

***Syzygospora lapponica* sp. nova  
(*Syzygosporaceae*, *Heterobasidiomycetes*) from Finland**

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Kotiranta H., Miettinen O.: *Syzygospora lapponica* sp. nova (*Syzygosporaceae*, *Heterobasidiomycetes*) from Finland. *Acta Mycol.* 41 (1): 21-24, 2006.

A new *Syzygospora* species from Finland, *S. lapponica* is described and illustrated. The hitherto collections derive from Finnish Lapland and the species is apparently a mycoparasite of the rare old-growth forest dwelling polypore *Antrodia infirma*. The new species deviates from other species in the genus in having cylindrical, slightly bent spores and having a polypore as the host.

**Key words:** *Antrodia infirma*, Lapland, old-growth forest, *Syzygospora*

## INTRODUCTION

According to the Index Fungorum (2006) the genus *Syzygospora* G. W. Martin contains 15 species of which four have previously been reported from Finland: *S. bachmannii* Diederich & M. S. Christ., *S. mycophaga* (M. P. Christ.) Hauerslev, *S. pallida* (Hauerslev) Ginns and *S. tumefaciens* (Ginns & Sunhede) Ginns (Kotiranta, Larsson 1990; Kotiranta, Saarenoksa 1993, 2000; Kotiranta 2001; Harmaja 2003).

According to e.g., Ginns (1986), Roberts and Hauerslev (1997) or Chen et al. (1998) none of the *Syzygospora* species is known to be a mycoparasite of polypores. Also the spores of most of the species are basically ellipsoid, thus differing from those seen in the new species.

## MATERIALS AND METHODS

Thirty spores per specimen are measured, and the measurements are made in Cotton Blue (CB) or Melzer's reagent (IKI). CB- means that the walls of the cells are not stained by Cotton Blue, and CB+ that they are stained, and IKI- that there is no reaction to Melzer's reagent.

The following abbreviations are used:  $L^*$  = mean spore length,  $W^*$  = mean spore width,  $Q$  = range of the variation in  $L/W$  ratio,  $Q^*$  = quotient of the mean spore length and width ( $L/W$ ). None of the measurements derive from spore print.

Biological provinces and collecting sites in Finland are indicated according to the Finnish national uniform grid system (27°E), as applied to biological material by Heikinheimo and Raatikainen (1981).

***SYZYGOSPORA LAPPONICA* MIETTINEN & KOTIR., SP. NOVA**

Holotype: Finland. Sompion Lappi: Sodankylä, Raitiojätkä, Mikkelinpuro, Kivi-Värrön kummut, pine dominated old-growth forest on poor soil, inside *Antrodia infirma* Renvall & Niemelä on decorticated, fairly advanced decayed, 25 cm thick *Pinus sylvestris*, 67°38'N, 27°20'E, (Grid 27°E:7505809:514633), 3 Oct 2005 *Miettinen 10748* (H).

Fructificatio invisibilis; systema hypharum monomiticum; hyphae fibulatae; cystidia desunt; basidia cylindracea vel sinuosa, tetrasterigmatica; conidia ellipsoidea vel cylindracea, 5–7 X 2.5–3  $\mu\text{m}$ ; sporae cylindraceae, 5–6 X 2  $\mu\text{m}$ .

