

FURTHER RANGE EXTENSIONS OF MEXICAN ACANTHACEAE

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RESUMEN

La distribución de 35 especies americanas de Acanthaceae se extiende a regiones de México donde anteriormente no se les conocía. *Ruellia macrophylla* Vahl se registra en México por primera vez y se proporciona una descripción completa e ilustrativa de ella. La distribución de 34 especies ya conocidas de México se indican para estados en los que no habían sido reportadas. Como resultado, la nueva distribución se indica para 21 estados mexicanos.

Palabras clave: Acanthaceae, *Ruellia*, México.

ABSTRACT

The distribution, of 35 species of American Acanthaceae is extended to regions in Mexico where they were previously unknown. *Ruellia macrophylla* Vahl is reported from Mexico for the first time and a complete description and illustration of it is provided. The distribution of 34 species already known from Mexico is extended to states from which they have not been previously reported. As a result, new

distribution records are noted for 21 Mexican states.

Key words: Acanthaceae, *Ruellia*, Mexico.

More than 380 species of Acanthaceae are known from Mexico and the family occurs in every state. Explorations and studies of poorly collected regions of the country continue to reveal both undescribed species and range extensions for previously described species. At least 51 new species of Acanthaceae have been described from Mexico since 1990 (Daniel, unpublished) and 31 new distributional records from 18 Mexican states have recently been reported (Daniel, 2000). During studies for a treatment of Acanthaceae from the Bajío region of central Mexico (Daniel, 2003a; Daniel and Acosta, 2003), three species were newly described and at least 29 new state records (from Queretaro, Guanajuato, and Michoacan) involving 20 species (i.e., 33% of the species of Acanthaceae known from this region) were documented. Intensive collecting efforts in the three states comprising the Mexican portion of the Yucatan Peninsula are revealing similar results. At least three undescribed species have been collected there recently (Daniel, 2003b and unpublished), and numerous

new state distribution records have been documented from the peninsula. While most of the latter were reported by Durán *et al.* (2000), Martínez *et al.* (2001), or Sosa *et al.* (1985), several others are noted herein (i.e., 2 new records for Campeche; 3 new records for Yucatan; and 3 new records for Quintana Roo).

Ruellia macrophylla, a species of Acanthaceae previously known from elsewhere in Latin America, is reported from Mexico for the first time. Thirty-three other species, although already known from Mexico, are documented from Mexican states in which they have not been previously reported. Distribution records are reported from the following 21 states (number of species reported): Aguascalientes (1), Baja California Sur (1), Campeche (2), Chiapas (1), Chihuahua (1), Coahuila (1), Durango (4), Guerrero (2), Jalisco (1), Michoacan (4), Morelos (3), Nuevo Leon (1), Oaxaca (4), Puebla (2), Quintana Roo (3), Sinaloa (1), Sonora (1), Tabasco (2), Tamaulipas (2), Yucatan (3), and Zacatecas (2).

Barleria oenotheroides Dum. Cours

Tamaulipas: Mpio. Ocampo, 3 km W of Chamal Viejo, subcaducifolio tropical forest, 400 m, 30 Apr 1985, M. Martínez 588 (TEX).

This species of tropical America and western Africa has previously been reported from the following Mexican states: Campeche, Chiapas, Colima, Durango, Guerrero, Jalisco, Mexico, Michoacan, Morelos, Nayarit, Oaxaca, Quintana Roo, San Luis Potosi, Sinaloa, Tabasco, Veracruz, and Yucatan (Daniel, 1995; Leonard, 1936).

Blechum pyramidatum (Lam.) Urb

Baja California Sur: “Las Pocitas,” carr. Cd. Constitución—La Paz, 24°14’N, 110°58’W, 50 m, arroyo, matorral sarcocaula, 16 Jul 1991, J.L. León de la Luz 4893 (MEXU).

