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Screening of Minimal Salt Media for Biosurfactant Production by Bacillus spp.

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Abstract : Crude oil is a major source of global energy. The major problem is its widespread use and demand resulted is in increasing environmental pollution. One associated pollution problem is 'oil spills'. Oil spills can be remediated with the use of chemical dispersants, microbial biodegradation and microbial metabolites such as biosurfactants. Four different minimal salt media for biosurfactant production by Bacillus isolated from oil contaminated sites from Oman were screened. These minimal salt media were supplemented with either glucose or sucrose as a carbon source. Among the isolates, W16 and B30 produced the most active biosurfactants. Isolate W16 produced better biosurfactant than the rest, and reduced surface tension (ST) and interfacial tension (IFT) to 25.26mN/m and 2.29mN/m respectively within 48h which are characteristics for removal of oil in contaminated sites. Biosurfactant was produced in bulk and extracted using acid precipitation method. Thin Layer Chromatography (TLC) of acid precipitate biosurfactant revealed two concentrated bands. Further studies of W16 biosurfactant in bioremediation of oil spills are recommended.

Keywords : oil contamination, remediation, Bacillus spp, biosurfactant, surface tension, interfacial tension
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