

عنوان مقاله:

Slurry Phase Bioremediation of Polycyclic Aromatic Hydrocarbon (PAH) Contaminated Soils

محل انتشار:

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خلاصه مقاله:

Polycyclic aromatic hydrocarbons (PAHs) are suspected toxics that accumulate in soils and sediment due to their insolubility in water and lack of volatility. There are several treatment methods for PAHs contaminated soils, but slurry phase biological treatment is one of the innovative technologies that involves the controlled treatment of excavated soil in a bioreactor. This study presents the results of a bench-scale program which was conducted to remediate PAH-contaminated soils using slurry phase bioreactor with mixed bacterial consortium. In this study, we focused on clayey phenanthrene-contaminated soil with three different contamination levels, namely: 100 mg/l, 500 mg/l and 1000 mg/l. Soil samples, after enrichment process and nutrient addition, were put in the shaker incubator for a 45-day period. Results showed that the concentration of 100 mg/l decreased to non-detected level after 30 days, but concentrations of 500 mg/l and 1000 mg/l reached to 5 mg/l and 160 mg/l after 45 days respectively. The removal time of biotreatment of phenanthrene in slurry bioreactor decreased as the concentration of it decreased.

کلمات کلیدی:

polycyclic aromatic hydrocarbons (PAHs), phenanthrene, PAH-contaminated soils, bioremediation, slurry phase bioreactor

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