

# The Dhaka University Journal of Pharmaceutical Sciences

(Dhaka Univ. J. Pharm. Sci.)

Vol. 22, No. 1

June, 2023

This publication is covered by CAS, HINARI, Embase™, Embase-Elsevier, SCIENCE, ROAD, CROSSREF, MEDIA, SCIMAGO, ADAT, Directory of Research Journals Indexing, ResearchGate, JournalTOCs, Internetchemistry, Academic Accelerator, Microsoft Academic and several other abstracting systems.

In addition, all papers of each issue are available in  
<[www.dujps.com](http://www.dujps.com)> and <[www.banglajol.info/index.php](http://www.banglajol.info/index.php)>

## EDITORIAL BOARD

### Editor

**Emeritus Prof. Dr. A. K. Azad Chowdhury**

Department of Clinical Pharmacy and Pharmacology  
University of Dhaka

### Associate Editors

**Prof. Dr. Sitesh Chandra Bachar**

Dean, Faculty of Pharmacy  
University of Dhaka

**Prof. Dr. Md. Abdur Rashid**

Department of Pharmaceutical Chemistry  
University of Dhaka

### Members

**Prof. Dr. Firoj Ahmed**

Chairman, Department of Clinical Pharmacy  
University of Dhaka

**Prof. Dr. Md. Shah Amran**

Chairman, Department of Pharmaceutical Chemistry  
University of Dhaka

**Prof. Dr. Md. Selim Reza**

Department of Pharmaceutical Technology  
University of Dhaka

**Prof. Dr. Mohammad Mehedi Masud**

Department of Pharmaceutical Chemistry  
University of Dhaka

**Prof. Dr. Satyajit Dey Sarker**

Director of School of Pharmacy and Biomolecular Sciences  
Liverpool John Moores University, Liverpool, UK

**Prof. Dr. Md. Liaquat Ali**

Former Vice Chancellor  
University of Health Sciences, Dhaka

**Dr. Munirul Alam**

Senior Scientist, Infectious Diseases Division, International  
Centre for Diarrheal Disease and Research (icddr,b),  
Dhaka

**Prof. Dr. Sheikh Zahir Raihan**

Chairman, Department of Clinical Pharmacy and  
Pharmacology, University of Dhaka

**Prof. Dr. Muhammad Rashedul Islam**

Chairman, Department of Pharmaceutical Technology  
University of Dhaka

**Prof. Dr. Mohammad Shawkat Ali**

Department of Clinical Pharmacy and Pharmacology  
University of Dhaka

**Prof. Dr. Claire Anderson**

School of Pharmacy, The University of Nottingham  
Nottingham, UK

**Prof. Dr. Panna Thapa**

KU School of Science  
Kathmandu University (KU), Nepal

**Prof. Dr. Mamun-AI-Mahtab**

Head of Interventional Hepatology Department  
Bangabandhu Sheikh Mujib Medical University  
(BSMMU), Shahbag, Dhaka

**Dr. Kakon Nag**

Chief Executive Officer  
Globe Biotech Ltd, 3/Ka Tejgaon I/A, Dhaka

---

**Published by:** Emeritus Prof. Dr. A. K. Azad Chowdhury, Editor, *The Dhaka University Journal of Pharmaceutical Sciences*, Faculty of Pharmacy, University of Dhaka, Dhaka-1000, Bangladesh on behalf of the Editorial Board.

**Impact Factor: GIF = 0.835 (2015); RG = 0.67 (2018); Citescore = 0.38 (2017)**

## EDITORIAL ADVISORY BOARD

**Prof. Dr. Dennis Ross**  
Harvard Medical School  
Harvard University, USA

**Prof. Dr. Abu Serajuddin**  
College of Pharmacy and Health Sciences  
St. John's University, New York, USA

**Prof. Dr. Muhammad Jamil Habib**  
College of Pharmacy, Howard University  
Washington DC, USA

**Dr. Omar Faruk Khan**  
Associate Dean for Academic Affairs  
University of Charleston, West Virginia, USA

**Prof. Dr. Khondaker Miraz Rahman**  
Professor of Medicinal Chemistry  
School of Cancer & Pharmaceutical Sciences  
King's College London, UK

**Dr. A.R.M. Ruhul Amin**  
Department of Pharmaceutical Sciences and  
Research, School of Pharmacy, Marshall  
University, West Virginia, USA

