

Production and Isolation of Biosurfactant by *Bacillus* Sp. Isolated From Sirri Island Petroleum Contaminated Soils

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Background & Objectives: Biosurfactants are active surface components produced by some Bacteria and Fungi. These molecules reduce surface and interfacial tension in aqueous solutions and biphasic systems, respectively. The most important application of biosurfactants is in oil industry to enhance oil recovery. The aim of this study was to isolate biosurfactant-producing bacteria and optimize the conditions like temperature and pH for maximum biosurfactant production.

Methods: Samples were collected from 8 selected points of oil-contaminated soils in Sirri Island. Overall, 160 strains of bacteria, isolation and morphological and Gram stain were investigated. 59 strains had hemolytic activity and 46 strains had oil collapsing ability. Also the results of oil displacement test were positive for 20 strains. flowing 18strains were selected, complementary tests such as foam formation and emulsification activity and surface tension test was performed on them.

Results: Finally, two strains at 37°C and pH value (7.0) were found to be able to reduce surface tension more than 30 mNm⁻¹. Two strains with a high amount of biosurfactant production and emulsification ability were resulted from the present study.

Conclusion: According to the high potential of the biosurfactant produced by selected bacteria suggesting potential commercial applications, such as enhanced oil recovery, bioremediation of soil and marine environments, and food industries.

Keywords: Biosurfactant; Sirri Island; Oil-contaminated; Bacteria; Oil Recovery