

Grimmia navicularis Herzog - Beih. Bot. Centralbl. 26: 65. 1909.

Type: Bolivia, Cochabamba, Abra de San Benito, 3900 m, January 1908, leg. Th. Herzog, lectotype, designated by Deguchi (1987), JE!; syntypes (Cochabamba: über dem Tunarisee) JE, PC.

Synonyms: *Grimmia chilensis* Thér.

Distribution: Am.4,6

Description

Grimmia navicularis forms olive-green to reddish-green dense patches, the leaves are appressed when dry, erect when moist, lanceolate to ovate-lanceolate, acute, strongly keeled and channeled above, the costa is stout, projecting on dorsal side, the hair-points are short, terete and smooth, the margins are recurved to \pm mid-leaf on one side, plane on the other side. The distal areolation is unistratose with bistratose ridges, the margins and apex are bistratose, the mid-leaf cells are isodiametric to rectangular with sinuately incrassate walls, the basal marginal cells are rectangular with thickened transverse walls, the basal juxtacostal cells are rectangular, the longitudinal walls are thin and straight, occasionally slightly incrassate and nodulose. The sexuality is dioicous, and capsules on straight to weakly arcuate setae are occasionally present, they are exserted, oblong-ovoid, and smooth with conical to rostellate operculum.

Discussion

Grimmia navicularis is endemic to the South American Andes. In 1999, I found it in Bolivia (Sucre, Cordillera de los Frailes), commonly occurring on sandstone between 3500 and 4500 m. By its habit and small, carinate leaves with short hair-points, combined with a yellowish areolation, the plants are very similar to *G. elongata*, differing by quadrate to short-rectangular mid-leaf cells and basal marginal cells with thickened transverse walls. Larger specimens come close to *G. fuscolutea*, but this species is autoicous, as usual provided with capsules on distinctly arcuate setae, and the basal leaf pattern is uniform with hyaline, elongate, thin-walled cells.

Specimens examined

Bolivia. An Felsen in der Blockhalde über dem Tunarisee, alt. 4400 m, leg. Herzog nr. 66, Januar 1908, L!; An Felsblöcken beim Tunarisee, leg. Herzog nr. 4913, Mai 1911, L; Chacaltaya, northeast of La Paz, alt. 5000 m, leg. M. Kuc, 15-01-1984; Sucre, Cordillera de los Frailes, alt. 3550 m, leg. H.C. Greven nr. Bol. 38, 39, 40,

27-05-1999; La Paz, above Ventilla, along Takesi trail, near pass, alt. 4520 m, leg. H.C. Greven nr. Bol. 42,43, 44,46, 06-06-1999; La Paz, Takesi trail, Laguna Loro-Kheri, alt. 3960 m, leg. H.C. Greven nr. Bol. 34,45, 06-06-1999; **Bolivia:** road Cochabamba – Oruro, boulder along road, alt. 4100 m, leg. H.C. Greven nr. Bol. 60, 15-05-2005; Cochabamba, along road 4, Arque 60 km west of Cochabamba, leg. H.C. Greven nr. Bol. 61, 15-05-2005; La Paz, road nr. 3, just below La Cumbre, alt. 4200 m, leg. H.C. Greven nr. Bol. 62, 21-05-2005;

Venezuela

Estado Mérida, Laculata, 30 km northeast of Mérida, alt. 3250 m, leg. H.C. Greven nr. Ven. 25, 11-01-2004; Estado Mérida, Paso del Condor, alt. 4050 m, leg. H.C. Greven Ven. 20, 21, 22, 23, 24, 16-01-2004;

References:

- Deguchi, H. 1984. Studies on some Patagonian Species of Grimmiaceae.
In: H. Inoue (ed.), Studies on Cryptogams in Southern Chile: 17-72.
Kensei-sha, Tokyo.
- 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.