CZECH MYCOLOGY 64(2): 135–140, DECEMBER 7, 2012 (ONLINE VERSION, ISSN 1805-1421)

First record of *Geoglossum uliginosum* (Ascomycota, *Geoglossales*) in the Czech Republic

VIKTOR KUČERA[1*], JAN GAISLER[2]

[1]Institute of Botany, Slovak Academy of Sciences, Dúbravska cesta 9, SK-845 23, Bratislava, Slovakia
viktor.kucera@savba.sk
[2]Crop Research Institute, Department of Plant Ecology and Weed Science, Rolnická 6,
CZ-460 01, Liberec, Czech Republic
jan.gaisler@volny.cz
*corresponding author

Kučera V., Gaisler J. (2012): First record of *Geoglossum uliginosum* (Ascomycota, *Geoglossales*) in the Czech Republic. – Czech Mycol. 64(2): 135–140.

During a field excursions in the Jizerské hory Mts. in 2010 and 2011, we found an interesting taxon of the genus *Geoglossum*. It was later identified as *Geoglossum uliginosum* Hakelier and is characterised by almost black fruitbodies, a viscid stipe becoming shiny after drying, and specific paraphyses. Its characteristic habitats are peat bogs or wet meadows with *Molinia caerulea*, *Carex* spec. div., *Deschampsia cespitosa* and/or *Nardus stricta*, always overgrown with *Sphagnum* sp.

Key words: geoglossoid fungi, biodiversity, Ascomycetes.

Kučera V., Gaisler J. (2012): Prvý nález druhu *Geoglossum uliginosum* (Ascomycota, *Geoglossales*) v Českej republike. – Czech Mycol. 64(2): 135–140.

Počas terénnych exkurzií do Jizerských hôr v 2010 a 2011 sme našli veľmi zaujímavú hubu z rodu *Geoglossum*. Neskôr bola určená ako *Geoglossum uliginosum* Hakelier. Je charakteristická takmer čiernymi plodnicami, lepkavým hlúbikom, ktorý sa po usušení javí ako lesklý a špecifickými parafýzami. Rastie v rašeliniskách alebo na mokrých lúkach s bezkolencom belasím, rôznymi druhmi ostríc, metlicou trsnatou a/alebo psicou tuhou vždy prerastených rašeliníkom.

INTRODUCTION

Geoglossoid fungi (taxa of the genera *Geoglossum*, *Microglossum*, *Thuemenidium* and *Trichoglossum*) are rare fungi almost in all countries of their distribution. Therefore every collection may contribute to better understanding of their distribution, ecological preferences and, of course, their taxonomy. These fungi grow besides pastures, meadows and forests also in peat bogs and waterlogged places. The Red list of Czech macromycetes (Holec & Beran 2006) contains four taxa of this group, *Geoglossum cookeanum*, *G. glabrum*, *Microglossum viride* and *Trichoglossum hirsutum*.

In September 2010 and in August 2011 we collected an interesting *Geoglossum* in a peat bog and wet meadow in the vicinity of the recreation areas Hraničná, Jizerka and Maxov in the Jizerské hory Mts. (northern Bohemia). The fungus was characterised by a distinctly viscid stipe, slender and almost black fruitbodies, which did not match any member of the genus known from the Czech Republic (not even when compared with herbarium specimens).

MATERIAL AND METHODS

The macro-morphological characters of the collections were observed in fresh material. The micro-morphological structures were observed in dried material using a light microscope with an oil immersion lens. Fragments of fruitbodies were examined in 5% KOH, Melzer's reagent and a solution of Congo red in ammonia. Values of micro-morphological characters were evaluated as average plus and minus standard deviation of 30 measurements for each character (minimum/maximum values of the measurements are in parenthesis). Identification and nomenclature is based on Ohenoja (2000). The abbreviations of the herbaria are in accordance with Index herbariorum (Holmgren et al. 1990). Voucher specimens are deposited in the herbaria PRM, BRNM and SAV. Localities are geo-referenced and the coordinates are in given in the WGS 84 coordinate system.

RESULTS

Geoglossum uliginosum Hakelier, Svensk Bot. Tidskr., 61: 422, 1967. Figs. 1–3

Description of studied Czech collections. Ascocarps (30)35.2–62.6(85) mm high, clavate, stipitate, slender, scattered, solitary or in small clusters. Fertile part (5)10.8–20.8(30) × (2)2.4–5.6(10) mm, flattened, lanceolate, black, only occasionally vertically grooved, glabrous. Sterile part (15)21.7–44.3(60) × 1–3(4) mm, delimited from the fertile part, cylindrical, flexuous, black, viscid when fresh, not squamulose, almost shiny after drying [29 fruitbodies examined]. Asci (151)166.6–196.2(190) × (12.7)14.7–18.5(23.8) µm, clavate, apex rounded, in some cases narrowed, 8-spored, pore blueing in Melzer's reagent. Spores (50)62.9–78.3(90) × 5–7 µm, cylindrical, usually slightly curved, tapering towards one end, dark fuliginous, occurring in one cluster in upper part of the asci, usually 7-septate, occasionally 5-, 8- or 9-septate. Paraphyses slightly protruding above the asci, numerous, fragile, cylindrical at the base, brownish in the apical part, up to 9 µm thick, remotely septate, closely septate in apical part, sometimes fuliginous, constricted at the septa. The constrictions often occur only at every

