

Notes to the ecology of *Pseudorhizina sphaerospora* (Fungi, Ascomycota) in the Boubínský Prales National Nature Reserve

Jan Holec

National Museum, Mycological Department, Cirkusová 1740, CZ-19300 Praha 9, Czech Republic
jan_holec@nm.cz

Abstract

Four microlocalities of a rare fungus *Pseudorhizina sphaerospora* in the Boubínský Prales National Nature Reserve (Bohemian Forest, Czech Republic) documented in 2010 are published. All of them originate from the core (fenced) area of the virgin forest. The species was found on wood of *Picea abies* and *Fagus sylvatica* in various decay stages, from roots of freshly fallen trunk to strongly decayed wood, both on waterlogged and drier sites. One record is from a waterlogged spruce forest, the habitat not documented before, three others are from herb-rich beech forest with admixed spruce. *Pseudorhizina sphaerospora*, the extremely rare fungus in central Europe, is relatively frequent in the Boubínský Prales virgin forest.

Key words: Czech Republic, Bohemian Forest, virgin forest, habitats, substrates

INTRODUCTION

Pseudorhizina sphaerospora (Peck) Pouzar belongs to the rarest but also best-documented species of fungi in the Czech Republic. It is a species included in the Red book (KOTLABA et al. 1995), the list of fungi protected by law (ANTONÍN & BIEBEROVÁ 1995), and the Red list of Czech macromycetes (HOLEC & BERAN 2006). Complete data on its occurrence in the Czech Republic were summarized by HOLEC & BERAN (2007) and preferred habitats in the Boubínský Prales virgin forest were documented and discussed by HOLEC & KUČERA (2008). In 2010, four microlocalities were discovered. Their location and habitat conditions differ in some aspects from those studied in 2007 (HOLEC & KUČERA 2008). To obtain a more complete view of the ecology and distribution of *P. sphaerospora* in the Boubínský Prales, the microlocalities are described and depicted here.

MATERIALS AND METHODS

Fruitbodies of *P. sphaerospora* were searched for during an excursion to the core (fenced) area of the Boubínský Prales National Nature Reserve held on June 14, 2010, namely to the flat area behind the Boubínské Jezírko water reservoir, the Kaplický Potok stream valley, and neighbouring E and NE slopes. Habitat and substrate conditions of each find were recorded and the microlocalities were located using the touristic GPS device Garmin 60CSx (accuracy 3–10 m). All records were documented photographically and two of them by voucher specimens which are deposited in the Mycological Department, National Museum, Prague (herbarium PRM). The estimation of decay stages follows HEILMANN-CLAUSEN (2001): (1)

fallen trunks covered with bark without visible signs of decay; (2) decay signs indistinct, wood and bark weakly disrupted; (3) decay of wood distinct, bark partially loosening or cracking; (4) wood strongly damaged, soft, but still with visible structure, in major part without bark; (5) rotten to almost humified trunks. The habitats were characterised using the English names published in the Habitat catalogue of the Czech Republic (CHYTRÝ et al. 2010).

RESULTS AND DISCUSSION

Pseudorhizina sphaerospora (Peck) Pouzar

Syn.: *Helvella sphaerospora* Peck, *Gyromitra sphaerospora* (Peck) Sacc., *Helvellella sphaerospora* (Peck) Imai, *Gyromitra gabretae* Kavina, *Ochromitra gabretae* (Kavina) Velen., *Helvellella gabretae* (Kavina) Pouzar et Svrček, *Pseudorhizina sphaerospora* f. *gabretae* (Kavina) Pouzar.

All microlocalities discovered in 2010 originate from the core (fenced) area of the Boubínský Prales National Nature Reserve, i.e., from the virgin forest untouched by man. The finds differ considerably both in the character of the substrate and in some habitat conditions. Details are summarized in Table 1 and discussed below.

Substrates – Three records are from wood of *Picea abies*, the most frequent substrate of *P. sphaerospora*. The record on wood of *Fagus sylvatica* is important. It is the fifth well-documented find on this substrate from the Boubínský Prales (cf. KAVINA 1924, 1926; HOLEC & BERAN 2007) and confirms that the fungus is able to grow on wood of deciduous trees. *P.*