**Prof. Dr. Colin N A Palmer**  
Chair of Pharmacogenomics, School of  
Medicine, University of Dundee, UK

**Prof. Dr. Muhammad Ilias**  
Research Institute of Pharmaceutical Sciences  
The University of Mississippi, USA

**Prof. Dr. Muhammad Delwar Hussain**  
College of Pharmacy  
California Health Sciences University, USA

**Prof. Dr. Pulok Kumar Mukherjee**  
Department of Pharmaceutical Technology  
Jadavpur University, Kolkata-700032, India

**Dr. Md. Shenuarin Bhuiyan**  
Department of Pathology and Translational  
Pathobiology & Department of Molecular and  
Cellular Physiology, Louisiana State University  
Health Sciences Center, Louisiana, USA

All communications regarding the journal should be addressed to: Emeritus Prof. Dr. A. K. Azad Chowdhury, Editor, *The Dhaka University Journal of Pharmaceutical Sciences*, Faculty of Pharmacy, University of Dhaka, Dhaka-1000, Bangladesh. Phone: 9661920-73/8157, 8137; Fax: 880-2-9667222, E-mail: editor.dujps@du.ac.bd, dujps\_du@yahoo.com, r.pchem@yahoo.com; Web: www.dujps.com

**Printed by:** SRI Printing Press, 8/12 Babupura, Nilkhet, Dhaka-1205, Bangladesh

# The Dhaka University Journal of Pharmaceutical Sciences

(Dhaka Univ. J. Pharm. Sci.)

Vol. 22

No. 1

June, 2023

## CONTENTS

- Md. Saiful Alam, Satyajit Roy Rony, Farhana Afroz, Abdullah Al-Mansur, Suriya Sharmin, Fatema Moni, Shammi Akhter, Mohammad Musarraf Hussain and Md. Hossain Sohrab** - A New Annulenol from *Aconitum heterophyllum* with Bioactivity and Cytotoxicity against Vero and Lung Cell Line 1-10  
DOI: <https://doi.org/10.3329/dujps.v22i1.64141>
- Kazi Jannatul Ferdous, Farhana Afroz, Suriya Sharmin, Md. Rakibul Islam, Md. Abdul Mazid and Md. Hossain Sohrab** - Phytochemical Screening of Rhizome Extract of *Curcuma longa* Linn. Grown in Bangladesh through GC-MS and its Bioactivities 11-20  
DOI: <https://doi.org/10.3329/dujps.v22i1.64142>
- Md. Shamiul Islam Rasel, Farhana Afrin Mohona, Dilshad Noor Lira, Uttom Kumar and Abu Shara Shamsur Rouf** - Knowledge, Attitude and Perception about Adverse Drug Reaction Reporting System among Pharmacy Students in Bangladesh 21-28  
DOI: <https://doi.org/10.3329/dujps.v22i1.64143>
- Rumman Reza, Niaz Morshed, Md. Nazmus Samdani, Amina Alam Kotha, Fahad Imtiaz Rahman and Md. Selim Reza** - Physicochemical and Pharmacokinetic Studies of Metformin for Development of Controlled Release Matrix Tablet: Formulation Optimization Using *in silico* Tools 29-42  
DOI: <https://doi.org/10.3329/dujps.v22i1.64144>
- Salma Delwar, Swarnali Islam, Md. Elias Al-Mamun, Nasrin Akter and Irin Dewan** - *In vitro* and *ex vivo* Analysis of Pitavastatin-Loaded Liposomes for the Treatment of Hyperlipidemia 43-54  
DOI: <https://doi.org/10.3329/dujps.v22i1.64145>
- Tamim Ahsan, Dilshad Noor Lira, Md. Samiul Islam, Md. Mahbulul Alam and Abu Shara Shamsur Rouf** - A Cross-Sectional Survey on the Dispensing Practice and its Determinants from the Retailers' Perspective in Rural Areas of Gazipur 55-63  
DOI: <https://doi.org/10.3329/dujps.v22i1.64146>
- Md. Omar Sha Rafi, Nusrat Tabassum Shristy, Vaskar Chowdhury, Md. Hasanur Rahman, Sauda Sultana Mimi, Raihana Afroz and Tofail Ahmad Chowdhury** - *Acmella calva* (DC.) R.K. Jansen Flower: A Comprehensive *In vivo* Study of its Central and Peripheral Analgesic, Hypoglycemic, Antidepressant, and Anti-Diarrheal Properties 65-71  
DOI: <https://doi.org/10.3329/dujps.v22i1.67096>
- Oluwatoyin Babatunde<sup>1</sup>, Grace T. Ajayi, Ola Oluwa O. Ajayi and Ibironke A. Ajayi** - GC-MS Analysis and Antimicrobial Evaluation of Essential Oil from the Epicarp of Nigerian Grown *Afraegle paniculata* (Rutaceae) 73-80  
DOI: <https://doi.org/10.3329/dujps.v22i1.67097>

