

Ballota byblensis (Lamiaceae), a New Species from Lebanon

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ABSTRACT. A new species of the genus *Ballota* L. (Lamiaceae) is described from the western slopes of Mount Lebanon in an eastern Mediterranean climate. *Ballota byblensis* Semaan & R. M. Haber is distinguished by the following characters: perennial herb, suffrutescent, brittle; stem densely matted with patent tiny simple to long septate glandular trichomes, with few sessile glands; cauline leaves cordate, crenate, rugose, tomentose with glandular simple-stellate trichomes on both sides; inflorescence lax; verticillaster 6- to 19(22)-flowered; bracteoles many, filiform, glandular, shorter than calyx; calyx 9–10 mm long, infundibular, with glandular simple-stellate trichomes outside, appressed pilose-pubescent in the upper half inside; limb erecto-patent, oblique; teeth 10(11), unequal; corolla 16–18 mm long, pink-purple; seeds black.

Key words: *Ballota*, endemic, Lamiaceae, Lebanon, Mediterranean.

The genus *Ballota* (Lamiaceae) comprises five species in Lebanon (Mouterde, 1983; Greuter et al., 1986; Heller & Heyn, 1986). *Ballota antilibanotica* Post, *B. undulata* (Sieber ex Fresenius) Benth, and *B. damascena* Boissier are basically restricted to the Levant and Sinai occurring in sub-arid to arid regions. *Ballota nigra* L. subsp. *uncinata* (Fiori & Béguinot) Patzak and *B. saxatilis* Sieber ex J. & C. Presl attain wider geographical distribution surviving under more temperate conditions (Davis & Doroszenko, 1975).

Ballota byblensis Semaan & R. M. Haber, sp. nov.

TYPE. Lebanon. Jbeil Province: Jaj Mountain, 1600 m, 34°09'22.8"N, 35°50'10.2"E, 10 Aug. 2002, R. Haber & M. Semaan 2002 (holotype, MO; isotypes, BEI, K). Figure 1.

Herba perennis, suffrutescens, fragilis; caulis dense implexus cum patentibus minutis longis septatis glandiferis pilis et paucis sessilibus glandibus; folia caulina cordata, crenata, rugosa, pilis stellatis glandiferis in superficiebus

ambabus folii; inflorescentiae laxae; verticillastri 6–19(22) floribus; bracteolae plurimae, 2.0–6.0 × 0.2–0.5(0.7) mm, filiformes, glandiferae; calyx 9–10 mm, infundibularis, extra glandifer, stellatis pilis, intra pubescens in dimidio superiore; limbus erecto-patens, obliquus; dentes 10(11) inaequales; corolla 16–18 mm, rosea-purpurata.

Perennial herb, suffrutescent, rhizomatous, fragrant, brittle woody and green parts; flowering stems up to 35 cm long, less than 2 mm wide, quadrangular, branched or simple, brown at base, green above, densely matted with patent tiny simple to long septate glandular trichomes, and with few sessile glands, vegetative stems 5–7 cm long. Cauline leaves petiolate, petiole 2.0–2.5(3.0) cm long, blade (2.0)2.5–3.3 × 2.5–3.3 cm, orbicular to broadly oval, cordate, deeply crenate, rugose, tomentose with stellate glandular trichomes above, tiny simple to long septate glandular trichomes and sessile glands below, green above, grayish green below with denser indumentum; floral leaves petiolate, petiole 3–20 mm long, blade 1.0–2.5 × 1.0–2.5 cm, orbicular-oval, truncate-cordate, indumentum similar to cauline leaves. Inflorescence lax; verticillaster 6- to 19(22)-flowered, pedicellate; pedicels 2–3 mm long, with dense patent tiny simple to long septate glandular trichomes; bracteoles many, 2.0–6.0 × 0.2–0.5(0.7) mm, filiform, sometimes with 1 or 2 teeth, mucronate, with patent tiny simple to long septate glandular trichomes, denser on outside and occasionally with stellate trichomes. Flower 19–20 mm long, sessile; calyx 9–10 mm long, infundibular; tube 7.5 mm long and terminating in a circular vein, with dense patent tiny simple to long septate glandular trichomes outside, and stellate glandular trichomes in the upper third, glabrous in the lower half inside and appressed pilose-pubescent in the upper half; limb 6–7 mm diam., erecto-patent, oblique (Fig. 2); teeth 10(11), unequal, 1.0–2.5 × 0.7–1.4 mm including mucro of 0.2–0.5 mm, triangular-oval, pubescent inside, with glandular stellate, tiny simple and long septate trichomes outside; corolla 16–18 mm long; tube 9–

