

Isolation and distribution of crude oil and polycyclic aromatic hydrocarbon - degrading bacteria from polluted harbours in north jakarta / Yustian Rovi Alfiansah, Mindi Adindasari, Mentari Argarini, Yeti Darmayati, Ruyitno

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Abstrak

ABSTRACT

Several harbours in North Jakarta have been polluted by spills of oil and their derivatives. We suggest that diverse species of crude oil and polycyclic aromatic hydrocarbon-degrading bacteria inhabit these harbours. An experiment was undertaken in 2007 to isolate crude oil and polycyclic aromatic hydrocarbon (PAH)-degrading bacteria from oil-polluted harbours, such as Muara Baru, Sunda Kelapa and Tanjung Priok. Sea water and sediment samples were collected twice, in March and April. Crude oil and PAH-degrading bacteria were isolated from enrichment culture of samples in an enrichment medium (SWP), using ONR7a medium with the addition of 5 types of PAH gases or Arabian Light Crude Oil 210 (ALCO 210) onto medium. This study reported that fluoranthene and crude oil-degrading bacteria were the major bacteria isolated from the three polluted harbours. In total, 109 isolates have been collected which can degrade crude oil (29% of total isolates), fluoranthene (33%), fluorene (20%), pyrene (7%), dibenzothiophene (6%), and phenanthrene (5 %). Cultivable bacteria have been isolated mostly from the Sunda Kelapa samples, with fewer in those from Muara Baru and Tanjung Priok, respectively. Among these isolates, 5 isolates have the capability to degrade 5 types of PAH and ALCO 210. They were *Alcanivorax* sp. B-1084, *Pseudomonas* sp. D5-38b, *Alcanivorax* sp. TE-9, *Bacillus* sp. L41, *Alcanivorax* *dieselolei* strain B-5 clone 1.