

## Biodegradation of Crude Oil with Associated Bacteria Isolated from the Native Sponge of the Persian Gulf *Dictyonella* sp.

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### Abstract

The aim of this study was isolating, purifying and molecular identification of associated bacteria isolated from the native sponge of the Persian Gulf that capable of biodegrading crude oil. *Dictyonella* sp. was collected by diving from the depth of about 10 meters around the Kharku Island. After isolation and purification of associated bacteria, decomposing activity of isolated bacteria was examined in minimal salt medium with crude oil as the sole Carbon source. In order to obtain the extent of biodegradation, the measurement of dry weight and reading the optical density by spectrophotometer were done. The results showed that all three strains isolated in this research had the ability to biodegrade the crude oil and the highest growth rate was related to KE1. Emulsification index for the three bacteria strains isolated KE1, KE2 and KE4 were not significantly different and were (Mean±SE) 37.5± 0.4, 31.45± 0.6 and 36.55± 0.4 respectively. Based on the measurement of dry weight, KE4 strain significantly broke down the crude oil (75.9%). Molecular identification determined that the most similar strains to KE1, KE2 and KE4 with over 90% similarity were *Georgenia satyanarayanai*JC82, *Pseudomonas rhodesiae*CIP104664 and *Gordonia terrae*ATCC25594 respectively.

Keywords: *Emulsification index, Dry weight, Spectrophotometer, Kharku, Persian Gulf.*

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