

The rediscovery of *Tortella limbata* (Pottiaceae)

KATIA CEZÓN AND JESÚS MUÑOZ

Real Jardín Botánico, Plaza de Murillo 2, E-28014 Madrid, Spain.

e-mails: kcezon@ma-rjb.csic.es; jmunoz@ma-rjb.csic.es

ABSTRACT. The rare moss, *Tortella limbata*, previously known only from the type locality on Grand Canary Island (Canary Islands, Spain), and misjudged as a synonym of *Trichostomum brachydontium*, is here reinstated, reported from La Gomera (Canary Islands) and the Madeira Archipelago (Portugal), lectotypified, described and illustrated.

KEYWORDS. Bryophyta, endemism, Macaronesia, Pottiaceae, *Tortella*, Canary Islands.



In the course of a collecting trip to La Gomera (Canary Islands, Spain) organized by the Spanish Bryological Society, we found a *Tortella* previously unknown to the island. After a perusal of the relevant literature on Macaronesian mosses (Dirkse et al. 1993; Geheeb & Herzog 1910; Losada-Lima et al. 2001; Machado 1930) we concluded that the specimen was *Tortella limbata* (Schiffn.) Geh. & Herzog. This is a little-known taxon considered endemic to Grand Canary Island in the same archipelago (Dirkse et al. 1993; Losada-Lima et al. 2001), or a synonym of *Trichostomum brachydontium* Bruch (Düll 1984; see also Koppe & Düll 1986a, b), which would explain its absence in the preliminary treatment of Macaronesian *Tortella* (May 1986). However, *Trichostomum brachydontium* has a totally different leaf morphology, with hyaline basal cells running straight across the leaf base, while *Tortella* has a distinctive V-shaped pattern of hyaline cells ascending the leaf margins. To avoid future confusion with other taxa, *Tortella limbata* is here lectotypified, described and illustrated.

Tortella limbata (Schiffn.) Geh. & Herzog, Biblioth. Bot. 73: 31, tab. 20, fig. 7. 1910; *Trichostomum limbatum* Schiffn., Hedwigia 41: 283. 1902. Ind. loc.: “Gran Canaria; Tafira, ad muros secus vias, 350 m – 1. IV. 1901 (No. 1876)”. TYPE: [SPAIN]

Grand Canary, Tafira, J. Bornmüller, *Plantae exsiccatae Canarienses*, n° 1876 (lectotype, designated here, B-300054354!; isolectotype, s-B104529!).

Illustrations. Fig. 1; Geheeb & Herzog, 1910: tab. 20, fig. 7.

Description. Plants small, dull green to dark-green, in loose tufts, to 15 mm. Stems erect, simple, central strand distinct, hyalodermis lacking. Leaves twisted and contorted when dry, erect-patent to patent and slightly undulate when moist, narrowly lanceolate, 3.0–4.5 × 0.4–0.6 mm; apices obtuse and apiculate to sharply mucronate, sometimes asymmetric; lamina unistratose; margins plane to slightly incurved near the apex, denticulate to dentate in the upper ½, teeth spaced; costa glossy on dorsal side when dry, excurrent as a short mucro, ventral superficial cells in upper mid-part of costa quadrate to short-rectangular, papillose, in cross-section differentiated from the internal stereid band, dorsal superficial cells in upper mid-part elongate and smooth, guide cells 2–6 in 1 layer, ventral stereid band with 1–4 cell layers and dorsal stereid band with 3–6 cell layers; upper laminal cells hexagonal to subquadrate, (6–)10–12 × 8–10 μm, with 3–5 forked papillae; basal cells differentiated, enlarged, elongate, thin-

