**FIRST RECORD OF *ELAEAGIA* (RUBIACEAE) IN MEXICO,
WITH DESCRIPTION OF A NEW SPECIES, *E. UXPANAPENSIS****

DAVID H. LORENCE**

ABSTRACT

A new species of Rubiaceae, *Elaeagia uxpanapensis* Lorence, is described from the Uxpanapa zone of Oaxaca and Veracruz in the Isthmus of Tehuantepec, and from northern Chiapas. A large tree of the lowland rain forest and montane semideciduous forest, it is the first record of the genus in Mexico. Its distribution, habitat and affinities are discussed and specimen citations are given.

RESUMEN

Se describe una nueva especie de Rubiaceae, *Elaeagia uxpanapensis* Lorence, de la región de Uxpanapa de Oaxaca y Veracruz en el Istmo de Tehuantepec, y del norte de Chiapas. Es un árbol grande de selva alta perennifolia de las tierras bajas y del bosque mesófilo de montaña. Se registra el género por primera vez en México. Se discute su distribución, hábitat y afinidades, y se citan los ejemplares examinados.

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Elaeagia Wedd., a genus of some 16 species belonging to the tribe Rondeletieae, is centered in South America with a single species known from Cuba. Two additional species occur in Central America, one of which, *E. nitidifolia* Dwyer, is known only from Panama. The other, *E. auriculata* Hemsl., extends as far north as Guatemala (Standley & Williams, 1975; Dwyer, 1980). Most members are large trees, some attaining 35 meters, although the Cuban species is said to be shrubby (Standley, 1921). All known species occur in montane forest at altitudes of 800 to 2 800 meters. Consequently, it was surprising to see material, apparently representing an undescribed species,

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**Departamento de Botánica, Instituto de Biología, Universidad Nacional Autónoma de México. Ap. Postal 70-233, 04510 México, D.F.

from lowland tropical rain forest in SE Oaxaca and adjacent Veracruz in Mexico. However, Dr. Tom Wendt's collecting efforts towards a woody flora of the Uxpanapa Zone have yielded a number of range extensions for taxa previously known only from Central America or Chiapas. Significantly, this region lies at the northern limits of the area to be included in *Flora Mesoamericana*. An additional collection is known from montane forest at 1 100 m in northern Chiapas, a habitat more typical for the genus.

***Elaeagia uxpanapensis* Lorence, sp. nov.**

Arbores ad 25 m alti, ramulis glabris. Folia elliptica vel obovato-elliptica, lamina 90-200 mm longa, 40-89 mm lata, apice acuta vel abrupte-acuminata, basi cuneata vel anguste-cuneata, papyracea, supra glabra nitida subtus subglabra in venis costaque pilis minutis munita, venis lateralibus 6-11 in axillis barbatis; petiolis 10-20 mm longis glabris; stipulis deciduis ovatis vel ovato-deltoides naviculatis 8-15 mm longis 4-6 mm latis acuminatis carinatis glabris. Inflorescentiae terminales cymoso-paniculatae 90-140 mm longae, 50-90 mm latae, hirtellae, sessiles vel pedunculo ad 35 mm longo, ramis paucis oppositis, floribus in cymis dispositis; floribus sessilibus vel subsessilibus; hypanthio obconico glabro vel parce hirtello 1 mm longo; cupula calycis 0.2-0.3 mm longa glabra, dentibus (4 -) 5 - 6(-7) deltoideis 0.3-0.5 mm longis; corolla alba tubo 1.5-2.0 mm longo extus glabro intus ad faucem villosa-barbato, lobis (4 -) 5-6 obtusis 1.0-1.5 mm longis, antheris cordatis vel ellipsoideis 0.5-0.6 mm longis exsertis, filamentis 2-3 mm longis ad basem villosis, stylo 2.0-2.5 mm longo, lobis stigmatis obtusis granulato-papillois 1 mm longis. Capsula obovoideo-turbinata vel globosa 1.5-2.5 mm longa 1.5-2.5 mm lata glabra, seminibus reticulatis 0.4-0.8 mm longis.