This species occurs from the United States (Florida) southward to Bolivia. It is naturalized in tropical regions of the Old World. In Mexico it has been reported previously from the following states: Campeche, Chiapas, Colima, Guerrero, Hidalgo, Jalisco, Mexico, Michoacan, Morelos, Nayarit, Oaxaca, Puebla, Queretaro, Quintana Roo, San Luis Potosi, Sinaloa, Sonora, Tabasco, Tamaulipas, Veracruz, and Yucatan (Daniel, 1999a).

Carlowrightia neesiana (Schauer ex Nees)

T.F. Daniel

Aguascalientes: Mpio. Calvillo, cerro La Loma, E de Malpaso, 1800 m, matorral subtropical, 18 Sep 1981, M. de la Cerda L. & García R. 1117 (IEB).

This Mexican species has been reported previously from Durango, Guanajuato, Guerrero, Hidalgo, Jalisco, Michoacán, Morelos, Nuevo Leon, Oaxaca, Puebla, Queretaro, San Luis Potosi, and Tamaulipas (Daniel, 1999a).

Carlowrightia pectinata Brandegee

Morelos: vic. Cuernavaca, Canyon del Lobo (orientum versus), 1800 m, 15 Jan 1932, H. Fröderstroem & E. Hultén 197 (S).

Daniel (1997) noted the occurrence of this species in the following Mexican states: Baja California Sur, Colima, Mexico, Oaxaca, Sinaloa, and Sonora.

Carlowrightia texana Henr. & T.F. Daniel

Sonora: Mpio. Agua Prieta, W edge of Agua Prieta on MEX 2, ca. 31°19'N, 109°34'W, 10 Sep 2002, T. Van Devender *et al.* 2002-617 (CAS).

Daniel (1983a) noted that this species occurs in the United States (New Mexico, Texas) and the Mexican states of Chihuahua, Coahuila, Nuevo Leon, and San Luis Potosi. The population in Sonora represents the northwesternmost known occurrence of the species.

Chalarothyrsus amplexicaulis Lindau

Jalisco: between Talpa de Allende and La Cuesta, 12.6 mi from Talpa and 0.3 mi S of summit of pass, moist ravines in subdeciduous forest, 1425 m, 4 Mar 1987, T. Daniel & B. Bartholomew 4842 (CAS, DUKE, ENCB, MEXU, MICH).

Oaxaca: Mpio. San Sebastian Coatlan, 3.5 km SE de San Sebastian Coatlan, in route to El Gavilán, 16°11'N, 96°49'W, 1900 m, coniferas forest, 20 Feb 1998, A. Campos V. 1271 (MEXU).

This species was described from plants collected in Guerrero (Lindau 1904) and was reported by Leonard (1938) from Mexico. Since that time, it has been collected several times in Jalisco, but I am unaware that its occurrence in that state has been previously reported in the literature. The locality in Oaxaca noted above represents the southeasternmost known occurrence of the species.

Dicliptera thlaspioides Nees

Michoacan: Mpio. Zitacuaro, cerro Enandio, 2 km S of Coyota to Tizate or 26 km SW to Zitácuaro, ecotonía of tropical, caducifolio and encinar forest, 1570 m, 18

Oct 1989, R. Torres C. & M. Ramírez de T. 13658 (IEB).

This Mexican species has been reported previously from the following states: Guerrero, Jalisco, Mexico, Morelos, Nayarit, and Oaxaca (Daniel, 1999a).

Dicliptera unguiculata Nees

Guerrero: Mpio. Malinaltepec, Malinaltepec, 17°14'N, 98°40'W, 1700 m, pino-encino forest, en huerta familiar, 15 Jan 1992, I. Wagenbreth 843 (MO).

Daniel (1995) noted the occurrence of this species in the Mexican states of Chiapas, Oaxaca, and Veracruz. It also occurs in Central America and South America.

Dyschoriste xylopoda Kobuski

Durango: Mpio. El Mezquital, Los Chapotes, S of Santa Maria Ocotan, 22°47'N, 104°37'W, 2200 m, Quercus forest, 6/9/1986, J. Mendía 119 (CAS).

