

Polar Microbiology

Pollution has accompanied polar exploration since Captain John Davis' arrival on the Antarctic continent in 1821 and has become an unavoidable consequence of oil spills in our polar regions. Fortunately, many of the organisms indigenous to Polar ecosystems have the ability to degrade pollutants. It is this metabolic capacity that forms the basis for bioremediation as a potential treatment for the hydrocarbons that contaminate the pristine polar environments.

The only book to cover the breadth of microbial ecology and diversity in polar regions with an emphasis on bioremediation, ***Polar Microbiology: The Ecology, Biodiversity and Bioremediation Potential of Microorganisms in Extremely Cold Environments*** examines the diversity of polar microorganisms and their ability to degrade petroleum hydrocarbon contaminants in polar terrestrial and aquatic environments. Providing a unique perspective of these microorganisms in extremely cold temperatures, the book focuses on their taxonomy, physiology, biochemistry, population structure, bioremediation potential, and potential for biotechnology applications. Leading investigators in the field provide complete coverage of the microbiology relevant to the study of biodiversity and biodegradation of pollutants in the Arctic and Antarctic, including

- Microbial extremophiles living in cold and subzero temperature environments
- Genetics and physiology of cold adaptation of microorganisms
- Biodegradative microbial consortia in a defined closed environment
- Molecular characterization of biodegradative microbial populations
- Molecular approaches to assess biodegradation of petroleum hydrocarbons
- Environmental impact of hydrocarbon contamination
- Microbial biodiversity across Antarctic deserts

By bringing together the current state of scientific knowledge and research on microbial community structures in extremely cold temperatures, this thought-provoking resource is the ideal starting point for the research that must be done if we are to effectively reduce the human eco-footprint on our polar regions.

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