

Anisomeridium viridescens and *Arthopyrenia callunae*, two pyrenolichens new to Fennoscandia

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Anisomeridium viridescens and *Arthopyrenia callunae* are reported as new to Fennoscandia from south western Norway. They were found in boreonemoral rainforests on smooth bark of *Corylus avellana* and *Calluna vulgaris*, respectively.

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Introduction

Lichens with perithecioid ascomata (‘pyrenolichens’), especially weakly lichenized species, are poorly known in Norway, and Fennoscandia. Several new country records for Norway have been published recently (Nordén et al. 2013, Nordén 2016, Nordén & Jordal 2016). We here report two additional pyrenolichen species as new to Fennoscandia. They were found during a workshop on the lichens and lichenicolous fungi of the boreonemoral rainforests in Hordaland, western Norway, in 2018.

The Species

Anisomeridium viridescens (Coppins) R.C. Harris

(Fig. 1)

Description: Thallus pale yellow-brown. Ascomata 0.10–0.25 × 0.10–0.15 mm, black. Involucrellum brown, distinctly green in KOH. Asci obclavate to cylindrical, 26–45 × 10–16 µm. Pseudoparaphyses thin, slender (±1 µm wide), branching. Ascospores 12–20 × 3–5 µm, hyaline, narrowly ellipsoid-fusiform, 2-celled with the upper cell often longer and wider than the lower, constricted at septum; cells often biguttulate; some older spores warted and brownish. Pycnidia not found.

Our collections match well with the description by Coppins *et al.* (2009) based on material from Great Britain and Ireland.

Ecology and distribution: *Anisomeridium viridescens* was previously found in the UK, in Ireland, the Azores, and in Spain and Austria. It occurs on smooth bark in forest with high humidity, typically on *Corylus avellana*. Our finds were associated with for example *Normandina pulchella*

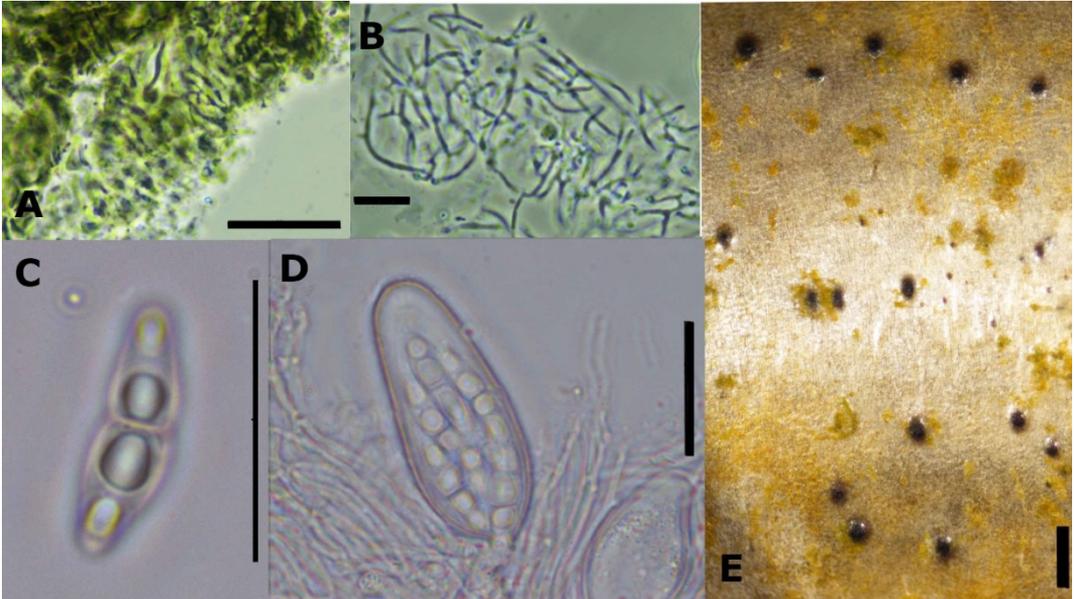


Figure 1. *Anisomeridium viridescens* (A–D in KOH). A: Peridium with KOH green colour reaction. B: Pseudoparaphyses. C: Ascospore. D: Ascus. E: Ascomata. Scale bars: A, C, D: 20 µm, B: 10 µm, E: 0.5 mm. A–B: Valvatnavågen material, C–E: Huglo material. Photos: M. Jäntti.

(Borrer) Nyl., *Thelotrema lepadinum* Ach.) Ach., *Agonimia tristicula* (Nyl.) Zahlbr. and *Graphis scripta* (L.) Ach.

Discussion: *Anisomeridium viridescens* is previously known from smooth *Corylus* bark in Britain, Ireland, Europe and the Azores (Coppins *et al.* 2009), but not from Fennoscandia (Santesson *et al.* 2011). It is an oceanic species and was found by us in western Norway which is part of a humid and oceanic climate zone. Morphologically, it differs from superficially similar *Arthopyrenia* species by the slender pseudoparaphysis. Within *Anisomeridium*, it is most similar to the pantropical *A. tamarindi* (Fée) R.C. Harris, which mainly differs by narrower cylindrical asci, globose conidia and a white thallus. Of species occurring in Scandinavia, it can be confused with the common *A. polypori*, which, however, often have conical pycnidia, slightly wider, 1–3-septate ascospores, and occurs on rough bark of various broad-leaved trees with rich bark.

