, the combination dose shows promise as a therapeutic agent for PD. It offers protection to dopamine-producing neurons from rotenone toxicity by reducing oxidative stress and down-regulating stress-related molecules. This investigation shows the neuroprotective properties of the combination of Ficus religiosa and Garcinia morella and results in promising potential in the field of PD prevention and treatment.

Keywords: Ficus religiosa, Garcinia morella, Rotenone, Oxidative stress, Parkinson's disease, Neurodegeneration.

Introduction

Abbreviation's: CAT: Catalase; PD: Parkinson Disease; MDA: Malondialdehyde; ROT: Rotenone; TPC: Total Protein Content; SOD: Superoxide Dismutase; ROS: Reactive oxygen species; NO: Nitrite; GSH: Reduced glutathione; CSIR-NISCAIR: National Institute of Science Communication and Information Resources, IAEC: Institutional Animal Ethics Committee; M.D.U.: Maharshi Dayanand University.

Introduction:

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Future Well-Being with Digital Health Technologies

Athmaja Shetty[1*], Surinder Kaur[2], Yuktha HJ[3]

[1,2,3]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, India.*

Email: [1]athmi99@gmail.com*

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Abstract: ***A wide range of opportunities are presented by digital healthcare, and it may lead to better patient care. Tools like machine learning, mobile applications and sensors, wearables, and telemedicine may be able to enhance the conventional paradigm of clinical history, examination, differential diagnosis, and therapy. The current epidemic has accelerated the transition to this future, although significant issues still exist.***
Since the start of the twenty-first century, the cultural shift known as digital health has shaped the fundamental principles of healthcare. The traditional hierarchy between patients and doctors is evolving into a collaboration on an equal footing. In the following years, this transition will dominate the significant developments in healthcare. Patients will become the point of care, receiving diagnosis and treatment wherever they are thanks to portable diagnostic devices, or artificial narrow intelligence-based algorithms.
These advancements will redefine what is meant by "well-being," as patients will seek medical attention prior to the onset of their first symptoms, requiring the creation of preventative strategies by professionals using a vast quantity of information about the patient and data from studies. Such innovations would invariably bring with them enormous concerns in terms of privacy, freedom of choice, and patient safety. This article examines probable future scenarios for digital health and seeks to address the key issues therein.

Keywords: ***Digital Healthcare, Artificial Narrow Intelligence-Based Algorithms, Portable Diagnostic Devices, Virtual and Augmented Reality***

1. INTRODUCTION

The COVID-19 pandemic has advanced the healthcare industry's digital revolution, which will change many of the core tenets of medical treatment. We are aware that there may be numerous detours on this route to advancement.[7] the terms "health" and "well-being" have always had a close relationship since they both have an effect on one another. In 1948, the World Health Organization defined health as "not merely the absence of disease or infirmity but a state of complete physical, mental, and social well-being."

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Changes to health and well-being in the 21st century:

The fundamentals of healthcare and the practice of medicine have undergone a cultural revolution in the 21st century as a result of the democratization of knowledge, the migration of empowered patients, and the advent of digital health technology.

The doctor-patient relationship used to be hierarchical, but this is beginning to change into a collaboration on an equal footing. Patients now have access to previously unavailable research, information, and technology as the medical ivory tower begins to crumble. Health sensors, genetic information, artificial narrow intelligence, and other cutting-edge technology are now widely used. There are grounds to think that what well-being implies will fundamentally shift as we look to the future of this century.

Early in the 21st century, people who have access to care focus on delaying receiving treatment as long as they can. Finding the appropriate therapies and receiving an accurate diagnosis might be difficult for persons who do not have enough access to modern healthcare. Healthcare is fundamentally ill care, where the majority of resources must be used to treat those who have a medical problem. People who want to lead a healthy lifestyle fall behind and are labeled as simply caring about their well-being.

According to how digital health technologies have begun to influence healthcare, it appears that most people will seek medical attention long before any symptoms or diseases manifest. To maintain a healthy lifestyle under specific conditions like the level of healthcare where they live, their economic situation, or their own personal habits and behavior, they will require data, knowledge, and expertise.

A Day in the Life of Human in Future

Customized smartwatch with a chatbot powered by artificial intelligence that works all day long. All of individual data, activities, and digital channels are accessible to it. It will use a smart alarm to wake up from light sleep in the morning at the ideal moment so that person feels energized for the day. Based on the results of microbiome and genome sequencing, a vast database is used to match the mood with the ideal meal that will provide energy.The gadget keeps the user motivated throughout the day, whether he is working or spending time with his family, and it displays graphs that illustrate how mood changes when going for a run at this time of day. The chatbot alerts the user if any important health parameters or vital signs change, and it compares the findings to millions of medical studies and the cloud-based knowledge of medical experts. Users are provided with detailed instructions if they need to perform any tasks.

The usage of chatbots might include voice pattern analysis to pick up on emotional undertones. With major financial investment raised to develop this technology, businesses (like Babylon) have heavily invested in the use of chatbots to diagnose patients in primary care.[7]

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A Review on: Metaverse in Health Care and Pharma

Athmaja Shetty[1], Gururaj S Kulkarni[2*], Rakesh Babu SN[3], Padma M Paarakh[4]

[1,3]Student, Department of Pharmaceutics the Oxford College of Pharmacy, Bangalore Karnataka, India
[2]Professor and HOD Department of Pharmacognosy the Oxford College of Pharmacy, Bangalore Karnataka, India*
[4]Principal the Oxford College of Pharmacy, Bangalore Karnataka, India

Email: [1]athmi99@gmail.com
Corresponding Email: [2]oxfordceutics@gmail.com*

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Abstract: ***The metaverse can be seen as the immersive follow-up to the text-and-picture-based Internet of today, where people stare at a screen, ignoring physical reality. The metaverse offers online experiences that are more immersive and engaging than those of the past, a seamless blending of the physical and digital worlds, by taking advantage of modern technologies like artificial intelligence (AI), augmented reality (AR), virtual reality (VR), and ever-increasing connection (like 5G networks). The metaverse has the potential to influence healthcare because of the convergence of three current main technical trends. (a) telepresence, (b) digital twinning, and (c) blockchain. These three ideas could be used to provide whole new methods of providing treatment, potentially reducing costs, and significantly improving patient outcomes. Finally, while advancements in digital healthcare are to be commended for facilitating easier access to care for a larger spectrum of people, it is crucial to take into account the ethical issues that they raise.***

Keywords: Metaverse, Virtual Reality, Augmented Reality, Digital Twins.

1. INTRODUCTION

Neal Stephenson first used the word "metaverse" in his science fiction book Snow Crash in 1992. It comprises of the stem "verse," which means "world and universe," and the prefix "meta," which stands for "transcendence and virtuality." In three-dimensional, real-time virtual worlds known as metaverses, many users can engage in social, economic, and cultural activities and communicate
with one another through avatars
and their surroundings without being physically present. The healthcare sector, among many others, has reacted to the metaverse phenomenon in 2021. The widespread use of digital

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assistants in the health sector has been made more effective by a number of technical advances, including
Artificial intelligence, machine learning, blockchain, and personal big data[1]

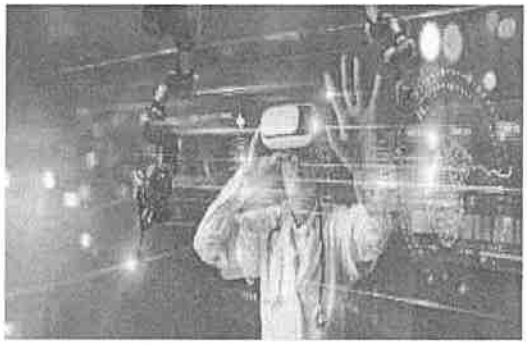
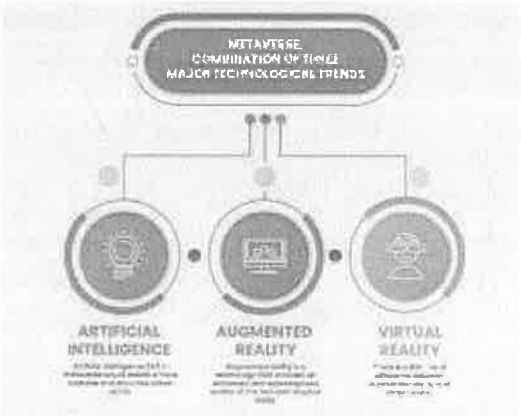


Fig (1) Metaverse in healthcare

Metaverse
On the internet, there is a virtual realm called the Metaverse. It is a location where users can communicate with each other as well as artificially created characters and items. Additionally, there are virtual items and services for sale and purchase in the Metaverse.

Metaverse in relation to the healthcare industry:
Three significant technology trends discussed below have come together to form the metaverse in the field of healthcare.



Artificial intelligence
Metaverse would provide a more realistic and scalable virtual reality with artificial intelligence (AI). Artificial intelligence (AI) in the healthcare sector can be used to comb through and process in real time the massive amount of data that is constantly given by client activities in the organization's metaverse, as well as to enable various use cases. It will all remain intact with the help of this. It will be possible to interact in the metaverse openly thanks to the use of artificial intelligence in this field. Artificial intelligence can separate common dialects, like English, and reconfigure them so that they are understandable to computers.

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A Review On The Marketing Strategy Of Aloe Vera Extracts

Akshay C *, Ayati Kar, Bhaskar Saha, Badepalli Reddaiah Reddy.

Department of Pharmaceutical Chemistry

The Oxford College Of Pharmacy, Bangalore, India

Corresponding Author*

Mr. Akshay C

The Oxford College Of Pharmacy, Bangalore

Abstract

Aloe Vera a magical herb with multi use property. It is reported to be used in Pharmaceutical, cosmetic industry as well as for home remedy purpose. Studies have reported that Aloe Vera is having soothing effect on skin so used by various cosmetic industry for their formulations. The pharmacological property that is being stated is it is can be used for the treatment of Anticancer, Antidiabetic, Antihyperlipidemia, Purgative and many more. The chemical composition of Aloe Vera is it consist of polysaccharides, sugars, minerals. Proteins, lipids and phenolic compounds. The current market scenario is that the liquid products of the aloe is playing a high role in the global market. In the global Aloe Vera market the most of the aloe extract is being used by the pharmaceutical industry, second comes the cosmetical industry and the third is food industry. It is reported that it will be having a more commercial opportunity than other medicinal plants in the coming years.

Keywords: Aloe Vera, Wound healing, Cosmeceutical, Treatment

Introduction

Aloe Vera is a multi-use herb which belong to the family liliaceae and has been generally used for centuries in all over the world. It is known for its abundant properties in medicinal as well as incosmetic market.In Ayurveda Aloe Vera is names as Kumari. The Ayurvedic use of Aloe Vera given by maharishi is it can be used for burns and wounds, mild sunburn. Aloe Vera juice will help to maintain a healthy digestive system because of its laxative property. Ayurveda research states that if Aloe Vera juice taken in morning helps to flush out all the toxins from the body and hence will boosts the immune system [1].

In Unani Aloe Vera is nomenclature as Sibr. The Unani studies states that Aloe Vera have an abortifacient activity, not only it leads to abortifacient activity but in some causes may lead to some teratogenic effect.It is having an anti-mutagenic effect because it directly reduce Geno toxicity, besides these usesit also shows actions likeantitumor, haemodynamic, hypolipidemic, hepatoprotective, immunomodulatory, wound healing[2] [3] [4]. In Siddha system of medicine, Aloe Vera is known as kumari. In this system of medicine Aloe Vera is used as a general tonic, as a purgative and as an emmenagogue. A case study was carried out for the treatment of uterine prolapse which was successful and improvement was seen during the treatment [5] [6] [7].

Chinese system of medicinenomenclatured Aloe Veraas LuHui. According to Chinese system of medicine Aloe Vera most prescribe by their doctor for treatment of constipation, abdominal pain, vertigo, and headache[8] [9].

The Cosmeceutical property of the herb is it is used as a gel form for treating sun burns, tanning problems, soothing property, glowing skin, reduces rashes, reduces itching problems. Aloe Vera provides a cooling effect so used in most of the skin care formulations.

Marketed brands for different system of medicine:The marketed Aloe Vera gel used by Chinese is Bioxutag, Disaar. The marketed brand of Aloe Vera gel used for Ayurvedic medicine is Alorsh Aloe Vera Gel. The marketed product for siddha system of medicine is Aloevin Aloe Vera Facial Gel.

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A REVIEW ON THERAPEUTIC AND BIOLOGICAL DIVERSITY OF *OPHIORRHIZA* SPECIES

Vishnupriya S*, Anil Kumar R, Ankitha Nidhi Reddy, Anushree R, Arsha Mohan K, Ashwini Kurabet.

Assistant Professor, Department of Pharmaceutical Chemistry

The Oxford college of Pharmacy, Bangalore, India.

I. ABSTRACT

The current study reports on a *Ophiorrhiza* genus with their various species and its respective chemical constituents according to their potency. This *Ophiorrhiza* genus belongs to rubiaceae family. Ophio' means snake, 'rhiza' means root. Traditionally, *Ophiorrhiza* species have been called "snake roots" due to their healing properties for snake bites. These species having characteristics of alkaloids, secoiridoidmonoterpenes, sesquiterpenes, steroids, quinines and phenylpropanoids and also it possesses many biological activities such as anticancer, antiviral, antiulcer, antivenom, antimicrobial. *Ophiorrhiza* species is an alternative source of camptothecin. This camptothecin helps to synthesize some of the major anticancer agents such as irinotecan and topotecan. The current review focus on chemical constituents, traditional uses as well as biological activities of *ophiorrhiza* species and its future prospects.

Index Terms: *Ophiorrhiza* species, Camptothecin, Biological activity

II. INTRODUCTION

Ophiorrhiza belongs to family of rubiaceae. *Ophiorrhiza* species can be distinguished by its fivepetal flower with slightly unequal opposite leaves, succulent stems, humorous capsular seed of small rhomboid shape and laterally compressed fruits. Most of the *ophiorrhiza* species are abiding herbs (perennial herbs) which has capability of growing from relatively 10cm to 1m in height. Due to the presence of camptothecin they possess cytotoxic activity. Presently *Ophiorrhiza* genus comprises of 321 species, 5 varieties and 1 subspecies. *Ophiorrhiza* are mainly found in western ghats region in specific, 46 species and 5 varieties are mainly allocated in the north eastern states and western ghats of India, whereas 16 species and 3 varieties can be found in the state of Kerala, India.[2]

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Ophiorrhiza species generally possess chemical constituents such as camptothecin, pumiloside, luteolin, Harman, bracteatine, blumeanine, tetrahydro alastonine, strictosidinic acid and lyalosidic acid in varying concentration. Camptothecin is an inhibitor of topoisomerase enzyme which was originally derived from

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FORMULATION AND EVALUATION OF ORAL DISPERSIBLE TABLET OF AN ANTI-COAGULANT DRUG

Pooja P Kulkarni[1*], Gururaj S Kulkarni[1], Padmaa M Paarakh[2]

1 Department of Pharmaceutics

2 Department of Pharmacognosy

The Oxford College of Pharmacy, Bangalore-68

Corresponding author name: Dr. Gururaj S Kulkarni

Mail I'd: skguru2006@gmail.com

Mobile no: 9886564346

Abstract: Apixaban is a new-generation anticoagulant drug that selectively inhibits coagulation factors Xa. It is used in thromboprophylaxis in patients following knee replacement surgery. It comes under the BCS class III drug and its permeation is its rate-limiting step with low oral bioavailability of 50%. To get the maximum therapeutic effect the bioavailability of the drug needs to be enhanced. The main purpose of this work is to enhance the bioavailability of the drug by using superdisintegrants. Nine formulations were prepared by direct compression method using varying concentrations and combinations of superdisintegrants namely Sodium starch glycolate, Croscarmellose sodium, and Dehydrated banana powder. The other excipients like Lactose, Microcrystalline cellulose were used as diluents, Magnesium stearate and talc were used as glidants, Sodium saccharine was used as a sweetening agent, Sodium lauryl sulphate was used as a solubilizing agent. FTIR study has revealed that there is no interaction between drug and excipients. The pre-compression parameters like bulk density, tapped density, angle of repose, Hausner's ratio, and Carr's index were found to be within the pharmacopoeial limits. Post-compression parameters like hardness, thickness, wetting time, *Invitro* disintegration time, *In-vivo* dispersion time, drug content, and *Invitro* drug release studies were performed.

Keywords: Oral dispersible tablets, Anticoagulant, Apixaban, Superdisintegrants, Croscarmellose sodium, Sodium starch glycolate, Dehydrated banana powder, Direct compression, Bioavailability, *Invitro* dispersion time, *Invitro* % drug release.

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(RESEARCH ARTICLE)

Check for updates

Formulation and evaluation of topical anti-microbial herbal cream

Deepa V [1], Gururaj S Kulkarni [1,*] and Padma M Paarakh [2]

[1] *Department of Pharmaceutics, Faculty at the Oxford College of Pharmacy, Rajiv Gandhi University of Health Sciences. Bangalore-68, India.*
[2] *Department of Pharmacognosy, Faculty at the Oxford College of Pharmacy, Rajiv Gandhi University of Health Sciences. Bangalore-68, India.*

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Abstract

Background: The aim of this study was to determine the antimicrobial effect of neem oil with liquid paraffin and coconut oil and their combination on the bacteria *E. coli*, *S. auerus* and *Candida albicans*, which causes skin diseases ,increasingly resistant to many commonly used antibiotics as a result of colonization of the skin.

Methods: Nine different emulsions were prepared and evaluation were carried out including Homogeneity, FTIR,Phytochemical tests, Drug content and *In-vitro* drug release and Anti-Microbial studies were performed.

Results: The results revealed that the Phyto chemical Screening of Neem oil found to be presence of Alkaloids, glycosides, Saponins, flavonoids pH of the cream was found to be in the range of 5.8-6.7 which is good for the skin pH. All the formulation were near to the skin pH. The viscosity of the cream was found 28008-28932 cps.

Conclusion: Phyto chemical Screening of Neem extract were done and found to be presence of Alkaloids, glycosides, Saponins, flavonoids etc were present. IR studies revealed that there was no drug Excipients interaction. During our physicochemical evaluation studies all the formulation were found to have good ,pH and Viscosity,diffusion .*In-vitro* drug release studies showed that, the formulation F9 showed optimum drug release 97.17±2.000 in 3 hours. The tested organisms, particularly gram positive, gram-negative organisms and Fungi Candida albicans had shown high resistance towards different Antibiotics, Thus neem oil is effective against drug resistant organisms.

Keywords: Antimicrobial; Skin Cream; Neem oil; Azadirachtin; Mineral Oil; Coconut oil

1. Introduction

The use of plant materials for medical purposes, such as seeds, berries, roots, leaves, bark, or flowers, is known as herbal medicine, sometimes known as botanical medicine or phytochemical. To live a healthy life free from illness and as reliable sources of medication in the conventional healthcare system, medicinal plants are nature's gift to humans. Nearly a quarter of all medications contain plant components. Long before recorded history, the plants were employed for medical purposes, and traditional medicine is still used widely today. According to archaeological evidence, people have been using medicinal herbs at least since the Paleolithic, around 60,000 years ago. Traditional herbal remedies, which have been used to treat illnesses all throughout the world, are made from naturally derived plant materials that have undergone technological processing [(1)].

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* Corresponding author: Gururaj S Kulkarni
Department of Pharmaceutics Faculty at the Oxford College of Pharmacy, Rajiv Gandhi University of Health Sciences. Bangalore-68, India.

P Padma
PRINCIPAL
The Oxford College Of Pharmacy

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Technologies in the Pharmaceutical Industries and Medical Health Care

Yuktha H J[1*], Gururaj S Kulkarni[2], Athmaja Shetty[3], Padmaa M Paarakh[4]

[1,2,3,4]Department of Pharmaceutics, the Oxford College of Pharmacy, Bangalore, India.*
[4]Department of Pharmacognosy, the Oxford College of Pharmacy, Bangalore, India

Corresponding Email: [1]yukthajagadish07508@gmail.com*

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Abstract: ***This review aims to illustrate upcoming technological developments in the pharmaceutical industries and healthcare facilities may look in the near future. In order to achieve this, we examine recent technologies and advanced medical developments in healthcare as well as in the pharma industries. Such as Artificial intelligence which provides an understanding between process parameters and different formulations. Blockchain is a sophisticated database that stores data in a way that makes it impossible to alter or hack the system. Clouding Technology enhances the drug discovery process. In the Future hospitals will need room for scanning and 3D printing since they can create virtually anything, including medical devices and human body components, and also produce drugs for every individual. Robotics is widely used in surgery as well as in chemical handling in laboratories. IT (Information Technology) is a database that helps in gathering information in surgery departments, hospitals, labs, and clinics.***
Our geriatric populations' quality of life can be maintained with the aid of new, technologies and innovations in health care. To overcome these obstacles, medical technology, as well as pharma industries, as well as pharma industries must unite and promote, high-quality methods while incorporating them into many related fields.

Keywords: Artificial Intelligence, Blockchain, Clouding Technology, 3D Printing, Robotics, Information Technology.

1. INTRODUCTION

In recent tenner, Technology has significantly changed how people live in recent decades since it affects every aspect of daily life, including communication, transportation, manufacturing, business, and the pharmaceutical and medical industries [1,2]. The technological system is simple to operate and use, enabling more work to be managed in a shorter amount of time, and has a low degree of complexity and error in the working process [3]. This relevance has only

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increased as a result of trends like globalization, quick product cycles, increased competitiveness, and technology fusion. The development of new technology recognizes the fact that daily living is made more effective. New technologies Artificial intelligence, Blockchain, Clouding technology, 3D printing, Robotics, and Information Technology.

Pharmaceutical occupations have started to transition from traditional careers to advanced careers in order to produce next-generation medicines. As career opportunities improve, the range of work in pharmaceutical research is growing. Cutting-edge career options are emerging as a result of technological advancements, with the potential to considerably increase pharmaceutical industrial output and bring the next generation of medicines to market through new research. [4,5] The current trend toward sophisticated automation technology. The fusion of cutting-edge information technologies and modern industrial techniques is crucial to maintaining economic competitiveness in the current era [6].

People nowadays visit hospitals for treatment and diagnosis of various illnesses. With the aid of expensive equipment and medical procedures, doctors offer consultations to patients. However, the revolution in diagnosis and care provision will be changed in the near future by improvements in artificial intelligence (AI), information technology, 3D printing, and robotics. Future technical advancements in the pharmaceutical sector and health care are discussed in this review.

Objectives

The aim of the current study posed in this review paper is-

- The impact of new technologies in pharma industries as well as in healthcare.
- To investigate strategic perspectives on the evolution of technology in pharma industries and healthcare requirements.
- The use of new technologies has a positive effect on industries as well as on healthcare.

Significance

The current study will provide knowledge on new technologies and development in industries and in health care. Which have a positive impact on students as well as on researchers. This study can assist future scholars in recognizing the significance of new technologies.

Reason for study

The amount of data to be stored has increased.
The need to analyze generated data
The necessity of sharing and transmitting saved data

Technologies in industries and healthcare

i. Artificial Intelligence

The pharmaceutical and consumer healthcare industries have been profoundly impacted by artificial intelligence and machine learning. A subject of computer science called artificial intelligence analyses enormous amounts of data in the medical industry. The main advantages

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PHYTOSOMES: A NOVEL DRUG DELIVERY SYSTEM FOR HERBAL EXTRACTS

Pooja P Kulkarni[1*], Gururaj S Kulkarni[1], Padmaa M Paarakh[2]

1 Department of Pharmaceutics

2 Department of Pharmacognosy

The Oxford College of Pharmacy, Bangalore-68

Abstract: "Phyto" denotes a plant and "some" denotes something that resembles a cell. A cutting-edge technology called a phytosome is used to make phytopharmaceuticals, which are made of herbal extracts that are surrounded and bound by lipid. The majority of phytomedicine's bioactive components are hydrophilic substances like flavonoids having hydrophilicity and compared to the conventional, phytosomes with a lipidic outermost layer exhibit better absorption, producing better bioavailability of the plant extracts. The use of phytosomes is widespread due to their enhanced pharmacological and pharmacokinetic features, employ dietary supplements therapeutically to treat acute and chronic liver disorders. The current evaluation emphasizes major discoveries of current studies on phytosomes with our own perspectives that can provide the fresh directions for herbal dosage forms, as well as technical information on phyto-phospholipid formulations to confront future challenges.

Keywords: Phytosomes; Phospholipids; Phytopharmaceuticals; Phytomedicines; Bioavailability.

Introduction: Recent intriguing candidates for the treatment of several diseases stand out as herbal medications. Natural resources fewer side effects and cheaper phytochemical expenses highlight the period of going "back to nature" and bring up new possibilities for health maintenance. Secondary metabolites, including as flavonoids and glycosides, represent the bulk of bioactive components in phytomedicines. Although these compounds are water-soluble, their limited absorption when taken orally or when applied topically limits their usefulness. Either their huge molecular size, which prevents passive absorption, or their poor lipid solubility, which severely hinders their capacity to move past the lipid-rich outer membranes of the enterocytes, the cells that line the small intestine, are the likely causes of their poor bioavailability. By binding the standardised plant extract or its contents to phospholipids, primarily phosphatidylcholine, a lipid-compatible molecular complex called a phytosome is created. Compared to traditional herbal extracts, phytosome have a better pharmacokinetic and pharmacodynamic profile. [1]

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Formulation and Evaluation of Mouth Dissolving Tablets for Halitosis (bad Odour)

Kavya MS*, Surinder kaur
Department of Pharmaceutics.The oxford college of pharmacy,Hogasandra, Bangalore-68 Karnataka

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ABSTRACT
Halitosis is associated with bad breath, which may be due to various reasons such as the food consumed or due to a deep-set pathological problem. However, halitosis has a psychological embarrassing social impact with social restrictions. If halitosis is not treated it may lead to chronic bad breath and ill health. Many resources have been spent to treat halitosis with products like chewing gums, mouthwash, etc. However, The present study was aimed to formulate and evaluate mouth dissolving tablets for halitosis by direct compression method using two different flavoring agents such as peppermint oil or cinnamon oil in a different concentration 0.25%, 0.5%, 0.75% & 1%. FTIR studies showed that there was no interaction between the flavoring agent and the excipients used for formulation. Eight formulations were prepared, labeled was F1-F8 and evaluation for hardness, weight variation friability, wetting time, disintegration time and In vitro spoon test among the eight formulation F2 formulation containing 0.5% peppermint oil showed less wetting time 23.2 seconds, less disintegration time 23.2seconds, Invitro spoon test show as good peppermint flavor. The stability studies for optimized formulation F2 were performed for 30 days, at 25°C/60RH and 40°C/75RH. The formulation F2 was found to be stable and showed no significant change in physical appearance, weight uniformity, wetting time, disintegration time, and In vitro spoon test during the study period. Hence, formulation (F2) containing 0.5% peppermint oil was identified as ideal and better formulation among all formulation developed mouth dissolving tablets and may be useful for halitosis.

