

New Data about Some Rare and Interesting Agaricales Species in Bulgaria

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Abstract. This paper provides information about the distribution of 27 species of Agaricales. Six of them are of conservation value in Bulgaria: *Agaricus bohusii*, *Amanita caesarea*, *A. ovoidea*, *A. vittadinii*, *Batarea phalloides* and *Chlorophyllum agaricoides*. Several other species are reported with new localities in the country (*Hymenogaster buliardii*, *H. hessei*, *Hygrophorus piceae*, *Pluteus aurantiorugosus*, *Coprinus alopecius*, *Stropharia luteonitens* and *Tubaria dispersa*). New data are reported or confirmations of previous older records are made.

Key words: Bulgarian mycota, conservation of fungi, fungal diversity.

Introduction

The knowledge about the species diversity and distribution of Agaricales in Bulgaria is still scarce. Well known and common threatened fungi are in need of additional information, confirmation of new finds with voucher specimens in new localities. These species are among the most economically important fungi in Bulgaria; therefore they deserve an intensive research on species composition and distribution in the country.

The paper aims to provide information about some recent findings. Special attention is paid to those species, considered to be rare and threatened in Bulgaria, and data about more widespread taxa are included. New localities are reported for 27 species. Among them *Agaricus bohusii*, *Amanita caesarea*, *A. ovoidea*, *A. vittadinii*, and *Batarea phalloides* are of conservation value in Bulgaria (GYOSHEVA *et al.*, 2006). The present article is a contribution to the study

of the distribution of the Agaricales in Bulgaria.

Material and Methods

The investigated specimens were collected from different floristic regions (Forebalkan, Stara Planina Mts, West Frontier Mts, Mt Belasitsa, Rila Mts, Sredna Gora Mts, The Rhodopes Mts, Thracian Lowland, Tundzha Hilly Country and Mt Strandzha) of Bulgaria.

Studied specimens are kept in the Agricultural University (SOA) in Plovdiv. Their accession numbers are given in brackets at the end of each record. Fungal specimens were preserved by drying and documented with color photograph and/or concise description. Air dried specimens were packaged in paper bags. All specimens were collected by the author, unless otherwise stated.

Determination, nomenclature, and taxonomy of the species are in accordance

with MOSER (1967, 1978, 1983), PHILLIPS (1981), WASSER (1980, 2002), CAPPELLI (1984), CLÉMENÇON (1984), HANSEN & KNUDSEN (1992), CONTU (2003) and NEVILLE & POUMARAT (2004). Families and genera are given according to the arrangement of KIRK *et al.* (2008). The author's names of the fungal taxa are abbreviated according to Kirk & Ansell (2004). Wherever indicated, the threat status follows the *Red list of fungi in Bulgaria* (GYOSHEVA *et al.*, 2006). Phytogeographical division of Bulgaria is according to JORDANOV (1966).

List of collected fungi

Agaricales
Agaricaceae

Agaricus bohusii Bon.

Mt Strandzha: Burgas distr, above the dam of Malko Sharkovo, in communities of *Acer campestre* L., *Quercus frainetto* Ten. and *Q. cerris* L., under *Acer campestre* L., 24 August 2012, leg. & det. M. Lacheva (SOA 60 00344).

Note. *Agaricus bohusii* has been previously reported from Central Stara Planina Mts, The Rhodopes (central), and Thracian Lowland (STOICHEV & ANASTASOV, 1988; LACHEVA, 2006, 2011a, 2012a). Reference is made to Mt Strandzha - near Ropotamo River, leg. Stoyan Beshkov, and Valley of River Strouma (Protected locality Roupite), leg. Dimitar Vasilev.

Note. Rare and interesting species which forms fruitlets during the hot summer months (mostly August) and less frequently in autumn. Included in the Red List of Bulgarian fungi under category Critically Endangered (GYOSHEVA *et al.*, 2006).