Trees to 25 m tall and 1.3 m diam., the bark flaking, grayish-or reddish-brown, the blaze pinkish or reddish, the wood cream or brownish-white. Mature leafy stems 3-5 mm diam., glabrous, longitudinally striate-wrinkled, the internodes $\pm$ compressed; stipules brown, resinous, soon deciduous, ovate to ovate-deltoid, naviculate, 8-15 $\times$ 4-6 mm, dorsally carinate, acute to acuminate, the acumen 1-2 mm long. Leaves crowded, petiolate; petioles sparsely appressed puberulent, glabrescent, 10-20 $\times$ 1.5-2.0 mm, adaxially flattened or canaliculate; lamina elliptic to obovate-elliptic, 90-200 $\times$ 40-89 mm, the apex acute to abruptly short acuminate, the acumen to 10 mm long, the base cuneate to narrowly cuneate or $\pm$ attenuate, chartaceous, the adaxial surface glabrous, $\pm$ lustrous, drying olivaceous or dark brown, the abaxial surface subglabrous, drying light brown, with scattered minute appressed hairs, especially along the costa and secondary veins, glabrescent, the 2° vein axils sparsely barbate, not domatiate, the costa raised abaxially, canaliculate adaxially, often reddish-brown, the secondary veins 6-11 pairs, arcuate, making a 60-75° angle with the costa, weakly festooned brochidodromous, the venation prominent, visible to 4° adaxially and to 4°(-5°) abaxially, the margin thin, callose. Inflorescence terminal, mostly shorter than or sometimes equalling the leaves, paniculate, branching to the 3°-4°, ovate in outline, 90-140 $\times$ 50-90 mm, sessile or the peduncle to 35 mm, 3(-5)-branched from the base, the axes hirtellous, the primary axis 2-4 mm wide, $\pm$ compressed, the 2° axes ascendent, 3-6 pairs, subtended by stipule-like bracts, the basal pair robust, separated from the next pair by 15-45 mm, the 3° axes subopposite, minutely bracteolate, the ultimate axes each bearing 2-15 flowers, these in cymose units of 2-3(-5) or rarely solitary. Flowers sessile or subsessile, the pedicel to 0.5 mm long, hirtellous basally, the hypanthium 1 mm long, obconic, glabrous or with scattered hairs basally, the calyx cup 0.2-0.3 mm deep, glabrous, the calyx lobes (4 -) 5-6(-7), deltoid, 0.3-0.5 mm long and wide, sparsely ciliate apically;

Fig. 1. Habit and details of *Elaeagia uxpanapensis* Lorence. A. Habit. B. Leaf, detail of venation. C. Stipule. D. Flower. E. Corolla, dissection. F. Gynoecium, longitudinal section. G. Branch of infructescence. H. Seed. All from *Wendt et al.* 3299.

corolla creamy white, obconical, 2.5-3.5 mm long, externally glabrous, the tube 1.5-2.0 mm long, densely white villous within at the throat, the lobes (4-)5-6, obtuse, ovate to ligulate, 1.0-1.5 mm long $\times$ 1 mm wide, glabrous externally, internally densely villous-barbate basally; stamens (4-)5-6, exserted, the filaments slender, 2.0-3.0 mm long, attached at the mouth of the tube, densely white villous basally, the anthers white, broadly ellipsoid to cordate, 0.5-0.6 mm long; style glabrous, 2.0-2.5 mm long, the stigmas 2(-3), thick, obtuse, obovoid-ellipsoid, 1 mm long, recurving, the inner surface granulate-papillose; ovarian disc thick, slightly bilobate. Fruit obovoid-turbinate to globose, 1.5-2.5 mm long and wide, glabrous, drying brown or greenish-brown; seeds angulate, 0.4-0.8 mm long, light brown, the surface reticulate.

Type: MEXICO. Oaxaca: Municipio of Matías Romero (Uxpanapa Zone), 2 km SE of La Floresta sawmill on road to Río Verde, 15 km S of Esmeralda; canyon with evergreen forest, 250 m alt., 17°03' N Lat., 94°47' W Long., 25 May 1981 (fl), **T. Wendt, S. Koch, A. Villalobos, J. García et al. 3299** (holotype, MEXU; isotypes, CHAPA, other 33 to be distributed).