Kobuski (1928) reported this species from Jalisco; Daniel (1996) noted its additional occurrences in Aguascalientes and Nayarit; and Wilson (1998) recorded it from Chihuahua and Sonora.

Elytraria bromoides Oerst

Oaxaca: Mpio. Tehuantepec, cerro El Arenal, NO of Buenos Aires, 16°19'N, 95°32'W, 950 m, caducifolia low jungle, 28 Jun 1991, A. Campos V. 3699 (MEXU).

Quintana Roo: Chichankanab, G. Gaumer 1833 (F, GH, S, UPS).

Daniel and Acosta (2003) noted the occurrence of this species in the following Mexican states: Chiapas, Coahuila, Hidalgo, Nuevo Leon, San Luis Potosi, Tamaulipas,

Veracruz, and Yucatan. Duran *et al.* (2000) cited a collection of it from Campeche. It also occurs in the United States (Texas; Correll and Johnston, 1970) and Guatemala (Gibson, 1974).

Gypsacanthus nelsonii E.J. Lott, V. Jaram, & Rzed.

Morelos: Mpio. Tlaquiltenango, 2.7 km N of Huaxtla, in route to Xochipala, 1264 m, 18°24'N, 99°03'W, caducifolia low jungle, 22 Oct 1994, R. Ramírez R. 1316 (MEXU).

Daniel (1999a) noted the occurrence of this species in Guerrero and Puebla.

Henrya insularis Nees ex Benth.

Puebla: Mex. 160, 2 km NW of Tepexco, shrubby pasture, 11 Dec 1990, D. Seigler *et al.* 13050 (MEXU).

Zacatecas: Mpio. Moyahua, cerro La Cantarilla, 8.5 km S of Moyahua highway Mex. 54, tract Moyahua—Ixtlahuacan del Rio (Jal.), caducifolio tropical forest, 14 Mar 1997, E. Enriquez E. & J. Balleza C. 1451 (MEXU).

This species has been previously reported from the United States (Arizona), Central America, and the Mexican states of Aguascalientes, Baja California Sur, Chiapas, Chihuahua, Colima, Durango, Guanajuato, Guerrero, Jalisco, Mexico, Michoacan, Morelos, Nayarit, Oaxaca, Queretaro, San Luis Potosi, Sinaloa, Sonora, Tamaulipas, Veracruz, and Yucatan (Daniel, 1990a; Daniel and Acosta, 2003; Vázquez, S. 1974).

Holographis hintonii (Leonard) T.F. Daniel
Michoacán: 19 km S de Paso Real o a 15 km N de La Huacana, 19°01'N, 101°23'W, encinar with caducifolia low jungle, 31 Jan 1992, L. Rico & E. Martínez 896 (IEB).

This species was previously known only from the type collection, which was made in Guerrero in 1934 (Daniel, 1983b). This is apparently the second known collection of the species and reveals the persistence of a rare species in the arid basin of the river Basin.

Holographis websteri T.F. Daniel

Quintana Roo: Mpio. Felipe Carrillo Puerto, rancho Ya'axché, 6.5 km W de F. Carrillo Puerto, 19°17.5'N, 88°00.5'W, subcaducifolia medium jungle, 26 Jan 2000, P. Simá *et al.* 2396 (CICY).

Yucatan: Mpio. Mérida, 7 km NW of sierra Papacal, 21°08.3'N, 89°47.5'W, 7 m, tropical deciduous forest, 12 Feb 2003, T. Daniel *et al.* 10,272 (CAS, CICY, MEXU).

This species was previously known only from the type, which was collected in Campeche in 1972 (Daniel, 1986). Based on the collections noted above and others, it appears to be endemic to, but widespread in, the Yucatan Peninsula.

Justicia breviflora (Nees) Rusby

Morelos: regio Huauchinango, convalles torrentis Necaxae: Tepixic, 600 m, 16 Dec 1932, H. Fröderström & E. Hultén 1053 (S).

