



Original Contribution

NEW RECORDS OF SOME RARE AND NOTEWORTHY LARGER FUNGI FROM BULGARIA

B. Assyov*, D. Stoykov, S. Nikolova

Department of Mycology, Institute of Botany, Bulgarian Academy of Sciences, Sofia, Bulgaria

ABSTRACT

The paper provides information about the distribution in Bulgaria of 25 threatened or rarely recorded boletes, agarics and other larger basidiomycetes. *Pterula multifida* is a new country record. The present occurrence in Bulgaria of *Cortinarius violaceus*, *Laccaria bicolor* and *Macrotyphula juncea* is confirmed and second findings of *Tylopilus felleus* and *Albatrellus pes-caprae* are reported. New localities are listed for *Suillus grevillei* and *S. lakei*, alien boletes in this country. For 17 other fungal species new chorological data are given or confirmation of older records is made.

Key words: Bulgaria, conservation of fungi, fungal diversity, macromycetes

INTRODUCTION

During field work in connection with the study of the diversity of *Boletales* in Bulgaria, as well as with the updating of the Red List of Bulgarian macromycetes (1), some new records and confirmative findings of threatened or rarely found fungi were made. Since the recording of rare fungi is considered to be an important task (2), these records are listed herein.

MATERIALS AND METHODS

Fungi were collected during 2002-2009, mostly by the authors. For the abbreviations of the names of the collectors, see the list of abbreviations. With very few exceptions the records are supported with samples in the Mycological collection at the Institute of Botany of the Bulgarian Academy of Sciences (SOMF). Specimens are supplied with color photograph and/or description in order to allow further revision. Photographic records are available by request to the corresponding author. One specimen is included after revision in the Herbarium of the Plovdiv University of Agriculture (SOA). Microscopic examination of the samples has been conducted in water. Fungi are determined according appropriate keys and monographs (3-18).

RESULTS

Albatrellus pes-caprae (Pers. : Fr.) Pouzar
Belasitsa Mt: Kongura Nature Reserve, under *Castanea sativa* Mill., 25 September 2009, leg. & det. DS, BA & IA (SOMF 26 283).

Endangered species (1). This is its second record in the country, the previous one originating from the central parts of Rodopi Mts (19).

Amanita caesarea (Scop. : Fr.) Pers.

Northern Black Sea coast: ca 1 km northern from Shkorpilovtsi village, under *Abies cephalonica* Laudon, 27 August 2004, det. BA (not conserved, photograph available).

Eastern Forebalkan: distr. Troyan, the locality of Koman, under *Quercus frainetto* Ten., 07 June 2002, leg. & det. BA (SOMF 25 447); near Golyama Zhelyazna village, under *Quercus* sp., 06 August 2005, leg. & det. DS (SOMF 25 495).

Western Stara Planina Mts: in the vicinity of the Tseretsel village (Svoge distr.), under seedlinks of *Quercus* sp. in a plantation of *Pseudotsuga menziesii* (Mirbel) Franco, ca 860 m, 11 September 2005, det. BA (not conserved, photograph available).

Eastern Stara Planina Mts: Mokrenski Prokhod passes between the villages of Mokren and Gradets, 25 August 2004, det. BA (not conserved, photograph available); in the vicinity of the hotel and the waterfall between the villages Gradets and Ichera, 25 August

*Correspondence to: Boris Assyov, Institute of Botany, Bulgarian Academy of Sciences, 23 Acad. G. Bonchev St., 1113 Sofia, Bulgaria, tel. (+3592)9793715, e-mail: assyov@bio.bas.bg

2004, det. BA (not conserved, photograph available).

Sofia region: Lyulin Mt, above the village of Malo Bouchino, 09 September 2005, det. IA & BA (not conserved, photograph available); above the village of Vladaja, 03 October 2007, leg. IA, det. IA & BA (SOMF 26 666).

