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Notes on the flora of the Yucatan Peninsula VI: Capraria mexicana Moric. ex Benth. (Scrophulariaceae s.s.), new record and some comments about the genus in the region

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The genus *Capraria* L. is a member of the Scrophulariaceae s.s. (Tank et al., 2006). There are several treatments for the genus, Williams’ (2004) being the most recent. The genus comprises four species; these are herbs or small shrubs occurring in the Neotropics (now introduced in Asia) with greatest diversity in North America and Mexico, where three species are found, the fourth species being a native of Peru and Ecuador.

In Mexico, Méndez Larios and Villaseñor Ríos (2001) published a synoptic list of the family Scrophulariaceae which included the genus *Capraria*. They listed four species; *C. biflora* L., *C. frutescens* (Mill.) Britton, *C. integrifolia* M. Martens et Galeotti, and *C. saxifragifolia* Schltdl. et Cham. (herein treated as conspecific with *C. frutescens*) but not *C. mexicana* Moric. ex Benth. Study of the type specimen of *Capraria integrifolia* by Williams (2004) resulted in its referral to the genus *Nama* L. (*N. jamaicense* L., a taxon now included within the Boraginaceae but formerly treated as a member of Hydrophyllaceae). Thus, this species will not further be dealt with in this paper.

We basically agree with Williams’ (2004) species definitions despite inconsistencies in some descriptive terminology, measurements, and character state circumscriptions. A true discrepancy on stamen relative sizes in Williams’s circumscription of *Capraria biflora* is worth further comment and will be addressed below.

On the other hand, all of the recent floristic checklists of the Yucatan Peninsula Biotic Province including Belize and Guatemala (Sosa et al., 1985; Balick et al., 2000; Durán et al., 2000; Gutiérrez, 2000; Arellano-Rodríguez et al., 2003) included only two names for the region: *Capraria*
biflora and Capraria frutescens (as C. saxifragifolia). Nevertheless, the study of all the material of Capraria housed in the herbaria CICY, MEXU, UCAM, and UADY has disclosed a third morphotype of the genus that unambiguously corresponds to Capraria mexicana. This species represents a new record for the Mexican portion of the Yucatan Peninsula Biotic Province.

Below we offer a key to the species of the genus in the area as well as for Mexico and Mesoamerica. In addition, some comments about the three species covered are included.

Key to the species of the genus Capraria:

1. Stems monopodial; pedicel 1-4 mm long; calyx indumented with hairs which can be either glandular or not, with obtuse to broadly acute, oblanceolate lobes; corolla strongly zygomorphic, bilabiate, generally white with purple or totally purple, lobes of the corolla evidently shorter than the tube, the apices rounded to emarginate to retuse; stamens included, 4, didynamous; stigma hemi-spheroid with the base concave (reniform in outline), almost two times wider than long.........................Capraria frutescens

2. Branches, leaves, pedicel, and calyx glabrous; leaves generally 4-6 times longer than wide; flowers actinomorphic, shaped like a five-pointed star; corolla lobes elliptic; stamens 5, isomerous; stigma ellipsoid, almost three times longer than wide..............................Capraria mexicana

Capraria biflora L., Sp.Pl. 2:628. 1753. Figure 1a, b, c, d; figure 4.


DISTRIBUTION: Mexico (Campeche, Chiapas, Guerrero, México, Nayarit, Oaxaca, Puebla, Quintana Roo, Sinaloa, Sonora, Tabasco, Veracruz, and Yucatán). Also United States of America (Florida), Central and South America (Williams, 2004).

DISCUSSION: Capraria biflora is the most widespread species of the genus in the New World and also in the Yucatan Peninsula area. The plant is readily distinguished by its branched stems, indument with eglandular hairs along branches, leaves, petioles, and calyx, more rarely glabrous. The petals are white or cream-white, the corolla slightly zygomorphic with 4 or 5 stamens and the stigma ovoid. Williams (2004) described C. biflora as having flowers zygomorphic to slightly regular, corolla white, bilabiate, tubular-funnelform, stamens 4 or 5, didynamous, the longer pair exserted and the stigma ellipsoid. Williams (2004) keys out the same species (p. 62, 66) as having “stigma linear”, creating confusion about this feature. Fortunately, the SEM photograph depicting the stigma shape of C. biflora (p. 58, fig. a, same publication) clearly shows an ovoid stigma such as we have observed in our material. Regarding the symmetry of the corolla, it is slightly zygomorphic but never truly bilabiate.

