

Fissidens gymnandrus (Bryophyta, Fissidentaceae), a new moss record from Turkey and Southwest Asia

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Abstract. *Fissidens gymnandrus* is recorded for the first time from Turkey and Southwest Asia on the basis of collection from Derik (Mardin) in Southeast Anatolia. A description and illustration of the Turkish specimens are provided, with diagnostic characteristics and ecology.

Key words: *Fissidens gymnandrus*, *Fissidentaceae*, mosses, new record, Turkey

Introduction

The genus *Fissidens* (*Fissidentaceae*) is easily distinguished from the other moss families by the complanate gametophytes with conduplicate and distichously arranged leaves. About 450 species have been described worldwide. They are distributed mainly in humid tropics and temperate regions of the world (Crosby & al. 2000; Manjula & al. 2015). The genus *Fissidens* has been represented by about 22 species in Turkey (Tonguç Yayıntaş & Allen 2009). The latest taxonomic and distributional status of the species on a regional scale for Turkey was determined by reviewing the latest literature (Kürschner & Erdağ 2005; Ros & al. 2013).

Material and methods

This study is based on herbarium specimens (Herbarium of Niğde University) collected from Southeast Anatolia (Mardin – Derik) in September 2012. Morphological description and illustration are based on the specimens with Turkish origin.

Results and discussion

Fissidens gymnandrus Buse, Hedwigia 8: 55 (1869). [*Fissidens bryoides* var. *gymnandrus* (Buse) R. Ruthe, Hedwigia 9: 178 (1870)]

Description of the Turkish specimens: Plants small, 4–6 mm tall. Stems simple, unbranched, with a well-developed central strand. Rhizoids slightly papillose, brownish to brown-orange, basal or axillary. Leaves erect to erect-patent when moist, slightly curled when dry, 8–12 pairs, oblong-lanceolate to oblong-lingulate, 1–1.5 × 0.4–0.6 mm; laminae unistratose; apex acute or shortly acuminate; margins entire; limbidium present in all laminae with (1)2–3 row of cells, 1–2 stratose, 9–11 µm wide in the dorsal lamina, 15–20 µm wide in the vaginant lamina; costa strong, excurrent in an apiculus; dorsal laminae slightly decurrent; vaginant laminae 1/2 the leaf length; laminal cells smooth, quadrate to hexagonal; 8–14 × 8–12 µm (Fig. 1 A–D). The observed specimens were sterile, no perichaetia/antheridia. Therefore, sporophytes are unknown in Turkey.

