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New taxa of *Zapoteca* (Leguminosae, Mimosoideae) from Mexico

HÉCTOR M. HERNÁNDEZ
Departamento de Botánica, Instituto de Biología, Universidad Nacional Autónoma de México, Apartado Postal 70-233, 04510 México, D. F., Mexico; e-mail: hmhm@ib.unam.mx

Abstract

Two new species and one subspecies of Mexican *Zapoteca* (Leguminosae, Mimosoideae) are described and mapped. *Zapoteca balsasensis*, endemic to Guerrero, is characterized by having leafless portions of the branchlets bearing persistent stipules, whereas *Z. cruzii*, also from Guerrero, is distinguished by its ability of producing adventitious roots on the stem nodes. *Zapoteca formosa* subsp. *sinaloana*, endemic to Sinaloa, differs by its narrowly-oblong leaflets, which contrast with the oblong-obovate to widely obovate leaflets in the other subspecies. For the three taxa, information on their geographic range, habitat and hypotetical taxonomic affinities are provided.

Resumen

Se describen y mapean dos nuevas especies y una subespecie mexicanas de *Zapoteca* (Leguminosae, Mimosoideae). *Zapoteca balsasensis*, endémica de Guerrero, se caracteriza por tener porciones áfilas de las ramillas con estípulas persistentes, mientras que *Z. cruzii*, también de Guerrero, se distingue por su habilidad para producir raíces adventicias en los nodos de los tallos. *Zapoteca formosa* subsp. *sinaloana*, endémica de Sinaloa, se diferencia de las otras subespecies por sus folíolos angostamente-oblongos, que contrastan con los foliolos oblongo-obovados a ampliamente obovados de las otras subespecies. Para los tres taxa descritos se proporcionan datos sobre su distribución geográfica, hábitat y sus afinidades taxonómicas hipotéticas.

Key words: Fabaceae, Guerrero, legumes, Sinaloa, taxonomy

Introduction

Zapoteca Hernández (1986: 757) is a genus segregated from *Calliandra* Bentham (1840: 138), belonging to the tribe Ingeae (Leguminosae, Mimosideae). It comprises 20 currently recognized species, which are grouped into five distinct subgenera (Hernández 1989, 1990). Its area of geographical distribution extends from northern Mexico and southwestern United States to northern Argentina, including most of Mexico, Central America, West Indies and South America. Southern Mexico is by far the richest center of distribution of species in the genus (Hernández 1989).
Examination of specimens from several herbaria resulted in the detection of two new species from Guerrero, Mexico and one subspecies of *Z. formosa* (Kunth 1822: 102) Hernández (1986: 757) from Sinaloa, all belonging to subgenus *Zapoteca*. These are described here and their putative taxonomic relationships are discussed.

Taxonomy

1. ***Zapoteca balsasensis*** H.M. Hern., *sp. nov*. (Figs. 1 and 2)

Shrubs erect; branchlets densely villous or velutinous with tawny hairs, becoming glabrous, frequently with leafless portions bearing persistent, dry, light-brown stipules; stipules 5–15 mm long. Pinnae 2–3-jugate; leaflets 20–48 pairs per pinna, 5–10 × 1–1.8 mm, narrowly-oblong to lanceolate. Peduncles 1.1–2.9(–4.7) cm long at anthesis. Flowers sessile or subsessile; calyx 2–3 mm long; corolla 5.5–7 mm long; filaments white at the basal half, red at the distal half. Pods 8 × 0.7 cm, glabrous.

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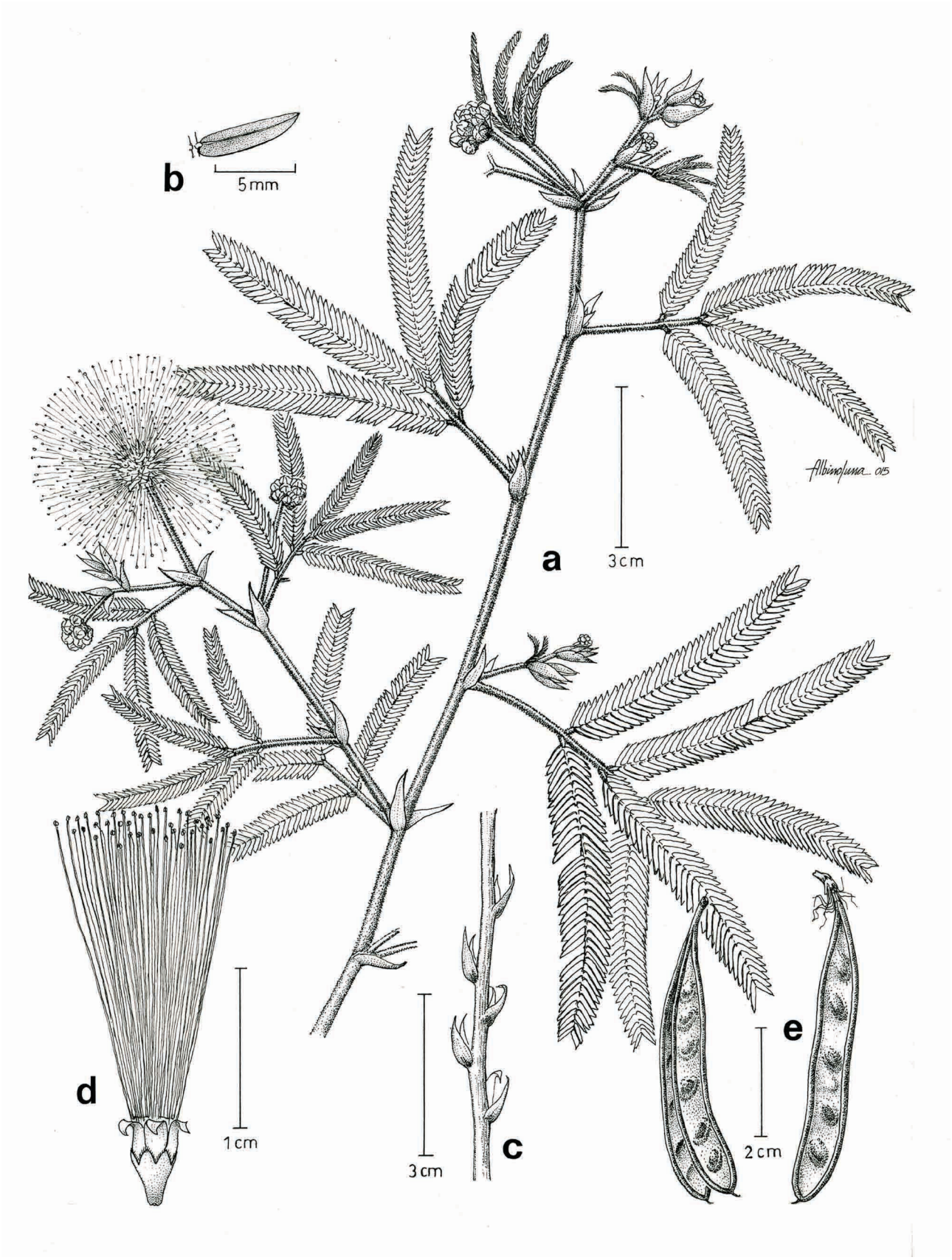