KEYWORDS: Halitosis, Mouth dissolving tablet, Flavouring agent, Peppermint oil, Cinnamon oil.

I. INTRODUCTION

Oral route of administering the drug had been widely accepted i.e. up to 50-60% of total dosage forms. Among all the dosage forms solid dosage forms are popular because of advantages like easy in the administration, self-medication, accurate dose, pain avoidance and patient compliance. Tablets and capsules are one of the most popular solid dosage forms. But the main disadvantage of this dosage form for some patients is little difficulty to swallow. People frequently experience difficulty in swallowing conventional dosage forms such as tablet when the water is not available to them, in the period of the motion sickness and sudden incidence of coughing during the common cold, and in allergic condition. For these reasons, tablets which can rapidly dissolve or disintegrate in the oral cavity without any water have attracted the attention of the researchers. Mouth dissolving tablets are not only formulated for people who have difficulties in swallowing, but also are best for active people. A solid dosage form that dissolves and disintegrates rapidly in the oral cavity, resulting in solution or suspension without the need of water and therefore known as fast dissolving tablets. Fast dissolving tablets are also known by other name as mouth-dissolving tablets, which melts-in mouth. Oro-dispersible tablets, porous tablets, rapimelts, quick dissolving etc. Fast dissolving tablets are those tablets when they are kept on tongue disintegrates instantaneously and releases the drug which dissolve or disperses in the saliva. The quicker the drug gets dissolved, quicker will be the absorption and onset of clinical effect. Few examples of fast dissolving tablets are ondestron tablets, famotidine, few examples of sublingual tablets are nitroglycerine tablets, abstral tablets, few examples of dispersible tablets are disprin, amoxilline and few examples of chewable tablets are multivitamin/fluoride, caffeine chewable tablets.

VARIOUS CRITERIA FOR THE MOUTH DISSOLVING DRUG DELIVERY SYSTEM: [1-3]

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Nanoparticles in Pharmaceutical Science

Yuktha HJ[1], Gururaj S Kulkarni[2*], Athmaja Shetty[3], Padma M Paarakh[4]

[1,2,3]Department of Pharmaceutics The Oxford College of Pharmacy, Bangalore, India*
[4]Department of Pharmacognosy the Oxford College of Pharmacy, Bangalore, India

Email: [1]yukthajagadish07508@gmail.com
Corresponding Email: [2]oxfordceutics@gmail.com*

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Abstract: ***The development of particle size reduction technologies over the past 30 years has transformed them from a research approach to an established commercial drug delivery platform. Since a growing number of research substances for poor aqueous solubility, nanotechnology methods have gained particular significance. The term "nanotechnology" refers to the development and application of materials whose components are, by standard, no larger than 100 nm in size. Nanotechnology investigates structural behavior at the molecular, and sub-molecular levels. It has the potential to transform several medical and biotechnology instruments and processes into ones that are transportable, less expensive, safer, and simpler to use. Nanoparticles are used for a variety of things, including medical treatments, energy storage in solar and oxide fuel batteries, optical devices, bactericidal agents, electronic devices, biological labeling, and in the treatment of some cancers. They are also widely incorporated into a variety of materials used in everyday life. This paper seeks to provide an overview of nanoparticles, paying attention to the current innovations and future aspects.***

Keywords: Nanoparticles, Types, Synthesis, Applications, Etc.

1. INTRODUCTION

The most important development in recent years, nanotechnology, has modernized medicine. The market for nanotechnology products is steadily expanding. The revolutionary science of nanotechnology will have an impact on our attempts to enhance human health. The lifespan, effectiveness, toughness, adaptability, and unique physicochemical properties of nanoparticles have all been explored by the medical sector. They are used in a variety of therapeutic methods, including the focused administration of drugs, predictive visual monitoring of therapy, and even tumor diagnosis. 1,2

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The synthesis and creation of diverse nanomaterials are included in the burgeoning scientific topic known as nanotechnology. The longest and shortest axes of a nanoparticle are not significantly different in length, according to the International Organization for Standardization (ISO), which defines nanoparticles as nano-objects having all exterior dimensions in the nanoscale. Objects between 1 and 100 nm in size that may differ from the bulk material due to their size are referred to as nanoparticles. The most popular and commercially successful technology that strives to enhance the effectiveness of healthcare methods is nanotechnology or nanomedicine. Despite significant drawbacks, a lot of pharmaceutical and medical device businesses have already used medical nanotechnology. Nanotechnology has the potential to improve the safety profile of the administration of some medications with a high risk for toxicity, such as cancer chemotherapy medicines.

It is crucial to remember that living cells function as microscopic virtual machines that participate in all biological processes, such as nutrition transport, energy production, metabolism, and cell signaling. In light of this, it can be said that this technique is a strong contender for use in therapeutic biology and medicine. We talk about the value of nanoscience in this review as various nanotechnology platforms are applied in other areas of medicine. Additionally, we are talking about the potential applications of nanotechnology in human health in the future.3

However, prolonged exposure to nanoparticles by people at work might affect their health in different ways. Additionally, inhaling nanoparticles in the form of air pollutants may result in subsequent exposure to nanoparticles. Sometimes these inhaled nanoparticles get through the immune system and spread throughout the body, causing a risk to overall health.

Nanoparticles

Colloidal formations made of synthetic or partially synthetic polymers are known as polymeric nanoparticles. The drug is either absorbed, immobilized, encapsulated, or bonded using a nanoparticle matrix. Depending on the preparation method, nanoparticles, nanospheres, or nanocapsules can be produced. In contrast to nanocapsules, which retain the medication in a cavity and are sealed off by a specific polymer membrane, nanospheres are matrix systems in which the drug is physically and evenly distributed.9

NPs can have a variety of forms, dimensions, and structures. They might be irregular.10 or spherical, cylindrical, conical, tubular, hollow core, spiral, etc. NPs can range in size from 1 to 100 nm. Atom clusters is generally recommended if the size of NPs is less than 1 nm. NPs can be amorphous or crystalline, having single or many crystal solids. NPs can be agglomerated or loose.11

Need for developing nanoparticles

To achieve the drug's site-specific effect at a particular rate and dose, controlling particle size, surface properties, and the release of pharmacologically active substances are the main goals when developing nanoparticles as a delivery system.4 Polymeric nanoparticles have some unique advantages such as targeted drug delivery systems, an increase in stability of proteins and medications with that controlled release capabilities, and improved solubility of the API.5

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Anticancer Studies on the Leaves and Stem bark of *Cordia dichotoma G. Forst*

Yakshitha M[1], Yakshitha V[2], Tilak Kumar M[3], Vadivel G[4], Swetha R[5], Padmaa M Paarakh[6]
[1,2,3,4,5]*Department of Pharmacognosy, The Oxford College of Pharmacy, Bengaluru 560 068, Karnataka, India*
[6]*Department of Pharmacognosy, The Oxford College of Pharmacy, 6/9, I Main, Begur Road, Bengaluru 560 068, Karnataka, India*

Abstract - **The aim of the study was to evaluate anticancer activity of the methanol extract of leaves and stem bark of *Cordia dichotoma* G. Forst against a Human Breast Carcinoma Cell line(MDAMB231) by MTT assay. The coarse powder of leaf and stem were subjected to Soxhlet extraction using methanol and water as solvent. Phytochemical screening was performed to find out the secondary metabolite. Total Flavonoid and phenol content were determined by colorimetric method. The phytochemical screening of methanol and aqueous extract of leaf and stem bark showed the presence of alkaloids, flavonoids, tannins, carbohydrates, amino acids, saponins, steroids and triterpenoids. The total phenolic content and flavonoid content of methanol extract of leaf was 4.467µg/ml and 5.114µg/ml and stem bark was 4.739µg/ml and 4.762µg/ml respectively. The IC_{50} values of methanol extract of stem bark, aqueous extract of leaf and aqueous extract of stem bark were found to be 125µg/mL, 232.7µg/mL and 110.1µg/mL respectively in MDAMB231 cells in comparison to Standard Vincristine IC50 14.41µM whereas methanol extract of leaf did not possess any anticancer activity. This study suggests that *Cordia dichotoma* can be useful in the treatment of breast cancer.**

Index Terms - **Anticancer activity; Total Phenol content; Total Flavonoid content; *Cordia dichotoma;* MTT Assay; Breast cancer cell lines.**

INTRODUCTION

Now a days, breast cancer is the most frequently diagnosed life-threatening cancer in women and the leading cause of cancer death among women. Since last two decades, research related to the breast cancer has led to extraordinary progress in our understanding of the disease, resulting in more efficient and less toxic treatments, increased public awareness and improved screening have led to earlier diagnosis at stages amenable to complete surgical resection and curative therapies.[1]

Cancer cells are formed from normal cells due to a modification / mutation of DNA and / or RNA. These modifications/mutations can occur spontaneously, or they may be induced by other factors such as nuclear radiation, electromagnetic radiation, microorganisms, heat, chemicals in the air, water and food, mechanical cell-level injury, free radicals, evolution and ageing of DNA and RNA, etc. All these can produce mutations that may start cancer.

Cordia dichotoma is a small deciduous tree with a short bole and spreading crown.[2] Usually a small tree growing 3 - 4 meters tall, though some can reach a height of 20 metres or more.The tree is also often cultivated for its fruits. *Cordia dichotoma* has a long and proven history of medicinal use dating back to the time of the ancient Egyptians. In traditional system of Medicine, ripe fruit of *C. dichotoma* plant is used as antibacterial, antiviral, and antitussive. Leaves and stem bark are used in the treatment of fever, diarrhea, dyspepsia, leprosy, and gonorrhea. Leafs are used traditionally as astringent, anthelmintic, diuretic, purgative, expectorant, demulcent, tonic, and ulcer [3-7]. The anticancer activity of methanolic extract of leaf against HeLa, A 549, Cervical and Prostate cancer is already established [8]. There is no report on Breast cancer so the present aim of the study is to evaluate the anticancer activity of *C.dichotoma* against Human Breast Carcinoma Cell line(MDAMB231).

MATERIALS AND METHOD

Collection and authentication of plant material:
Leaves and stem bark of *C. dichotoma* G. Forst. for the proposed study were collected from nearby region of

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A REVIEW ON ANXIOLYTIC ACTIVITY OF VARIOUS ESSENTIAL OILS BY USING LIGHT DARK BOX AND OPEN FIELD MODELS

Mythili Priyanka. C[1], Noopur Srivastava*[2]

[1]*Department of Pharmacology, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.*

[2]*Department of Pharmacology, Faculty of Pharmacy, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.*

ABSTRACT

Central nerve disorders affect people from all nations, civilizations, and ethnic groups. People suffering from anxiety disorders can benefit from a wide range of treatments and services. Anxiety is a distressing emotion caused by real or anticipated tissue injury. Essential oils are useful in the treatment of central nervous system problems. Essential oils include volatile molecules and are used in a variety of industries including perfume, cuisine, agriculture, taste, and medicine. The aim of the present review is to summarise how essential oils such as Angelica sinensis, Citrus junos, Citrus latifolia, Cymbopogon citratus, Foeniculum vulgare, Lippia alba, Nectandra grandiflora, Ocimum gratissimum L., Spiranthera odoratissima A. St. Hil., Stachys tibetica, and others are used to treat anxiety. The essential oil's anxiolytic effect was investigated in a light dark box and open field test. Essential oils have a wide range of biological effects, including antioxidant, anti-inflammatory, and anti-microbial properties. Essential oils are popular in the foods and cosmetic sectors, as well as in the scope of human health.

Keywords: Essential oil, Anxiety, Antianxiety, Light dark box, Open field apparatus.

INTRODUCTION

Anxiety disorder is a mental condition that has the highest social and individual impact of any mental sickness. Anxiety disorders, according to the World Health Organization (WHO), "are caused by intense constant fear and worry," resulting in physical symptoms such as chest discomfort, headaches, racing heart, and stomach pain [1].

According to the World Health Organization, one in every four people will have a mental disorder at some point in their lives. Depression and anxiety account for 23% of all mortality worldwide [2].

Anxiety disorders are distinguished by an undesirable mental state, unpleasant feelings about the future, or anxiety that stimulates a sense of protection as a warning so that the individual may prepare to face a potentially harmful circumstance. Anxiety may be either a natural or unhealthy emotion. In the latter situation,

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P. Padma

PRINCIPAL
The Oxford College Of Pharmacy
No 819, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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A REVIEW ON ANXIETY WITH ITS HERBAL TREATMENT USING EPM MODEL

Divyashree T[1], Noopur Srivastava[2]

[1]Department of Pharmacology, The Oxford College of Pharmacy, Hongasandra, Bangalore, India-560068

[2]Department of Pharmacology, Faculty of Pharmacy, The Oxford College of Pharmacy, Hongasandra, Bangalore, India-560068

Traditional Medicines derived from medicinal plants are used by about 60% of the world's population. This review focuses on Herbal drugs used in the treatment of Anxiety disorder. Anxiety disorders including generalized anxiety disorder (GAD), panic disorder, posttraumatic stress disorder (PTSD) and obsessive compulsive disorder (OCD) are the most prevalent behavioral disorders in the United States, affecting 17.2% of the population. The use of herbal supplements to treat anxiety has been increasing and the mechanisms of action of several are being elucidated. Compare to pharmaceutical drugs herbs are safer, digestible, effective, economical and having less undesirable side effects. Herbs are the most effective alternative to the pharmaceutical drugs in various health conditions. The herbs promote and improve the overall health when combined with a raw vegan diet and regular exercise. The leaves, roots, stems of different plants are sources of vitamin c, minerals, amino acid that can be helpful in case of CNS disorders. A list of medicinal plants with proven antianxiety effects used in treatment of Anxiety is compiled. These include Gastrodinclata, Apocynum venetum, Abies pindrow Royle, Citrus paradise, Ginkgo biloba, Centella asiatica, Passiflorn incarnate and Melissa parviflora.

Herbal Drugs, Anxiety, Antianxiety, EPM -Elevated Plus Maze,Stress management, Psychotherapies

Psychiatric manifestations of the modern society and lifestyles include stress and anxiety. Stress and worry, in modest doses, can be beneficial, they can inspire and assist one in being more productive. However, excessive stress or a strong reaction to stress might be hazardous. It can lay the stage for both general ill health and specific medical or psychological disorders such as infection, heart disease, or depression. Stress that is constant and severe can lead to anxiety and undesirable behaviours[1]

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ROLE OF SILVER NANOPARTICLES IN THE TREATMENT OF HYPERLIPIDEMIA

Ahalaya R[1], Noopur Srivastava[1], Padmaa M Paarakh[2],

1 Department of Pharmacology

2 Department of Pharmacognosy

The Oxford College of Pharmacy, Bangalore,India

ABSTRACT

In the recent years, India and other developing nations have seen a quickly raising epidemic of cardiovascular illness. Primary care physicians frequently diagnose and treat hyperlipidemia to avoid cardiovascular disease. The poor absorption characteristics of the active constituents due to their poor water solubility, large molecular sizes which result in a poor diffusion rate. Combining herbal medications with nanotechnology has been advocated because nanostructured systems can overcome the stimulatory effects of plant extracts, reduce the required dose and side effects. Nanoparticles have identified as significant participants in modern medicine, with applications ranging from contrast agents in medical imaging to carriers for gene delivery into individual cells. Silver nanoparticles have tunable physical and chemical properties, so it has been studied widely to improve its applicability. Physicochemical or biological approaches are used to prepare silver nanoparticles, however, each method has its pros and cons. Likewise, biological synthesis is not always reproducible for extensive use but can be a suitable candidate for therapeutic activities like cancer therapy. Excess use of Silver nanoparticles is cytotoxic, and their unregulated discharge in the environment may have effects on both aquatic and terrestrial biota. The research in Silver nanoparticles has always been driven by the need to develop a technology with potential benefits and minimal risk to environmental and human health. In this review, we have attempted to provide an insight into the importance and applications of silver nanoparticles in hyperlipidemia and other pharmacological activities along with the recent synthetic and characterization techniques used for silver nanoparticles.

Keywords - Silver nanoparticles, Nanoparticles, Hyperlipidemia, Antihyperlipidemic activity

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PRINCIPAL
The Oxford College Of Pharmacy
No.619, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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FORMULATION AND EVALUATION OF ORODISPERSIBLE TABLET OF ROSUVASTATIN

Syeda Tasmiya Yaseen Huda, R. Uma Prabha* and Surinder Kaur

Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India.

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***Corresponding Author**

R. Uma Prabha

Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India.

ABSTRACT

Rosuvastatin often expose a problem of low bioavailability (absolute bioavailability 20%) as its dissolution is one of the rate limiting factor, so the purpose of this study is to make an attempt at formulating and evaluating Rosuvastatin Orodispersible Tablets to improve its bioavailability with high patient compliance. Rosuvastatin is a lipid-lowering medication that belongs to the statin class of drugs. It is used to minimise the risk of cardiovascular disease and manage excessive cholesterol levels by reducing the liver's production of endogenous cholesterol. Rosuvastatin is also used to lower cholesterol levels in the blood, such as low-density lipoprotein (LDL) cholesterol ('bad cholesterol') and triglycerides, while increasing high-density lipoprotein (HDL) cholesterol ('good cholesterol'). With the use of superdisintegrants, orodispersible tablets were prepared via direct compression. Nine distinct formulations were developed by altering the concentrations of three different superdisintegrants while keeping the total weight of the tablet the same. FTIR studies ruled out the possibility of drug polymer incompatibility. Pre and post compression evaluation parameters were employed to all of the formulated tablets. In vitro drug release of all formulations were carried out. The drug-polymer compatibility was verified using FTIR investigations. The results of all of the prepared tablets were satisfactory and within official limits. Among the nine formulations, F7 was selected as the best formulation as it has lesser wetting time, disintegration time and higher %CDR when compared to other formulations. F7 was found to be stable at 40 °C ± 2 °C and 75 ± 5 % RH for a period of 1 month. According to the findings of this study, prepared tablets with a lower concentration of Crospovidone are better and more effective than conventional tablets in terms of patient compliance and rapid action. The Kinetic studies

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Overview Of Mouth Dissolving Tablet Of Antiemetic In Post-Operative Condition.

Praveen M*[1], Mrs R. Uma Prabha[1], Mrs Surinder kaur[1], Prabukumar V[1], Suriya Prakash rao S[1]

Department of Pharmaceutics,[1]
The Oxford College of Pharmacy, Bangalore-560068

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ABSTRACT:- Oral disintegrating tablets have gained significant attention in the era of innovative and uniquedrug delivery systems to deliver the drug molecule efficiently and safely. Mouth dissolving tablets are once that gets dissolved in the mouth in a matter of seconds before being swallowed Its's advantages of rapid onset of action, ease of admiration, and first-pass metabolism makes it a suitable dosage formfor the administration of various category of drugs including antiemetic drug in postoperative nausea and vomiting management. This review contains brief information about mouth dissolving tablets including their definition, advantages, disadvantages, and pharmacokinetics and details of postoperative nausea and vomiting including its physiology, factors affecting, drugs used in the management etc.and also the use of mouth dissolving tablets in postoperative condition

Keywords:-mouth dissolving tablet,antiemetic, post-operative nausea and vomiting

I. INTRODUCTION: -

Oral medication delivery is widely accepted, accounting for 50-60% of total dosage forms. Solid dosage forms are popular because of their ease of use, precise dosing, self-medication, pain avoidance, and, most importantly, patient compliance. Tablets and capsules are the most common solid dosage forms; however, for some individuals, swallowing these dosage forms can be challenging.[1]The intake of oral dose forms is greatly aided by drinking water. When water is not available, in the case of motion sickness (kinetosis), and abrupt episodes of coughing during the common cold, allergic condition, and bronchitis, people frequently encounter difficulty swallowing conventional dosage forms such as a tablet. As a result, tablets that dissolve or disintegrate quickly in the oral cavity have gotten a lot of attention. Mouth dissolving tablets are not only for folks who have trouble swallowing, but they're also great for athletes.[2]

Mouth dissolving tablet

This is a cutting-edge tablet technology in which the dosage form containing active medicinal components dissolves quickly, usually in a matter of seconds, without the need for water, providing the patient with maximum convenience. Mouth dissolving is a tablet that can be placed in the mouth and disperses swiftly before being swallowed, according to the European Pharmacopoeia. MDT was developed by researchers for a variety of medications that are used in therapy when a rapid peak plasma concentration is necessary to achieve the desired pharmacological response. Antiemetics, Neuroleptics, cardiovascular agents, analgesics, anti-allergics, and erectile dysfunction medications are among them.[3]

1. Advantages of MDT

- MDT is used to improve patient compliance in patients who are unable to swallow pills or capsules, such as the elderly, stroke victims, bedridden, geriatric, and people with a mental health conditions.
- Budget-friendly.
- Immediate pharmacological effect.
- As a result, ODT is more convenient for passengers and busy persons who may not always have access to water.
- No chewing required
- ODT's pleasant taste helps to alter people's attitudes toward drugs.
- It's simple to use.
- The risk of choking or suffocation caused by oral traditional preparations is reduced, boosting safety.
- Equipment used in traditional manufacturing.
- Quick onset of action.

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A REVIEW ON ALTERNATIVE APPROACHES FOR PARKINSON'S DISEASE TREATMENT

Astik[1]*, Chitra V.[2], Dr. Noopur Srivastava[2] and Dr. Anjali Raj[2]

[1,2]The Oxford College of Pharmacy, Department of Pharmacology, Hongasandra, Bangalore, Pin code-560068, Karnataka, India.

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***Corresponding Author**

Astik

Department of Pharmacology, The Oxford College of Pharmacy, Hongasandra, Bangalore, Pin code-560068, Karnataka, India

ABSTRACT

Parkinson's disease (PD) is a neurological condition that progresses slowly over time and has both motor and nonmotor symptoms. The primary source of the disorder's motor symptoms, which include resting tremor, "cogwheel" rigidity, and bradykinesia, has been determined to be striatal dopamine deficiency. Disorders of sleep, sadness, and cognitive abnormalities are examples of nonmotor symptoms. Even though we have some symptomatic medications, particularly for the disease's motor symptoms, there are still no proven disease-modifying medications available, therefore the illness develops unchecked. We provide an overview of the various PD strategies in this paper. Where applicable, we give instances of previous or current research that have used each technique. Examples from other disorders are used to demonstrate the usefulness of any strategies that have not yet been used to treat Parkinson's disease.

KEYWORDS: Neurodegenerative, Lewy bodies, α-synuclein, Repurposing drugs.

INTRODUCTION

Parkinson's disease (PD) is the second most prevalent neurodegenerative disorder worldwide. Accounts for 2-3% of the population of 65+ age.[1] Every year, estimates of the incidence vary from 5 to more than 35 new cases per 100,000 people.[2]

PD a neurodegenerative disease is characterized by a movement disorder with bradykinesia, stiffness, rest tremor, postural instability, as well as a variety of additional, more subtle motor characteristics and many non-motor abnormalities.[3] Dopaminergic neurons of the substantia

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REVIEW ON IMMUNO-ONCOLOGY: THE ROLE OF IMMUNE SYSTEM AGAINST CANCER

Chitra V.[1]*, Noopur Srivastava[2], Ahalaya R.[2], Astik[2], Divyashree T.[3], Mythili Priyanka C.[3]

The Oxford College of Pharmacy, Department of Pharmacology, Hongasandra, Bangalore, Pin code- 560068, Karnataka, India

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*Corresponding Author

Chitra V.

The Oxford College of Pharmacy, Department of Pharmacology, Hongasandra, Bangalore, Pin code- 560068, Karnataka, India.

ABSTRACT

Cancer is the largest cause of death worldwide, accounting for one out of every seven fatalities, outnumbering malaria, TB, and the acquired immunodeficiency syndrome (HIV/AIDS) combined. Cancer treatment has had its ups and downs throughout history, not only due to treatment ineffectiveness and side effects, but also due to hope and the reality of complete remission and cure in many cases. Oncological research is investing a lot of effort into identifying novel and efficient therapies that can lessen significant side effects caused by traditional treatments to overcome this obstacle. In addition, newer more inventive ways are needed to lower patient morbidity and death. Immunotherapy has been a significant aspect of the treatment of several cancers in recent decades. Immunotherapy has also grown in importance as a therapeutic option, and is now the primary choice in many situations. Immunity is influenced by interactions between different cell lineages in different organs. As a result, a better knowledge of tumour immunology must take into account the systemic immune landscape in addition to the tumour microenvironment (TME). The modern immunotherapeutic techniques, such as adoptive cell therapy, cancer vaccines, immune checkpoint inhibitors, and monoclonal antibodies, are briefly discussed in this article. Furthermore, the medications used to treat cancer, particularly chemotherapy, as well as its limitations, have been explored.

KEYWORDS: Cancer, Monoclonal antibodies, immune check point inhibitors, Oncolytic vaccines, Adoptive cell therapy.

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A REVIEW: ANALGESIC CREAM AS TOPICAL DRUG DELIVERY SYSTEM

Suriya Prakash Rao S., Vikram Choudhary*, Surinder Kaur, Prabukumar V. and Praveen M.

Department of Pharmaceutics the Oxford College of Pharmacy, Bangalore-560068.

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***Corresponding Author**

Dr. Vikram Choudhary

Department of Pharmaceutics the Oxford College of Pharmacy, Bangalore-560068.