Daniel (1995) noted the occurrence of this species in Central America and the Mexican states of Chiapas, Guerrero, Jalisco, Oaxaca, Tabasco, and Veracruz. Durán *et al.* (2000) reported it from Campeche and Quintana Roo.

Justicia candelariae (Oerst.) Leonard

Puebla: Mpio. Hueytamalco, rancho Las Margaritas, Hueytamalco, 10 Jun 1976, W. Conrath 211 (MEXU).

This species has been reported previously from Central America and the Mexican states of Chiapas, Oaxaca, and Veracruz (Daniel, 1995, 1999b).

Justicia henricksonii T.F. Daniel

Zacatecas: Mpio. Mazapil, Campo Experimental Noria de Guadalupe, 33 km S de Concepción de Oro (carr. 54), 24°24'N, 101°28'W, 1850 m, matorral de Larrea, Flourensia, Acacia, Yucca, 5 Oct 1991, J. Villarreal & R. Vázquez A. 6160 (IEB).

This species was previously known only from the type from Coahuila and a paratype from San Luis Potosi (Daniel 1980). This is the first report of the species from Zacatecas and apparently the first collection of it since 1941.

Justicia laevilinguis (Nees) Lindau

Chiapas: Mpio. Catazaja, border of the lagoon Catazaja, 17°44'N, 92°00.5'W, 20 m, subperennifolia medium jungle, 5 Jul 1999, C. Gutiérrez B. & J. Balam 6565 (CICY, UCAM).

Tabasco: Mpio. Jonuta, 10.2 km before Jonuta in route to Cd. Pemex-Jonuta, flooded herdsman, border of the puddle in mud, 31 Mar 1980, C. Cowan & M. Magaña 2876 (CAS, IEB, MEXU).

Mexican collections of this species have usually been identified with the name *J. anagallis* (Nees) Lindau, which was treated as a synonym of *J. laevilinguis* by Ezcurra (2002). Under the former name, this subaquatic species has been reported from Veracruz (Nees, 1847, Sosa and Gómez-Pompa, 1994) and Campeche (Gutiérrez B., 2000). It has been collected numerous times in Tabasco, but I am unaware of any previously published reports of its occurrence there.

Justicia leonardii Wassh.

Coahuila: Muzquiz, 5 Dec 1936, E. Marsh 1076 (GH, TEX).

Daniel and Acosta (2003) reported this species from Guanajuato, Hidalgo, Nuevo Leon, Queretaro, San Luis Potosi, Tamaulipas, and Veracruz.

Justicia phlebodes Leonard & Gentry

Durango: Mpio. Topia, Los Molinos, 5 km S, arroyo de Las Tasoleras, 25°11'N, 106°34'W, 1300 m, tropical forest (chaparral), 16 Mar 1987, S. Acevedo & B. Bayona 350 (CAS).

Daniel (2000) noted the occurrence of this species in Chihuahua, Sinaloa and Sonora.

Justicia ramosa (Oerst.) V.A.W. Graham

Campeche: Mpio. Hopolchén, 4 km S de Chunchintoc, 19°20'N, 89°36.5'W, 186 m, subcaducifolia low jungle flooded, 12 Jan 1999, E. Martínez S. *et al.* 31992-A (MEXU).

Daniel (1999a) noted the occurrence of this species in Central America, South America, and the Mexican states of Chiapas, Oaxaca, Puebla, Quintana Roo and Yucatan.

Odontonema tubaeforme (Bertol.) Kuntze

Yucatan: 2.9 km from Esmeralda toward Cafetalito, 26 Feb 1967, A. Covich 6743 (MEXU).

This species has been reported previously from Central America and the Mexican states of Campeche, Chiapas, Quintana Roo and Tabasco (Daniel, 1995; Martínez *et al.*, 2001).

