1960

The Genus *Xylonagra* (Onagraceae)

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Recommended Citation

Munz, Philip A. (1960) "The Genus *Xylonagra* (Onagraceae)," *Aliso: A Journal of Systematic and Floristic Botany*. Vol. 4: Iss. 3, Article 7.

Available at: <https://scholarship.claremont.edu/aliso/vol4/iss3/7>

ing-pubescent; leaf-blades oblong-ovate to round-oval, 4-12 cm. long, 2.5-7 cm. wide, cuneate to asymmetrically rounded at base, abruptly short-acuminate to rounded at apex, glabrous to pubescent along the veins especially on the under surface, sometimes glaucous beneath, with about 7-8 main veins on each side of the midrib; pedicels 1-4 mm. long; ovary rather densely spreading-pubescent; floral tube 6-8.5 cm. long, scattered-pubescent; sepals 3.5-5.5 cm. long, scattered-pubescent, the free tips 8-10 mm. long; petals about 3 cm. long; anthers about 24 mm. long; capsule 3-4.5 cm. long.

Type locality, Volcán Jumaytepec, Dept. Santa Rosa, Guatemala. Herbarium material seen, GUATEMALA: without locality, *Heyde* 743 (US). Dept. SANTA ROSA, Volcán Jumaytepec, *Heyde & Lux* 4479, type coll. (G, GH, K, US), 4336 (GH, K, MO, US in part).

These collections are from about 1800 meters elevation; they are characterized by the loose spreading pubescence on the younger parts, the long floral tube and sepal-tips, the short capsule.

14. HAUYA RODRIGUEZII J. Donnell Smith,

Bot. Gaz. 18: 3, 1893; Smith & Rose, Contr. U. S. Nat. Herb. 16: 292, 1913.

Tree about 10 m. high; young branches more or less strigulose with also a few more spreading hairs; petioles 1.5-3 cm. long, strigulose and somewhat pubescent; leaf-blades oblong-ovate to elliptical, cuneate or rounded at base, abruptly acuminate, 4-11 cm. long, 3-7 cm. wide, coriaceous, subglabrous except for minute appressed hairs along the veins especially when young, with about 8-10 main veins on each side of the midrib; pedicels 0-4 mm. long; ovary densely strigulose; floral tube 7-8 cm. long, it and the calyx less densely strigulose; sepals 6-7 cm. long, the flattened-subulate appendages 8-10 mm. long; petals ovate, 4 cm. long, 2.5 cm. wide; anthers 2 cm. long; capsule 5.5-6 cm. long, subglabrous.

Type locality, Acatepeque, Dept. Zacatepequez, Guatemala. Specimens seen, GUATEMALA: Dept. ZACATEPEQUEZ, Acatepeque, southeast slopes of Volcán de Fuego, at 4300 ft., March, 1892, *J. D. Smith* 2529, type collection (G, GH, K, MO, NY, P, US).

The species is near to *H. matudai* in strigosity, but apparently different in longer sepal-tips, somewhat larger flowers, more glabrous larger leaves. Additional collections might break down these differences.

EXCLUDED SPECIES

Hauya arborea Curran, Proc. Calif. Acad. Sci., Ser. II, 1: 253, 1888, is *Xylonagra arborea* (Kell.) Donn. Smith & Rose.

Hauya californica Wats., Proc. Am. Acad. 20: 366, 1885, is *Xylonagra arborea* (Kell.) Donn. Smith & Rose.

THE GENUS XYLONAGRA (ONAGRACEAE)

PHILIP A. MUNZ

Based on the single species *X. arborea*, the genus *Xylonagra* was separated from the genus *Hauya* by J. Donnell Smith and J. N. Rose (Contr. U. S. Nat. Herb. 16: 294, 1913). *Hauya* is a rather large shrub or a tree with large white flowers, large leaves, capsules with many biseriate seeds in each locule, and floral tube glabrous within. It ranges from north central Mexico to Costa Rica. *Xylonagra*, on the other hand, is a small shrub with smaller scarlet flowers, small leaves, few uniseriate seeds in each locule, and the floral tube pubescent within. It is found in rather a limited area on the west side of Baja California and is very much more xerophytic in character. Grateful acknowledgment is made for the support given by National Science Foundation Grant 4316 which was of aid in the preparation of this paper.

DESCRIPTION OF THE GENUS

A bushy shrub with many short branches, the branchlets of the current year slender, simple. Leaves alternate, solitary or fascicled, entire, linear-oblong to narrowly ovate-oblong, the midvein ending in a gland-tip. Inflorescence of terminal usually elongate racemes of scarlet flowers. Floral tube narrow and pubescent in lower portion, then abruptly funnelliform about the middle. Sepals 4, lanceolate. Petals 4, oblong-obovate. Stamens 8, the episepalous longer than the epipetalous; filaments somewhat enlarged upward; anthers mucronate. Stigma capitate. Capsule 4-loculed, loculicidal; seeds few in a single row in each locule, winged at one end.