ABSTRACT

Oral analgesics are commonly prescribed for the treatment of acute and chronic pain. But, these agents often produce adverse systemic effects, which sometimes are severe. Topical analgesics offer the potential to provide the same analgesic relief provided by oral analgesics but with minimal adverse systemic effects. From longer times, creams have been regarded as an important component of cosmetic products as topical therapies due to their ease of application to the skin and removal. Pharmaceutical creams are used for a range of functions, including cleansing, beautifying, changing appearance, moisturising, and skin protection against bacterial and fungal infections, as well as mending cuts, burns, and sores on the skin. Creams are easily acceptable and have more patient compliance. Thus creams which are semi-solid preparations are helpful in providing dual kind of actions i.e., systemic and localized action. In this piece of writing, an attempt has been made to present a general overview of creams as well as its merits, demerits, types, formulation, preparation methods and evaluation parameters.

KEYWORDS: Analgesics, Cream, Skin, Topical drug delivery system.

INTRODUCTION[1-4]

Oral pharmaceuticals, such as opioids and nonsteroidal anti-inflammatory drugs (NSAIDs), are routinely used to manage acute pain. In addition to these medications, oral neuromodulators such as antidepressants and anticonvulsants are frequently used for chronic pain. Although these systemic medicines have the potential to provide considerable pain relief, oral administration frequently results in adverse effects (AEs), which may limit their continued use and result in termination. Oral NSAIDs can potentially cause major adverse

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DEVELOPMENT AND EVALUATION OF GEMCITABINE LOADED CARBOXYMETHYL CELLULOSE/GRAPHENE QUANTUM DOTS NANOCOMPOSITE HYDROGEL FILMS AS AN ANTICANCER DRUG DELIVERY SYSTEMS

Keerthana C. K.*

Assistant Professor Department of Pharmaceutics The Oxford College of Pharmacy, Bengaluru.

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***Corresponding Author**
Keerthana C. K.
Assistant Professor
Department of
Pharmaceutics The Oxford
College of Pharmacy,
Bengaluru.

ABSTRACT

The present work to develop and evaluate of gemcitabine loaded carboxymethyl cellulose/graphene quantum dot nanocomposite hydrogel films as a potential anticancer drug delivery system. Creating anticancer properties in the hydrogel film could make it as a candidate for treating cancer tissues. In this work, a novel hydrogel nanocomposite films with anticancer properties were designed via incorporation of graphene quantum dot (GQD) as a nanoparticle into carboxymethyl cellulose (CMC) hydrogel and using gemcitabine (GEM) as drug model with broad-spectrum anticancer properties. Drug release studies was carried out in two different pH and the MTT assay was evaluated for GEM-loaded CMC/GQD nanocomposite hydrogel films against blood cancer cells. The prepared nanocomposite hydrogel films were characterized using Fourier transform infrared (FT-IR), UV–Vis spectroscopy, scanning electron microscopy (SEM), permeability and mechanical properties. The prepared CMC/GQD nanocomposite hydrogel films showed an improvement in vitro swelling, degradation, water vapor permeability and pH-sensitive drug delivery properties along with not significant toxicity against blood cancer cells. According to the obtained results, this nanocomposite hydrogel films can be proposed to use as an anticancer film and drug delivery system.

KEYWORDS: Gemcitabine, Quantum Dots, Nanocomposite hydrogel films, Anticancer drug Delivery.

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P. Padma
PRINCIPAL
The Oxford College of Pharmacy
No 619, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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REVIEW ARTICLE: NOVEL NUTRACEUTICALS

Divya S. Kumar[1]*, Deepa V.[1], Gururaj S. Kulkarni[1] and Padmaa M. Paarakh[2]

[1]Department of Pharmaceutics, [2]Department of Pharmacognosy,
The Oxford College of Pharmacy, Bangalore-68.

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***Corresponding Author**
Divya S. Kumar
Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore-68.

ABSTRACT

A nutraceutical is an essential food component which included in a diet provides nutritional and pharmaceutical benefits. Nutraceutical provides extra health benefits, in prevention and promotion of health due to adverse effects of drugs, consumers are adding dietary food supplements. A nutraceutical is a substance that is considered as a food or its part which, in addition to its normal nutritional value provides health benefits including the prevention of disease or promotion of health. Due to adverse effects of drugs, consumers are preferring food supplements to improve health. This brought revolution worldwide in the field of nutraceuticals. Nutraceuticals provide extra health benefits, in addition to the basic nutritional value found in foods. As nanotechnology provides "a new dimension" accompanied with new or modified properties conferred to many current materials, it is widely used for the production of a new generation of drug formulations, and it is also used in the food industry and even in various types of nutritional supplements. These nano formulations of supplements are being prepared especially with the purpose to improve bio-availability, protect active ingredients against degradation, or reduce side effects.

KEYWORDS: Nutraceuticals, Health, Disease, Nano formulations.

INTRODUCTION

The famous Hippocrates' quote (400 BC), "Let food be thy medicine and medicine be thy food", represents that there has been a great interest in herbal products since decades. There are many historical civilizations, such as ancient India, Egyptian, Greek, Roman and others that used herbal products and plants in treating and preventing diseases.[1]

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P. Padma
PRINCIPAL
The Oxford College of Pharmacy
69, 1st Cross, Hongasandra
Bangalore - 560 068

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A REVIEW ON THE MITOCHONDRIAL DYSFUNCTION IN SPORADIC PARKINSON'S DISEASE

Saniya Tabassum and Anjali Raj *

Department of Pharmacology, The Oxford college of Pharmacy, Hongasandra, Bangalore - 560068, Karnataka, India.

Keywords:

Parkinson's disease, Sporadic Parkinson's disease, Mitochondrial dysfunction, Oxidative stress

Correspondence to Author:
Dr. Anjali Raj

Assistant Professor,
Department of Pharmacology,
The Oxford College of Pharmacy,
Hongasandra, Bangalore - 560068,
Karnataka, India.

E-mail: anjiii1911@gmail.com

ABSTRACT: Parkinson's disease is the second most common progressive, age-linked neurodegenerative disorder. The sporadic form of the disease is usually idiopathic, where mitochondrial dysfunction is its major hallmark. Mitochondria are multifunctional dynamic organelles that carry out major cellular functions that get damaged by reactive oxygen species, deposition of lewy bodies, dopaminergic neuronal cell death, mitochondrial DNA mutations, and imbalance in fission/fusion that ultimately weakens mitophagy. In this review, the updated key roles and mechanisms of mitochondrial dysfunction structurally and functionally in the pathogenesis of sporadic Parkinson's disease are discussed to understand the process of neurodegeneration. Research Data from numerous studies confirm mitochondrial dysfunction being the Basis of the disease. Here, we briefly bring the overview of illicit drug administration, oxidative stress, mitochondrial DNA mutations, mitochondrial genome mutations, alpha-synuclein aggregation, mitochondrial dynamics-fission and fusion, and the impairment of mitophagy in the disease pathogenesis. In conclusion, understanding mitochondrial dysfunction and its pathways can be a major target in treatment and prevention of Parkinson's disease.

INTRODUCTION: Parkinson's disease (PD) was first started in an essay on "shaking palsy" by James Parkinson in 1817. In the beginning, it was discussed as "paralysis agitans" but Later was acknowledged as "maladie de Parkinson" or simply Parkinson's disease by Charcot in 19th century [1]. It has approximately 3-7% of lifetime risk after Alzheimer's disease and is an age-linked progressive condition that is expected to increase exponentially in the elderly population.

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Universally about 2.5 to 6.1 million patients have been afflicted with PD since 1990 to 2016 [2]. A report by Lau and Breteler presented in 2006 projected 10 Million individuals, *i.e.*, almost 0.3% of the global population suffered from PD amongst which 1% were beyond 60 years.

In India, the precise reports about the pervasiveness of PD are known only in limited population-based studies [3]. The incidence of PD in men is twice more common than in women; this prevalence may be due to differences in variables like postmenopausal hormones, caffeine intake, and cigarette smoking behavior. A study confirmed by the global burden of disease suggests that the number of PD cases will be doubled by 2040, signifying a 'PD pandemic' probably [4]. In accordance with US Census Bureau population projection, there will be

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P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 619, 1st Cross, Begur Post, Hongasandra
Bangalore - 560 068

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REVIEW ON ACTIVITY OF CANNABIS TREATMENT ON PARKINSON'S DISEASE

Douglas Zorinmawia Chhakchhuak, G. Swetha Saniya Tabassum and Anjali Raj *

Department of Pharmacology, Pharmacy # 6/9, 1st Cross, Begur Road, Hongasandra, Bengaluru - 560041, Karnataka, India.

Keywords:

Levodopa, Cannabidiol (CBD), Cannabinoid, Cannabis, Delta-9-tetrahydrocannabinol (THC), Parkinson's disease, Tremor

Correspondence to Author:
Dr. Anjali Raj

Assistant Professor,
Department of Pharmacology,
Pharmacy, # 6/9, 1st Cross, Begur Road, Hongasandra, Bengaluru - 560041, Karnataka, India.

E-mail: anjiii1911@gmail.com

ABSTRACT: As new treatments and medication are growing rapidly, neurologists are also toward expanding treating patients with idiopathic Parkinson's disease and facing questions regarding cannabis as a treatment elective, particularly for levodopa-safe Parkinson's symptoms. Cannabinoids compounds like delta-9-tetrahydrocannabinol (THC) and Cannabidiol (CBD) are the most abundant chemicals present. Whereas THC is psychotropic chemical that tends to cause individuals to feel "high," while CBD is no psychotropic chemical. Nonetheless, other than cannabis, plant cannabinoids are also produced by the mammalian body, called endocannabinoids. Endocannabinoids are neurotransmitters that bind to cannabinoid receptors and cannabinoid receptor proteins expressed throughout the central nervous system, including the brain and peripheral nervous system. So, these endocannabinoid receptors can be of two types cannabinoid receptor 1 (CB1R) and cannabinoid receptor 2 (CB2R), which are G-protein coupled receptors. The first receptor, CB1R receptors are particularly abundant in the hippocampus, frontal cortex, basal ganglia, hypothalamus and cerebellum, spinal cord and peripheral nervous system. They can also be found in inhibitory GABA-ergic neurons and excitatory glutamatergic neurons. Whereas CB2R receptor is most abundantly found on cells of the immune system hematopoietic cells and glial cells. CB2R receptor is mainly found in the periphery under normal healthy conditions, but in the case due to disease or injury, this regulation occurs within the brain, and CB2R is therefore expressed in the brain in disease or injured person.

INTRODUCTION: The most common neuro-degenerative disorder can be said as Parkinson's disease (PD). PD is the gradual loss of dopaminergic neurons that destroy the basal ganglia, which is an important part of the brain for coordinated movement. Patients with PD experience motor symptoms, including bradykinesia (slowness and poverty of movement), resting tremor, muscular rigidity, and gait (impairment of postural balance).

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Other than motor symptom, nonmotor symptoms can also appear which include excessive sweating, depression or, in late stages dementia. These changes are commonly cause by a loss of the pigmented dopaminergic neurons of the substantia nigra (SN) which innervate the striatum. In recent year, investigation have shown the considerable progress in understanding the pathophysiology of PD.

Several factors causing neuronal damage are probably involved [1], their common denominator seems to be an oxidative stress. So, this oxidative stress which causes imbalance between the formation of cellular oxidants and the antioxidative processes in SN neurons, which lead to excessive formation of hydrogen peroxide and oxygen-

CORDIA DICHOTOMA G FORST: A COMPREHENSIVE REVIEW

M. Padmaa Paarakh1*

1Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.

*Corresponding Author:
M. Padmaa Paarakh
Department of Pharmacognosy,
The Oxford College of Pharmacy,
6/9, I Main, Begur Road,
Bangalore 560 068, Karnataka, India.

ABSTRACT

Cordia dichotoma, belongs to the family Boraginaceae is used in the traditional system of medicine for number of diseases viz., intestinal parasite infestation,allergy, erysipelas, fever, dropsy, anasarca, urticaria, dyspepsia,cholera, dysentery, diuretic, demulcent, ulcer, anthelmintics and snake bite.The present study is to give comprehensive review on pharmacognostical, phytoconstituents and scientifically proved pharmacological activity of *C. dichotoma*.

Key Words: *Cordia dichotoma*; comprehensive review, phytoconstituents, pharmacological activity.

INTRODUCTION

India is the richest sources of medicinal plant with activity. As per WHO 80% of the people rely on herbal drugs for alievation of diseases. More than 3000 plant species have reported to possess beneficial effect for the treatment of diseases as per Siddha, Ayurveda,Amchi and Unani. One such plant is *Cordia dichotoma* G. Forst.

C. dichotoma is deciduous plants available all over India. *C. dichotoma* are extensively used as intestinal parasite infestation,allergy, erysipelas, fever, dropsy, anasarca, urticaria, dyspepsia,cholera, dysentery, diuretic, demulcent, ulcer, anthelmintics and snake bite.

GEOGRAPHICAL DISTRIBUTION

C. dichotoma grows in the deciduous forests of Rajasthan, Western Ghats, Myanmar and the sub-Himalayan tract at about 1500 m elevation. It is native to India, China, Japan, Pakistan, Sri Lanka, Australia. It is a tree of tropical and subtropical regions [1-3].

COMMON NAMES:

Fragrant man jack, snotty gobbles, cumming cordia, glue berry, anonang, pink pearl, bird lime tree, and Indian cherry [4].

VERNACULAR NAMES:

English: Indian cherry, Clammy cherry, Fragrant manjack
- Assamese: Goborhut, bahubara
- Bengali: Bahubara, Boch
- Hindi: Lasora
- Malayalam: Naruvari
- Marathi: Bhokar, Shēlu
- Gujarati: Vad gundo
- Kannada: Challe, Haadige, Doddachallu, Kaaduchalle, Mannadike, Kendal

P Padmaa

PRINCIPAL
The Oxford College Of Pharmacy
No 6/9,1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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PHYTO FUNGICIDAL ACTIVITIES

Deepa V[1] ,Gururaj S Kulkarni[1] , Padma M Paarakh[2]
[1] Department of Pharmaceutics
[2] Department of Pharmacognosy
The Oxford College of Pharmacy,Bangalore-68.

ABSTRACT

Plants have been sources of medicines for decades. From the beginning, plants have been a leading source of effective and safe medicines.Phytochemistry of numerous plant species has indicated that the phytochemicals may be a higher supply of medication compared to synthetically produced drugs.In this review plant natural products have been found ,to elicit anti-Candida effects based on inhibition of germination and biofilm formation, cellular metabolism, cell wall integrity, cell membrane plasticity, and induction of apoptosis.

Key words: Phytochemistry, Antimicrobial activity, Anti-Candid activity Herbal medicine.

INTRODUCTION:

Phytochemicals (from the Greek word phyto, meaning plant) are natural, biologically active chemical compounds found in plants that provide human health benefits beyond those of macronutrients and micronutrients.

They protect plants from diseases and damage and contribute to the color, aroma, and flavor of the plant. In general, plant chemicals that protect plant cells from environmental hazards such as pollution, stress, drought, UV exposure, and pathogens are referred to as phytochemicals[1].

Recently, it is well known that they play a role in protecting human health when their food intake is significant. More than 4,000 phytochemicals have been cataloged and classified according to the protective function, physical properties, and chemical properties and about 150 phytochemicals have been studied in detail[2].

Medicinal plants are a gift from nature to humans to lead a healthy and disease-free life. It plays an important role in maintaining our health. India is one of the most culturally diverse medicinal countries in the world, where the medicinal plant industry is part of a time-honored tradition that is still respected today. Traditional medicines derive their scientific heritage from the rich experiences of ancient civilizations. Therefore, it is not surprising that the claim of traditional medicines applies to several "difficult-to-cure" diseases (Satyavati, 1982). India is known for its rich traditional medicine systems ie Siddha, Ayurveda, Unani, and Amchi (Tibetan) as well as for a vast reservoir of living traditions in ethnomedicine. The oldest mention of the use of plants in medicine is found in the Rigveda, which is written between 4500 and 1600 BC, was written. During the British era, our traditional natural healing arts disappeared due to western culture. Now it is making a comeback due to the recognition of its importance in curing diseases without side effects.

The Phytochemicals from various sources have dual functions,
(i) they can be used as a cosmetic skin care product, and
(ii) botanicals impart biological activity to the skin, and provide beneficial nutrients to the skin or body[3]

Many of today"s synthetic drugs originated from the plant country but, historically, medicinal herbalism went into decline while pharmacology hooked up itself as a main and powerful department of scientific therapeutics. In a great deal of the English-talking global, herbalism virtually vanished from the healing map of drugs in the course of the closing a part of the nineteenth and early a part of the twentieth century. However, in lots of 0.33 global international locations diverse paperwork of ethnic herbalism be triumphant to the prevailing day (e.g., Ayurvedic medicinal drug in India, Kampo medicinal drug in Japan and Chinese herbalism in China). In a few advanced international locations (e.g. Germany and France), scientific herbalism maintains to coexist with present day pharmacology, albeit on an increasingly decrease key[4].

Advantages of herbal over synthetic[5]:

- Strengthen the immune system
- Detoxification

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EFFECT OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS ON RESERPINE INDUCED PARKINSONISM IN RATS

Douglas Zorinmawia Chhakchhuak and Anjali Raj *

Department of Pharmacology, The Oxford College of Pharmacy, # 6/9, 1st Cross, Begur Road, Hongasandra, Bengaluru - 560041, Karnataka, India.

Keywords:

Parkinson's disease, Non-steroidal anti-inflammatory drugs, Oxidative stress, Antioxidant

Correspondence to Author:
Dr. Anjali Raj

Department of Pharmacology, The Oxford College of Pharmacy, # 6/9, 1st Cross, Begur Road, Hongasandra, Bengaluru - 560 041, Karnataka, India.

E-mail: anjiii1911@gmail.com

ABSTRACT: Parkinson's disease is a chronic progressive neuro-degenerative disease caused by selective degeneration of dopaminergic neurons in the dense part of the substantia nigra pars compacta. It is characterized by motor and non-motor symptoms, especially the gradual reduction of postural symptoms, instability, tremor and memory impairment, local neuron loss, which mainly occurs in the substantia nigra. The current study evaluated the effects of non-steroidal anti-inflammatory drugs on reserpine-induced Parkinsonism experimental model. Subcutaneous injection of reserpine (1 mg/kg) was given to all rats for 5 days to induce Parkinson's like symptoms; syndopa (10 mg/kg) was used as standard, and aspirin (60 mg/kg), celecoxib (20 mg/kg) and Indomethacin (20 mg/kg) were given orally and after 60 min of reserpine were administered. Behavioural and neurochemical parameter assays were done for dopamine, acetylcholinesterase, lipid peroxidation and other antioxidant enzymes. Our results showed reserpine significantly induced locomotor deficits and oxidation in the brain in a period of 5 days. Celecoxib, aspirin and Indomethacin showed significant improvement in locomotor behaviour and showed neuroprotective activity by reducing the oxidative status in the brain and increasing the dopamine content. Therefore, the present study showed the protective effects of Celecoxib, aspirin and Indomethacin against reserpine induced in rats.

INTRODUCTION: In 1817 Dr. James Parkinson defined a clinical syndrome in "An essay on the shaking palsy," and Parkinson's disease was referred as "shaking palsy". Earlier, it was known as "paralysis agitans". In the 19th century Charcot attributed it to Parkinson and called it as "Maladie de Parkinson" or simply Parkinson's disease (PD) [1].

PD is a multifactorial, progressive, chronic, and idiopathic neurodegenerative disorder primarily characterized by prominent death of dopaminergic neurons in substantia nigra pars compacta (SNpc) and extensive distribution of an intracellular protein *i.e.*, α-synuclein.

Deficiency of dopamine (DA) leads to motor as well as non-motor symptoms. "Parkinsonism" is a term used to describe the complex motor symptoms of PD that include Bradykinesia, resting tremor, lateral postural instability, and muscular rigidity. PD is the most common cause of Parkinsonism. Whereas the non-motor symptoms later lead the motor symptoms after a decade or more, thus creating troublesome symptoms in the advanced

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ANTI-TUBERCULAR ACTIVITY OF METHANOL AND AQUEOUS EXTRACT OF LEAVES OF *TINOSPORA CORDIFOLIA (WILD) MIERS*

M. Padmaa Paarakh*; Geetha Patel; Harshita M; Sathi D [1]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.

*Corresponding Author:

M. Padmaa Paarakh

Department of Pharmacognosy,

ABSTRACT

Medicinal plants have known to be the potential source for the treatment of many ailments. The present study is designed to investigate the *in vitro* activity of methanol and aqueous extract prepared by soxhlet and microwave assisted extraction of the leaves of *Tinospora coordifolia* against *Mycobacterium tuberculosis* H73Rv strain using Micro plate Alamar Blue Assay (MABA). The results revealed that the methanol and aqueous extract prepared by both methods showed sensitivity against *M. tuberculosis* strain at a concentration 100 µg/ml. The present investigation suggests that methanol and aqueous extract of the leaves of *Tinospora cordifolia* possess remarkable anti-tubercular activity. Further studies for isolation of phytoconstituents responsible for antitubercular activity is under process.

KEYWORDS: *Mycobacterium tuberculosis*, methanol extract, aqueous extract, Tinospora *cordifolia*, *in vitro* MABA, H37Rv.

1. INTRODUCTION

Tuberculosis (TB), infectious diseases in lungs caused by *Mycobacterium tuberculosis* affects the health burden in the world. In 2014, nearby 80% of reported TB cases occurred in 22 countries and India has the largest number of cases, 23% of the global total. [1] In India, nearly 50% of patients have been reported to be tuberculin test positive and one person dies from TB every minute. [2] However, Due to the usage of antibiotics, challenge of multidrug resistant TB has increased drastically. Therefore, there is a need for discovery of new anti-TB drugs, which are cost effective and safe. Medicinal plants have known to be the potential source for the treatment of number of diseases. India has rich wealth of medicinal plants and usage of herbal medicines as traditional knowledge for curing several diseases is well documented. [3] In this regard, one plant viz., leaves of *Tinospora cordifolia* was investigated.

In traditional system of medicine, *Tinospora cordifolia* Wild Miers commonly named as "Guduchi" belonging to family Menispermaceae is known for its immense application in the treatment of various diseases. A variety of active components derived from the plant like alkaloids, steroids, diterpenoid lactones, aliphatics, and glycosides have been isolated from the different parts of the plant body, including root, stem and whole plant. The plant is of great interest to researchers across the globe because of its reported medicinal properties like anti-diabetic, anti-periodic, anti-spasmodic, anti-inflammatory, anti-arthritic, anti-oxidant, anti-allergic, anti-stress, anti-leprotic, anti-malarial, hepatoprotective, immunomodulatory and anti-neoplastic activities [4, 5, 6].

Hence, the present study is designed to investigate the *in vitro* activity of methanol and aqueous extract prepared by soxhlation and microwave assisted extraction from the leaves of *Tinospora cordifolia* against *Mycobacterium tuberculosis* H73Rv strain using Micro plate Alamar Blue Assay (MABA).

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Assessment in Improving Knowledge, Attitude, and Practice Towards Inhalers Used in Asthma and COPD Patients

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HUMAN

Merin Susan Abraham*[1], C.Sripriya[2], Vasanth.C[2], Vidhya Sree.N[2]

[1]Assistant Professor, Department of Pharmacy Practice, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India.

[2]Pharm D Interns, Department of Pharmacy Practice, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India.

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ABSTRACT

WHO describes Asthma as a chronic inflammatory disorder that affects airways whereas, COPD causes obstructed airflow from the lungs. So, this study deals with usage of inhalers in asthma and COPD patients. Main objective is to evaluate the knowledge, attitude and practice of patients on asthma and COPD regarding inhaler use with validated KAP questionnaire. It is a prospective and interventional study which is carried out in pulmonology department for Six months. Patients of adult age group (18-80 years) around 67 subjects were included. In validation of KAP questionnaire, the overall I-CVI was found to be 91.43%. The overall S-CVI were found to be 91.59% and 99% for relevance, clarity, simplicity, and ambiguity. The results of the validated KAP questionnaire reveal that the majority of the study population is having good knowledge (n=57, 85.07%), moderate attitude (n=57, 85.07%), good practice (n=48, 71.64 %) on usage of inhalers and 82.3% of study population (n= 56) were having poor overall KAP scores. While analyzing the total KAP study, the p value was<0.00001. In our study the proportion of Asthma, COPD & unclear diagnosis was found to be 31.34%, 34.32% & 34.32% respectively. It reveals majority of patients that developed asthma and COPD belonged to age group 20-30 years. Considering the gender-wise distribution male predominance was found. These finding highlights the ignorance of precise inhaler techniques in disease management. Hence medical practitioners should focus on patient education regarding inhaler techniques in order to achieve better disease control and reduce morbidity and mortality.

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Pharmacist Participation in Antimicrobial Stewardship and Evaluation of Antibiotic Drug Interaction in Hospitalized Patients in A Tertiary Care Center

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HUMAN

Aswathi V[1], Carina Tony[1], Chaithanya K[1], Merin Susan Abraham*[2], Mintu Mathew[3]

[1]Pharm D Interns Department of Pharmacy Practice, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India.

[2] Assistant Professor, Department of Pharmacy Practice, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India.

[3] M Pharm, PhD Research Scholar, Department of Pharmacology, Amrita School of Pharmacy, Kochi-682041, Kerala, India

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Keywords: Antibiotic stewardship, Bacteria, Resistance, Sensitivity, Drug interaction, Isolated organism

ABSTRACT

Antibiotic Stewardship (AS) and AS programs (ASP) have a critical role in promoting judicious antibiotic use. This study describes the need for ASP implementation in a private, large academic tertiary care center in India. The main objective is to monitor the resistance of microorganisms towards antibiotics and to assess the need for the implementation of antibiotic stewardship in the tertiary care hospital. It was a prospective observational study conducted over six months among inpatients in a tertiary care teaching hospital. Samples of all age groups, a total of 71 patients were enrolled in this study following the inclusion criteria from the culture sensitivity tests obtained from the microbiology department. Irrational antibiotic prescribing was found to be a major risk factor to the patients. Proper guidelines follow and an antibiotic treatment regimen is mandatory for the follow-up of proper study. This study confirmed the need to initiate antimicrobial stewardship in a tertiary care hospital to minimize the risks of random antibiotic use It was also found that samples with no growth of bacteria were continued to be treated with antibiotics which leads to unwanted exposure of antibiotics to the organisms aiding them to develop resistance. And these antibiotics may also develop interactions with other drugs.