Belasitsa Mt: in the vicinity of the chalet of Belasitsa, in mixed forest of *Fagus sylvatica* L. and *Castanea sativa*, 15 August 2004, leg. & det. BA (SOMF 25 457); at the trail between Belasitsa chalet and the waterfall, 12 October 2007, det. BA & IA (not conserved, photograph available); Kongura Nature Reserve, under *Castanea sativa*, 25 September 2009, det. DS, BA & IA (not conserved, photograph available); idem, 09 October 2009, det. BA & IA (not conserved, photograph available).

Vulnerable species (1), which is recorded for the first time from the Eastern Forebalkan and Belasitsa Mt. In all of the above cited localities basidiomata are collected for food, though in a large scale, especially in Eastern Stara Planina Mts and the Eastern Forebalkan, where these mushrooms are commercially harvested.

Amanita strobiliformis (Paulet) Bertillon
Western Stara Planina Mts: Lakatnishki Skali protected area, between Temnata Dupka cave and the monument, under *Carpinus orientalis* Mill., 26 July 2006, leg. & det. BA (SOMF 26 663).

Endangered species (1), which is recorded for the first time from Western Stara Planina Mts.

Cantharellus friesii QuéL.

Western Forebalkan: Vrachanski Balkan Nature Park, l. d. Mizhishnitsa, under *Quercus* sp., 18 August 2006, leg. & det. BA & DS (SOMF 26 661).

Central Stara Plana Mts: Stara Reka Nature reserve, between Hubavets chalet and Karlovo, 02 August 2006, leg. & det. BA (SOMF 26 660).

Endangered species (1), which is recorded for the first time from Western Forebalkan and Central Stara Planina Mts.

Clathrus ruber Pers.

Northern Black Sea coast: ca 1 km northern from Shkorpilovtsi village, at the edge of coastal dunes in woodland strips of *Quercus cerris* L., 27 August 2004, det. BA (not conserved, photograph available); Sveti

Konstantin i Elena Resort, at the Botanical garden, in a broadleaved forest, 10 July 2004, det. BA (not conserved, photograph available).

Sofia region: Sofia city, the park between the University and the National stadium, on the soil under small group of oaks (*Quercus* sp.), June 1987, det. BA (not conserved).

In the locality in Sofia the species was found initially on 10 June and production of basidiomata was observed during the next week. It was never met again in the same locality and it is possible to be assumed that the species does not occur there nowadays since the area was covered with recreation facilities. *Clathrus ruber* was recorded only once (in 1936) from Sofia region (Sofia University Botanical garden) by (20).

Clavariadelphus pistillaris (L. : Fr.) Donk

Vitosha region: Lyulin Mt, between Malo Bouchino village and the chapel, in a broadleaved forest, 04 September 2005, leg. IA, det. BA (SOMF 25 490).

West Frontier Mts: Osogovo Mt, above the village of Bournartsi, distr. Kyustendil, under *Fagus sylvatica*, ca 1500 m, 07 September 2002, leg. & det. BA (SOMF 25 450).

Belasitsa Mt: Kongura Nature Reserve, under *Castanea sativa*, 25 September 2009, leg. & det. DS, BA & IA (SOMF 26 284).

Vulnerable species (1). This is the first indication for the occurrence of *C. pistillaris* in Sofia region, West Frontier Mts and Belasitsa Mt.

Cortinarius violaceus (L. : Fr.) Fr.

Vitosha region: Vitosha Mt, Bistrishko Branishte nature reserve, under *Picea abies* Karst., 10 September 2002, leg. & det. BA (SOMF 25 444).

Rila Mts: above the village of Yakorouda, the locality of Boukevitsa, in mixed forest under *Fagus sylvatica*, ca 1400 m, 27 July 2002, leg. & det. BA (SOMF 25 445).

