Pleurotus ostreatus (Jacq.) Kumm. CULTIVATION ON VEGETABLE WASTES

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Pleurotus ostreatus (Jacq.) Kumm. CULTIVATION ON VEGETABLE WASTES

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The aim of this work was the study of influence of cultivation substrates (agriculture wasters) on biomass accumulation, amino acid composition, polysaccharide content and sorption ability towards heavy metals for the obtained biomass of edible mushroom *P. ostreatus*.

The intensity of *P. ostreatus* biomass accumulation (18–24.1 g/L) and high conversion of substrates (33.3–44.6%) have shown prospects for *P. ostreatus* cultivation on new substrates such as wheat germ oil meal, CO$_2$-extraction waste — amaranth flour and rapeseed meal. The optimum concentration of selected substrates were 70 g in 1 liter of distilled water for wheat germ oil meal and amaranth flour, 60 g/l — for rapeseed meal. It was found 17 amino acids, including 9 essential ones in fungi biomass hydrolyzate. Significant influence of cultivation substrate on quantitative composition of amino acids has been established. To all biomass samples the prevalence of glutamic and aspartic acids, arginine among the nonessential amino-acids, leucine, lysine and cystine among the essential amino-acids were common. Endopolysaccharides content in mushroom biomass and exopolysaccharides in culture liquid were slightly different depending on the selected substrates. Sorption of heavy metals by *P. ostreatus* biomass was increased in series Hg$^{2+}$ < Pb$^{2+}$ < Cd$^{2+}$. High biological activity of the biomass as a source of important essential amino acids and endopolysaccharides as well as sorption capacity towards toxic ions of Pb$^{2+}$, Cd$^{2+}$, Hg$^{2+}$ were determined. It could be a good purpose for usage of *P. ostreatus* biomass as an ingredient in the composition of functional food or food for special purpose to enhance both: its nutritional value and excretion of heavy metals from the human body.

**Key words**: *Pleurotus ostreatus*, vegetable wastes, sorption of heavy metals.

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