

Early view, On-line since 31st March 2016

Г О Д И Ш Н И К
НА
СОФИЙСКИЯ УНИВЕРСИТЕТ
„СВ. КЛИМЕНТ ОХРИДСКИ“
БИОЛОГИЧЕСКИ ФАКУЛТЕТ
КНИГА 2 – БОТАНИКА
Том 100, 2015

A N N U A I R E
DE
L'UNIVERSITE DE SOFIA
“ST. KLIMENT OHRIDSKI”
FACULTE DE BIOLOGIE
LIVRE 2 – BOTANIQUE
Tome 100, 2015

СОФИЯ · 2016

ИЗДАТЕЛСТВО НА СУ „СВ. КЛИМЕНТ ОХРИДСКИ“
PRESSES UNIVERSITAIRES “ST. KLIMENT OHRIDSKI”

Editor-in-Chief Prof. Maya Stoyneva-Gärtner, PhD, DrSc
Editorial Board Prof. Dimiter Ivanov, PhD, DrSc
Prof. Iva Apostolova, PhD
Prof. Mariana Lyubenova, PhD
Prof. Veneta Kapchina-Toteva, PhD
Assoc. Prof. Aneli Nedelcheva, PhD
Assoc. Prof. Anna Ganeva, PhD
Assoc. Prof. Dimitrina Koleva, PhD
Assoc. Prof. Dolya Pavlova, PhD
Assoc. Prof. Juliana Atanasova, PhD
Assoc. Prof. Melania Gyosheva, PhD
Assoc. Prof. Rosen Tsonev, PhD
Assistant Editor Main Assist. Blagoy Uzunov, PhD

© СОФИЙСКИ УНИВЕРСИТЕТ „СВ. КЛИМЕНТ ОХРИДСКИ“

БИОЛОГИЧЕСКИ ФАКУЛТЕТ

2016

ISSN 0204-9910 (Print)

ISSN 2367-9190 (Online)

Early view, On-line since 31st March 2016

CONTENTS

1. A NEW METHOD FOR ASSESSMENT OF THE RED LIST THREAT STATUS OF MICROALGAE – Maya P. Stoyneva-Gärtner, Plamen Ivanov, Ralitsa Zidarova, Tsvetelina Isheva & Blagoy A. Uzunov.....
2. RED LIST OF BULGARIAN ALGAE. II. MICROALGAE - Maya P. Stoyneva-Gärtner, Tsvetelina Isheva, Plamen Ivanov, Blagoy Uzunov & Petya Dimitrova.....
3. NEW RECORDS OF RARE AND THREATENED LARGER FUNGI FROM MIDDLE DANUBE PLAIN, BULGARIA - Melania M. Gyosheva & Rossen T. Tzonev.....
4. FIRST RECORD OF *MARASMIUS LIMOSUS* AND *PHOLIOTA CONISSANS* (BASIDIOMYCOTA) IN BULGARIA - Blagoy A. Uzunov.....
5. REVIEW OF THE CURRENT STATUS AND FUTURE PERSPECTIVES ON *PSEUDOGYMNOASCUS DESTRUCTANS* STUDIES WITH REFERENCE TO THE SPECIES FINDINGS IN BULGARIA - Nia L. Toshkova, Violeta L. Zhelyazkova, Sébastien Puechmaille, Blagoy A. Uzunov & Maya P. Stoyneva-Gärtner
6. FLORA, MYCOTA AND VEGETATION OF KUPENA RESERVE (RODOPI MOUNTAINS, BULGARIA - Nikolay I. Velev, Anna S. Ganeva, Melania M. Gyosheva, Desislava G. Sopotlieva, Tsvetelina S. Terziyska & Iva I. Apostolova.....
7. REVIEW ON *QUERCUS DALECHAMPII* TEN. AND *QUERCUS PETRAEA* (MATTUSCHKA) LIEBL. IN THE VEGETATION OF BULGARIA - Eva Filipova & Asen Asenov.....
8. INSTRUCTIONS TO AUTHORS.....