FIGURE 1. *Zapoteca balsasensis* H.M. Hern. **A**. Branchlet with inflorescence at anthesis. **B**. Leaflet. **C**. Detail of a leafless portion of the branchlet bearing persistent stipules. **D**. Flower. **E**. Pods. Vouchers: A–D, *J.L. Contreras 1735* (FCME); E, *M. Luna 879* (FCME). Drawn by Albino Luna.

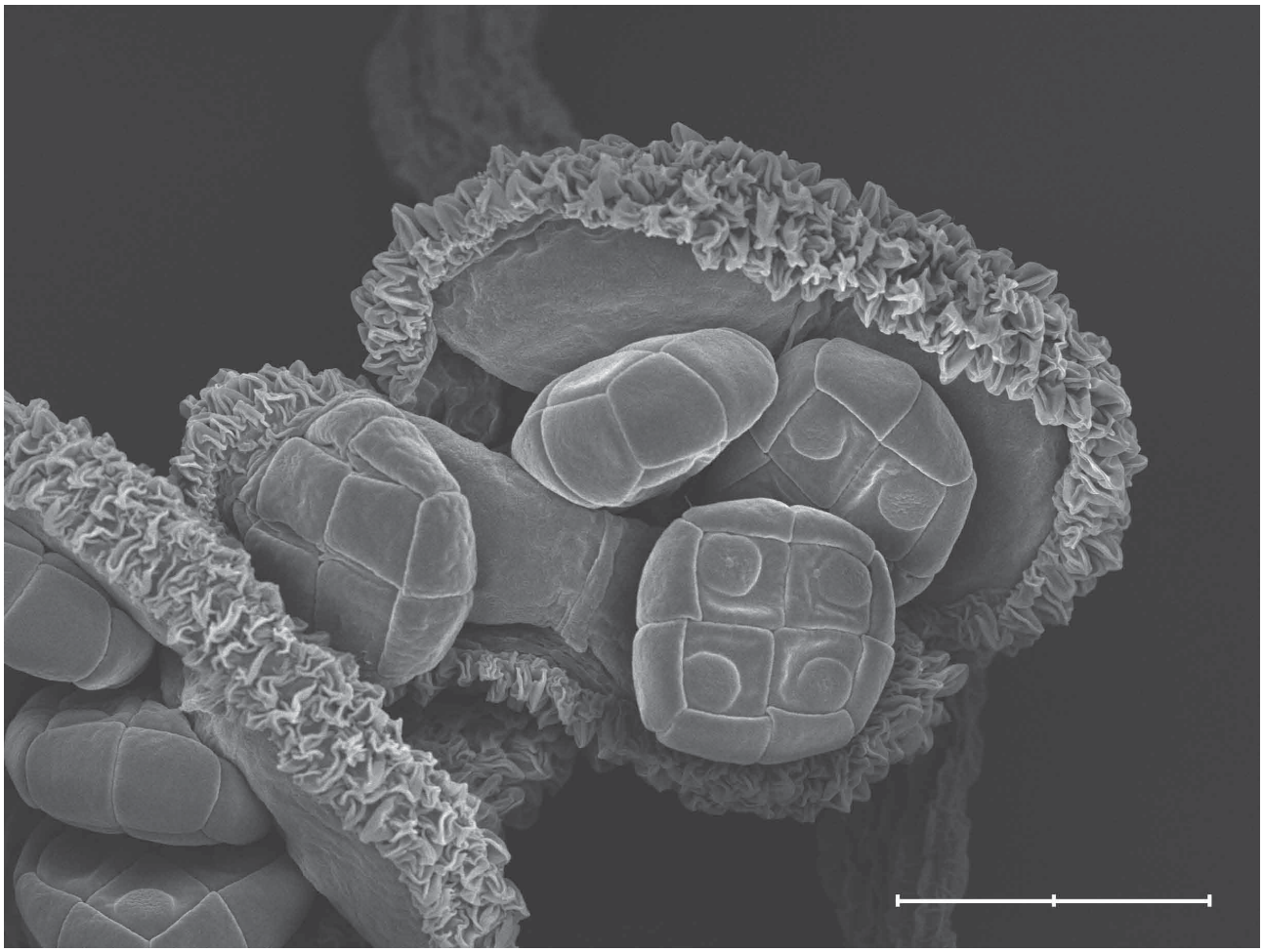

FIGURE 2. Dehisced anther of *Zapoteca balsasensis* showing the 16-grained polyads. Each theca produces four polyads. Voucher: *J.L. Contreras 1735* (FCME). Scale bar = 100 μm.

Type:—MEXICO. Guerrero: municipality of Leonardo Bravo, 7.4 km SE of Yextla, 17º32'37''N, 99º54'45''W, 1900 m, 7 July 1998 (fl), *B. González 1782* (holotype: MEXU 1399457!; isotype: FCME!).

Shrubs unarmed, to 2(–3) m tall, erect; **stems** slender; branchlets straight, rarely slightly geniculate, terete, sometimes angled, densely villous or velutinous with tawny hairs, becoming glabrous in the older parts, elongate, frequently with leafless portions bearing persistent, dry, light-brown stipules; **stipules** 5–15 mm long, adpressed to diffuse, triangular or triangular-lanceolate, thinly coriaceous, usually villous, becoming glabrous with age, ciliate, persistent, with conspicuous, parallel veins arising from the base. **Leaves** bipinnate, without nectariferous glands; pinnae 2–3-jugate; petioles 0.6–2(–2.4) cm long, villous or velutinous; rachis 0.2–1(–1.9) cm long, villous or velutinous; rachillae 1.9–3.7(–6.7) cm long, villous or velutinous; **leaflets** 20–48 pairs per pinna, the median ones 5–10 × 1–1.8 mm, narrowly-oblong to lanceolate, membranous to thinly coriaceous, glabrous at the adaxial and abaxial faces, olive-green or pale-green, base usually obliquely-truncate, margin ciliate, apex acuminate or acute; leaflet venation inconspicuous. **Inflorescences** organized in axillary capitula, sometimes arranged in terminal pseudopanicles; capitula 16–19-flowered; peduncles solitary or fasciculate, villous, 1.1–2.9(–4.7) cm long at anthesis. **Flowers** homomorphic, sessile or subsessile; pedicel 0–0.5 mm long; calyx 2–3 mm long, campanulate, membranous, glabrous, the teeth deltate to triangular, ciliate; corolla 5.5–7 mm long, campanulate, membranous, glabrous, usually dark-colored, the lobes lanceolate, revolute at anthesis; filaments 2.8–3 cm long at anthesis, white at the basal half, red at the distal half, with the staminal tube included; polyads 16-grained, 82–101 μm diameter, discoid, with eccentric lens-shaped thickenings on the central cells. **Pods** pendent, to 8 × 0.7 cm, linear or linear-oblanceolate, acute at the apex, rostrate, thickly membranous, glabrous. Mature seeds unknown.

Etymology:—The given specific epithet makes reference to the fact that this species is restricted to a small area of the Balsas river basin in the state of Guerrero, Mexico.

