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NITRATE DEPENDENT DEGRADATION OF XYLENE ISOMERS BY *PSEUDOMONAS CHLORORAPHIS* UNDER ANAEROBIC CONDITIONS

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Abstract

A pure strain of *Pseudomonas chlororaphis* DJ-4 capable of anaerobic biodegradation of *o*-xylene, *m*-xylene and *p*-xylene was isolated from gasoline contaminated soil. In batch cultures, growth of the strain and biodegradation of xylene isomers led to stoichiometric reduction of nitrate. *P. chlororaphis* DJ-4 could degrade 150 mg L⁻¹ of *m*-xylene completely within 12 days and without a lag period. However, higher initial concentrations of *o*-xylene and *p*-xylene were toxic to the bacterium of *P. chlororaphis* DJ-4, and showed a lag phase of 6 and 9 days, respectively. *P. chlororaphis* DJ-4 could growth well using xylene isomers as carbon source, and about 6~9% of the substrate was used for bacterial growth. This is the first report of xylene isomers biodegradation by a bacterium of *P. chlororaphis* under nitrate reducing conditions.

Key words: anaerobic biodegradation, nitrate reduction, *Pseudomonas chlororaphis*, xylene isomers

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