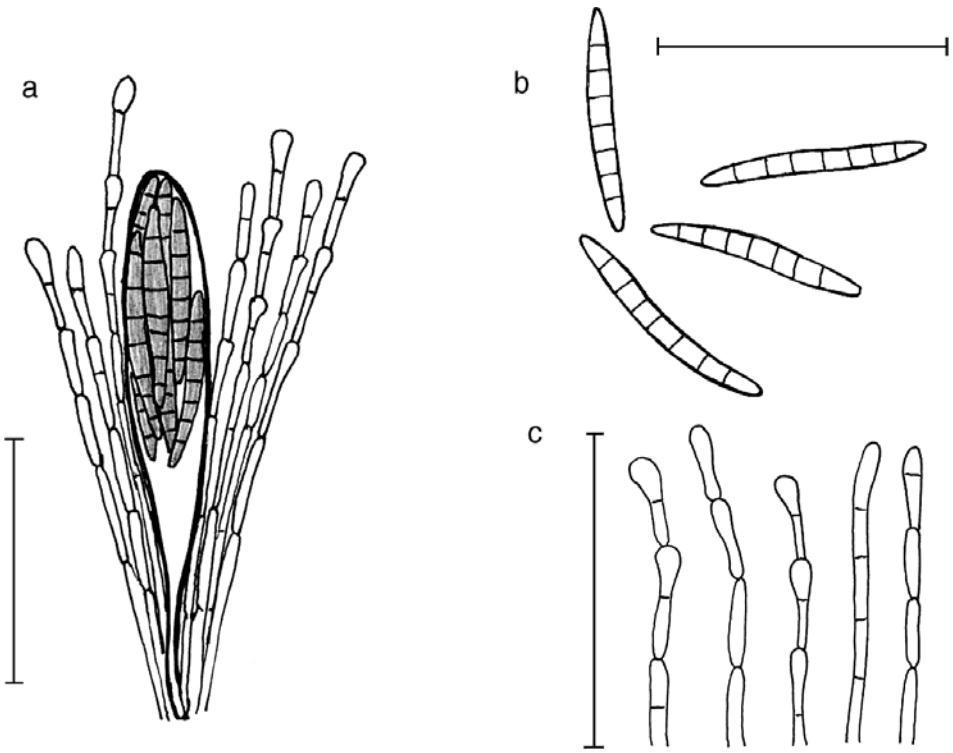

Fig. 1. *Geoglossum uliginosum* line drawings of microcharacters. **a** – ascus with spores and paraphyses, **b** – spores, **c** – paraphyses. Scale bars = 100 µm. Del. J. Gaisler.

other septum. The „barrels" are then formed from two cells; the chains of this „barrels" are easily broken off at the constrictions. The other cell of the barrel can be inflated to a pyriform or globular shape, up to 6–8 µm, especially in the apical part of the paraphyse. In many cases the apical cells are also cylindrical.

Material studied

Czech Republic, Jizerské hory Mts.

Jizerka, NE edge of the settlement, eastern part of the Jizerské hory Protected Landscape Area, margin of bog originally belonging to transitional mires with dominancy of *Carex rostrata* and a well-developed moss floor with *Sphagnum* sp., *Deschampsia cespitosa*, almost overgrown with *Molinia caerulea*, about 0.5 m thick layer of turf, granite bedrock, on gentle SW slope, 50°49'10.958" N, 15°20'59.131" E, alt. 855 m, 10 Aug. 2011, leg. V. Kučera, J. Gaisler, V. Kautman (PRM 860480).

Malá Strana, near the village of Horní Maxov about 5 km NE of Jablonec nad Nisou, southern part of the Jizerské hory Protected Landscape Area, wet, occasionally mowed meadow (transitional peat moors) with dominancy of small *Carex* species, *Nardus stricta*, well-developed moss floor with *Sphagnum* sp., possibly the *Nardus* stage of a *Caricion fuscae* community, granite bedrock, 50°46'0.019" N, 15°11'59.531" E, alt. 720 m, 10 Aug. 2011, leg. V. Kučera, J. Gaisler, V. Kautman (PRM 860478, BRNM 737698, SAV 10531, 10532).

Fig. 2. *Geoglossum uliginosum*, Czech Republic, Jizerské hory Mts., Malá Strana, 7 Aug. 2011. Photo J. Gaisler.

Fig. 3. *Geoglossum uliginosum*, Czech Republic, Jizerské hory Mts., Malá Strana, 10 Aug. 2011, leg. V. Kučera, J. Gaisler, V. Kautman (SAV 10531). Photo J. Gaisler.