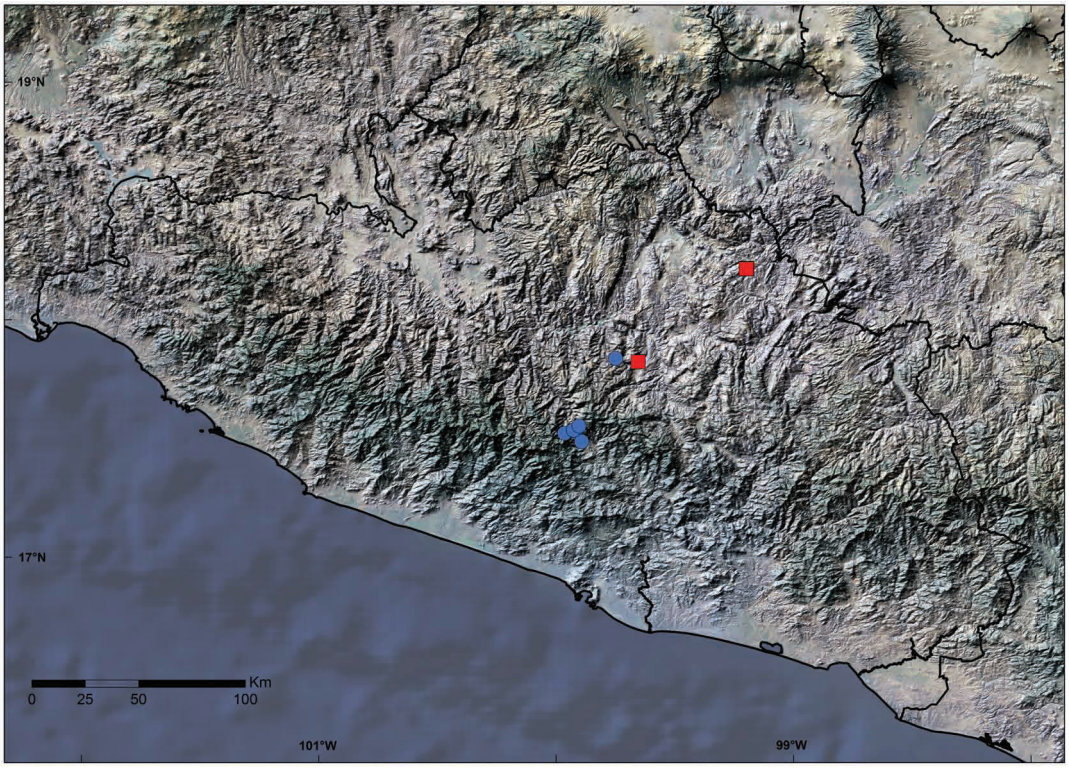

FIGURE 3. Geographic distribution of *Zapoteca balsasensis* (blue circles) and *Z. cruzii* (red squares) in the state of Guerrero, Mexico.

Distribution and habitat:—*Zapoteca balsasensis* appears to be located only in four contiguous municipalities of central Guerrero, in an area belonging to the Balsas river basin (Fig. 3). It has been found in canyons and karstic formations with oak and mountain mesophylic forest, or in secondary vegetation derived from these vegetation types, between 1650–1970 m elevation.

Phenology:—Flowering occurs from March to July and fruiting from April to July.

Additional specimens examined (paratypes):—MEXICO. **Guerrero**: municipality of Chilpancingo, 4 km before Yerbabuena, 3 km after Cruz de Ocote, on road from Filo de Caballo to Puerto del Gallo, 17º29'14''N, 99º53'33''W, 19 July 1982 (fr), *J.L. Contreras 1226* (FCME); municipality of Heliodoro Castillo, 28 km W of Filo de Caballo, 17º31'19''N, 99º57'51''W, 1850 m, 10 June 1985 (fl) *J.L. Contreras 1735* (FCME); municipality of Heliodoro Castillo, 12 km SW of Tres Caminos, 17º32'30''N, 99º55'05''W, 1870 m, 27 June 1997 (fl), *R. Cruz 1072* (FCME, MEXU); municipality of Leonardo Bravo,1 km from turnoff to Yeztla, 17º33'09''N, 99º54'13''W, 1970 m, 4 March 1984 (fl), *A.R. López-Ferrari 328* (FCME); municipality of Eduardo Neri, 5.5 km SW Carrizalillo, 17º50'12''N, 99º44'57''W, 1650 m, 20 April 1995 (fl, fr) *M. Luna 879* (FCME, MEXU).

Discussion:—The presence in *Z. balsasensis* of leafless portions of the branchlets bearing persistent stipules is a distinguishing character absent in the other species of the genus. This species has some superficial morphological similarities with *Z. media* (Martens & Galeotti 1843: 316) Hernández (1986: 757), namely the leaves with few (2–3) pairs of pinnae, the small, narrowly-oblong or lanceolate leaflets and the white/red flower filaments. However, in addition to the characteristic stipulate branch fragments, the new species may be distinguished from *Z. media* by being larger shrubs, and by having larger stipules, shorter peduncles and larger calyces and corollas (Tab. 1).

