

# A NEW SPECIES OF *JATROPHA* (EUPHORBIACEAE) FROM NICARAGUA<sup>1</sup>

GRADY L. WEBSTER<sup>2</sup>

## ABSTRACT

A new species, *Jatropha stevensii*, is described from collections in Dept. Boaco in Nicaragua. It may be assigned to subg. *Curcas* and appears related to *Jatropha fremontiioides*, a species from southern Mexico. *Jatropha stevensii* represents yet another extension of the Mexican xerophytic element into Central America, and the second record for *Jatropha* subg. *Curcas*.

When *Jatropha costaricensis* Webster & Poveda was described from Guanacaste, Costa Rica, some years ago (Webster & Poveda, 1978), it was predicted that other xeric relict taxa might be discovered elsewhere in Central America. Recent botanical exploration in Nicaragua has disclosed not only a number of new populations of *Jatropha podagrica* Hook. in rocky areas in Dept. Esteli, but also on basaltic ridges in Dept. Boaco a species that appears to be undescribed. Unlike *J. podagrica*, which belongs to subg. *Jatropha* (Dehgan & Webster, 1979), the plant from Boaco clearly is referable to subg. *Curcas*.

***Jatropha stevensii*** Webster, sp. nov. TYPE: Nicaragua, Dept. Boaco, 1.6 km SW of Santa Cruz, low ridge of basaltic lava, 140–160 m, 12°24'N, 85°50'W, 7 June 1984, *W. D. Stevens 22902* (MO, holotype; DAV, isotype; additional isotypes to be distributed). It should be noted that the type collection includes both glabrous and pubescent specimens and was apparently gathered from several individuals.

Ab *J. olivacea* differt dichasio *menor*, minore stipulis obsoletis, foliis integris marginibus non glanduligeris; ab *J. alamanii* foliis elobatis, sepalis minoribus, petalis tantum  $\frac{1}{3}$  longitudinis coalitis; ab *J. fremontiioides* foliis acuminatis, dichasio non capituliforme.

Deciduous shrub to 3 m high; twigs terete, greyish- or reddish-brown, glabrous or hispidulous, exuding cloudy latex when cut. Leaves alternate or clustered on spur shoots; stipules obsolete; petioles slender, 5–25 mm long; blades thinly chartaceous, ovate contracted to an acuminate tip, cordate at base, loosely tomentose to glabrous beneath, 2–4 cm long, 1–3 cm broad, palmately 5-veined at base, brochidodromous,

beneath midrib and secondaries raised, veinlets prominent; margins entire, eglandular. Monoecious; dichasia terminal, often paired, with peduncle 1–2.5 cm long, branches hispidulous; bracts oblong-lanceolate to oblanceolate, glabrous or tomentulose, lower ones 4–5 mm long and 1.2–1.3 mm broad; pistillate flowers 0–2 per dichasium, at lower nodes; staminate flowers 10–15, at upper dichotomies. Staminate flower: pedicel 0.5–0.8 mm long, articulated at base; sepals 5, lanceolate, obtuse or subacute, entire, glabrous or hirsutulous, 2.5–4.8 mm long, 1.2–2 mm broad; petals 5, pale green, oblong, glabrous abaxially, copiously hirsutulous adaxially in lower half, 5.5–6 mm long, coherent into a tube in lower  $\frac{1}{3}$ , midrib with several sharply ascending laterals that dichotomize distally; disk glands 5, cubical, glabrous, 0.5–0.6 mm high; stamens 10, biverticellate, monadelphous below into a slender column 3–4 mm high, outer stamens on filaments ca. 1 mm long. Pistillate flower: pedicel glabrous or tomentulose, becoming 3–1.1 mm long in fruit; sepals 5, elliptic or lanceolate, obtuse or subacute, becoming in fruit 5.5–6.5 mm long, 2.5–3.8 mm broad; petals 5, ovate at base tapering to oblong obtuse tips, pale green, ca. 5.8–6 mm long, 4–4.2 mm broad, hirsutulous adaxially, coherent in lower  $\frac{1}{3}$ ; disk dissected into 5 lobes; ovary smooth, glabrous, sharply carinate, 3-locular; styles ca. 3 mm long, connate in lower  $\frac{1}{3}$ , erect, scarcely bifid; stigmas dilated, elliptic, 0.7 mm long, 0.3 mm broad. Capsule smooth, 3-lobed, prominently 3-carinate on back of cocci, 1.5–1.6 mm in diameter; seeds ellipsoidal, ca. 9 mm long, smooth; caruncle brownish, deeply flabellately lobed, 2.5 mm long, 4 mm broad.

