

Two-liquid-phase bioremediation of PAHs-contaminated soil

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The purpose of the present study was to enhance the biodegradation efficiency of PAHs from contaminated soil using the two-liquid-phase (TLP) system. The water-immiscible liquids (WILs) solubilize PAHs desorbed from soil, and then PAHs in the WIL phase are transferred into the aqueous phase by partitioning in the two-liquid-phase (TLP) system. Microorganisms can consume PAH as a carbon source in the aqueous phase or at the interface between WIL phase and aqueous phase. In this study, all experiments of TLP system were performed in a 2 L of soil slurry reactor. Light paraffine oil was applied as WIL phase and the soil was contaminated artificially with a solution dissolved phenanthrene, anthracene, and pyrene in acetone. Initial PAHs concentration was about 1,000 mg PAHs/kg soil. The used microorganism was *Sphingomonas* sp. 3Y. As a result, phenanthrene and anthracene were degraded more than 90% within 6 days, but the degradation of pyrene was not observed.