Special Issue

Microorganisms in Plastics and Bioplastics: Biodegradation, Biosynthesis, and Environmental Impacts

Message from the Guest Editor

Plastic pollution has become one of the most critical global environmental challenges, driven by the extensive use of petroleum-derived plastics that, despite being recyclable, remain largely non-biodegradable and environmentally persistent. Growing evidence shows that micro- and nanoplastics pose emerging risks to ecosystems and human health.

Microbiology has become a platform of scientific innovation, offering strategies such as the production of microbial bioplastics and the biodegradation of synthetic polymers using specialized microorganisms and enzymes. Recent advances in microbial depolymerization, metabolic pathways, and the generation of bio-based chemicals from plastic waste highlight the potential of biotechnology to deliver circular, sustainable solutions.

Guest Editor

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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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