



Original Contribution

STROBILOMYCES STROBILACEUS (SCOP. : FR.) BERK. IN BULGARIA

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ABSTRACT

This paper summarizes the available data of *Strobilomyces strobilaceus* in Bulgaria. Review of the available previous records is made and numerous new findings are reported. Totally 30 localities of the species are currently known. An UTM-grid map is appended. The fungus appeared to be widespread, but not common and observations likely support its present conservation status.

Key words: *Boletales*, rare fungi, red-listed fungi.

INTRODUCTION

Strobilomyces strobilaceus is the only European member of the otherwise extra-European genus (1). It is widespread throughout Europe, but is seldom and is included in the National Red Lists of a number of countries (2). It is also listed on the European Red list of fungi (3). In Bulgaria *S. strobilaceus* is considered to be a *Vulnerable* species on the National Red List of fungi (4) and therefore its monitoring and comprehensive knowledge about its distribution are essential for further conservation action. This note aims to summarize the knowledge about the distribution of this rare fungal species in Bulgaria.

MATERIALS AND METHODS

The available data come from the existing Bulgarian mycological literature, revision of the specimens kept in the Mycological collection of the Institute of Botany, Bulgarian Academy of Sciences (SOMF) and the Herbarium of the Plovdiv University of Agriculture (SOA), as well as from unpublished personal finds of the authors. The information is presented on UTM-grid map with 10 km square. Distribution list by floristic regions (5) is added following the usual practice. Considering that it may be useful information for the municipality management,

distribution list is added also by administrative units. A list of the localities and the sources of information is added for completeness. During the revision the works of (6), (7), (8), (9) and (10) have been followed.

RESULTS

The review of the literature reports, the revision of the herbarium specimens, together with the unpublished collections of the authors revealed 34 records of the species. They are all listed below and presented on **Figure 1**.

List of records

Western Stara Planina Mts: in a beech forest, Vitinia pass, 17 August 1959, A. Skiergielo (SOMF 2337), GN-24; in an oak forest, Zherkovo locality by Yordankino village, 20 July 1975, M. Drumeva (SOMF 12234), GN-12; above Voiniagovtsi village, in an oak forest, 25 July 2005, D. Stoykov (SOMF 26274), FN-94; in a beech forest below Kom chalet, under *Fagus sylvatica* L., 04 August 2009, B. Assyov, D. Stoykov & I. Assyova (SOMF 26275), FN-68; in an oak forest, between Tsarichina village and the turn to Tseretsel village, under *Quercus petraea* (Mattushka) Liebl., 17 August 2009, B. Assyov & D. Stoykov (SOMF 26276), FN-85. Central Stara Planina Mts: in deciduous woodland (mostly beech), Severen Dzhendem Reserve, 24 August 1997, V. Fakirova & C.M. Denchev (SOMF 22313), LH-26 (see 11); in a mixed broadleaf forest, Stara Reka Reserve, 23 July 2009, D. Stoykov (SOMF 26277), LH-22; in a beech forest, Tsarichina Reserve, under *Fagus sylvatica*, 15 September 2009, B. Assyov, D. Stoykov & C.M. Denchev (SOMF

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SOMF 26278), KH-64; in a beech forest, Boatin Reserve, under *Fagus sylvatica*, 16 September 2009, B. Assyov, D. Stoykov & C.M. Denchev (SOMF 26279), KH-74.

Eastern Stara Planina Mts: In a beech forest, Sinite Kamani Nature Park, Karandila, under *Fagus sylvatica*, 29 August 2004, B. Assyov (SOMF 26280), MH-13; Sinite Kamani Nature Park, MH-13 (see 12).