Agaricus impudicus (Rea) Pilát

Thracian Lowland: in the park of the village of Malak Chardak, Plovdiv distr., under *Acer negundo* L. and *Quercus frainetto* Ten., 7 June 2010, leg. & det. M. Lacheva (SOA 60 00346).

Tundzha Hilly Country: in the park of Topolovgrad town, under *Acer negundo*, 20 September 2011, leg. & det. M. Lacheva (SOA 60 00327).

Note. The species was reported from Sredna Gora Mts, Thracian Lowland and Tundzha Hilly Country (LACHEVA & STOICHEV, 2004; LACHEVA, 2006, 2011a, 2012a).

Agaricus cupreobrunneus (F.H. Møller) Pilát

Thracian Lowland: on soil, among grasses, in the vicinity of the village of Shishmantsi, Plovdiv distr., 22 September 2010, leg. & det. M. Lacheva (SOA 60 00329); on soil, among grasses, in the vicinity of the village of Trud, Plovdiv distr., 22 Sep 2011, leg. & det. M. Lacheva (SOA 60 00332).

Note. The species was reported from Sredna Gora Mts, Thracian Lowland and Tundzha Hilly Country (STOICHEV & LACHEVA, 2002; LACHEVA, 2006, 2011a).

Battarrea phalloides (Dicks. : Pers.) Pers.

Sredna Gora Mts: on soil with rotted wood, above the village of Bogdan, Plovdiv distr., 13 October 2011, leg. & det. M. Lacheva (SOA 60 00334).

Note. The species was reported from Thracian Lowland (DENCHEV & ASSYOV, 2010, LACHEVA, 2012, 2012c). Included in the Red List of Bulgarian fungi under the category Endangered (GYOSHEVA *et al.*, 2006). It is reported for the first time from Sredna Gora Mts.

Chlorophyllum agaricoides (Czern.) Vellinga [= *Endoptichum agaricoides* Czern.]

Thracian Lowland: on manure, in the farmyard of the village of Shtarkovo, Pazardzhik distr., 8 September 2011, leg. A. Vuchkov, det. M. Lacheva (SOA 60 00348); on manure, above the village of Trud, Plovdiv distr., 22 September 2011, leg. & det. M. Lacheva (SOA 60 00339); on manure, above the village of Turkmen, Plovdiv distr., 18 September 2011, leg. & det. M. Lacheva (SOA 60 00342).

Note. *Chlorophyllum agaricoides* was reported from Stara Planina Mts (western), Znepole region, Pirin Mts, Sredna Gora Mts, Rhodopi Mts (eastern), Thracian Lowland, Tundzha Hilly Country (DENCHEV & ASSYOV, 2010; LACHEVA, 2011, 2012, 2012c). It is included in the Red List of Bulgarian

fungi under the category Endangered (GYOSHEVA *et al.*, 2006).

Coprinopsis radiata (Bolton: Fr.) Redhead, Vilgalys & Moncalvo [= *Coprinus radiatus* (Bolton : Fr.) Pers.]

Stara Planina Mts (central): on dung of horse, above the challet of Vejen, 23 June 2011, leg. & det. M. Lacheva (SOA 60 00324).

Note. The species was reported from Pirin Mts (VANEV & REID, 1986).

Coprinus alopecius Lasch

The Rhodopes (eastern): on fallen leaves, in community of *Fagus sylvatica* L. and *Alnus glutinosa* (L.) Gaertner, above the village of Hrabrino, Plovdiv distr., 11 September 2011, leg. & det. M. Lacheva (SOA 60 00330).

Note. The species was reported from Sredna Gora Mts (DIMCHEVA *et al.*, 1992). It is reported for the first time from The Rhodopes (eastern).

Inocybaceae

Tubaria dispersa (Berk. & Broome) Singer

Sredna Gora Mts: on soil, in grassy meadow, above the village of Starosel, Plovdiv distr., 13 October 2009, leg. & det. M. Lacheva (SOA 60 00325).

Note. Previously this species was reported from Sofia region by DIMCHEVA *et al.* (1992) and GYOSHEVA *et al.* (2012). It is reported for the first time from Sredna Gora Mts.

