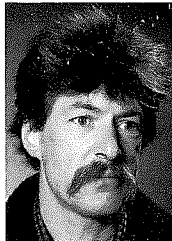


Grimmia meteorae C. C. Townsend new to the Canary Islands, Spain

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GMD



HCG

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Grimmia meteorae, previously known only from its type locality in Greece, is reported from Gran Canaria, Canary Islands. Some amendments to the description are given.

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Grimmia meteorae ранее известная лишь в её типичной местности в Греции, зарегистрирована в Гран Канариа, Канарские острова. Приводятся некоторые исправления к описанию.

While sorting out specimens of *Grimmia* from the Canary Islands we came across two collections of peculiar, more or less water-repellent plants, unlike most European species (Limpricht 1890, Loeske 1930). Careful study of the specimens and a short literature research revealed that they belong to the recently described *Grimmia meteorae* C. C. Townsend (1989). We briefly describe the Canarian plants because the protologue (Townsend 1989) is very condensed and does not enumerate all features of the species correctly, as will be noted in the discussion.

Description

Plants greyish-green to glaucous, pale to yellowish or brown below, in dense hoary tufts, incrustated with debris. *Stem* 0.7–1.2 cm high, branched or with subfloral branches; in cross section in older parts with 1–3 layers of brownish, slightly thickened epidermal and cortical cells, medullary cells thin-walled (5–6 layers), central strand large and distinct (false leaf traces present); rhizoids brown, smooth. *Leaves* (Fig. 1.1–3) erect, imbricate, twisted and slightly secund when dry, erecto-patent when

moist, sharply keeled, ovate-lanceolate, 2.0–2.5 mm long (without hair point), 0.8 mm wide at widest part; margin flat or slightly recurved in lower half of leaf, 2–4 stratoses (Fig. 1.8); nerve strong, protruding at back of leaf, ending in long (1 mm or more) hair point, in cross section near base (Fig. 1.6–7) with 1 layer of large ventral cells, a distinct group of hydroids, 2–5 layers of dorsal stereids, and 1 layer of large dorsal cells; lamina bistratose in upper part, extending downwards in 6–10 strokes or patches to lower 1/4 part, upper lamina cells rounded-isodiametric to rectangular or wider than long, 10–19 μm long, 10–15 μm wide, walls evenly thickened, straight; median cells (Fig. 1.4) like upper cells, 5–18 μm long, 10–18 μm wide; basal cells (1.5) quadrate to short rectangular or wider than long, 10–30 μm long, 15–20 μm wide, walls thin or variably thickened, gradually passing in median cells; marginal cells (Fig. 1.5) not differentiated, except for some basal rows of hyaline cells with thickened transverse walls. *Autoicous*; perigonia near base of perichaetia or terminal or lateral on separate branches, bracts concave, costate, apiculate or acuminate, paraphysis not observed; perichaetia terminal, with 1–2 subgametangial shoots, perichaetial leaves like vegetative leaves, the inner more concave. *Sporophytes* not fully

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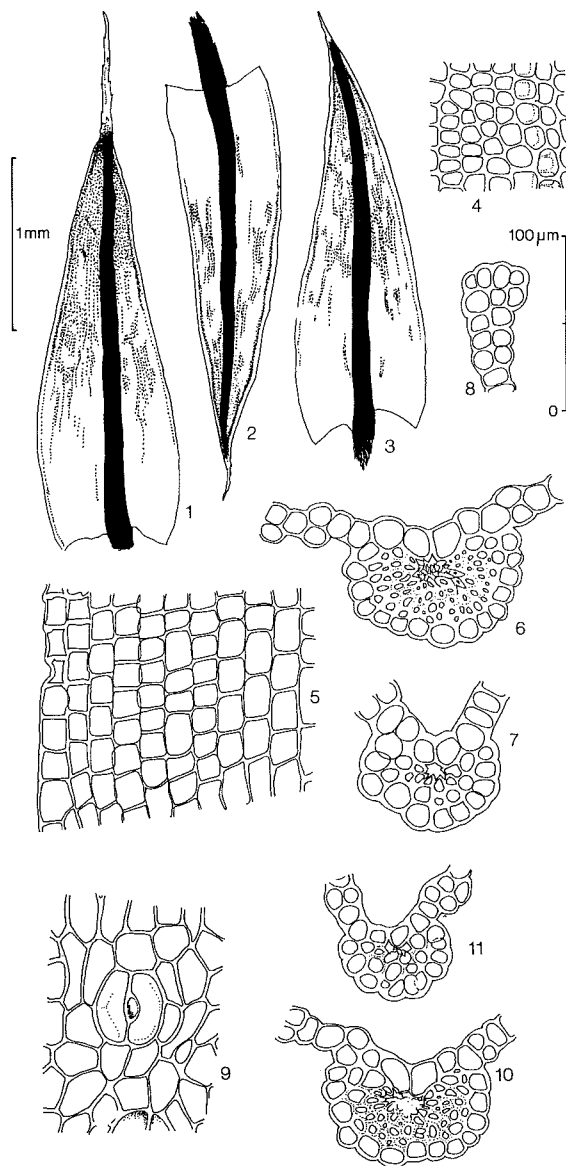


