



Isolation, identification, and degradation performance of a PFOA-degrading strain

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ABSTRACT. The perfluorooctanoic acid (PFOA)-degrading strain YAB1 was isolated from the soil near a perfluorinated compound production plant through acclimation and enrichment culture, using PFOA as the sole carbon source. This strain was preliminarily identified as *Pseudomonas parafulva* based on colony morphology, physiological and biochemical features, and 16S rRNA gene sequencing. Using shaking flask fermentation, the maximum tolerable concentration of YAB1 on PFOA was found to be 1000 mg/L. The optimal conditions for bacterial growth and PFOA degradation were 30°C, pH 7, 2% inoculum, and an initial PFOA concentration of 500 mg/L. After 96 h of culture, the PFOA degradation rate determined by GC-MS analysis was 32.4%. When 1 g/L glucose was added to the inorganic salt culture medium, the degradation rate increased to 48.1%. Glucose was the best exogenous carbon source for the degradation of PFOA. This study reports the degradation performance of PFOA-degrading bacteria.

Key words: Perfluorooctanoic acid; Screening; Identification; Degradation performance; Degradation rate