Biodegradation of Tetrachlorothylene Using Methanol as Co-metabolic Substrate[1]

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Objective To investigate the biodegradation of tetrachloroethylene (PCE) using methanol as electron donor by acclimated anaerobic sludge. **Methods** HP-6890 gas chromatograph (GC), together with HP-7694 autosampler, was used to analyze the concentration of PCE and intermediates. **Results** PCE could be decholrinated reductively to DCE *via* TCE, and probably further to VC and ethylene. The degradation of PCE and TCE conformed to first-order reaction kinetics. The reaction rate constants were 0.8991 d^{-1} and 0.068 d^{-1}, respectively, and the corresponding half-life were 0.77 d and 10.19 d, respectively. TCE production rate constant was 0.1333 d^{-1}, showing that PCE was degraded more rapidly than TCE. **Conclusion** Methanol is an electron donor suitable for PCE degradation and the cometabolic electron donors are not limiting factors for PCE degradation.

Key words: Tetrachloroethylene; Anaerobic cometabolism; Biodegradation

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