

THE GROWTH OF *TRAMETES VERSICOLOR* ON WOOD HYDROLYZATE IN SUBMERGED CULTURE

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Basidiomycetes of *Trametes* genus produce a number of biologically active compounds with antibacterial, antiviral, antitumor, hepatoprotective, antioxidant, hypolipidemic, hypocholesterolemic, and other properties. *Trametes* sp. is undemanding to the composition of nutrient media. Therefore, waste from various industries, in particular woodworking, can be used to grow mushrooms. Representatives of this genus are characterized by a high level of biomass accumulation in submerged culture, which makes them promising objects of biotechnology.

The aim of the study was to investigate the biomass production by basidiomycete *Trametes versicolor* in submerged culture on wood hydrolyzate.

Materials and methods. Cultivation of three strains of *T. versicolor* was carried out for 14 days in conical flasks (250 cm³) on the shaker (120 rpm) at +28 °C in 50 cm³ of liquid medium (in g/L): glucose – 10; NH₄NO₃ - 1; KH₂PO₄ – 1; MgSO₄·7H₂O – 0.5; FeSO₄·7H₂O – 0.005; ZnSO₄·7H₂O – 0.0044; CaCl₂ – 0.0055; pH 6.8. In the experimental medium, oak hydrolyzate was used instead of water. For its preparation, previously chopped and dried pieces of sawdust were placed in a round flat-bottomed flask and filled with 20 times the amount of water. For extraction, the filled flasks were autoclaved at 121°C for 20 minutes. After that, the liquid phase was separated by filtering through FB brand filter paper and used in the preparation of media. At the end of the cultivation, the biomass was separated on a gauze filter and dried at 105 °C to a constant mass.

Results. It was established that the yield of dry biomass did not exceed 2.5 g/L on the control medium. The maximum amount of biomass was accumulated by the *T. versicolor* 353 strain and was 2.31±0.12 g/L. For two other strains, slightly lower levels of synthesis were observed, which did not differ among themselves (p < 0.05): *T. versicolor* 5095 produced 1.72±0.20 g/L, *T. versicolor* 5129 – 1.71±0.18 g/L. On the medium with the addition of oak hydrolyzate, the biomass concentration was higher. As on the control medium, *T. versicolor* 353 accumulated the most biomass, namely 2.72±0.24 g/L. However, this characteristic was slightly different for the other two strains. Cultivation on oak hydrolyzate of *T. versicolor* 5095 resulted in obtaining biomass in the amount of 1.93±0.15 g/L, while *T. versicolor* 5129 accumulated 2.18±0.17 g/L. We can see that in the case of *T. versicolor* 353 there was an increase in the level of biomass production by 18.10%; for *T. versicolor* 5095 this indicator was 11.97%, and for *T. versicolor* 5129 – 27.69%.

Conclusions. The application of oak hydrolyzate instead of water in the synthetic medium made it possible to significantly increase the level of biomass accumulation by three *T. versicolor* strains. The most significant effect on production was observed for the strain *T. versicolor* 5129, where the amount of biomass increased by 27.69%.