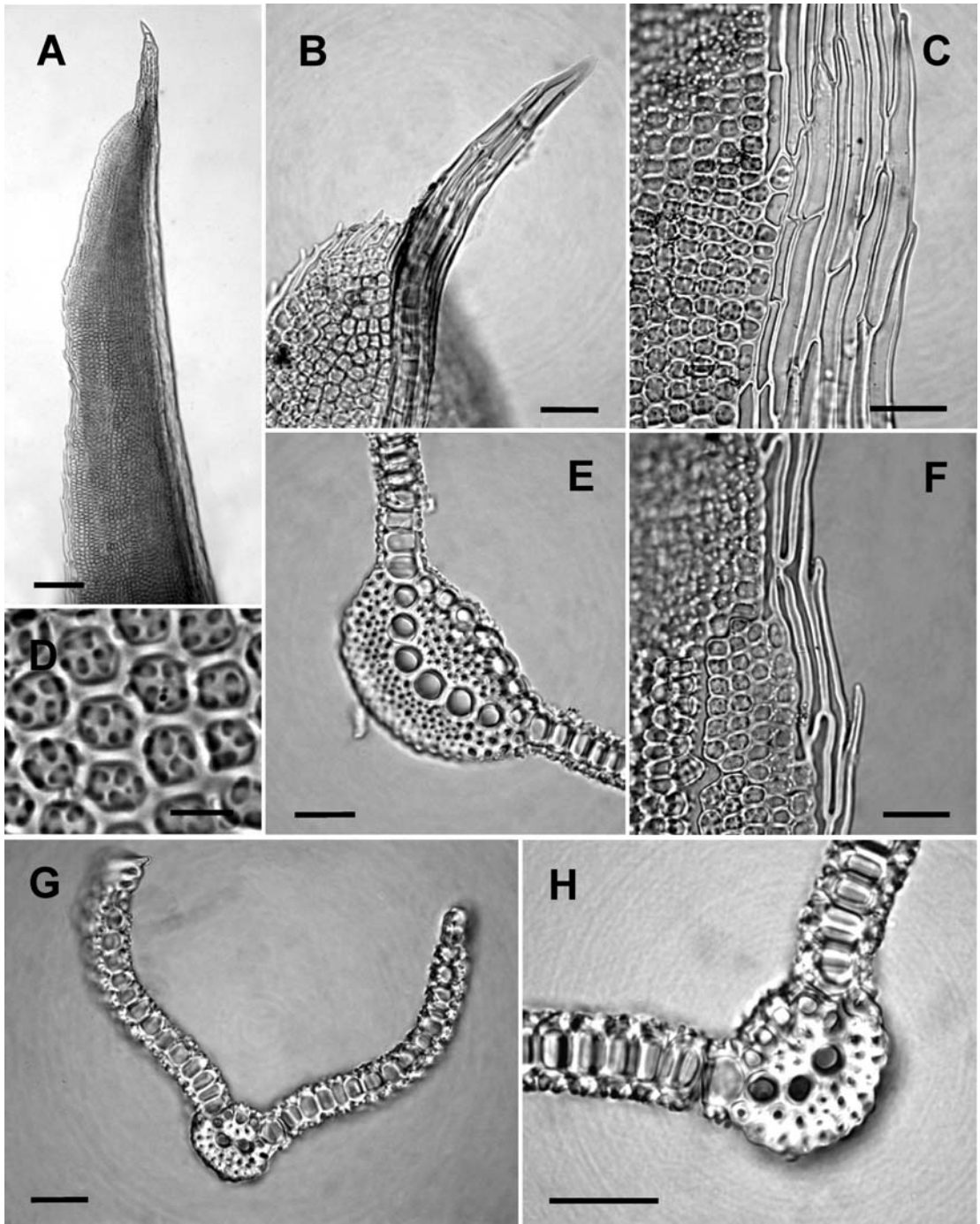


Figure 1. *Tortella limbata*. A. Detail of leaf. B. Leaf apex showing the marginal band of hyaline cells and teeth. C. Leaf margin about midleaf showing the abrupt transition between marginal and internal cells. D. Upper leaf cells. E. Leaf cross-section to the base. F. Leaf margin in the upper third. G. Leaf cross-section in the upper half. H. Costa cross-section in the upper half. A–H from Cezón & Muñoz, 4-II-2005 (MA-MUSCI). Scales: A = 0.1 mm; B, C, E–H = 30 µm; D = 10 µm.

walled, hyaline and smooth, abruptly distinct from upper chlorophyllose cells, outer cells extending up the margin as a differentiated border, grading from 4–5 hyaline cell rows in the lower part to 2–3 cell rows ending just below the apex, forming a distinct V-shaped pattern, alar cells undifferentiated. Sporophyte unknown.

