

***Didymodon bistratosus* Hébrard & Pierrot (Pottiaceae, Bryopsida), a new record to the bryophyte flora of Turkey**

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Abstract – *Didymodon bistratosus* Hébrard & Pierrot is recorded to the bryoflora of Turkey for the first time. Distributional remarks and illustrations with some ecological remarks for the Turkish specimen are provided

Bryophytes / *Didymodon bistratosus* / phytogeography / taxonomy / western Turkey / Musci / flora

INTRODUCTION

For the last several years, intensive bryofloristical investigations reveal several new records for Turkey [*Hedwigia ciliata* (Hedw.) Ehrh. ex P. Beauv. var. *leucophaea* Bruch & Schimp. (Erdağ *et al.*, 2003), *H. stellata* Hedenäs (Kürschner *et al.*, 1997), *Orthotrichum leblebicii* (Erdağ *et al.*, 2004), *O. rivulare* Turn. (Erdağ & Kürschner, 2002), *O. sprucei* Mont. (Erdağ & Kürschner, 2000), *O. tortidontium* Mazimpaka, Lara & Garilleti (Mazimpaka *et al.*, 2000), *Syntrichia papillosa* (Wilson) Jur. (Erdağ, 2003), indicating that the bryophyte flora of Turkey is still in need of further studies.

Didymodon bistratosus Hébrard & Pierrot was discovered in sterile state from southern Spain (Hébrard & Pierrot, 1994). Fertile populations have been recently reported from Portugal (Sérgio *et al.*, 1998), extending the range of this species in the Iberian Peninsula. The new record from Turkey represents an important range extension to the eastern Mediterranean area for this species which was considered to be an endemic taxon for the Iberian Peninsula.

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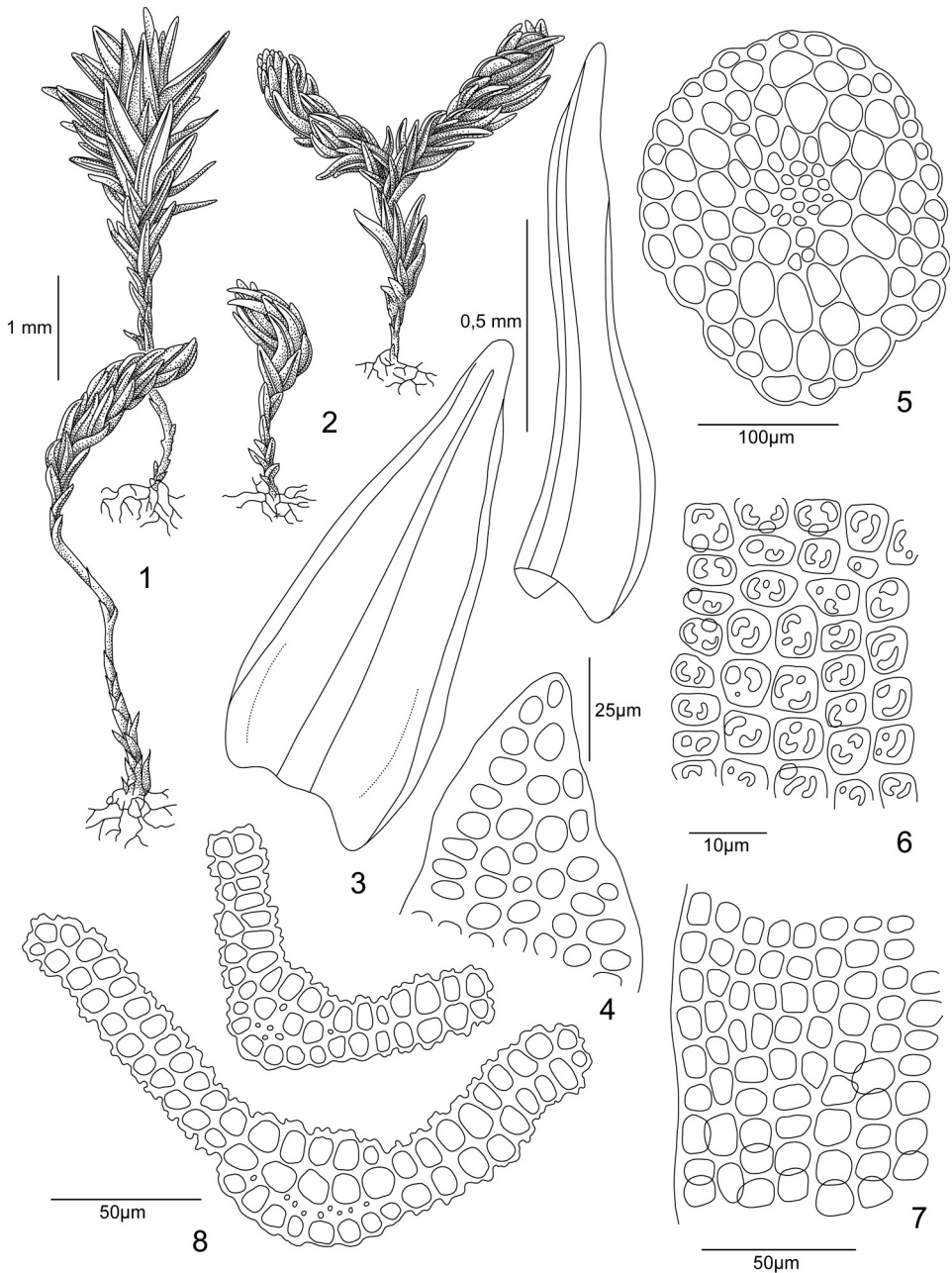