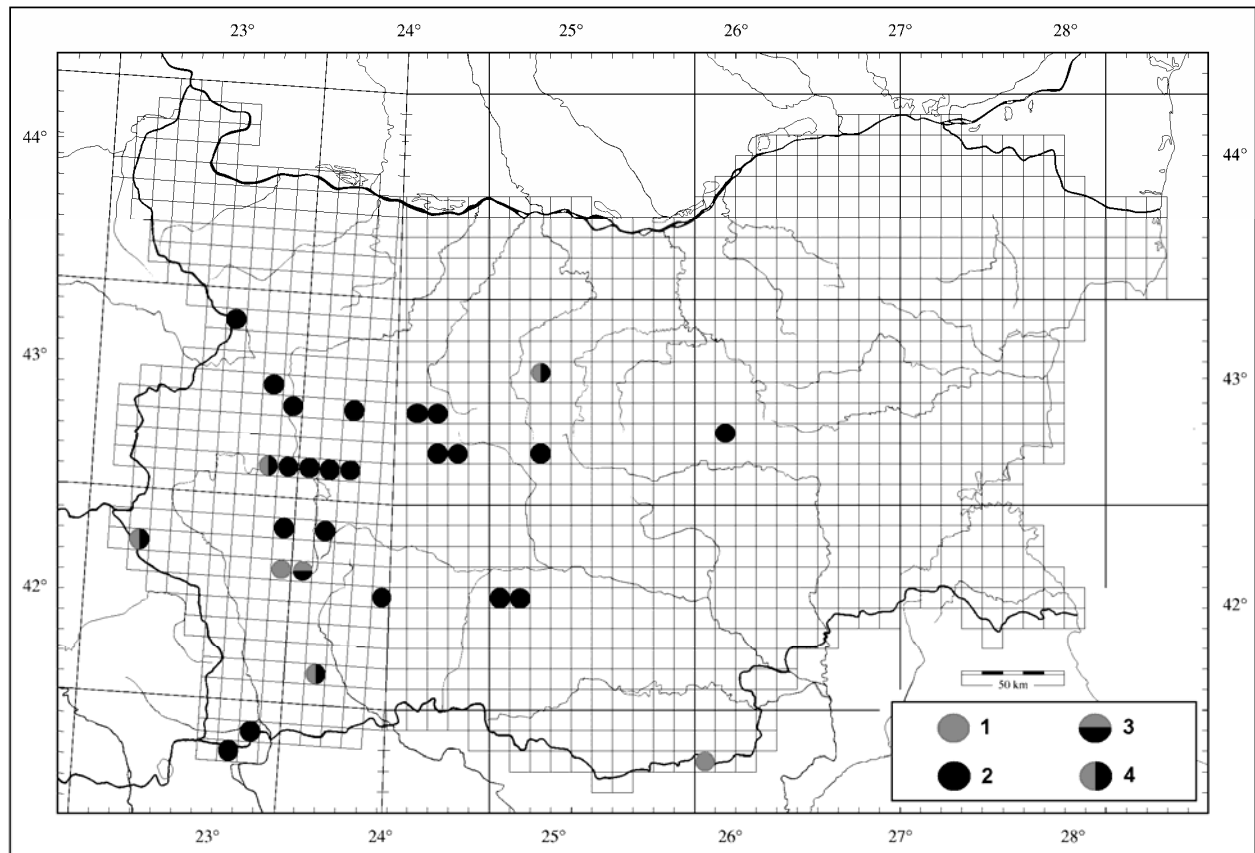


Figure 1. Distribution of *Strobilomyces strobilaceus* in Bulgaria: 1 – records in literature; 2 – unpublished records confirmed by herbarium specimens; 3 – records confirmed by a photograph; 4 – published records confirmed by herbarium specimens.

Vitosha region: Vitosha Mt, Beli Briag locality, in a beech forest, ca 1400 m, 08 September 1951, (see 13), FN-81; Kuminite, in a beech forest, ca 1600 m, 20 August 1967, Cv. Hinkova (SOMF 7009), FN-81; Above the village of Bistritsa, 24 July 2002, D. Stoykov (SOMF 25402), FN-81 (see 14).

West Frontier Mts: Osogovo Mt, above the village of Burnarska Mahala, 07 August 2002, B. Assyov (SOMF 25401), FM-27 (see 14).

Belasitsa Mt: in a sweet chestnut forest with oriental hornbeam above Petrich town, 28 August 1976, G. Stoichev (SOA, s. n.), FL-88; in a sweet chestnut forest with beech above Belasitsa village, Petrich distr., Belasitsa Mt, presumably under *Castanea sativa* Mill. 16 July 2007, B. Assyov (SOMF 26281), FL-77

Western Sredna Gora: in a beech forest, Lozenska planina Mt, above Urvich locality, 10 July 1995, M. Gyosheva (SOMF 21835), FN-91; in a beech forest, Lozenska Planina Mt, Polovrak peak, 06 September 1975, Cv. Hinkova & M. Drumeva (SOMF 10352), GN-01; in a beech forest above Lozen village, 15 July 1975, Cv. Hinkova & M. Drumeva (SOMF 12483), GN-01; in mixed oak forest at Vakarel village, 07 September 1975, S. Vanev, V. Fakirova & E. Dimitrova (SOMF 16246), GN-21; Sredna Gora Proper, above Koprivshitsa town, 15 June 2005, D. Stoykov (SOMF 26282), KH-82.

Eastern Sredna Gora: in a beech forest in Kufarite locality at Dushantsi village, 21 November 1975, G. Stoichev (SOA, s. n.), KH-72 (see 15).