The species has been reported only twice from the spruce forests of Vitosha Mt (21, 22) and is considered to be *Endangered* in Bulgaria (1). It is worth to mention also that no specimens were found in the Mycological collection at the Institute of Botany (SOMF) to support this record. During the field season of 2002 it became possible to confirm its present occurrence in Bulgaria by the rediscovery of the species in Vitosha Mt and by the found of a new population in Rila Mts.

Cyathus olla Batsch : Pers.

Western Rhodopi Mts: Beglika locality, on dead stems of *Astragalus alopecurus* Pall., ca 1600 m, 19 September 2002, leg. & det. BA (SOMF 25 491).

New species for the Rhodopi Mts, so far known from the Northeast Bulgaria (23), Vitosha Region (22) and Rila Mts (24). It may appear to be more widespread but under-recorded fungus.

Geastrum triplex Jungh.

Sofia region: Lyulin Mt, above Chernia Kos locality, in a broadleaved forest, 17 September 2005, leg. IA, det. BA (SOMF 25 489).

Included in the Red list of Bulgarian fungi under category *Vulnerable* (1).

Gomphus clavatus (Pers. : Fr.) S.F. Gray

Northern Pirin Mts: at the road from the town of Bansko to Banderitsa locality, in mixed coniferous forest, ca 1700 m, 22 August 2002, det. BA (not conserved, photograph available); idem, 26 August 2009, leg. & det. BA & DS (SOMF 26 285).

Only few basidiomata were observed in the above cited locality in Pirin Mts, where it is reported for the first time. *Vulnerable* species, according to (1). It is included in the proposal for entry in the Appendix I of the Bern Convention (25) and special attention has to be paid on its populations in Bulgaria. Single fruitbody was found during the first visit in 2002 and more than 80 (often in fairy-rings) in 2009.

Hericium coralloides (Scop. : Fr.) Pers.

Northern Black Sea coast: Kamchia seaside resort, on living tree of *Quercus frainetto* Ten., alt. ca 20 m, 17 September 2006, leg. & det. BA (SOMF 26 018); idem, on dead broadleaf tree, 08 October 2009, leg. & det. DS (SOMF 26 286).

North-Eastern Bulgaria: Shoumensko Plato Natural Park, Bukaka reserve, in the central part of the reserve, alt. ca 433 m, on rotten trunk of *Fagus sylvatica* ssp. *moesiaca*, 24 October 2007, leg. & det. DS & SN (SOMF 26 318).

Western Forebalkan: Vrachanski Balkan Nature Park, I. d. Mizhishnitsa, under *Quercus* sp., 18 August 2006, leg. & det. BA & DS (SOMF 25 940, 26 665).

Eastern Forebalkan: distr. Troyan, the locality of Koman, on dead trunk of *Quercus* sp., 07 June 2002, leg. & det. BA (SOMF 25 493); nearly Golyama Zhelyazna village, on dead

trunk of *Quercus* sp., 06 August 2005, leg. & det. DS (SOMF 25 494).

Central Stara Planina Mts: Central Balkan National Park, Dzhendema Reserve, on dead trunk of *Fagus sylvatica*, 27 July 2009, leg. & det. DS (SOMF 27 526).

The species is recorded for the first time from the Black Sea coast, Forebalkan and North-Eastern Bulgaria. It is considered to be *Near Threatened* (1).

Inonotus tamaricis (Pat.) Maire

Southern Black Sea coast: at the beach of Primorsko town, alt. ca 0 m, on living *Tamarix* sp., 11 September 2008, leg. & det. BA & DS (SOMF 27 456); along the town beach of Pomorie, alt. ca 0 m, on living *Tamarix* sp., 14 October 2008, leg. & det. DS (SOMF 26 807).

This rare species has been previously recorded from the southern coastal area of the country (23). However, it has never been seen before in the two above localities. Its most recent records date back to 1985. It is a peculiar and apparently rare parasite on old living tamarisk shrubs, not a widespread plant itself. Although the fungus is known also from the Eastern Rodopi Mts, it seems that the sea coast is its prime area in this country. Thus, *I. tamaricis* appears to be threatened by the vast building activities and habitat destruction ongoing at the seaside. It is therefore considered to be *Endangered* (1).