Fig. 1. *Grimmia meteorae* C. C. Townsend: 1-3 leaves, 4 median lamina cells, 5 basal & angular cells, 6-7 cross section of nerve in middle and upper part, 8 cross section of leaf margin, 9 stoma from base of capsule, 10-11 cross section of nerve in middle and upper part. 1-9, drawn from GMD 007246; 10-11, drawn from the holotype.

mature: *Seta* yellowish brown, to 5 mm long, curved when moist; capsule emergent, ovoid, brown, smooth but wrinkled when dry, exothecial cells irregular 15-30 μm wide, to 50 μm long, thin-walled, smaller near mouth, stomata (Fig. 1.9) phaneropore, at base of capsule; peristome reddish to orange, fragmented-perforated in upper 1/3-1/2, with many thin cross walls, smooth; annulus

indistinct; operculum rostrate, straight, seldom conic; calyptra 1.8-2.0 mm long, cucullate. *Spores* rounded, yellowish, 10-15 μm in diameter, smooth.

Gran Canaria: between Pico de las Nieves and Roque Nublo (alt. 1600-1700 m). Low patches in small periodic stream.

Discussion

The most striking feature of this hydrophytic *Grimmia* is its more or less secund, somewhat water-repellent bluish leaves, a bit like those of *Pohlia wahlenbergii* or *Philonotis* spp. This goes along with a highly differentiated nerve with 2-5 layers of dorsal stereids and a large strand of hydroids, which is rare in *Grimmia* (Kawai 1965). In addition, it is characterized by: lamina cells with straight walls; upper lamina bistratose, running down in strokes; basal lamina cells homogeneous; margin 2-4 stratose; autoicous sexual state; seta cygneous; capsule smooth, with basal stomata. This combination of characters is unusual in *Grimmia* species and is only present in *G. meteorae*.

G. meteorae was described from Greece, from a damp stony bank near Kalabaka (Thessaly): leaves secund, with a bistratose upper lamina, running down in ridges; leaf margin 4-stratose; cell walls straight; seta cygneous, and capsule smooth. The protologue also mentions a homogeneous nerve in cross section, a dioicous sexual state, and finely papillose spores (Townsend 1989). These characters are present in the Canarian material, except for the last three (nerve anatomy, sexual state and spore ornamentation).

To clarify the differences, we studied the holotype of *G. meteorae*. This revealed that although stated otherwise in the protologue, the holotype is autoicous: androecia at some distance below the gynoecia were present. The costal anatomy of the holotype is definitely not homogeneous (as stated in the protologue). On the contrary, in cross section (Fig. 1.10-11), the nerve shows 1 dorsal layer of larger cells, 2-4 layers of dorsal stereids, a large, distinct group of hydroids, and 1 layer of large ventral cells. The Greek plants react very slowly to wetting, exactly as the plants from Gran Canaria do. Finally, the holotype appears to have almost smooth spores which certainly may not be called finely papillose ('tenuiter papillosae'), as the protologue does. So our Canarian *Grimmia* and *G. meteorae* are alike in every important character. Hence they should be considered as conspecific.

Townsend (1989) found *G. meteorae* closest to *G. trichophylla* and pointed out some decisive differences: *G. trichophylla* has a thinner leaf margin, lamina cells with sinuose walls, and a capsule with ridges. To these, the dioicous sexual state and the less differentiated nerve with few (if any) hydroids may be added.

As partly bistratose leaves with downrunning bistra-

tose strokes also occur in other autoicous species with keeled leaves (*G. affinis* Hornsch. and *G. sessitana* De Not.) these should also be taken into account. *G. affinis* distinctly differs from *G. meteorae* in a great number of characters, among others its straight seta, its recurved leaf margins, its differentiated basal lamina cells, and its large annulus (Cao and Vitt 1986, Deguchi 1978). *G. sessitana* (including *G. subsulcata* Limpr.) differs from *G. meteorae* in being smaller in most parts: leaves to 1.5 mm long; seta to 2.5 mm long, straight. In addition it differs in the median cell walls which are more or less sinuose; the nerve is less differentiated, it has only 1–2 layers of dorsal stereids and few hydroids (Deguchi 1978, Limpricht 1890).

G. meteorae was up till now only known from its type locality in Greece. Its occurrence on Gran Canaria (Canary Islands, Spain) indicates a Mediterranean distribution.

Specimens examined

G. meteorae

Dirkse, 21 Mar 1989: Gran Canaria (Spain, Canary Islands), between Pico de las Nieves and Roque Nublo, S. of artificial lake; in small periodic stream, alt. 1600–1700 m (Herb. GMD 007246, 007224).

Townsend, 10 May 1987: near Kalabaka (Greece, Thessaly), on damp stony bank near the Varlaam Monastery (holotype, Townsend 87/125, E).

G. sessitana (distributed as *G. subsulcata*)

Culmann, 15 Aug 1907: Obertal Susten, Switzerland (E.

Bauer, Musci Eur. exsicc. 830; L 912, 323–109).

Hagen, 18 Jul 1900: Søndre Trondhjems amt. Opdal

(Musci Norvegici ex herb. I. Hagen; L 910.121–302).

Anzi: Ad saxa micacea in alpihus Bormiensibus (Rabenh.

Bryoth. Eur. 1127; L 910.119–1577).

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