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P. Padma
PRINCIPAL
The Oxford College of Pharmacy
No 619, 1st Cross, Hongasandra
Bangalore - 560 068

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Gastroretentive Floating Drug Dilivery System:A Review

Abhishek yadav, Mrs. Surinder Kaur, Dr. Gururaj S Kulkarni, Dr. Padmaa M Paarakh

Department Of Pharmaceutics , The Oxford College Of Pharmacy ,Bangalore ,Karnataka 56008, INDIA

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I. INTRODUCTION

In the past few years, significant medical advances have been made in the area of drug delivery with the improvement of novel dosage forms. The area of sustained drug delivery has graduated from being merely a research item to a commercialy viable product. An appropriately designed sustained release drug delivery system can be a major progress towards solving problems concerned with the direction of a drug to a specific organ or tissue and controlling the rate of drug delivery.

The term "optimization" is often used in pharmacy related to formulation as well as processing, and one will find it in the literature referring to any study of the formula.Drug products are frequently developed by an effective compromise between competing characteristics to attain the best formulation and process within a given set of restrictions.

Due to the various benefits like formulation flexibility, ease of administration and patient compliance the oral drug delivery is still the most preferable route of administration. A gastric floating drug delivery system (GFDDS) is particularly useful for drugs that have an absorption window in a specific region of the gastrointestinal tract that is in the duodenum and upper jejunum segments. This system prolongs the retention time of the oral dosage form in the stomach thus improving the oral bioavailability of the drug, prolonging dosing intervals and increased patient compliance. Such retention systems are useful for those drug that get degraded in the intestine like antacids, certain antibiotics and enzymes that act locally in the stomach etc.(1,2)

Some drugs get destroyed in the alkaline pH. to overcome this, gastro retentive dosage forms can be formulated using hydrophilic polymer that slowly form thick gel. which retains integrity of the formulation and stimulates the drug release through thick gel and controls the burst release.The gelatinous polymer barrier formation results from hydrophilic polymer swelling. Drug is released by diffusion and erosion of the gel barrier. [3]

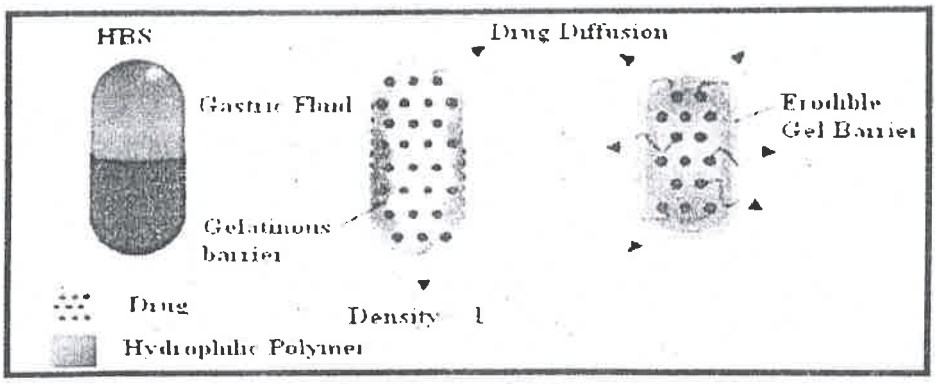

Figure 1:- Hydrodynamically balanced system (HBS)

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Original Article

FORMULATION AND EVALUATION OF ANTIFUNGAL CREAM OF CHLORPHENESIN

VEENA S.[1*], SURINDER KAUR[2], GURURAJ KULKARNI[3]

[1,2,3]Department of Pharmaceutics, the Oxford College of Pharmacy, Bangalore, Karnataka 560068, India
Email: vv121643@gmail.com

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ABSTRACT

Objective: The main aim of our research was to develop an Antifungal cream formulation consisting of Chlorphenesin for the treatment of Fungal infections. Topical route is the most suitable route for skin infections.

Methods: The development of topical drug delivery systems designed to have systemic effects appears to be beneficial for a number of drugs on account of several advantages over conventional dosage forms(or) routes of drug administration. An Antifungal cream formulation consisting of Chlorphenesin was prepared.

Results: The formulation was subjected to *in vitro* diffusion studies. Microbiological studies were performed to find out the safety of materials used in the formulation.

Conclusion: The developed cream consisting of Cholrphnesin was found to be safe and effective for the treatment of fungal infection.

Keywords: Fungal infection, Chlorphenesin, Antifungal cream

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INTRODUCTION

Several antifungal agents are available on the market in different topical preparations (e. g., creams, ointments, and powders for the purpose of local dermatological therapy). One of these antifungal agents is chlorphenesin (CHL), which has both anti-fungal and antibacterial properties. It is applied locally in mild uncomplicated dermatophyte and other cutaneous infections [1, 2].

Fungal infections (also called mycoses) represent the invasion of tissues by one or more species of fungi which may cause superficial, localized, deeper tissue infections to serious lung, blood (septicemia) or systemic diseases. Some fungi are pathogenic, causing disease whether the immune system is healthy or not [3].

Topical treatment of fungal infections has several superiorities including, targeting the site of infection, reduction of the risk of systemic side effects, enhancement of the efficacy of treatment and, high patient compliance. Different type of topical effective antifungal compounds has been used in the treatment of a variety of dermatological skin infections.

Currently, these antifungal drugs are commercially available in conventional dosage forms such as creams, gels, lotions and sprays [4].

The most common therapeutic options are systemic and topical antifungal agents; however, oral antifungals are associated with adverse effects that can cause patients to discontinue treatment, which may be complicated by the presence of comorbid conditions [5].

Antifungal drugs should reach effective therapeutic levels in viable epidermis after dermal administration. The greatest challenge for dermal delivery is stratum corneum, in order to improve its permeability, new formulation approaches have been investigated [6, 7].

MATERIALS AND METHODS

Materials

Propylene glycol, bees wax, stearyl alcohol, cetyl alcohol, Triethanolamine, propylparaben, methyl paraben, liquid paraffin. Stearic acid And Cholrphenesin were purchased from NS Chemicals, New Mumbai.

Table 1: Formulae for cream base

	S. No.	Ingredients	Quantity in gm (20 gm)							
			F1	F2	F3	F4	F5	F6	F7	F8
Oil phase (A)	1	Stearic acid	3	3.5	4	4.5	4	4.5	5	5
	2	Cetyl alcohol	0.1	0.2	0.1	0.2	-	-	-	-
	3	Potassium Hydroxide	-	0.1	0.2	0.3	-	-	-	-
	4	Sodium Hydroxide	0.03	0.02	0.01	-	-	-	-	-
	5	Coconut oil	-	-	-	-	1	2	3	4
	6	Liquid Paraffin	-	0.5	1	1.5	3	3	3	3
Aqueous	7	Glycerine	1	1.5	2	2.5	3	3	3	3
phase (B)	8	Triethanolamine	-	-	-	-	1.5	1.5	1.5	1.5
	9	Methyl Paraben	0.04	0.03	0.04	0.02	0.02	0.02	0.02	0.02
	10	Propyl Paraben	0.04	0.03	-	0.02	0.02	0.02	0.02	0.02
	11	Aloe vera gel	-	-	-	-	2	4	6	8
	12	Perfume	Qs	qs	Qs	qs	qs	qs	Qs	qs
	13	Water	qs to 20 ml	qs to 20 ml	qs to 20 ml	qs to 20 ml	qs to 20 ml	qs to 20 ml	qs to 20 ml	qs to 20 ml

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Formulation And Evaluation Of Orodispersible Tablets:A Detailed Review

Syeda Tasmiya Yaseen Huda*[1],Mrs. Surinder Kaur[2], Dr. Gururaj Kulkarni[3], Dr. Padma M Paarakh[4]

[1,2,3]*Department of Pharmaceutics,The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India*
[4]*Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India*

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I. INTRODUCTION

Oral route is presently regarded as the safest, most inexpensive and most convenient form of medication delivery resulting in high patient compliance. Oral administration of active ingredients comprises a range of technologies,many of which may be categorised as Orodispersible tablets(ODTs).Orodispersible tablets are also known as orally disintegrating tablets,mouth dissolving tablets, rapid-dissolving tablets,fast-disintegrating tablets,rapi-melts, fast-dissolving tablets[1].United States Pharmacopoeia (USP) approved these dosage forms as ODTs and recently the European Pharmacopoeia has used the term orodispersible tablet for tablets that disperses readily and within 3 min in mouth before swallowing.The United States Food and Drug Administration (FDA) has defined ODT as "A solid dosage form containing medicinal substance or active ingredient which disintegrates rapidly usually within a matter of seconds when placed upon the tongue."The disintegration time of these ODTs usually ranges from several seconds to about a minute. Orally disintegrating tablets are advantageous for populations who have difficulty in swallowing. It has been stated that dysphagia (difficulty in swallowing) is common among all age groups and more specific with paediatric, geriatric population along with institutionalized patients and patients with complications like nausea, vomiting, and motion sickness. ODTs with good taste and flavour increase the acceptability of bitter drugs by various groups ofpopulation[2].Drug absorption and dissolution as well as onset of clinical effect and bioavailability of drug may be significantly greater than those seen in conventional dosage forms.When these ODTs are placed in oral cavity, salivaquickly penetrates into the pores causing quicker tablet disintegration.According to recent market research, more than half of patients favour ODTs to alternative dosage forms. Most consumers would ask their doctors for ODTs (70%), purchase ODTs (70%), or prefer ODTs over regular tablets or liquids (>80%)[3].

These tablets are currently available on the market for the treatment of a variety of diseases, including hypertension, migraine, dysphasia, nausea, vomiting, Parkinson's disease, schizophrenia, and paediatric emergency[2].

IDEAL PROPERTIES OF ODTS[3]:

- It dissolves, disperses, and disintegrates in the mouth in a matter of seconds without the use of water.
- Have a pleasant taste in the mouth.
- Have an acceptable taste masking property.
- Be harder and less friable
- No or leave minimal residue in mouth after administration.
- Exhibit low sensitivity to environmental conditions (temperature and humidity).
- Enable tablet production with standard processing and packaging equipment.

ADVANTAGES OF ODTs[4]:

- Administration of ODTs to the patients who have difficulty in swallowing, such as the elderly, stroke victims, bedridden patients, patients affected by renal failure & patients who refuse to swallow such as paediatric, geriatric & psychiatric patients.
- Rapid drug therapy intervention.
- Rapid absorption and increased bioavailability is achieved through pregastric absorption of drugs from mouth, pharynx & oesophagus as saliva passes down.
- Convenient for administration and patient compliant for disabled, bedridden patients and

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A Review Ontopical Cream

Veena S*[1], Mrs. Surinder kaur[2], Dr. Gururaj Kulkarni[3], Dr. Padma M Paarakh[2]
[1,2,3]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India
[4]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India

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I. INTRODUCTION

- Topical drug administration is a localized drug delivery system anywhere in the body through ophthalmic, rectal, vaginal and skin as topical routes. These are applying a wide spectrum of preparations for both cosmetic and dermatological, to their healthy or diseased skin. These formulations range in physicochemical nature from solid through semisolid to liquid.
- Drug substances are seldom administered alone, but rather as part of a formulation, in combination with one or more non medicated agents that serve varied and specialized pharmaceutical function. Drugs are administered topically for their action at the site of application or for systemic effects.
- Drug absorption through the skin is enhanced if the drug substance is in solution, if it has a favorable lipid/water partition coefficient and if it is a nonelectrolyte. 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.
- Drug applied to the skin for their local action include antiseptics, antifungal agent, skin emollients and protectant. The main advantages of topical delivery system are to bypass first pass metabolism. Avoidance of the risks.
- Fungal infections of skin are one of the often-faced dermatological diseases in worldwide. Topical therapy is an advantageous treatment choice for the cutaneous infections due to targeting of drugs to the site of infection and reduction of the systemic side effects. [3]
- A number of formulation strategies have been investigated for delivering antifungal compounds through targeted site of the skin. The purpose of topical dosage forms is to conveniently deliver drugs to a localized area of the skin and microemulsions can be used to deliver drugs via several routes and their composition and structure enables them to incorporate greater amount of drug than other topical formulations.[1]
- Topical agents that are conventionally used for the treatment of skin fungal infections are usually formulated as creams, lotions or gels. They either exhibit fungicidal or fungistatic actions depending on the agent being delivered. Since the side effects of fungal agents applied topically are less than their oral counterparts, they are the preferred agents.
- Another advantage of topical formulation is that it avoids drug-drug interactions, which are more common in case of oral administration.
- A drug must have some specific characteristics to be delivered in the form of a topical preparation for treatment of skin fungal infections; the most important of these is its lipophilic nature. When such a drug is applied on the skin, a depot is formed in the lipidic stratum corneum which releases the drug slowly to the underlying skin layers, that is, epidermis and dermis. Therefore, in order to achieve a topical effect for an antifungal drug, the release rate of this lipophilic drug should be controlled by the formulation in order to achieve high local therapeutic concentration and to provide prolonged pharma cological effect.
- Another important consideration is the molecular weight of the drug; this is especially important for antifungal drugs known to exceed 500 Da such as amphotericin B and ketoconazole. These considerations have led to the development of several carriers which were found to improve topical drug delivery by eitherfinding a way into a shunt such as hair follicle, accumulating betweencorneocytes, and intermingling with skin lipids, or by disintegrating and merging with lipidic layers.

P. Padma

A Review on Mucoadhesive Buccal Tablets

Tejaswini B[*1], Dr. Gururaj S. Kulkarni[2], Padma M. Paarakh[3]
[1,2]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India
[3]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India

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ABSTRACT: The delivery of drugs through the buccal mucosa has received a great deal of attention over the last two decades, and yet there are not many buccal delivery products available on the market. The buccal route offers an attractive alternative for systemic drug delivery of drugs because of better patient compliance, ease of dosage form removal in emergencies, robustness, and good accessibility. Use of buccal mucosa for drug absorption was first attempted by Sobrero in 1847, and since then much research was done to deliver drugs through this route. The oral mucosa provides a protective covering for the underlying tissue, being as a barrier for microorganisms and toxins. This article extensively reviews the anatomy and physiology of buccal mucosa, buccal drug delivery system andtheir components, theories, factors affecting drug absorption through buccal mucosa and evaluation.

Key Words: Buccal drug delivery, Mechanism, Theories, Polymers, Evaluation.

I. INTRODUCTION

Among the various routes of drug delivery, oral route is perhaps the most preferred by the patient. However, peroral administration of drugs has disadvantages such as hepatic first-pass metabolism and enzymatic degradation within the GI tract that prohibit oral administration of certain classes of drug[1].Oral administration is the most popular route due to ease of ingestion, pain avoidance, versatility (to accommodate various types of drug candidates)andmost importantlypatientcompliance. Also, solid oral delivery systems do not require sterile conditions and are, therefore, less expensive to manufacture. Several novel technologies for oral delivery have recently become available to address the physicochemical and pharmacokinetic characteristics of drugs, while improving patient compliance[2].Absorption of drugs through the oral cavity was noted as early as 1847, and systemic studies of oral cavity absorption were first reported in 1935. Since then, substantial effort has been focused on drug absorption from a drug delivery system in a particular region of the oral cavity[3].

Numerous features of the oral cavity make it a complex and difficult area for systemic drug delivery. The oral cavity comprises several structures and serves many functions. The oral cavity is a moist environment; the membranes that line the oral cavity are covered with mucus which is derived mainly from minor salivary glands and are constantly bathed in saliva, an aqueous substance rich in inorganic salts, proteins and bacteria. Saliva has a variety of functions and is continuously secreted into, distributed around and removed from the oral cavity. This review examines the potential of the oral cavity as a site for drug delivery. The advantages, limitations and future directions of this route are critically evaluated[4].

BUCCAL DRUG DELIVERY SYSTEM

Since the early 1980s, the concept of mucoadhesion has gained considerable interest in pharmaceutical technology[5].In the last decade considerable interest has been focused on buccal drug delivery systems using the oral mucosal cavity as an attractive administration route. Several advantages such as relative permeability, robustness and short recovery after stress or damage are related to mucous membrane. However, oral mucosa has been considered advantageous to the oral route because they bypass the hepatic first-pass effect and pre-systemic metabolism into the gastrointestinal track. Furthermore, drug absorption can be discontinued in the case of toxic effects by discharging the formulation from the buccal cavity. Bioadhesive formulations have been developed to enhance the bioavailability of drugs that undergo substantial first-pass hepatic effect and to control the drug release to a constant rate[6].

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P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 619, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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Evaluation of plant-derived compounds to inhibit COVID-19 through *in silico* studies

M Padmaa Paarakh[1*], Shruthi SD[2] and Sharath B S[3]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Begur Road, Hongasandra, Bangalore 560 068, Karnataka, India
[2]Microbiology and Molecular Biology Lab, BioEdge Solutions, Bangalore 560058, Karnataka, India
[3]Department of PG studies and research in Biotechnology and Bioinformatics, Kuvempu University, Shankaraghatta, Shivamogga 577451, Karnataka, India

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The recent threat which has received worldwide attention is COVID-19, a rapidly spreading new strain of Coronavirus. It has affected more than 176 countries and due to the lack of efficacious drugs or vaccines against SARS-CoV-2, it has further worsened the situation everywhere. After infecting the host, the ssRNA genome of SARS-CoV-2 is translated into a large polyprotein which will be further processed into different nonstructural proteins to form a viral replication complex by the virtue of virus-specific proteases namely main protease (3-CL protease) and papain protease. The crystallized form of SARS-CoV-2 main protease (Mpro) is demonstrated to be a novel therapeutic drug target according to current research. The present study was conducted to evaluate the efficacy of few plant-based bioactive compounds against COVID-19 Mpro (PDB ID: 6LU7; Resolution 2.16 Å) by molecular docking study. Molecular docking investigations were performed by using Auto DockVina to analyze the inhibition capacity of these compounds against COVID-19 as a whole complex and also in the absence of Chain C which is present with protein as a peptide. According to the obtained results, Ritonavir and Curcuminwere found to be more effective on COVID-19 than nelfinavir which is an anti-HIV drug. This is followed by Glycyrrhizin and Piperine, which correlates with COVID-19 as a whole complex and also in the absence of Chain C. So, this study will pave a way for performing more advanced experimental research and to evaluate the natural compounds to cure COVID-19.

Keywords: COVID-19, *In silico* studies, Plant-derived compounds, SARS-CoV-2.

IPC code; Int. cl. (2015.01)- A61K 31/00, A61K 36/00

Introduction

Coronavirus infection was first identified in Wuhan in China in December 2019 which became the centre of a pneumonia outbreak of unknown cause[1]. In early January 2020, Chinese scientist pinpointed a novel Coronavirus strain from people of Wuhan which started at a local seafood/wild animal market[2]. Severe acute respiratory syndrome [SARS] associated with this disease was named 2019-nCOV, which is now named COVID-19[3]. Coronavirus is not a new virus, it was discovered in 1960 causing illness among animals including camels, cattle, cat, and bats. Transmission from animal to human was not reported until 2002. SARS outbreak and later in 2012 as MERS outbreak was due to transmission from animal to human confirmed transmission[4]. Coronavirus which is transmitted by respiratory droplet and contaminated surfaces is known to cause common colds. At present, there are a total of seven strains of human coronavirus which include alpha coronavirus [HCOV-229E; HCOV-NL63] and beta CORONA VIRUS [HCOV-OC43; HCOV-HKU1; SARS-COV-1; MERS-COV and now SARS-COV-2][5]. The first reported International case in Thailand on 13 January 2020 was transmitted by an infected person from Wuhan and slowly started spreading to other parts of the world. On 30 January 2020, the World Health Organization (WHO) emergency committee designated the novel coronavirus outbreak as Public health emergency of International concerns (PHEIC). After 6 weeks (11.03.2020), WHO declared COVID-19 as pandemic[6]. People who have developed pneumonia due to SAR-COVwere characterized with a distinct lung appearance of ground glass opacity in specific shapes and sites as the severity of the disease progresses[7]. It is suggested that SAR-COV may be

*Correspondent author
Email: padmaparas@hotmail.com
Mob: 9880681532

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Review Article

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REVIEW ON APPROACHES TO DEVELOP ORODISPERSIBLE TABLETS(ODT'S)

Divya R.*[1], Dr. Gururaj S. Kulkarni[2] and Dr. Padmaa M. Paarakh[3]

[1,2]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India.
[3]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India.

***Corresponding Author: Divya R.**
Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India.

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ABSTRACT
Formulation of a convenient dosage form for administration, by considering swallowing difficulty and poor patient compliance, leads to development of orally disintegrating tablets. This is also called as orodispersible, mouth dissolving, rapidly disintegrating, and fast melt system. This disintegrates in the mouth in seconds without chewing and the need of water which is advantageous mainly for paediatrics, geriatrics and patients having difficulty in swallowing tablets and capsules. Conventional preparation methods are spray drying, freeze drying, direct compression, Moulding, and sublimation etc, while new technologies also have been developed for the production of orodispersible tablets. This review depicts conventional, recent and patented technologies that are used to prepare orodispersible tablets in detail.

KEYWORDS: Orodispersible tablets, Approaches, Superdisintegrants, Conventional techniques, Patented technologies.

INTRODUCTION

- The tablet is the most widely used solid dosage form because of its convenience in term of self-administration, compactness, accurate dosage and ease in manufacturing.[1]

- Therefore, many attempts are made to formulate most chemical entities under development as solid dosage forms that also guarantee an effective and reproducible plasma concentration after administration. The main problem associated with oral dosage forms is the difficulty of swallowing mainly for paediatrics, geriatrics, bedridden, and nauseating, or mentally disabled patients.[2]

- Dysphagia, or difficulty in swallowing, is common in about 35% of the general population, as well as an additional 30–40% of elderly institutionalized patients and 18–22% of all persons in long-term care facilities. Common complaints about the difficulty in swallowing tablets and hard gelatin capsule, in the order of frequency of complaints are size, surface, form, and taste of tablets. Geriatric and paediatric patients and traveling patients who may not have ready access to water are most in need of easy swallowing dosage forms.[3]

- In order to solve this problem and improve patient acceptance and compliance, the development of solid dosage forms that disintegrate rapidly or dissolve even when taken orally without water is being undertaken. Oral fast-disintegrating dosage forms (tablet or a capsule) are a relatively novel dosage technology that involves the rapid disintegration or dissolution of the dosage form into a solution or suspension in the mouth without the need for water. The dosage form begins to disintegrate immediately after coming into contact with saliva, with complete disintegration normally occurring within 30-50 s after administration. The solution containing the active ingredients is swallowed, and the active ingredients are then absorbed through the gastrointestinal epithelium to reach the target and produce the desired effect. The faster the drug into solution form, quicker the absorption and onset of clinical effects.[4]

- The United States Food and Drug Administration defines ODT as "a solid dosage form containing medicinal substance or active ingredient which disintegrates rapidly usually within a matter of seconds when placed upon the tongue." The disintegration time for ODTs generally ranges from several seconds to about a minute. The drug is being absorbed from mouth, pharynx and oesophagus as the saliva passes down into the stomach. A fraction of pregastric drug absorption may bypass the digestive system and metabolism by the stomach acids and enzymes. In such cases bioavailability of drug is significantly greater than those observed from conventional tablet dosage form. Recently, the European Pharmacopoeia has used the term

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In vitro anticancer activity of silver nanoparticle synthesized from *Punica granatum* dried peel against cancer cell lines

M. Padmaa Paarakh[1]* and Preethy Ani Jose[2]

[1]Department of Pharmacognosy, [2]Department of Pharmaceutics, The Oxford College of Pharmacy, 6/9, 1 Main, Begur Road, Hongasandra, Bangalore 560 068, Karnataka, India

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The main aim of the investigation was to screen the silver and gold nanoparticle synthesized from the methanol concentrate of *Punica granatum* for its *in vitro* anticancer activity against MCF 2, PC3, A-549, HeLa, and HepG2 cell lines. Silver and gold nanoparticles were prepared from methanol concentrate of *P. granatum* and nanoparticle synthesized was analyzed by UV and TEM analysis. The impact of nanoparticles synthesized on MCF-2, PC3, A-549, HeLa, and HepG2 disease cell lines was assessed by MTT colourimetric assay and the impact on cell cycle was assessed by flow cytometric method. After assessing the cytotoxicity effect, the impact of apoptosis was also analyzed. The TEM analysis showed the particle size of 25.56 and 22.02 nm for gold and silver nanoparticles respectively. The adequacy of silver nanoparticles synthesized from *P. granatum* against MCF-2, PC3, A-549, HeLa, and HepG2 cell line demonstrated that the hatching of malignancy cells decreased the suitability of PC-3 and A 549 cancer cells lines only with IC_{50} values as 108.7 and 88.42 µg/ml respectively. Gold nanoparticles didn't have any activity against all the cancer cell lines. Cell cycle analysis and apoptosis study showed that Silver nanoparticles are effective in controlling the cell cycle and blocking the apoptosis in all the cell lines used. *P. granatum* can be a very good anticancer drug for various cancer cell lines. All in all, *P. granatum* has a critical cell reinforcement movement and anticancer action.

Keywords: Apoptosis, Cell Lines, Cell cycle, *In vitro* anticancer activity, *Punica granatum*, *Silver nanoparticle*.

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Introduction

Cancer being a deadly disease have a high rate of multiplication because of independent development signals, continued angiogenesis and can attack tissues and metastasize apart from that malignancy, cells show protection from apoptosis. Plants have a huge number of functioning constituents with remedial properties. Various traditional systems of treatment includes cancer preventing agent by mitigating, DNA fix, and acceptance of apoptosis, invulnerable initiation and hindrance of cell cycle movement[1,2]. Hindrance of cell cycle movement, relocation, and attack, together with activating apoptosis can be viewed as techniques for disease treatment.

Punica granatum L. (Family Punicaceae/Lythraceae) commonly known as the pomegranate is a large deciduous shrub or a small tree up to 5-10 m in height, wild and cultivated throughout India up to an altitude of 2000 m in the hills[3]. In the traditional system of medicine, root and stem bark are used as astringent, cooling, anthelmintic, good for tapeworm, strengthening gums and diarrhoea; flowers are used for styptic to gums, ophthalmic pain, hematuria, intrinsic haemorrhage, haemorrhoids, diarrhoea, dysentery, ulcer, pharyngitis, and epistaxis; fruits are sweet, sour, astringent, cooling, tonic, aphrodisiac, laxative, diuretic, anaemia, hyperdipsia, dyspepsia, pharyngitis, ophthalmic pain, pectoral disease, splenic disorder, bronchitis, earache, and diarrhoea; fruit rind is used for dysentery, gastric disorder, bleeding piles, freckles, and gonorrhoea; seeds are used as astringent, stomachic, diuretic, cardiotonic, vomiting, excessive thirst, hepatic and splenic disorder[4-9].

