

Agonimia globulifera new to mainland Norway

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Agonimia globulifera is reported for the first time from mainland Norway. It was collected on bryophytes on shell-sand in Vetvika, Bremanger municipality in Sogn og Fjordane. It may be rare in Norway, but should be looked for on other shell-deposits and in places with calcareous bedrocks.

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Introduction

During an excursion to Vetvika, Bremanger municipality in Sogn og Fjordane in search of rare bryo-phytes, the first author made a collection of small black perithecia overgrowing bryophytes on shellsand. The collection was later determined by the last author as *Agonimia globulifera*. Since it represents the first find on the Norwegian mainland we here report the details of the find together with photos, and discuss its distribution and ecology.

Methods

Macrophotos of the specimen were taken in the lab, using an Olympus TG-5 camera with stacking function. Ascospores were photographed and measured using a digital Nikon camera mounted on a Nikon microscope.

The Species

Agonimia globulifera M.Brand & Diederich

(Fig. 1–3)

Description of the Norwegian specimen: Thallus consisting of minute, inconspicuous granules, greyish green in color. Ascomata perithecioid, 270–410 μm ($n = 10$). Black shiny globules 99–160 μm diameter ($n = 10$). Asci not measured. Hamathecium absent. Ascospores ellipsoid, strongly muriform, with 42–55 visible cells ($n = 10$), 41–54 \times 16–22 μm ($n = 10$). Our observations fit well with the description of the species given by Orange & Purvis (2009).

