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Collection of Fungi Strains at the Institute of Forest of the NAS of Belarus – Preservation Depositary of Biological Diversity of Basidiomycetes Mycologic Resources

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Aim of the study: Saving ex-situ of the taxonomical and ecological variety of genetic resources of the basidiomycetes which have a wide geographical origin as well as strains of rare and endangered species; extension of the collection by separation from a natural mycobiota of new genetic sources of specific and intraspecific variety; comprehensive study, certification and genetic identification of depositors; formation of the database and structure of the collection fund; scientific and practical use of strains as a bases for development and deployment of biotechnologies of receiving fruit bodies of trophic and medicobiological fungi.

Materials and methods: Viability of strains is maintained by the subcultivation method in the mash-agar environment by means of annual resowings with 4-time frequency. Collection strains are stored in refrigerators at a temperature of +4 … +5 °C in the biological test tubes closed by wadded and gauze corks. Release of natural ex-situ isolates is carried out by the isolation method from basidioma fabric and cultivation of a vegetative mycelium in the agarized nutrient environment. Certification and formation of the electronic database of the depositary is carried out according to the standard rules used by world collections of microorganisms and the modern nomenclature using the international customer service of MycoBank. Verification of genetic sources of the collection is carried out by the study of macro - and micromorphological features of collection samples. Productivity of perspective strains is identified by their fruit forming ability on vegetable substrata. Specific accessory of depositors is confirmed with the use of molecular and genetic methods of sequenation of the ribosome operon of the nuclear DNA of basidial fungi.

Results: The collection of fungi strains - the object of national property - is the most representative one in Belarus according to quantity and a variety of true cultures of basidiomycetes, maintains viability of 355 strains of 75 types which belong to 51 species. The most part of the strains belong to the eco-trophic group of xylotrophic fungi. About a half of genetic isolates have been obtained in different years from the fruit bodies collected in nature of Belarus, the others are obtained from other microbiological and mycologic collections of the near and far abroad. The collection fund provides preservation of the genetic material of rare and endangered species of micoflora of Belarus (*Ganoderma lucidum, Grifola frondosa, Hericium erinaceus*). In the depositary viability of more than 250 fungi strains of trophic and medicinal-and-prophylactic purpose is maintained (fungi of *Pleurotus, Lentinula edodes, fungi of Flammulina, G. lucidum, fungi of Auricularia,)*. Some species of basidial fungi (*Pleurotus ostreatus, L. edodes*) are used when developing extensive and intensive production technologies of sowing mycelium and fruit bodies of fungiand have formed a basis for formation in Belarus of the new direction – the industrial fungi production, created on the basis of the enterprises of agro-industrial complex, forestries and farms.

Keywords: collection of strains, preservation of biodiversity, biotechnology.