Early view, On-line since 31st March 2016

ANNUAL OF SOFIA UNIVERSITY “ST. KLIMENT OHRIDSKI”

FACULTY OF BIOLOGY

BOOK 2 – BOTANY

Volume 100, 2015

ANNUAIRE DE L’UNIVERSITE DE SOFIA “ST. KLIMENT OHRIDSKI”

FACULTE DE BIOLOGIE

LIVRE 2 – BOTANIQUE

Tome 100, 2015

FIRST RECORD OF *MARASMIUS LIMOSUS* AND *PHOLIOTA CONISSANS* (BASIDIOMYCOTA) IN BULGARIA

Blagoy A. Uzunov*

Department of Botany, Faculty of Biology, Sofia University “St. Kliment Ohridski”, 8 Dragan Tsankov Blvd, 1164 Sofia, Bulgaria

Abstract. The paper provides information on the first finding of *Marasmius limosus* Quél. and *Pholiota conissans* (Fr.) M. M. Moser in Bulgaria. Both fungi were found as saprotrophs on decaying leaves and stems of *Typha angustifolia* L. in the karstic swamp Dragomansko Blato. Morphological data obtained by light microscopy are provided for both species. The easy recording of both species in the swamp in the middle of October allows the suggestion for further autumn searching for macromycetes in wetlands.

Key words: monocot saprotrophs, karstic swamp Dragomansko Blato, *Typha angustifolia*.

Marasmius limosus Quél. and *Pholiota conissans* (Fr.) M. M. Moser (Syn. *Pholiota graminis* (Quél.) Singer) are among macromycetes which can grow on wetland monocots such as *Carex*, *Cyperus*, *Deschampsia*, *Eleocharis*, *Juncus*, *Molinia*, *Phragmites*, *Scirpus* and *Typha* (REDHEAD 1981). Therefore these fungi are spread in different wetlands throughout the North Temperate Zone (REDHEAD 1981; HANSEN & KNUDSEN 1992; BAS ET AL. 1995, 1999). Although the surface of Bulgarian non-lotic wetlands is more than 10⁵ ha and many data on their biodiversity are available (STOYNEVA & MICHEV 2007b), their macromycetes are very poorly studied and need further attention (GYOSHEVA 2007a). Quite scarce are the data on macromycetes on non-lotic wetland

* *corresponding author:* B. Uzunov - Sofia University “St. Kliment Ohridski”, Faculty of Biology, Department of Botany, 8 Dragan Tsankov Blvd, BG-1164, Sofia, Bulgaria; buzunov@uni-sofia.bg

monocots in Bulgaria. BARSAKOFF (1929) reported the ascomycete *Disciotis venosa* (Pers.) Arnould (Syn. *Peziza venosa* Pers.) on stems of *Schoenoplectus lacustris* (L.) Palla (Syn. *Scirpus lacustris* L.) from the swamp Dragomansko Blato and later on GYOSHEVA (2007b) included *Mycena typhae* (Schweers) Kotl in the species list for the swamp Gorno Boyansko Blato. Recently *Mycena tubarioides* (Maire) Kühner was published from a dry stem of *Typha latifolia* L. and from dead stems of *Carex* spp. and *Juncus* spp. (GYOSHEVA ET AL. 2012; GANEVA & ROUSSAKOVA 2015). The present paper provides new data on the macromycetes which develop on wetland monocots in the karstic swamp Dragomansko Blato (IBW0012 in STOYNEVA & MICHEV 2007a).

BARSAKOFF (1929) visited the swamp Dragomansko Blato on 15th September 1928. The author of the present article inspected the same wetland for macromycetes 87 years later, on 18th October 2015. Then two new for Bulgaria species were found on decaying parts of *Typha angustifolia* L.: *Marasmius limosus* Quél. and *Pholiota conissans* (Fr.) M. M. Moser. Their basidiomata were collected for further investigations by Olympus BX53 microscope on non-permanent slides. The photos were taken by Olympus DP72 camera. Fungal names follow the Index Fungorum. The collected specimens are kept in the Mycological Collection of the Department of Botany of Sofia University “St. Kliment Ohridski”.

