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Physiological Regulation of Lignin-Modifying Enzymes Synthesis by Selected Basidiomycetes

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Abstract : The uppermost factor in the regulation of lignin-cellulose activity of decaying white rot or free rot are the substances serving as carbon and nitrogen nutrition of microorganisms and are considered as the most important factor of generative activity of white rot. The research object was Basidiomycete Fungi, peculiar and common in Georgia, and the separation of 10 of them as pure crops. The unidentified pure crops have tasted in order to be determined the potential of synthesis of lignin-degrading enzymes and the substrate of optimal lignocellulose growth. One of the most important aspects of the research conducted on Basidiomycetes was the use of specific lignocellulosic residues for selecting Fungi as a substrate of their growth. In order to increase lignocellulose with the help of substrate, crops were selected from the screening stage that showed good laccase activity. (Dusheti 1; Dusheti 10; Fshavi 5; Fshavi1; Fshavi 8; Fshavi 32; Manglisi 26; Sabaduri20; Dusheti 7; Sabaduri 1), Among the selected cultures, the crops with good laccase activity against the following substances, in particular: Dusheti 1- in this case, the rate of enzymatic activity on bran substrate was -105,6 u/ml, mandarin-96,4 u/ml. In case of corn - 102,9 u/ml. In case of Dusheti 7- the indicators were as follows: bananas-121,7 u/ml, mandarin-125,4 u/ml, corn - 117,1 u/ml. In the case of Sanaduri 32, the laccase activity was as follows: pomegranate- 101,2 u/ml. As a result of conducted experiments, the synthesis and activity rates of enzymes depending on plant substrates varied within a fairly wide range, which is still being under research.

Keywords : Lignocellulosic substrate, Basidiomycetes, white-rot basidiomycetes, Laccase
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