TABLE 1. Morphological comparison of *Zapoteca balsasensis*, *Z. media* and *Z. portoricensis*.

	Z. balsasensis	*Z. media*	*Z. portoricensis*
Shrub stature (m)	2(–3)	0.2–1.5(–3)	2–3(–7)
Leafless portions of branchlets stipulate	yes	no	no
Stipule length (mm)	5–15	(1–)2–7	11(–17)
Pairs of pinnae	2–3	1–2(–3)	(1–)3–6(–8)
Peduncle length (cm)	1.1–2.9(–4.7)	(1–)1.6–7(–10.5)	(1.3)3–12(–15)
Calyx length (mm)	2–3	1.5–2	1–3(–3.5)
Corolla length (mm)	5.5–7	3–3.5	3–8(–10)
Filament color	white/red	white/red	white

Zapoteca balsasensis may also be confused with *Z. portoricensis* (Jacquin 1791: 143) Hernández (1986: 758), a morphologically variable species comprising three subspecies, from which may also be readily distinguished by its usually lower number of pairs of pinnae and by the color of the filaments (Tab. 1).

Zapoteca balsasensis is a narrow endemic restricted to a small forest area of the Balsas river basin in Guerrero, whereas *Z. media* is widespread in arid and semi-arid locations from southern Texas to the Valley of Tehuacán-Cuicatlán, in Puebla and Oaxaca, including numerous locations all across the Chihuahuan Desert Region. Similarly, *Z. portoricensis* is another widespread species occurring in a variety of ecosystems in eastern and southeastern Mexico, parts of Central America, West Indies and South America (see map in Hernández 1989). These three *Zapoteca* species are not known to occur sympatrically in any portion of their distribution range.

2. ***Zapoteca cruzii*** H.M. Hern., *sp. nov*. (Fig. 4)

Shrubs scandent, producing adventitious roots below the nodes when in contact with the soil; branchlets glabrous throughout; stipules to 2(–3) mm long, sometimes forming brachyblasts. Pinnae 2–4(–6)-jugate, the proximal pairs sometimes sub-opposite; leaflets 22–32 pairs per pinna, 3–9 × 0.5–1.5 mm, narrowly-oblong. Peduncles filiform, glabrous, 3.2–6.1 cm long at anthesis, ca. 0.2 mm diameter. Flowers sessile; calyx 1.5–2 mm long; corolla 4 mm long; filaments white. Pods 9.2 × 0.65 cm, glabrous. Seeds ovoid, 4.5–5 × 3.5 mm, with pleurogram.

