

***DIDYMODON TOMACULOSUS* (BLOCKEEL) M.F.V. CORLEY, NEW TO THE
MOSS FLORA OF TURKEY AND ASIA**

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Abstract

Didymodon tomaculosus (Blockeel) M.F.V. Corley is reported for the first time from Turkey, bringing the total number of *Didymodon* species known from Turkey to 19. *D. tomaculosus* is also reported first time to the moss flora of Asia. It is a very rare species and was known only from British Isles and south of Germany. Description, illustrations and diagnostic characters of the species are given, together with notes on its ecology.

Bryophytes rank second among the major groups of green plants, with an estimated 15,000 species world-wide and they have successfully exploited many environments, possibly because they are rarely in direct competition with vascular plants. Unfortunately, knowledge of the Turkish bryoflora is still far from complete. To date, neither Turkish nor foreign bryologists have visited some regions, especially the south-eastern Turkey. However, some recent additions with increasing research activities indicate that quite a number of new discoveries may be expected.

The genus *Didymodon* belongs to the family Pottiaceae, and is represented by about 120 species distributed in temperate and montane habitats. Plants are usually forming tufts, cushions or patches. Stems have central strand. Leaves are appressed, curved or crisped when dry, erect-patent to squarrose when moist. Basal cells are usually quadrate, upper cells are quadrate or rounded-hexagonal (Smith 2004).

So far, *Didymodon* Hedw. is represented by 17 species in the Turkish bryoflora; *Didymodon acutus* (Brid.) K. Saito, *D. asperifolius* (Mitt.) H.A. Crum, Steere & L.E. Anderson, *D. australasiae* (Hook. & Grev.) R.H. Zander, *D. bistratosus* Hébr. & R.B. Pierrot, *D. cordatus* Jur., *D. fallax* (Hedw.) R.H. Zander, *D. ferrugineus* (Schimp. ex Besch.) M.O. Hill, *D. glaucus* Ryan, *D. insulanus* (De Not.) M.O. Hill, *D. luridus* Hornsch., *D. nicholsonii* Culm., *D. rigidulus* Hedw., *D. sicculus* M.J. Cano, Ros, Garcí'a-Zamora & J. Guerra, *D. sinuosus* (Mitt.) Delogne, *D. spadiceus* (Mitt.) Limpr., *D. tophaceus* (Brid.) Lisa, *D. umbrosus* (Müll. Hal.) R.H. Zander and *D. vinealis* (Brid.) R.H. Zander. Here the 18th species of the genus: *Didymodon tomaculosus* is reported. It was described as a new species 31 years ago, and was one of a number of mosses whose recognition was the result of a growing interest in the occurrence of subterranean tubers on moss rhizoids realising that the morphology of the tubers was a taxonomic character. Tubers are known to occur in a number species of the genus, but in *D. tomaculosus* they are abundant and characteristically sausage shaped. *D. tomaculosus* is a very rare species and it was known only from British Isles and cited from one site in the south of Germany only (Jimenez *et al.* 2005, Werner *et al.* 2009). Apparently, this report contributes a remarkable distributional gap of this species towards Asia.

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The moss samples were collected from Akdağ Mountain (Amasya), which is located in the A3 square according to Henderson's (1961) grid system (Fig. 1). Akdağ is located between Central Anatolia and the Black Sea region, which belongs to the Euxine province of Euro-Siberian phytogeographical region. Material examined for this study was collected from Akdağ Mountain

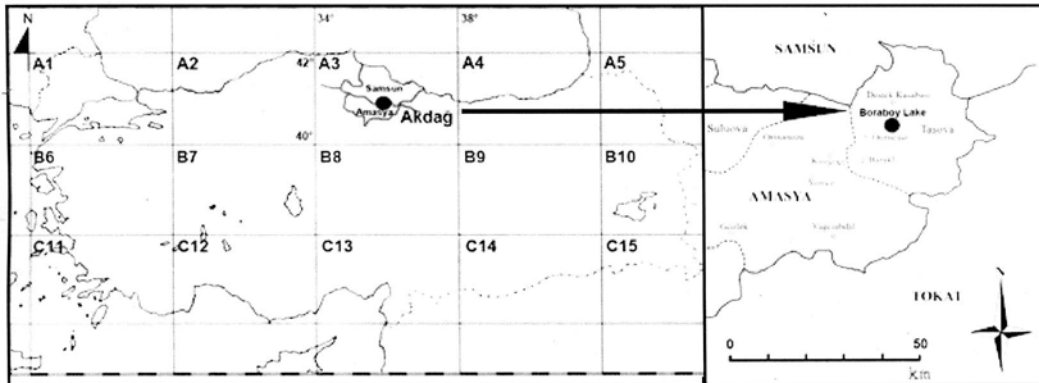


Fig. 1. Amasya Akdağ & Henderson's Grid System.

