

Collembolispora aristata



Fungal Planet 149 – 20 December 2012

Collembolispora aristata* Marvanová & J.Z. Groenew., sp. nov.Etymology.* *aristatus* (L.) = with bristles.

Conidia isolated from foam according to the methodology of Marvanová et al. (2003). Colonies on malt agar medium fast growing, reaching 25 mm after 20 d at 12 °C, dark grey, reverse black. Aerial mycelium abundant, lanose to funiculose. Hyphae glabrous, hyaline, thin-walled, 1–3 µm wide or dark brown, thicker-walled, up to 5 µm wide. Sporulation initially directly on agar, in subcultures after submergence in standing distilled water at 15 °C within a few days. Conidiophores intercalary, lateral or terminal, simple to profusely branched; stipes, if present, cylindrical or distally slightly widening up to 32 × 1.5–3.5 µm, with branches on various levels along the stipes or in a penicillate head; often concurrent with conidiogenous cells, sometimes verticillate, cylindrical or subclavate, 4–8 × 2–3 µm. Conidiogenous cells subclavate to narrow-doliiform, usually 1–3 per conidiophore branch, polyblastic sympodial, 5–11 × 1.5–3 µm, with one to few denticles at the apex, scars flat. Conidia in slimy masses when formed outside water, appearing in close sequence. Axis 31–46 × 2–3.5 µm, proximal part obclavate and unequilateral, mildly curved or straight, 3(–5)-septate, basal scar truncate, sometimes eccentric, apex with an integrated, setose extension sometimes slightly curved away; branch single (exceptionally two), typically ventral, rarely dorsal, usually arising from the second suprabaasal cell of the axis, often strongly retrorse, but also perpendicular to the axis, straight or often slightly curved abaxially, rarely adaxially, proximal part obclavate, base often slightly sinuous, 16–30 × 1.5–2.7 µm, insertion unequally constricted, distally protracted into setose extension. Some considerably swollen conidia are usually present in submerged cultures after several weeks. Hyphopodia-like outgrowths may appear in aged, submerged cultures on hyphae, and also on conidia.

Typus. CZECH REPUBLIC, South Moravian region, between the villages Ochoz u Tišnova and Lomnice, c. 440 m alt., isolated from foam in an unnamed left tributary of the Křeptovský potok stream (the streamlet is shallow, 80–100 cm wide, slow-flowing, with grasses on the banks and *Typha latifolia* and *Glyceria maxima* in the littoral zone), Mar. 1984, L. Marvanová, holotype CBS H-21090, culture ex-type CPC 21145 = CCM F-01585 = CBS 115662; ITS sequence GenBank KC005789, LSU sequence GenBank KC005811, MycoBank MB491201.

Notes — The hyphomycete genus *Collembolispora* is based on *C. barbata*, isolated from *Alnus glutinosa* leaf baits submerged in a slow-flowing, oligotrophic softwater stream in North Portugal (Marvanová et al. 2003). *Collembolispora aristata* has similar colonies, conidiogenesis as well as conidia like *C. barbata*, but the conidia of the latter differ from those of *C. aristata* by having a branched, terminal, setose extension on the conidial axis and on the conidial branch, and by the presence of a hyphomycetous, phialidic (?spermatial) morph.

Colour illustrations. Left tributary of the stream Křeptovský potok between the villages Ochoz u Tišnova and Lomnice; conidiophores, conidiogenous cells and appendaged conidia. Scale bars = 10 µm.

As far as we know, there is thus far only one other report on conidia of *C. aristata* (Roldán & Puig 1992, f. 3C, as *Gyoerffylla* sp.). These authors collected detached conidia in a stream in the river Esva basin in the Asturias Province of Northern Spain, 285 m alt., in a site where the riparian vegetation consists predominantly of grasses.

Conidia of *C. aristata* resemble those of *Ramulispora bromi*, which is a grass parasite causing spots on *Bromus* spp. In fact the conidia illustrated by Sprague (1950, f. 76), resemble underdeveloped conidia of *C. aristata*, without long extensions. According to Braun (1995), *R. bromi* is an insufficiently known species, with conidia resembling those of *Mycocentrospora* or *Spermospora*. *Ramulispora* is based on *R. andropogonis*, which according to Braun (1995) is a facultative (taxonomic) synonym of *R. sorghi*, based on *Septorella sorghi*. Conidia of *R. sorghi* are filiform to narrow obclavate, sometimes with 1–2 lateral branches. *Ramulispora sorghi* is anamorphic *Mycosphaerellaceae*, *Dothideomycetes* (Crous et al. 2009a, c).

Collembolispora aristata conidia are superficially also similar to those of two *Gyoerffylla* species with single-branched non-coiled conidia (*G. entomobryoides* and *G. tricapillata*). However, members of this holoanamorphic genus have pale colonies and polyblastic, clavate conidiogenous cells, which do not proliferate.

Phylogenetically *Collembolispora* clusters in the *Helotiales*, with the nearest group formed by strains of *Leptodontidium orchidicola*. *Leptodontidium* was established for dematiaceous endophytes in roots of various plants growing in cool soils rich in humus (Fernando & Currah 1995). Based on a megablast search of NCBI's GenBank nucleotide database, the closest hits using the LSU sequence are *Cadophora luteo-olivacea* (GenBank HM116760; Identities = 907/913 (99 %), Gaps = 0/913 (0 %)) and *Mollisia dextrinospora* (GenBank HM116757; Identities = 906/913 (99 %), Gaps = 0/913 (0 %)). Closest hits using the ITS sequence had highest similarity to *Collembolispora barbata* (GenBank GQ411302; Identities = 559/576 (97 %), Gaps = 7/576 (1 %)) and *Leptodontidium orchidicola* (GenBank GU586841; Identities = 555/580 (96 %), Gaps = 10/580 (2 %)).

There is little information on the ecology of species of *Collembolispora*. It is not known whether they should be considered indwellers, residents or transients (in the sense of Park 1972) in the water environment. In both localities of *C. aristata*, *Poaceae* were present on the stream banks or in the littoral zone. Although the occurrence of *Poaceae* at the type locality may support the hypothesis about relationships between *R. bromi* and *C. aristata*, the phylogenetic affinity suggests this not to be the case.