

Evaluation of Biosurfactant Production by a New Strain Isolated from the Lagoon of Mar Chica Degrading Gasoline

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Abstract : Pollution caused by petroleum hydrocarbons in terrestrial and aquatic environment is a common phenomenon that causes significant ecological and social problems. Biosurfactant applications in the environmental industries are promising due to their biodegradability, low toxicity and effectiveness in enhancing biodegradation and solubilization of low solubility compounds. Currently, the main application is for enhancement of oil recovery and hydrocarbon bioremediation due to their biodegradability and low critical micelle concentration (CMC). In this study we have investigated the potential of bacterial strains collected aseptically from the lagoon Marchika (water and soil) in Nador, Morocco; for the production of biosurfactants. This study also aimed to optimize the biosurfactant production process by changing the variables that influence the type and amount of biosurfactant produced by these microorganisms such as: carbon sources and also other physical and chemical parameters such as temperature and pH. Emulsification index, methylene blue test and thin layer chromatography (TLC) revealed the ability of strains used in this study to produce compounds that could emulsify gasoline. In addition a GC/MS was used to separate and identify different biosurfactants purified.

Keywords : petroleum hydrocarbons, biosurfactant, biodegradability, critical micelle concentration, lagoon Marchika

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