Below morphological data obtained by light microscopy (LM) on both new species are provided:

***Marasmius limosus* Quél.**

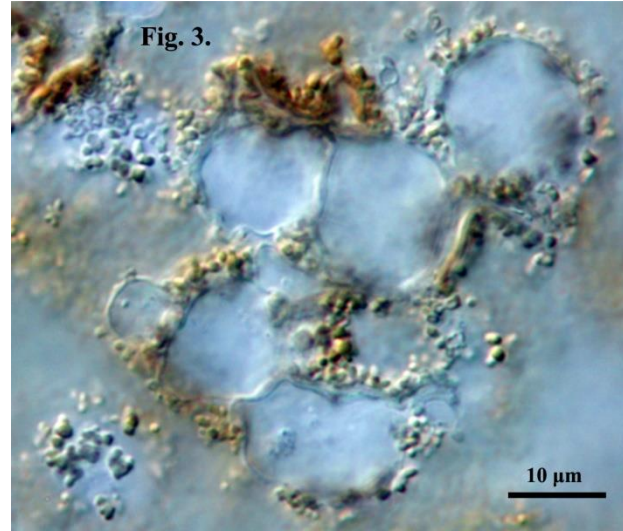
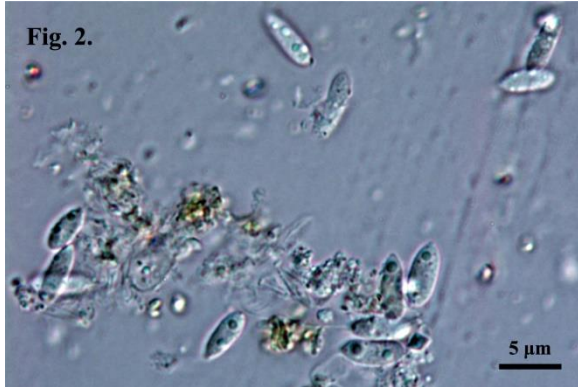
Pileus was 0.8-3.5 mm in diameter, convex, beige in colour with central umbonate cinnamon brown disc (**Fig. 1**). Lamellae were 6 to 9, broadly adnate, white in colour. Stipe was 0.1-0.2 mm wide and 15-25 mm long, dark brown to whitish at the apex, smooth and shining (**Fig. 1**). Spore print was white. Basidiospores were 6-8 x 3-4.5 µm, ellipsoid (**Fig. 2**). The pileipellis elements were broadly clavate, 12-19 µm in diameter and covered by numerous warts, yellow ochre in colour (**Fig. 3**). Cheilocystidia were 8.5-10 x 14-16 µm covered by warts similar to elements of pileipellis.

The basidiomata of *Marasmius limosus* were found only on a single dead leaf of a cattail (*Typha angustifolia* L.; **Fig. 1**).



Fig. 1. Basidiomata of *Marasmius limosus* scattered on a dead leaf of *Typha angustifolia*, collected from the karstic swamp Dragomansko blato.

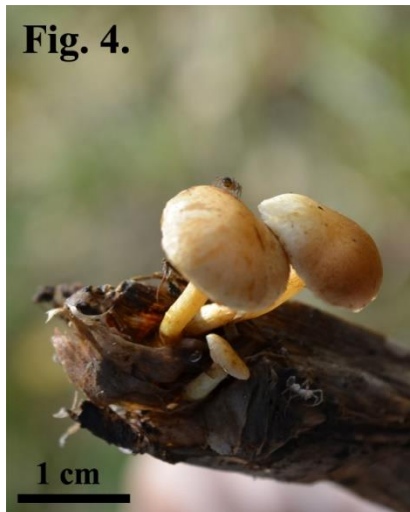
Figs. 2-3 (*M.limosus*): 2 – Basidiospores, 3 – Elements of pileipellis covered by yellow ochre warts