Hraničná, near the village of Janov nad Nisou about 3 km N of Jablonec nad Nisou, southern part of the Jizerské hory Protected Landscape Area, permanent wet meadow with dominancy of small *Carex* species, *Cirsium palustre*, *Deschampsia cespitosa*, well developed moss floor with *Sphagnum* sp., granite bedrock, 50°45'46.180" N, 15°09'19.448" E, alt. 525 m, 9 Sep. 2010, leg. V. Kučera, J. Gaisler, V. Kautman (PRM 860479, BRNM 737699, SAV 10201).

DISCUSSION

Distribution

Central Europe. The nearest locality seems to be the Attergau area in Upper Austria where *Geoglossum uliginosum* was collected together with *G. velugelianum* (Palmer 1997). Slovakia (one locality in the Poľana Mts., specimen no. 10162 in the SAV herbarium).

Northern Europe. Sweden (Hakelier 1967; Nitare 1984, 2007; Ohenoja 2000), Norway (Fadnes 2008, Nitare 2007). The species was also reported from Scotland and Northern Ireland, but it is possible that these relate to a different species (Nitare 2007).

All the localities are similar – wet meadows or peat bogs with *Sphagnum* sp., *Eriophorum* sp., *Molinia caerulea* and *Deschampsia cespitosa*. There only seem to be differences in abundance of the mentioned species.

Notes

We examined 29 fruitbodies and the variability of the main characters. The average values of our measurements of asci and spores are higher (166.6–196.2 × 14.7–18.5 µm and 62.9–78.3 × 5–7 µm, respectively) than those given by Hakelier (140–175 × 14.5–17 µm and 60–80 × 4.5–6 µm, respectively). These aberrations fall within the infraspecific variability. Other measurements and observations agree with the original description (Hakelier 1967).

Geoglossum uliginosum is a rare and probably endangered species in the Czech Republic and should be included in the next edition of the Red list of Czech fungi. Due to the relatively high abundance of fruit bodies of fungi on the locations and the relatively large number of collecting sites in a small area, we have decided to propose the "EN" category for it. The fungus is probably overlooked and incorrectly identified, but its occurrence in suitable habitats is currently not seriously threatened. It is red-listed in the "CR" category in Sweden (Gärdenfors 2010).

One should be cautious with identification of this species because *Geoglossum uliginosum* could be easily misidentified as *G. glabrum* Pers., *G. sphagnophilum* Ehrenb., *G. cookeanum* Nannf. or *G. simile* Peck. The most important characters for the identification of our species are the viscid stipe when fresh, which is

smooth and almost shiny when dry, the black colour of the ascocarps, growth on „*Sphagnum* sp. places" and paraphyses with pyriform apical cells. The recent key in Nordic Macromycetes (Ohenoja 2000) is useful but it should be added that the stipe is shiny black in dry condition.

ACKNOWLEDGEMENTS

We would like to thank Václav Kautman for assistance in the field, Johan Nitare for verification of our identification, Vladimír Antonín and Lenka Edrová for help with herbarium specimens (BRNM and PRM), Pavel Lizoň for commenting the manuscript and Lenka Pavlů for help with characterising collecting sites. This study was supported by grant VEGA 2/0062/10 and grant no. MZE 0002700604 from the Ministry of Agriculture of the Czech Republic.

REFERENCES

FADNES P. (2008): Kartlegging av sopfloraen i noen naturbeitemarker i Karmøy kommune 2008 HSH rapport – 2/2008. – http://brage.bibsys.no/hsh/bitstream/URN:NBN:no-bibsys_brage_11012/1/fadnes.pdf. [accessed 11 June 2012]

GÄRDENFORS U., ed. (2010): Rödlistade arter i Sverige 2010 [The 2010 Redlist of Swedish species]. – 590 p. Uppsala. [in Swedish]

HAKELIER N. (1967): Three new Swedish species of *Geoglossum*. – Svensk Bot. Tidskr. 61: 419–424.

HOLEC J., BERAN M., eds. (2006): Červený seznam hub (makromycetů) České republiky [Red list of fungi (macromycetes) of the Czech Republic]. – Příroda, Praha, 24: 1–282. [in Czech with English summary]

HOLMGREN P.K., HOLMGREN N.H., BARNETT L.C., eds. (1990): Index herbariorum 1. The herbaria of the world. – 704 p. Bronx.

NITARE J. (1984): Kartor aver klnda fynd av svarta jordtungor i Sverige [Distribution maps of known records of black earth tongues in Sweden]. – Windahlia 14: 78-94. [in Swedish]

NITARE J. (2007): Åtgärdsprogram för sumpjordtunga 2007-2011 *Geoglossum uliginosum* [Action plan for *Geoglossum uliginosum* 2007–2011]. –http://www.naturvardsverket.se/Documents/publikationer/620-5734-0.pdf. [accessed 11 June 2012] [in Swedish]

OHENOJA E. (2000): *Geoglossaceae* Corda. – In: Hansen L., Knudsen H., eds., Nordic macromycetes, vol. 1, p. 177–183, Copenhagen.

PALMER J.T. (1997): Some rare fungi from the Attergau area, Upper Austria. – Österr. Z. Pilzk. 6: 7–16.