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On the occurrence of *Sistotrema confluens* (*Stereales*) in Poland

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The new Polish record of *Sistotrema confluens* Pers.: Fr. provides the back-ground to outlining the morphology (with line drawings of microscopic characters), taxonomy and site conditions of this largely neglected polypore in Poland. The new record of the fungus is an 13. in the country but the first one documented by voucher specimens.

Key words: *Sistotrema, Sistotremataceae, Stereales, Basidiomycetes,* polypores, Błędowska Desert

INTRODUCTION

During algological studies on the Błędowska Desert one of us (J.C.) collected a small pileate fungus with irpicoid-hydnoid hymenophore. Closer examination of this collection has showed that it was *Sistotrema confluens* Pers.: Fr., a neglected polypore in Poland, being observed only by German mycologists in late of 19. century and beginning of 20. century. Skirgiełło (1986) stated that "in none of the country's herbaria the voucher specimens were found (...)" (in free translation). Hence this unexpected finding in southern Poland is interesting and noteworthy.

The aim of the present paper was to describe and illustrate morphological characters of newly found specimens of *Sistotrema confluens*, to discuss taxonomy of the fungus and to show briefly its distribution in Poland. When preparing the synonyms of *S. confluens* we used the database of corticioid fungi made by Parmasto (1997).

DESCRIPTION AND DISCUSSION

***Sistotrema confluens* Pers.: Fr.**

Syst. Mycol. 1: 426. 1821.; *Sistotrema confluens* Pers., Neues Mag. Bot. 1: 108. 1794.; *Hydnotrema confluens* (Pers.: Fr.) Link, Handbuch 3: 298. 1833.; *Irpex confluens* (Pers.: Fr.) P. Kumm., Führ. Pilzk. 49. 1871.; *Hydnum sublamellosum* Bull., Herb. France 7, t. 306. 1787.; *Sistotrema sublamellosum* (Bull.) St.-Amans, Fl. agen. 1821.; *Sistotrema membranaceum* Oudem. non Nees, Jaarverg. Nederl. Bot. Vereen. 32(1) Bijlage: 15. 1879.; *Irpex anomalus* Wettst., Sitzungsber. K. Akad. Wiss. Wien, Math.-nat. Kl. I 94: 62. 1887.; *Corticium rutilans* Bref. non Fr., Unters. Gesammtgeb. Mykol. 8: 6. 1888.

Basidiomes usually pileate and laterally or centrally stipitate, overgrowing mosses, needles of pine and plant debris, sometimes resupinate growing on fallen branches. Pileus spathulate, small, up to 2 cm in diam., whitish to cream coloured, in dry specimens slightly yellowish and very brittle, upper surface finely tomentose. Hymenophore in young basidiomes reticulate poroid, then irpicoid to hydnoid. Smell of fresh basidiomes nice, resembling vanilla. Hyphal system monomitic; hyphae thin-walled, clamped, 2 – 3 μm wide, with numerous oil-drops. Cystidia or other similar elements absent. Basidia urniform with 4 – 6 sterigmata and basal clamp. Basidiospores ellipsoid or suballantoid, smooth, thin-walled, with small apiculus and oil-drop, 5 – 6 x 2 – 3 μm (Fig. 1).

Material examined: Silesian Upland, Garb Tarnogórski hummock: Błędowska Desert near Klucze village, *Leucobryo-Pinetum*, on ground and on thin branch of deciduous tree, 10 Sept. 2001, leg. J. Cabała (KRAM F-51740).

Taxonomy: The genus *Sistotrema* Fr. comprises species mainly with smooth, resupinate hymenophore characteristic for morphological group of corticioid fungi. However, some of them form basidiomes with less or more poroid hymenophore and in Europe four such species are known: *Sistotrema alboluteum* (Bourdot et Galzin) Bondartsev et Singer, *S. confluens*, *S. dennisii* Malençon and *S. muscicola* (Pers.) S. Lundell (Ryvarden and Gilbertson 1994). Within this group, *Sistotrema confluens* is easily distinguished because it forms stipitate basidiomes while the other three have resupinate basidiomes. There are also some differences in shape of basidiospores: in *S. alboluteum* basidiospores are globose, in *S. muscicola* subglobose to ellipsoid, in *S. dennisii* suballantoid. In fact the basidiospores of *S. confluens* are very similar to those of *S. dennisii* but the latter species always forms resupinate basidiomes. Otherwise, it is a great rarity, known only from scattered localities in Denmark, England, Finland, France, Germany, Marocco and Sweden (Eriksson et al. 1984, Ryvarden and Gilbertson 1994, Niemelä et al. 2001). In Poland from the above mentioned poroid species of *Sistotrema*, besides *S. confluens*, is known also *S. alboluteum* (Jülich 1984, Ryvarden and Gilbertson 1994) but this species is probably extremely rare.

