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Biodegradation of Pyrene by White Rot Fungus, *Irpex lacteus*

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In this study, the biodegradation of PAH, pyrene by *Irpex lacteus* was investigated. The removal range of pyrene from culture was between 38-96% when the pyrene loading was 0.01%(w/v) at 15, +20, 27, 37 °C and many metabolites of pyrene were observed in GC analysis. Generally the degradation rate of pyrene in shaken culture was higher than that in static culture. The fungal culture containing 0.01%(w/v) pyrene with 5% inoculum(0.5 g wet wt/10 ml) showed 100% removal of pyrene. In addition, the activity of lignin peroxidase was detected during fungal growth but the activities of laccase and manganese-dependant peroxidase were not detected. The evolution of CO₂ during the pyrene biodegradation was also examined. The total productions of CO₂ during 22 day of incubation from the fungal culture containing 0.02% of pyrene and control were 4.64 and 2.1 m mole, respectively. These results suggested that *Irpex lacteus* might be useful agent for the removal of pyrene in contaminated site.

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Seasonal and Vertical Change of Bacterial Communities in Lake Soyang

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This study was conducted to investigate the change of bacterial communities with season and depth in Lake Soyang, Korea, using fluorescence *in situ* hybridization(FISH). The oligonucleotide probes used in this study were EUB338, ALF1b, GAM42a, and CF. The percentage of the Proteobacteria α -group ranged from 0.70 to 33%, the β -group from 1.0 to 26%, the γ -group from 2.4 to 37%, and *Cytophaga* and *Flavobacteria* groups from 4.7 to 24% during the study period (April to November, 1998). The γ -group was dominant in spring when *Asterionella* was dominant, and α -group was dominant in summer when the organic content was low and *Dinobryon* was dominant. However, a specific group was not dominant in fall when Cyanobacteria group was dominant and the ratio of Eubacteria to total bacteria was very low. Therefore, the bacterial communities in Lake Soyang changed with season and depth, which seems to be associated with the temporal succession of phytoplanktons.