Culture Collection of Mushrooms at N. G. Kholodny Institute of Botany NASU (Ukraine)

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The Culture Collection of mushrooms (IBK) was established at the Department of Mycology of the N. G. Kholodny Institute of Botany of the National Academy of Sciences of Ukraine more than 30 years ago. The collection now comprises approximately 800 strains (350 species) of macromycetes (Basidiomycota and Ascomycota) of interest in the mushroom industry, medicine, systematic and biochemical research, and education, and includes many used for commercial mushroom growing, biosynthesis of mycelial biomass, pharmaceutical substances, enzyme production, and other applications. The important function of the collection is the preservation of a genofond of wild growing mushrooms including endemic and vanishing species. The collection implements deposit of patent strains. Now more than 70 strains, which are patented biotechnology substances and more than 100 species of medicinal value are maintained in the collection.

Great emphasis was paid to the creation in the collection of taxonomic and strain diversity. Species of medicinal mushrooms belonging to the genera *Pleurotus, Agaricus, Lentinus, Oudemansiella, Flammulina, Hericium, Piptoporus, Omphalotus, Schizophyllum, Ganoderma, Laetiporus, Lycoperdon,* and so forth are represented in the Collection by a wide range of strains. Most of the cultures were isolated from fruiting bodies collected in Ukraine, Russia, Byelorussia, Czech Republic, Israel, and the United States; part of the collection was received from other institutions. Techniques have been worked out using nutrient media with stimulators of plant origin to isolate pure cultures and maintain the viability of mushrooms belonging to various ecological groups and taxons.

The growth rate and optimal and critical temperature for mycelial growth were determined; morphological characteristics and their variability depending on cultivating conditions were described. Scanning electron microscopy was used in micromorphological investigations. Cultures of the collection were used in fundamental taxonomic, biotechnological, biochemical, cytological, and genetic investigations, as well as in space experiments. A database on all isolates held in the collection was created. Wide screening of cultures was carried out and strains that are promising for biotechnological application were selected.

On the basis of the Collection, researches are performed that are directed to the creation of modern biotechnology in the cultivation of *Pleurotus ostreatus* (Jacq.: Fr.) Kumm., *Lentinus edodes* (Berk.) Sing., *Flammulina velutipes* (Curt.: Fr.) P. Karst., *Panus tigrinus* (Bull.) Sing., *Hericium erinaceus* (Bull.: Fr.) Pers., *Hypsizygus marmoreus* (Peck) Bigel., *Schizophyllum commune* Fr.: Fr., *Omphalotus olearius* (DC.) Sing., *Trametes* spp., *Tremella* spp. and others for obtaining biomass, fruiting bodies, and metabolites with medicinal properties. An original technology for obtaining nutriceuticals from *P. ostreatus* under submerged cultivation was created.

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