Special Issue

The Mechanisms and Applications of Microbial Electrocatalysis

Message from the Guest Editor

Microbial electrocatalysis involves bidirectional electron transfer between biotic and abiotic components, whereby redox-active microorganisms play the important role in the electrochemical reactions between electron donors and acceptors. One typically applied model is the microbial fuel cell (MFC), in which microorganisms transfer electrons to the MFC anode after oxidizing the electron donors, thus generating electron flow towards the cathode. Most importantly, this redox process has been closely associated with biogeochemical cycles, such as the nitrogen, carbon, and sulfur cycles, showing many emerging applications in waste treatment and resource recovery, sustainable energy production, and bio-inspired materials development. Based on the recent advances, this Special Issue aims to publish papers that address:

- Electron transfer between microbial cells and extracellular substances;
- Catalytic elimination of environmental pollutants, such as heavy metal ions, nitrates, and waste;
- New catalytic routes and processes for the production of clean energy and green chemicals;
- Microbial electrocatalysis in which wastes are converted to useful products.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

"Microorganism" merges the idea of the very small with the idea of the evolving reproducing organism is a unifying principle for the discipline of microbiology. Our journal recognizes the broadly diverse yet connected nature of microorganisms and provides an advanced publishing forum for original articles from scientists involved in high-quality basic and applied research on any prokaryotic or eukaryotic microorganism, and for research on the ecology, genomics and evolution of microbial communities as well as that exploring cultured microorganisms in the laboratory.

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 15.2 days after submission; acceptance to publication is undertaken in 2.9 days (median values for papers published in this journal in the first half of 2025).

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