

Antioxidizing Activity of Mycelium of Mushroom Stocks *Pleurotus* (Fr.) Kumm. and *Flammulina* (Curt.: Fr.) Sing.

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It is known that a significant number of Basidiomycetes synthesize pharmacological substances and can be significant in biotechnology.

The objects of research were stocks P-01, P-20, P-35, and P-77 of the *Pleurotus ostreatus* (Jacq.: Fr.) Kumm., P-fl of the *Pleurotus* f. *florida* and F-03, F-04, F-BB of the mushroom *Flammulina velutipes* (Curt.: Fr.) P. Karst. The stocks were cultivated on a glucose-peptone medium, pH 5.5, at a temperature of 25°C for 20 days. The antioxidantizing activity (AOA) of the mycelium was estimated by the intensity of its inhibition of the accumulation of peroxide oxidation products of yolk lipoproteins which react with a thiobarbituric acid to produce a colored product.

The highest accumulation of biomass of the mushroom *Pleurotus*, that reached 5.06 ± 0.18 g/liter, was observed for stock P-20. The stocks P-01, P-35, and P-77 with dry mass of the mycelium 4.24 ± 0.18 , 4.13 ± 0.42 , and 4.06 ± 0.13 g/liter, respectively, did not substantially differ in this parameter. The stock P-fl had a biomass of 3.66 ± 0.22 g/liter. Stocks P-35, P-77, and P-fl did not differ in the AOA level and had values of 12.49 ± 3.27 , 15.19 ± 2.81 and $12.17 \pm 4.56\%$. A particularly low value of AOA— $5.04 \pm 1.17\%$ was observed in the mycelium of stock P-20. It is necessary to note that the aforementioned four stocks had been obtained from fruiting bodies of mushrooms that were artificially grown in an industrial production. The level of antioxidantizing substances of $24.70 \pm 1.45\%$ was constant for

stock P-01 which was isolated from fruiting bodies that grew in ecologically adverse conditions of Donetsk. Taking into account the significant influence of temperature on the growth of the investigated mushrooms and the high antioxidantizing activity of culture P-01, the AOA value of the mycelium of that stock was determined through cultivation in the same conditions at temperatures of 22.5, 25.0, 27.5, 30.0, and 32.5°C. The temperature optimums for accumulating biomass and the AOA do not correlate. The temperature optimum for the synthesis of the antioxidants is above a growth optimum, being in an interval from 27.5 to 30.0°C. The AOA has a value of $32.11 \pm 1.69\%$ here. Stocks F-03, F-04, and F-BB of the mushroom *Flammulina velutipes* were characterized by lesser growth in comparison with the previously mentioned stocks and had a dry mass of mycelium of 3.24 ± 0.38 , 4.05 ± 0.13 , and 3.76 ± 0.18 g/liter. All the stocks were obtained from the fruiting bodies of mushrooms grown in various conditions in Donetsk. The mushrooms grown in various conditions in Donetsk were identified on the basis of the mycelium. Analysis of the mycelium revealed the following values of AOA in the culture: stock F-03, $43.02 \pm 1.17\%$; stock F-04, $39.52 \pm 2.75\%$; and stock F-BB, $27.13 \pm 0.69\%$. A study of the influence of cultivation temperature on the AOA level of the stocks of the *Flammulina elutipis* has shown a correlation of temperature optimums for growth and synthesis of antioxidantizing substances.