ASCOCORYNE TURFICOLA (FUNGI, ASCOMYCETES), A SPECIES NEW TO POLAND

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ABSTRACT

Ascocoryne turficola, one of the rarest fungi in Europe, has been recorded for the first time in Poland. Its distribution presented on the map, ecological notes and morphology of ascocarps are based on the authors' own material.

KEY WORDS: fungi, Ascomycetes, Helotiales, peat bog, distribution, NW Poland, Pomerania.

INTRODUCTION

The genus *Ascocoryne* J.W. Groves and D.E. Wilson (1967), anamorph *Coryne* Nees (1816), is included in the order Helotiales and family Helotiaceae (Kirk et al. 2001). The genus is represented by ca. six species known from Europe and North America (Hawksworth et al. 1995). In North and Central Europe the following species have been noted: *Ascocoryne cylichnium* (Tul.) Korf, *A. sarcoides* (Jacq.: Fr.) Groves and D.E. Wilson, *A. solitaria* (Rehm) Dennis and *A. turficola* (Boud.) Korf. Three of them occur on wood, and only *A. turficola* grows among *Sphagnum* on cyperaceous stems. *A. cylichnium* and *A. sarcoides* are widespread fungi, whereas *A. solitaria* and *A. turficola* are very rare species in the whole area of their occurrence (Dennis 1978; Roll-Hansen and Roll-Hansen 1979; Krieglsteiner 1993; Hansen and Knudsen 2000).

In Poland, two species of the genus *Ascocoryne* have been recorded up to now. *Ascocoryne cylichnium* and *A. sarcoides* have been noted from many localities, e.g.: in Pomerania (e.g. Lisiewska 1966; Bujakiewicz 1969; Ławrynowicz and Stasińska 2000), Wielkopolska (e.g. Lisiewska and Płoczyńska 1998; Bujakiewicz and Kujawa 2000), Środkowopolska Lowland and Środkowomałopolska Upland (e.g. Ławrynowicz 1973), Częstochowa Upland (Ławrynowicz 2001), the Białowieża National Park (Chmiel 1997; Skirgiełło 1998), the Ojców National Park (Wojewoda 1974), the Sandomierz Valley (Wojewoda et al. 1999). Recently, in Poland a third species representing this genus, i.e. *Ascocoryne turficola* has been found. It has been noted at four localities in the country.

The purpose of this paper is to present the ascocarp morphology of *Ascocoryne turficola*, ecological notes and distribution in Poland.

MATERIALS AND METHODS

Study material was collected from peat bogs located in Pomerania (NW Poland). For the first time *Ascocoryne turficola* was noted in peat bog of Węgorzówko Lake near Stara Brda in September 1999. Other localities were discovered near Niesporowice, Ścienne and Ziemomyśl in September and October 2002. The description of ascocarp morphology and ecological notes are based on original material.

In order to characterise the ecological conditions, samples of water were collected at three localities: Niesporowice, Ścienne and Ziemomyśl and subjected to analyses. In the samples the contents of the following components were determined: a) N-NH₄ by the distillation method, b) N-NO₃ by the distillation method, c) N-NO₂ by the Griess method, d) P-PO₄ by the colorimetric method with ammonium molybdate, e) pH in H₂O by the potentiometric method (Hermanowicz et al. 1976).

The distribution map was made using the grid square system following the Atlas of the geographical distribution of fungi in Poland (Wojewoda 2000). The specimens were deposited in the Herbarium of the Department of Botany at the Szczecin University – SZUB, Poland.

RESULTS

Ascocoryne turficola (Boudier) Korf

Phytologia 21: 202. 1971.

Sarcoleotia turficola (Boudier) Dennis in Kew Bulletin 25: 345. 1971.

Anamorph: *Coryne turficola* Boudier in Icones Mycologicae 1-4: 451. 1905-1910.

