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NAPHTHALENE DEGRADATION IN SOIL INOCULATED WITH MIXED DENITRIFYING BACTERIA

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Abstract

Known concentrations of naphthalene were added to soil samples to investigate the anaerobic degradation potential by the inoculated naphthalene-adapted bacteria under nitrate reducing conditions. Naphthalene could be anaerobically biodegraded to non-detectable levels within 35 days when the initial concentrations were 5.8 mg/kg, 34.7 mg/kg, 61.4 mg/kg, 93.7 mg/kg and 146.6 mg/kg in soil, respectively. The degradation rates of naphthalene increased with increasing initial concentrations. There was no inhibitory effect on naphthalene degradation when the initial concentration was below 150 mg/kg. Indigenous bacteria in the soil could stimulate the naphthalene biodegradation ability of the enriched mixed bacteria.

Key words: anaerobic biodegradation, naphthalene, nitrate reduction, soil

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