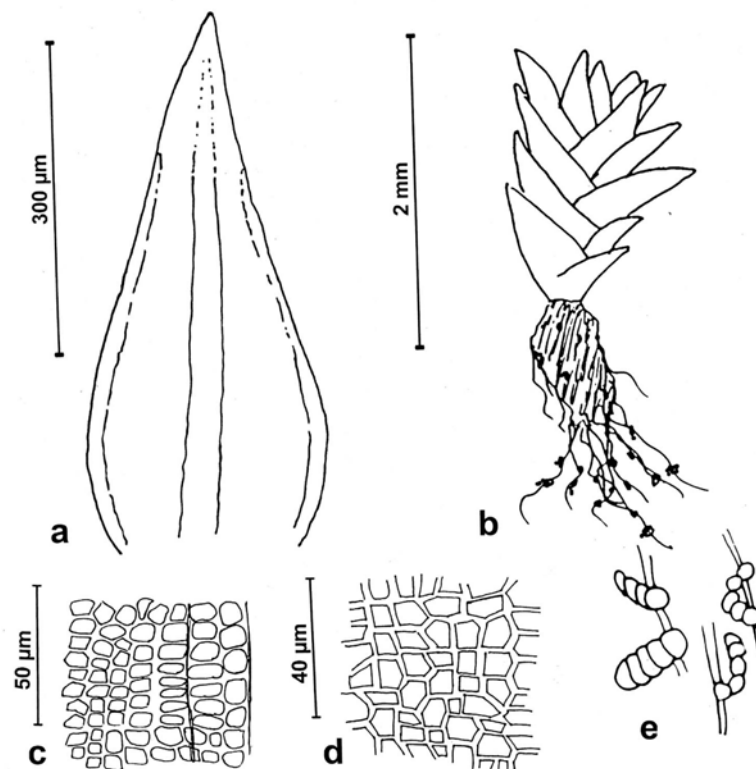


Fig. 2. *Didymodon tomaculosus* a, leaf; b, plant; c, basal cells; d, mid-leaf cells and e, tubers.

(Amasya), near Boraboy Lake, on soil as scattered, interwoven with other mosses, 1060 m, 40° 48'N - 36° 9'E, May 2010, Canlı 172. Habitat features was recorded in the field. The identification was done by light microscopy.

The voucher sample was preserved as a reference specimen in the Herbarium of Ankara University (ANK), Faculty of Science, Department of Biology, Ankara.

Didymodon tomaculosus (Blockeel) M.F.V. Corley

Plants 2 - 5 mm high, growing mostly scattered or in very loose dark green turfs. Stems erect, simple, with weakly differentiated central strand or not. Leaves ovate or ovate lanceolate, appressed to erect when dry, erect patent to patent when moist. Margins recurved, entire. Lamina unistratose, yellowish orange with KOH stain. Basal cells quadrate to rectangular, not sinuous, thin-walled, cells above longer than wide to wider than long, 7 - 15 µm wide in mid-leaf. Costa percurrent to shortly excurrent, with shortly rectangular or square cells on the ventral side of the costa. Brownish sausage-shaped tubers underground or on rhizoids on lower stems. Sporophytes not found (Fig. 2).

D. tomaculosus forms small turfs loosely interwoven with other mosses or scattered on heavy clay soil. Likely to be overlooked because of this habit and its small size. *D. tomaculosus* is somewhat similar to *D. fallax*, however it differs from *D. fallax* by having shortly rectangular cells on the ventral side of the costa at least in the upper half of the leaf, while *D. fallax* have elongated cells. *D. tomaculosus* have rhizoidal tubers, while *D. fallax* have not. Also, *D. tomaculosus* is much smaller than *D. fallax*.

With this study, *D. tomaculosus* is the first time reported for Turkish Bryoflora, as the 18th species of the genus *Didymodon* in Turkey, and with this the standing moss taxa of Turkey is increased to 764 (Çetin 1988, Uyar and Çetin 2004, Kürschner and Erdağ 2005). It is also the first record for the moss flora of Asia.

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