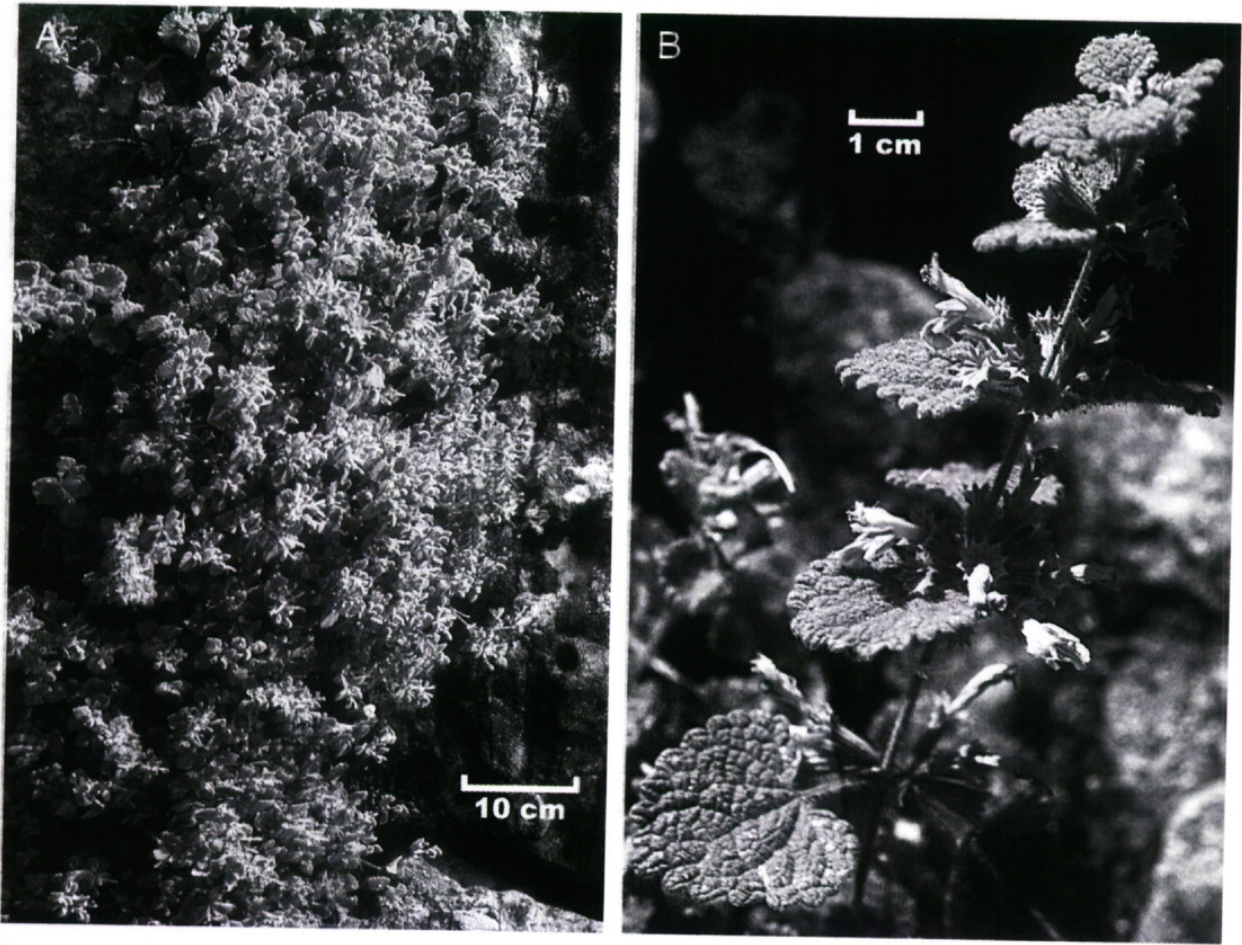


Figure 1. *Ballota byblensis* Semaan & R. M. Haber, photos of holotype collection taken by authors in Jaj Mountain. —A (left). Whole plant. —B (right). Inflorescence.

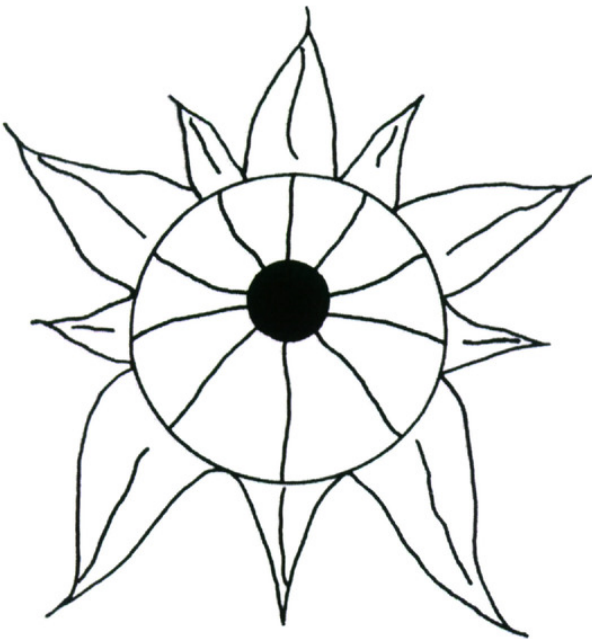


Figure 2. Illustration of calyx limb drawn by the authors from the holotype specimen.