Fig. 1. *Didymodon bistratosus* Hébrard & Pierrot (AYDN 1550). **1** Habit, wet; **2**, Habit, dry; **3**, Leaves; **4**, Leaf apex; **5**, Cross-section of stem; **6**, Mid-leaf cells; **7**, Basal leaf cells; **8**, Cross-sections of leaf lamina (extreme apex).

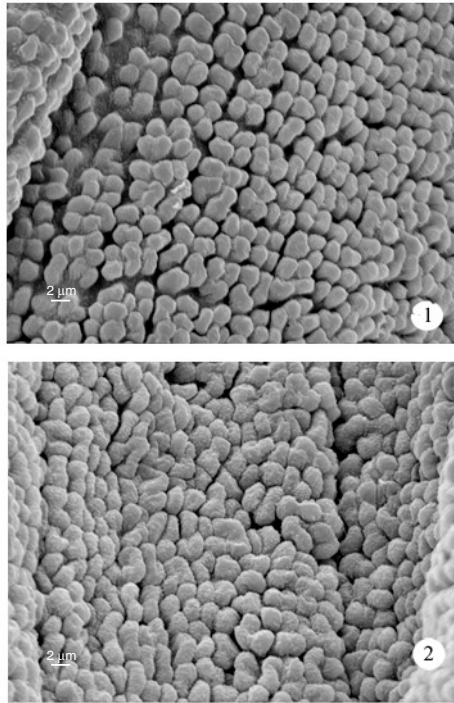


Fig. 2. *Didymodon bistratosus* Hébrard & Pierrot (AYDN 1550; SEM-photos). 1 Dense, globose papillae of middle leaf cells; 2. Dense globose, partly c-shaped papillae of mid-leaf cells.

Didymodon bistratosus Hébrard & Pierrot, *Nova Hedwigia* 59: 354. 1994 (Figs 1, 2)
Specimen examined – Turkey: Aydın, Çine county, Beşparmak Dağları, Çavdar village, near Hasankonağı, 500 m, ~ 37 34 N, 27 34 E, on tiny soil layers covering gneiss rocks; leg.: A. Erdağ, 27.1.1998 (AYDN 1550).

Hitherto, *Didymodon bistratosus* is known from one locality in southern Spain (Málaga province, Hébrard & Pierrot, 1994) and several sites in Portugal (Sergio *et al.*, 1998). There it grows on soil or rocky surfaces in granitic or schistose areas, which are relatively exposed and dry in summer. On a first look, the species recalls a *Trichostomopsis* Card. species [Syn.: *Didymodon* Hedw. sect. *Asteriscium* (Müll. Hal.) Zander], but differs by the strongly revolute leaf margins, the bistratose upper leaf lamina (Fig. 1.8), and the dense, globose, solid papillae (Fig. 2). These high papillae may act as a rapid capillary water conducting system when the leaves are wetted. Together with the bistratose upper leaf lamina it is a character of the “xeropottioid life syndrome” (Kürschner, 2004) and a common feature of many true desert and Mediterranean xerophytes, indicating the xeric site conditions. In the Aegean region of Turkey (Aydın province, Beşparmak Dağları) it occurs on dry, tiny soil layers covering gneiss rocks in markedly xeric site conditions (maquis), which are ecologically comparable to those of the Iberian Peninsula. It is associated with the mosses *Barbula unguiculata* Hedw., *Bartramia*

