

Special Issue on
**Natural Products and their Derivatives as Antimicrobial Drugs:
From Nature to Medicine**

CALL FOR PAPERS

Natural products have long been a source of inspiration for drug discovery due to their diverse chemical structures and biological activities. The development of novel therapeutic agents based on natural products derivatives could be seen as a promising avenue in the fight against microbial infections. These derivatives, which are derived from natural sources such as plants, fungi, and bacteria themselves, possess inherent bioactivity, which can be enhanced through chemical modification and structural elucidation, allowing them to be used in a variety of ways. This special issue aims to explore the potential of natural products and their derivatives as effective antimicrobial agents against pathogenic microbes and to shed light on innovative approaches to address the growing threat of antibiotic resistance.

Although there have been significant advances in antibiotic research in recent years, microbial infections still pose a formidable threat to public health around the world. As a result of the emergence of multidrug-resistant pathogens, many conventional antibiotics have proven ineffective, making the need to implement alternative treatment strategies even more urgent. Furthermore, it is evident that the pipeline for the discovery of novel antibiotics has stagnated in the last few years, emphasizing the need for more innovative approaches to address various infections in the future. There is no doubt that natural product derivatives have a great deal of potential as a source of bioactive compounds. However, their translation into clinically viable therapeutics faces many limitations, such as limited bioavailability, low stability, and limited target specificity. To overcome these challenges, there is a need for interdisciplinary collaboration and the integration of cutting-edge technologies so that natural products and their derivatives have full therapeutic potential when applied and targeting microbial pathogens.

This Special Issue aims to provide a comprehensive overview of the latest research and developments in the use of natural products and their derivatives as effective antimicrobial agents. We aim to advance the field of natural products as a valuable resource in the fight against numerous infectious diseases caused by various pathogens by fostering a collaborative environment among researchers from a variety of disciplines in this Special Issue, which is intended to advance our understanding of natural product derivatives. Thus, new antimicrobial therapeutics with increased efficacy and decreased resistance emergence may be developed in the future. We welcome original research and review articles.

Potential topics include but are not limited to the following:

- ▶ Exploration of novel natural product sources and identification of bioactive compounds with potent antimicrobial activity
- ▶ Elucidation of the mechanisms of action underlying natural products and their derivatives with antimicrobial properties, including studies on target identification and modes of inhibition
- ▶ Development of innovative strategies to enhance the efficacy, stability, and bioavailability of natural products-derived antimicrobial agents
- ▶ Strategies to control biofilm-associated infections: natural antibiofilm agents
- ▶ Natural products targeting bacterial communications: quorum sensing inhibitors
- ▶ Preclinical and clinical studies evaluating the safety and efficacy of natural products and their derivatives as potential therapeutics for microbial infections
- ▶ Contributions predicting the antimicrobial efficacy of natural products and their derivatives using computational tools, however, at least one in-vitro assay is required to support the in-silico conclusions
- ▶ Submissions focusing on formulation strategies to enhance the bioavailability, solubility, stability, and pharmacokinetic profile of poorly absorbed natural products by overcoming antimicrobial resistance
- ▶ Contributions focus on exploring and identifying novel bioactive compounds from less or unexplored natural origins, such as marine sources and extremophiles targeting antimicrobial drug resistance
- ▶ Studies using various biotechnological and synthetic biology approaches to enhance the antimicrobial activity of natural product derivatives with applications

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.wiley.com/submit?specialIssue=138034>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Editor

Mohd Adnan, University of Ha'il, Ha'il,
Saudi Arabia
mo.adnan@uoh.edu.sa

Guest Editors

Mitesh Patel, Parul University,
Vadodara, India
miteshkumar.patel22470@paruluniversity.ac.in

Submission Deadline

Friday, 1 November 2024

Publication Date

March 2025