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Dedicated to Professor Alina Skirgiełło on the occasion of her ninety fifth birthday

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

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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 S*yzygospora* 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, Raitiojänkä, Mikkelinpuro, Kivi-Värriön 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 μm; sporae cylindraceae, 5–6 X 2 μm.

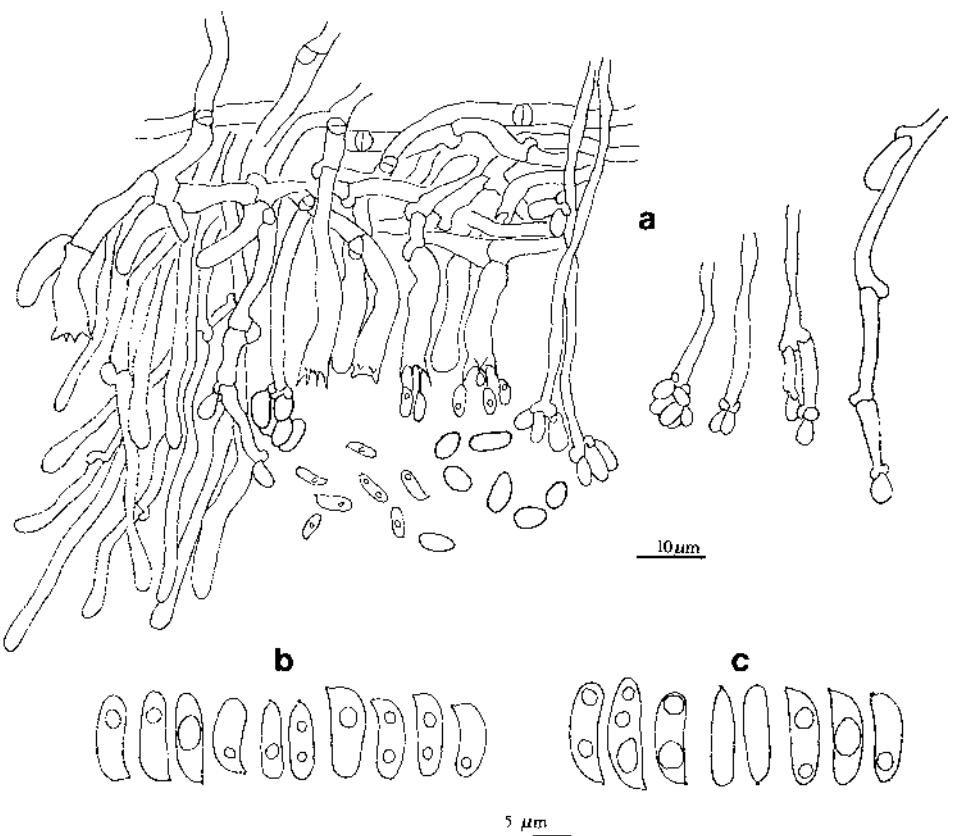

Fig. 1. *Syzygospora lapponica* Miettinen & Kotir. (a b drawn from *Miettinen 10748*, type, c from *Miettinen 10780*): a section trough basidiocarp showing a hyphal peg, conidiophores, conidia, basidia and basidiospores; b spores; c spores.

Basidiocarp invisible. Hyphal system monomitic, hyphae clamped, in subiculum 2–3 μm wide, thin-walled, in subhymenium 3–4 μm 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 μm 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) μm, 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 μm, with four, up to 4 μm long, very thin, needle-like sterigmata. Spores cylindrical, sometimes slightly bent, 5-6.3(-7) X (1.6-)1.8-2.1 μm, L* 5.7 μm, W* 1.9 μm, Q 2.5-3.7, Q* 3, (*Miettinen 10780*), 4.5-5.6(-6.2) X 1.7-2 μm, L* 5.1 μm, W* 1.9 μm, 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, Mukkajoenrovat, 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.) Ryvarden, *A. serialis* (Fr.) Donk, *A. sinuosa* (Fr.) P. Karst. and *A. xantha* (Fr.: Fr.) Ryvarden 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.

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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.