

B301 Degradation of 2,4,6-Trinitrotoluene by Three White Rot Fungal Strains

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The biodegradation of 2,4,6-trinitrotoluene(TNT) by *Irpex lacteus*, *Pycnoporus coccineus*, and *Schizophyllum commune*, which had shown the higher removal rates in previous TNT removal experiment, was studied in batch system. In *I. lacteus* culture, up to 200 mg/L of TNT was rapidly disappeared. 2-Hydroxylamino-4,6-dinitrotoluene and 4-hydroxylamino-2,6-dinitrotoluene were identified as the first detectable degradation products of TNT and their transient accumulation and conversion to other metabolites were observed. 2-Amino-4,6-dinitrotoluene and 4-amino-2,6-dinitrotoluene were detected as the following detectable metabolites of hydroxylaminodinitrotoluene isomers and also degraded during further incubation. In three white rot fungal culture containing 100 mg TNT/L, it was shown that disappearance of TNT and its metabolites was faster in static culture than shaken culture. The activities of lignin peroxidases and manganese dependent peroxidases reached the maximal values after TNT was disappeared in 3 fungal culture containing TNT and these maximal activities were higher in static culture than in shaken culture. The enzyme activities were compared in various condition.

B302 Effect of Organic Sediments on Oxygen Demand in Overlying Water

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Sediment oxygen demand(SOD) takes place with the uptake of dissolved oxygen for chemical oxidation and biological respiration in sediments. The in situ SOD was measured in Lake Paldang from April to October 1999, and it was changed between 12.34-4.6 mgO₂/m²/h. The composition and organic matter content of sediment were analysed, also electron transport system activity were examined. The effects of some environmental conditions on SOD were investigated in laboratory with the reaction chamber consisted of sealed, cylindrical chamber through which water was continuously recirculated. SODs in the chambers with double amount of sediment and double water flow rate were increased 1.2 and 2 times, respectively. A chamber containing NaN₃ as a respiration inhibitor, did not show the change of dissolved oxygen concentration in water column. These results indicated that lake sediment oxygen consumption was occurred mainly by aerobic respiration.