

INTERESTING MACROFUNGI IN HUNGARY VII. *BOLETOPSIS LEUCOMELAENA*

G. VASAS

*Department of Botany, Hungarian Natural History Museum
H-1476 Budapest, Pf. 222, Hungary; vasas@bot.nhmus.hu*

Boletopsis leucomelaena, a macrofungus rare in all its range, this time is reported from Hungary for the 3rd time. Surprisingly it was found in acidic beech forest environment, a habitat type not previously reported in references.

Key words: *Boletopsis leucomelaena*, Hungary, red list of Hungarian macrofungi

INTRODUCTION

Discussions on rare and interesting macrofungi collected in Hungary have been presented in several publications (VASAS and ALBERT 1990, VASAS *et al.* 1990, 1991, LOCSMÁNDI *et al.* 1993, VASAS 2002, 2004). The present paper is the seventh of the series, which from its beginning intended to publish data on rare Basidiomycetes included in the red list of the Hungarian macrofungi (RIMÓCZI *et al.* 1999) or suggested for inclusion.

The present article deals with *Boletopsis leucomelaena* (Pers.) Fayod, a species rare in Europe and in its entire range of occurrence, and included among the red listed species in Austria, the Czech Republic, Germany, Poland, and Slovakia (HROUDA 2005a). Similarly, the Hungarian red list of macrofungi (RIMÓCZI *et al.* 1999) also contains it as an endangered (EN, category 2) species. From Hungary, the first reports on this species were very recently published by ALBERT and DIMA (2007) who refer to *Boletopsis leucomelaena* as being found for the first time in Hungary by Vajk Erdei on October 24, 1998 in the Visegrád Mts near Szentendre in acidic *Fagetum* (*Luzulo nemorosae-Fagetum sylvaticae*). The next report is dated as October 5, 2005, when László Albert and Bálint Dima found the species in the same mountain range near the village of Tahi on acidic soil under *Fagus sylvatica* trees in *Luzulo nemorosae-Fagetum sylvaticae*, where sessile oak

(*Quercus petraea*) and Scots pine (*Pinus sylvestris*) were found intermingled with beech (*Fagus sylvatica*). In the same year and month, one day later (October 6, 2005) *Boletopsis leucomelaena* was also found by the author of the present article in the Mátra mountains in acidic beech forest (*Luzulo nemorosae*- *Fagetum sylvaticae*) near Mátraháza. The vouchers of this latter collection are deposited in the herbarium of the Hungarian Natural History Museum (BP).

Boletopsis Fayod 1889

As shown by shifting the genus into various taxonomic entities, the position of *Boletopsis* have been challenged by subsequent authors. BONDARZEW and SINGER (1941) suggested to place it in family Boletopsidae, while Kotlaba és Pouzar moved the genus into Phylacteriaceae (KRIEGLSTEINER 2000). Based on its squared and light-coloured spores and the telephoric acid content of its fruit body however, it is discussed by KRIEGLSTEINER (2000) – in agreement with a number of mycologists – in the family Thelephoraceae. Lately, the genus was again moved, this time into the order Thelephorales within family Bankeraceae, along with the genera *Bankera*, *Phellodon*, *Hydnellum*, and *Sarcodon* (CABI 2008, HROUDA 2005b).

As listed by Index Fungorum (CABI 2008), the genus *Boletopsis* now contains five accepted species as follows, *B. atrara* Ryvarden 1982, *B. grisea* (Peck) Bondarzew et Singer 1941, *B. leucomelaena* (Pers.) Fayod 1889, *B. perplexa* Watling et J. Milne 2006, *B. smithii* K. A. Harrison 1975. Of these, two species occur in the northern hemisphere: *B. grisea* and *B. leucomelaena*; although JÜLICH (1984) questions the existence of *B. grisea* and accepts only *B. leucomelaena* as a definitely “good” species. RYVARDEN and GILBERTSON (1993), however, do see some distinction between the two species by attributing *B. leucomelaena* a dark gray or blackish cap and assigning a calcareous *Piceetum* as its habitat; while *B. grisea* has gray cap and occurs in sandy soils in pine forest. The two species are separated in the same way by HROUDA (2005b).