stricta Brid., *Bryum capillare* Hedw., *Ceratodon purpureus* (Hedw.) Brid., *Didymodon vinealis* (Brid.) R. H. Zander, *Encalypta vulgaris* Hedw., *Grimmia lisae* De Not., *G. ovalis* (Hedw.) Lindb., *G. pulvinata* (Hedw.) Sm., *Hypnum cupressiforme* Hedw., *Homalothecium sericeum* (Hedw.) Schimp., *Isothecium alopecuroides* (Dubois) Isov., *Polytrichum juniperinum* Hedw., *Pseudoscleropodium purum* (Hedw.) M. Fleisch. ex Broth, *Syntrichia inermis* (Brid.) Bruch, *S. intermedia* Brid., *S. ruralis* (Hedw.) F. Weber & D. Mohr, *Tortula muralis* L. ex Hedw. and the liverworts *Corsinia coriandrina* (Spreng.) Lindb., *Lunularia cruciata* (L.) Dumort. ex Lindb. and *Targionia hypophylla* L. This species assemblage corresponds well with the one recorded by Sérgio *et al.* (1998) from Portugal, comprising typical Mediterranean bryophytes common in xeric sites.

As a result of optical illusion by optical microscope, papillae at mid-leaf cells are drawn as c-shaped because routine identifications are realized using light microscope. In fact the papillae are mostly not crescent shaped as seen in Figure 2. On the other hand, cross sections of lamina (Fig. 1.8) were taken from extreme apex having plane margins to show bistratose arrangement of lamina obviously.

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REFERENCES

- ERDAĞ A., 2003 — *Syntrichia papillosa* (Wilson) Jur. (Pottiaceae, Bryopsida), an epiphytic species new to the bryophyte flora of Turkey. *Cryptogamie, Bryologie* 24: 167-171.
- ERDAĞ A., KIRMACI M. & KÜRSCHNER H., 2003 — The *Hedwigia ciliata* (Hedw.) Ehrh. ex P. Beauv. complex in Turkey, with a new record, *H. ciliata* var. *leucophaea* Bruch & Schimp. (Hedwigiaceae, Bryopsida). *Turkish Journal of Botany* 27: 349-365.
- ERDAĞ A. & KÜRSCHNER H., 2000 — *Orthotrichum sprucei* Mont. (Orthotrichaceae, Musci), new to the moss flora of Turkey. *Nova Hedwigia* 71: 145-150.
- ERDAĞ A. & KÜRSCHNER H., 2002 — *Orthotrichum rivulare* Turn. (Orthotrichaceae, Bryopsida), a hygrophytic species new to the bryophyte flora of Turkey and Southwest Asia. With a key to the Turkish *Orthotrichum* species. *Nova Hedwigia* 74: 251-256.
- ERDAĞ A., KÜRSCHNER H. & PAROLLY G., 2004 — *Orthotrichum leblebicii* sp. nova (Orthotrichaceae, Bryopsida), and two further new epiphytic *Orthotrichum* Hedw. records from southern Turkey. *Nova Hedwigia* 78: 517-525.
- HÉBRARD J.-P. & PIERROT R.B., 1994 — *Didymodon bistratosus* (Pottiaceae, Musci), espèce nouvelle du sud de l'Espagne (environs de Ronda, province Málaga). *Nova Hedwigia* 59: 353-364.
- KÜRSCHNER H., 2004 — Life strategies and adaptations in Bryophytes from the Near and Middle east. *Turkish Journal of Botany* 28: 73-84.
- KÜRSCHNER H., TONGUC Ö. & YAYINTAS A., 1997 — First record of *Hedwigia stellata* (Musci, Hedwigiaceae) from Turkey. *Fragmenta Floristica et Geobotanica* 42: 586-588.
- MAZIMPAKA V., LARA F. & GARILLETI R., 2000 — *Orthotrichum tortidontium* new for Turkey. *Lindbergia* 25: 15-16.
- SÈRGIO C., PIERROT R.B., HÉBRARD J. P., CROS R. M. & BRUGUÉS M., 1998 — *Didymodon bistratosus* Hébrard & Pierrot (Pottiaceae, Musci), fertile in Portugal. *Nova Hedwigia* 67 (1-2): 115-118.