This plant has been reported to have antibacterial, antifungal, hypoglycemic, anti-oxidative, hypolipidemic, analgesic, immunomodulatory, anticonvulsant, anthelmintic, antifertility, antidiabetic, anti-inflammatory, gastroprotective, uterine stimulant cytotoxic, carcinogenesis, angiogenesis, atherosclerosis, hypertension, carotid artery stenosis, myocardial perfusion, dental conditions, ultraviolet radiation, erectile dysfunction, male fertility, neonatal hypoxia

*Correspondent author
Email: padmaparas@hotmail.com

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Study the susceptibility pattern of bacteria isolated from infected wounds and determine various risk factors associated with foot ulcer

Divya C Reddy, Ashin Vareeth, Bonnie Ascah Joseph, Anu Thomas, Sheba Baby John, Parthasarathy G*

Department of Pharmacy Practice, The Oxford College of Pharmacy, The Oxford College of Pharmacy, Hongasandra, Bengaluru-560068, Karnataka, India

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ABSTRACT

Studying of bacteria prevalence and antimicrobial susceptibility in samples from foot ulcer patients with chronic wounds will provide the epidemiological information on chronic wound infections, representing support for diagnosis, treatment and management of this pathology, thus preventing further complications of foot infection. There are many risk factors associated with a foot ulcer, so identifying those risk factors and preventing them will help in reducing the incidence of the disease to a certain extend. Identifying the type of organisms causing the chronic wound infection, antibiotic sensitivity and resistance representing support for diagnosis, treatment and management thus preventing further complications of foot infection, and to understand the significant risk factors associated with the development of foot ulcers.An interventional study was conducted among the 80 patients with foot ulcers admitted in General surgery ward of a medical college teaching hospital from Dec 2018 to May 2019. Antimicrobial susceptibility results showed that gram-negative organism was more prevalent and among the species, the isolated majority was found to be Staphylococcus aureus 28 (0.35%) followed by Klebsiella 16(20%) and E.coli15(18.75%). The most sensitive antibiotic found was Meropenam70 (87.5%) followed by Imipenam 67(83.75%) and Linezolid 65(81.25%) The most resistant antibiotic was Cotrimoxazole 66(82.5%). This study concludes that high proportion of foot ulcers were found amongst diabetic patients than non-diabetic patients, and were often associated with trauma, cellulitis, gangrene. Some of the critical risk factors for foot ulcers included low educational status, previous history of foot ulcer, previous amputation was done, duration of ulcers, smoking, peripheral neuropathy, infection and HbA1c levels of patients.

*Corresponding Author

Name: Parthasarathy G
Phone: 9886431015
Email: mypartha@gmail.com

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INTRODUCTION

Foot ulcers are mainly associated with diabetes but can be seen in people without diabetes also. This can be a significant saddle to patients and also the health care system, especially those that recur or do not heal. A foot ulcer is defined as an open sore on the foot or a thin red crater that involves not only the superficial skin but also can be very deep [1–3]. Patients with diabetes, diabetic neuropathy and other circulation issues are more likely to get foot ulcers. Other factors that increase the risk of foot ulcers include Heart diseases, kidney diseases, obesity, nerve damage, wounded feet, tobacco use [4].

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An interventional study to assess the quality of life in abnormal uterine bleeding in a medical college teaching hospital

Manikanth BN, Konudula Revathi Sindhu, Juveria Banu, Jennilyn James, Sheba Baby John, Parthasarathy G*

Department of Pharmacy Practice, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India

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ABSTRACT

Abnormal uterine bleeding has a major impact on a woman's quality of life. This study aimed to improve quality of life rather than focusing on the amount of blood loss and also to understand how it affects their quality of life. Patients demographic and therapeutic details were collected (name, age, sex ect. for 80 patients suffering from abnormal uterine bleeding are taken from medical college teaching hospital. The quality of life in patients with abnormal uterine bleeding is assessed using SF 36 questionnaire. Then the follow up is done for quality of life in patients with abnormal uterine bleeding using SF 36 questionnaire. This study showed that before counseling the age group of 51-60 years have less physical functioning when compare to other groups and BMI of 0<18.5 have more improvement is seen in physical functioning after counselling. The age group of 21-30 years has less limitation due physical functioning when compare to other groups. Before counselling the age group of 21-30 years felt more pain, was decreased after counselling. Regarding the Quality of life, the impact of AUB encompasses all aspects of QOL with eight health domains measured by SF-36 result shows 32% of the patients quality of life is poorest. Provided counselling to the patients proved to be beneficial in improving their health related QOL. This leads to a conclusion that the public as well as policy makers need to increase awareness of the impact of this common benign gynecologic disorder.

*Corresponding Author

Name: Parthasarathy G
Phone: 9886431015
Email: mypartha@gmail.com

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INTRODUCTION

Abnormal uterine bleeding(AUB) or dysfunctional uterine bleeding (DUB) is defined as an irregular uterine bleeding that occurs in the absence of recognizable pathology of pelvic, medical disease or pregnancy. It reflects in the ordinary cyclic pattern disruption of ovulatory hormonal production to the endometrial lining [1, 2].

The bleeding is unpredictable and can be excessively heavy or light and maybe prolonged, frequent, or random [1].

Quality of life

Quality of life is the degree of the well-being of individuals and societies.

Measurement of health-related Quality of Life of a patient is an essential fact in their treatment regimen. It helps in judging the quality of life experienced by the patient who is suffering from the ail-

ORGINAL ARTICLE

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Assessment of knowledge and risk factors about gestational diabetes mellitus among pregnant women in a tertiary care hospital

Priyanka G, Preethu Elsa Prasad, Muhammad Sabith, Rafiunnissa, Parthasarathy G*

Department of Pharmacy Practice, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India

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Risk factors,
WINGS project

ABSTRACT

Proper Gestational diabetes mellitus(GDM) management is important for better health outcomes. Knowledge and education are key components for better treatment and diabetes control. In patients with GDM, poor health literacy may be there which is associated with poor diabetic control and require educational program to improve health outcomes. A risk factor is any characteristic of an individual that can increase the likelihood of developing a disease. Risk factor assessment is usually recommended in many populations in early pregnancy. The prospective study was conducted for 6 months to assess knowledge and risk factors associated with gestational diabetes in 58 pregnant women using KAP questionnaire from WINGS project.The study found that knowledge among non GDM patients was poor when compared to GDM patients. Family history and obesity were found to be the major risk factors for development of gestational diabetes. So the future direction should focus on early prediction and effective preventive measures before GDM develops .Therefore a need for patient counseling is essential to reduce the GDM patients in future.

*Corresponding Author

Name: Parthasarathy G
Phone: 9886431015
Email: mypartha@gmail.com

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INTRODUCTION

As per World Health Organization (WHO), Gestational Diabetes Mellitus (GDM) is defined as any degree of glucose intolerance with onset or first during pregnancy .So as the definition says there are chances of either returning or not returning to normal blood glucose levels after delivery [1].

Gestational diabetes, similar to type 2 diabetes, develops when the body is no longer able to respond effectively to insulin a condition called insulin resistance. Insulin resistance in pregnant women is mainly due to hormonal changes. More specifically, insulin resistance happens due to an imbalance between levels of certain insulin- or glucose affecting hormones in the body during pregnancy. The hormones that raise blood glucose or break down insulin produced more than those that lower blood glucose, resulting in elevated blood glucose levels [2] .

For people with chronic disease like diabetes require self-management as an important part of treatment strategies .People should have proper knowledge and skills for effective self-management of disease. Proper GDM management is important for better health outcomes.Knowledge and education are key components for better treatment and diabetes control [3]. By providing proper knowledge and education about healthy eating habits, weight control, physical activity, regular checkup, screening, risk factor and complications of GDM, helps in achieving better control of diabetes and

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A VIEW ON HERBAL MEDICINES AND FOOD HABITS OF INDIANS AND IT'S EFFECTS ON COVID-19 AND MORTALITY RATE

Divya R.[1], Dr. Gururaj S. Kulkarni*[1], Dr. Padma M. Paarakh[2]

[1]Department of Pharmaceutics The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India.
[2]Department of Pharmacognosy The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India.

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***Corresponding Author**
Dr. Gururaj S. Kulkarni
Department of Pharmaceutics
The Oxford College of Pharmacy, Bangalore, Karnataka-560068, India.

ABSTRACT

Since last decade the most of new infections which are causing panic effects in humans are viral infections. Many viral infections have attacked on humans and cause numerous losses of human lives. Despite of this scientists and health professional are struggling to find a right therapy to treat or eradicate completely these viral infections. There are various reasons for this delaying getting right medicines or vaccines. In such difficult situation the Indian herbal medicines and spices used in the regular food preparations proved savior to treat or control these viral infections particularly in this pandemic COVID-19. Indian herbs and spices have enormous medicinal and antioxidant properties, this prevents the effects of viral infections either by killing theme by its anti-viral properties or boost the immunity to minimize the effects of viruses. The best example for herbal medicines is turmeric curcumin, which has both anti-viral, antioxidant and prophylactic properties. Such herbs or spices helping in combating the pandemic COVID-19.

KEYWORDS: COVID-19, Herbal, Curcumin, Anti-viral.

INTRODUCTION

- Many viral infections are still causing tremendous threat to human being such as HIV, coronavirus, SARS, avian influenza, swine flu, Dengue virus, Ebola virus, etc. There are no efficient conventional medications or vaccines for most of these viruses. Consequently, alternative natural medications are an urgent requirement to fill the gap of unavailability of conventional therapies or vaccines. Complementary and alternative medicine has been used for centuries in many societies to treat various illnesses, including viral infections. Herbal, dietary, complementary, and natural therapies have been used widely for prevention and treatment of viral infections.[1]
- A viral disease (infection) occurs when an organism's body is invaded by pathogenic viruses and infectious virus particles (virions) attach and enter susceptible cells. Basic structural characters of the same family are same such as genome type, shape of virus replication site. There are 21 families which cause disease in humans. 5 families are ds DNA, 3 are nonenveloped (Adenoviridae, Papillomaviridae and Polyomaviridae) and 2 are enveloped (Herpesviridae and Poxviridae). 1 family is partly dsDNA Hepadnaviridae, enveloped. 7 families are ssRNA of which 3 are nonenveloped (Astroviridae, Caliciviridae and Picornaviridae) and 4 enveloped (Coronoviridaer, Flaviviridae, Retroviridae and Togaviridae). All nonenveloped families have icosahedral nucleocapsids. 6 negative ssRNA families (Arenaviridae, Bunyaviridae, Filoviridae, Orthomyxoviridae, Paramyxoviridae, Rhabdoviridae, enveloped with helical nucleocapsid,1dsRNA Reoviridae and 1 add (Hepatitis D) not assigned.[2]
- Among these viruses, the pandemic of Corona Virus (COVID-19) hit India recently. The coronavirus disease (Covid-19) first appeared in the Wuhan district of Hubei province of China in early December 2019. The first case was reported by China on January 7, 2020, and this aroused variable interest worldwide, with most countries initially ignoring the novel infection. Fortunately, Indian health authorities sensed the danger, largely because the country has always been alert to new infections. The scientific think-tank at the Indian council of Medical Research (ICMR) became active immediately and the first laboratory confirmed case was identified at ICMR's National Institute of Virology (NIV), Pune, sometime towards the end of January 2020.[3]
- Corona is a single stranded RNA virus that had its roots into the world from almost 60 years since its discovery in late 1960s. Corona viruses belong to the Corona viridae family in the Nidovirales order. The nomenclature of the Corona virus is named after the crown-like spikes on the outer surface of the virus structure. The virus has been infecting animals like chickens and pigs but there was no major human contraction to humans. Earlier, the allied viruses of the same family like the Severe acute

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FORMULATION DEVELOPMENT AND EVALUATION OF NOVEL PEDIATRIC SUSPENSION FOR ANTIDIABETIC DRUG GLIBENCLAMIDE

Vanitha K., Divya S. Kumar, Gururaj S. Kulkarni* and Dr. Padmaa M. Paarakh

Department of Pharmaceutics, the Oxford College of Pharmacy, Bangalore, Karnataka-560068.

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***Corresponding Author**
Dr. Gururaj S. Kulkarni
Professor & HOD,
Pharmaceutics Department,
The Oxford College of
Pharmacy Bangalore,
Karnataka-560068.

ABSTRACT

Background: Glibenclamide is a second-generation oral sulfonylurea and most widely used in the treatment of NIDDM and more effective and safer than first-generation agents. In recent days diabetes is diagnosed in children and tablets may not ideal for child patients by oral route. Here an attempt is made to prepare and evaluate the oral suspensions of Glibenclamide for diabetic children. **Objectives:** The main aim of this project is to prepare novel pediatric suspension of anti-diabetic drug using NaCMC and Xanthan gum as a suspending agent with different concentration of polymers and size reduction of drug. **Methods:** The particle size of the drug was reduced and moistened with wetting agent and triturated with suspending agent in glass mortar pestle to form smooth paste. Preservative, buffering agent, etc., are added and mixed well by stirring. Added sufficient quantity of deionized water to make the final volume. **Results**: The prepared suspensions were evaluated for drug uniformity, particle size, pH, sedimentation volume, viscosity, redispersibility, flow rate, *in vitro* dissolution studies. F11 formulation having Xanthan gum 0.5%, drug particle size 80µm was found to show the better results as compared to other formulations. **Conclusions:** The sedimentation volume was increased with decreasing the particle size of drug. F11 formulation was selected as the best formulation. It showed 0.60 F Sedimentation volume, 662Cps Viscosity, 98.5±0.4 % CDR, and 98.85±0.490 % drug content. The stability study of formulation F11 found that there is no change in the characters of suspension after 3months.

KEYWORDS: Glibenclamide, Particle size, NaCMC, Xanthan gum, Suspension, etc.

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A STUDY ON PRESCRIPTION PATTERNS OF WATER SOLUBLE VITAMINS IN A MEDICAL COLLEGE TEACHING HOSPITAL

Anju K Abraham[1], Anit Babu,[1] Anaswara S Nair[1], Ansu Mary Kurian[1], Rini Susan Varghese[2], Sheba Baby John[2*]

[1] Pharm D interns, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.
[2]Assistant Professor, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.

ABSTRACT

The importance of various vitamins on human health depends on their ability for prevention and treatment of various diseases. Vitamin studies are less focused or emphasized but expected to have an important impact in upcoming years. Objectives: To analyze the utilization pattern of water soluble vitamins(Vitamin B and Vitamin C) using Optimum Nutrition Questionnaire in a Medical College Teaching Hospital.. Vitamin B includes B1,B2,B3,B5,B6,B12. Folic acid and biotin have been analysed in specific due to its increased utility in hospitals. Methods: A prospective observational study was carried on 140 subjects for a period of six months. Patients above 18 years of age prescribed with Vitamin supplements admitted for various ailments and those who are able to communicate effectively and willing to participate in the study were included. Socio-demographic details and prescription analysis were done as well as Symptom and Lifestyle analysis was performed by using a standard Optimum Nutrition Questionnaire. The patients were counseled regarding the dietary modifications using a bronchure.. Statistical analysis was performed using Chi square test and results were obtained. Results: Out of 140 patients, Vitamin B(B1,B2,B3,B5,B6,B12)Deficiency was most frequently seen in Gastric disease(70.5%)whereas Folic acid and Biotin deficiency in Anaemic patients(72.7%).Vitamin C deficiency was observed more in Liver disease patients (55.6%).Males were found to be more deficient in Vitamin B,(75%) Folic acid(69%) and Vitamin C(51%)while Biotin deficiency was seen in Females(51%). Based on age group patients above 60 years of age were found to be more deficient in Vitamin B(47.6%) and Folic acid (59.1%).While that of Biotin and vitamin C was found more in the age group between 20-30 years(72.7%)and 31-50years (48.5%)respectively. On comparing the social habits, Vitamin B deficiency was seen more in smokers and Folic acid in that of Alcoholics (66.6%) whereas Biotin and Vitamin C were found to be more deficient in those patients who were both smoker and alcoholic,i.e.69% and 37% respectively. Conclusion: From our using Optimum Nutrition Questionnaire, we concluded that most of the patients were found to be deficient in Vitamin B and C due to their poor eating habits and lifestyle.

Keywords: Optimum Nutrition Questionnaire, Water soluble Vitamins.

INTRODUCTION

Vitamins are organic substances which are needed for normal growth and nutrition and are required in trace amounts.[1]Human body is not able to produce enough of the vitamins or it does not produce any of it.[1] Different vitamins play different roles and are needed in different quantities .

Water Soluble Vitamins are not stored in the body. These have to be taken externally from the diet and get easily destroyed while cooking. Ex: B Vitamins AND Vitamin C[1].Vitamin studies are less focussed or emphasised, when actually vitamins are expected to have an important impact in upcoming years.

Corresponding Author:- **Sheba Baby John** Email:- johnagitha1996@gmail.com

(12)

P Padma

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Review Article

Catharanthus Roseus Linn—A Review

M Padmaa Paarakh*, S Swathi, Tasneem Taj, V Tejashwini and B Tejashwini

Department of Pharmacognosy, The Oxford College of Pharmacy, Bengaluru

*Corresponding Author: M Padmaa Paarakh, Department of Pharmacognosy, The Oxford College of Pharmacy, Bengaluru.

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Abstract

Cancer, the most dreaded six letter bomb afflicting mankind in the worst possible ways. Over few decades, there is an excellent progress made but treatment of cancer still remains an enigma. However, nature always has its way of maintaining balance and we have been blessed with the boon of plants producing exceptionally promising anti-cancerous activities. The most successful higher plant material used in cancer chemotherapy are alkaloids of *Catharanthus roseus*, commonly known as the Madagascar periwinkle or rosy periwinkle, a species of flowering plant in the dogbane family-Apocynaceae. It is native and endemic to Madagascar, but frequently grown as an ornamental and medicinal plant, the storehouse of the very famous oncolytic alkaloids - vincristine and vinblastine, used effectively to treat cancer. In this review, we have highlighted the pharmacognostical characteristics, cultivation, chemical constituents and pharmacological uses of the plant.

Keywords: *Catharanthus Roseus*; Ethnobotany Uses; Pharmacognosy; Pharmacological Activity; Review

Introduction

Catharanthus roseus Linn (synonym: *Vinca rosea*; Madagascar periwinkle; Apocynaceae) a perennial plant is commonly seen in tropical counties and are native to Madagascar and Southern Asia [1,2]. The plant has spread all over tropical and subtropical parts of India and grows wild all over the plains and lower foothills in Northern and Southern hills of India. In Malaysia it is locally called as Kemunting Cina. The periwinkle logo as a symbol for hope for cancer patients is used by National Cancer Council of Malaysia [3]. The flowers produced by these plants are planted for decorative purposes are of colours such as pink, purple and white Madagascar periwinkle is used traditionally for number of ailments such as high blood pressure, infection and diabetes mellitus. Stem produces a milky sap which is a source for more than 70 indole alkaloids. Vincristine and vinblastine were isolated from this plant are well known anti cancer drugs for Hodgkin's lymphoma and childhood leukemia respectively. The mechanism of action being binding to tubulin thus inhibit the metaphase of cellular mitosis. Hair loss, peripheral neuropathy, constipation and hyponatremia are the major side effects of this drugs [4,5].

Scientific classification [6]

Kingdom: Plantae
Division: Magnoliophyta (Flowering plants)
Class: Magnoliopsida (Dicotyledons)
Order: Gentianales
Family: Apocynaceae
Genus: *Catharanthus*
Species: roseus

Vernacular names [7]

Sanskrit: Nityakalyani, rasna, sadampuspa, sadapushpi
English: Cayenne jasmine, old maid, Madagascar periwinkle, Red periwinkle
Hindi: Sada suhagan, sadabahar
Kannada: Batla hoo, bili kaasi kanigalu, ganeshana hoo, kempu kaasi kanigalu

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Research Article

EVALUATION OF MEDICATION ADHERENCE AMONG OSTEOPOROTIC WOMEN IN A TERTIARY CARE TEACHING HOSPITAL

Kaveri Bopanna M[1], Neelam Singh D[1], Nithya Indian R [1], Nimisha K Joseph[1], Sheba Baby John*[2]

[1] Pharm D interns, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.
[2]Assistant Professor, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.

ABSTRACT

Background: Medication adherence is a crucial component in treating chronic diseases like osteoporosis, having a greater influence in patient's condition to a significant extent. It has to be studied in order to decrease the complications induced by co-morbidities like hypertension, hyperthyroidism, diabetes mellitus etc., Elderly patients and those who are on multiple medication that can lead to various adverse events, show a magnificent loss of adherence to the treatment plan which increases the chances of patients not recovering from the illness. Methods: A total of 120 female osteoporotic patients aged 35 years and above were given a 4 item questionnaire (MMAS- Morisky, Green and Levine medication adherence scale) prior to counseling, were scored and counselled accordingly as a measure to improve their medication taking behavior. Results: The study illustrates that 70 (58.3%) patients are non-adherent to the osteoporosis medication, 42 (35%) are having average score and only 8 (6.7%) patients are said to have medication compliance, also people with low knowledge have positive correlation. The elderly patients with comorbid disease (72%) are non-adherent to medication in greater percentage than those without comorbid disease (35%). Conclusion: The patients adherence scores revealed that majority of the cases included were non- adherent. The reasons that we found for non-adherence to medicines were polypharmacy due to other comorbid conditions, old age, forgetfulness and ignorance.

Keywords :- Osteoporosis, Polypharmacy, Medication Adherence.

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INTRODUCTION

Health Organization (WHO) defines Osteoporosis as "A disease characterized by low bone mass and micro-architectural deterioration of bone tissue, leading to enhanced bone fragility and a consequent increase in fracture risk"[1].

Osteoporosis is a disease condition characterised by low bone mass density or deterioration of micro-architecture of the bone. This leads to increased bone fragility, pain and the fracture risk. It is also called as silent killer where most of the people are unaware that they have this condition until experience of fracture for many years without any symptoms [2]. Although osteoporosis-related fractures may occur in almost any skeletal bone the common areas of bone fractures are spine, hips, ribs, and wrists [3].

According to WHO, medication adherence is defined as the "degree to which the person's behaviour corresponds with the agreed recommendations from a

Corresponding Author **Sheba Baby John** Email: johnagitha1996@gmail.com

Research Article

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IN VITRO ANTICANCER ACTIVITY OF SILVER NANOPARTICLE SYNTHESISED FROM LEAVES OF MURRAYA KOENIGII AGAINST CANCER CELL LINES

Padmaa Paarakh M[1]* and Preethy Ani Jose[2]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India
[2]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India

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MCF-2, PC3, A-549, HeLa, HepG2, cell line, *in vitro* anticancer activity, *Murraya koenigii*; cell cycle, apoptosis.

ABSTRACT

Objective: The primary point of the investigation was to screen the silver nanoparticle synthesized from the methanol concentrate of *Murraya koenigii for* its *invitro* anticancer activity against MCF 2, PC3, A-549, HeLa and HepG2 Cell lines. **Methods:** Silver nanoparticles were prepared from methanol concentrate of *Murraya koenigii* and nanoparticlesynthesised was analysed by UV, SEM and TEM analysis. The impact of nanoparticles synthesized on MCF-2, PC3, A-549, HeLa and HepG2 disease cell lines were assessed by MTT colorimetric assay. After assessing the cytotoxicity effect, the impact of cell cycle and apoptosis was assessed by flow cytometric method. **Results:** TEM analysis showed the particle size of 25.56 nm for silver nanoparticle. The adequacy of silver nanoparticle synthesised from *Murraya koenigii* against MCF-2, PC3, A-549, HeLa and HepG2 cell line demonstrated that the hatching of malignancy cells decreased the suitability of PC-3 and A 549 cancer cell lines only with IC_{50} values as 103.2 and 117.8µg/ml respectively. Cell cycle analysis and apoptosis study showed that Silver nanoparticles are effective in controlling the cell cycle and blocking the apoptosis in all the cell lines used. **Conclusion:** All in all, *Murraya koenigii* has critical cell reinforcement movement and anticancer action against all cell lines used.

INTRODUCTION

Cancer is six letter dreadful diseases which are affecting number of individuals in the world with significant morbidity and mortality rates. Cancers may be caused in one of three ways, namely incorrect diet, genetic predisposition, and via the environment which may take 20–30 years to develop. The present therapies are radiotherapy and chemotherapy which makes their health re-established. But both treatment and immune system are severely affected as treatment methods are not cells selective. As per American Cancer Society 24 million cases of cancer will bediagnosed, with 14 million deaths worldwide by 2030.

As per World Health Organization, world's populations in developed countries rely on traditional medicine and folklore for their health care. Number of drugs has been isolated from medicinal plants which are found to have potential uses against various cancers eg. Paclitaxel, docetaxel, podophyllotoxin, camptothecin, vincristine, vinblastine, vindesine, vinorelbine and others.

Coming to Nanotechnology which is mainly concerned with the application of nanoparticles in various fields of medicine, chemistry, physics, materials science, and engineering. Nanoparticles are synthesized by various physical and chemical methods which are not ecofriendly. The newer studies are focused towards greener or biosynthesis of nanoparticles due to the use of mild conditions such as temperature, pH and pressure [1, 2].

There is need for search for newer drugs from plant which are utilized regularly for food and which is also affordable and easy available. We have chosen one such plant.

Murraya koenigii Linn (Rutaceae) commonly known as curry leaves, growing 4– 6 m tall, up to 40 cm thick. It is used as antiemetic, antidiarrhoeal, dysentery, febrifuge, blood purifier, tonic, stomachic, flavoring agent in curries and chetneys as per traditional system of Medicine. The oil is used externally for bruises, eruption, in soap and perfume industry [3-4]

This plant has been reported to have antibacterial, antifungal, hypoglycemic, anti-oxidative, hypolipidemic, cytotoxic, antihypertensive, larvicidal, antiprotozoal, anti lipid peroxidative, respiratory disorder, trypsin inhibitor, anticancer activities [5, 6].