Type:—MEXICO. Guerrero: municipality of Atenango del Río, 2.4 km northwest of Tuzantlán, 18º12’50.6’’N, 99º11’58.4’’W, 1040 m, 29 June 2008 (fl), *R. Cruz 7500* (holotype: MEXU 1399454!; isotypes: FCME!, MO!).

Shrubs unarmed, up to 2.5 m tall, scandent; **stems** producing adventitious roots below the nodes when in contact with the soil; branchlets terete, elongate, slender, straight, glabrous throughout; **stipules** to 2(–3) mm long, adpressed, triangular or triangular-lanceolate, often curved, sometimes forming brachyblasts, subcoriaceous, usually glabrous or nearly so, sometimes with tufts of white trichomes at the base, ciliate, persistent, with conspicuous, parallel veins arising from the base. **Leaves** bipinnate, without nectariferous glands; pinnae 2–4(–6)-jugate, the proximal pairs sometimes sub-opposite; petioles 1.2–3.1 cm long, glabrous to sparsely villous; rachis (0.4–)1.1–3(–4.2) cm long, glabrous to sparsely villous; rachillae (1.8–)2.4–5.9 cm long, glabrous to sparsely villous; **leaflets** 22–32 pairs per pinna, the median ones 3–9 × 0.5–1.5 mm, narrowly-oblong, membranous, glabrous at the adaxial and abaxial faces, olive-green adaxially, pale-green abaxially, base usually obliquely-truncate, margin rarely ciliate, apex acuminate or acute; leaflet venation inconspicuous. **Inflorescences** organized in axillary capitula; peduncles solitary or fasciculate, filiform, glabrous, 3.2–6.1 cm long at anthesis, ca. 0.2 mm diameter. **Flowers** homomorphic, sessile; calyx 1.5–2 mm long, infundibuliform, membranous, glabrous, greenish-white, the teeth triangular; corolla 4 mm long, infundibuliform, membranous, glabrous, greenish-white, the lobes lanceolate, revolute at anthesis; filaments ca. 2 cm long at anthesis, white, with the staminal tube included; polyads 16-grained, 73–81 μm diameter, discoid, with eccentric lens-shaped thickenings on the central cells. **Pods** pendent, to 9.2 × 0.65 cm, linear or linear-oblanceolate, truncate at the apex, rostrate, thickly membranous, glabrous. Seeds ovoid, flattened, greenish, 4.5–5 × 3.5 mm, with pleurogram.

Etymology:—The epithet of this interesting species honors Ramiro Cruz Durán (b. 1966), a botanist currently working at the Herbarium of the Facultad de Ciencias, National Autonomous University of Mexico. He has significantly contributed to our knowkedge of the flora of Guerrero through the collection of over 9000 botanical specimens and the description of numerous new taxa in the Leguminosae and other plant families.

Distribution and habitat:—*Zapoteca cruzii* appears to be restricted to a relatively small area near the borderline of the municipalities of Huitzuco and Atenango del Río in north-eastern Guerrero, and a presumably disjunct locality in the vicinity of Xochipala (Fig. 3). The area ranges from 995 to 1060 m elevation and is covered by tropical deciduous forest.

Phenology:—Flowering is reported to occur in June and the pods remain on the plant until December.

Additional specimens examined (paratypes):—MEXICO. **Guerrero**: municipality of Atenango del Río, 2.3 km northwest of Tuzantlán, 18º12’52’’N, 99º11’58’’W, 1063 m, 30 June 2007 (fl), *R. Cruz 7014* (FCME, MEXU); municipality of Atenango del Río, 2.3 km northwest of Tuzantlán, 18º12’58’’N, 99º11 45’’W, 1068 m, 2 December 2007 (fr), *R. Cruz 7366* (FCME, MEXU); same locality and date, *R. Cruz 7367* (FCME, MEXU); municipality of Huitzuco: Paso Morelos, gorge at the east of road to Apanguito, 18º12’52’’N, 99º11’58’’W, 1063 m, 27 June 2013, *R. Cruz et al. 9018* (FCME); municipality of Eduardo Neri: Barranca Acatitlán, Xochipala, 17º49’21’’N, 99º39’17’’W, 1000 m, 21 June 1991 (fl), *M. Gual 272* (FCME, MEXU).

Discussion:—*Zapoteca cruzii* and *Z. alinae* (Hernández 1989: 813) share some morphological features probably reflecting taxonomic affinities between them. The most important common characters include the fact that both are slender, relatively tall shrubs, and the inflorescences having long, filiform peduncles and relatively small flowers