Laccaria bicolor (R. Maire) Orton

Rila Mts: Sedemte Rilski Ezera lakes region, on the soil in communities of *Pinus mugo* Turra, 06 October 2003, leg. & det. BA (SOMF 25 246).

Laccaria bicolor has been previously reported only once from Bulgaria (26), but this record remained unconfirmed until now. The macro- and microscopic features of this new collection agree with the characteristics of the species as given by (7, 14).

Macrotypophula fistulosa (Holmsk. : Fr.) Peters.

Belasitsa Mt: in the vicinity of the chalet of Belasitsa, on soil in beech forest, ca 720 m a. s. m., 14 November 2004, leg. & det. BA (SOMF 25 451).

Vulnerable species (1), recorded for the first time from this region.

Macrotypophula juncea (Alb. & Schwein. : Fr.) Berthier

Western Stara Planina Mts: in an oak – hornbeam woodland, between Tsaritchina and

Tseretsel villages, on decaying leaves, 26 September 2008, leg. & det. BA (SOMF 26 287).

This interesting and apparently uncommon species has been reported by Hinkova in 1955 (27) and remained unconfirmed since. Hinkova's finding is from the Borisovata Gradina park in Sofia city, where the conditions have changed considerably. Considering this fact, as well as its absence for more than half a century, one may conclude it is possibly not present there nowadays.

Mutinus caninus (Huds. : Pers.) Fr.

Vitosha region: Vitosha Mt, in the vicinity of the village of Zheleznitsa, on soil in beech forest, 28 August 2002, leg. & det. BA (SOMF 25 448).

The species is already known from Vitosha Mt, where it was found in 1951 (22), since that time no later records are available from this region. *Mutinus caninus* is included in the Red list of Bulgarian fungi under category *Vulnerable* (1) and that is the reason to indicate this new found.

Phallus hadrianii Vent. : Pers.

Sofia region: Sofia city, near the greenhouses at the Institute of Botany, 13 September 2005, det. BA (SOMF 26 300); idem, 25 September 2005 (not conserved, photograph available).

West Frontier Mts: Ograzhden Mt, between the villages Zlatarevo and Krushitsa, in grasslands at the road, 23 November 2006, leg. V. Gashtarov, det. BA (SOMF 26030); above the cemetery of Kamenitsa village (Sandanski distr.), on the verges of a track, 09 October 2009, leg. & det. BA & IA (SOMF 26 288).

The species is evaluated as *Near Threatened* (1). It has not been found in Sofia region during the last decades (20, 28) and is recorded for the first time from the West Frontier Mts.

Phylloporus pelletieri (Lév.) Quél.

Western Stara Planina Mts: in a beech forest between Tsaritchina and Tchibaovtsi villages, under *Fagus sylvatica*, 17 August 2009, leg. & det. BA & IA (SOMF 26 289).

Central Stara Planina Mts: Boatin Nature Reserve, in a beech forest, under *Fagus sylvatica*, 15 September 2009, leg. & det. BA & DS (SOMF 26 290).

Central Rhodopi Mts: between Dedevo village and Zdravets chalet, in a beech forest, 05 August 1995, leg. GS (SOA s. n.).

This unusual and rare bolete is considered to be *Endangered* species in Bulgaria (1) and is so far known from very few localities. It has not been recorded before from Western Stara Planina and Rhodopi Mts (29). It is also listed in the proposal for entry in the Appendix I of the Bern Convention (25).

Pisolithus arrhizus (Scop. : Pers.) Rauschert

West Frontier Mts: Ograzhden Mt: between Strumeshnitsa and Borovichene villages (Petrich distr.), in a dry grassland by the road, 24 September 2009, leg. & det. BA, IA & DS (SOMF 26 291); above the cemetery of Kamenitsa village (Sandanski distr.), dry sunny places in communities of *Quercus coccifera* L., 09 October 2009, leg. & det. BA & IA (SOMF 26 292).

