

Psychrotolerant biosurfactant-producing bacteria for hydrocarbon degradation: a mini review

ABSTRACT

Biosurfactants are a structurally diverse group of surface-active substances synthesised by microorganisms. All biosurfactants have tremendous potential ranging from medicine to environmental applications especially in hydrocarbon remediation. Petroleum pollution is a major issue in both cold and temperate climate countries. These hydrocarbon pollutants have low solubility and high solid-water distribution ratios, thus limiting the interaction between microbial cells. Petroleum pollution is a major issue in both cold and temperate climate countries. In Antarctica, due to the recalcitrant nature of hydrocarbon components coupled with the region's extremely weather conditions, there were difficulties faced by bioremediation approaches. However, using biosurfactant in hydrocarbon bioremediation increases the bioavailability of hydrocarbon, thus expediting bioremediation. Few studies have reported on psychrotolerant bacterial species that are able to degrade hydrocarbon and produce biosurfactants. This review focuses on psychrotolerant bacteria with the potential to synthesise biosurfactants and degrade hydrocarbons.

Keyword: Bioremediation; Biosurfactant; Hydrocarbon; Psychrotolerant