Amanitaceae

Amanita caesarea (Scop.: Fr.) Pers.

Forebalkan: above the village of Gradeshnitsa, near Teteven town, under *Fagus sylvatica* L., 7 June 2012, leg. & det. M. Lacheva (SOA 60 00355).

West Frontier Mts: Osogovo Mt, Kyustendil distr., above the chalet of Tritebuki, under *Fagus sylvatica* L., 17 September 2010, leg. & det. M. Lacheva (SOA 60 00328).

Belasitsa Mts: in the vicinity of the village of Parvomai and Zlatarevo, Petrich distr., under *Castanea sativa* Miller, 15 July 2009, leg. & det. M. Lacheva (SOA 60 00326).

Sredna Gora Mts: Lozenska Planina Mt, above the village of Dolni Lozen, near the

St. Spas Monastery, under *Quercus* spp., 19 May 2009, leg. & det. M. Lacheva (SOA 60 00336); under the peak Polovrak, in mixed forest of *Fagus sylvatica* L. and *Carpinus betulus* L., under *Fagus sylvatica* L., 26 June 2012, leg. & det. M. Lacheva (SOA 60 00345).

Thracian Lowland: under *Quercus* sp., the village of Draganovo, Plovdiv distr., 6 October 2010, leg. & det. ML (SOA 60 00333); in the oak forest near the village of Dolno Levski, Pazardzhik distr., 18 July 2003, leg. & det. G. Stoichev (SOA 60 00357); in oak forest, near the dam Pyasachnik, Plovdiv distr., 6 October 2010, leg. & det. M. Lacheva (SOA 60 00358).

Tundzha Hilly Country: Mt Sakar, above the village of Lesovo, near Elhovo town, under *Quercus frainetto* Ten., 25 May 2011, leg. & det. M. Lacheva (SOA 60 00337); above the village of Sakartsi, near Topolovgrad town, under *Quercus frainetto* Ten., 25 May 2011, leg. & det. M. Lacheva (SOA 60 00335).

Note. *Amanita caesarea* is included in the Red List of Bulgarian fungi under the category Vulnerable (GYOSHEVA *et al.*, 2006).

The species was reported from Black Sea Coast, Danubian Plain, Forebalkan, Stara Planina Mts (central, eastern), Sofia region, Znepole region, Vitosha region, Rila Mts, Sredna Gora Mts (western), The Rhodopes (western, eastern), Strandzha Mts (DENCHEV & ASSYOV, 2010).

Amanita ovoidea (Bull. : Fr.) Quél.

The Rhodopes (eastern): on soil, in oak forest, near the village of Chernichino, Kardjali distr., 13 July 2011, leg. & det. M. Lacheva (SOA 60 00331).

Note. *Amanita ovoidea* is included in the Red List of Bulgarian fungi under the category Critically Endangered (GYOSHEVA *et al.*, 2006).

The species is already known from Eastern Rhodopes (HINKOVA *et al.*, 1979; LACHEVA & GYOSHEVA, 2013) and from Eastern Stara Planina Mts (KUTHAN & KOTLABA, 1989).

Amanita vittadinii (Moretti) Vittad.

The Rhodopes (eastern): on soil, among grasses, in glade near the village of Odrintsi,

Kardzhali distr., 28 September 2010, leg. & det. M. Lacheva (SOA 60 00350).

Thracian Lowland: on soil, among grasses, in the vicinity of the village of Markovo, Plovdiv distr., 06 October 2010, leg. & det. M. Lacheva (SOA 60 00347).

Note. *Amanita vittadinii* is included in the Red List of Bulgarian fungi under the category Vulnerable (GYOSHEVA *et al.*, 2006).

The species was reported from Danubian Plain, Sofia region, Znepole region, Vitosha region, The Rhodopes (central, western) and Thracian Lowland (DENCHEV & ASSYOV, 2010; LACHEVA, 2012b; LACHEVA & GYOSHEVA, 2012).