***Pholiota conissans* (Fr.) M. M. Moser (Syn. *Pholiota graminis* (Quél.) Singer)**

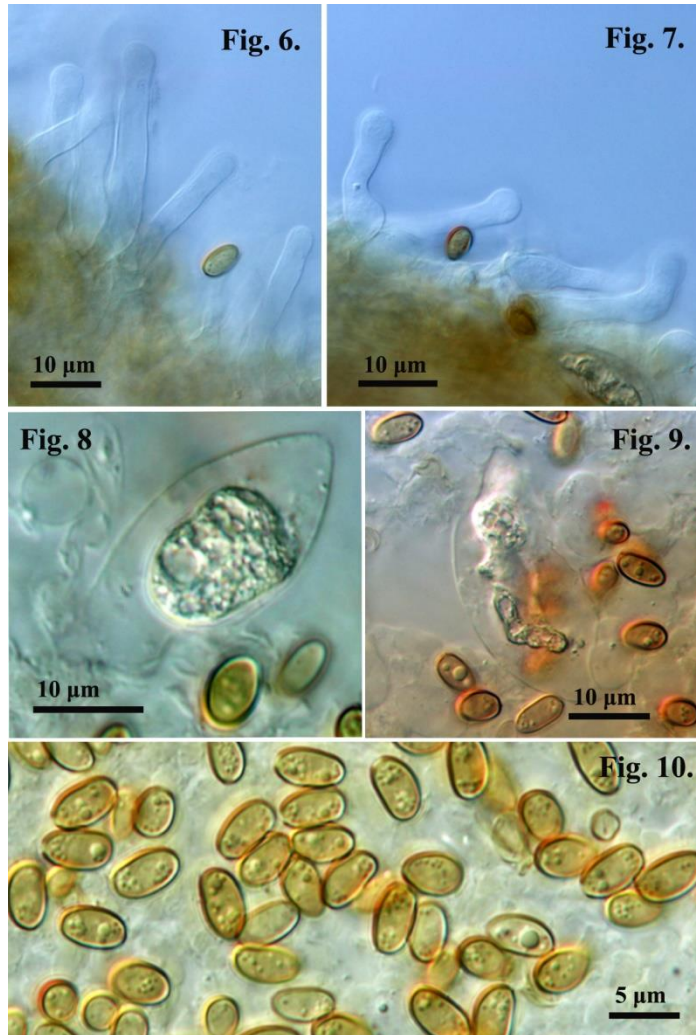
Pileus was 15-50 mm in diameter, convex to plano-convex with age, at the beginning pale yellow ochre in colour then with reddish brown center, slightly viscid, with appressed-fibrillose scales, and slightly appendiculated margin (**Fig. 4**). Lamellae were adnate to emarginate, young pale yellow-brown then red-brown in colour (**Fig. 5**). Stipe was 20-60 x 2-4 mm, cylindrical, pale yellow at the beginning, later becoming red-brown from base upwards (**Figs. 4-5**). Spore print was red-brown in colour. Basidiospores were 5-6.5 x 3-4 μm, ovoid, with smooth brownish wall and distinct germ pore (**Fig. 10**). Cheilocystidia were 25-30 x 4-5 μm, cylindrical to lageniform, subcapitate to capitate, smooth, and colourless (**Figs. 6-7**). Chrysocystidia were 25-30 x 10-14 μm, broadly fusoid with pale yellowish content (**Figs. 8-9**).

Figs. 4-5: Basidiomata of *Pholiota conissans* on decaying stems of *Typha angustifolia* L., collected from the karstic swamp Dragomansko



Basidiomata of *Pholiota conissans* were scattered on decaying stems of *Typha angustifolia* in many places in the swamp (Figs. 4-5).

The both newly recorded fungal species were saprotrophic on dead leaves and stems of *Typha angustifolia*. The decaying mass of these plants is a good developing source for many saprotrophic macromycetes species (REDHEAD 1981, 1984). Taking these considerations into account together with the fact that both species discussed here were easily detected in the middle of October, it is possible to suggest conducting of future investigations of macromycetes in Bulgarian wetlands during the autumn season when the overground part of wetland monocots is decomposed.



Figs. 6-10 (*Pholiota conissans*):
6-7 – Cheilocystidia, 8-9 –
Chrysocystidia, 10 – Basidiospores.

Conflict of Interests

The author declares that there is no conflict of interests regarding the publication of this article.

Acknowledgements

The study was carried on the microscope of the Algal Collection of Sofia University (ACUS). The author is thankful to Mrs Petya Chomakova and Mr Aleksandur Chomakov for the logistic support and also to the anonymous reviewer for improvement of the final version of the paper.