The species of *Boletopsis* have one-year fruitbody consisting of a stem and a cap-like part. The hymenium structure is monomitic, the generative hyphae are translucent, with thin walls. The spores are squared, translucent, pale brown. These are terricolous mycorrhizal species.

Boletopsis leucomelaena (Pers.) Fayod 1889

A sub-eu-montane species, it is rare in Europe and also in North America, occurring between 200–1,000 m above sea level. Apparently, it is largely missing from Germany, where all documented occurrences are from before 1970. According to KRIEGLSTEINER

(2000) this is due to environmental problems, *i.e.* increasing air pollution, incorrect forest management, and eutrophisation of the upper soil layers.

A comprehensive study by HROUDA (2005*b*) on the genera and species of the family Bankeraceae recorded 64 collections of *Boletopsis leucomelaena* surveyed in various herbaria in Austria, the Czech Republic, Germany, and Poland; additional data of occurrence were also recorded from Denmark, Finland, Norway, Russia, and Sweden. MARCHAND (1976) characterised *Boletopsis leucomelaena* as a very rare species and mentioned records from Estonia, France, Germany, Russia, and Switzerland. A reference to its rare occurrence in North America (California) is found in ARORA (1986).

An analysis by KRIEGLSTEINER (2000) states that *Boletopsis leucomelaena* is a rare Holarctic species having a wide, but highly fragmented distribution and a very sporadic pattern of occurrence from submeridional to boreal areas. Its full range includes northern Asia (Siberia), North America (USA and Canada), the Canary Islands, North Africa (Morocco, Algeria), and Europe. One occurrence in Japan is noted by ARORA (1986).

Spruce forests growing on calcareous bedrock are generally mentioned as habitats of *Boletopsis leucomelaena*, although JÜLICH (1984) made reference to deciduous forests as a rare possibility of occurrence (but without specifying the tree species). According to MARCHAND (1976), Bourdot and Galzin have recorded the species from *Castanetum*.

In light of the above, the significance of findings in Hungary of *Boletopsis leucomelaena* is the unusual habitat type, where the species was found. Contrary to previous records in the literature (calcareous spruce forests as its generally known habitats) in our country, the species was found in acidic beech forest environment, so far on three occasions.

DESCRIPTION

Cap: 4–15(–20) cm wide, at first convex, later depressed at the centre; circular in outline to somewhat irregular, lobate, margin incurved, wavy; surface dry, smooth to fibrillose or breaking up into small scales, specially at centre; colour variable: olive-, bluish- or brownish-grey to brownish or black, darker where handled.

Hymenophore: Pore fine, 1–2 per mm, mostly angular, whitish to greyish, turning grey-brown when dry. Tube 2–5 mm long, somewhat decurrent, not readily separable from the cap context.

Stem: 2–8 cm long, 1–3 cm thick, solid, central or eccentric, equal or with a narrowed base; surface coloured like the cap: grey to olive-brown, smooth to squamulose, the base slightly pointed.

Flesh: In cap 0.5–2.5 cm thick; white to grey, tinged pink-violet; greenish-grey when dry. Taste slightly bitter, odour mild to fragrant.

Spores: 4.7–7 × 4–5 μm, almost round to subglobose, with a nodulose surface, non-amyloid; colourless to slightly brownish.

Spore print: White to pale brown.

Herbarium specimens: Visegrád Mts: Szentendre, *Luzulo nemorosae-Fagetum sylvaticae*, leg.: V. Erdei, 24.10.1998 (AL 98/83), det.: L. Albert. – Visegrád Mts: Tahi,

Luzulo nemorosae-Fagetum sylvaticae, sub *Fagus sylvatica*, *Pinus sylvestris*, *Quercus petraea*, leg. and det.: L. Albert, 05.10.2005 (DB 2490). – Mátra Mts: Mátraháza, *Luzulo nemorosae-Fagetum sylvaticae*, leg.: G. Vasas, 06.10.2005 (BP 98937), 07.10.2005. (BP 98936), det.: G. Vasas.

