

Decolorization of synthetic dyes with ligninolytic enzymes by *Trametes versicolor* KCTC 16781

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The synthetic dyes are extensively used in textile dyeing, paper printing, color photography, pharmaceutical, food, cosmetic, and other industries. Among industrial wastewaters, dye wastewater from textile and dyestuff industries is one of the most difficult to treat. In recent years, a number of studies have demonstrated that several white rot fungi are capable of degrading a various types of synthetic dyes. In this work, *Trametes versicolor* KCTC 16781 was able to decolorize four acid dyes (acid blue 350, acid red 114, acid yellow 99, and mixture dye) over 90% within 48 hrs. Degradation of single dye was faster than that of mixture dye in the early time and it was similar to other dyes as operation time increased. We found that the enzyme activities were correlated with the decolorization capacity according to dye types and dye concentrations. These results show that laccase and manganese peroxidase are the main enzyme involved in dye decolorization.