sciendo

DOI: 10.2478/auoc-2018-0010

Ovidius University Annals of Chemistry Volume 29, Number 2, pp. 72-76, 2018

Isolation and characterization of hydrocarbon-degrading fungi from Ogbe-Ijoh oil creek, Warri, Delta State, Nigeria

Faith Iguodala AKINNIBOSUN* and Abigail ASHEGBARE

Department of Microbiology, Faculty of Life Sciences, University of Benin, P. M. B 1154, Benin City, Edo State, Nigeria

Abstract. This study was aimed at isolating and characterizing hydrocarbon-degrading fungi from hydrocarbon-contaminated soil in Ogbe-Ijoh oil creek in Warri, Delta State, Nigeria. Isolation and characterization were carried out using standard methods. Biodegradation assay was carried out over 25 days and monitored using the following parameters; pH, total organic carbon, and total hydrocarbon content. The fungi isolated were: *Penicillium* sp., *Aspergillus niger* and *Fusarium* sp., and these were used for the biodegradation study. Physico-chemical analysis of the crude oil contaminated soil during degradation showed that there was significant decrease in pH during degradation from day 10 - 25 ($p \geq 0.05$). This showed the ability of the fungal isolates to utilize crude oil as carbon source, producing acid during its metabolism. The highest pH value during degradation by the fungal isolates was recorded in *Fusarium* sp. and the lowest was recorded in *Aspergillus* sp. The fungal isolates were able to reduce the total carbon and hydrocarbon content during degradation. This was probably due to the utilization of the nutrients in the soil sample as energy source. The results from this study indicate the potential of the isolated fungi for hydrocarbon bioremediation activity.

Keywords: bioremediation, degradation potential, hydrocarbon-utilizing fungi, mycoflora, pollution.

* Corresponding author. *E-mail address*: faith.akinnibosun@uniben.edu (Faith Iguodala Akinnibosun)