Western Rodopi Mts: above the town of Velingrad, in a beech forest, 20 August 1983, M. Drumeva, G. Stoichev & V. Chalakov (SOMF 9247), GM-45.

Central Rodopi Mts: at Ravnishta chalet, Plovdiv distr., Rodopi Mts, beech and Scot's pine forest, 27 July 1995, G. Stoichev (SOA, s. n.), LG-05; In a beech forest above Brianovshtitsa chalet, Plovdiv distr., 21 August 1982, G. Stoichev (SOA, s. n.), LG-05; In a mixed (Scot's pine and beech) forest at Zdravets chalet, Plovdiv distr. (SOA, s. n.), LG-15.

Eastern Rodopi Mts: Maglenishki Rid, MF-17 (see 16).

Rila Mts: without detailed locality (see 17); In a mixed beech and spruce forest above Borovets Resort, 18 August 1983, G. Stoichev (SOA, s. n.), GM-18; In a beech forest at Klisura village, Sofia distr., under *Fagus sylvatica*, 06 August 2004, B. Assyov (SOMF 26026), FM-98; In a coniferous forest with beech, Rila Mt, at the track between Kirilova poliana and Suhoto Ezero lake, under *Fagus sylvatica*, 25 July 2002, B. Assyov (not conserved, photograph available), GM-26; Rilski manastir Nature Park, FM-96 (see 19).

Pirin Mt, above Breznitsa village, 20 August 1983, M. Drumeva, G. Stoichev & V. Chalakov (SOMF 16875), GM-11 (see 19).

Records of *Strobilomyces strobilaceus* are known from the following floristic regions: Stara Planina Mt, Vitoshka region (Vitoshka Mt), Rila Mt, Southern Pirin Mt, Belasitsa Mt, West Frontier Mts (Osogovo Mt), Sredna Gora Mt and Rodopi Mts. If the administrative division of the country is followed, finds of the bolete are available from Blagoevgrad distr. (Gotse Delchev, Petrich, Rila municipalities), Kardzhali distr. (Krumovgrad municipality), Kyustendil distr. (Kyustendil municipality), Lovech distr. (Teteven and Troyan municipalities), Montana distr. (Berkovitsa municipality), Pazardzhik distr. (Velingrad municipality), Plovdiv distr. (Karlovo and Rodopi municipalities), Sliven distr. (Sliven municipality), Sofia distr. (Gorna Malina, Ihtiman, Koprivshtitsa, Pirdop, Samokov municipalities), Sofia city distr.

DISCUSSION

In Bulgaria up to date there are 30 known localities of *Strobilomyces strobilaceus*,

corresponding to totally 28 UTM-Grid squares (Figure 1). Most of the records are unpublished finds kept in the Bulgarian mycological collections and nearly all records available in the literature are backed up with corresponding specimens; herbarium specimens prevail over reports in the literature. A number of recent findings indicate that this spectacular fungus is probably under-recorded.

The species has been found for the first time in the late 20's of the 20th century (17) but there is a nearly 25 years gap before its reappearance. The chronology of records (one is not dated) shows that the majority of them (31 out of 33 dated) are relatively recent (after 1960). Very few are dated to 50's (2 records) and 60's (1 record), but this number grows up slightly in the 70's (6 records) and 80's (4 records). Only 3 records are made in 1990's, but the extensive search after 2000 has registered 22 records from 21 localities, the majority of these previously unknown. Although theoretically local extinctions are possible (e. g. due to habitat and/or locality destruction) and not easily registered due to the peculiar biology of fungi, the existing information seems to be reliable for this particular species. Nevertheless, unknown up to date localities are likely to occur during further studies.

Observations point out that the species in this country is confined to mountain areas, primarily to beech habitats and only exceptionally found in other broadleaf woodlands. In very few cases it is found in coniferous forests, but presumably under broadleaf trees. Mycorrhizal hosts are likely to be *Fagus* spp., *Quercus* spp. and *Castanea sativa*.

Although present with a number of records and visibly widespread throughout the country, *S. strobilaceus* does not seem to be a common fungus in Bulgaria. Observations confirm it is never abundant and is usually present by single basidiomata in its localities. It is a rare species, that must be further monitored and conscientiously recorded. Its specific appearance makes it easily recognizable even for non-mycologists and this point it out as a suitable species for inclusion in the National Biodiversity Monitoring System.

Acknowledgements. The financial support for the study of the Bulgarian *Boletales*, provided by the National Scientific Fund through grant MU-B-1513/05 is gratefully acknowledged.

Thanks go for the curator of the Herbarium of the Plovdiv University of Agriculture (SOA) for providing access to the collection.

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