

## Special Issue

# Environmental Microbiology for Sustainable Bioenergy Solutions

### Message from the Guest Editor

The pursuit of climate neutrality and resource efficiency necessitates transformative innovations within the energy and bioresource sectors. Environmental microbiology thus emerges as a critical scientific pillar underpinning the development of integrated, scalable, and circular bioenergy solutions. This Special Issue aims to consolidate cutting-edge research at the interface of microbiology, biotechnology, and environmental systems science, with a particular emphasis on the role of microbial processes in enabling the sustainable production of biofuels, biogas, hydrogen, and other energy vectors. We welcome original research, following thematic areas:

- Engineered microbial consortia and synthetic biology approaches for optimized bioconversion;
- Microbial dynamics and process enhancement in anaerobic digestion and methanogenesis;
- Algal and phototrophic microbial platforms for next-generation biofuels;
- Microbial electrochemical systems and bio-based energy storage technologies;
- Bioconversion of agro-industrial residues and biowaste within circular value chains;
- Functional and structural microbial ecology in bioenergy production systems, etc.

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### Guest Editor

Dr. Alina Butu

National Institute of Research and Development for Biological Sciences, Bucharest, Romania

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### Deadline for manuscript submissions

closed (30 March 2026)



## Sustainability

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## Editor-in-Chief

Prof. Dr. Steve W. Lyon

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