

ACAULON FONTIQUERIANUM (POTTIACEAE), A NEW SPECIES TO THE BRYOPHYTE FLORA OF TURKEY AND SW ASIA

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Abstract. *Acaulon fontiquerianum* Casas & Sérgio (Pottiaceae) is reported for the first time from Turkey and Southwest Asia. The species is briefly described and illustrated, and a key for Turkish *Acaulon* Müll. Hal. species is provided. The distribution of all *Acaulon* species known from Turkey is presented.

Key words: *Acaulon*, mosses, phytogeography, Turkey

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INTRODUCTION

Pottiaceae is the richest family in the bryoflora of Turkey (Kürschner & Frey 2011), due to its various adaptations to the prevailing dry summer climate, with its long arid season, and the presence of many sites offering suitable habitats for these species of harsh environments.

Within the family, the genus *Acaulon* Müll. Hal. is represented by three species in Turkey; eight species are distributed across the Mediterranean area, including the Balearic Islands, Crete, Croatia, Israel, Montenegro, Morocco, Portugal, Sardinia, Sicily and Spain, and the Canary Islands in the Atlantic Ocean (Ros *et al.* 2013). They include *A. casasianum* Brugués & H. A. Crum, *A. dertosense* Casas, Sérgio, Cros & Brugués, *A. fontiquerianum* Casas & Sérgio, *A. longifolium* Herrnst. & Heyn, *A. mediterraneum* Limpr., *A. muticum* (Hedw.) Müll. Hal., *A. piligerum* (De Not.) Limpr. and *A. triquetrum* (Spruce) Müll. Hal.

In Turkey, *A. mediterraneum*, *A. muticum* and *A. triquetrum* were recorded previously (Kürschner & Erdağ 2005; Ros *et al.* 2013). *Acaulon fontiquerianum* was relatively recently described by Casas and Sérgio (1990) from southern Spain, Portugal, France and Corsica (Sérgio *et al.* 1993),

and more recently reported from the Canary Islands (Dirkse *et al.* 1993), Sicily (Lo Giudice 1995) and Sardinia (Cogoni & Scrugli 2000). The new record from Turkey has a collection history similar to that of *Didymodon bistratosus* Hébr. & R. B. Pierrot, which was discovered by Hébrard and Pierrot (1994) on the Iberian Peninsula and recorded eleven years later in Turkey (Erdağ & Kürschner 2005); minute and often ephemeral bryophyte species can easily be overlooked in field studies.

RESULTS

Acaulon fontiquerianum Casas & Sérgio

Figs 1 & 2

Cryptog. Bryol. Lichénol. 11: 61. 1990.

Small, greenish (becoming brownish with age) ephemeral plants in loose turfs and scattered among other species, up to 3 mm high, with erect stems sometimes branched at base; rhizoids as long as stems; leaves 8–10, larger in upper parts, narrower in sterile individuals, concave, broadly ovate, ca 1.25 mm long, erect when moist, apices acute and incurved when dry; leaf margins plane, entire and weakly recurved below; lamina

