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Characterization of a biodegrading bacterium, *Bacillus subtilis*, isolated from oil-contaminated soil

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Abstract

Crude oil and its derivatives because of different events and accidents may cause pollution to the environment. A biological treatment is a novel technique that uses microorganisms to remove or neutralize pollutants from a contaminated site. Oil-contaminated soils were sampled, after isolating of soil bacteria, using quantitative and qualitative screening, biosurfactant-producing bacteria were identified and environmental factors on the growth of bacteria and biosurfactant were investigated. In this study, the *Bacillus subtilis* was identified as the best biosurfactant-producing strain which has the ability to grow in environments with high salinity and temperature and pH > 5. The produced biosurfactant from *B. subtilis* is stable to changes in temperature and salt concentration and pH (in the range of 5–12). The *B. subtilis* also showed that they are able to biodegrade aliphatic alkanes. The *B.*



subtilis has necessary potential for bioremediation of oil pollution in the environment.

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