***Pseuderanthemum alatum* (Nees) Radlk.**

Quintana Roo: Mpio. Othon P. Blanco, Kohunlich archaeological area, ca. 9 km S de Fco. Villa, palmar con *Orbygnia cohune*, 19 Oct 1989, P. Herrera *et al.* 74 (CIQR).

Daniel (1995) noted the occurrence of this species from Central America and the Mexican states of Campeche, Chiapas, Guerrero, Hidalgo, Jalisco, Michoacan, Oaxaca, Queretaro, San Luis Potosi, Tamaulipas, Veracruz and Yucatan.

***Pseuderanthemum praecox* (Benth.) Leonard**

Nuevo Leon: Cerro El Viejo, 1530 m, Aramberri, oak woods, 26 Mar 1993, J. Hinton *et al.* 22738 (TEX).

Daniel and Acosta (2003) reported this species from the Distrito Federal and the Mexican states of Chiapas, Durango, Guanajuato, Guerrero, Hidalgo, Jalisco, Mexico, Michoacan, Morelos, Nayarit, Oaxaca, Puebla, Queretaro, Sinaloa, Sonora, Tamaulipas, and Zacatecas. It also occurs in Central America.

***Ruellia coerulea* Morong**

Tamaulipas: along Río Sabinas, E. Storms' "Rancho de Las Calavasas," opposite KM 619 on Pan American Hwy., N of El Limón, 500 ft. or less, 22 Aug 1950, A. Sharp & E. Hernández X. 50/50385 (GH).

This species is widely cultivated in the New World (e.g., United States and Central America) and may become naturalized. Apparently native populations have been reported (Daniel, 1995) from Mexico (Chiapas, Hidalgo, Puebla, San Luis Potosi, and Veracruz) and South America (Argentina, Bolivia, Brazil, Paraguay, and Uruguay).

***Ruellia hookeriana* (Nees) Hemsl**

Sinaloa: Mpio. San Ignacio, La Cebolla, ca. 40 km N de San Ignacio, ca. 800 m., cultivation of corn, 22 Aug 1980, R. Vega, A. 862 (IEB).

Daniel and Acosta (2003) noted the occurrence of this tropical American species in the Mexican states of Chiapas, Guanajuato, Guerrero, Jalisco, Mexico, Morelos, Nayarit, Oaxaca, Queretaro, San Luis Potosi, and Veracruz. It also occurs in Central America.

***Ruellia macrophylla* Vahl, Symb. Bot. 2: 72. 1791. *Stemonacanthus macrophyllus* (Vahl) Nees in A. de Candolle, Prodr. 11: 205. 1847. TYPE: COLOMBIA. Magdalena: Santa Marta, J. von Rohr s.n. (holotype: C ex hb. Vahl, microfiche!).**

Weak shrubs to 2 m tall. Young stems quadrate, bifariously pubescent with flexuose to retrorse to antrorse eglandular trichomes 0.2-0.4 mm long. Leaves petiolate, petioles to 40 mm long, blades elliptic to ovate-elliptic, 50-190 mm long, 11-61 mm wide, 2.8-5.0 times longer than wide, acute to attenuate at base, acuminate to subcaudate at apex, surfaces glabrous (or sparsely pubescent with eglandular trichomes along midvein, especially near base), margin entire to subsinuate, sometimes \pm undulate. Inflorescence of pedunculate laterally spreading to ascending expanded (i.e., paniculiform) dichasia to 250 mm long from leaf axils; dichasia alternate or opposite, 3-many-flowered, 1 per axil, peduncles 37-145 mm long, subterete to quadrate, nearly glabrous to sparsely \pm bifariously pubescent with flexuose to antrorse eglandular trichomes 0.1-0.3 mm long. Bracteoles petiolate, lanceolate to lance-elliptic, often curved, 12-30 mm long, 2.2-5 mm wide, glabrous,