Specimens examined: **Norway, Hordaland:** Stord, Valvatnavågen, approx. 59°45'40.6"N, 5° 24' 58.0"E (WGS84), alt. 26 m, N-facing slope, deciduous boreal rainforest, on bark of *Corylus avellana*, diameter 6 cm, 2018-05-07, B. Nordén, J.B. Jordal & M. Jäntti, det. M. Jäntti, conf. André Aptroot (O L-223841); Stord, Huglo, Brannvikneset, approx. 59°50'39.7"N, 5°36'17.3"E, alt. 9 m, E-facing slope, on smooth bark of *Corylus avellana* in boreonemoral rainforest, 2018-05-06, B. Nordén & J.B. Jordal, det. M. Jäntti & B. Nordén (O L-223842).

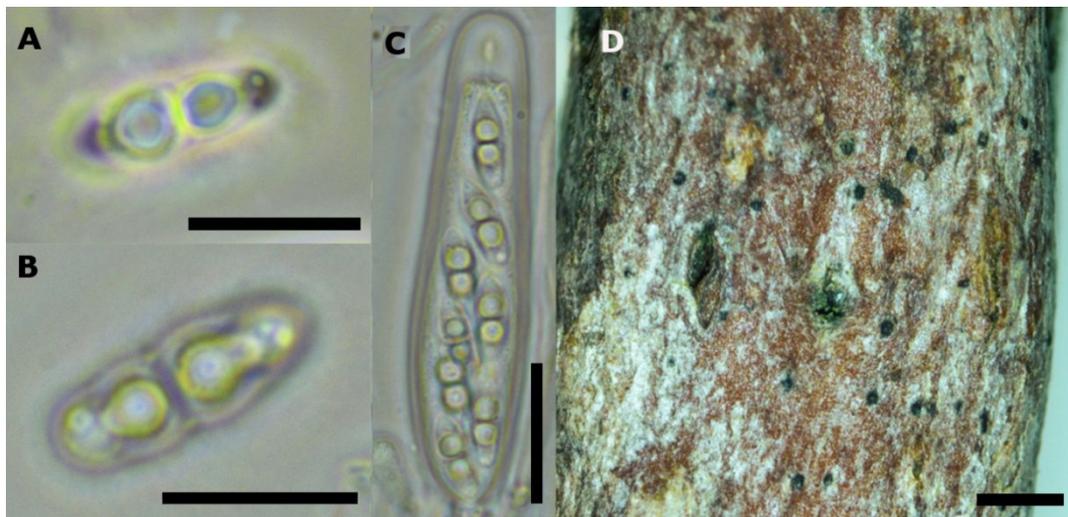


Figure 2. *Arthopyrenia callunae*. A: Ascospore with gelatinous perispore. B: Ascospore. C: Ascus. D: Habitus on corticated stem of *Calluna vulgaris*. A–C in KOH. Scale bars: A, B: 10 µm, C: 20 µm. D: 2 mm. Photos: M. Jäntti.

***Arthopyrenia callunae* (De Not.) Aptroot**
(Fig. 2)

Description: Thallus apparently lacking. Ascomata 0.15–0.25 × 0.15–0.2 mm, shiny black. Involucrellum brown, green in KOH. Asci cylindrical, 50–60 × 11–20 µm. Pseudoparaphyses branching a little, ± 2 µm wide. Ascospores 12–15 × 4–5 µm, hyaline, narrowly ellipsoid, 2-celled, slightly constricted at septum, 1(–2) guttules per cell, a slime perispore visible in KOH.

The collection matches with the description by Aptroot (2006) based on material from the Netherlands.

Ecology and distribution: *Arthopyrenia callunae* was previously found in alpine Italy on *Calluna vulgaris*, and in the Netherlands on the same substrate and on *Pinus pinaster* (Aptroot 2006).

Discussion: *Arthopyrenia callunae* (basionym: *Sphaerella callunae* De Not.) is here reported as new to Fennoscandia (see Santesson et al. 2011). The species is similar to *A. punctiformis* Pers., but differs by the minute glossy ascomata and the smaller ascospores, and by its host choice. The distribution of *A. callunae* is not well studied and the only description in modern literature is by Aptroot (2006). It can be expected to be found in other areas with the same host species, also outside of oceanic areas.

Specimen examined: **Hordaland**, Stord: Valvatnavågen, approx. 59°45'40.6"N, 5°24'58.0"E, alt. 26 m, N-facing slope, deciduous boreal rainforest, corticolous on stem of living *Calluna vulgaris* in *Pinus sylvestris* dominated temperate rainforest, 2018-05-07, B. Nordén, J.B. Jordal & R. Blaaid, det. A. Aptroot & B. Nordén (O L-223843).

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