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Microbial Ecology of Bioremediation of Petroleum Contaminated Soil, Fresh Water and Seawater

Hydrocarbon-degrading bacteria are present in low numbers in unpolluted environments. Ideally, these populations would increase in number when petroleum hydrocarbons enter natural habitats. This is usually prevented by the scarcity of some key nutrient: fixed nitrogen, phosphate, electron acceptor (oxygen or nitrate), water. Humans attempt to clean up these polluted sites by relieving the nutrient deficiency or deficiencies; this environmentally friendly process is known as bioremediation.

Although it is generally accepted that bioremediation can, with time, effect a mineralization of the hydrocarbons to innocuous carbon dioxide and water, very little is known about the specific bacteria involved, how their populations change during the process, and the best way to stimulate their growth and activity. The research projects in Dr. Hemmingsen's laboratory use classical bacteriological and molecular tools to study these aspects of bioremediation in soil, in freshwater and in marine environments.

REPRESENTATIVE PUBLICATIONS

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Protocols in Bioremediation, pp. 99-109. The Humana Press, Totowa, NJ.

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