PROCEEDINGS OF THE YEREVAN STATE UNIVERSITY

Chemistry and Biology 2019, **53**(1), p. 29–32

Biology

NEW FOR ARMENIA SPECIES AND GENERA OF BASIDIOMYCETES FROM SHIKAHOGH STATE RESERVE

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As a result of studies macromycetes of Shikahogh State Reserve 436 species of macroscopic fungi are now recorded in the study area. Of all macromycetes found, to the best of our knowledge, 12 species and 2 genera are recorded in Armenia for the first time.

***Keywords*:** macromycetes, special protected nature areas, new species.

Introduction. Biological diversity is one of the powerful reservoirs of resources. One of the main tasks of a modern science is the study and conservation of biodiversity in particular fungi, which are the object of our investigation. Its conservation in separate regions, including special protected nature areas (SPNA), is one of the main key for humanity sustainable development.

Mycobiota of the SPNA of RA still remains poorly investigated, although studies on the species composition of macromycetes have been started since 1977, when the research was started in Khosrov and Dilijan State Reserves [1–3], in Akhnabad Yew Reservation [4] and in part in Sevan National Park [5].

A large study of the SPNA of Armenia was conducted by the first author [6], who registered 636 species, variations and forms of macroscopic fungi as a result of special studies of Dilijan and Khosrov Forest reserves from which 560 species in Dilijan and 125 in Khosrov Forest. Later, in the beginning of 21st century, the brochure dedicated to investigation of Armenian gasteromycetes was published, which gave brief information on 83 species of puffball [7]. In 2008 a book of cup fungi of Armenia (*Agaricoid basidiomycetes*) was prepared, which contained data on 565 mushroom species registered in different regions of Armenia [8]. Both books contain information regarding distribution of some species of macroscopic fungi that are found in protected areas of Armenia as well.

The rest of special protected nature areas of Armenia have not been very well studied, single species of macromycetes found in the territory of the Shikahogh Reserve were mentioned in the mycofloristic monograph of J.H. Melik-Khachatryan [9], which presented information on the distribution of 19 species of macrofungi from various systematic groups.

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In order to reveal the full taxonomic composition, in 2009 we started special studies of macromycetes of the Shikahogh State Reserve of Armenia. According to our materials [10–12] and to the literature data, 436 species of macroscopic fungi are now registered in the study area. Of all macromycetes found, to the best of our knowledge, 12 species and 2 genera are recorded in Armenia for the first time.

Materials and Methods. Identification of the samples (microscopic structure and biometric measurements) was carried out using the MBS-9 binocular and the VWR M10LB digital binocular microscopes. In addition to the morphological method we made use of macro- and micromorphological features, a chemical method was also carried out for identification of samples, based on the color reaction between a certain chemical substance and a reagent [11]. The conducted studies of color chemical reactions serve as an additional taxonomic criterion for determining species. We applied macroscopic chemical color reactions on carpophores and their parts, and microscopic chemical color reactions for spores, basidium, cystidium and other microstructures of the fruit body.

In the identification process the following chemical reagents were used: alkalis, acids, methylene blue, aniline, millstone reagent, Congo-red, pyrogallol, floxin, formalin.

During the determination of the species belonging to macroscopic fungi, determinants, monographs and atlases [12–14] for individual taxonomic groups and Internet sites were used.

During the taxonomic revision of the species of investigated fungi, the system given in the 10th edition of the dictionary of Ainsworth and Bisby's was taken as the basis, with some changes according to the data of the Internet resources www.indexfungorum.org, www.mycobank.org.

Results. Below, for each of 12 species that registered in Armenia for the firs time, names of orders, families, genera, authors' names of genera and species, literature references, substrates, types of phytocenosis, the date of finding, trophic groups, height above the sea level, occurrence and edibility or poisonous are indicated. For certain species of macromycetes, the synonyms are given. Abbreviations of names of authors of taxa are given in accordance to the list of P.M. Kirk and A.E. Ansell [15]. In the ecology-trophic analysis of macromycetes, we used a scale of trophic groups, which was proposed by the first author [16].

Division Basidiomycota
Subdivision Agaricomycotina
Class Agaricomycetes
Order Agaricales
Family Amanitaceae
Genus Amanita Pers.

