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Modeling and qualitative study of diesel biodegradation using biopile process in sandy soil

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ABSTRACT:

The purpose of this study was to restore diesel-contaminated soil using biological process and then to study microbial metabolism followed by biodegradation of hydrocarbons. To reduce the processing time of soils biopile process, initially a part of the contaminated soil was enriched with nutrients. The determination of the optimal conditions for biodegradation of contaminants in soil after excavation (ex situ) was performed. Biopile technique was able to restore the diesel-contaminated soil. Indeed, after 76 days, the soil was decontaminated with total petroleum hydrocarbon (TPH) removal rate of about 85%. This performance was achieved during the first twenty days of treatment. The simple fractions (alkanes and aromatics) were firstly degraded followed by the complex fractions.