MATERIAL STUDIED

MEXICO. Chiapas: Municipio of Tila, road between Tila and Salto de Agua, 1 100 m, 14 Aug. 1977 (fr), **Calzada, Márquez & Avendaño 3256** (XAL). Oaxaca: Municipio of Matías Romero, 3 km SSW of La Floresta sawmill (abandoned), 16 km S of Esmeralda, hills N of Río Verde, 17°03' N Lat., 94°47'30" W Long., alt. 300 m, 19 June 1982 (fl), **Wendt & Vázquez T. 3930** (CHAPA, MEXU); *ibid.*, between Río Verde and Arroyo Hamaca, near Río Verde, 10 km SE of La Floresta sawmill (abandoned), 17°01' N Long., 94°44' W Lat., alt. 300 m, 27 Sept. 1982 (fr), **Wendt, Villalobos C. & Navarrete 3992** (CHAPA, MEXU); *ibid.*, La Floresta sawmill, alt. 150 m, 19 June 1982 (fl), **García & Herrera 536** (CIIDIR*, MEXU); Municipio of Santa María Chimalapa, road to Santa María Chimalapa, at 22 km E of Lázaro Cárdenas, alt. 250 m, 24 May 1982 (fr), **Cedillo T. & Torres 1387** (MEXU). Veracruz: Municipio of Hidalgotitlán, S of Poblado 6 by trail, N of Río Cuevas, 17°15' N Lat., 94°30' W Long., alt. 170 m, 30 Sept. 1980 (fr), **Wendt, Villalobos, Lott, Lara & Navarrete 2790** (CHAPA, MEXU); *ibid.*, alt. 150 m, 30 Sept. 1980 (fr), **Wendt, Villalobos, Lott, Lara & Navarrete 2796** (CHAPA, MEXU).

Distribution. Endemic to Mexico. *Elaeagia uxpanapensis* is known from the Uxpanapa River zone and adjacent areas near the center of the Isthmus of Tehuantepec, and from northern Chiapas near the Tabasco border.

Habitat. In the Isthmus, it occurs in lowland evergreen rain forest restricted to deep soils (hill forest) with *Dialium*, *Calophyllum*, *Guarea*, *Pouteria sapota*, *Pterocarpus*, *Symphonia*, *Tapirira*, *Terminalia*, etc. from about 150 to 300 meters altitude. Wendt (1992 and personal communication) notes that it is locally frequent to codominant in one area. In Chiapas it was collected at 1 100 meters in montane forest with deciduous elements (probably *Liquidambar*, pine, oak forest) where said to be frequent. Flowering material was collected in May and June, and mature fruiting material in August and September.

Affinities. *Elaeagia uxpanapensis* differs from the two previously known Mesoamerican species of the genus in having acute to acuminate stipules, a smaller, more compact

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ELAEAGIA IN MEXICO WITH A NEW SPECIES

TABLE 1. Some diagnostic features of the Mexican and Mesoamerican species of *Elaeagia*

Character	<i>E. auriculata</i>	<i>E. nitidifolia</i>	<i>E. uxpanapensis</i>
Stipules	oblong-rotund, 45-50 mm long	truncate, 5 mm long	ovate to ovate-deltoid, acute to acuminate, 8-15 mm long
Inflorescence	200 mm long, 220 mm wide	120-160 mm long, 100 mm wide	90-140 mm long, 50-90 mm wide
Floral pedicel	2-5 mm long, erect	5 mm long, reflexed	0-0.5 mm long, erect
Calyx lobes	1 mm long, rounded, glabrous	absent (calyx truncate)	0.5 mm long, deltoid, apically ciliate
Corolla tube	1 mm long	1.5 mm long	1.5-2.0 mm long
Corolla lobes	1 mm long	3.5 mm long	1.0-1.5 mm long
Anthers	2 mm long	1.5 mm long	0.5-0.6 mm long
Fruit shape	oblong to oblong-rotund	turbinate	obovoid-turbinate to globose
Fruit size	4.5 mm long, 3.0 mm diam.	6-7 mm long, 5-6 mm diam.	1.5-2.5 mm long, 1.5-2.5 mm diam.
Habit and size	shrub or tree, 3-8 m tall	tree, to 6 m tall	tree, to 25 m tall

inflorescence, sessile or subsessile flowers, much smaller anthers and fruits, and a larger habit (table 1). It further differs from *E. auriculata* in its much shorter stipules, subglabrous leaves with a cuneate base and only scattered hairs abaxially along the costa and secondary veins, and smaller, apically ciliate deltoid calyx lobes. From *E. nitidifolia* it differs in having much longer stipules, abaxially barbate secondary vein axils, deltoid calyx lobes, and corolla lobes only one-half to one-third as long. Of the South American species only *E. karstenii* Standl. is similar, but differs in its much larger, obtuse stipules, pedicellate flowers, corolla with a shorter tube and longer lobes, anthers two or three times longer, and smaller fruits.

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LITERATURE CITED

- DWYER, J.D. 1980. Rubiaceae, in Woodson, R.E., R.W. Schery, *et al.* Flora of Panama. *Ann. Missouri Bot. Gard.* 67:156-159.
 STANDLEY, P.C. 1921. Rubiaceae, in *North American Flora* 32:95.
 STANDLEY, P.C. & L.O. WILLIAMS. 1975. Rubiaceae, in *Flora of Guatemala. Fieldiana: Botany* 24(11):68.