1. *Amanita virosa* Bertill. [12]. Syn.: *Agaricus virosus* Fr. On the ground. Coniferous forests. IX. Mycorrhizal. 1600 *m*. Rarely. Deadly poisonous.

Family Hydnanginaceae
Genus Laccaria Berk. & Broome

2. *Laccaria bicolor* (Maire) P.D. Orton [13]. Syn.: *L. laccata* var. *bicolor Maire*. On the ground. Deciduous and coniferous forests. VIII–XI. Mycorrhizal. 1200–1400 *m*. Rarely. Edible.

Family Phelloriniaceae
Genus Phellorinia Berk.

3. *Phellorinia herculeana* (Pers.) Kraisel [17]. Syn.: *Scleroderma herculeanum* Pers. In wastelands, on clay soils. Open areas. IX, X. Humus saprotrophs. 900–3100 *m*. Rarely.

Order Geastrales
Family Geastraceae
Genus Geastrum Pers.

1. *Geastrum triplex* Jungh. [12]. Syn.: *Geastrum triplex* F. *triplex* Jungh. On the ground. Deciduous, mixed forests. VII–X. Humus saprotrophs. 1200–1900 *m*. Rarely.

Order Boletales
Family Gyroporaceae
Genus Gyroporus Quél.

1. *Gyroporus castaneus* (Bull.) Quél. [12]. Syn.: *Boletus castaneus* Fr. On the ground under oak. Deciduous and mixed forests. VII–IX. Mycorrhizal. 1600 *m*. Rarely. Edible.

Order Hymenochaetales
Family Hymenochaetaceae
Genus Hymenochaete Lèv.

1. *Hymenochaete cinnamomea* (Pers.) Bres. [18]. Syn: *Thelephora cinnamomea* Pers. On the dead shafts of oak and beech. Deciduous forests. IX. Xylotrophs. 1100–1600 *m*. Rarely.

Order Gomphales
Family Gomphaceae
Genus Ramaria Fr. ex Bonord

1. *Ramaria aurea* (Schaeff.) Quél. [12]. Syn.: *Clavaria aurea* Schaeff. On the ground. Deciduous and coniferous forests. VII. Mycorrhizal. 1600 *m*. Rarely. Edible.

2. *R. lutea* Schild [19]. Syn.: *Clavaria lutea* Vittad. On the ground. Deciduous forest. VII. Mycorrhizal. 1600 *m*. Rarely. Edible.

Order Polyporales
Family Meripilaceae
Genus Rigidoporus Murrill

1. *Rigidoporus ulmarius* (Sowerby) Imazeki [20]. Syn.: *Boletus ulmarius* Sowerby. On the stumps of deciduous trees. Deciduous forest. VII. Xylotrophs. 1700 *m*. Rarely.

Order Boletales
Family Sclerodermataceae
Genus Scleroderma Pers.

1. *Scleroderma areolatum* Ehrenb. [21]. Syn.: *S. lycoperdoides* Schwein. On the ground. Deciduous, mixed forests. I, II, IX, X. Humus saprotrophs. 1200–1800 *m*. Groups. Poisonous.

Order Russulales
Family Stereaceae
Genus Stereum Hill ex Pers.

1. *Stereum subtomentosum* Pouzar [22]. Syn: *Stereum ochroleucum* Fr. Davidkina, 1980:67. On dead wood of deciduous woods. Deciduous forest. VII. Xylotrophs. 1700 *m*. Rarely.

Class Tremellomycetes
Order Tremellales
Family Tremellaceae
Genus Tremella Pers.

1. *Tremella foliacea* Pers. [12]. Syn.: *T. succinea* Pers. On decaying wood of coniferous and deciduous species. Deciduous, coniferous forests. IX, X. Xylotrophs. 1500–1700 *m*. Rarely.

Thus, in investigated area 12 species of macromycetes from division Basidiomycota, subdivision Agaricomycotina, 2 classes of Agaricomycetes and Tremellomycetes, 9 orders, 11 family and 11 genera were found.

This work was supported by MES of SCS RA, in the frame of the research project N18T-1F190.

Recieved 13.06.2018
Reviewed 10.10.2018
Accepted 05.03.2019

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