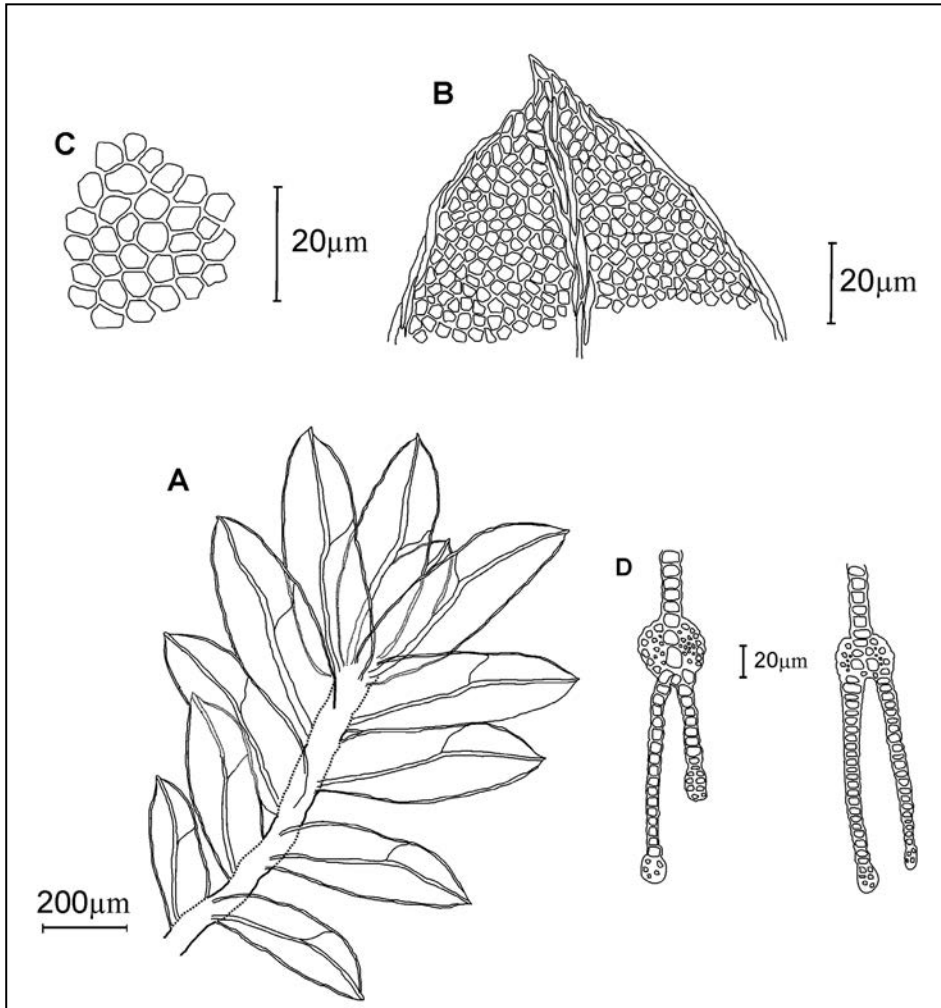


Fig. 1. *Fissidens gymnanthus*: A. general view, B. leaf apex, C. leaf cells, D. cross-section of leaf.

Specimens examined: Turkey, Southeast Anatolia, Mardin: Derik district, on wet soil over rocks, ca. 671 m alt., 37°24'12.92"N, 40°8'50.74"E, 22.09.2012, herbarium No T.E. 1782 (Herbarium of Niğde University). The locality falls into grid-square C14 according to the system adopted by Henderson (1961) for Turkey (Fig. 2).

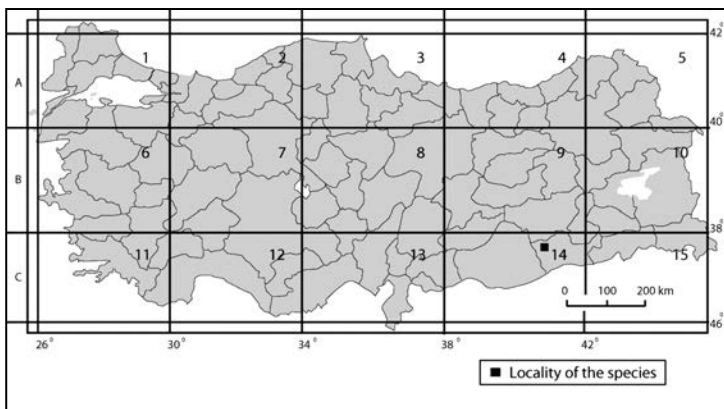


Fig. 2. Locality of *Fissidens gymnanthus* in Turkey.

According to literature, the species is parichous; perichaetia terminal; perichaetial leaves slightly longer and narrower than the vegetative ones; limbidium occasionally absent on the dorsal laminae; perigonia absent, antheridia naked in the leaf axils below perichaetia; seta 1 per perichaetium, more or less straight, occasionally slightly sinuose or twisted at base, 5–6(7) mm long, brownish to yellow, smooth; capsule immature; calyptra cucullate, ca. 0.5 mm long (Guerra & al. 2012).