On the other hand, the type and position of the stamens in Capraria biflora need further comment. Although Williams (2004) described the stamens as didynamous, we find they are variable in number and length even within the same specimen. In our limited survey (a few plants, mostly from the Yucatan Peninsula), individual specimens presented flowers featuring either four or five stamens. Flowers with tetramerous androecium feature isomerous or didynamous stamens, while there is the occasional flower displaying a single stamen longer than the other three. Flowers with pentamerous androecium show isomerous stamens or two longer than the other three, or even a single stamen longer than the rest. Mature flowers of C. biflora show fully exerted stamens (figure 1a) while this feature is not evident in herbarium specimens (figure 1b, c and d) and in young flowers.

Plants referable to Capraria biflora have been collected in flower and/or fruit all year round. It is locally known as claudiosa (Spanish), box, chokuilxim hembra, and chokuilxim macho (Mayan). It has been locally reported as medicinal in the treatment of matrix bleeding, white reflexes, and pimps or acne.

Capraria frutescens (Mill.) Britton, J.Bot. 45:315. 1907. Figure 2a and b; figure 5.
NEW RECORD OF *Capraria mexicana* IN THE YUCATAN PENINSULA

Figures 1-3. 1a-d: *Capraria biflora* L., a and b based on R. Duno de Stefano 2045, CICY, and c and d based on J.I. Calzada et al. 6768, CICY. a. View of the plant with flowers with four isomerous exserted stamens. b. Open corolla showing four isomerous stamens. c. Open corolla showing five isomerous stamens. d. Open corolla showing five stamens, two shorter. 2a-b: *Capraria frutescens* (Mill.) Britton, based on R. Duno de Stefano 2042, CICY. a. View of the plant with flowers. b. Flower showing four didynamous stamens. 3a-b: *Capraria mexicana* Moric. ex Benth., a based on R. Duno de Stefano 2088, CICY, and b on E Góngora 263, CICY. a. View of the plant with flowers with five isomerous and exserted stamens. b. Open flower showing five isomerous stamens and an ellipsoid stigma.
Erinus frutescens Mill., Gard.Dict. (ed. 8) Erinus no. 4. 1768. “Frutescens”.
Capraria saxifragifolia Schltdl. et Cham., Linnaea 5:105. 1830. “saxifragaefalia”.
DISTRIBUTION: Mexico (Campeche, Chiapas, Colima, Guerrero, Jalisco, México, Michoacán, Oaxaca, Querétaro, Quintana Roo, San Luis Potosí, Sinaloa, Tamaulipas, Veracruz, and Yucatán). Also Honduras (Williams, 2004).
DISCUSSION: In the Yucatan Peninsula, the species is found mainly along the driest northern part, although a few scattered collections exist from more humid sections of the Peninsula. Capraria frutescens is easily distinguished by its monopodial stems with eglandular hairs along the stem and leaves, and glandular hairs in pedicels and calyx. The petals are white with purple spots or totally purple, the corolla is strongly zygomorphic (bilabiate), with four included, didynamous stamens, featuring a hemispheroid with the base concave (reniform in outline) stigma. The morphology as well as chromosome numbers (reported by Williams as 2n = 60) suggest that the other three species of Capraria are more closely related among them than they are to this one.
In the Yucatan Peninsula, Capraria biflora and C. frutescens are often found growing sympatrically. However, no evidence of hybridization or introgression has been found. These two species have substantial differences in the morphology of the flowers; shape and color of the corolla and stamens (see figures 1 and 3). These differences suggest a divergent set of pollinators. Capraria frutescens has been collected in flower and/or fruit all year round.
As other members of the genus, Capraria frutescens is locally known as claudiosa (Spanish), sek’aax, and box (Mayan). It is reported as medicinal for coughs and sore wounds.

**Capraria mexicana** Moric. ex Benth. in DC., Prodr. 10:429. 1846. Figure 3a and b; figure 6.


**DISTRIBUTION:** Mexico (Campeche, Chiapas, Guanajuato, Jalisco, Oaxaca, Querétaro, Quintana Roo, San Luis Potosí, Tabasco, Tamaulipas, and Veracruz). Also United States of America (Texas), and Belize (Corozal and Stann Creek) (Williams, 2004). Credit to the curators of UADY and UCAM for specimen loans. We would like to thank Dr. Celene M. Espadas for her collaboration in assembling the distributional maps. The visit to MEXU carried out during this research was funded by the project “Flora Ilustrada de la Península de Yucatán” and by CICY (Centro de Investigación Científica de Yucatán, A.C.). Socorro González, an anonymous reviewer, and the editor of the journal greatly improved the manuscript with their suggestions.

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**LITERATURE CITED**


**NEW RECORD OF **CAPRARIA MEXICANA IN THE YUCATAN PENINSULA**

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