

## Special Issue

# Essential Oils as Natural Antimicrobials: Extraction, Characterization, and Synergistic Applications

### Message from the Guest Editors

This Special Issue explores the latest advancements in the obtention and chemical characterization of essential oils, focusing on their potential as natural antibiotics and their interactions with commercial antimicrobials. Ethnobotanical studies highlight a vast number of medicinal plants with untapped scientific potential, particularly aromatic species, which have long been recognized in traditional medicine for their therapeutic properties. This Special Issue will showcase novel extraction methodologies, significant findings on antimicrobial activity, synergistic effects with existing antibiotics, and emerging trends in the development of natural antimicrobial agents. We welcome contributions from researchers and professionals investigating the mechanisms of action of these bioactive compounds, including their interactions with biological membranes, enzymatic inhibition, resistance mitigation, and synergy with conventional antibiotics. Special attention will be given to studies on bacterial biofilm formation and eradication, as well as the underlying molecular mechanisms driving these processes.

### Guest Editors

Dr. Sergio A. Rodríguez

Dr. Axel Hollmann

Dr. Douglas Siqueira de Almeida Chaves

### Deadline for manuscript submissions

31 October 2025



## Antibiotics

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## About the Journal

### Message from the Editor-in-Chief

There are very few fields that attract as much attention as scientific endeavor related to antibiotic discovery, use and preservation. The public, patients, scientists, clinicians, policy-makers, NGOs, governments, and supra-governmental organizations are all focusing intensively on it: all are concerned that we use our existing agents more effectively, and develop and evaluate new interventions in time to face emerging challenges for the benefit of present and future generations. We need every discipline to contribute and collaborate: molecular, microbiological, clinical, epidemiological, geographic, economic, social scientific and policy disciplines are all key. *Antibiotics* is a nimble, inclusive and rigorous indexed journal as an enabling platform for all who can contribute to solving the greatest broad concerns of the modern world.

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### Editor-in-Chief

Prof. Dr. Nicholas Dixon  
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