Distribution in Poland: The first localities of *Sistotrema confluens* within the borders of the present-day Poland have been found by Schroeter (1889) in the Lower Silesia. He reported the fungus from seven localities: Karczowiska near Lubin,

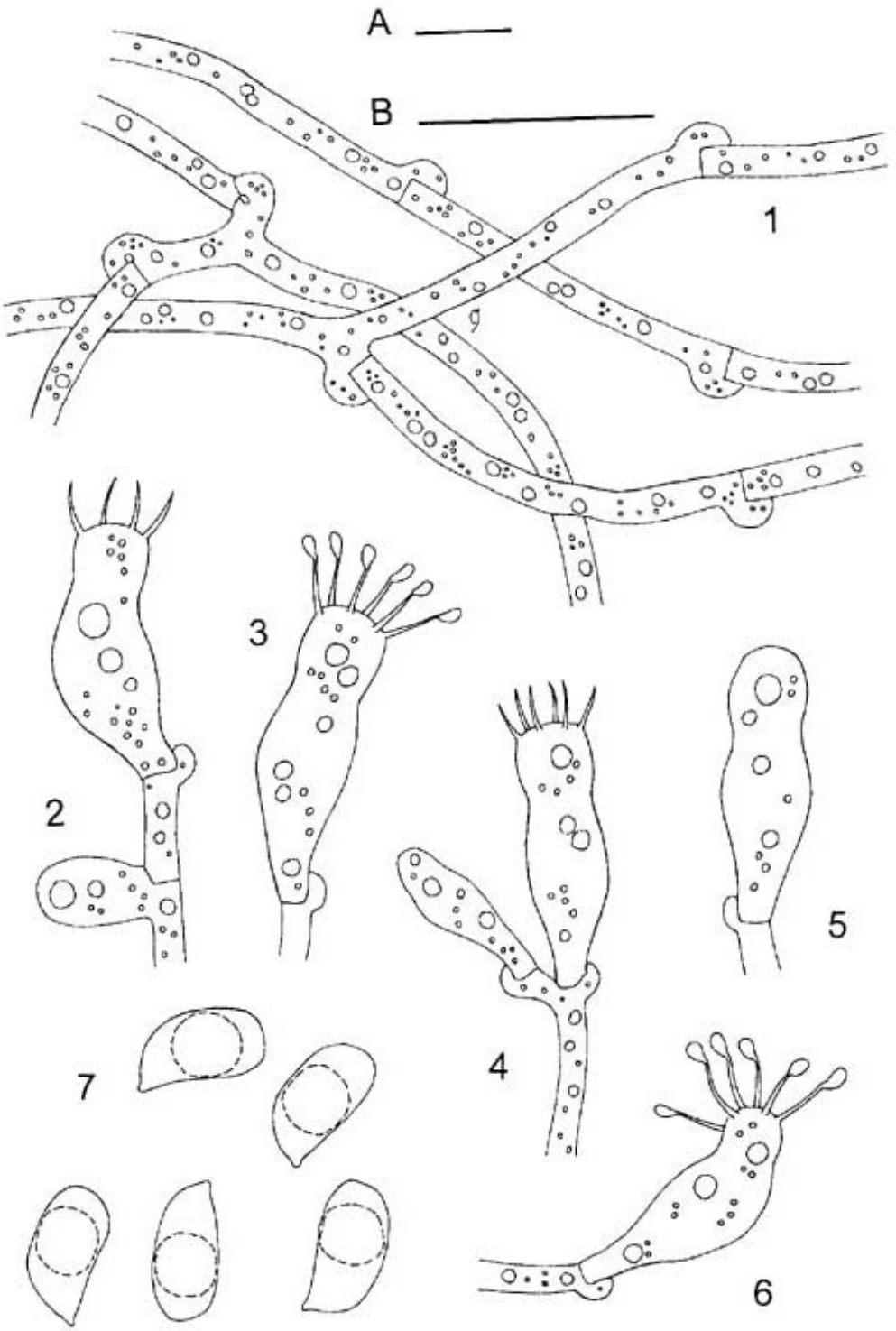

Fig. 1. *Sistotrema confluens*: 1 – hyphae, 2–6 – basidia, 7 – basidiospores
Scale bars: A – 10 μm (1–6), B – 10 μm (7).