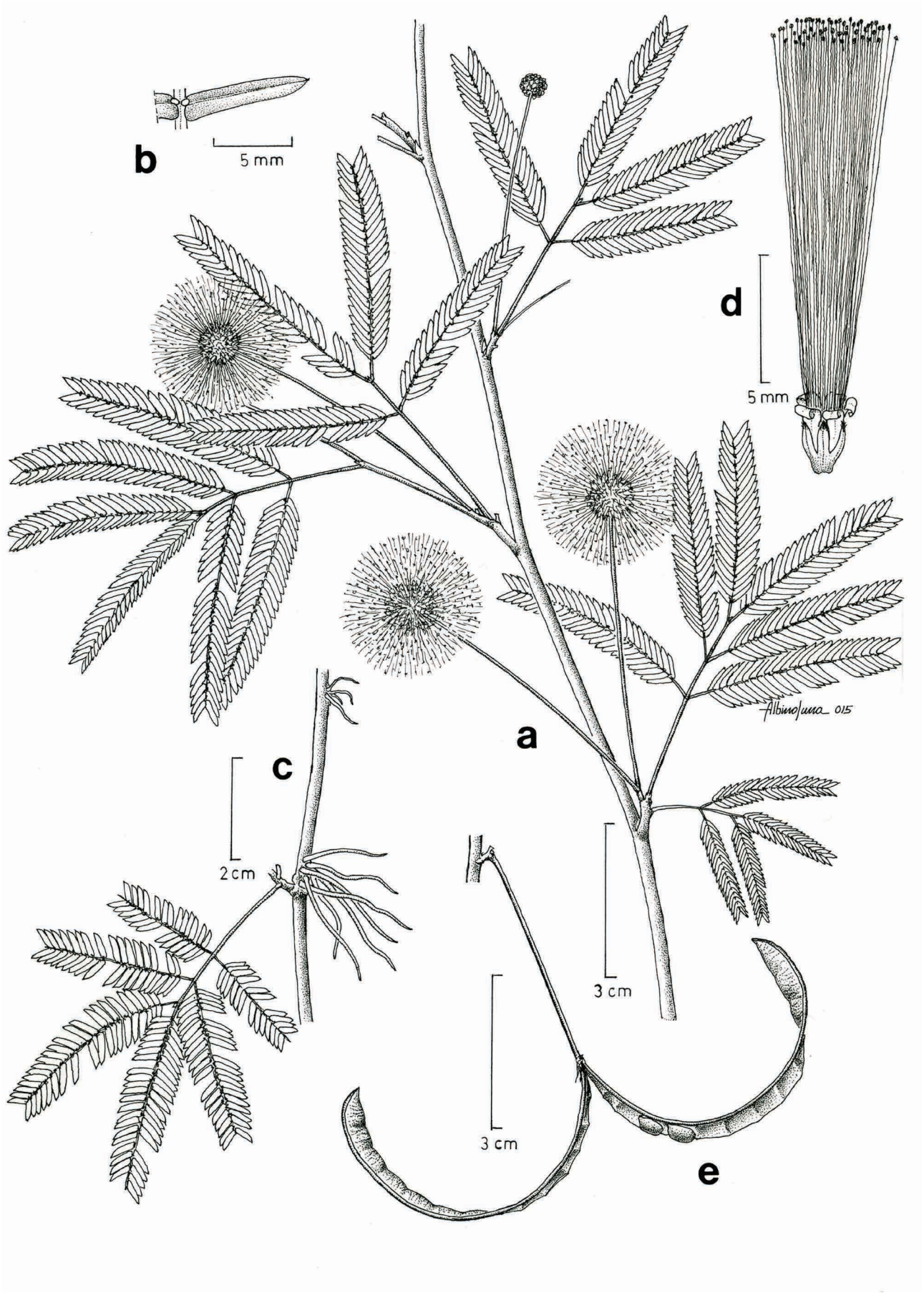

FIGURE 4. *Zapoteca cruzii* H.M. Hern. **A**. Branchlet with inflorescence at anthesis. **B**. Leaflet. **C**. Adventitious roots. **D**. Flower. **E**. Pod. Vouchers: A–B, D, *R. Cruz 7500* (FCME); C, *R. Cruz et al. 9018* (FCME); E, *R. Cruz 7366* (FCME). Drawn by Albino Luna.

with white filaments. However, these species may be distinguished by the scandent habit, the ability of producing adventitious roots, and the more numerous pairs of pinnae and leaflets of *Z. cruzii* (Tab. 2). The adventitious roots that are produced when the stem or branch nodes make contact with the soil represent an outstanding character not previously reported in any other species of *Zapoteca*.

Zapoteca cruzii is geographically separated from *Z. alinae*. As indicated above, it is restricted to a relatively small area of north-eastern Guerrero (Fig. 3), whereas *Z. alinae* is essentially limited to several localities of central Oaxaca (Hernández 1989).

TABLE 2. Comparison of *Zapoteca cruzii* and *Z. alinae*.

	Z. cruzii	*Z. alinae*
Habit	scandent shrubs	erect or curvate shrubs
Adventitious roots	present	absent
Pairs of pinnae	2–4(–6)	1(–3)
Pairs of leaflets per pinna	22–32	16–19
Geographical distribution	Guerrero	Oaxaca

3. ***Zapoteca formosa*** subsp. ***sinaloana*** H.M. Hern, *subsp. nov*.

Pinnae 2–4(–5)-jugate; **leaflets** 8–17 pairs per pinna, the median ones (5–)8–14 × (1–)2–4 mm, oblong. **Flower** filaments red-purple.

Type:—MEXICO. Sinaloa: municipality Elota, sindicatura La Cruz, El Roble, 23º55'N, 106º49'W, 15 m, without date (fl), *J. González Ortega 46* (holotype: MEXU 1396529!; isotypes: ENCB!, MEXU 1396532!).