XYLONAGRA ARBOREA (Kell.) Donnell Smith & Rose,

Contr. U. S. Nat. Herb. 16: 294, 1913.

Oenothera arborea Kell., Proc. Calif. Acad. Sci. 2: 32, pl., 1859.

Hauya californica Wats., Proc. Am. Acad. 20: 366, 1885, new name for the preceding.

H. arborea Curran, Proc. Calif. Acad., ser. II, 1: 253, 1888.

Shrubs 5-17 dm. high, the branches largely leafless, slender; young twigs slender, simple, reddish, finely strigulose and somewhat glandular-pubescent; leaf-blades 8-14 mm. long, 2-5 mm. broad, strigulose; petioles 1-5 mm. long; pedicels about 4-5 mm. long, thickening in fruit, finely glandular-pubescent; ovary canescent; floral tube scarlet, about 2 cm. long, widened upward near the middle, finely glandular-pubescent; sepals scarlet, reflexed, 8-9 mm. long, sparsely and finely glandular-pubescent; petals free, erect, oblong-obovate, about 6-9 mm. long; episepalous stamens slightly exserted, the epipetalous included; style slender, red, slightly exserted; capsule 8-12 mm. long; seeds (including wing) about 6-10 mm. long.

Type locality, Cedros Island, Baja California. Material seen, CEDROS ISLAND: *Dr. J. A. Veitch* (CAS* type, GH), *T. S. Brandegees*, April, 1897 (POM), *H. L. Mason* 2023 (DS, F, NY, US), *A. W. Anthony* 46 (DS, GH in part, MO, NY, POM, PH in part, UC), 324 (DS, E, F, GH, K, MO, UC), *E. L. Greene* in 1885 (BM, DS, F, GH, NY, UC, US), *L. Belding* in 1881 (GH), *Octavio Solis* 43 (US); arroyo near middle of east side, *Reid Moran* 3028 in part (UC).

The typical form of the species has gland-tipped spreading hairs on the flowers and is known from Cedros Island only with the possible exception of a collection from San Pablo by T. S. Brandegees in 1889 (UC). Most material from the mainland and a small amount from Cedros Island differ and constitute the following new subspecies.

Xylonagra arborea subsp. *wigginsii* Munz, subsp. nov.

Pubescence on younger parts and flowers very short, fine, appressed, not gland-tipped; leaf-blades to 20 mm. long and to 10 mm. broad; floral tube largely 2-3 cm. long; sepals 8-13 mm. long; petals 10-18 mm. long. (Pubescentia adpressa; laminis foliorum ad 20 mm. longis et ad 10 mm. latis; tubo floris 2-3 cm. longo; sepalis 8-13 mm. longis; petalis 10-18 mm. longis.)

Type from gravelly mesas 0.5 miles inland from ocean, 32 miles south of Punta Prieta, Baja California, April 17, 1931, *I. L. Wiggins* 5395, Pomona College Herbarium 261786, isotypes at DS, MICH, NY, UC, US.

Other material seen: Mainland of BAJA CALIFORNIA: without locality, *C. A. Purpus* in 1898 (UC); Miller's Landing, *Wiggins* 11312 (DS, UC, US); Mesquite Grande, *Haines & Stewart* in 1935 (DS, UC); 10 miles south of Miller's Landing, *Lindsay* in 1937 (DS); Mesquite, *Harbison* in 1940 (RSA); 5.9 km. southeast of El Muertito, *Carter & Kellogg* 2995 (DS); San Andres, *Nelson & Goldman* 7157 (POM, US); Santa Catarina Landing, *Lindsay* in 1937 (DS); Rosalia Bay, *A. W. Anthony* 46a (DS, E, F, GH, K, MO, NY, PH, POM); San Bartolomé Bay, *Pond* in 1889 (US); 25 miles southwest of Punta Prieta, *Betty Hammerly* 63 (DS, US); Canoas Point, *Streets* in 1875 (US). CEDROS ISLAND: *J. N. Rose*, 16133 (F, MO, NY, S, UC, US), *A. W. Anthony* 46 (GH in part, PH in part, US); arroyo in middle of east side, *R. Moran* 3028 in part (UC).

The pubescence, tendency to larger leaves and flowers and the occurrence mostly on the mainland rather than on Cedros Island seem to indicate these plants as a separate subspecies.

*Herbarium abbreviations employed in this paper in citing specimens are the standard ones.