Pluteaceae

Pluteus aurantiorugosus (Trog) Sacc.

Sredna Gora Mts: above the village of Krastevich, Strelcha distr., near the chalet of Buntovna, on dead stump of *Quercus* sp., 24 September 2011, leg. & det. M. Lacheva (SOA 60 00338).

Note. This second find confirms the occurrence of *Pluteus aurantiorugosus* in Bulgaria. Previously the species was reported only once from Mt Belasitsa (ASSYOV *et al.*, 2006).

Pluteus petasatus (Fr.) Gillet

Tundzha Hilly Country: on fallen stump, in community of *Carpinus orientalis* Miller and *Quercus* sp., above the village of Kostur, Svilengrad distr., 11 September 2005, leg. M. Lacheva, det. G. Stoichev (SOA 60 00354).

Thracian Lowland: on rotting bales of straw, above the village of Zhitnitsa, Plovdiv distr., 30 September 2011, leg. & det. M. Lacheva (SOA 60 00359).

Note. The species was reported from Black Sea Coast (KUTHAN & KOTLABA, 1989), Eastern Rhodopes (HINKOVA *et al.*, 1979) and Tundzha Hilly Country (STOICHEV & DIMCHEVA, 1987).

Bolbitiaceae

Conocybe pubescens (Gillet) Kühner

Rila Mts: on dung of horse, above the village of Krastevich, Strelcha distr., 27 June 2004, leg. & det. G. Stoichev (SOA 60 00340).

Note. The species was reported from Pirin Mts (DIMCHEVA & STOICHEV, 1987) and Western Rhodopi Mts (HINKOVA *et al.*, 1979). It is reported for the first time from Rila Mts.

Conocybe rickenii (Jul. Schäff.) Kühner

Stara Planina Mts: on cattle excrement, in plantation of *Picea abies* Karst., above the chalet of Mazalat, 12 June 2004, leg. & det. G. Stoichev & M. Lacheva (SOA 60 00349).

Note. The species was reported from Znepole region, Vitosha region and Sredna Gora Mts (HINKOVA & ALEXANDROV, 1971, DENCHEV & ASSYOV, 2010). It is reported for the first time from Stara Planina Mts.

Hebeloma anthracophilum Maire

Stara Planina Mts (central): on coals, in plantation of *Picea abies* Karst., above the chalet of Vejen, 23 June 2011, leg. & det. M. Lacheva (SOA 60 00356).

Note. The species was reported from the Rhodopes (STOICHEV & GYOSHEVA, 2005). From Rila Mts it has been previously known only in the work of LACHEVA (2012b). The species is reported for the first time from Stara Planina Mts.

Hebeloma fusipes Maire

The Rhodopes (eastern): in oak forest, 16 November 2003, leg. M. Lacheva, det. G. Stoichev (SOA 60 00351).

Note. The species was reported from Black Sea Coast (KUTHAN & KOTLABA, 1989), and Eastern Rhodopes (HINKOVA *et al.*, 1979).

Naucoria alnetorum (Maire) Kühner & Romagn.

The Rhodopes (eastern): on soil among mosses under *Alnus glutinosa* (L.) Gaertner, above Strazhets village, 23 September 2010, leg. & det. M. Lacheva (SOA 60 00353).

Note. The species is known from Vitosha region (STOICHEV & GYOSHEVA, 2005) and from the Rhodopes (LACHEVA, 2012b).

Cortinariaceae

Cortinarius bivellus (Fr. : Fr.) Fr.

Sredna Gora Mts: in beech forest, above the village Karavelovo, Plovdiv distr., 22

September 2011, leg. & det. M. Lacheva (SOA 60 00352).

Note. The species was reported from the Rhodopes (HINKOVA *et al.*, 1979; STOICHEV & DRUMBEVA, 1987).

Hydnangiaceae

Laccaria bicolor (Maire) P.D. Orton

Rila Mts: on soil, in the forest of *Alnus glutinosa* (L.) Gaertner and *Pinus sylvestris* L., Chavdar locality, above Belovo town, 6 September 2010, leg. & det. M. Lacheva (SOA 60 00343).