Accordingly, in the present investigation, we green synthesised silver nanoparticles and furthermore assessed *invitro* anticancer movement against MCF-2, PC3, A-549, HeLa and HepG2 cell lines, cell cycle impact and apoptosis.

Corresponding author:* **Padmaa Paarakh M
Department of Pharmacognosy, the Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India

P. Padmaa

PRINCIPAL
The Oxford College Of Pharmacy
No 6\9, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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A STUDY ON THE PRESCRIBING PATTERN AND RATIONALITY OF FIXED DOSE COMBINATIONS OF ANTIDIABETIC DRUGS IN A MEDICAL COLLEGE TEACHING HOSPITAL

Abbu Venkata Varun Kumar[1], Abin Sabu[1], Akhil Varghese P[1], Rini Susan Varghese[2], Sheba Baby John[*2]

[1] Pharm D interns, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.
[2]Assistant Professor, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.

ABSTRACT

The objective was to study the prescribing pattern of Fixed Dose Combinations of a drug in patients with type 2 diabetes mellitus and also to assess the rationality of FDC of anti-diabetic drugs. FDCs are combination of two or more active ingredients in a fixed ratio of doses. Although FDCs have various advantages like improved compliance, reduction in dose and adverse effects, there are some disadvantages also. Therefore it must comply with some of the guidelines given by the WHO, to be counted as rational FDC. This study was carried out using 162 patients for a 6 months period among in-patients of general medicine department. Rationality of FDC was assessed using a 7 point criteria based on the WHO guidelines to analyse the rationality of FDC. Glimepiride and metformin was the most prescribed Antidiabetic FDC (32.71%) followed by sitagliptin and metformin (18.51%) and pioglitazone and metformin (13.58%). There were 10 different FDC of anti-diabetic drugs prescribed among them only 5 FDCs were found to be rational. The FDC of Glimepiride+Metformin scored highest of 11 and remaining 40% scored in the range 7-10 and 50% scored in the range 0-6 and 10% scored in the range 10-13. It was also identified that only 30% of the FDCs facilitated cost reduction when compared with the individual therapy.

Key words: Fixed dose combinations(FDC); Rationality; WHO guidelines.

INTRODUCTION

Diabetes mellitus (DM) is a metabolic disorder which is characterized by the presence of hyperglycemia due to defective insulin secretion, defective insulin action or both. The chronic hyperglycemia of diabetes is associated with relatively specific long-term microvascular complications, which will affect the eyes, kidneys, nerves, as well as an increased risk for cardiovascular disease (CVD) [1].

TYPES:

There are three main types of Diabetes:
Type 1 diabetes: juvenile-onset diabetes or insulin-dependent diabetes.
Type 2 diabetes: non-insulin dependent diabetes
Gestational diabetes-high blood glucose levels during pregnancy [2].
According to the International Diabetic Federation (IDF) and World Health Organization (WHO) 415 million people in the world are already affected with diabetes and it is said that this number will increases to 642 million by 2040 [3].

SIGNS AND SYMPTOMS:

The most common symptoms of diabetes mellitus include:
Loss of weight, increased thirst (polydipsia), Increased urination (polyuria), Increased hunger (polyphagia)

Corresponding Author:-**Sheba baby john** Email: johnagitha1996@gmail.com

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P. Padma
PRINCIPAL
The Oxford College Of Pharmacy
No 6/9, 1st Cross, Begur Road, Hongasa
Bangalore - 560 068

RESEARCH ARTICLE

inventi | Scrutinizing Knowledge

Osteoporosis: A Prospective Study on Risk Factors

Nithya Indian R[1], Nimisha K Joseph[1], M Kaveri Bopanna[1], Neelam Singh D[1], Sheba Baby John[1*]

Abstract: Osteoporosis is characterised by low bone mass density or deterioration of micro-architecture of the bone, which cannot be identified in the early stages unless there is a fracture due to minor fall or other diagnostic tests. The major risk factors associated to osteoporosis are age, gender, menopausal history, family history of osteoporosis, past medications, lack of exercise and dietary calcium. Proper awareness regarding the risk factors will help in reducing the complications. Data was collected by direct interaction with 120 female patients using a specially designed data collection form and counselling was provided to improve the awareness about the disease using self-designed brochure. The study reveals that most of the osteoporotic patients were in the range 35-55 years. 75% of the women were post-menopausal. The comorbid osteoporotic patients found were about 36.67% and 58.33% were hysterectomized. 56.17% patients were taking dietary calcium. Considering past medication history patients were taking calcium supplements (36.67%), antihypertensive drugs (27.5%), steroids (15%) and thyroid drugs (12.5%). 40% of the patients have family history of osteoporosis showing a positive correlation with the same and more than half of the patients (59.17%) lack exercise. Post-menopausal women, hysterectomy, family and medication history, dietary calcium and lack of exercise were found to be the predisposing factors of osteoporosis and its complications. Therefore providing counselling can benefit to have a better quality of life.

INTRODUCTION

Osteoporosis can be defined as the worsening in the micro architecture of bone tissue that leads to increased fragility of the bones which in turn makes the patient highly prone to fractures. Osteoporosis occurs in people with low bone density and remains unnoticed until a fracture occurs. It is been encountered that the osteoporotic fractures has become one of the most prominent causative factor for increasing rates of morbidity and mortality among elderly patient in the Indian population. [1, 2]

Calcium is taken up by the bones and is reserved mostly during puberty and adolescence. Calcium, vitamin D nutrition and also exercise is required for calcium uptake into the bones. During mid-thirties people usually achieve peak bone mass, later there is a progressive and gradual loss of bone, which accelerates during the menopause. Declining subsequent bone and increasing loss of peak bone mass could be considered as the main strategies for fracture prevention. Thus, the importance of achieving and maintaining good bone health cannot be exaggerated. [3, 4]

Female sex, old age, Caucasian/Asians and family history of fractures, small thin built, are some of the non-modifiable factors while Calcium, vitamin D deficiency, sedentary life style, smoking, alcohol consumption and caffeine intake are those risk factors that could easily be modified. Secondary osteoporosis could also be induced by certain medical conditions like renal disease, chronic liver, malabsorption syndromes, Cushing syndrome, anorexia nervosa, hypogonadism, thyrotoxicosis and drugs like glucocorticoids and anticonvulsants. [3, 5]

Familial history plays a major role in the contribution of osteoporosis. Patients having history of wrist and hip fractures have indicated about the positive co-relation between the fracture in the elderly women, but the occurrence of these fractures at an early stage of life is still unclear. [6]

[1]The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India.
E-mail: johnagitha1996@gmail.com
*Corresponding author

It is already been studied about many antihypertensive medication and their possible effects on metabolism of bones. In the clinical point of view, there is an improvement in the bone mineral density (BMD) caused by beta-blockers. However there is no any explanation regarding the risk of fracture between users and nonusers of beta blockers. While on the other hand, very widely used class of antihypertensive drugs and the effects of calcium channel blockers, on BMD are controversial.

In the current clinical guidelines for the assessment of osteoporosis, the use of corticosteroid has been illustrated as a prominent risk factor. Under most of these guidelines, patients consuming glucocorticoids should be considered for treatment for osteoporosis if there is fall in BMD. Fracture risk assessment should also consider the independent risk linked with glucocorticoids as the use of corticosteroids is not completely dependent on BMD. [8, 9]

Hypothyroid patients having thyroid hormone supplement have shown an increased rates of the bone loss and the occurrence of osteoporosis which could be correlated with the TSH levels and microsomal enzymes. High bone loss caused by hypoestrogenism which in turn is caused by hysterectomy could also be given a consideration for osteoporosis as a major risk factor. [10]

In the clinical aspect, overall, Indians have poor bone health and osteoporosis is a common issue. During puberty the peak bone mass achieved gives a strong prediction about the development of osteoporosis in later years. In India, high prevalence of vitamin D deficiency is a major factor for the low bone mass. Encouraging children to consume at least the limited quantity of milk, sun exposure by playing outside and exercises by the adults are some of the important public health measure that can be improvised to prevent osteoporosis from its occurrence. Through which the sufficient amount of calcium, vitamin D be synthesised. These three are the important factors in the determination of peak bone mass. Thus, greater awareness among the public regarding this issue should be made immediately.

Reduction in the associated morbidity, mortality and the risk of fractures could significantly be achieved by early

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P. Padua
21
PRINCIPAL
The Oxford College Of Pharmacy
No 619, 1st Cross, Begur Road, Hongasandra
Bangalore - 560 068

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Research Article

Anti-Tubercular Activity of Silver Nanoparticle Synthesized from the Leaves of *Murraya koenigii* Linn and Fruit Peel of *Punica granatum* Linn

M Padmaa Paarakh*

Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, Karnataka, India

*Corresponding Author: M Padmaa Paarakh, Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore, Karnataka, India.

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Abstract

Medicinal plants have known to be the potential source for the treatment of many ailments. The present study is designed to investigate the *in vitro* activity of silver nanoparticle synthesized from the leaves of *Murraya koenigii* and fruit peel of Punica granatum against *Mycobacterium tuberculosis* H73Rv strain using Micro plate Alamar Blue Assay (MABA). The results revealed that the silver nanoparticle showed sensitivity against *M. tuberculosis* strain at a concentration 1.6 µg/ml. The present investigation suggests that silver nanoparticles synthesized from the leaves of *Murraya koenigii* and fruit peel of *Punica granatum* possess remarkable anti-tubercular activity.

Keywords: *Mycobacterium tuberculosis*; Silver Nanoparticle; *Murraya koenigii; Punica granatum; In Vitro*; MABA; H37Rv

Introduction

Tuberculosis (TB), infectious diseases in lungs caused by *Mycobacterium tuberculosis* affects the health burden in the world. In 2014, nearby 80% of reported TB cases occurred in 22 countries and India has the largest number of cases, 23% of the global total [1]. In India, nearly 50% of patients are reported to be tuberculin test positive and one person dies from TB every minute [2;3]. However, Due to the usage of antibiotics, challenge of multidrug resistant TB has increased drastically. So, there is a need for discovery of new anti-TB drugs which are cost effective and safe. Medicinal plants have known to be the potential source for the treatment of number of diseases [4,5]. India has rich wealth of medicinal plants and usage of herbal medicines as traditional knowledge for curing several diseases is well documented [6,7].

In recent years, the field of nanotechnology has potential applications for the development of novel technologies using metal nanoparticles viz., gold and silver which have several applications in sensors, detectors, and antibacterial agents [8-10]. Numerous chemical methods are available for synthesis of metal nanoparticles but the reagents used are toxic and potentially hazardous. Synthetic methods based on naturally occurring biomaterials provide an alternative means for obtaining these nanoparticles. Many researchers have achieved success in the synthesis of Ag, Au, and Pd nanoparticles extracted from plant parts, e.g. curry leaves, pomegranate [11], coriander [12] etc. In this regard, two plants viz., leaves of *Murraya koenigii* and fruit of *Punica granatum* were investigated.

In traditional system of medicine, the leaves of *Murraya koenigii* are used as tonic, stomachic, carminative, internally in dysentery, vomiting, anthelminthic, analgesic, cures piles, allays heat of the body, thirst, inflammation and itching. some notable pharmacological activities of the plant such as activity on heart, anti-diabetic and cholesterol reducing property, antimicrobial activity, antiulcer activity, antioxidative property, cytotoxic activity, anti-diarrhea activity, phagocytic activity and many more medicinal values have been reported [13].

Punica granatum is reported to have antioxidant, anticarcinogenic, and anti-inflammatory, focusing on treatment and prevention of cancer, cardiovascular disease, diabetes, dental conditions, erectile dysfunction, bacterial infections and antibiotic resistance, and ultraviolet radiation-induced skin damage, infant brain ischemia, male infertility, Alzheimer's disease, arthritis and obesity [14].

Hence, the present study is designed to investigate the *in vitro* activity of silver nanoparticle synthesized from the leaves of *Murraya koenigii* and fruit peel of *Punica granatum* against *Mycobacterium tuberculosis* H73Rv strain using Micro plate Alamar Blue Assay (MABA).

Materials and Methods

Plant material

The leaves of *Murraya koenigii* Linn and fruit of *Punica granatum* Linn were collected from local market in Bangalore, Karnataka, India and it was identified and authenticated. A voucher specimen

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Research Article

In vitro anticancer activity of silver and gold nanoparticle synthesized from *Zingiber officinale* Roscoe fresh and dried rhizomes against cancer cell lines

M. Padmaa Paarakh[1], Preethy Ani Jose[2]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.
[2]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.

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MCF-2, PC3, A-549, HeLa, HepG2, cell line, in vitro anticancer activity, *Zingiber officinale*; cell cycle, apoptosis.

ABSTRACT

Objective: The aim of the evaluation was to screen the silver and gold nanoparticle synthesized from the methanol concentrate of *Zingiber officinale* Roscoe [Family: Zingiberaceae] for its *in vitro* anticancer activity against MCF 2, PC3, A-549, HeLa and HepG2 Cell lines. **Methods:** Silver and gold nanoparticles were prepared from methanol concentrate of *Z.officinale* fresh and dried rhizomes and nanoparticle synthesised was analysed by UV, SEM, SEM with EDAX and TEM analysis. The impact of nanoparticles synthesized on MCF-2, PC3, A-549, HeLa and HepG2 disease cell lines were assessed by MTT colorimetric assay. After assessing the cytotoxicity effect, the impact of cell cycle and apoptosis were assessed by flow cytometric method. **Results:** SEM analysis showed that the morphology of nanoparticle synthesised were different from each other. TEM analysis showed the particle size of 4.11 and 28.6 nm and 54.78 and 19.25 nm for fresh and dried rhizomes synthesized silver and gold nanoparticles respectively. The adequacy of silver nanoparticle synthesised from fresh and dried rhizomes of *Z.officinale* against PC-3, MCF-2, HepG2, HeLa and A-549 cell line demonstrated that the hatching of malignancy cells decreased the cytotoxicity in cancer cells lines with IC_{50} values between 74.26 to 131.1 and 77.78 to 104.3 µg/ml respectively. Gold nanoparticles synthesized from fresh rhizomes were effective only against A-549 and dried rhizomes synthesized gold nanoparticles were effective against all except PC-3 cell lines. Cell cycle analysis and apoptosis study showed that Silver and gold nanoparticles are effective in controlling the cell cycle and blocking the apoptosis in all the cell lines used. **Conclusion:** *Zingiber officinale* can be very good anticancer drug for various cancer cell lines. All in all, *Zingiber officinale* has critical cell reinforcement movement and anticancer action.

Corresponding Author: *M. Padmaa Paarakh, Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.*

P. Padma

PRINCIPAL
The Oxford College Of Pharmacy
No 6/9, 1st Cross, Begur Road, Hosur
Bangalore - 560 [illegible]

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Review Article

Current review on COVID-19 pandemic: a global perspective

Hyma Sara Varghese*

Department of Pharmacology, The Oxford College of Pharmacy, Bengaluru, Karnataka, India

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***Correspondence:**
Mrs. Hyma Sara Varghese,
Email: hyma.sara@gmail.com

ABSTRACT

COVID-19 is a serious infectious disease caused by the novel corona virus, SARS-CoV2, threatening the public health with high transmission rate of infection causing more deaths across the globe in elderly population, immunocompromised individuals and in patients with comorbid conditions. At this point of uncertainty, understanding the pandemic challenges is most essential. As very few literature are becoming available in detailing the different perspectives of the disease, this paper presents the readers with current clinical spectrum of infection like details on epidemiology, pathogenesis, manifestations, diagnostic criteria, treatments and preventive measures of this new type of coronavirus.

Keywords: COVID-19, SARA-CoV-2, Pandemic, Epidemic, Disease, Infection

INTRODUCTION

Coronaviruses are a group of viruses that can cause infectious disease in both animals and humans. The severe acute respiratory syndrome (SARS) virus strain known as SARS-CoV is an example of a coronavirus. The new strain of coronavirus is called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus causes coronavirus disease 19 (COVID-19). The new coronavirus has spread rapidly in many parts of the world. On 11 March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. Coronaviruses are common in certain species of animals, such as cattle and camels. Although the transmission of coronaviruses from animals to humans is rare, this new strain likely came from bats, though one study suggests pangolins may be the origin.[1,2]

However, it remains unclear exactly how the virus first spread to humans. The graphical representation of the disease transmission is shown in Figure 1.[1,2]

Coronaviruses have caused two large-scale pandemics in the past two decades, SARS and Middle East respiratory syndrome (MERS).[3] The 2019-nCoV has close similarity to bat coronaviruses, and it has been postulated that bats are the primary source. While the origin of the 2019-nCoV is still being investigated, current evidence suggests spread to humans occurred via transmission from wild animals illegally sold in the Huanan seafood wholesale market.[4]

The new coronavirus, SARS-CoV-2, shares high sequence identity to SARS-CoV and a bat coronavirus RaTG13.[5] While bats may be the reservoir host for various coronaviruses.[1] Whether SARS-CoV-2 has other hosts remains ambiguous. In one of the recent investigations, one coronavirus isolated from a Malayan pangolin showed 100%, 98.6%, 97.8% and 90.7% amino acid identity with SARS-CoV-2 in the E, M, N and S genes, respectively.[2]

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P. Padma

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A cross sectional study on assessment of risk of diabetes mellitus using Indian diabetic risk score in a medical college teaching hospital

Singam Sivasankar Reddy, Syeda Rahath, Rakshitha H N, Godson K Lal, Swathy S, Merin Susan Abraham*

Department of Pharmacy Practice, The Oxford college of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India

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ABSTRACT

The objective of the study was to evaluate the risk of diabetes mellitus in elderlywith age above 20 years in a hospital setting using Indian Diabetes risk score and to provide patient counselling regarding their life style modifications and health related quality of life among participants with high risk of developing diabetes.A total of 125 non diabetic patients were interviewed with a pre designed selfstructured questionnaire (IDRS). Participants were chosen voluntarily and a written consent was obtained before the administration of the questionnaire from individual patients.: In our study we observed that out of 125 patients,males 26[59%]and 18[41%] females were at high risk, males 39[58.2%] and 28[41.8%] females were at moderate risk, males 5[35.7%] and 9[64.3%] females were at low risk of developing diabetes mellitus.

*Corresponding Author

Name: Merin Susan Abraham
Phone: 9562177503
Email: susanna92abraham@gmail.com

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INTRODUCTION

Diabetes mellitus is a metabolic disorder caused either by inherited or acquired deficiency in production of insulin either by the pancreas or by the ineffectiveness of the insulin produced. Such deficiency leads to increased blood glucose concentration, which in turn damage many of the anatomical systems, especially blood vessels and nerves [1]

The sedentary life styleand ageing of our population is found to be the major causativefactors for the development of diabetes mellitus. Poor glycemic control for long term leads to several healthcomplications with increases hospitalization, morbidity and mortality [2]

Diabetes mellitus can be defined as a group of metabolic disorder with a distinctive nature of hyperglycemia resulting from imperfection in secretion or action of insulin, or both. The persistent hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of many organs, especially the eyes, nerves, kidneys, blood vessels and heart. Various pathogenic activities are involved in the development of DM ranges from autoimmune destruction of pancreatic cells with consequences of insulin deficiency to abnormalities that result in resistance to insulin action.The deficient-action of insulin on target-tissues is the basis of the abnormalities in protein, carbohydrate, and fat metabolism in diabetic patients. Inadequate insulin secretion and/or diminished tissue responses to insulin at one or more points in the complex pathways of hormone action leads to deficient insulin action [3].

Defects in action of insulinand Inadequate insulin secretion coexists in the samepatient very often, and

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Development and validation of knowledge, attitude, practice questionnaire for hypothyroidism

Aishwarya M, Akshata V S, Alba Rachel John, Anjitha Venu M, Parthasarathy G*

Department of Pharmacy Practice, The Oxford College of Pharmacy, Hongasandra, Bengaluru-560068, Karnataka, India

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Hypothyroidism, validation, questionnaire, knowledge, attitude, practice

ABSTRACT

The objective of the study is to develop and validate the knowledge, Attitude, Practice questionnaire of Hypothyroidism, carried out in The Oxford Medical College and Research Centre, Attibele, Bangalore. The questionnaire comprised of development and validation phases. The development phase encompasses a literature review, expert panel review and evaluation. The validation phase consisted of verifying the appropriateness of questionnaire by assessing the parameters such as clarity, simplicity, ambiguity, relevance based on scorings provided by the expert panel members, lay personnel and patients. Cronbach's alpha was calculated to measure consistency between responses to the individual questions and the questionnaire as a whole. The overall standardized alpha value for the questionnaire was 0.85 , which isan acceptable Cronbach score and indicates excellent homogeneity. The self-structured questionnaire consists of 27 yes, no or don't know questions, based on the patient's knowledge, attitude and practice towards hypothyroidism. It emphasizes on knowledge about diseases, attitude of the patients towards medication taking habits.Also about the practice to improve the health related quality of life and the scoring is done based on theanswers.

*Corresponding Author

Name: Parthasarathy G
Phone: 9886431015
Email: mypartha@gmail.com

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INTRODUCTION

Hypothyroidism is a clinical entity resulting from deficiency of thyroid hormones or, from their impaired activity at tissue level, with a prevalence of 1.9 per cent in women and prevalence increasing with age. Hypothyroidism may be acquired, primary or secondary, chronic or transient [1].

In India, a large number of populations are still unaware of the disease. Thyroid disorders are amongst the most prevalent of medical disease conditions. Their manifestations vary significantly from places to places and are determined predominantly by the availability of iodine in the diet. In general, the females have insufficient knowledge and many misapprehensions regarding thyroid disorders. Many females are showing symptoms of the thyroid disorders but still are unaware of the disease [2].

A knowledge, attitude, and practices (KAP) survey is a quantitative tool, which uses a standardized questionnaire, that measures the required domains in a predefined population. A KAP survey fundamentally records an "opinion" and is based on the "declaration" (i.e., statements). KAP of an individual can considerably influence disease insight and management. Poor knowledge about the risks of untreated hypothyroidism may interfere with compliance and optimal treatment. Little knowledge about the importance of the thyroid function test

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Antidiabetic and Antioxidant Activity of *Coccinea grandis* Voigt Stem Extract in Streptozotocin Induced Diabetic Rats

Momin Yasmin Hamid [1]*, Yeligar Veerendra Channabasappa[2]

[1] Department of Pharmaceutical Chemistry, Annasaheb Dange College of B. Pharmacy, Ashta, 416301, Maharashtra, India.

[2] Department of Pharmaceutical Chemistry Oxford College of Pharmacy, Bangalore, Karnataka, India.

ABSTRACT

Objective: In the present study, the antidiabetic and antioxidant study of stem part of Coccinea grandis Voigt plant extracts in Streptozotocin induced diabetic rats were investigated. **Materials and methods:** Fifty four Wistar albino rats were used with nine groups and with six rats in each group. 45 mg/kg body weight streptozotocin was administered to group 2 to 9. Group 2 was diabetic control. Group 3 was given with glimepiride as standard drug. Group 4 and 5 were given petroleum ether extract 250 and 500 mg/kg respectively. Group 6 and 7 were given 250 and 500 mg/kg chloroform extract respectively. Group 8 and 9 were given 250 and 500 mg/kg hydro alcoholic extract respectively. Antidiabetic activity of the extracts was assessed by serum glucose level on glucose kit. Superoxide dismutase (SOD), Catalase (CAT) and lipid peroxidation studies were assessed with histopathology. **Result:** The chronic study data on diabetic rats cleared the administration of all extracts significantly reduced blood glucose level and lipid peroxidation level with better antioxidant activity. **Conclusion:** From the study, the petroleum ether, chloroform and hydro alcoholic extracts of stem part of Coccinea grandis Voigt plant have shown antidiabetic and antioxidant potential.

Keywords: Antidiabetic activity, antioxidant activity, Lipid peroxidation, Superoxide dismutase, Catalase.

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***Address for Correspondence:**

Momin Yasmin Hamid, Department of Pharmaceutical Chemistry, Annasaheb Dange College of B. Pharmacy, Ashta, Sangli, Maharashtra India 416301.

1. INTRODUCTION

Diabetes mellitus is a metabolic disorder characterized by deficient blood insulin level. This may be cause because of lack of sensitivity of receptors to the insulin or autoimmune destruction of pancreatic ß cells of Langerhans which leads to abnormal glucose homeostasis and elevated blood glucose level.[1] Insulin is a hormone secreted in pancreas which allows body to use glucose as a source of energy. Insulin helps to maintain blood glucose level within the normal limit. [2]

According to WHO survey in 2016, 422 million adults are living with diabetes mellitus globally. In India, more than 62 million people suffered by diabetes mellitus. By 2030, it was predicted that 79.4 million people would be diabetic in India. The prevalence of diabetes is more in India due to changes in lifestyle, trend of urbanization, global nutrition transition, genetic factor, environmental influences, rising living standards. Diabetes mellitus is categorized into mainly two types. Type I Diabetes mellitus (Insulin dependent DM) and type II Diabetes mellitus (Non-insulin dependent DM). [3] Amongst these types, 90% people are having type II Diabetes mellitus. (National diabetes Fact Sheet 2005). [4]

Diabetes mellitus is one of the fatal disorders in the world and it is an 6th leading cause of death. [5]The death rate in diabetic people is double to that of normal people. Diabetes mellitus affects many major organs of body. Many complications are associated with diabetes mellitus. It can cause kidney failure, blindness, impotence, cerebrovascular disorder, cardiovascular disorder.

Medicinal plants have become useful remedies for the treatment of diabetes mellitus and its complication because of polyphenol [6], saponins glycosides, flavonoids, sterol constituents present in the plants have ability to reduce the blood glucose level and cholesterol level. It has been described in ancient literature about the use of natural medicinal plants or herbal products in diabetes mellitus. Antidiabetic effect of these plants is may be due to their ability to recover the disturbed function of pancreas or

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Research article

EVALUATION OF VIDEO ASSISTED PATIENT COUNSELING ON THE MANAGEMENT OF POLYCYSTIC OVARIAN SYNDROME AND ASSESSMENT OF ITS RISK FACTORS

Sneha Mariam Varghese[1], Sony Mariyam Sunny[1], Vineesha Vinodkumar[1], Parthasarathy G[2]*

[1] Pharm D Intern, The oxford college of Pharmacy, Bangalore-560068, Karnataka, India.
[2] Professor and Head, Department of Pharmacy Practice, The oxford college of Pharmacy, Bangalore-560068, Karnataka, India.

