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A new species of *Bloxamia* from freshwater in the Netherlands

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Abstract

Collection of a coelomycete belonging to the genus *Bloxamia,* on submerged stem litter of the Cyperoid plants, *Schoenoplectus lacustris*, *S. tabernaemontani* and *Eleocharis palustris* near Eindhoven, the Netherlands, revealed an undescribed species. The new fungus is described and illustrated herein as *Bloxamia hesterae* sp. nov. and compared with other species in the genus.

Key words – Aquatic fungi – asexual fungi – Europe – helophytes

Introduction

Freshwater habitats around Eindhoven, the Netherlands, have been scarely surveyed for fungi (Shearer & Raja 2014) . *Massariosphaeria fridae* M. Spooren is the only hitherto described taxon from submerged substrates near Eindhoven (Spooren 2007). During studies of freshwater ascomycetes in aquatic habitats near Eindhoven, a species with morphological similarities to the genus *Bloxamia* was encountered on partly submerged Cyperoid helophytes. The taxon is distinct from previously described species of *Bloxamia*, and therefore, described and illustrated here as a new species.

Materials and methods

Fresh, submerged decaying litter was collected in a plastic bag and brought to the laboratory. Crush mounts were made from fresh and air-dried material in 10 % KOH. The slide mount was examined under a Novex microscope (K-series) and a Motic preparation microscope. The photomicrograph was made with a Cmex 1500 scanner. Measurements were made with an image-focus software. The holotype and isotype-materials are deposited in National Herbarium of the Netherlands, Leiden (L) and part material is maintained in the author's personal herbarium.

Taxonomy

Bloxamia hesterae M Spooren **sp. nov.** Figs. 1–5

MycoBank 807930

Holotype – L 0819814

Etymology – hesterae, in memory of Hester (1962–2010), my dear friend who loved sun, sea and flowers.

Saprobic, aero–aquatic, filamentous. Conidiomata 250–500 µm diam., sporodochial, black, superficial, loosely gregarious to scattered, stromatic, cusion-shaped and gelatinous when fresh, and flat, black, corneous and shiny when dry, finally crumbling into a slimy mass. Basal stroma

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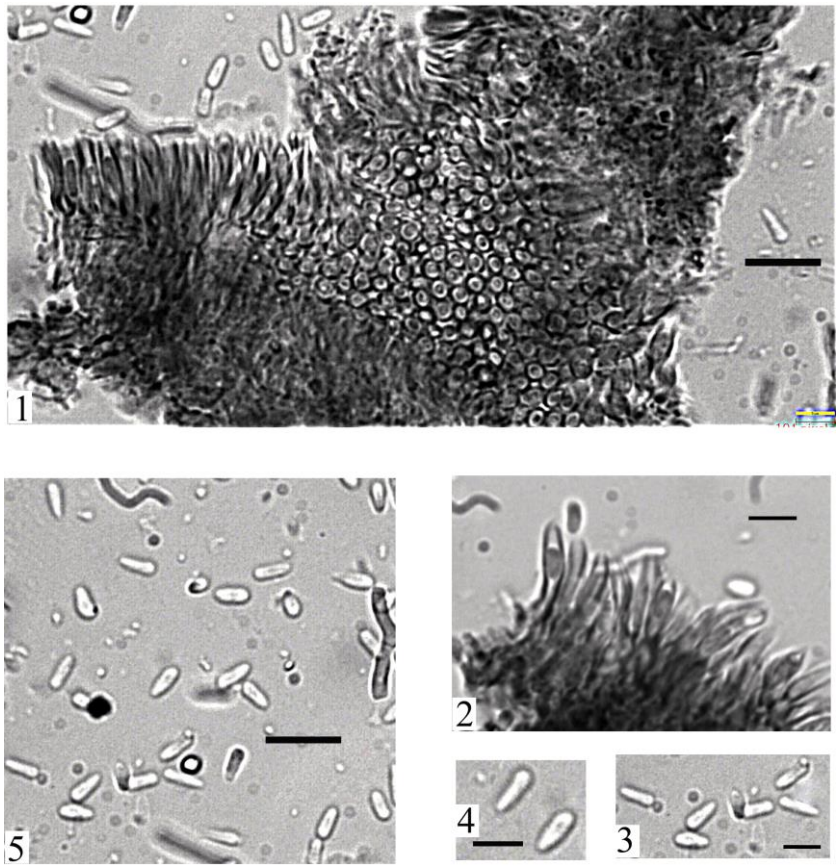

Figs 1–5 – *Bloxamia hesterae.* 1, Part of the sporodochium with conidiogenous cels from aside and above. 2, conidiogenous cells with collarette. 3,4,5 conidia. Scale bars 1= 10 µm, 2–5 = 5 µm.

barely visible due to the opaque and gelatinous sporodochial mass. Conidiophores macronematous, unbranched, densely and parallely aggregated, terminating in integrated conidiogenous cells.