secondary bracteoles similar to bracteoles or becoming sessile, subulate, and smaller (i.e., 3 mm long and 1 mm wide). Flowers pedicellate, pedicels 1.5-2.5 mm long, glabrous. Calyx 7.5-10 mm long, tube 5-7.5 mm long, lobes triangular, 1.5-3.2 mm long, subequal, 0.2-0.6 times as long as tube, 1-1.5 mm wide, abaxially glabrous or sparsely pubescent with antrorse eglandular trichomes to 0.1 mm long and sometimes with inconspicuous glandular trichomes to 0.05 mm long as well, margin ciliate with flexuose to antrorse eglandular trichomes 0.05-0.2 mm long. Corolla “red-orange”, 42-55 mm long, externally pubescent with erect to flexuose eglandular and glandular (sparse and inconspicuous) trichomes 0.05-0.1 mm long, tube 34-37 mm long, narrow proximal portion 6-8 mm long, gradually expanded distally into a funnellform throat, throat 27-30 mm long, longer than narrow proximal portion, 5-5.5 mm in diameter near midpoint, limb 33 mm in diameter, ± 2-lobed, upper lip 13 mm long, lobes 10 mm long, 4.3 mm wide, lower lip 15 mm long, lobes 12-14 mm long, 5.3-7 mm wide. Stamens exerted from mouth of corolla, 26-27 mm long, didynamous, thecae 3.4-3.8 mm long, appendaged at base with an inconspicuous ± blunt spur to 0.2 mm long. Style 46-52 mm long, distally glabrous, proximally pubescent with eglandular trichomes, stigma unequally 2-lobed, 1 lobe 1.3-2.3 mm long, other lobe 0.8-1.5 mm long. Capsule 15-17 mm long, externally glabrous. Seeds ca. 12 per capsule.

Mexican specimens examined: **Yucatan:** Mpio. Chemax, Punta Laguna, 20°39'N, 87°38'W, selva mediana subperennifolia, 25 Jan 1994, I. Olmsted 334 (CICY).

This is the first report of this species in Mexico. Although Hemsley (1882) noted its

possible occurrence in Oaxaca based on a collection of Ghiesbreght at K (the identity of which he was uncertain; there is currently no material under this name in the herbarium at K fide K. Vollesen, pers. comm.), I have seen no Mexican collections of it, other than the one from Yucatan noted above. Nees's (1847) citation of a Moritz collection at B from “Valenciâ et Porto Cabello imperii Mexicani” refers to a plant from Venezuela.

Ruellia macrophylla (Fig. 1) has previously been reported from southern Central America, South America, and the West Indies (Durkee, 1978; Leonard, 1951). Other species of Acanthaceae with disjunct distributions in southern Central America and Mexico include *Streblacanthus monospermus* Kuntze (Daniel, 2001) and *Staurogyne agrestis* Leonard (Daniel and Lott, 1993). *Ruellia macrophylla* differs from all other Mexican species of *Ruellia* by the combination of its calyx with the tube longer than the lobes, relatively large and reddish corollas, and anther thecae with a basal appendage. Colored illustrations of and interesting discussions about the early cultivation of this species were provided by Lindley (1846) and Hooker and Smith (1849).

***Ruellia pringlei* Fernald**

Michoacan: Mpio. La Huacana, Sierra Las Cruces, ca. 4.5 km SW of Los Ranchos along trail to Cañada Las Cruces, 18°41'N, 102°03'W, 400 m, tropical deciduous forest, 9 Nov 2002, V. Steinmann 3000 (CAS).

This species was described based on a collection from Guerrero (Fernald 1907); it was noted to occur in Oaxaca by Torres C. *et al.* (1997).