ABSTRACT

Polycystic ovarian syndrome (PCOS) is one of the major contributing factors to the increasing burden of infertility. The best way to control PCOS is to educate the people about the risk factors and to be counseled on appropriate life style modifications needed to help reduce the symptoms and to prevent it. The objectives of the study was to assess the effectiveness of video assisted patient counseling on the management of PCOS, to assess the knowledge of patients regarding PCOS and to assess the risk factors of PCOS among the patients. The study was a prospective interventional study which was carried out for 6 months. Patient's demographic details like name, age, sex and medical history and social history was recorded in a pre-designed data entry form. They were allocated into intervention group and control group. The patients' knowledge regarding PCOS and self-reported practices were assessed by structured interview questionnaire before and after patient counseling, where patient counseling was given only to interventional group and not to control group. The patient counseling was provided using video. The Statistical software namely SPSS 23 was used for the analysis of the data. We observed that out of 100 patients, maximum number of patients belongs to the age group of 21 - 30 years that is 52%. The pre-counseling knowledge and self-reported practice of patients regarding the disease PCOS and its lifestyle modifications were assessed and the scores obtained revealed that 62% patients in the intervention group and 50% control group had poor scores. Whereas the post counseling scores shown that 58% in intervention group and 16% in control group had good score of knowledge of Polycystic Ovarian Syndrome which shows that the video assisted patient counseling has a great impact on quality of life of patients with Polycystic Ovarian Syndrome. This study concludes thatthe education has a major role in improving the healthcare outcomes. The counseling using video generated better outcomes and video can be used as an effective patient counseling tool. It was found that young adults are at high risk of getting PCOS. Poor knowledge and practice can lead to worsening the health condition in time being and resulting in severe complications. So there is a need of intense educational intervention for the patients.

Keywords: Polycystic ovarian syndrome (PCOS), Video Patient counseling.

INTRODUCTION

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Corresponding Author
Parthasarathy G
Professor and Head, Department of Pharmacy Practice, The oxford college of Pharmacy, Bangalore-560068, India.
Email : mypartha@gmail.com

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Research Article

EFFECT OF NAUSEA, VOMITING AND NUTRITIONAL STATUS ON QUALITY OF LIFE DURING FIRST TRIMESTER PREGNANCY

Osheen Asha Mathew[1], Rahi Jacob Edavaparambil[1], Santwana Olive Xalxo[1], Parthasarathy G*[2]

[1] Pharm D Intern, The oxford college of Pharmacy, Bangalore-560068, Karnataka, India.
[2] Professor and Head, Department of Pharmacy Practice, The oxford college of Pharmacy, Bangalore-560068, Karnataka, India.

ABSTRACT

Pregnancy is a point in time in which most of the women experience forceful physical changes and a great deal of emotional disturbances. The complex changes of pregnancy have an immense effect on the quality of life in these women as these changes will not only affect their physical variables but also their mental and social variables. Aim: This study aims to determine the effect of nausea, vomiting and nutritional status on quality of life during first trimester of pregnancy. Method: This study was a prospective cross-sectional study. Assessing quality of life of pregnant women using questionnaires (NVPQOL, SF12, and Nutritional Status Questionnaire) and correlation between them using Pearson Correlation Coefficient. 125 pregnant women were enrolled in their first trimester. About 57.3% were in the age group of 18-25, 36% in the age group of 26-30 and 4.9% were above 30 years of age. Conclusion: There is an important relationship between Nausea, Vomiting and Nutritional status with Quality of life during pregnancy. And more care should be given by the physicians to the pregnant women about these parameters especially during their first trimester.

Keywords :- First Trimester Pregnancy, NVPQOL, Nausea, Vomiting

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INTRODUCTION

Pregnancy is a period in which most of the women experience forceful physical changes and a great deal of emotional disturbances. The complex changes of pregnancy have an immense effect on the QOL in these women as these changes will not only affect their physical variables but also their mental and social variables.[3]

Quality of life (QOL)

WHO (World Health Organization) describes QOL as "the individual's perception of their life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns".[1]

Nausea and vomiting

Nausea commonly referred to as morning sickness, is one of the most universal pregnancy symptoms affecting approximately fifty to ninety percentage of pregnant ladies during their first trimester. Usually nausea and vomiting become more noticeable in between fourth as well as sixth week of pregnancy and a peak in eighth and twelfth week.

Although QOL is a non-negligible outcome when evaluating the burden of illness of health problems, the impact of NVP on HRQOL in pregnant women tends to be minimized. Nevertheless, research has shown that NVP have a significant impact on family life as well as the ability to perform usual daily activities, social functioning and development of stress situations. NVP

Corresponding Author Parthasarathy G Email: - mypartha@gmail.com

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Research article

A STUDY ON MULTIVITAMIN UTILISATION PATTERN AND PHARMACOECONOMICS IN A MEDICAL TEACHING CARE HOSPITAL

Anit Babu[1], Anaswara S Nair[1], Ansu Mary Kurian[1], Anju K Abraham[1], Rini Susan Varghese[2], Sheba Baby John[2*]

[1] Pharm D interns, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.
[2]Assistant Professor, The Oxford College of Pharmacy, Hongasandra, Bangalore-560068, India.

ABSTRACT

The importance of various vitamins on human health depends on their ability for diverse biochemical functions. Vitamin studies have an important impact in upcoming years. Our study analyses the utilization pattern and Pharmacoeconomics of vitamins and knowledge about vitamins among common people. Objective: To analyze the prescription pattern of various multivitamin supplements along with the comparison of cost effectiveness of various vitamins used in a teaching care hospital. Material and methods: The demographic data and therapeutic details were collected prospectively for a period of six months from the patients above 18 years of age who are prescribed with vitamin supplementation admitted in the medical wards during the study period and those who are able to communicate effectively and subjects who are willing to participate in the study. The socio-demographic factors and prescription analysis were done. Results Out of 140 patients, an estimate of 46 patients (i.e. 32.86%) were prescribed with multivitamin combinations followed by vitamin B supplements (Becosules 16.43%).The least prescribed vitamin was T Biovit (1.43%) Pharmacoeconomic analysis revealed that the cost of vitamins accounted for 10-15% of the total drug expenditures. Conclusion: From our study, we observed that most of the patients are prescribed with multivitamin combinations and vitamin B supplements and the least prescribed was Biovit. The study revealed that the vitamins account 10-15% of the hospital expenses. Inj Vitamin K, Thiamine and also multivitamin combinations were found to be more costly when compared to single vitamins supplements prescribed.

Key Words:- Vitamin K, Thiamine, multivitamin combination, Pharmacoeconomic analysis.

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Corresponding Author

Sheba Baby John
Assistant Professor Department of Pharmacy Practice, The Oxford College of Pharmacy Hongasandra, Bangalore-560068, India
Email:- johnagitha1996@gmail.com

INTRODUCTION

Vitamins are required in trace amounts for the normal growth and nutrition .Human body is not able to produce enough of the vitamins or it does not produce any of it. Different vitamins play different roles and are needed in different quantities (Comerford K, 2013).Thirteen vitamins and fifteen minerals are essential for the maintenance of human health(Vitamins and Anti-Vitamins, 1948).

MULTIVITAMIN UTILISATION IN INDIAN POPULATION

In India, as fortification of food is lacking, supplementation with the multivitamins is the only treatment of deficiency (Ward E, 2014; Charmitha B *et al.*, 2017). In our country, approximately 70-80% of healthy individuals are vitamin deficient. Low Vitamin D status is prevalent irrespective of age, gender, occupation and also regional distribution. In India, more than 6000 children below 5 years die per day, and more than half of these deaths are because of micronutrients deficiency

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RESEARCH ARTICLE

Formulation and Evaluation of Maltodextrin Based Doxorubicin HCl Proniosomes

Srikanth[1*], Anand Kumar Y[2], Mallikarjuna Setty C[3]

[1]Research Scholar at JNTU Hyderabad and V. L. College of Pharmacy, Raichur, India.
[2]Department of Pharmaceutics, V. L. College of Pharmacy, Raichur, India.
[3]Department of Pharmaceutics, Oxford College of Pharmacy, Bengaluru, India.
*Corresponding Author E-mail: **srikanthyerigeri@gmail.com**

ABSTRACT:

Aim of the present research work is to prepare and evaluate maltodextrin based proniosomes loaded with doxorubicin HCl. Proniosomes were prepared by slurry method using molar ratios of nonionic surfactant with cholesterol and keeping drug, maltodextrin and DCP constant. The niosomes were prepared by simple hydration and further evaluated for entrapment efficiency, particle size and shape analysis by optical microscopy, *in vitro* drug release study, kinetic data analysis and model fitting. Stability study by ICH guides lines. The study levels more stable when stored at 4^{0}C. The formulation FD3, which showed entrapment efficiency of 84.88 ± 0.14 and *in vitro* release over the period of 36h 95.19± 0.20, was found to be best formulation is span 60. The niosomes shows the Korsemayer Peppas exponential n<0.84 indicate the release mechanism was non Ficknian (anomalous transport) i.e. drug released by erosion followed by diffusion mechanism.

KEYWORDS: Doxorubicin HCl, Proniosomes, Niosomes, Surfactants, Cholesterol.

INTRODUCTION:

Cancer is one of the most serious health problems affecting individuals from different sexes, ages, and races and second leading cause of mortality worldwide[1]. Today the challenge for the pharmaceutical formulators is to work and investigate to deliver the drug using promising drug carriers including biodegradable polymers. The systems that are capable of releasing the therapeutic agents by well defined kinetics are available at present. But in many cases these do not yet represent the ultimate therapy to needs of recipient. Hence attention should also be focused to fabricate controlled, modulated drug delivery system that are capable of receiving the physiological feedback information and adjusting the drug output and system that are capable of precisely targeting the specific tissue or cells. Current attempts to overcome these limitations include the development of novel drug delivery systems that can improve the efficacy of existing anti cancer drugs[2].

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Drug delivery systems using colloidal particulate carriers or vesicles (viz., liposomes[3], niosomes[4,5], transferosomes[6], enzymosomes[7], protaosomes[8], virosomes[9], sphingosomes[10], archaesomes[11], ethosomes[12], pharmacosomes[13]) have proved to possess distinct advantages over the conventional dosage forms because the particles can acts as drug reservoirs, can carry both hydrophilic and hydrophobic drugs, and modification of the particle composition or surface can adjust the drug release rate and/or affinity for the target site. All the vesicles in a dispersed aqueous system may suffer from some chemical problems associated with the degradation by hydrolysis or oxidation as well as physical problems such as sedimentation, aggregation, or fusion during storage[14,15]. The provesicular concept has evolved to resolve the stability issues pertaining to the conventional vesicular systems. Provesicular systems are composed of water soluble porous powder as a carrier, upon which one may load phospholipids/nonionic surfactants (liposome or niosomes, respectively) and drugs dissolved in organic solvents. The resultant dry free flowing granular product which is formed could be hydrated immediately before use, and because of this reason, it can avoid various problems associated with aqueous vesicular dispersions.

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DESIGN AND OPTIMIZATION OF CAPECITABINE NIOSOMES DERIVED FROM PRONIOSOMES

Srikanth *[1,2], Y. Anand Kumar [2] and C. Mallikarjuna Setty [3]

Jawaharlal Nehru Technological University (JNTU) [1], Hyderabad - 500085, Telangana, India.
Department of Pharmaceutics [2], V. L. College of Pharmacy, Raichur - 584103, Karnataka, India.
Department of Pharmaceutics [3], The Oxford College of Pharmacy, Bengaluru - 560068, Karnataka, India.

Keywords:

Capecitabine, Proniosomes, Niosomes, Central composite design, Optimization

Correspondence to Author:
Srikanth

Research Scholar,
Jawaharlal Nehru Technological University (JNTU), Hyderabad - 500085, Telangana, India.

E-mail: srikanthyerigeri@gmail.com

ABSTRACT: The aim of this investigation was to design and optimize the Capecitabine niosomes derived from proniosomes using central composite design. Two independent variables *viz.*, the molar ratio of drug to cholesterol (X_1), surfactant loading (X_2) and two dependent variables *viz.*, the percentage drug entrapment (PDE) and mean volume diameter (MVD) were selected for the study. Proniosomes were prepared by a conventional slurry method and evaluated for the percentage drug entrapment (PDE) and mean volume diameter (MVD). The PDE dependent variables and the transformed values of independent variables were subjected to multiple regressions to establish a second order polynomial equation. Contour plots were constructed to elucidate the relationship between the independent and dependent variables further. From the computer optimization process and contour plots, predicted levels of independent variables X_1, X_2 (-0.77, -0.8 respectively), for an optimum response of PDE with constraints on MVD were determined. The polynomial equations and contour plots developed using central composite design allowed us to prepare niosomes derived from proniosomes with optimum responses.

INTRODUCTION: Most of the active pharmaceutical ingredients currently available in the market and those under development have poor and variable bioavailability. This problem can be overcome by entrapping the drug into niosomes. Niosomes are non-ionic surfactant vesicles that can entrap a solute in a manner analogous to liposomes. They are osmotically active and are stable on their own, while also increasing the stability of the entrapped drugs [1, 2]. Handling and storage of surfactants require no special conditions.

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Niosomes possess an infrastructure consisting of hydrophilic and hydrophobic moieties together and as a result, can accommodate drug molecules with a wide range of solubilities [3]. Although, niosomes as drug carriers have shown advantages such as being cheap and chemically stable, they are associated with problems related to physical stability such as fusion, aggregation, sedimentation, and leakage on storage.

All methods traditionally used for the preparation of niosomes are time-consuming and may involve specialized equipment. Most of these methods allow only for a predetermined lot size, so the material is often wasted if smaller quantities are required for particular dose application [4]. The proniosome approach minimizes these problems as it is a dry and free-flowing product which is more stable during sterilization and storage.

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DESIGN AND OPTIMIZATION OF ZIDOVUDINE LOADED URIDDALL MUCILAGE MICROSPHERES, USING BOX BEHNKEN METHOD

Santosh G. Gada *[1], Y. Anandkumar [2] and C. Mallikarjun Setty [3]

Department of Pharmaceutics [1], KCT College of Pharmacy, Gulbarga - 585104, Karnataka, India.
Department of Pharmaceutics [2], V. L. College of Pharmacy, Raichur - 584103, Karnataka, India.
Department of Pharmaceutics [3], Oxford College of Pharmacy, Bengaluru - 560068, Karnataka, India.

Keywords:

Mucoadhesive, Mucilage, Microspheres, Sodium alginate, Optimization

Correspondence to Author:
Santosh G. Gada

Assistant Professor,
Department of Pharmaceutics,
KCT College of Pharmacy, Gulbarga - 585104, Karnataka, India.

E-mail: gadasantosh@yahoo.co.in

ABSTRACT: Objective: The objective of the current investigation is to study the combined influence of sodium alginate, uriddall mucilage and calcium chloride on drug encapsulation efficiency and particle size of microspheres. Zidovudine-loaded sodium alginate based uriddall mucilage microspheres were prepared by the solvent evaporation method. Further, optimization of the formulation was done using a thfee-factor, three levels of Box-Behnken design (BBD). Microspheres were subjected to surface morphology and *in-vitro* dissolution studies. Sodium alginate alone or in combination with uriddall mucilage and calcium chloride has a substantial influence on encapsulation efficiency and particle size of microspheres. Optimized formulation was obtained using desirability approach of numerical optimization. The experimental values of drug encapsulation efficiency and particle size for the optimized formulation were found to be 83.12 ± 1.38%, and 846.56 ± 2.56 µm respectively, which were in close agreement with those predicted by the mathematical models. The drug release was also found to be slow and extended for more than 12 h, and release rates were fitted to the Power law equation and Korsmeyer-Peppas model to compute the diffusion parameters. The Box-Behnken design demonstrated the role of the derived equation and contour plots in predicting the values of dependent variables for the preparation and optimization of zidovudine loaded sodium alginate based udiddall mucilage microsphere.

INTRODUCTION: The mucoadhesive polymer containing oral drug delivery systems can prolong the residence time of drugs at the absorption site and facilitate intimate contact with the underlying absorptive surface to enhance bioavailability [1].

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Polymers used in the mucoadhesive formulations include natural, semi-synthetic and synthetic ones. In recent years, a growing interest has been identified in the development of natural polymer-based drug delivery systems due to their biodegradability, biocompatibility, aqueous solubility, swelling ability, easy availability, and cost-effectiveness [2]. Amongst various natural polymers, alginates have been widely used in the development of drug delivery applications [3-6]. Sodium alginate (SA) undergoes ionotropic-gelation by Ca^{2+} to form calcium alginate due to ionic interaction.

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Original Article

Preparation, characterization and evaluation of solid dispersions of rilpivirine

Bharati Arali[1]*, Anand Kumar Y[2], Mallikarjuna Setty C[3]

[1*]Department of Pharmaceutics, East West College of Pharmacy, Bengaluru, Karnataka, India
[2]Department of Pharmaceutics, V.L. College of Pharmacy, Raichur, Karnataka, India
[3]Department of Pharmaceutics, Oxford College of Pharmacy, Bengaluru, Karnataka, India

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ABSTRACT

Rilpivirine (RPV) is a pharmaceutical drug used for the treatment of HIV infection. The drug is characterized with poor aqueous solubility and dissolution rate leading to low bioavailability of the drug. Hence, there is a need for the improvement of the solubility and dissolution of such drugs. In this exertion, enhancement of the solubility and dissolution of the practically water insoluble drug Rilpivirine was achieved by solid dispersion (SD) preparation using HPC and Poloxamer by kneading method and solvent evaporation method in 1:3 and 3:1 ratios which eventually leads to bioavailability enhancement. The SD's were characterized by Fourier transform infrared spectroscopy and X-ray powder diffraction studies and also evaluated by Powder dissolution studies. It was found that the SD's formed showed the absence of crystalline nature of the drug and its conversion to amorphous state. Overall the rank order of improvement in dissolution properties of Rilpivirine with different polymers is Poloxamer > HPC, with ratios 1:3 > 3:1 and methods SE > KNE > PM > Pure drug.

Keywords: Rilpivirine, HPC, Poloxamer, Solid dispersion, Dissolution rate.

Address for Correspondence: Mrs. Bharati Arali, Assistant Professor, Department of Pharmaceutics, East West College of Pharmacy, #63, I Phase Bharatnagar, BEL Layout, Vishwaneedam Post, Off Magadi Road, Bengaluru-560091, Karnataka-INDIA; E-mail id: bharathi.arali@gmail.com

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Preparation and Evaluation of Nateglinide-Cyclodextrin Inclusion Complex (AbstractView.aspx?PID=2018-11-3-37)

Venkatesh (https://scholar.google.co.in/scholar?q="Venkatesh"), Anand Kumar Y (https://scholar.google.co.in/scholar?q="Anand Kumar Y"), C. Mallikarjuna Setty (https://scholar.google.co.in/scholar?q="C. Mallikarjuna Setty")

neeru241586@yahoo.co.in (mailto:neeru241586@yahoo.co.in)

Address: *Venkatesh1, Anand Kumar Y2*, C. Mallikarjuna Setty3*
1Department of Pharmaceutics, Sarada Vilas College of Pharmacy, Mysore, India.
2Department of Pharmaceutics, V.L. College of Pharmacy, Raichur, India.
3Oxford College of Pharmacy, Bengaluru, India.
**Corresponding Author*

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ABSTRACT:

A physicochemical characterization of nateglinide (NT) - hydroxy propyl ß-cyclodextrin (HPßCD) inclusion complex both in solution state and solid state were studied to improve the solubility and dissolution properties of nateglinide. Inclusion complex were prepared by micro wave irradiation and kneading method at 1:1M, 1:2M ratios. The prepared inclusion complex were investigated in solution state by drug content, phase solubillty studies and solid state by differential scanning calorimetry (DSC), Fourier transformation-infrared spectroscopy (FTIR), X-ray diffractometry (XRD) and in vitro dissolution studies. Phase solubility studies revealed 1:1M stoichiometry inclusion complex, a true inclusion complex was observed at 1:1 and 1:2M ratios it was confirmed by FTIR, DSC, XRD studies. In vitro dissolution data suggests the dissolution properties of nateglinide was dependent on method and ratio, the inclusion complex of both methods shows superior dissolution properties when compare to corresponding physical mixture and pure nateglinide.

KEYWORDS:

Nateglinide; HPβCD; FTIR; DSC; XRD; in vitro dissolution.

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P. Padwa

PRINCIPAL
The Oxford College Of Pharmacy
No 59, 1st Cross, Begur Road,
Bangalore - 5[illegible]

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CASE REPORT

WILEY Aging Medicine

Development of acrocyanosis associated with pain and increased creatinine level in histoplasmosis patient: Medication therapy

Chittiboyena Sai Chaitanya Yadhav[1] | Karthikeyan Elumalai[1,2] | Shaik Sana Nishad[1] | Srinivasan Sivannan[3] | Sivaneswari Srinivasan[4]

[1]Department of Postgraduate Research in Clinical Pharmacy, Santhiram College of Pharmacy, Nandyal, India
[2]Department of Medicinal Chemistry, Oxford College of Pharmacy, Hongasandra, Bangalore, India
[3]Department of Pharmacy Practice, Togari Veeramallappa Memorial College of Pharmacy, Ballari, India
[4]Department of Pharmaceutics, KK College of Pharmacy, Gerugambakkam, Chennai, India

Correspondence
Karthikeyan Elumalai, Department of Medicinal Chemistry, Oxford College of Pharmacy, Hongasandra, Bengaluru, Karnataka, India.
Email: karthikeyanelumalai@hotmail.com

Keywords: acrocyanosis, amphotericin B, histoplasmosis, impaired renal function

1 | INTRODUCTION

Amphotericin B is a potential anti-fungal antibiotic; it is a polyene and shows action on many species of fungi. It is mainly used in life-threatening fungal infections and has evidence of producing nephrotoxicity when used in high doses; hence its use is limited. It also shows many dose-dependent adverse effects; allergic reactions, nausea and vomiting, and an imbalance in electrolytes are other adverse reactions. We report a case of development of acrocyanosis and increased serum creatinine levels on the use of amphotericin B. We describe the rare complications and evaluate the risk factors. Anisodamine was used to treat the acrocyanosis and pain.

2 | CASE REPORT

A 70-year-old man was admitted to hospital due to histoplasmosis. The patient's past medical history included senile degenerative valvular heart disease, alteration in ventricular contractions, and anemia. He had not previously had any other pain, acrocyanosis, or allergies to food, drugs, or pollens. His personal history revealed alcohol and smoking habits for 40 years, which he had ceased 2 years previously. He had experienced histoplasmosis previously and had been treated with itraconazole, voriconazole, and caspofungin acetate successfully a year previously; the oral solution of itraconazole had been prescribed on discharge 9 months previously. In the Pulmonology Department, the patient now reported week-long pain in the right back and chest side, respectively; he also reported that he had stopped taking the oral solution of itraconazole 3 months previously. The vital signs of the patient are presented in Table 1.

There was no wheezing and crackles were audible with both lower lungs. The fifth-level muscle strength of both the upper and lower limbs was graded and the physical examination did not reveal any disability or abnormality. Computed tomography (CT) of the thorax showed infection associated with peripheral access in three to five thoracic vertebrae, causing the compression of the spinal cord (Figure 1). Lung CT showed a high-density shadow, which indicates pleural thickening, and encapsulated effusion on the left side (Figure 2). The patient also suffered from prostate calcification and two renal cortical cysts, which were detected through the ultrasound scan. Lab investigations revealed C-reactive protein (CRP) of 98.5 mg/L and creatinine clearance of 39 mL/min; and the complete blood count revealed: a platelet count of 225 × 109/L (normal range: 100-300 × 109/L), a white blood count of 7.2 × 109 L (normal range: 4-10 × 109/L), and neutrophils of 68% (normal range: 47%-77%). The liver function tests revealed a total bilirubin of 7.4 μmol/L (normal range: 1.8-25 μmol/L), alanine aminotransferase of 16 U/L (normal range: 7-40 U/L), aspartate aminotransferase of 24 U/L (normal range: 8-40 U/L), blood urea of 7.9 (normal range: 1.8-7.2 U/L), and serum creatinine of 99 μmol/L (normal range: 45-135 μmol/L).

The patient was then admitted to the Pulmonology Department and he received intravenous (IV) cefepime 2 g for 12 hours in

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Correspondence

Isoniazid-induced liver disorder in the treatment of tuberculosis

Dear Editor,

Liver damage occurs in 18–20% of patients taking isoniazid; however, in most cases, a slight increase in serum glutamic oxaloacetate transaminase (SGOT) occurs when the medication is continued.[1] Notwithstanding, in around 1% of patients, isoniazid causes hepatitis.[2–4] There are currently no methods for determining whether a patient with a marginally increased SGOT will develop hepatitis upon continuing isoniazid.[5] Clinical highlights are widely variable, ranging from gastrointestinal indications, a virus-like disease, or tricky jaundice to extreme touchiness such as fever, rash, and eosinophilia.[6]

The general conclusions were that liver sickness can occur in patients on isoniazid preventive treatment. Age is a prevalent factor that appears to increase the risk of liver damage among subjects accepting isoniazid.[7] This dynamic liver harm occurs infrequently in patients <20 years old, up to 0.3% in patients aged 20–34 years, up to 1.2% in patients aged 35–49 years, and up to 2.3% in patients aged ≥50 years.[8] Daily liquor consumption may likewise increase the risk. The recurrence may differ among places and times and contingent on unknown factors. The liver sickness that develops is not an after-effect of a specific assembling procedure or contaminant.[9] The improvement of the liver malady is not surprising in any individual patient. The morphological pathology of isoniazid liver infection, as directly comprehended, does not allow its prepared separation from viral hepatitis.[10] Routine checking by lab tests such as SGOT or serum glutamic pyruvate transaminase (SGPT) is not valuable for foreseeing hepatic maladies in patients taking isoniazid. Here we report on isoniazid-induced liver disorder in the treatment of tuberculosis.