Note. *Laccaria bicolor* has been previously reported from Bulgaria (KUTHAN & KOTLABA, 1981; ASSYOV *et al.*, 2010).

Laccaria tortilis (Bolton) Cooke

The Rhodopes (eastern): above the villages of Strajets and Gorny Yurutsy, Krumovgrad distr., under mixed forest of *Fagus sylvatica* L., *Quercus delechampii* Ten. s. str., *Pinus sylvestris* L. and *Alnus glutinosa* (L.) Gaertner, 23 September 2008, leg. & det. M. Lacheva (SOA 60 00341).

Note. The species was reported from Znepole region (GYOSHEVA, 1994), Valley of river Strouma (ASSYOV *et al.*, 2012) and Western Rhodopes (STOICHEV, 1979). The species is reported for the first time from Eastern Rhodopes.

Strophariaceae

Hymenogaster buliardii Vitt.

Sredna Gora Mts: in culture of *Pinus sylvestris* L. and *Betula pendula* Roth., above the village of Karavelovo, Plovdiv distr., on the ground, under *Betula pendula* Roth., 26 October 2011, leg. & det. M. Lacheva (SOA 60 360).

Note. This second find confirms the occurrence of *Hymenogaster buliardii* in Bulgaria. Previously the species was reported only once from Sredna Gora Mts (LACHEVA, 2011b).

Hymenogaster hessei Soehner

Stara Planina Mts (eastern): Natural Park „Sinite Kamani“, in the Ablanovo locality, in the deciduous forest of *Fagus sylvatica* L. and *Quercus* sp., on the ground,

under *Fagus sylvatica* L., 17 September 2010, leg. & det. M. Lacheva (SOA 60 361).

Note. This second find confirms the occurrence of *Hymenogaster hessei* in Bulgaria. Previously the species was reported only once from Central Stara Planina Mts (LACHEVA, 2011b).

Stropharia luteonitens (Fr. : Fr.) Quéf.

Central Rhodopi Mts: On soil among grasses and mosses, above the villages of Mugla, Smolyan distr., 13 Sept 2005, leg. M. Lacheva, det. G. Stoichev (SOA 60 00362).

This second find confirms the occurrence of *Stropharia luteonitens* in Bulgaria. Previously the species was reported only once Central Rhodopi Mts (GYOSHEVA & ANDREEVA, 2000).

Tricholomataceae

Hygrophorus piceae Kühner

The Rhodopes (western): the village of Ravnogor, Pazardzhik distr., on the ground, under *Picea abies* Karst., 14 October, 2004, leg. & det. G. Stoichev & M. Lacheva (SOA 60 00365).

Note. This second find confirms the occurrence of *Hygrophorus piceae* in Bulgaria. Previously the species was reported only once from Rila Mts (GYOSHEVA, 1997).

Melanoleuca brevipes (Bull.: Fr.) Pat.

The Rhodopes (central): In oak forest, above the village of Hrabrino, Plovdiv distr., 18 September 2005, leg. M. Lacheva, det. G. Stoichev (SOA 60 00363); in oak forest, above the village of Brestnik, Plovdiv distr., 23 October 2010, leg. & det. M. Lacheva (SOA 60 00364). The species is reported for the first time from Central Rhodopes.

Note. The species was reported from Eastern Rhodopes (HINKOVA *et al.*, 1979) and Thracian Lowland (STOICHEV & NAIDENOV, 1987).

Tricholoma hordum (Fr.: Fr.) Quéf.

The Rhodopes (western): on soil, in community of *Picea abies* L. and *Pinus sylvestris* L., Chairski ezera locality, above the village of Trigrad, 11 July 2004, leg. M. Lacheva, det. G. Stoichev (SOA 60 00366).

Note. The species was reported only once from Western Rhodopes (STOICHEV & GYOSHEVA, 2005).

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Received: 01.11.2013

Accepted: 02.03.2014