Shrubs unarmed, up to 3(-4) m tall, erect; **branchlets** terete, elongate, slender, straight, glabrous throughout; **stipules** to 7 mm long, adpressed, ascending or divaricate, lanceolate, sometimes curved, rarely forming brachyblasts, subcoriaceous, usually glabrous, rarely sparsely villous, sometimes ciliate, persistent, with conspicuous, usually branched, parallel veins arising from the base. **Leaves** bipinnate, without nectariferous glands; pinnae 2–4(–5)-jugate; petioles (1.3–)2–3.8(–4.6) cm long, glabrous, rarely sparsely villous; rachis 0.5–3.6 cm long, glabrous, rarely sparsely villous; rachillae (2–)2.6–5.2(–6.4) cm long, glabrous, rarely sparsely villous; **leaflets** 8–17 pairs per pinna, the median ones (5–)8–14 × (1–)2–4 mm, oblong, the proximal pairs narrowly elliptic, the distal pairs usually oblanceolate, all membranous, glabrous or minutely pubescent on both sides, olive-green adaxially, pale-green abaxially, base obliquely-truncate, margins sometimes ciliate, apex acute; leaflet venation inconspicuous. **Inflorescences** organized in axillary capitula, sometimes arranged in terminal pseudopanicles; peduncles solitary or fasciculate, filiform, glabrous, (1.5–)2–6.4 cm long at anthesis, ca. 0.2–0.3 mm diameter. **Flowers** homomorphic, sessile; calyx (1.5–)2–2.5 mm long, campanulate, membranous, glabrous, with the teeth triangular; corolla 3–4 mm long, infundibuliform, membranous, glabrous, with the lobes lanceolate, revolute at anthesis; filaments red-purple, with the staminal tube included; polyads 16-grained, 73–79 μm diameter, discoid, with eccentric lens-shaped thickenings on the central cells. **Pods** pendent, to 7.5–12 × 0.5–0.7 cm, linear, acute or truncate at the apex, rostrate, thickly membranous, glabrous, rarely with few sparse, white trichomes. Seeds ovoid or rhomboid, somewhat flattened, dark or light brown, sometimes mottled, 4–5.5 × 3.5–4 mm, with pleurogram.

Etymology:—The name of this subspecies emphasizes the fact that it is endemic to the state of Sinaloa, Mexico.

Distribution and habitat:—*Zapoteca formosa* subsp. *sinaloana* has been recorded in eight municipalities of the state of Sinaloa, Mexico, in areas covered by tropical deciduous forest, from near sea level to 500 m elevation (Fig. 5).

Phenology:—Flowering occurs from August to October and fruiting from August to November.

Additional specimens examined (paratypes):—MEXICO. **Sinaloa**: municipality of Culiacán, Culiacán-Mazatlán road, km 5.5 cerro de Microondas, 24º43'N, 107º21'W, 50 m, 18 August 1983 (fl), *J.A. Beltrán 12* (FCME); municipality of Sinaloa de Leyva, 1 km north of La Lagunilla on road to Santa Fe, 25º41'N, 107º59'23''W, 13 September 1987 (fl), *G. Bojórquez 367* (MEXU); same locality, 3 November 1990 (fr), *G. Bojórquez 760* (MEXU); municipality of Salvador Alvarado, hills north of Terreros, 150 m, 12 August 1988 (fl), *G. Bojórquez 700* (MEXU); municipality of Culiacán, vicinity of Culiacán, 24º47'N, 107º20'W,14 September 1904 (fl, fr), *T.S. Brandegee s.n.* (GH, US); same locality, 20 October 1904 (fl, fr), *T.S. Brandegee s.n.* (UC); municipality of Mazatlán, Villa Unión, 23º11'N, 106º13'W, *J. González Ortega 1066* (MEXU); same locality, 1922 (fr), *J. González Ortega 4893* (ENCB, US); without locality, 1921 (fl), *J. González Ortega 4192* (US); municipality of Culiacán, Peninsula Lucenilla, 12 km from entrance, 24º24'N,

