Species Diversity and Ecology of Medicinal and Edible Mushrooms (Agaricales s. l.) of the Kiev Green Zone (Ukraine)

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Many Higher Basidiomycetes mushrooms are known to contain various biologically active substances that express promising antitumor, immune modulating, cardiovascular and antihypercholesterolemic, antiviral, antibacterial, antiparasitic, hepatoprotective, and antidiabetic effects. Modern investigations are discovering more species of mushrooms possessing medicinal properties. Obtaining their isolates and studying the peculiarities of various strain characteristics in pure cultures makes it possible to carry out biochemical and molecular biological research. Therefore, the estimation of species diversity and resources of local species possessing medicinal properties is an important aspect of this research.

In 1999, we studied the Agaricales s. l. of the Kiev green zone (Ukraine), which covers an area of approximately 45,700 ha. Taxonomic and ecological analyses have been carried out for both wild growing mushrooms collected by us and herbarium materials (Herbarium of the Institute of Botany NASU, KW). Two hundred and ninety-seven species belonging to 3 orders, 15 families, and 62 genera are known in this territory and 45 of them are applied in medicine. Pure cultures of most of these species are stored in the Culture Collection of the Institute of Botany of Kiev (KW). The following medicinal mushrooms (some of which are edible) were recorded for the Kiev region: Agaricaceae: *Agaricus bisporus* (J. Lge) Imbach (coprotroph; widespread in gardens, shelter belts, parks); *A. campestris* Fr. (humus saprotroph; fields, meadows); *A. bitorquis* (Quel.) Sacc. (humus saprotroph; oak, pine forests); *Macrolepiota procera* (Scop.) Sing. (mycorrhizal; oak, pine, hornbeam forests); *M. rhacodes* (Vitt.) Sing. (mycorrhizal; oak, pine, hornbeam forests); Boletaceae: *Boletus edulis* Fr. (mycorrhizal; hornbeam oak, oak pine, oak forests); *Suillus luteus* (Fr.) S. F. Gray (mycorrhizal; pine, *Ulmus* forests); *S. granulatus* (Fr.) Kuntze (mycorrhizal; pine forests); Coprinaceae: *C. comatus* (Mull.) S. F. Gray (coprotroph; oak pine forests); Pleurotaceae: *Pleurotus ostreatus* (Jacq.: Fr.) Kummer (xylotroph; oak pine forests, at the rotten oak stubs); Tricholomataceae: *Lepista nebularis* (Fr.) Hamaja (humus saprotroph; oak pine, hornbeam forests); *Armillariella mellea* (Vahl.) P. Karst. (xyloptroph; in all types of forests, on rotten stubs and trunks); *Marasmius androsaceus* (L.) Fr. (litter saprotroph; pine forests mostly); *M. oreades* (Fr.) Fr. (humus saprotrophp; subor, oak forests); *Oudemansiella radicata* (Fr.) Sing. (xylotroph; oak, hornbeam-oak forests); *Flammulina velutipes* (Curt.: Fr.) Sing. (xylotroph; hornbeam, oak, mixed forests); Pluteaceae.: *Volvariella volvaceae* (Bull.: Fr.) Sing. (xylotroph; humus saprotroph; pine, mixed forests) Schizophyllaceae: *Schizophyllum commune* Fr.: Fr. (xylotroph; occurs in all types of forests); Ganodermataceae: *Ganoderma lucidum* (Curt.: Fr.) P. Karst. (xylotroph; on the trunks of alive oaks, oak forests).

Of the 29 best known edible and medicinal mushrooms strains of *Coprinus comatus, Pleurotus ostreatus, Macrolepiota procera,* and *Lepista nebularis* were isolated. Cultural and biochemical peculiarities of their growth on different media (malt agar, potato dextrose, and Chapek's agar) at different temperatures and different pH values were studied.

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