Ecology. The species grows on volcanic rocks and soil deposited in small crevices and depressions of the rocks, at 400–1100 m.

Morphological distinction. *Tortella limbata* differs from all congeners by the ascending marginal border of hyaline, enlarged and strongly differentiated cells almost reaching the leaf apex, and by the well-spaced marginal teeth. The width and length of the marginal border are variable; occasionally there are leaves where these borders are poorly defined or only reach the lower half of lamina. In *Trichostomum* the transition between the hyaline marginal cells and the internal chlorophyllose ones forms a straight transverse line or a very short U across the leaf base.

Tortella limbata is a taxon collected very few times in Madeira and the Canary Islands. Both are relatively well collected, and the leaf marginal borders with spaced teeth to the apex make this a very distinctive taxon, which points to local rarity of this moss endemic to the Macaronesian archipelago. Although Hill et al. (2006) reported the species from Tenerife, no herbarium voucher was reported.

Additional specimens examined. PORTUGAL. MADEIRA: Deserta Grande, *Costa s.n.* (S-B104532), *Costa 184* (S-B104530), Porto Santo, Pico do Castelo, *Costa 99a* (S-B104533), Poçoes, *Costa 100* (S-B104535). SPAIN. SANTA CRUZ DE TENERIFE: La Gomera, Parque Nacional de Garajonay, Monumento Natural Roque Agando, 28°06'N, 17°12'W, 4 Feb 2005, Cezón & Muñoz (MAMUSCI).

ACKNOWLEDGMENTS

We thank the curators of B and S for the loan of specimens, our colleagues at Universidad de La Laguna (Canary Islands, Spain) for the organization of the Spanish Bryological Society collecting trip, and the Cabildo de La Gomera for allowing us to collect in protected areas of the island and providing logistic support.

LITERATURE CITED

- Dirkse, G. M., A. C. Bouman & A. Losada Lima. 1993. Bryophytes of the Canary Islands, an annotated checklist. *Cryptogamie: Bryologie, Lichénologie* 14: 1–47.
- Düll, R. 1984. Distribution of the European and Macaronesian mosses (Bryophytina). Part I. *Bryologische Beiträge* 4: 1–113.
- Geheeb, A. & T. Herzog. 1910. *Bryologica atlantica. Die Laubmoose der atlantischen Inseln. Bibliotheca Botanica* 73: 1–73, tabs. 1–20.
- Hill, M. O., N. Bell, M. A. Bruggeman-Nannenga, M. Brugués, M. J. Cano, J. Enroth, K. I. Flatberg, J.-P. Frahm, M. T. Gallego, R. Garilleti, J. Guerra, L. Hedenäs, D. T. Holyoak, J. Hyvönen, M. S. Ignatov, F. Lara & V. Mazimpaka. J. Muñoz & L. Söderström. 2006. An annotated checklist of the mosses of Europe and Macaronesia. *Journal of Bryology* (in press).
- Koppe, F. & R. Düll. 1986a. *Beiträge zur Moosflora madeiras. Bryologische Beiträge* 6: 32–48.
- & ———. 1986b. *Beiträge zur Moosflora von Gran Canaria. Bryologische Beiträge* 6: 49–57.
- Losada-Lima, A., G. M. Dirkse & S. Rodríguez-Nuñez. 2001. División Bryophyta. Pages 88–97. *In* I. Izquierdo, J. L. Martín, N. Zurita & M. Arechavaleta (eds.), *Lista de Especies Silvestres de Canarias (Hongos, Plantas y Animales Terrestres)*. Consejería de Política Territorial y Medio Ambiente, Gobierno de Canarias, La Laguna.
- Machado, A. 1930. Les mousses de l'Archipel de Madère et en général des Iles atlantiques [4]. *Brotéria, Série Botânica* 24: 66–96.
- May, R. 1986. Notes on some Macaronesian *Tortella* species. *Bryologische Beiträge* 6: 58–66.
- Schiffner, V. 1902. Neue Materialien zur Kenntniss der Bryophyten der atlantischen Inseln. *Hedwigia* 41: 269–294.
- ms. received January 11, 2006; accepted March 15, 2006.