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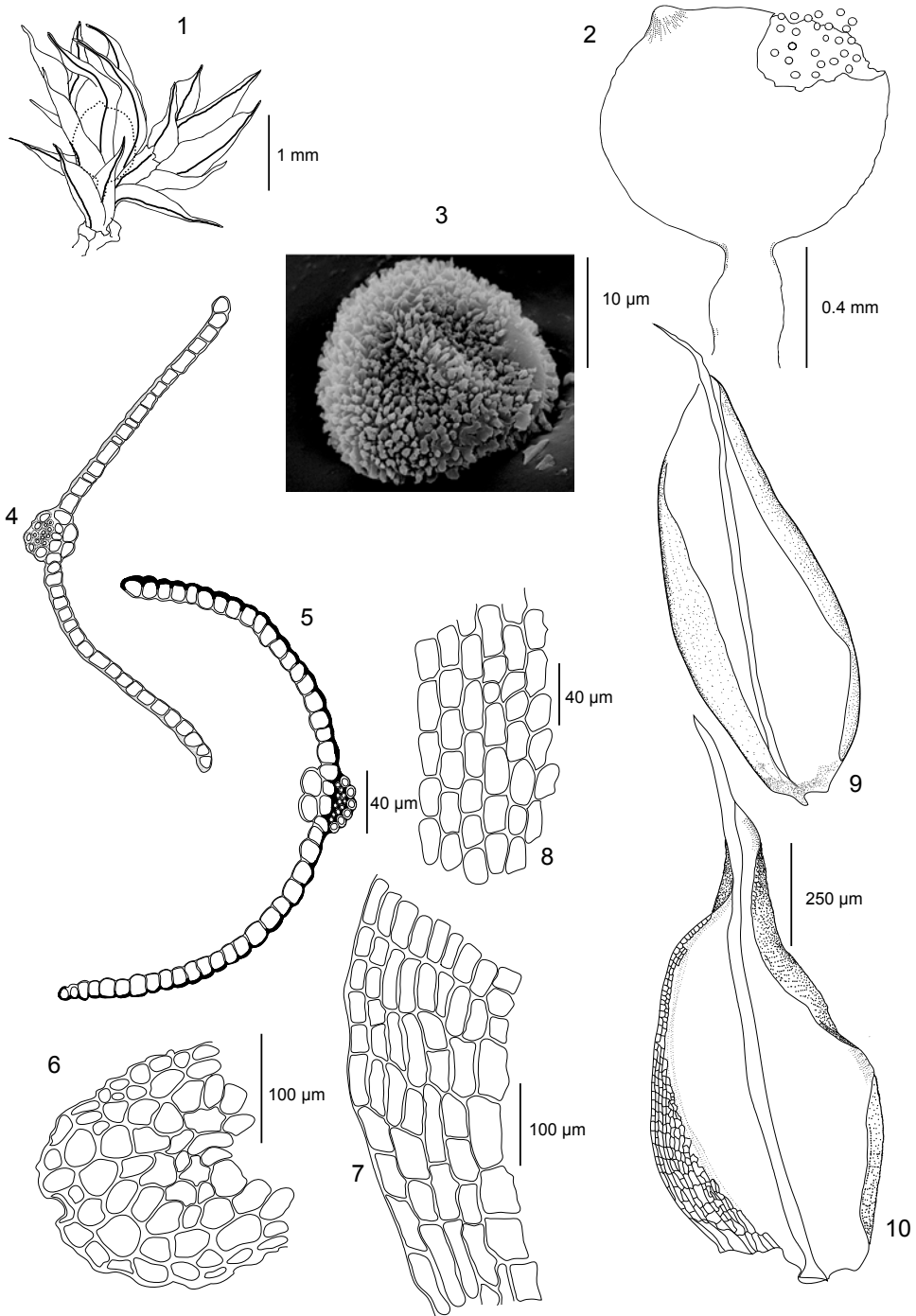


Fig. 1. *Acaulon fontiquerianum* Casas & Sérgio: 1 – habit, 2 – capsule, 3 – spore (SEM), 4 – cross section of lower part of leaf, 5 – cross section of middle part of leaf, 6 – cross section of stem, 7 – basal cells, 8 – midleaf cells, 9 & 10 – leaves (all from AYDN 3401).

unistratose throughout; costa longly excurrent (up to 250 μm), 42 μm wide at base, rounded in cross section; dorsal stereid band 3–5 cell thick, with 2 or more prominent cells on ventral side; median and upper laminal cells subquadrate, smooth, (12–)17–22(–30) μm , basal cells rectangular, up to 75 μm long towards base, ca 35 μm long, in upper parts 12–20 μm wide; capsule immersed, subglobose, cleistocarpous, ca 0.7(0.8) mm in diameter; seta erect, ca 0.4 mm long; lid conical; calyptra small; spores papillose, 22–25 μm in diameter.

SPECIMEN EXAMINED: TURKEY. PROV. DENİZLİ, Nikfer county, Bozdağ, Yorga Plateau, Karaçukur, alt. 2100 m, 37°17'49.93"N; 29°10'01.26"E, on soil of meadow, 9 June 2012, M. Kirmacı (AYDN 3401).

Acaulon fontiquerianum was collected in W Turkey, Bozdağ (Denizli) by the junior author in 2012. Bozdağ Mountain (2421 m a.s.l.) is situated at the westernmost extensions of the Taurus range. Here, *A. fontiquerianum* was collected among grasses of a mountain meadow on calcareous soil at 2100 m a.s.l. This site reflects the large altitudinal distribution of the species, which previously was recorded from sea level (cf. Cogoni & Scrugli 2000; Casas *et al.* 1990; Sérgio *et al.* 1993). Associates at the Turkish site are *Fossombronia* sp., *Barbula convoluta* Hedw.,

Bryum dichotomum Hedw., *Dicranella howei* Renault & Cardot and *Tortula cuneifolia* (Dicks.) Turner. These interesting bryophyte communities are still poorly known. Only one study on ephemeral bryophyte communities of Turkey is available (Kürschner *et al.* 2007).

KEY TO THE TURKISH *ACAULON* SPECIES

(after Kürschner & Frey 2011, modified)

1. Plants triangular when viewed from above; leaves strongly keeled; costa long excurrent; seta arcuate *A. triquetrum* (Spruce) Müll. Hal.
- 1*. Plants rounded when viewed from above; leaves not keeled; costa excurrent or ending in apex; seta straight; capsule erect 2
2. Leaves broadly ovate, concave; leaf margins plane or weakly recurved; median leaf cells 1.0–1.5 times as long as wide; costa excurrent in a long apiculus to 250 μm long; spores 22–25 μm in diameter *A. fontiquerianum* Casas & Sérgio
- 2*. Leaves broad-ovate to elliptic, concave, toothed at apex; leaf margins recurved; median leaf cells mostly 2–3 times as long as wide; costa ending below apex to shortly excurrent; spores 30–50 μm in diameter 3
3. Leaves toothed at apex; spores papillose to finely verrucose *A. muticum* (Hedw.) Müll. Hal.
- 3*. Leaves entire; spores spinulose *A. mediterraneum* Limpr.

