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Evaluating efficiency of co-culture of two isolated *Pseudomonas aeruginosa* strains for removal of floating crude oil from oil-polluted wastewater

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ABSTRACT

Two strains of *Pseudomonas aeruginosa* were isolated from crude oil of Isfahan oil refinery and used in a lab scale fermenter for removal of floating crude oil pollution from water. Maximum stable removal efficiency of 92% was reached despite the stepwise increase in the culture medium crude oil concentration from 0.1 g/l to 0.3 g/l and maximum biodegradation rate of 98.6 mg/l h was obtained. During 91 d mixed liquid suspended solid (MLSS) changed between 4000 and 8000 mg/l and sludge volume index (SVI) changed between 20 and 90 mg/l. The performance was investigated during a 91 d continuous operation of a fermenter which was intermittently fed with oil-polluted water. It seems biodegradation of this mixed culture is high removal efficiency (92%) in low time (7.5 d).

Keywords: Floating oil; Biodegradation rate; *Pseudomonas aeruginosa*; Removing; Wastewater

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