- Md. Hanif Biswas, Nasiba Binte Bahar, Nahid Sharmin, Shiekh Zahir Raihan, Shimul Halder, Mir Shariful Islam and Md. Abdul Muhit** - Biological Investigations of Three Marine Algae *Enteromorpha intestinalis*, *Rhizoclonium riparium* and *Ceratophyllum demersum* Collected from the Bay of Bengal 81-87  
DOI: <https://doi.org/10.3329/dujps.v22i1.67098>
- Shabira Sagir, Md. Hamiduzzaman, Irin Dewan and Md. Asaduzzaman** - Preparation and Evaluation of Repaglinide Loaded Liposomes by Ether Injection Method 89-96  
DOI: <https://doi.org/10.3329/dujps.v22i1.67099>
- Nisrat Jahan, Md. Abdur Rahim, Sheikh Nazrul Islam, A.T.M. Zafrul Azam and Monira Ahsan** - Antioxidative, Thrombolytic and Cytotoxic Potentials of *Jatropha pandurifolia* Stem bark and *Syzygium reticulatum* Leaf 97-103  
DOI: <https://doi.org/10.3329/dujps.v22i1.67100>
- Mansura Akter, Zobaer Al Mahmud, Mir Muhammad Nasir Uddin, Raju Das and S. M. Abdur Rahman** - Synthesis of Naproxen Esters and Evaluation of Their *In Vivo* and *In Silico* Analgesic and Anti-inflammatory Activities 105-114  
DOI: <https://doi.org/10.3329/dujps.v22i1.67101>
- Review paper**
- Snigdha Bhardwaj** - A Comprehensive Review on Nanophytomedicines and their Applications 115-124  
DOI: <https://doi.org/10.3329/dujps.v22i1.64147>

## INSTRUCTIONS TO AUTHORS

**The following instructions must be followed during preparation of manuscripts intended for publication in the *Dhaka University Journal of Pharmaceutical Sciences*:**

*The Dhaka University Journal of Pharmaceutical Sciences*, a **peer reviewed journal**, invites and publishes full papers, short communications and review articles that make substantial and scholarly contributions to any areas of pharmaceutical sciences.

Manuscripts should be written in English, preferably composed with a computer, in double space with wide margins on 29.21 × 21.59 cm good quality bond or A4 (29.7 × 21.0 cm) offset paper and should not exceed 16 pages in case of full papers and 8 pages in case of short communications, including tables and figures.

**Title page.** The title should appear on a separate page and should be followed by the author names and the institution name and address. The title, author name(s), and affiliations should all appear on their own respective line of text. Place an asterisk after the name of the author to whom enquiries regarding the paper should be directed and include that author's telephone and fax numbers and e-mail address.

**Abstract.** The abstract, detailing, in one paragraph, the problem, experimental approach, major findings, and conclusions, should appear on the second page. It should be double-spaced and should not exceed 150 words for full papers.

**Key words.** Author(s) must give 3 to 10 "key words" or phrases, which identify the most important subjects covered by the paper. These should be placed at the end of the abstract.

**Introduction.** The manuscript should include a brief introduction stating the purpose of the investigation and relating the manuscripts to similar research previously or currently being conducted. Only information essential to the arguments should be presented.

**Materials and Methods.** This section should contain some specific details about the materials studied, instruments used, sources of specialized chemicals and related experimental details to allow other workers to reproduce the results. Separate paragraphs with sub-headings may be used to describe the experimental details.

**Results and Discussion.** The results should be presented concisely. Tables and figures should be

designed to maximize the presentation and comprehension of the experimental data. The discussion should interpret the results and relate them to existing knowledge in the field as clearly and briefly as possible.

**Acknowledgements.** The Acknowledgments section should include credits for assistance, financial support, and other appropriate recognition.

