

*Celebrating*

**54**  
*Years*

ijperonline.com / ijper.org

# Indian Journal of Pharmaceutical Education and Research

ISSN 0019 5464

Vol 54, Issue 4

Oct-Dec, 2020

ijper



Abstracted and Indexed in: Science Citation Index Expanded (Scisearch)<sup>®</sup>  
and Journal Citation Reports, Scopus and Embase



The Official Publication of  
Association of Pharmaceutical Teachers of  
India (APTI)

[apti.headquarters@gmail.com](mailto:apti.headquarters@gmail.com) | [aptienquiry@gmail.com](mailto:aptienquiry@gmail.com)

*Celebrating*  
**54**  
*Years*

# Table of Contents

<b>Review Articles</b>	
<b>Reduced Pharma Supply Chain in COVID-19: Measures to Reduce India's Reliance for Active Pharmaceutical Ingredients on China and other Countries</b> <i>Narendra Uyas, Ankur Joshi, Sapna Malviya, Anil Kharra</i> DOI : 10.5530/ijper.54.4.175	835-842
<b>Artificial Intelligence: A New Paradigm for Pharmaceutical Applications in Formulations Development</b> <i>Nagalakshmi Sethuraman</i> DOI : 10.5530/ijper.54.4.176	843-846
<b>An Outbreak of Severe Acute Respiratory Syndrome-2019 (COVID-19): A Major Health Concern</b> <i>Mohd Sajad, Mofieed Ahmed, Sonu Chand Thakur</i> DOI : 10.5530/ijper.54.4.177	847-857
<b>Pharmaceutical and Biotechnological Importance of Actinobacterial Products</b> <i>Krishnamoorthy Bhakyaashree, Krishnan Kannabiran</i> DOI : 10.5530/ijper.54.4.178	858-864
<b>Using Chloroquine and Hydroxychloroquine in the Treatment of COVID-19: Does It Make Sense?</b> <i>Ronan Batista</i> DOI : 10.5530/ijper.54.4.179	865-874
<b>Original Articles</b>	
<b>The Need for Simulated Patient Method Implementation in Pharmaceutical Education in Poland</b> <i>Magdalena Cerbin-Koczorowska, Piotr Przymuszala, Magdalena Waszyk-Nowaczuk, Beata Plewka, Ryszard Marciniak</i> DOI : 10.5530/ijper.54.4.180	875-880
<b>Training in Professional Pharmacy Services through Educational Videos</b> <i>Zarzuelo Maria Jose, Valverde-Merino Maria-Isabel, Fernandez-Rodriguez Maria, Amador-Fernandez Noelia, Martinez-Martinez Fernando</i> DOI : 10.5530/ijper.54.4.181	881-887
<b>Drug Development Chain and Professional Curriculum Chain Integrated Pharmacy Courses</b> <i>Haibo Yan, Haibo Zhou, Sha Li, Kaihe Ye, Yunlu Jiang, Pinghua Sun</i> DOI : 10.5530/ijper.54.4.182	888-895
<b>An Approach to the Evaluation of Program Outcomes and Consideration of Activities beyond Curriculum for Improvement of Program Outcome Attainment</b> <i>Tauro Savita J, Dhokchawle Bharat V, Barchha Avinash B, Jain Meeta N</i> DOI : 10.5530/ijper.54.4.183	896-904
<b>Implementation of an Innovative Learning Resource with Project to Facilitate Active Learning to Improve Students' Performance on Chemistry</b> <i>Manibar Situmorang, Jamalun Purba, Ramlan Silaban</i> DOI : 10.5530/ijper.54.4.184	905-914



**Promoting Student-Run Online Class Review Activities as Effective Cooperative Learning**  
*Kanong Ruttanokorn, Pairoon Nuntanakorn, Sarayut Jaumabasatian, Theerasak Rojanarata*  
DOI : 10.5530/ijper.54.4.185

915-920

**In-situ Gelling System for Mucoadhesive Site-Specific Drug Delivery for Treatment of Recurrent Vaginal Candidiasis**

*Gurpreet Singh, Shilpa, Waseem Ali, Amita Sarwal*  
DOI : 10.5530/ijper.54.4.186

921-934

**Development of Donepezil Hydrochloride Loaded Gellan Gum Based Nasal Mucoadhesive Microspheres by Spray Drying Method**

*Purushottam Gangane, Pravin Kantikwar*  
DOI : 10.5530/ijper.54.4.187

935-945

**Preparation of Ketoconazole Liposomes with an Ultrasonic and an Injection Method Using Vegetable Oils**

*Olga Popovska, Jana Simonovska, Zoran Kavrakovski, Vesna Rafajlovska*  
DOI : 10.5530/ijper.54.4.188

946-953

**Development and Evaluation of Flurbiprofen Loaded Transethosomes to Improve Transdermal Delivery**

*Anand Panchaxari Gadad, Archana Sidagouda Patil, Yashica Singh, Panchaxari Mallappa Dandagi, Uday Baburao Bolmal, Ananya Basu*  
DOI : 10.5530/ijper.54.4.189

