

Grimmia anodon Bruch & Schimper - Bryol. Eur. 3: 110. 1845.

Type: Germany, Heidelberg, leg. A. Braun, lectotype, designated by Cao & Vitt (1986), BM!; syntype, Fichtelgebirge, leg. H.C. Funck, BM!

Synonyms: *Gymnostomum pulvinatum* Hedw., *Anodon ventricosus* Rabenh., *Grimmia alpina* Kindb., *G. dornajii* Höhnel., *G. edentula* Hy, *Schistidium anodon* (B.S.G.) Loeske, *S. confertum* var. *bohemicum* Vilh., *S. tibetanum* J.S. Lou & P.C. Wu, *S. obtusifolium* Ireland & Crum.

Distribution: Afr.1. Am.1,2,4. As.1,2. Austr. Eur.

Description

Grimmia anodon grows in small blackish cushions on dry and sunny basic rock and concrete walls, the leaves are imbricate when dry, erecto-patent when moist, oblong-lanceolate to oblong-obovate, concave-keeled, upper and perichaetial leaves enlarged, the costa projects on dorsal side, hair-points are long and broadly based, smooth to denticulate, margins are plane or \pm recurved below. The distal areolation is bistratose at margins and towards apex, mid-leaf cells are rounded-quadrate with sinuose and incrassate walls, the basal marginal cells are rectangular, the basal juxtacostal cells are elongate-rectangular with thin smooth walls. The sexuality is autoicous, the seta is arcuate, excentrically attached, capsules are usually present, they are immersed, globose, ventricose, gymnostomous, with a mammillate, nearly flat, operculum.

Discussion

Grimmia anodon can usually be found in small, dispersed, blackish patches, in fissures of calcareous rock. In the Netherlands, it was frequently found on concrete walls of bunkers, nearly 1000, built in 1939, as part of the Dutch defence (Greven 1992). The species can be confused with *G. crinita*, *G. plagiopodia* and especially with *Schistidium flaccidum* (De Not.) Ochyra. It differs from *G. crinita* and *G. plagiopodia* in the absence of a peristome and a bistratose upper lamina. The differences with *S. flaccidum* are discussed in Ochyra (1989). This latter species is characterized by short straight setae, leaves sharply keeled above, leaf margins plane at the base but recurved on both sides above. *G. pseudoanodon*, endemic to South America, differs by a straight seta, symmetric capsule, and quadrate to short-rectangular basal juxtacostal cells with incrassate walls (Deguchi 1987).

Specimens examined

Austria: Carinthia, Weiszbriach, alt. 820 m, leg. H.C. Greven, nr. 3012; Hohe Tauern, Heiligenblut, Fr. Jozefshöhe, alt. 2250 m, leg. H.C. Greven; **Crete:** Rethymnion, Mt. Mavri, alt. 1600 m, leg. R. Düll; **France:** Pyrenees, Bigorre, Gavarnie, alt. 1380 m, leg. H.C. Greven, nr. 1980; **Germany:** Düsseldorf, Neandertal, leg. Voitse; Pfaltz, Herxheim, leg. R. Düll, nr. H. 5163; Bavaria, Blaubeuren, alt. 320 m, leg. H.C. Greven, nr. 1982; **Italy:** South Tirol, Cimone della Pala, alt. 2100 m, leg. F. Kern; Val di Snicola, Forignon, alt. 1826 m, leg. H.C. Greven, nr. 1974; Val di Fassa, Campitello, alt. 1690 m, leg. H.C. Greven, nr. 1975; **Scotland:** Edinburgh, Arthurs Seat, leg. J. Sadler; **Slovakia:** Biele Karpaty, Vrsatske Podhradie, leg. H.C. Greven, nr. 1976; Biele Karpaty, Cerveny Kamen, alt. 400 m, leg. H.C. Greven, nr. 1977; Belanske Tatry, Muran, alt. 1560 m, leg. H.C. Greven, nr. 1978, 1979; **Spain:** Pic de Cotaplana, alt. 1200 m, nr. 1981; **Switzerland:** Wallis, Evolène, alt. 1350 m, leg. H.C. Greven, nr. 1970, 1972, 2644; Wallis, Les Haudères, alt. 1470 m, leg. H.C. Greven, nr. 1971; Wallis, Sion, alt. 600 m, leg. H.C. Greven, nr. 1973; **The Netherlands:** Nieuwe Keverdijkse Polder, leg. H.C. Greven, nr. 1983; Polder De Biesbosch, leg. H.C. Greven, nr. 1984; Muiderberg, leg. H.C. Greven, nr. 1985; Utrecht, leg. H.C. Greven, nr. 1986, 1987; Goilberdingen, leg. H.C. Greven, nr. 1988; Biesbosch, Polder De Zuidpunt, leg. H.C. Greven, nr. 1989; Veluwe, De Fransche Berg, leg. H.C. Greven, nr. 1990; **Turkey:** Prov. Sivas, Gürün, alt. 1400 m, leg. Stainton & Henderson, nr. 5260B; Prov. Van, Artos Dagh, Gevas, alt. 3000 m, leg. McNeill nr. 780; Prov. Van, Van alt. 1800 m, leg. McNeill nr. 723; **Russia:** Astrachan, Mt. Bogdo, leg. V.P. Savicz; **Canada:** Alberta, Rocky Mts., Jasper, Whistlet Mt., alt. 2380 m, leg. H.C. Greven nr. 3004, 06-07-1998; Alberta, Rocky Mts., base Mt. Coleman, Icefields Parkway, alt. 1450 m, leg. H.C. Greven nr. 3002, 05-07-1998; Alberta, Rocky Mts., Banf, Sulphur Mt., South Ridge Trail, limestone, alt. 2320 m, leg. H.C. Greven nr. 3000, 03-07-1998; British Columbia, Spences Bridge, south-facing scree, alt. 350 m, leg. H.C. Greven nr. 3000a, 08-07-1998;

References

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- Deguchi, H. 1987. Studies on Some Peruvian Species of Grimmiaceae. *In:* H. Inoue (ed.), Studies on Cryptogams in Southern Peru: 19-74. Tokai Univ. Press Tokyo.
- Greven, H.C. 1992. Changes in the Dutch Bryophyte Flora and Air Pollution.

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Ochyra, R. 1989. Lectotypification of *Schistidium pulvinatum* (Hedw.) Brid.
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