Apothecia 0.5-4.0(5.0) cm broad, ceraceous and turbinate with convex disc when young; then gelatinous, cup-shaped with central depression and tapering base. Hymenium smooth, then gibbous to cerebriform, olivaceous, olivaceous brown to brownish-lilac. Stalk wrinkled, hyaline, vinous-pink to lilac-pink, 3.0-8.0(10.0) cm long (Fig. 1a, b). Solitary, rarely gregarious to cespitose. Asci cylindric-clavate, with amyloid pore, up to $180.0(-185.0) \times 10.0(12.0) \mu\text{m}$, 8-spored. Ascospores non-septate, ellipsoid, hyaline, with drops, $14.0-19.6(-21) \times 5.6-7.0 \mu\text{m}$. Paraphyses slightly, blunt (Fig. 2).

Specimens from Poland are very similar micro- and macroscopically to specimens described by Moser (1963), Dennis (1978) and Hansen and Knudsen (2000). However, some ascocarps, found by us, are greater.

Ecological notes

In Poland *Ascocoryne turficola* was found on the transitory bogs. The chemical properties of the transitory bog water were established as: pH 4.08-5.46; P-PO_4 (mg/dm^3), 0.01-0.14; N-NH_4 (mg/dm^3), 0.56-0.84; N-NO_2 (mg/dm^3), 0.007-0.022; N-NO_3 (mg/dm^3), 0.28-0.42.

Ascocoryne turficola grew among *Sphagnum* on stems of *Carex rostrata* Stokes. In patches *Carex rostrata* co-existed with *Eriophorum angustifolium* Honck., *Oxycoccus palustris* Pers., *Drosera rotundifolia* L. and *Phragmites australis* (Cav.) Trin. ex Steud. The fruiting bodies started appearing from the beginning of September and were noted till the end of October. Usually *Ascocoryne turficola* was growing singly or in groups of few individuals. In the peat bog of the Głowacz Reserve (Ścienne), the fungus occurred not

Fig. 1a, b. Ascocarps of *Ascocoryne turficola*.

Fig. 2. Hymenial structures of *Ascocoryne turficola*: a – asci, b – paraphyses, c – spores.

only singly, but also gregariously or crowded together in clusters. In this peat bog about 70 fruiting bodies distributed over an area of about 500 m² were recorded.

Distribution

In Poland this species has been found in four scattered localities in Pomerania (Fig. 3).

1. Peat bog E and S of Węgorzówko Lake, ca 1.5 km SE of Stara Brda village, grid square Bc31, 30 September 1999, leg. Z. Sotek and M. Stasińska;

2. Peat bog ca 0.5 km N of Ziemomyśl village, grid square Ca18, 15 September 2002, leg. Z. Sotek and M. Stasińska;

3. Peat bog ca 0.6 km SE of Niesporowice village, grid square Ca38, 12 October 2002, leg. Z. Sotek and M. Stasińska;

4. Peat bog of the Głowacz Reserve, ca 2 km N of Ścienne village, grid square Ba89, 14 October 2002, leg. Z. Sotek and M. Stasińska.

The distribution map of *A. turficola* in Poland is incomplete. Their occurrence in other peat bogs seems likely, though this species has not been found there yet.

In Europe *Ascocoryne turficola* was noted in e.g. Great Britain (Dennis 1978), Denmark, Finland, Norway, Sweden (Hansen and Knudsen 2000), the Czech Republic (Kubička 1955), Germany and France (Kriegelsteiner 1993). In fact its precise geographical distribution has not yet been delineated. The fungus is very rare everywhere (Pilát 1969; Dennis 1978; Hansen and Knudsen 2000). In Denmark it is known from only three localities. In Germany it has been recorded at six localities.

Fig. 3. Distribution of *Ascocoryne turficola* in Poland: 1 – peat bog of Węgorzówko Lake (Stara Brda), 2 – peat bog of Ziemomyśl, 3 – peat bog of Niesporowice, 4 – peat bog of Głowacz Reserve (Ścienne).

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