Fissidens bryoides and *F. viridulus* are similar species to *F. gymnanthus*. *Fissidens bryoides* has a mostly obtuse leaf apex, whereas *F. gymnanthus* has an acute or shortly acuminate leaf apex. Laminal cells are regularly hexagonal in *F. bryoides*, but irregularly quadrate to hexagonal, occasionally rectangular in *F. gymnanthus*. *Fissidens viridulus* differs from *F. gymnanthus* by almost narrowly lanceolate stem leaves and costa, ending below the apex.

Ecology and distribution: *Fissidens gymnandrus* is subneutrophytic [pH 5.7–7.0(–7.5)] and hygrophytic. The species grows in mud-covered mats in periodically inundated woods, at the base of willows and ashes, and also on decaying organic material besides streams and pools (Cortini-Pedrotti 2001; Dierssen 2001). In Turkey, *Fissidens gymnandrus* was collected on wet soil over rocks, besides a ground-water stream running from Karacadağ in Derik district. It was found together with the moss species *Amblystegium serpens* (Hedw.) Schimp., *Pohlia drummondii* (Müll. Hal.) A.L. Andrews, and the thallose liverwort species *Pellia epiphylla* (L.) Corda.

Fissidens gymnandrus is distributed in much of Europe (Austria, Belgium, Bosnia and Herzegovina, Croatia, Czech Republic, France, Germany, Greece, Iceland, Italy, Montenegro, Netherlands, Poland, Slovenia, Spain, Switzerland, Sweden, United Kingdom), Russia, Japan, North America and Egypt (Guerra & al. 2012; Ros & al. 2013).

References

- Cortini-Pedrotti, C. 2001. Flora dei muschi d'Italia. Sphagnosida, Andreaeopsida, Bryopsida (I parte). Antonio Delfino Editore, Roma.
- Crosby, M.R., Magill, R.E., Allen, B. & He, S. 2000. A Checklist of the Mosses. Miss. Bot. Gard., St. Louis.
- Dierssen, K. 2001. Distribution, ecological amplitude and pytosociological characterization of European bryophytes. – *Bryophyt. Biblioth.*, **56**: 1-289.
- Guerra, J., Heras, P. & Infante, M. 2012. *Fissidens bryoides* var. *gymnandrus* and *F. celticus* (Bryophyta, Fissidentaceae) in the Iberian Peninsula. – *Cryptog. Bryol.*, **33**(2): 149-154.
- Henderson, D.M. 1961. Contributions to the bryophyte flora of Turkey V: summary of present knowledge. – *Notes Roy. Bot. Gard. Edinburgh*, **23**: 279-301.
- Kürschner, H. & Erdağ, A. 2005. Bryophytes of Turkey: an annotated reference list of the species with synonyms from the recent literature and an annotated list of Turkish bryological literature. – *Turk. J. Bot.*, **29**: 95-154.
- Manjula, K.M., Manju, C.N. & Rajesh, K.P. 2015. *Fissidens macrosporus* (Fissidentaceae: Bryophyta) – a little known species of the Western Ghats rediscovered after more than 90 years. – *Lindbergia*, **38**: 1-3.
- Ros, R.M., Mazimpaka, V., Abou-Salama, U., Aleffi, M., Blockeel, T.L., Brugués, M., Cros, R.M., Dia, M.G., Dirkse, G., Draper, I., El-Saadawi, W., Erdag, A., Ganeva, A., Gabriel, R.M.A., González-Mancebo, J.M., Granger, C., Herrnstadt, I., Hugonnot, V., Khalil, K., Kürschner, H., Losada-Lima, A., Luís, L., Mifsud, S.D., Privitera, M., Puglisi, M., Sabovljević, M., Sérgio, C., Shabbara, H.M., Sim-Sim, M., Sotiaux, A., Tacchi, A., Vanderpoorten, A. & Werner, O. 2013. Mosses of the Mediterranean, an annotated checklist. – *Cryptog. Bryol.*, **34**: 99-283.
- Tonguç Yayıntaş, Ö. & Allen, B. 2009. Two new records of *Fissidentaceae* (Bryopsida) in Southern Turkey. – *Cryptog. Bryol.*, **30**(2): 311-316.