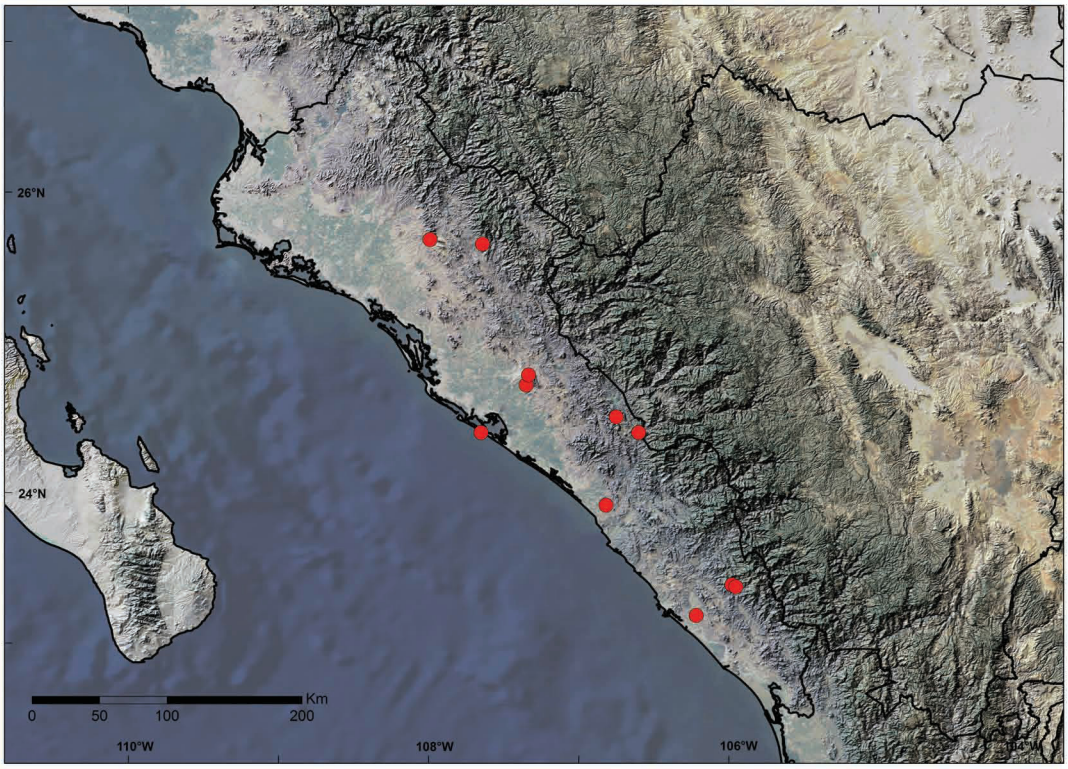

FIGURE 5. Geographic distribution of *Zapoteca formosa* subsp. *sinaloana* in the state of Sinaloa, Mexico.

107º39'W, 5 m, 13 October 1984 (fr), *F. Hernández 27* (FCME); municipality of Concordia, transect from Rancho Coyotes to El Pirame, Comunidad La Guásima, 23º23.28'N, 105º58.7'W, 411–728 m, 25 August 2010 (fl), *M. Ruiz 2010-377* (MEXU); municipality of Mocorito, El Saucito, 52 km east of Mocorito on road to Surutato, 25º39'14''N, 107º38'24''W, 300 m, 7 October 1985 (fr), *P. Tenorio 10320* (MEXU); municipality of Cosalá, Cerro Pelón, 12 km N-NW of Cosalá, 24º30'N, 106º45'W, 490 m, 15 October 1992 (fr), *I. Trejo 2632* (MEXU); municipality of Culiacán, Colonia Industrial El Palmito, 27 August 1984 (fl, fr), *R. Vega 1244* (FCME); municipality of Cosalá, Mineral de Nuestra Señora, 12 km east of Cosalá, 24º24'N, 106º36'W, 500 m, 6 September 1986 (fl), *R. Vega 2096* (MEXU); municipality of Concordia, near Chupaderos-Ojo de Agua, on Mazatlán-Durango road, 23º22'27''N, 105º57'11''W, 400 m, 2 September 1999 (fl), *R. Vega 10220* (MEXU).

Discussion:—*Zapoteca formosa* comprises seven morphologically variable subspecies (Hernández 1989: 838, Levin & Moran 1989: 37). There is considerable morphological intergradation among them, but they may be distinguished on the bases of leaflet, flower and pod characters. Subspecies *sinaloana* is distinguished by its narrow, oblong leaflets, which contrast with the oblong-obovate to widely obovate leaflets in the other subspecies.

It is likely that the new subspecies is more closely related to subspecies *rosei* (Wiggins 1950: 17) Hernández (1989: 848), which is geographically widespread and considerably common in tropical deciduous forest areas along the Mexican Pacific slope, from Sonora to the Isthmus of Tehuantepec, including the southern extreme of Baja California. As shown in Table 3, subspecies *sinaloana* may be distinguished from subspecies *rosei* by a combination of morphological characters, namely the leaves with usually more pairs of pinnae and more numerous pairs of leaflets, which frequently are smaller and narrower. It has to be recognised, however, that in occasions leaflet characters in these subspecies intergrade making taxonomic identification troublesome.

An addition distinguishing character is the colour of the flower filaments, which are consistently red-purple in subspecies *sinaloana*, whereas in subspecies *rosei* may be either red-purple, or white at the basal half and red-purple or pink at the apical half. In parts of Sinaloa (e.g., Mazatlán and Concordia municipalities), both subspecies occur in the same general area; however, they appear not to be strictly sympatric.

Zapoteca formosa subsp. *formosa* is an extremely widespread subspecies also occurring in Sinaloa. It may be easily distinguished from subspecies *sinaloana* by its less numerous, contrastingly larger, oblong-obovate to very widely obovate leaflets, and by the consistently white flower filaments (Table 3).

TABLE 3. Comparison of subspecies of *Zapoteca formosa* occurring in Sinaloa, Mexico.

	sinaloana	*rosei*	*formosa*
Pairs of pinnae	2–4(–5)-jugate	1–3-jugate	(1–)2–3(–4)-jugate
Pairs of leaflets per pinna	8–17	(3–)4–12	3–8(–11)
Leaflet length × width (mm)	(5–)8–14 × (1–)2–4	8–31 × 3–21	11–59 × 5–36
Leaflet shape	oblong	oblong-obovate	oblong-obovate to very widely obovate
Filament color	red-purple	red-purple, or white/red-purple or pink	white
Geographical distribution	Sinaloa	Baja California Sur, Sonora, Chihuahua, Sinaloa, Nayarit, Jalisco, Colima, Michoacán, Estado de México, Morelos, Guerrero, Oaxaca, Chiapas	Sinaloa, Chihuahua and Tamaulipas south to Costa Rica; Venezuela, Colombia, Brazil, Bolivia, Paraguay and Argentina; West Indies

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