Grzybowiec near Jagniątków, Sołtysowice and Strachocin (both now within Wrocław), Jedlina Zdrój near Wałbrzych, Paszków near Bystrzyca Kłodzka and Radków Kamieniołom near Nowa Ruda. Further three sites were known from north-eastern Poland: near Skowronki, near Olsztyn and in Lidzbark Warmiński (Neuhoff 1933), and another two from the Beech Forest near Szczecin, next to the western border of the country (Holzfuss and Kusserow 1935) and from Wałcz (Neuhoff 1928). Since that time the species was not repeated found in Poland, and that is why it was considered as endangered in the country (Wojewoda and Ławrynowicz 1992). This category of threat seems to be appropriate for the fungus. The newly found station on the Błędowska Desert is an 12th Polish locality and the first one documented by voucher specimens.

The Błędowska Desert is situated in the Silesian Upland and is characterized by occurrence of sand-gravel compositions. It is not typical desert in climatic sense, and its origin is connected with the extractive and metallurgical industry started in the region in the Medieval times: the forests turned the main fuel source for metallurgical industry and in consequence the area of the Błędowska Desert was completely deforested. Since 1950s the desert has begun intensive overgrowing by plants and in many places covering by shrubs, groups of trees and small forests. Vegetation, especially several species biogroups (*Pinus sylvestris*, *Salix acutifolia*, *S. arenaria*, *Betula pendula*, *Juniperus communis*), has been covering bigger and bigger surface, and at present surface of effective deflation fields has been shrinking. The existence of the Błędowska Desert is threatened and it can turn out that in several years it will disappear in Poland (Rahmonow 1999, Szczypek et al. 2001).

This unique area may be natural laboratory for studies on various groups of organisms. The flora of vascular plants, plant communities as well as plant succession of the desert are well known (Rahmonow 1999) but its mycobiota still await for detailed investigation. The only exception is knowledge on occurrence of arbuscular mycorrhizal fungi (*Glomales*) in the sand dune soils of the Błędowska Desert; an excellent papers on this group of fungi were published by Błaszkowski et al. (1998, 2002).

The locality of *Sistotrema confluens* was situated in north-eastern part of the Błędowska Desert in pure pine forest (*Leucobryo-Pinetum*) separating northern and southern part of the desert. The basidiomes of the fungus grew on soil (not on naked sand) covered by mosses and lichens, some of them emerged on thin, fallen branch of deciduous tree. The habitat and substrate is typical for this species which usually occur in conifer forests on ground or rarely on dead wood of angiosperms and gymnosperms where it causes white rot (Ryvarden and Gilbertson 1994).

The present discovery confirms the occurrence of *Sistotrema confluens* in Poland. It is likely that further stations in coniferous forests in lowland and upland areas of the country may be detected with more intensive field research. Details of all Polish stations, together with theirs localization in regions and mesoregions as well as the world distribution of *Sistotrema confluens* will be published in the second fascicle of the *Atlas of the geographical distribution of fungi in Poland*.

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Występowanie *Sistotrema confluens* (*Stereales*) w Polsce

Streszczenie

Sistotrema confluens Pers.: Fr. jest w Polsce bardzo rzadkim grzybem podawanym dotychczas tylko przez mikologów niemieckich pod koniec 19. wieku i na początku 20. wieku, w sumie na dwunastu stanowiskach. Według Skirgiełło (1986) w żadnym z polskich zielników nie ma okazów tego grzyba. W 2001 roku podczas badań algologicznych na Pustyni Błędowskiej drugi z autorów znalazł ten gatunek rosnący na ziemi i na opadłej gałązce drzewa liściastego w borze sosnowym (*Leucobryo-Pinetum*) oddzielającym północną i południową część Pustyni. W pracy przedstawiono morfologię znalezionych owocników *Sistotrema confluens* oraz zilustrowano najważniejsze elementy ich mikrostruktury. Od innych europejskich gatunków *Sistotrema* Fr. mających hymenofor poroidalny *S. confluens* odróżnia się kapeluszowatymi owocnikami podczas gdy pozostałe gatunki tworzą wyłącznie owocniki resupinatowe. Prawdopodobne jest, że dalsze badania w borach doprowadzą do znalezienia nowych stanowisk tego zapomnianego w Polsce grzyba.