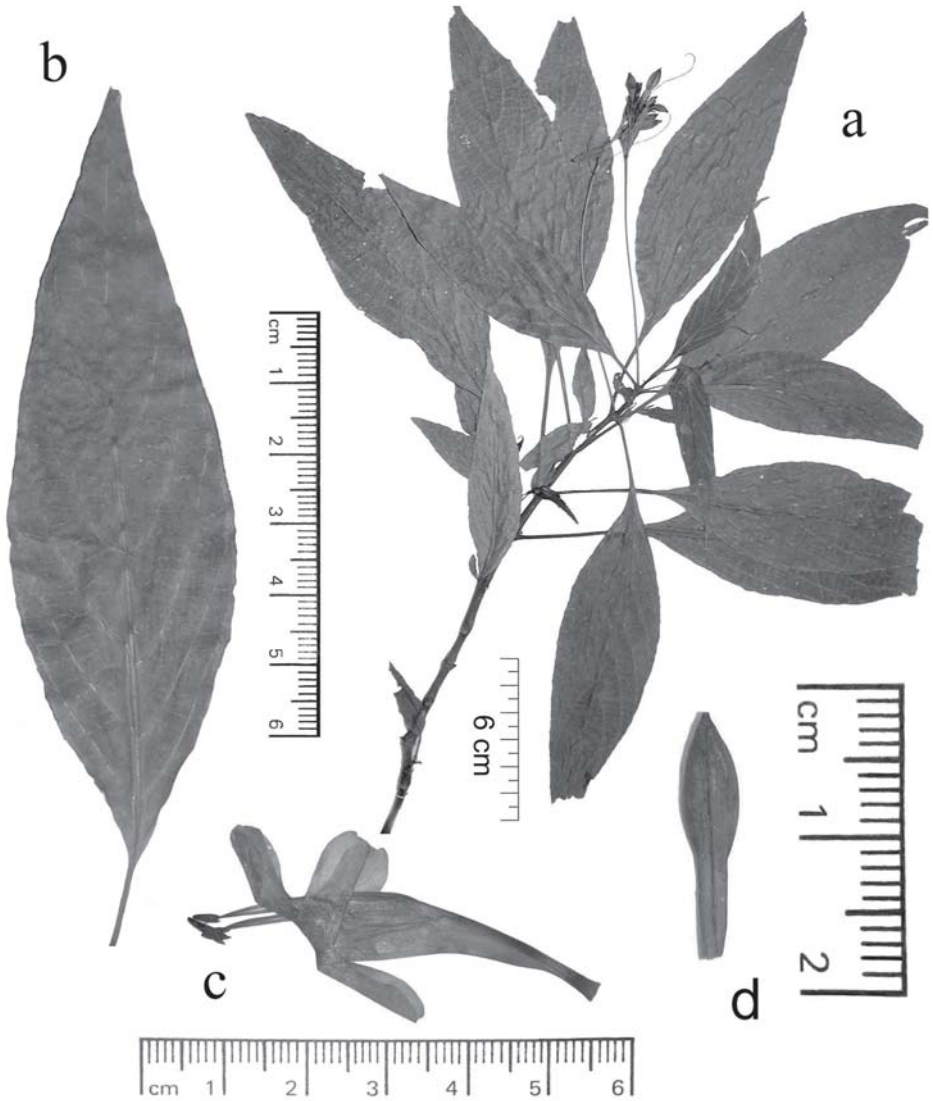


Fig. 1. *Ruellia macrophylla* (Olmsted 334). a. Habit. B. Leaf. C. Flower. D. Capsule.

Ruellia tuxtensis Ramamoorthy & Hornelas

Oaxaca: Mpio. Santa María Chimalapa, in route to Arroyo San Vicente, 990 m, 23 Mar 1995, E. Torres B. 545 (CAS).

Ramamoorthy and Hornelas (1988) reported this species only from Veracruz.

Schaueria parviflora (Leonard) T.F. Daniel

Oaxaca: Mpio. San Felipe Usila, Cerro Verde, 8 km NNE de San Felipe Usila, 17°57'N, 96°33'O, 650 m, 29 Sep 1992, G. Ibarra M. *et al.* 3700 (MO).

Daniel (1990b) indicated that this species was known from Veracruz in Mexico and from Guatemala.