954-962

**Mucoadhesive in-situ Gel Formulation for Vaginal Delivery of Tenofovir Disoproxil Fumarate**

*Anita Prabladbhai Patel, Jayradan K. Patel*  
DOI : 10.5530/ijper.54.4.190

963-970

**Formulation and Evaluation of *Phanera variegata* Linn. Mucilage as a Pharmaceutical Binder in Solid Dosage Form**

*Keshav Bansal, Meenakshi Bajpai*  
DOI : 10.5530/ijper.54.4.191

971-982

**Preparation and Characterization of Directly Compressible Spherical Agglomerates of Etoricoxib**

*Hagalavadi Nanjappa Shivakumar, Vanita Somasekhar, Anwesha Roy*  
DOI : 10.5530/ijper.54.4.192

983-990

**Investigation of Effect of Phytoconstituents Aloe Emodin and Quercetin on Bioavailability of Albendazole**

*Harsh Verma, Ravindra Kumar Pandey, Shiv Shankar Shukla, Bina Gidwani, Amber Vyas*  
DOI : 10.5530/ijper.54.4.193

991-998

**Insulin Resistance Modulation with Lifestyle Modification- Proof-of-Concept Study in Rats**

*Afzal Haq Asif, Prem Kumar Nanjundan, Girish Meravanige Basavarajappa, Nagaraja Sreeharsha, Uma Chandur, Teeka Srinivasasetty Roopashree*  
DOI : 10.5530/ijper.54.4.173

999-1006

**Development of Solid Dispersions of Clopidogrel using Innate Excipient: Synergistic Antiplatelet Activity**

*Chander Pal Singh Verma, Santosh Verma, Mahendra Singh Ashawat, Vinay Pandit*  
DOI : 10.5530/ijper.54.4.194

1007-1015

**Evaluation of Gelling Behavior of Natural Gums and their Formulation Prospects**

*Rachit Mohan, Shobha Singh, Geetendra Kumar, Manjoosha Srivastava*  
DOI : 10.5530/ijper.54.4.195

1016-1023

**Influence of Ketogenic Diet and Phenytoin Sodium on Isoniazid Induced Epilepsy in Wistar Rats**

*Somasundaram Ramachandran, Satya Sravanthi, Sri Ramya Manthana, Undru Liza, Masa Amala*  
DOI : 10.5530/ijper.54.4.196

1024-1030

- In silico* Evaluation on the Inhibition Efficacy of Five Antivirals on SARS-CoV-2 Protease (COVID-19)**  
*Vinod Palayoor Raphael, Shaju Kanimangalath Shanmughan*  
 DOI : 10.5530/ijper.54.4.197 1031-1038
- Asarone and Metformin Modulates the Oxidant-Antioxidant Imbalance on Experimentally Induced Hepatocellular Carcinoma during Diabetic Condition**  
*Bhriju Kumar Das, Pramod Channabasappa Gadad*  
 DOI : 10.5530/ijper.54.4.198 1039-1045
- Effect of Normosil Probiotic Supplementation on the Growth Performance and Blood Parameters of Broiler Chickens**  
*Airat Khabirov, Fail Khabziakhmetov, Vyacheslav Kuznetsov, Hamit Tagirov, Maksim Rebezov, Aleksandra Andreyeva, Almaz Basharov, Zhanibek Yessimbekov, Muhammad Ayaaz*  
 DOI : 10.5530/ijper.54.4.199 1046-1055
- Antiangiogenic Potential of Levetiracetam by Blocking N-type Voltage Gated Calcium Channels**  
*Chandana Kamili, Hima Sowmya Kandoti, Sunil Kumar Sarolu, Suresh Merugu, Abbulu Konde*  
 DOI : 10.5530/ijper.54.4.200 1056-1061
- Xanthine Oxidase and Lipid Peroxidation Inhibition of Taiwan Folkloric Medicine Factors Affecting *Rhus semialata* var. *Roxburghiana* Activities against Xanthine Oxidase and Ferrous Iron-induced Lipid Peroxidation on Mice Liver Mitochondria**  
*Po-Wei Tsai, Pei-Chin Lin, Ling-Ling Yang, Ai-Ho Liao, Bo-Cheng Wang, Ming-Shun Wu*  
 DOI : 10.5530/ijper.54.4.201 1062-1071
- Standardization of *Trigonella foenum-graecum* L. Seeds: A Quality by Design Approach**  
*Vishakha Parab Gaonkar, Kirankumar Hullatti, Vinodh Mannur*  
 DOI : 10.5530/ijper.54.4.202 1072-1079
- Evaluation of Hepatoprotective Effect of a Polyherbal Megakutki against Paracetamol-Induced Hepatotoxicity**  
*Asha Elizabeth Giri, Vanishree Rao, Sandeep Singhal, Kartvik Gourishetti, Subbankar Biswas, Krishnadas Nandakumar, Mallikarjuna Rao Chamllamudi, Jeetesh Dave, Rakesh Dave, Subani Sumalatha, Nitesh Kumar*  
 DOI : 10.5530/ijper.54.4.203 1080-1088
- Neuroprotective effect of 1, 3- $\beta$ -glucan-curcumin mixing (Bioglucur) on Alzheimer Disease Induced in Mice by Aluminium Toxicity**  
*Nesrine Ouda Amari, Noureddine Djebli, Le Mai Huong, Tran Thi Hong Ha, Nguyen Dinh Luyen, Vu Thi Bich*  
 DOI : 10.5530/ijper.54.4.204 1089-1097
- HPTLC Fingerprinting: A Tool for Simplified Analysis of Phenolics in Medicinal Plants**  
*Amit Yadaora Saraf, Aparna Amit Saraf*  
 DOI : 10.5530/ijper.54.4.205 1098-1103
- Phytochemical Investigation, TLC-HPLC Fingerprinting and Antioxidant Activity of *Cissus repanda* Roots**  
*Sachin Bhusari, Kanchan Nikam, Bhanudas Kuchekar, Pravin Wakte*  
 DOI : 10.5530/ijper.54.4.206 1104-1108
- Antioxidant and Anti-inflammatory Activity Screening of *Lasia spinosa* Rhizome and its Validation using a Computational Simulation Approach**  
*Arya Lakshmi Mariseti, Moban Gandhi Bonthu, Ganga Rao Battu*  
 DOI : 10.5530/ijper.54.4.207 1109-1120