Case 1 is a 40-year-old man who was admitted to the casualty medical ward in a tertiary care hospital complaining of fever, abdominal pain, persisting vomiting, breathlessness, and decreased sleep and appetite. He was diagnosed with sputum-positive pulmonary tuberculosis 2 months prior with positive radiological findings on a chest X-ray and started on category one anti-tubercular therapy (isoniazid 300 mg/day, rifampicin 600 mg/day, pyrazinamide 1.5 gm/day, ethambutol 800 mg/day, and pyridoxine 20 mg/day). The patient's medical record showed indinavir use and subsequent treatment with a tenofovir + lamivudine + nevirapine (TLN) regimen. There was no past personal or family history of liver disorder. The patient weighed 65.0 kg; his blood pressure and pulse rate at admission were 100/70 mmHg and 84 beats/min, respectively. The clinical examination revealed that all body systems were within normal limits except for liver function as evidenced by elevated bilirubin and liver enzymes. Within a few days after starting category one anti-tubercular therapy, signs of liver dysfunction were observed, the patient was treated symptomatically by the withdrawal of the anti-tubercular therapy and cured. The anti-tubercular therapy was restarted and he developed the same signs of liver dysfunction.

The patient's signs of liver dysfunction were treated by withdrawal of the anti-tubercular therapy and symptomatic treatment with paracetamol, ondansetron, dicyclomine, and pantoprazole. The patient's condition improved over the next 3 days; he was then discharged with modified anti-tubercular therapy without isoniazid. On review, his condition improved without any signs of liver dysfunction. The Naranjo Reverse Drug Reaction Probability Scale and World Health Organization-Uppsala Monitoring Center (WHO-UMC) criteria were applied to determine the cause of the suspected adverse drug reaction (ADR). The causality assessment with both scales revealed that the ADR being due to

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isoniazid in this case was "probable" (Naranjo overall score, 6); on the modified Hartwig and Siegel scale, it was categorized as a moderate 4(b) reaction.

Case 2 is a 60-year-old man who was admitted to the casualty medical ward in a tertiary care hospital with complaints of fever, abdominal discomfort, and generalized weakness. He was diagnosed with sputum-positive pulmonary tuberculosis with positive radiological findings on chest X-ray and started on category one anti-tubercular therapy (isoniazid 300 mg/day, rifampicin 600 mg/day, pyrazinamide 1.5 g/day, ethambutol 800 mg/day, and pyridoxine 20 mg/day). His medical record revealed a history of indinavir use and subsequent TLN regimen treatment. There was no past personal or family history of liver disorders. The patient weighed 75 kg and the blood pressure and pulse rate at admission were 110/70 mmHg and 86 beats/min, respectively. The clinical examination revealed that all body systems were within normal limits except for liver function, i.e., elevated bilirubin and liver enzyme levels.

The patient was diagnosed with positive pulmonary tuberculosis and started on category one anti-tubercular therapy. Within a few days, the patient had developed signs of liver dysfunction, which were treated by the withdrawal of anti-tubercular therapy and symptomatic treatment with ursodeoxycholic acid, paracetamol, ondansetron, streptomycin, levofloxacin, and pantoprazole. The patient's condition improved over the next 3 days. He was then discharged with modified anti-tubercular therapy without isoniazid. On review, his condition improved without any signs of liver dysfunction. The causality of the ADR was assessed using the Naranjo and WHO-UMC criteria. Both scales revealed that the ADR being due to isoniazid in this case was "probable" (Naranjo overall score, 6); on the modified Hartwig and Siegel scale, it was categorized as a moderate 4(b) reaction.

Case 3 is a 60-year-old woman who was admitted to the casualty medical ward in a tertiary care hospital with complaints of loss of appetite and vomiting. She was diagnosed with sputum-positive pulmonary tuberculosis with positive radiological findings on a chest X-ray and started on category one anti-tubercular therapy (isoniazid 300 mg/day, rifampicin 600 mg/day, pyrazinamide 1.5 g/day, ethambutol 800 mg/day, and pyridoxine 20 mg/day). There was no past personal or family history of liver disorder. The patient weighed 75 kg and had an admission blood pressure and pulse rate of 120/90 mmHg and 86 beats/min, respectively. The clinical examination revealed that all body systems were within normal limits except liver function (elevated bilirubin and liver enzyme levels; total bilirubin, 4.3 mg/dl; SGPT, 263 U/L; SGOT, 143 U/L; total protein, 6.2 mg/dl; albumin, 2.4 mg/dl). The patient was diagnosed with positive pulmonary tuberculosis and started on category one anti-tubercular therapy. Within a few days, the patient developed signs of liver dysfunction. The patient was symptomatically treated by the withdrawal of the category one anti-tubercular therapy and then restarted on the same therapy; soon thereafter, she developed the same signs of liver dysfunction.

The anti-tubercular therapy was withdrawn again and the patient was treated symptomatically with ursodeoxycholic acid, pantoprazole, and ondansetron. The patient's condition improved over the next 3 days. She was then discharged with modified anti-tubercular therapy without isoniazid. On review, her condition improved without any signs of liver dysfunction. The causality assessment on both scales revealed that the ADR being due to isoniazid was "probable" (Naranjo overall score, 6); on the modified Hartwig and Siegel scale, it was categorized as a moderate 4(b) reaction.

Isoniazid is metabolized via an acetylation process by *N*-acetyltransferase (NAT-2) in the liver, where it is converted to acetyl isoniazid. The *N*-acetyl isoniazid undergoes hydrolysis to form acetyl hydrazine (AcHz).[2] The polymorphisms of NAT-2 cause people to be either "quick" or "moderate" acetylate metabolizers. Slow acetylate metabolizers shunt some isoniazid to an optional metabolic pathway of oxidation via cytochrome P450, delivering hydrazine (Hz). This suggests that both AcHz and Hz, produced separately by the quick and moderate acetylate metabolizers, participate in responses that create oxidative pressure (e.g., free radicals). Hz may instigate cytochrome P450 (specifically CYP2E1), expanding the generation of an extra-harmful metabolite. Subsequently, hepatotoxicity may occur in both fast and moderate acetylate metabolizers, however for somewhat extraordinary reasons.[3] Isoniazid acetylation forms ac-isoniazid via the *N*-acetyltransferase (NAT) enzyme, while hydrolysis delivers isonicotinic acid and Hz via amidase. Acisoniazid can likewise be hydrolyzed to form isonicotinic acid and AcHz. Moreover, Hz can be acetylated to AcHz and diacetyl Hz. Hz and AcHz are believed to be additionally oxidized to responsive metabolites and engaged with isoniazid hepatotoxicity, which was proposed to be intervened by microsomal P450, particularly CYP2E56.[4]

Once a drug-induced liver disorder develops, all conceivably hepatotoxic medications must be discontinued until the clinical and biochemical determination of the hepatotoxicity causation is made. In the meantime, no fewer than three non-hepatotoxic medications (e.g., ethambutol, streptomycin, and quinolones;

or levofloxacin, ofloxacin, or ciprofloxacin) can be utilized after suitable assessment of the patient's renal capacity and visual acuity.[6] After the thorough determination of transaminases, most anti-tubercular medications can be carefully restarted. The British Thoracic Society suggested that primary anti-tubercular medications can be reintroduced sequentially in the order of isoniazid, rifampicin, and pyrazinamide with regular observation of the patient's biological condition and liver capacity. Isoniazid should be started at a dosage of 50 mg/day and gradually increased to 300 mg/day, more than a few days in the event that it is all around endured and preceded thereafter.[7] A few days later, rifampicin can be started at a dosage of 75 mg/day and gradually increased to 300 mg/day. Thereafter, it can be increased to 450 mg (<50 kg) or 600 mg (>50 kg) according to the patient's weight. On the off chance that this medication is not well-tolerated, it is discontinued. And finally, pyrazinamide can be started at 250 mg/day, gradually increased to 1000 mg/day, and then increased to 1500 mg (<50 kg) or 2000 mg (>50 kg) according to the patient's body weight. On the off chance that these medications are not well-tolerated, they can be discontinued.

Tuberculosis is more pervasive in developing nations like India. Subsequently, physicians must know about the medication danger profiles of anti-tubercular drugs like isoniazid. The mental complexities can enormously affect the patients' personal satisfaction and a physician's state of mind about using isoniazid; thus, effective control of these inconveniences is critical. These case reports explain the features of isoniazid-induced liver disorders.

Conflict of interest

Authors do not have any conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cdtm.2018.11.003.

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Srinivasan Sivannan[a]
Atukuri Vishnuvardhan[a]
Karthikeyan Elumalai[b,*]
Sivaneswari Srinivasan[c]
Kalpana Eluri[d]
Manogaran Elumalai[d]
Ramasamy Muthu[c]

[a]*Department of Pharmacy Practice, TVM College of Pharmacy, Bellary, 583103, India*
[b]*Department of Medicinal Chemistry, The Oxford College of Pharmacy, Hongasandra, Bangalore, 560068, India*
[c]*Department of Pharmaceutics, K.K. College of Pharmacy, Gerugambakkam, Chennai, 600128, India*
[d]*Faculty of Pharmaceutical Sciences, UCSI University, Cheras, Kuala Lumpur, 56000, Malaysia*
[e]*Department of Pharmacology, The Oxford College of Pharmacy, Hongasandra, Bangalore, 560068, India*

*Corresponding author.
E-mail address: karthikeyanelumalai@hotmail.com
(K. Elumalai)

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A REVIEW ON ANTICANCER ACTIVITY OF *PUNICA GRANATUM* LINN

M. Padmaa Paarakh[1]* and Preethy Ani Jose[2]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.
[2]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.

***Corresponding Author: Dr. M. Padmaa Paarakh**
Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.

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ABSTRACT
Medicinal plants have been used in traditional health care system and are considered as a source of healthy human life. *Punica granatum* Linn is one of the potential medicinal plants which find its use in treatment of number of diseases apart from being consumed as fruit. The plant part which is used for activity is root bark, flower bud, fruit and fruit rind. Number of phytoconstituents viz., punicalin, punicaligin, ellagic acid, granatin B, gallagyldilactone, casuarinin, pedunculagin, grantin A, tellimagrandin I, gallicacid, corilagin, pentunidin are isolated from the plant. The pharmacological activities reported so far are antioxidant, anticarcinogenic, anti-inflammatory, cardiovascular diseases, diabetes, dental conditions, anthemintic, antifertility, gastro protective, antifungal, analgesic, hypoglycemic activity, atherosclerosis etc properties. The aim of present study is to give a review of *Punica granatum* in relation to anticancer activity reported so far.

KEYWORDS: Anti cancer activity; *Punica granatum;* review; phytoconstituents.

INTRODUCTION
Cancer continues to be one of the major causes of death worldwide and only modest progress has been made in reducing the morbidity and mortality of this disease. Cancers may be caused in one of three ways, namely incorrect diet, genetic predisposition, and via the environment. As many as 95% of all cancers are caused by life style and may take as long as 20–30 years to develop.

Current estimates from the American Cancer Society and from the International Union Against Cancer indicate that 12 million cases of cancer were diagnosed last year, with 7 million deaths worldwide; these numbers are expected to double by 2030 (27 million cases with 17 million deaths).

According to a report of World Health Organization, more than 80% of world's populations depend on traditional medicine for their primary health care needs. Naturally occurring drugs that are part of the war against cancer include vinca alkaloids (vincristine, vinblastine, vindesine, vinorelbine), taxanes (paclitaxel, docetaxel), podophyllotoxin and its derivative (etoposide, teniposide), camptothecin and its derivatives (topothecan, irinothecan), anthracyclines (doxorubicin, daunorubicin, epirubicin, idarubicin) and others.

Extensive research is being carried out for the cure of cancer and many of the research has been successful in the treatment of patients. The side effects and drug resistance are the major threat for health care professionals to manage the cancer therapy. There is tremendous need for search of newer anticancer drug to alleviate the pain and suffering of patients. This review is focused on exploring the detailed anti-cancer property of *Punica granatum* in addition to its traditional uses and phytoconstituents isolated so far in brief.

Punica granatum Linn (Punicaceae) commonly known as pomegranate is large deciduous shrub or a small tree up to 5-10 m in height, wild and cultivated throughout India up to an altitude of 2000 m in the hills.[1]

In Traditional System of Medicine, root and stem bark are used as astringent, cooling, anthelmintic,good for tapeworm, strengthening gums and diarrohoea; flowers are used for styptic to gums, ophthalmic pain, haematuria, intrinsic hemorrhage, hemorrhoids, diarrhea, dysentery, ulcer, pharnyngitis and epistaxis; fruits are sweet, sour, astringent, cooling, tonic, aphrodisiac, laxative, diuretic, anaemia, hyperdipsia, dyspepsia, pharyngitis, ophthalmic pain, pectoral disease, splenic disorder, bronchitis, earache and diarrhea; fruit rind is used for dysentery, gastric disorder, bleeding piles, freckles and gonorrhea; seeds are used as astringent, stomachic, diuretic, cardio tonic, vomiting, excessive thirst, hepatic and splenic disorder.[1,2]

P.granatum contains a number of chemical constituents

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Original Article

The high lymphadenopathy and subcutaneous edema are associated with development of foot ulcer in type 2 diabetes: A collagen implanted antibiotic therapy

Karthikeyan Elumalai[a,b,*], Chittiboyena Sai Chaithanya Yadhav[c], Shaik Sana Nishad[a], Sivaneswari Srinivasan[a], Kamani Mounika[a], Srinivasan Sivannan[a], Kota Supriya[a], Anil Kumar[d]

[a] Department of Postgraduate Research in Clinical Pharmacy, Santhiram College of Pharmacy, Nandyal 518 501, India
[b] Department of Medicinal Chemistry, The Oxford College of Pharmacy, Hongasandra, Bangalore 560 068, India
[c] Department of Pharmaceutics, K.K. College of Pharmacy, Gerugambakkam, Chennai 600 128, India
[d] Department of Pharmacy Practice, TVM College of Pharmacy, Ballari 583 103, India

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ABSTRACT

The infective diabetic foot ulcer was caused by the high microbial infection affecting the surrounding tissue of the foot. The distal region of a foot was affected by the microbial infection in an uncontrolled situation. In this study, the possible efforts were made to prevent the diabetic foot ulcer of a patient. The diabetic foot ulcer, with tissue exposure and microbial infection on the surface of the foot, was treated with several antibiotics and dressings. The revascularization treatment procedure was started. The infection was reduced when compared with the beginning of this treatment. The collagen implant along with Gentamicin sulphate found that collagen was penetrated into the wound and helped the granulation of the tissue formation. The topical gentamicin reduced the bacterial contamination and cicatrization. The infective diabetic foot ulcer was treated by weekly dressings with collagen implant Gentamicin sulphate, Doxycycline, and Vancomycin therapy. It suggests that this combination will accelerate the healing of diabetic foot ulcer.

1. Introduction

The physically damaged surface area of the skin and underlying tissues are the major cause of the skin ulcer. However, in a diabetic condition, most skin ulcers occur on the legs and feet. Ulcer healing process is delayed and takes more time in the diabetic foot ulcer [1,2]. The novel therapeutic agents are needed for the treatment of diabetic associated foot ulcers. Although numerous studies aiming to investigate the mechanisms and the path of wound healing of skin ulcer performed in the rodent dorsal region, the healing procedure differs in the human feet [3,4].

The rodent dermis is bounded by panniculus carnosaurs which accelerate wound contraction immediately after incisions [5]. In humans, wound healing process occurs after the formation of a collagen-rich matrix which is produced by migrated fibroblasts [6]. In other words, the dominant processes in the early stage of wound healing are re-epithelialization and granulation in humans, whereas contraction in rodents [7]. The presence of diabetic foot ulcer may have a major impact on the health-related quality of life (HRQL) in patients found with the current ulcer. The existence of other diabetic complications and the conduct of a major amputation were the most negative variables explaining patients' HRQL scores [8–11]. Using the comprehensive clinical assessments [12] it is found that, the higher ages of the association had Type 2 diabetes which increased the severity of foot ulcers and the presence of more than one ulcer were all significant and independent predictors of HRQL. We herein report that rare diabetic foot ulcer in a patient who received vigorous fluid resuscitation was successfully recovered and discharged after a month.

2. Case report

A 60-year-old male patient with non-insulin treated Type 2 diabetes which was reported to the emergency department on eighteenth November 2015 because of a third-degree wound with 12 × 10 cm on the right instep with an exposed tendon (Fig. 1A). Additionally, he had a fever and inflammatory signs around the wound and left arterial abnormality associated with sinus tachycardia, lymphadenopathy, and subcutaneous edema, even the distal pulses were noted on physical

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* Corresponding author.
E-mail address: [redacted] (K. Elumalai).

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A STUDY ON PREVALENCE OF POLYPHARMACY AND THE DRUG

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RELATED PROBLEMS IN SURGICAL WARD OF DEPARTMENT OF SURGERY IN A TERTIARY CARE HOSPITAL

Blessy mariathomas*, John johny, Milu A. george, Pramit Chakraborty, Ramyaelezabeth philip.

ABSTRACT

The objective was to assess the prevalence of polypharmacy in the surgical ward of department of surgery of The Oxford Medical College and Research Centre, Attibele, Bangalore. An observational study was carried out on a sample size of 150 patients including 76 male and 74 female patients. The prevalence of polypharmacy was found to be 73% and about 55.45% of cases of polypharmacy were seen between 61 to 80 years. Patients of this age group also had the maximum instances of taking more than 9 medicines.55% moderate drug interaction was seen with 60% probable ADRs as the drug related problems. So there should be a combined effort from all the healthcare professionals to reduce the incidence of polypharmacy wherever possible.

Department of Pharmacy Practice, The oxford College of Pharmacy, Hongasandra, Bangalore-560068, Karnataka, India.

INTRODUCTION

Polypharmacy can be referred to as the administration of more medications than that is clinically indicated, thus signifying unnecessary use of medications. It is most common in elderly patients who have multiple health conditions and metabolic changes and thus require multiple medications for treatment [1, 2].

There is no well-defined parameter for polypharmacy but the use of more than five medications concurrently is accepted as pol pharmacy [3].

POLYPHARMACY TYPES

There are mainly two classes of poly pharmacy

- Therapeutic Polypharmacy or appropriate polypharmacy. In this case the multiple drug therapy is carefully monitored by the prescribers with the slated aim of maintaining good health of the patient.
- Contra therapeutic Polypharmacy or Problematic polypharmacy. In this case the therapy is not on the basis of evidence and the risk to benefit ratio is not favorable for maintaining the patient's good health.

Risk Factors of Polypharmacy

There are main three characteristics:

- Demographic characteristics: Higher age, white race and education.
- Health status characteristics: General poor health, depression, hypertension, asthma, angina, diverticulitis, osteoarthritis, gout, DM and use of multiple drugs for these conditions.
- Access to health care characteristics: health care visits, supplemental insurance, and multiple prescribers [4].

As the global population is increasingly growing elder, polypharmacy today has become a global phenomenon and a common problem among geriatrics. It also increases the risk of drug related adverse events like falls, confusion and cognitive

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ANTI CANCER ACTIVITY OF *MURRAYA KOENIGII* – AN OVERVIEW

M. Padmaa Paarakh[1]* and Preethy Ani Jose[2]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.
[2]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.

***Corresponding Author: Dr. M. Padmaa Paarakh**
Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.

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ABSTRACT
As the number of cancer patients raise, the search for alternative medicine, free from side effects and complications which follow a conventional therapy, has become more significant than ever. Medicinal plants have been used in traditional health care system and are considered as a source of healthy human life. *Murraya koenigii* Linn is a potential medicinal plant highly valued for its characteristic aroma and bioactive compounds. Leaves are often used in curries for flavoring and seasoning due to their aromatic nature. Phytocompounds like mahanimbine, koenimbine, koenine, murrayacine, murrayazolidine, murrayazoline, girinimbine, mukoeic acid, etc. have been found to be bioactive compounds possessing antitumor, antioxidant, antimicrobial, analgesic, anti-inflammatory, anthelmintic, antidiarrheal and hepatoprotective properties. The aim of present study is to give a review of *Murraya koenigii* in relation to anticancer activity reported so far.

KEYWORDS: Anti cancer activity; *Murraya koenigii*, overview; phytoconstituents.

INTRODUCTION
Cancer is one of the most dreaded diseases to humanity. Extensive research is being carried out for the cure of this ailment and many of the research has been successful in the treatment of patients. The side effects and drug resistance is a problem constantly faced by the patients and health care professionals to manage the cancer therapy. There is scope for natural phytocompounds gaining momentum in anti-cancer therapy. This review is focused on exploring the detailed anti-cancer property of Murraya *koenigii* with in addition to its taxonomical description, traditional uses and phytoconstituents isolated so far in brief.

Murraya koenigii Linn (Rutaceae) commonly known as Meethi neem, is an aromatic more or less deciduous shrub or a small tree up to 6 m in height found throughout India up to an altitude of 1500 m and are cultivated for its aromatic leaves.[1]

Taxonomic status[2]
Kingdom: Plantae
Sub kingdom: Tracheobionta
Division: Magnoliophyta
Class: Magnoliopsida
Subclass: Rosidae
Order: Sapindales
Family: Rutaceae
Genus: *Murraya*
Species: *koenigii*

In Traditional System of Medicine, it is used as antiemetic, antidiarrhoeal, dysentery, febrifuge, blood purifier, tonic, stomachic, flavoring agent in curries and chetneys. The oil is used externally for bruises, eruption, in soap and perfume industry.[3]

Murraya Koenigii is a highly values plant for its characteristic aroma and medicinal value.

A number of chemical constituents from every part of the plant have been extracted. The most important chemical constitutents responsible for its intense characteristic aroma are P-gurjunene, P-caryophyllene, P-elemene and O-phellandrene. The plant is rich source for carbazole alkaloids.[4]

The plant is credited with tonic and stomachic properties. Bark and roots are used as stimulant and externally to cure eruptions and bites of poisonous animals. Green leaves are eaten raw for cure of dysentery, diarrhoea and for checking vomiting. Leaves and roots are also used traditionally as bitter, anthelmintic, analgesic, curing piles, inflammation, itching and are useful in leucoderma and blood disorders.[5,6] *M. koenigii* contains a number of chemical constituents that interact in a complex way to elicit their pharmacodynamic response. A number of active constituents responsible for the medicinal properties have been isolated and characterized.

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Original Articles

Curcumin loaded fish scale collagen-HPMC nanogel for wound healing application: *Ex-vivo* and *In-vivo* evaluation

Dr Inayat B. Pathan, PhD, Mr Santosh J. Munde, Dr Santosh Shelke, Professor Wahid Ambekar & Dr C. Mallikarjuna Setty

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ABSTRACT

The objective of the present investigation was to formulate curcumin loaded fish scale collagen (FSC)-hydroxypropyl methyl cellulose (HPMC K100) nanogel (CNG) for wound healing application. The curcumin nanoemulsion was prepared, characterized and loaded in FSC-HPMC nanogel. The nanogel was evaluated for *ex-vivo* permeation, *in-vivo*, skin irritation, and stability study. Ex-vivo permeation study demonstrated that

CNG prolonged release and exhibited higher percent contraction value of wound compared to other formulations. In skin irritation study, formulation produced the

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GREEN SYNTHESIS OF NANOPARTICLES USING PLANT EXTRACTS OF *PUNICA GRANATUM* AND *MURRAYA KOENIGII* –A REVIEW

M. Padmaa Paarakh[1]* and Preethy Ani Jose[2]

[1]Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.
[2]Department of Pharmaceutics, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India

***Corresponding Author: M. Padmaa Paarakh**
Department of Pharmacognosy, The Oxford College of Pharmacy, Bangalore 560 068, Karnataka, India.

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ABSTRACT

Research in the field of nanotechnology is an expanding research in the synthesis of metal nanoparticles due to its potential applications for the development of novel technologies including Medicine. The present review gives the different methods of green synthesis of nanoparticles using plant extract of *Punica granatum* and *Murraya koenigii* and their application till date. Both the plants have been known in the traditional system of medicine for treatment of number of diseases.

KEYWORDS: *Punica granatum*; *Murraya koenigii*; Green synthesis; Nanoparticles; review; application.

INTRODUCTION

The research in biosynthesis of inorganic nanoparticles including metallic nanoparticles, oxide nanoparticles, sulfide nanoparticles, and other typical nanoparticles has expanded drastically. Different methods of synthesis of nanoparticles with reference to control the size/shape and stability of particles have been studied as biosynthesized nanoparticles has wide potential areas including targeted drug delivery, cancer treatment, gene therapy and DNAanalysis, antibacterial agents, biosensors, enhancing reaction rates, separation science and magnetic resonance imaging(MRI).[1]

Nanoparticle having particle size of 100 nm or less- has attracted attention due to their unusual properties, with various applications, over the particles with larger size. Silver based compounds are highly toxic to microorganisms which make it an excellent choice for multiple roles in the medical field. The action of silver metal on microbes is not fully known. It is hypothesized that silver nanoparticles will cause cell lysis or inhibit cell transduction by releases of ionic silver that inhibiting the thiol group of bacterial enzymes thereby halting bacterial DNA replication, depleting levels of intracellular adenosine triphosphate (ATP) and finally cause cell death. Due to nanosize, the surface area is increased which improves their contact with microorganisms thereby exhibiting biocidal effect.

To synthesize nanoparticles a wide number of physical, chemical, biological, and hybrid methods are available. As such physical and chemical methods are more popular for nanoparticle synthesis but the toxicity had limited their use. The development of safe eco-friendly methods of biogenetic production are now of more interest due to the simplicity of the procedures and versatility.

To overcome this problem, synthesing nanoparticles by employing biological methods of using microbes and plants. One of them is the synthesis using plant extracts eliminating the elaborate process of maintaining the microbial culture and often found to be kinetically favorable than other bioprocesses. Biomolecules have a significant advantage over their counterparts as protecting agents.

Several groups have shown success in the synthesis of Ag, Au, and Pd nanoparticles using organisms like bacteria and fungi as well as extracts from plant parts, e.g., geranium leaves lemon grass, neem leaves, aloe vera and coriander fruits.[2] The spectacular success in this field has opened up the prospect of developing bio-inspired methods of synthesis of metal nanoparticles with tailor-made structural properties.

In the present review, we have selected two plants which viz., *Punica granatum* and *Murraya koenigii* are commonly used by the people for regular use as food and which are found to have number of traditional uses for treatment of diseases. The aim of the study is to give different method of synthesis and application of nanoaprticles synthesized by these 2 plants. The abstract of various articles published are given below.