References

- BARSAKOFF B. 1929. Einige für Bulgarien neue Pilzarten. – Bulletin de la Société botanique de Bulgarie 3: 87-91 (In Bulgarian).
- BAS C., KUYPER W. TH., NOORDELOOS M. E. & VELLINGA E. C. (eds.), 1995. Flora Agaricina Neerlandica. Volume 3. A. A. Balloema, Rotterdam, Brookfield, 183 pp.
- BAS C., KUYPER W. TH., NOORDELOOS M. E. & VELLINGA E. C. (eds.), 1999. Flora Agaricina Neerlandica. Volume 4. A. A. Balloema, Rotterdam, Brookfield, 191 pp.

- GANEVA A. & ROUSSAKOVA V. 2015. 0494 Alkaline swamps and mires. – In: BISERKOV V., GUSSEV CH., POPOV V., HIBAUM G., ROUSSAKOVA V., PANDURSKI I., UZUNOV Y., DIMITROV M., TZONEV R. & TSONEVA S. (Ed-in-Chief) 2015. Red Data Book of the Republic of Bulgaria. Volume 3. Natural Habitats, BAS et MOEW, Sofia, 123-125.
- GYOSHEVA M. 2007A. Macromycetes of non-lotic Bulgarian wetlands. – In: MICHEV T. M. & STOYNEVA M. P. (eds.), Inventory of Bulgarian Wetlands and their Biodiversity. Part 1: Non-Lotic Wetlands. Publ. House Elsi-M, Sofia, 171-172.
- GYOSHEVA M. 2007B. Fungal species of IBW0012.– In: STOYNEVA M. P. & MICHEV T. M. Data base in MICHEV T. M. & STOYNEVA M. P. (eds.), Inventory of Bulgarian Wetlands and their Biodiversity. Part 1: Non-Lotic Wetlands. Publ. House Elsi-M, Sofia, IBW0012.
- GYOSHEVA M. M., ASSYOV B. & STOYKOV D. Y. 2012. Some noteworthy *Agaricales* and *Cantharellales* from Bulgaria. – Phytol. Balc. 18 (2): 107-111.
- HANSEN L. & KNUDSEN H. (eds.), 1992. Nordic Macromycetes. Vol. 2. Nordsvamp – Copenhagen, 474 pp.
- INDEX FUNGORUM, <http://www.indexfungorum.org>, retrieved on 18.02.2015.
- REDHEAD S. A. 1981. Agaricales on wetland Monocotyledoneae in Canada. - Can. J. Bot. 59: 574-589.
- REDHEAD S. A. 1984. Additional Agaricales on wetland Monocotyledoneae in Canada. - Can. J. Bot. 62: 1844-1851.
- STOYNEVA & MICHEV 2007a. Data base. – In: MICHEV T. M. & STOYNEVA M. P. (eds.), Inventory of Bulgarian Wetlands and their Biodiversity. Part 1: Non-Lotic Wetlands. Publ. House Elsi-M, Sofia, IBW0012.
- STOYNEVA M. P. & MICHEV T. M. 2007b. State-of-art survey of Bulgarian Non-Lotic Wetlands and their Biodiversity. – In: MICHEV T. M. & STOYNEVA M. P. (eds.), Inventory of Bulgarian Wetlands and their Biodiversity. Part 1: Non-Lotic Wetlands. Publ. House Elsi-M, Sofia, 88-108.

Accepted 26.01.2016

Before the publication of the final paper version of the Annual, this paper should be cited as follows:

Uzunov B. A. 2016. First record of *Marasmius limosus* and *Pholiota conissans* (Basidiomycota) in Bulgaria. – Annual of Sofia University, Faculty of Biology, Book 2 – Botany, 100. ISSN 0204-9910 (Print), ISSN 2367-9190 (Online), Early view, On-line since 31st March 2016, https://www.uni-sofia.bg/index.php/bul/universitet_t/fakulteti/biologicheski_fakultet2/oficialni_izdaniya

or

Uzunov B. A. 2016. First record of *Marasmius limosus* and *Pholiota conissans* (Basidiomycota) in Bulgaria. – Ann. Univ. Sof. 100 (2). ISSN 0204-9910 (Print), ISSN 2367-9190 (Online), Early view, On-line since 31st March 2016, https://www.uni-sofia.bg/index.php/bul/universitet_t/fakulteti/biologicheski_fakultet2/oficialni_izdaniya