This bolete ally is considered *Near Threatened* in Bulgaria (1).

Porphyrellus porphyrosporus (Fr. & Hök) E.-J. Gilbert

Rila Mts: in spruce forests between Govedartsi village and Maljovitsa chalet, under *Picea abies*, 05 July 2008, leg. & det. BA & IA (SOMF26 293); in spruce forests, Kirilova Polyana locality, under *Picea abies*, 26 July 2009, leg. & det. BA & IA (SOMF 26 294).

Vulnerable species (1), known from Rila Mts, but rather uncommon.

Pseudocraterellus sinuosus (Fr. : Fr.) Corner

Western Forebalkan: Vrachanski Balkan Nature Park, l. d. Mizhishnitsa, under *Fagus sylvatica*, 18 August 2006, leg. & det. BA & DS (SOMF 26 662).

Pterula multifida E.P. Fr. ex Fr.

Belasitsa Mt: Kongura Nature Reserve, under *Fagus sylvatica*, 25 September 2009, leg. & det. DS, BA & IA (SOMF 27 940).

This spectacular fungus is recorded for the first time from the country.

Suillus grevillei (Klotzsch : Fr.) Singer

Eastern Forebalkan: Koman locality above Kaleitsa village (Troyan distr.), under *Larix* sp., 15 August 2008, leg. & det. BA & DS (SOMF 26 295)

Central Stara Planina Mts: at Haydushka Pesen chalet above Chiflika village (Troyan distr.), under *Larix* sp., 20 August 2009, leg.& det. BA & DS (SOMF26 296).

An alien bolete species, mycorrhizal with larch (29).

Suillus lakei (Murrill) A.H. Sm. & Thiers
West Frontier Mts: Ograzhden Mt, at Gega village (Petrich distr.), under *Pseudotsuga menziesii*, 24 September 2009, leg. & det. BA, IA & DS (SOMF 26 297).

An alien bolete species, strictly mycorrhizal with *Pseudotsuga* spp. It is so far known from Western Stara Planina Mts but it is likely more widespread in Douglas fir plantations (30). It should be further looked for.

Suillus sibiricus (Singer) Singer

Northern Pirin Mts: between Gotse Delchev chalet and Bezbog, close to the intermediate ski lift station, in mixed coniferous forest, under *Pinus peuce* Griseb., 10 September 2006, leg. & det. BA & IA (SOMF 26 298).

This *Endangered* bolete species (1) is listed in the proposal for entry in the Appendix I of the Bern Convention (25) and therefore special attention have to be paid on its populations in Bulgaria. This is the reason to include this finding, although older records are known from Northern Pirin (29).

Tremiscus helvelloides (DC. ex Pers.) Donk

Northern Pirin Mts: at the road from the town of Bansko to Banderitsa locality, in mixed coniferous forest, ca 1800 m, 22 August 2002, leg. & det. BA (SOMF 25 452).

Western Rhodopi Mts: Beglika locality, on sandy soil, ca 1600 m, 19 September 2002, leg. & det. BA (SOMF 25 453).

Endangered species (1). It has been previously reported both from Pirin Mts (20) and Western Rhodopi Mts (31). In the locality in the Rhodopi Mts only 12 basidiomata were found, while in the first cited locality more than 100 basidiocarps were counted.

Tylopilus felleus (Bull. : Fr.) P. Karst.

Belasitsa Mt: Kongura Nature Reserve, under *Castanea sativa*, 09 October 2009, leg. & det. BA & IA (SOMF 26 299).

Not yet evaluated for threat status, but apparently uncommon bolete, known from a single collection in Rila Mts (29).

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Abbreviations used in the text:

BA – Boris Assyov
DS – Dimitar Stoykov
GS – Georgi Stoichev
IA – Ivelina Assyova
SN – Siyka Nikolova

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