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DEGRADATION OF 2,4,6-TRINITROTOLUENE BY SEVERAL WHITE ROT FUNGI

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The degradations of 2,4,6-trinitrotoluene(TNT) by 6 white rot fungi were examined in two different media containing 50 mg/L of TNT. After 5 days of incubation in minimal medium, most of TNT was disappeared and 5 fungal strains showed the higher removal rates than the *Phanerochaete* control(1.10 mg g^{-1} day^{-1}). *Irpex lacteus* KR-39W showed 4.49 mg g^{-1} day^{-1} of removal rate in 11 days, which was the best result among the test strains in YMG medium. In all of test strains TNT was completely disappeared from culture supernatant within 24 hours, when TNT was added into fungal culture which had been preincubated for 5 days. Isomers of amino-dinitrotoluene were identified as the first detectable degradation products of TNT and also disappeared during further incubation. However, removal rates of isomers of amino-dinitrotoluene were lower than that of TNT. Whether the factors involved in the degradation of TNT and its metabolites were cellular or extracellular were also examined.

S4-3

MICROBIAL REMOVAL OF EXPLOSIVE 2,4,6-TRINITRO-TOLUENE BY *Stenotrophomonas maltophilia* OK-4 IN BENCH-SCALE BIOREACTORS

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Microbial removal of 2,4,6-trinitrotoluene (TNT) was studied using a bench-scale bioreactors and a bacterial culture, designated as *Stenotrophomonas maltophilia* OK-4 which had been originally isolated from an activated sludge. Complete depletion of TNT was achieved within 4 days of incubation in a bench-scale bioreactors containing newly developed media. TNT was cometabolized in the presence of different supplemented carbons. This cometabolism was affected by the ratio of growth substrate concentration to biomass concentration. Metabolic intermediates were detected and identified as 2-amino-4,6-dinitrotoluene and 4-amino-2,6- dinitrotoluene by HPLC and GC-MS, respectively.