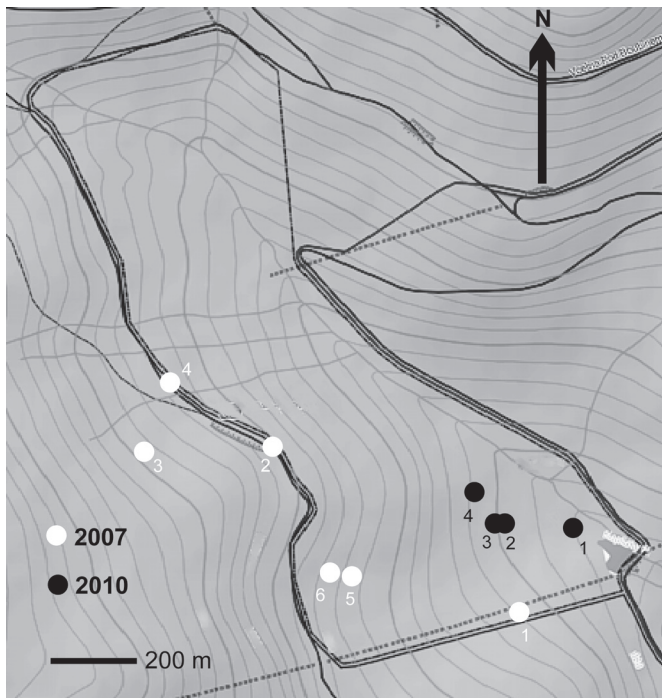


Fig. 1. Microlocalities of *Pseudorhizina sphaerospora* in the Boubínský Prales (fenced core area and its nearest vicinity) found in 2007 (see HOLEC & KUČERA 2008) and 2010 (this paper). The numbers of microlocalities agree with those in the respective publications.

Table 1. Habitat conditions at the microlocalities of *P. sphaerospora* in the Boubínský Prales virgin forest on June 14, 2010.

Microlocality	1	2	3	4
Coordinates	48°58.466'N 13°49.080'E	48°58.468'N 13°48.985'E	48°58.468'N ^{*)} 13°48.976'E	48°58.496'N 13°48.947'E
Altitude (m a.s.l.)	930	950	950	960
Terrain	flat	mild E slope	mild E slope	steep E slope
Habitat	waterlogged spruce forest	herb-rich beech forest	herb-rich beech forest	herb-rich beech forest
Physiognomy of the vegetation	<i>Picea abies</i> (adults around the opened site), <i>Sorbus aucuparia</i> , <i>Fagus sylvatica</i> (juvenils), <i>Sphagnum</i> spp., grasses	<i>Fagus sylvatica</i> (adults, juvenils), <i>Picea abies</i> (adults), almost without herbs, soil covered with fallen leaves	<i>Fagus sylvatica</i> (adults, juvenils), <i>Picea abies</i> (adults), almost without herbs, soil covered with fallen leaves	<i>Picea abies</i> (old adults), <i>Fagus sylvatica</i> (adults, juvenils), almost without herbs, soil covered with fallen leaves
Tree canopy	0% (opened site created by fall of some trees)	90% (continuous forest stand)	70% (dense forest stand)	20% (opened forest stand, created by fall of some trees)
Substrate (tree species)	<i>Picea abies</i>	<i>Picea abies</i>	<i>Fagus sylvatica</i>	<i>Picea abies</i>
Substrate (tree part)	fallen trunk, diam. 45 cm	fallen trunk, diam. 80 cm	broken pieces of wood originating from fallen top of a dead <i>Fagus</i> stump	windfall (trunk diam. 120 cm): roots of freshly fallen trunk, 1–2 m above soil surface
Substrate (decay stage, cover of mosses)	2–3, partly covered with mosses	2–3, completely covered with mosses	5, strongly decayed (soft) wood	1, on roots and surrounding soil
Voucher specimen	–	JH 2/2010 (PRM)	JH 3/2010 (PRM)	–

^{*)} the microlocality 3 is located only 5 m away from the microlocality 2

sphaerospora is indifferent of the wood decay stage as it was found both on roots of freshly fallen trunk and on strongly decayed wood. It confirms the conclusions published before (HOLEC & KUČERA 2008). Wood moisture was not studied exactly, however, the wood was neither dry nor lying in sites exposed to sun.

Habitats – All microlocalities of *P. sphaerospora* studied in 2007 (HOLEC & KUČERA 2008) represent the association *Dentario enneaphylli-Fagetum* (drier sites) and the subassociation *Dentario enneaphylli-Fagetum impatientetosum* (wet sites). The microlocalities 2–4 look analogically and seem to represent the same habitat, namely in its drier variant. The microlocality 1 represents a waterlogged spruce forest, habitat not recorded in 2007 and not mentioned in the Red book (KOTLABA et al. 1995). High soil moisture in spring areas, depressions, and along streams was pointed out as a factor enabling the occurrence of *P. sphaerospora* in concrete microlocalities (HOLEC & KUČERA 2008). It is true for the microlocality 1 (waterlogged spruce forest) and partly also 4 (wet slope). However, the microlocalities 2 and 3 are not waterlogged. Consequently, the high soil moisture is not a decisive factor.

Distribution – The microlocalities found in 2010 are located in a different part of the Boubínský Prales (Fig. 1) than those discovered in 2007 (HOLEC & KUČERA 2008). The microlocality 1 is directly in the area, where *P. sphaerospora* has been found in the past (HERINK 1955; Z. Pouzar, pers. comm.). It confirms the continuity of its occurrence in that area. Considering all recent microlocalities (HOLEC & KUČERA 2008, this paper), it is evident that *P. sphaerospora*, an extremely rare fungus in central Europe, is relatively frequent in the Boubínský Prales virgin forest.

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