*Additional collections examined.* NICARAGUA. BOACO: 1 km E of Santa Cruz, 200 m, *Moreno 22467B*

<sup>1</sup> I wish to thank Ms. Lynn Gillespie for the photograph of the type collection.

<sup>2</sup> Department of Botany, University of California, Davis, California 95616.

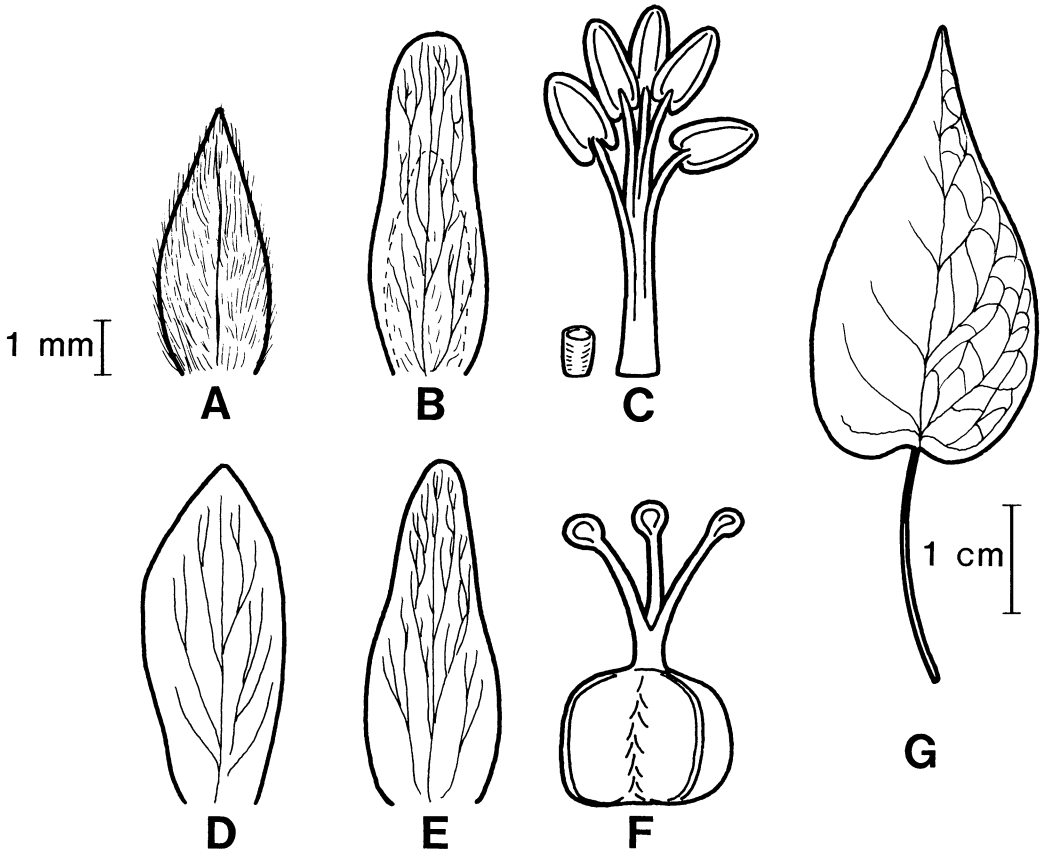


FIGURE 1. Flowers and leaf of *Jatropha stevensii* (Stevens 22902).—A–C. Staminate flower.—A. Sepal.—B. Petal.—C. Androecium and disk-segment.—D–F. Pistillate flower.—D. Sepal.—E. Petal.—F. Gynoecium.—G. Leaf.

(MO). Matagalpa: San Juanillo, 8 km SE of Ciudad Darío, 500 m, *Grijalva 2599* (DAV, MO).

*Jatropha stevensii*, named in honor of Warren Douglas Stevens, the leading student and collector of the Nicaraguan flora, belongs to subg. *Curcas* (Adans.) Griseb. by virtue of its flowers with entire imbricate sepals, coherent petals, and androecium of 10 monadelphous stamens (Dehgan & Webster, 1979). Within subg. *Curcas*, it is referable to sect. *Platyphyllae* Dehgan & Webster because of its 3-locular carinate fruits and biseriate anthers. However, it is divergent from most species of sect. *Platyphyllae* in having elongated seeds with a prominent caruncle. As noted by McVaugh (1945), *J. fremontioides* Standl. from Oaxaca differs from other species of subg. *Curcas* in its prominently carunculate seeds. Furthermore, Dehgan (1980) has indicated that *J. fremontioides* is distinguished by anisocytic stomata, a feature unique in the genus.

