

Isolation and Identification of Biosurfactant Producing Microorganism for Bioaugmentation

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Abstract : Biosurfactants are lipid compounds produced by microbes, which are amphipathic molecules consisting of hydrophobic and hydrophilic domains. In the present investigation, ten bacterial strains were isolated from petroleum oil contaminated sites near petrol bunk. Oil collapsing test, haemolytic activity were used as a criteria for primary isolation of biosurfactant producing bacteria. In this study, all the bacterial strains gave positive results. Among the ten strains, two were observed as good biosurfactant producers, they utilize the diesel as a sole carbon source. Optimization of biosurfactant producing bacteria isolated from petroleum oil contaminated sites was carried out using different parameters such as, temperature (20°C, 25°C, 30°C, 37°C and 45°C), pH (5,6,7,8 & 9) and nitrogen sources (ammonium chloride, ammonium carbonate and sodium nitrate). Biosurfactants produced by bacteria were extracted, dried and quantified. As a result of optimization of parameters the suitable values for the production of more amount of biosurfactant by the isolated bacterial species was observed as 30°C (0.543 gm/l) in the pH 7 (0.537 gm/l) with ammonium nitrate (0.431 gm/l) as sole carbon source.

Keywords : isolation and identification, biosurfactant, microorganism, bioaugmentation

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