**References.** References to the literature, regardless of their nature, should be numbered in order of appearance in the manuscript and cited in the text with superscript numbers. References should follow the format shown:

1. Khan, S., Jabbar, A., Hasan, C.M. and Rashid, M.A. 2000. Nasimaluns A and B: *neo-clerodane* diterpenoids from *Barringtonia racemosa*. *J. Nat. Prod.* **63**, 410-411.
2. Rashid, M.A., Gustafson, K.R., Crouch, R.C., Groweiss, A., Pannell, L.K., Van, Q.N. and Boyd, M.R. 2002. Application of high-field NMR and cryogenic probe technologies in the structure elucidation of poecillastrin A, a new antitumor macrolide lactam from the sponge *Poecillastra* species. *Org. Lett.* **4**, 3293-3296.
3. Harborne, J.B. and Williams, C.A. 2000. Advances in flavonoid research since 1992. *Phytochemistry* **55**, 481-504
4. Mabry, T., Markham, K.R. and Thomas, M.B. 1971. *The Systematic Identification of Flavonoids*. Springer Verlag, New York, p. 43.
5. Harborne, J.B. 1983. In: *Chemistry and Chemical Taxonomy of the Rutales* (Waterman, P.G. and Grundon, M.F., Eds.), Academic Press, London, Chapter 2, pp. 147-173.
6. Hasan, C.M. 1982. Phytochemical studies on some African Annonaceae. Ph.D. Thesis, University of Strathclyde, U.K., p. 35.
7. Davis, R. 1998. US Patent 5, 708, 591.

**Abbreviations.** Abbreviations are used without periods. Standard abbreviations should be used throughout the manuscript. The preferred forms of some of the more commonly used abbreviations are mp, bp, °C, K, s, min, h, ml, µl, kg, g, mg, µg, cm, mm, nm, mol, mmol, µmol, ppm, TLC, GC, NMR, MS, UV, and IR.

**Structural drawings.** The quality of the illustrations printed depends on the quality of the originals provided. The pages of the *Dhaka University Journal of Pharmaceutical Sciences* are produced completely electronically. Tracing paper or textured "artist" papers should be avoided. Structures of

compounds should be produced with the use of a drawing program such as ChemDraw (according to the format of ACS Document 1996) or ISIS Draw.

**Tables.** These should be numbered consecutively with Arabic numerals and should be grouped at the end of the paper. Each table should be provided with a descriptive heading, which, together with the individual column headings, should make the table as nearly as possible, and self-explanatory.

**Figures.** Figures should be constructed carefully. All illustrations should be numbered as "Figures", with Arabic numerals. Blocks of chemical structures should not be designated as "Figures". Each figure must be identified outside the frame of the figure. The figure number (Arabic) and legend must be typed clearly.

**Short communications.** Short communication should not contain any abstract. The list of references should not exceed 10. The presentation of Short Communications should be continuous and paragraphed but should not contain any headings such as Introduction, Results and Discussion, etc.

**Electronic manuscript submission.** The final accepted version of the manuscript should be submitted in electronic form. The disk should accompany the final accepted version of the manuscript and MUST exactly match the final accepted version in hardcopy. Label the disk with the manuscript number and the corresponding author name. Provide the platform, version of software used, and filenames on the Media Description form. It is best to use the fonts "Times New Roman" and "Symbol". Tables may be created using a word processor's text mode or table format feature. The table format feature is preferred. Ensure each data entry is in its own table cell. If the text mode is used,

separate columns with a single tab and use a line feed (return) at the end of each row.

**Proofs.** Galley proofs will be sent to the corresponding author, which s/he is requested to correct and return as soon as possible. No new matter be inserted in the text and **no changes be made in the title or author name(s) at the time of proof reading.**

**Declaration.** All authors are requested to sign a declaration that the work described in the manuscript was carried out by them and the contents of the paper have not been published before or submitted elsewhere for publication. When the number of authors/co-authors is more than one, the corresponding author is required to mention the exact contribution of each co-author and also indicate his/her percentage of contribution.

**Corrections.** If errors of consequence are detected in a published paper, the author(s) should send a correction to the Editor for publication as an Addition and Correction.

**Editorial office.** Manuscripts should be submitted in triplicate to the Editor, *Dhaka University Journal of Pharmaceutical Sciences*, Faculty of Pharmacy, University of Dhaka, Dhaka-1000, Bangladesh. The journal also welcomes electronic submissions of manuscripts. Correspondences regarding any submitted or accepted papers and proofs should be directed to the editorial office.

Phone: 9661920-73/8157, 8137; Fax: 880-2-9667222;

E-mail: editor.dujps@du.ac.bd, dujps\_du@yahoo.com, r.pchem@yahoo.com; Web: www.dujps.com