Siphonoglossa mexicana Hilsenbeck

Durango: Mpio. Tepehuanes, El Purgatorio, 1240 m, caducifolio tropical forest, 22 Oct 1990, A. García 784 (CAS); La Bajada, Tamazula, 300 m, 1921, J. Ortega 4261 (US).

Daniel (2000) noted the occurrence of this Mexican species in the following states: Guerrero, Jalisco, Michoacán, Morelos, Puebla, Sinaloa, Sonora, and Veracruz.

Stenandrium dulce (Cav.) Nees

Guerrero: Mpio. Xochihuehuetlan, Paraje Palo Verde, 1.5 km NW de Jilotepec, Cerro Xilotzin, 17°58'N, 98°30'W, 1240 m, caducifolio tropical forest, 17 May 1995, E. Moreno Gutiérrez *et al.* 920 (MEXU).

Daniel and Acosta (2003) noted the occurrence of this widespread species in the United States (Florida, Texas), Mexico, Guatemala, and South America. In Mexico, it was previously known from Aguascalientes, Chihuahua, Coahuila, Distrito

Federal, Durango, Guanajuato, Hidalgo, Jalisco, Mexico, Michoacán, Nayarit, Nuevo Leon, Oaxaca, Puebla, Queretaro, San Luis Potosí, Sinaloa, Tamaulipas, and Zacatecas.

Stenostephanus silvaticus (Nees) T.F. Daniel

Tabasco: Huimanguillo, in route to the cerro de la Para, Ejido Malpasito, 17°20'N, 93°36'W, 255 m, 27 Mar 1996, A. Guadarrama *et al.*, 5022 (CICY).

Daniel (1999c) noted that this species was known from the Mexican states of Chiapas, Oaxaca, and Veracruz. It also occurs in Central America. This collection from 255 m represents the lowest known elevation for the species and for the genus in North America and Central America (Daniel, 1999c). Species of *Stenostephanus*, including *S. silvaticus*, generally occur in cloud forests at elevations above 1000 m.

Tetramerium abditum (Brandege) T.F. Daniel

Durango: Mpio. El Mezquital, Las Rosas, 6 km S de Huazamota, 650 m, caducifolio tropical forest very perturbed, 8 May 1983, S. González & J. Rzedowski 2416 (IEB).

Michoacán: Mpio. Gabriel Zamora, 15 km S de Tarétan, autopista Morelia-Lazaro Cardenas, 19°14'N, 101°53'W, 600-700 m, caducifolio tropical forest, 26 Jan 2001, E. Carranza & V. Steinmann 6318 (CAS).

Daniel (2000) noted the occurrence of this Mexican species in Chihuahua, Nayarit, Sinaloa, and Sonora. Its range overlaps that of the similar *T. rubrum* Happ. These two species can be distinguished by the following key:

1. Bracteoles ovate-trullate to trullate, 2-5 mm wide; corolla red; bracts foliose with distinct petioles. *T. abditum*

1. Bracteoles linear to linear-lanceolate to linear-elliptic to linear-oblongate, 0.8-2.3 mm wide; corolla red or yellow; bracts (except lowermost, foliose ones) mostly sessile to subsessile. *T. rubrum*

Tetramerium tenuissimum Rose

Campeche: Mpio. Campeche, 2 km NW of Chiná, ca. 6 km N of Campeche, 19°47.7'N, 90°30.3'W, 10 m, tropical deciduous forest, 14 Feb 2003, T. Daniel *et al.* 10,276 (CAS, CICY, MEXU, UCAM).

Chihuahua: River Candamena, headwaters of the Rio Mayo, 28°06'N, 105°17'W, 1050 m, 13 Oct 1985, P. Martin s.n. (ARIZ).

Daniel and Acosta (2003) reported this Mexican and Central American species from the following Mexican states: Chiapas, Colima, Guanajuato, Guerrero, Jalisco, Michoacan, Morelos, Nayarit, Sinaloa, Sonora, Veracruz, and Yucatan.

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