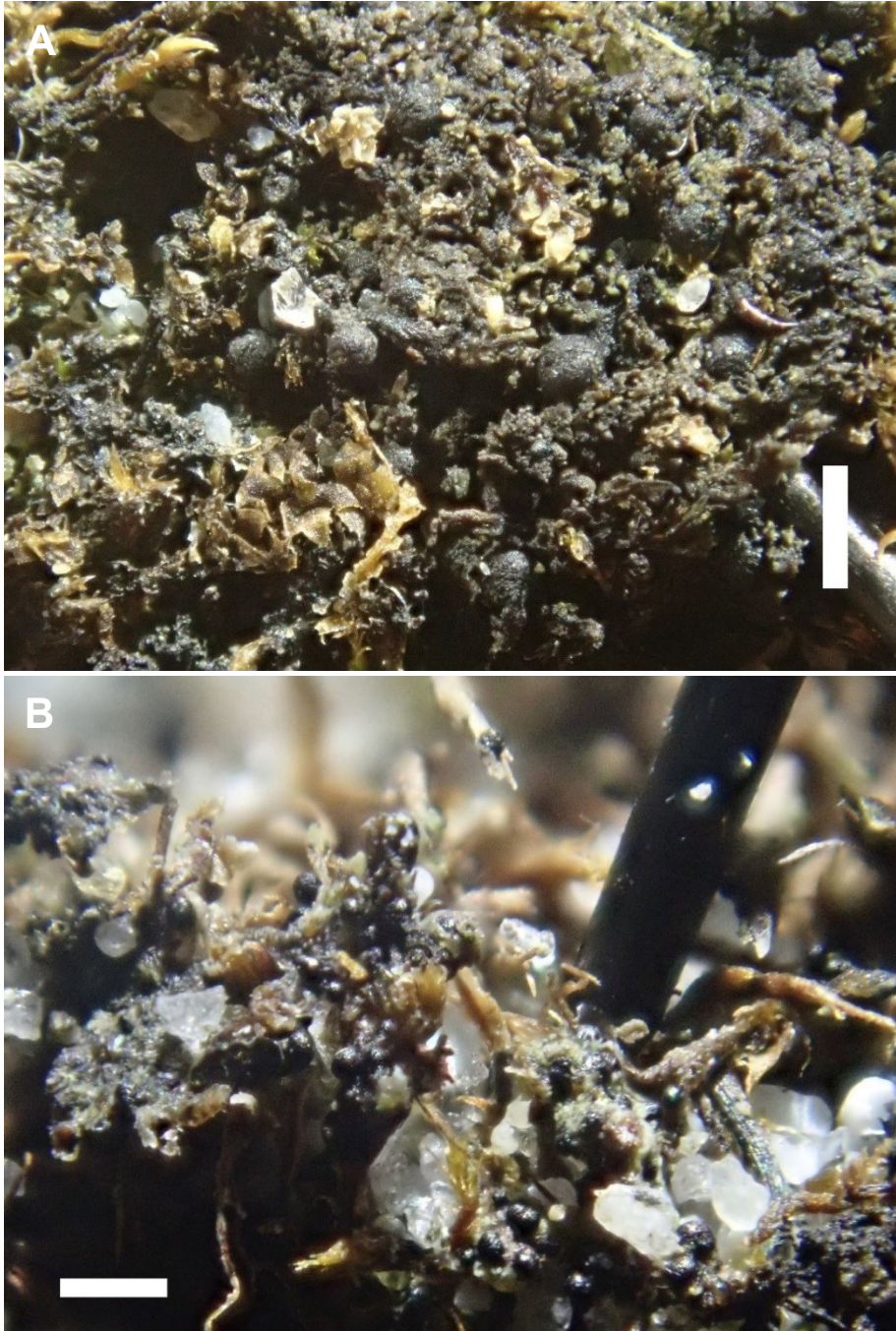


Figure 1. *Agonimia globulifera*. A: Thallus with ascomata overgrowing bryophytes. Scale bar: 1 mm. B: Thallus with black shiny globules. Scale bar: 0.5 mm. Photo: Solveig Haug.

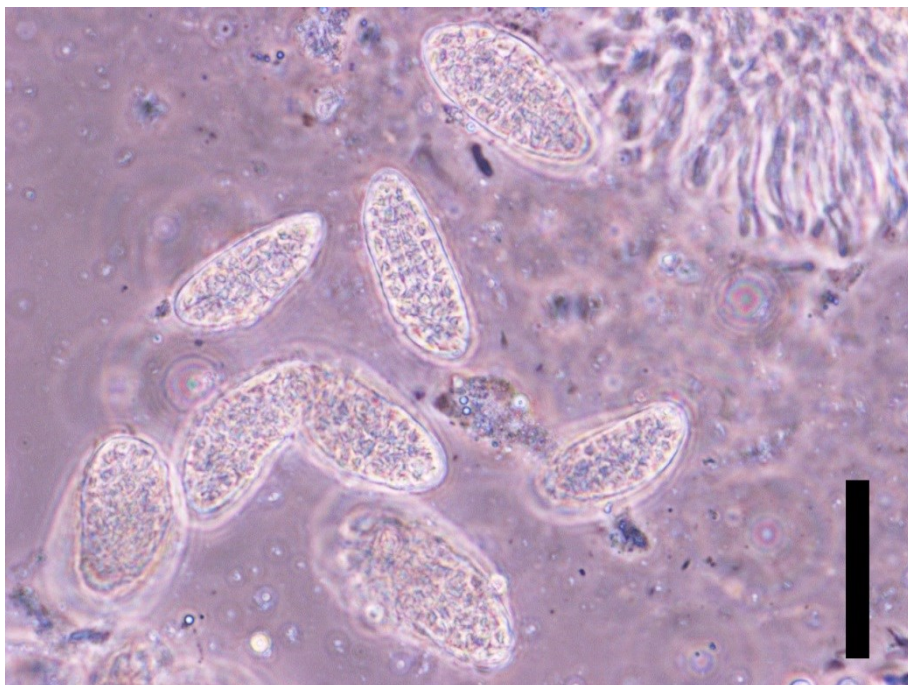


Figure 2. *Agonimia globulifera*. Ascospores in KOH (40 × magnification). Scale bar: 50 µm. Photo: S. Haug.



Figure 3. The site in Vetvika. The red circle shows where the species was found. Photo: Oddvar Olsen.

Specimen examined: Norway, Sogn og Fjordane: Bremanger, Vetvika, 61.5245°N, 4.5524°E, on the bryophytes *Scapania calcicola*, *Distichium capillaceum*, *Tortella tortuosa*, *Sanionia uncinata*, *Encalypta* sp. and cf. *Barbula convoluta* on shell-sand on the ground, alt. 10–15 m, 2014-05-02, O. Olsen, det. B. Nordén (O L-223840).

Discussion

Although small in size, *A. globulifera* is a fairly distinctive species thanks to the presence of glossy sterile globules on the thallus. If these are not observed, it may be confused with *A. gelatinosa*, which has similar sized ascospores. However, *A. gelatinosa* has ascospores with only 16–30 visible cells. It can also be confused with bryophilous *Polyblastia* species, especially *P. nordinii* (ascospores 27–33 × 15–17 µm with 17–21 visible cells), and *P. bryophila* (ascospores 32–38 × 17–23 µm with 25–36 visible cells (Tibell & Tibell 2017). In addition to ascospore differences, all these three species also have a more or less continuous thallus.

A. globulifera is known from several other European countries: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Great Britain, Iceland, Italy, Luxembourg, Spain, Sweden, the Netherlands, Ukraine, as well as from Svalbard (Brackel 2010, Hafellner 2014, Höhne 2018, Vondrák et al. 2010).

Previous finds indicate that the species occurs on bryophytes and lichens in open calcareous areas at mainly low elevations, which agrees with our find on shell-sand on a beach with low vegetation. Due to its restricted habitat, it may be rare in Norway and Scandinavia with its predominantly acidic bedrocks, but it should be looked for on other shell-deposits and in places with calcareous bedrocks.

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