The prominently carunculate seeds, monoecious flower production, and small entire cordate leaves link *J. stevensii* with *J. fremontioides* and indicate that the latter is the closest relative of the new species. The two species form a subgroup of sect. *Platyphyllae* differing from more typical species such as *J. platyphylla*, *J. alamanii*, and *J. ciliata*, which have larger more-or-less lobed leaves, flowers produced dioeciously, and seeds with small caruncles. Nevertheless, the staminate and pistillate flowers of such species as *J. ciliata* are quite similar overall to those of *J. stevensii* and *J. fremontioides*, and the preponderance of evidence does not seem to compel any modifications in the circumscription of sect. *Platyphyllae* at this time.

The discovery of *J. stevensii* in Nicaragua brings to three the number of endemic Central American species of *Jatropha*: *J. podagrifolia* Hook. (eastern Guatemala to Nicaragua), *J. stevensii*



FIGURE 2. Photograph of type collection of *Jatropha stevensii* (Stevens 22902); left-hand glabrous branch with capsule and staminate flowers; right-hand pubescent branch with pistillate flowers.

(Nicaragua), and *J. costaricensis* Webster & Poveda (Guanacaste, Costa Rica). These species belong to two different subgenera and sections, *J. podagrica* in subg. *Jatropha* sect. *Peltatae* and *J. stevensii* and *J. costaricensis* in subg. *Curcas* sect.

*Platyphyllae*. However, as noted by Webster and Poveda (1978), *J. costaricensis* is most closely related to *J. alamanii* Muell. Arg. of southern Mexico (Oaxaca) and therefore not to *J. stevensii*.

The Central American species of *Jatropha* ap-

pear to represent a depauperate extension of the large assemblage of endemic species in southern Mexico, as remarked by Webster and Poveda (1978). It is interesting that the floristic break for *Jatropha* comes not at the Isthmus of Tehuantepec but in Guatemala; however, there is clearly a decline in diversity east of the Isthmus.

In contrast to studies such as that of Savage (1982) on vertebrate distributions in Mesoamerica, there is clearly no ancient Central American center for xeric Euphorbiaceae such as *Cnidoscolus*, *Jatropha*, and *Manihot*. Instead, in Mesoamerican *Jatropha* there has been an invasion of one species of subg. *Jatropha* from the south (*J. podagrica*) and two species of subg. *Curcas* from the north (*J. costaricensis* and *J. stevensii*). Gentry (1982) considers that xeric Mesoamerican taxa are ultimately of southern origin. However, for *Jatropha* subg. *Curcas* and other distinctive Mexican xerophyte taxa such as the Fouquieriaceae, this migration from the south must have been so ancient that these taxa may be regarded as autochthonous to Mexico in terms of their evolutionary diversification. In contrast, the in-

vasion of plants ancestral to *J. podagrica* must be more recent, and indeed perhaps subsequent to the closing of the Panamanian gap.

#### LITERATURE CITED

- DEHGAN, B. 1980. Application of epidermal morphology to taxonomic delimitations in the genus *Jatropha* L. (Euphorbiaceae). *Bot. J. Linn. Soc.* 80: 257–278.
- & G. L. WEBSTER. 1979. Morphology and infrageneric relationships of the genus *Jatropha* (Euphorbiaceae). *Univ. Calif. Publ. Bot.* 74: 1–73.
- GENTRY, A. J. 1982. Neotropical floristic diversity: phytogeographical connections between Central and South America, Pleistocene climatic fluctuations, or an accident of the Andean orogeny? *Ann. Missouri Bot. Gard.* 69: 557–593.
- MCVAUGH, R. 1945. The genus *Jatropha* in America: principal intrageneric groups. *Bull. Torrey Bot. Club* 72: 271–294.
- SAVAGE, J. M. 1982. The enigma of the Central American herpetofauna: dispersals or vicariance? *Ann. Missouri Bot. Gard.* 69: 464–547.
- WEBSTER, G. L. & L. J. POVEDA. 1978. A phytogeographically significant new species of *Jatropha* (Euphorbiaceae) from Costa Rica. *Brittonia* 30: 265–270.