

Biodegradation and Analysis of Hydrophobic Dyes by White Rot Fungus *Pleurotus Ostreatus*

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Abstract:

White rot fungi (WRF) play an important role in wood lignin degradation. The similarity of the molecular structure of lignin and dyes suggests that white rot fungi's ability to degrade lignin provides the possibility to degrade dyes in waste effluents. The biodegradation of three hydrophobic azo dyes, Disperse Orange 3, Disperse Orange 1 and Disperse Red 1 were studied. Three primary degradation products were detected from all the three azo dyes by using GC/MS and HPLC. The three primary degradation products are nitrobenzene, 4-nitrophenol and 4-nitroaniline. Furthermore, 1-methoxy-4-nitrobenzene, 1,2-dimethoxy-4-nitrobenzene and 2-methoxy-4-nitrophenol were found to be produced from 4-nitrophenol in the presence of white rot fungus *Pleurotus Ostreatus*. The analytical procedure which can be used to evaluate this process is described in detail.