11 mm long, white, well exerted, with sessile glands and downward appressed long trichomes outside, and annulus of trichomes inside; upper lip 6.0–7.5 × 3.5 mm, white outside, pink inside, bifid with lobes divided and/or gnawed, appressed villous outside at base and margins, with dense stellate glandular trichomes at center especially on hood, bearded inside at hood and lobes, glabrous below; lower lip 6.0–6.5 mm long, purple striated with white, glabrescent below; filaments variegated white and pink-purple, with papillae below, lanate above; style 14 mm long, white bifid. Seeds 2.6–2.8 × 1.2–1.3 mm, oblong-obovate, black, tip truncate, with sessile white glands gradually disappearing with maturity.

Distribution and habitat. *Ballota byblensis* is localized and confined to the rugged high Jaj Mountain of Jbeil Province on the western slopes of the Mount Lebanon Range at 1600–1800 m in altitude. The habitat is marked with a harsh winter of low temperature, stormy winds, frost, and a considerable snow cover. The summer is moderate and humid (Service Météorologique, 1966, 1967). The region lost its conifer forests over time, reducing the terrain to strongly eroded masses of rocks with pockets of soil (Beals, 1965). The occurrence of *B. byblensis* is relatively common. It hangs out of crevices in sandy limestone rocks with woody branches extending over rock faces. Grazing is intensive in the region and strongly impacts the green cover. Though *B. byblensis* seems not consumed by ruminants, its brittle nature exacerbates the impact of trampling and similar abrasive activity. The flowering period of *B. byblensis* extends from August to early September, as observed by the authors.

Ballota byblensis is closest morphologically to *B. saxatilis* and *B. antilibanotica* of the Lebanese flora. The differentiation of *B. byblensis* from other *Ballota* species in Lebanon is elucidated in the following key (Post, 1932; Davis & Doroszenko, 1975; Feinbrun-Dothan, 1978; Mouterde, 1983).

- 1a. Calyx limb short with shallow crenation or dentation.
 - 2a. Calyx limb multicrenate to multidentate, broadly expanded; stem hirsute . . . *B. undulata*
 - 2b. Calyx limb with 10 to 12(20) spinulate crenae; stem white floccose-lanate *B. damascena*
- 1b. Calyx limb with triangular-ovate teeth.
 - 3a. Calyx teeth 5; bracteoles subulate . . . *B. nigra* subsp. *uncinata*
 - 3b. Calyx teeth at least 10; bracteoles linear-filiform.
 - 4a. Stem with short stellate appressed pubescence and longer simple to branched-stellate glandular trichomes;

- leaves round-reniform; bracteoles as long as calyx *B. antilibanotica*
- 4b. Stem not as above; leaves orbicular-ovate; bracteoles shorter than calyx.
 - 5a. Stem matted with simple and long septate glandular trichomes; verticillasters lax; bracteoles mucronate; corolla 16–18 mm *B. byblensis*
 - 5b. Stem eglandular-villous of shortly fasciculate or stellate trichomes, with or without simple trichomes; verticillasters dense; bracteoles emucronate; corolla 10–16 mm *B. saxatilis*

In addition, *Ballota byblensis* differs from *B. saxatilis* by its longer bracteoles with glandular and only occasionally stellate trichomes, and glandular trichomes on the calyx. *Ballota byblensis* differs further from *B. antilibanotica* by having a well-exserted corolla tube and a darker pink-purple corolla. The two species are allopatric with considerable disparity in habitat characteristics: *B. antilibanotica* is an inland species of semi-arid regions, whereas *B. byblensis* is a montane species. Among the flora of Turkey, *B. byblensis* shares morphological characters with the two endemic species *B. latibracteolata* P. H. Davis & Doroszenko and *B. larendana* Boissier & Heldreich, which are close to *B. saxatilis*. *Ballota byblensis* differs from *B. latibracteolata* by having both sides of leaves glandular, non-ciliate filiform bracteoles, infundibular calyx, erecto-patent limb, pink-purple corolla with white stripes, not white corolla with purple stripes. *Ballota byblensis* differs from *B. larendana* by its brittle nature, by glandular leaves, bracteoles shorter than calyx, glandular infundibular calyx, erecto-patent limb, and longer corolla. *Ballota byblensis* is also distinguished morphologically from the central Mediterranean *B. rupestris* (Bivona-Bernardi) Visiani and the southwest European and northwest African *B. hirsuta* Benthham (Tutin et al., 1972). *Ballota byblensis* differs from *B. rupestris* by smaller and ovate-orbicular cauline leaves, non-membranous bracteoles, larger diameter of limbs, and longer corolla. It also differs from *B. hirsuta* by its smaller calyx and limb diameter, and longer corolla.

Ballota byblensis is named after the Neolithic Canaanite city, Jbeil (Byblos), as it was discovered on the overlooking Jaj Mountain slopes from which the Phoenicians felled cedars to trade wood with the ancient world (Meiggs, 1982).

Paratype. LEBANON. **Jbeil Province:** Jaj Mountain, 1697 m, 24 Aug. 2002, R. Haber & M. Semaan 2002 (BEI, MO, K).

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