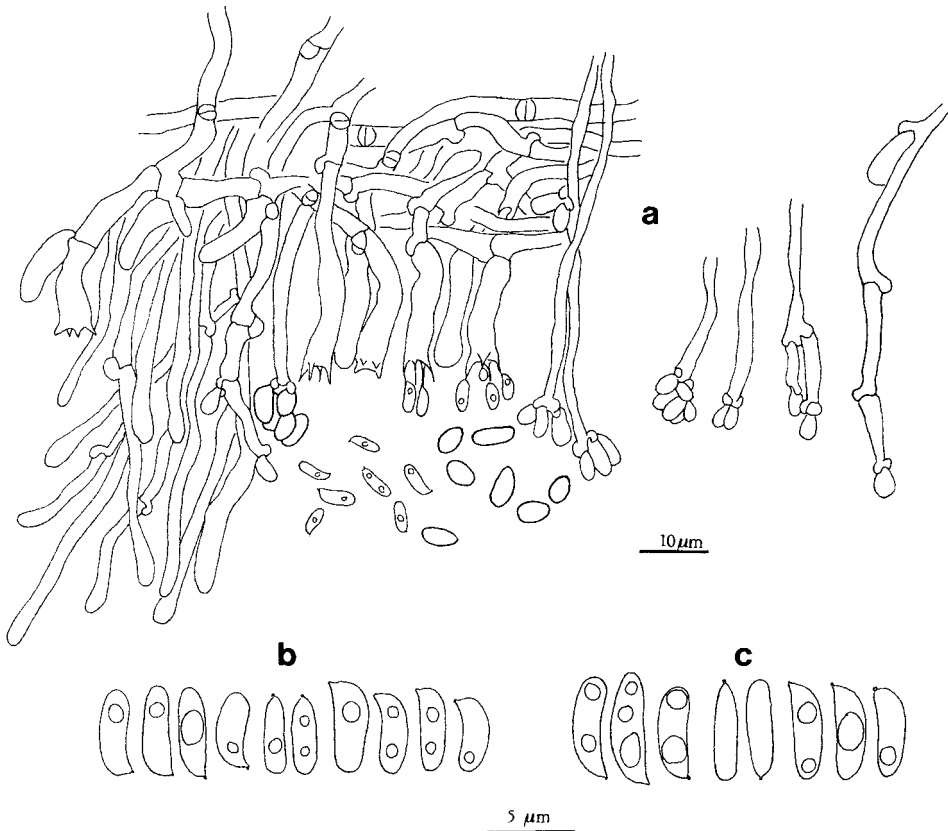


Fig. 1. *Syzygospora lapponica* Miettinen & Kotir. (a – b drawn from *Miettinen 10748*, type, c from *Miettinen 10780*): a – section trough basidiocarp showing a hyphal peg, conidiophores, conidia, basidia and basidiospores; b – spores; c – spores.

Basidiocarp invisible. Hyphal system monomitic, hyphae clamped, in subiculum 2–3  $\mu\text{m}$  wide, thin-walled, in subhymenium 3–4  $\mu\text{m}$  wide, very thin-walled, CB–, IKI–. Cystidia none, but sterile, apically slightly widened hyphal ends form hyphal pegs which penetrate to the tubes of the host. No haustoria observed. Conidiophores abundant, clamped, 2–3  $\mu\text{m}$  in diam., very thin-walled. Conidia born in the apices of conidiophores, ellipsoid or cylindrical, (4.2–)5.7(–7.3) X (2.3–)2.5–3(–3.7)  $\mu\text{m}$ , relatively thin-walled, CB–, IKI–. Basidia solitary between the conidiophores or forming a more or less continuous hymenium, cylindrical or sinuous, basally clamped, very thin-walled, (16–)20–30(–32) X 4–5  $\mu\text{m}$ , with four, up to 4  $\mu\text{m}$  long, very thin, needle-like sterigmata. Spores cylindrical, sometimes slightly bent, 5–6.3(–7) X (1.6–)1.8–2.1  $\mu\text{m}$ ,  $L^* = 5.7 \mu\text{m}$ ,  $W^* = 1.9 \mu\text{m}$ ,  $Q = 2.5–3.7$ ,  $Q^* = 3$ , (Miettinen 10780), 4.5–5.6(–6.2) X 1.7–2  $\mu\text{m}$ ,  $L^* = 5.1 \mu\text{m}$ ,  $W^* = 1.9 \mu\text{m}$ ,  $Q = 2.4–3.3$ ,  $Q^* = 2.7$  (Miettinen 10748, type), with a negligible apiculus, very thin-walled, CB–, IKI–.

Additional specimen examined: Finland. Sompion Lappi: Savukoski, Mukka-joenrovat, Välirova, dry pine dominated old-growth forest, inside *Antrodia infirma* on long time ago burned, heavily charred, decorticated, fairly advanced decayed, 32 cm thick *Pinus sylvestris*, 67°56' N, 28°20' E (Grid 27°E:7540124:555948), 4 Oct 2005 Miettinen 10780 (H).

Material for this study was collected during inventories of unprotected, state-owned old-growth forests in Finnish Lapland. The two hitherto finds derive from pine dominated old-growth forests on poor soils, where they grew inside basidiocarps of the polypore *Antrodia infirma*. These forests with abundance of *kelo* pine trees (Niemelä et al. 2002), dry microclimate and history of forest fires form a special kind of ecosystem that used to typify northeastern Fennoscandian forest landscapes. They harbour a number of specialist species adapted to the harsh ecological conditions such as *A. infirma* and ecologically closely related *A. primaeva* Renvall & Niemelä. Tens of basidiocarps of both *A. infirma* and *A. primaeva* have been studied during these inventories, as well as specimens of *A. crassa* (P. Karst.) Ryvar den, *A. serialis* (Fr.) Donk, *A. sinuosa* (Fr.) P. Karst. and *A. xantha* (Fr.: Fr.) Ryvar den from the same area. With only two finds, it seems that *Syzygospora lapponica* is a rare species, and possibly restricted to *A. infirma* and the dry old-growth pine forests of the north. The host *A. infirma* itself is considered rare and classified as a vulnerable (VU) species in Finland (Rassi et al. 2001). If *A. infirma* is the sole host species of *S. lapponica*, also it should be classified as a threatened species.

**Acknowledgements.** We are grateful to Teuvo Ahti (Helsinki) who helped us with the Latin diagnosis. A research grant from the Ministry of Environment (YM131/5512/2002) helped us to carry out this study.

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z Finlandii

Streszczenie

Nowy gatunek *Syzygospora lapponica* zosta opisany i zilustrowany. Kolekcja pochodzi z Fińskiej Laponii, gdzie grzyb ten występuje jako pasożyt na owocnikach *Antrodia infiryna* w starych lasach. Opisany gatunek różni się od innych z tego rodzaju zarodnikami w kształcie cylindrycznym, lekko wygiętymi oraz występowaniem na poliproidalnym gospodarzu.