

***Pleurotus ostreatus* (Jacq.: Fr.) Kumm. and *Lentinus edodes* (Berk.) Sing. Lignocellulolytic Enzyme Activity**

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Production of cellulases, xylanases, laccases, and Mn-dependent peroxidases by *Pleurotus ostreatus* (Jacq.: Fr.) Kumm. and *Lentinus edodes* (Berk.) Sing. was monitored and compared in submerged and solid-state fermentation of plant raw materials. Laccase and manganese peroxidase were readily detected under all culture conditions used. However, the highest laccase activity was revealed in a submerged fermentation of citrus wastes and extremely high Mn-dependent peroxidase activity was found in a solid-state fermentation of the grapevine cuttings sawdust by some strains of *Pleurotus ostreatus* and *Lentinus edodes*. The data obtained prove

that only increased mushroom growth in the presence of additional nitrogen accounts for the higher levels of laccase, MnP, and ligninase activity. It has been shown that basidiomycetes laccase activity varies widely depending on the carbon source in the synthetic medium.

The ability of *Pleurotus ostreatus* and *Lentinus edodes* to grow and fruit on the different lignocellulosic substrates as well as their lignocellulolytic enzyme profiles were studied. A correlation has been demonstrated between enzyme activity and physiological state of the culture.