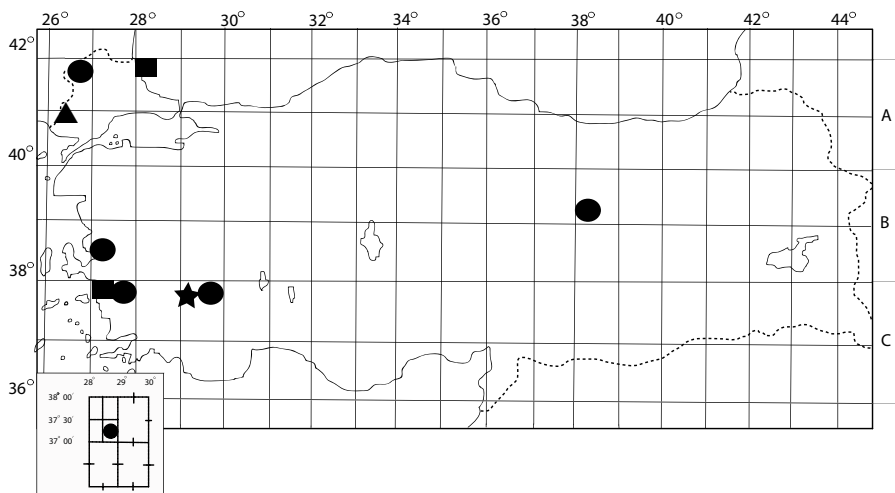


Fig. 2. Distribution of *Acaulon* species in Turkey. ★ – *A. fontiquerianum* Casas & Sérgio, ▲ – *A. mediterraneum* Limpr., ● – *A. muticum* (Hedw.) Müll. Hal., ■ – *A. triquetrum* (Spruce) Müll. Hal.

DISTRIBUTION OF *ACAULON* SPECIES IN TURKEY*Acaulon mediterraneum* Limpr. Fig. 2

Laubm. Deutschl. 1: 180. 1885.

PROV. EDİRNE: W Hamidiye, 41°09'27"N, 26°38'57"E, alt. 109 m, on calcareous soil, 21–27 April 2006, R. Natcheva, M. Coşkun & A. Cayır (Natcheva *et al.* 2008).

Acaulon muticum (Hedw.) Müll. Hal. Fig. 2

Bot. Zeitung (Berlin) 5: 99. 1847. – *Phascum muticum* Hedwig, Sp. Musc. Frond.: 23. 1801. – *Acaulon minus* (Hook. & Taylor) A. Jaeger, Ber. St. Gall. Naturw. Ges. 1868–69: 78. 1869. – *Acaulon muticum* var. *minus* (Hook. & Taylor) Bruch & Schimp., Bryol. Eur. 1: 17. 1849.

PROV. ERZINCAN: Kemaliye, Yeşilyamaç köyü, 39°15'41.5"N 38°33'08"E, alt. 1420 m, 12 April 2006, A. Erdağ 06/14 (AYDN 3402). – PROV. İZMİR: Yamanlar Dağı, Karagöl Dere, alt. 815 m, muddy soil bank, 12 July 1967, K. Walther 6103 (Walther 1970). – PROV. AYDIN: İmamköy, 37°52'5.9"N, 27°54'27.9"E, alt. 150 m, on soil, 2 July 2008, E. Agcagil (Kırmacı & Agcagil 2009). PROV. EDİRNE: SW Arpacı, 41°40'41"N, 26°54'45"E, 156 m, dry grassland, 21–27 April 2006, R. Natcheva, M. Coskun & A. Cayir (Natcheva *et al.* 2008). – PROV. DENİZLİ: Çamlık, 37°44'29.26"N, 29°05'21.12"E, on soil, alt. 500 m, and alt. 450 m., *Pinus brutia* forest, 30 May 2006, M. Kırmacı (Kırmacı & Erdağ 2010).

Acaulon triquetrum (Spruce) Müll. Hal. Fig. 2

Bot. Zeitung (Berlin) 5: 100. 1847. – *Phascum triquetrum* Spruce, London J. Bot. 4: 189. 1845.

PROV. İZMİR: SE Kuşadası, alt. 300 m, on soil, 12 Juni 1965, K. Walther 2552d (Walther 1967). – PROV. THRACE: Yıldız Dağları north of Kıyıköy, alt. 50 m, on soil, 13 May 2000, B. Papp & M. Sabovljević (Papp & Sabovljević 2003).

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