Conidiogenous cells 14–24 µm long × 2–3 µm wide, monophialidic, each with 1 µm wide constriction at the neck and terminating in a tubular, deep collarette 2–3 µm wide × 8–1– µm long. The collarette closed when young, opens to release ripe conidia at maturity. Conidia 5–6 µm × 2–3 µm, endogenous, oblong to clavate, hyaline, aseptate, smooth, slimy. Sexual state unknown.

Specimens examined – Netherlands, Acht, Eindhoven, 23 June 2013, on submerged litter of *Schoenoplectus tabernaemontani*, M. Spooren (L 0819814, holotype; L 0819815, L 0819816 isotypes); Karperven, Eindhoven, The Netherlands, on pieces of floating stems of *Scoenoplectus lacustris*, 29 May 2012 (MS 12051); 14 August 2012 (MS 12143); 16 June 2013 (MS 13103); Eindhoven pool near Eindhoven Airport, on submerged stems of *Eleocharis palustris*, 24 September 2013 (MS 13261); other additional material is maintained in the author's personal herbarium (MS).

Discussion

The genus *Bloxamia* Berkeley & Broome (Berkeley & Broome 1854), typified by *B. truncata* Berkeley & Broome, is characterised by its phialophores, densely aggregated in a black sporodochium and arising from a basal thin, prosenchymatous stroma (Ellis 1971, Pirozynski & Morgan–Jones 1968). The conidiophores are macronematous, erect, cylindrical, septate, sparcely branched, subhyaline, pale brown or brown, forming a palisade over the stroma and terminating in phialides. The conidiogenous cells are phialidic, cylindrical to subcylindrical, with a deep collarette extending from undifferentiated venter. The phialoconidia are endogenously differentiated, short cylindrical to cuboid, oblong with truncate ends, and unicellular, hyaline to subhyaline.(Nag Raj & Kendrick 1975).

These latter authors based their description on two, sporodochial type species, *B. truncata* Berk and Br. (=*B. leucopthalma* (Lev.) Hohn.) and the synnematal species *B. nilagirica* (Subram.) Nag Raj & Kendrick. Another synnematal species, *B. foliicola* Yun L. Liu & Z.Y Zhang, was subsequently described from China, as a leaf parasite (Liu & Zhang 1998).

Three other species are described in *Bloxamia*: *B. bohemica* Minter & Hol.–Jech. (Minter & Holubová.–Jechova 1981), with cylindrical conidiophores and cylindric conidia, isolated from *Pinus* needle litter; *B. cremea* Arambarri, Cabello & Cazau (Arambari et al. 1992), with white sporodochia and cylindrical conidia, from decaying bark of an unknown plant. The closest species to *B. hesterae* is however *B. sanctae–insulae* Coppins & Minter (Coppins & Minter 1981), which has a widened colarette in the conidiogenous cell, but differs in that the conidiophores are less deep, inflated and tapering towards the apex and the conidia are globose or with a very small hilum. *B. sanctae–insulae* has been reported on wood or bark of an unknown tree. Johnston (1988) described a *Chalara*–like asexual state for *Bisporella discedens* (Karst.) Carpenter which he assigned to *Bloxamia* because of the conidiogenous cells develop in sporodochia.

For a comparison see table 1.

Table 1 Comparation of all described *Bloxamia* species.

	Conidiomata	Conidiogenous cells	Conidia
B. nilagirica	Synnematal brown 1120–1260 µm long base 260–380µm apex 140–220µm		Hyaline rectangular 4–5,5×3–3,5µm long and slimy chain
B. foliicola	Synnematal brown 670–860µm long base 46–103µm apex 64–152 µm	Branched cylindrical brown 64–95×10–11 µm	Hyaline nearly square both ends truncate 6–9×5–8 µm dry chain.
B. cremea	Sporodochial white to cream 500–1000 µm	Branched cylindrical dark brown 24–26×2,5–3 µm	Hyaline cylindrical 3–4×1,5 µm long and slimy chain
B. truncata	Sporodochial black 140–180(–500) µm	Simple cylindrical to subcylindrical pale brown 15–32×2–3 µm	Hyaline–subhyaline short cylindrical to oblong rounded apex, truncate base (or both ends obtuse) 2–4(–7) ×1,5–2,5 µm single or easily dispersable chain
B. bohemica	Sporodochial amber, greenish when wet 2000x1000 µm	Simple lageniform pale brown 8–11x1,5–2 µm Collarette: cylindrical 8–11x1,5 µm	Hyaline cylindrical 3–5,5×1 µm in chains
B. sanctae–insulae	Sporodochial brown to black 1500×750 µm	Simple lageniform pale brown 10–14×1,5–2,5 µm Collarette: cylindrical 5–7×1,5–2,5 µm	Hyaline globose or with small hilum 2 µm diam. in chains
B. hesterae	Sporodochial opaque black 250–500 µm diam.	Simple lageniform black 14–24×2–3 µm Collarette: cylindrical 8–10×2–3 µm	Hyaline oblong to clavate 5–6×2–3 single, slimy

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