- Synthesis, *in-silico* Studies and Evaluation of Anticancer Activity of Some Novel Benzothiazole Substituted 4-Thiazolidinones**  
*Chaithra Raju Shetty, Katte Ishwar Bhat, Abbasbek Kumar, Pankaj Kumar, Praveen Thaggikuppe Krishnamurthy, Vijay Kumar Merugumolu*  
 DOI : 10.5530/ijper.54.4.208 1121-1132
- An in-depth Study of the Concept of Chirality in Organic and Pharmaceutical Chemistry: Using Crystal Structure Data with 3D Visualization Software**  
*Yi Yang, Jian Xu, Gao Cao*  
 DOI : 10.5530/ijper.54.4.209 1133-1143
- Novel Stability Indicating RP-HPLC Method Development and Validation for Simultaneous Estimation of Alfuzosin and Dutasteride in Pharmaceutical Dosage Form**  
*Keerthana Diyya*  
 DOI : 10.5530/ijper.54.4.210 1144-1152
- New Method for the *in vivo* Estimation of Fluvastatin and its Application for Pharmacokinetic Studies in Rabbit**  
*Deepti Sandbala, Srinivas Lankalapalli*  
 DOI : 10.5530/ijper.54.4.211 1153-1158
- Development of Validated Stability-indicating RP-HPLC Method for Determination of Novel Directly Acting Antiviral agent and Characterization of its Degradants by LC-ESI-MS**  
*Babita Agarwal, Santosh Gandh*  
 DOI : 10.5530/ijper.54.4.212 1159-1168
- Development of HPTLC Method for Estimation of Gallic Acid and Bergenin in *Actaea acuminata* Roots**  
*Deepak Kumar, Reecha Madaan, Suresh Kumar*  
 DOI : 10.5530/ijper.54.4.213 1169-1173
- Development and Validation of Novel UV Spectrophotometric Method for the Determination of Evogliptin Tartarate in Pharmaceutical Dosage Form**  
*Yogesh Purushottam Agrawal, Mona Yogesh Agrawal, Siddhesh Bharat Jadhav, Renuka Jagannath Shinde*  
 DOI : 10.5530/ijper.54.4.214 1174-1179
- Estimation of the Probability to Target Attainment to the Pharmacokinetic/ Pharmacodynamic Index of Ertapenem in Elderly Inpatients**  
*Daniel Palma, Elena Vega, María Gai*  
 DOI : 10.5530/ijper.54.4.215 1180-1183
- Community Pharmacist and Clinical Pharmacist Interventions using MMAS-8, FACIT, SF-12 among Pulmonary TB Patients Receiving Anti-TB Drugs from Urban Community Pharmacies, South India**  
*Uday Kumar Rangaswamy, Madimalayya Shivakantayya Ganachari*  
 DOI : 10.5530/ijper.54.4.216 1184-1192
- Impacts of Digital Marketing on the Pharmacies Community in Saudi Arabia and Determining the Future Model of the Industry: A Cross-Sectional Questionnaire-based Study**  
*Mansour Alyahya, Sneha Dhruvakumar, Shekar Hosaballi Siddegowda, Nagaraja Sreeharsha*  
 DOI : 10.5530/ijper.54.4.174 1193-1206