Basidiomycetes Producing Biologically Active Substances

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Objectives: One of the priorities of modern mycology and biotechnology is the development of technology using basidiomycetes for obtaining biologically active compounds, including compounds have healing properties. Studies in recent decades have shown that fungi are the products of a number of a number of biologically active substances: proteins, polysaccharides, organic acids, polyacetylen compounds, enzymes, vitamins, aminacids, peptides, triterpenses, steroids, lipids, etc. The aim of this work is to develop methods for obtaining biologically active substances (polysaccharides, polyacetylenes, etc.) from the basidiomycetes. Most of the work to find and release of biologically active substances were performed using basidiomycetes fruting bodies.

Materials and Methods: One of the objects of our research is lacquered tinder-\textit{Ganoderma lucidum}. \textit{Ganoderma lucidum} is widely known as a medicinal basidiomycetes. Cultivation of this fungus was carried out on different substrates: the bark and wood of green fir, larch sawdust and wheat grain. Mushrooms are grown by submerged cultivation for 10 days at 28\textdegree C. The resulting fungal biomass was ground and extracted with ethyl acetate. The resulting precipitation and ether extracts were analyzed by TLC and reversed-phase liquid-chromatography and NMR spectroscopy.

Results: During the 65 species were identified macromycetes basidiomycetes, including the more promising is \textit{Ganoderma lucidum}. The raw material for production of biologically active substances are traditionally fruting bodies, much less vegetative mycelium of the fungus. From the mycelium of the fungus above mentioned methods have been allocated a linear (1\rightarrow 3)-a-D-glucan, and branched ksilomannan containing the main chain of (1-3)-linked residues a-D-mannopyranose, most of which is substituted on the status of unit 4 remnants of $\beta$-D-Xylr-(1\rightarrow. Structure of polysaccharides by NMR spectroscopy in combination with the methods of methylation and periodate oxidation. An interesting feature is the simultaneous presence of ksilomannan in the polysaccharide residues a-D-mannopyranose and $\beta$-D-mannopyranose (the first from the backbone, while the latter is a terminal disaccharide residues unrepairable lateral branched). Carried out chemical studies have shown that the aqueous residue was composed of polysaccharides (70-80%), and the ether extract contained more polyacetylen compounds (65-70%).

Conclusion: Thus, the results obtained is both scientific and practical interest in this investigation is ongoing.

Key words: basidiomycetes, bioactive substances, liquid chromatography.

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