

Isolation and characterization of phenanthrene-degrading bacteria from a petroleum refinery soil

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Abstract - In this study, fifty strains belonging to the genus *Pseudomonas* (ARP) were isolated from crude oil polluted soil at a Petroleum Refinery in Mersin, Turkey, by means of selective enrichment cultures in modified M9 minimal medium (MM9). Strains ARP26 and ARP28, which grew best on MM9 agarised medium, were selected for biodegradation tests. Biodegradation rates were evidenced by high performance liquid chromatography (HPLC), with detected efficiencies in ARP26 and ARP28 cultures up to 93% and 98% respectively, within the first seven days of incubation. The ability of degrading phenanthrene was found to be plasmid-mediated through curing experiments. The size of the plasmid involved, referred to as pARP1, was estimated in about 26 kb.

Key words: bacterial biodegradation, petroleum contaminated soil, phenanthrene, plasmid pARP1, *Pseudomonas*.

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