CONCLUSIONS

Boletopsis leucomelaena, a species everywhere rare in its broad distribution range in the northern hemisphere, has been shown to occur in Hungary, remarkably enough in acidic beech forest environment, *Luzulo nemorosae-Fagetum sylvaticae*, not previously reported from anywhere else, and thus adding notable new data to our knowledge of the distribution and ecology of the species and also enhancing the knowledge of the country's mycoflora.

REFERENCES

- ALBERT, L. and DIMA, B. (2007): Ritka nagygombafajok (Basidiomycetes) előfordulása Magyarországon II. (Occurrences of rare Basidiomycetes in Hungary II). – *Mikol. Közlem., Clusiana* **46**(1): 5–28.
- ARORA, D. (1986): *Mushrooms demystified*. – Ten Speed Press, Berkeley, pp. 556–557.
- BONDARZEW, A. S. and SINGER, R. (1941): Zur Systematik der Polyporaceen. – *Ann. Mycol.* **39**: 43–65.
- CABI Bioscience Database (2008): *Index Fungorum*. – www.indexfungorum.com
- HROUDA, P. (2005a): Bankeraceae in Central Europe. 1. – *Czech Mycol.* **57**(1–2): 57–78.
- HROUDA, P. (2005b): Bankeraceae in Central Europe. 2. – *Czech Mycol.* **57**(3–4): 279–297.
- JÜLICH, W. (1984): *Kleine kryptogamenflora*. Band IIb/1. Basidiomyceten. Teil 1. – Gustav Fischer Verlag, Stuttgart, New York, 268 pp.
- KRIEGLSTEINER, G. (2000): *Die Grosspilze Baden-Württembergs*. Band 1. – Ulmer, Stuttgart/Hohenheim, pp. 489–491.
- LOCSMÁNDI, CS., VASAS, G. and ALBERT, L. (1993): Über interessante Pilzfunde aus Ungarn IV. (Basidiomycetes, Agaricales). – *Studia bot. hung.* **24**: 23–26.
- MARCHAND, A. (1976): *Champignons du nord et du midi*. Tome 4. – Société mycologique des Pyrénées Méditerranéennes, Perpignan, France, pp. 56–57.
- RIMÓCZI, I., SILLER, I., VASAS, G., ALBERT, L., VETTER, J. and BRATEK, Z. (1999): Magyarország nagygombáinak javasolt Vörös Listája (Hungarian red list of macrofungi). – *Mikol. Közlem., Clusiana* **38**(1–3): 107–132.
- RYVARDEN, L. and GILBERTSON, R. L. (1993): *European Polypores*. Part 1. – Synopsis Fungorum Vol. 6, Fungiflora, Oslo.

- VASAS, G. (2002): Interesting macrofungi in Hungary V. Three rare *Russula* species (Basidiomycetes, Russulales). – *Studia bot. hung.* **33**: 65–69.
- VASAS, G. (2004): Interesting macrofungi in Hungary VI. Four rare basidiomycete species. – *Studia bot. hung.* **35**: 59–66.
- VASAS, G. and ALBERT, L. (1990): Über interessante Pilzfunde aus Ungarn I. (Basidiomycetes, Agaricales). – *Annl. hist.-nat. Mus. natn. hung.* **81**: 49–52.
- VASAS, G., LOCSMÁNDI, CS. and ALBERT, L. (1990): Über interessante Pilzfunde aus Ungarn II. (Basidiomycetes, Agaricales). – *Annl. hist.-nat. Mus. natn. hung.* **82**: 61–64.
- VASAS, G., LOCSMÁNDI, CS. and ALBERT, L. (1991): Über interessante Pilzfunde aus Ungarn III. (Basidiomycetes, Agaricales). – *Annl. hist.-nat. Mus. natn. hung.* **83**: 87–89.

(Received 27 March, 2008)