DOI: 10.46991/JISEES.2025.SI1.097

The Collections of Medicinal Mushrooms of the Yerevan State University

Susanna Badalyan*, Narine Gharibyan

Research Institute of Biology, Laboratory of Fungal Biology and Biotechnology,
Yerevan State University, Yerevan, Armenia

ABSTRACT

Mushrooms are known for their culinary and medicinal properties. They are considered sources of protein, unsaturated fatty acids, vitamins, minerals, dietary fibers making them healthy food. Recent advances in mushroom research have shown that species from different taxonomic groups are sources of bioactive compounds (aegerolysins, lectins, ribosome-inactivating proteins, polysaccharides, peptidoglycans, phenolics, terpenoids, steroids, alkaloids, polyketides, etc.) with more than 150 preventive and therapeutic effects (antitumor, immunomodulatory, antioxidant, cardioprotective, neuroprotective, antiviral, antimicrobial, thrombolytic, etc.). The establishment of biological resource centres (BRC), including Culture Collections and Databases are required to carry out innovative fundamental and applied research in the areas of fungal biology and biotechnology, molecular taxonomy and phylogeny, as well as fungal genetics and ecology. The established culture collections of mushrooms at the YSU currently comprise 490 living strains of 121 species of 45 genera, from which 230 strains of 45 species have been genetically identified, 133 strains of 29 species are edible, 275 strains of 48 species, including *Coprinus comatus, Flammulina velutipes, Fomes fomentarius, Schizophyllum commune, Laetiporus sulphureus, Ganoderma lucidum, Lentinula edodes, Pleurotus ostreatus*, *Trametes versicolor,* possess medicinal properties. Based on molecular and morphological characteristics of mycelia, five species (*Coprinopsis strossmayeri, Coprinellus flocculosus, Coprinellus aff. radians, Ganoderma adspersum, Fomes inzengae)* were reported for Armenian mycobiota for the first time. The collection comprises cultures of *Hericium erinaceus, Pleurotus eryngii, Volvariella bombycina* registered in the Red Book of Armenia. The assessment of genetic resources of medicinal mushrooms, the study of biological characteristics and introduction of innovative cultivation techniques to obtain high-quality biomass and economically sustainable biotech products (pharmaceuticals, nutraceuticals, cosmeceuticals) will further contribute to their exploitation, as well as the development of mycopharmacology, mycocosmetology and mushroom-growing industry in Armenia. The advances in fungal biology and biotechnology, genomics, metabolomics and proteomics will also promote the application of medicinal mushrooms in nanobiotechnology and nanomedicine with positive environmental, social and economic impact on human welfare.

Keywords: medicinal mushrooms, culture collections, biotech products

References:

1. Badalyan, S.M.; Gharibyan, N.G. Characteristics of mycelial structures of different fungal collections. Yerevan, **2017**.
2. Badalyan, S.M.; Gharibyan, N.G. Pharmacological properties and resource value of Hymenochaetoid fungi (Agaricomycetes) distributed in Armenia. *Int. J. Med. Mushrooms* **2020,** *22,* 1135–1146.

*Corresponding Author:

Susanna Badalyan, Laboratory of Fungal Biology and Biotechnology, Research Institute of Biology,Yerevan State University, 1 Alex Manoogian str., Yerevan, 0025, Armenia.
Email: s.badalyan@ysu.am