

Grimmia capillata De Not. - Mem. R. Acc. Sc. Torino 39: 248. 1836.

Type: Italy, Sardinia, Cagliari, leg. G. de Notaris, holotype, RO!

Synonyms: *Grimmia crinita* var. *capillata* (De Not.) De Not., *G. mairei* Card. & Coppey, *G. mesopotamica* Schiffn., *G. exquisita* J. Muñoz ;

Distribution: Afr.1. Eur.

Description

Grimmia capillata grows in dense green mats with carinate muticous leaves on short erect stems, mixed with a few long-haired capsule-bearing plants, the leaves are appressed when dry, erectopatent when moist, ovate-lanceolate to obovate, concave, abruptly narrowed at apex, the margins are narrowly recurved, peri-chaetial leaves are much larger, they are obovate-spatulate, concave, the costa is weak below, much stronger above, projecting on dorsal side. hair-points are only present in perichaetial leaves, they are flattened at base and decurrent down margin, terete above, smooth, the margins are plane to slightly recurved. The distal areolation is unistratose throughout, the mid-leaf cells are short-rectangular with sinuose and incrassate walls, the basal marginal cells are short-rectangular, the basal juxtacostal cells are elongate with thin walls. The sexuality is autoicous, and capsules on straight to slightly arcuate seta are usually present, they are emergent, ovoid, sulcate with an obtusely conical to mammillate operculum.

Discussion

The thermophilous *G. capillata*, described from old mortar walls around Cagliari in Sardinia, was later on published as a variety of *G. crinita* (De Notaris 1838). The species is scarcely spread in Mediterranean countries and southern France, growing on old mortar walls, loamy limestone and gypsiferous soils. It is closely related to *G. crinita* and both species may grow in the same habitat. The also thermophilous *G. crinita* has spread up north to The Netherlands, while *G. capillata* has, so far, not been found in North European countries. The species grows in dull-green, dense patches with sparsely fruiting stems, between a mass of short-leaved, muticous vegetative shoots, differing from *G. crinita* by its carinate leaves with recurved margins, hair-pointed only in the perichaetial leaves, and capsules on straight to slightly curved setae. *G. capillata* was recently published from Spain, as *G. mesopotamica*, new to Europe (Guerra et al., 1993). This taxon was described by Schiffner (1913) from samples collected by Handel-Mazetti on banks of the river Euphrate in Iraq. Although Schiffner realized that his moss deviated from *G. crinita*, he did not compare it with *G. capillata* De Not. I have seen the type of *G.*

capillata from RO, and although the stems are longer than I have usually seen in this species, I could find no differences with Spanish material of *G. mesopotamica* from Guerra and other herbarium specimens, stored under this name, so I consider them synonymous. Loeske conceived *G. capillata* as a thermophilous southern variety of *G. crinita*, but the sporophytic and especially the gametophytic characters are so different that I do not hesitate to accept *G. capillata* as a good species. In the spring of 1994, I found it in various localities in the vicinity of Palma de Mallorca, on old mortar walls where *G. crinita* occurred also. Here, I found the differences between *G. crinita* and *G. capillata* much more prominent than those between *G. orbicularis* and *G. pulvinata*, which also occur on these walls. The species is syntaxonomically known from the *Grimmia mesopotamicae-Tortuletum obtusatae*, an association described by Frey & Kürschner (1992) from brown-red sandstones around the Dead Sea and the Edom mountains in Jordan. Recently, *G. mesopotamica* was redescribed as *Grimmia exquisita*. The redescription was based upon two herbarium samples, one from Turkmenistan, identified as *G. mesopotamica*, and one from Tajikistan, identified as *G. crinita* (Muñoz 2002). In the protologue, *G. exquisita* is predominantly contrasted with *G. pulvinata* and *G. orbicularis*, taxa that belong to a group with clearly exserted capsules on arcuate setae. Because leaves and capsules of *G. exquisita* corresponds in all aspects with the type specimens of *G. capillata* and *G. mesopotamica*, it is herewith put in synonymy with *G. capillata* De Not.

Specimens examined

Algeria. Sahara, Biscra, Col de Sfa, H. Winter s.n.; Virgavel, close to Bani Oussif, Schuster s.n.; North Sahara, 30 km north of Laghouat, Frahm s.n.; **France.** Arles, Pont du Crau, Greven 2044, 3594, 3596-3599; between Montelimar and Crest, Cléon d' Andras, Greven 3595; Montélier, 10 km east of Valence, Greven 3600; Aix en Provence, Avignon, Amann s.n.; N113 to Nîmes, 9 km west of Lunel, St. Bres, Greven 3601; Gallarques le Montueux, 20 km southwest of Nîmes, Greven 3602; **Israel.** Negev, Maale Arod, South of Har Ramon, Frey & Kürschner 3413; **Italy.** Sardinia, Cagliari, De Notaris, (**type of *Grimmia capillata* De Not., RO**); Sicily, Enna, alt. 1000 m, La Giudice s.n.; **Jordan.** Jordanian desert, Biquat Hurequanya, alt. 140 m, Herrnstadt s.n.; Kerak, Wadi Arava, Fenan, Ras-en Naqab, alt. 200 m, Frey & Kürschner 4605; Kerak, Wadi Dana, footpath to Dana, alt. 700 m, Baierle & Kürschner s.n.; Edom, road Fenan to Petra, alt. 300 m, Frey & Kürschner 3679; **Morocco.** Haut Atlas, along S 501 to Tizi-n-Test, alt. 1315 m, Greven M102; Haut Atlas, along S 501, Tafinegoult, alt. 1165 m; Haut Atlas, along S 501, Tachguette, alt. 1315 m, Greven M 104; **Spain.** Prov. of Zaragoza, Caspe, Ceiton, Greven 3147; El Tablazo, Tabernos, Guerra, Martinez & Ros, 4505; Mallorca, Son Bauza,

alt. 120 m, Greven 2819; Mallorca, Esporlas, Greven 2818; Mallorca, Sa Torre, Greven 2816; Mallorca Son Español, Greven 2817; Mallorca, Establiments, Greven 2815; **Syria**. Mesopotamia, prope vici ruinas Gharra, alt. 500 m, Handel-Mazetti 1778 (**type of *Grimmia mesopotamica* Schiffn.**); Between Palmyra and Der-ez Zor, alt. 600 m, Frey & Kürschner 7182; Jezire region, Jebel Abdel Aziz, West of al-Hasseke, alt. 600 m, Frey & Kürschner 7215, 15-08-1983 (*locus classicus of *Grimmia mesopotamica* Schiffn.*); **Tunisia**. Qued Seldja, 15 km north of Metkabni, alt. 200 m, Balázs & Pócs 117a; **Turkmenistan**. Chardzhou Oblast, South Eastern Karakumy, Kelifsky Uzboj, Iljin s.n. (**isotype of *Grimmia exquisata* J. Muñoz.**)

References:

- Erdag, A., H. Kürschner & G. Parolly. 2001. Three new records of the bryophyte flora of Turkey. *Nova Hedwigia* 73: 239-246.
- Greven, H.C. 1995. *Grimmia* Hedw. in Europe. Backhuys Publishers, Leiden, The Netherlands.
- Loeske, L. 1930. Monographie der Europäischen Grimmiaceen. Nägele, Stuttgart.
- Muñoz, J. 2002. *Grimmia exquisita* (Musci, Grimmiaceae), a new species from central Asia. *Journal of Bryology* 24: 315-318.