Anales del Jardín Botánico de Madrid 75 (2): e071 https://doi.org/10.3989/ajbm.2499
ISSN: 0211-1322 anales@rjb.csic.es, http://rjb.revistas.csic.es/index.php/rjb

New species and combinations of *Apocynaceae, Bignoniaceae, Clethraceae,* and *Cunoniaceae* from the Neotropics

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Abstract. *Mandevilla arenicola* J.F.Morales sp. nov. from Brazil, *Clethra secazu* J.F.Morales sp. nov. from Costa Rica, and *Weinmannia abstrusa* J.F.Morales sp. nov. from Honduras are described and illustrated and their relationships with morphologically related species are discussed. Lectotypes are designated for *Anemopaegma tonduzianum* Kraenzl., *Bignonia sarmentosa* var. *hirtella* Benth. and *Paragonia pyramidata* var. *tomentosa* Bureau & K. Schum., as well as these last two names have been combined.

Keywords. *Anemopaegma, Bignonia, Clethra, Mandevilla, Tanaecium, Weinmannia.*

Resumen. Se describen e ilustran *Mandevilla arenicola* J.F.Morales sp. nov. de Brasil, *Clethra secazu* J.F.Morales sp. nov. de Costa Rica y *Weinmannia abstrusa* J.F.Morales sp. nov. de Honduras y se discuten sus relaciones con otras especies de morfología semejante. Se designan lectotipos para *Anemopaegma tonduzianum* Kraenzl., *Bignonia sarmentosa* var. *hirtella* Benth. and *Paragonia pyramidata* var. *tomentosa* Bureau & K.Schum., así como también se combinan estos dos últimos nombres.

Palabras clave. *Anemopaegma, Bignonia, Clethra, Mandevilla, Tanaecium, Weinmannia.*

Morales J.F. 2018. New species and combinations of *Apocynaceae, Bignoniaceae, Clethraceae,* and *Cunoniaceae* from the Neotropics. *Anales del Jardín Botánico de Madrid* 75 (2): e071. https://doi.org/10.3989/ajbm.2499

Title in Spanish: Nuevas especies y combinaciones de *Apocynaceae, Bignoniaceae, Clethraceae* y *Cunoniaceae* del neotrópico.

Received: 18–I–2018; accepted: 15–VI–2018; published online: 14–XI–2018; Associate Editor: J.M. Cardiel.

INTRODUCTION

Major flora projects in the Neotropics have been led by American or European Institutions, publishing treatments in English. However, in the last 35 years, several major projects in Spanish or Portuguese have been developed. Among them, the *Manual of Plants of Costa Rica* is the first comprehensive Spanish-language account of the Costa Rican flora, coordinated by the Missouri Botanical Garden. The Project began in 1987 and seven volumes have been published (Hammel & al. 2003a, 2003b, 2004, 2007, 2010, 2014, 2015). The last volume is expected to be published in 2019.

Flora Mesoamericana, the first major regional flora written in Spanish, is a collaborative project of the Missouri Botanical Garden the Instituto de Biología of the National Autonomous University of Mexico (UNAM), the Natural History Museum, London, and numerous specialists worldwide. A total of nine volumes are expected, of which four are already published (Davide & al. 1994, 2009, 2012, 2015).

In Brazil, a major initiative to produce a treatment of the Brazilian flora in Portuguese and English was initiated several years ago. In 2010, the first *Catalog of Plants and Fungi of Brazil* was released (Forzza & al. 2010). The taxonomic treatment is expected to be published around 2020.

Working for these projects, several novelties in *Apocynaceae* Juss., *Clethraceae* Klotzsch, and *Cunoniaceae* R.Br. have been found, which are described here. Two combinations of *Bignoniaceae* Juss. are published.

MATERIAL AND METHODS

Type collections and material from the following herbaria was studied: CR, EAP, G, INPA, K, MO, NY, P, R, S, TEFH, US, and USJ. Fieldwork was done in Brazil, Costa Rica, and Honduras in order to study flowers and take photographs. The descriptions of the morphological structures follow Font Quer (1953), Radford & al. (1974), and Harris & Harris (1994). In *Mandevilla* Lindl., parts of the corolla tube follow Morales & Fuentes (2004).

RESULTS AND DISCUSSION

Apocynaceae

Mandevilla Lindl. currently includes more than 175 neotropical species and it is the largest genus of apocynoids (Morales 2011). It is distributed from Mexico to Argentina —with the exception of Chile— and the Antilles (Morales 2007a, 2007b, 2007c, 2009). It is centered in South America, with few species reaching Central America and Mexico (Morales 1998; Alvarado-Cárdenas & Morales 2004). *Mandevilla* is closely related to *Allomarkgrafia* Woodson and *Mesechites* Müll.Arg. but differs by its racemose inflorescences —vs. branched cymes— (Simões & al. 2004, 2006; Morales 2005a). As currently circumscribed, it is monophyletic, but the infrageneric classifications proposed to date (Woodson 1933; Pichon 1948) remain non-monophyletic (Simões & al. 2006). A new species of *Mandevilla* from the Brazilian Amazon basin and restricted to white sand savanna formations is described.

Mandevilla arenicola J.F.Morales sp. nov. Types: Brazil, Amazonas, estrada Terra Preta km 2, branch of Manaus-Manacapuru, 5 km from Cacau Pirêra, campin on white sand (regosol), 03º 11′ S, 55º 60′ W, 1–VII–1975, *G. Prance 23535* leg. (holo-: INPA; iso-: CR, MO, NY, R). Figs. 1, 2b.

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Mandevilla arenicola sp. nov. shows an overall resemblance to Mandevilla scabra (Hoffmanns. ex Roem. & Schult.) K.Schum. but differs by its glabrous leaf blades —vs. minutely and densely tomentulose, sparsely puberulent, hirsutulous-puberulent to rarely glabrescent on the abaxial surface—, glabrous inflorescence —vs. minutely puberulent to glabrescent—, upper part of the corolla tube 23–26 mm long —vs. 13–20 mm—, and seeds 6.5–7.5 mm long —vs. 10–12 mm.

Woody vine with milky sap; branchlets terete to subterete, glabrous; interpetiolar colleters minute, up to 0.4 mm long. Leaves opposite; petioles 4–8 mm long; leaf blade 3.4–6 × 1.7–3.2 cm, elliptic to obovate-elliptic, acute-mucronulate to acuminate-mucronulate at the apex, subcordate at the base, colleters irregularly distributed along the midrib, membranaceous, glabrous on both surfaces, not revolute, secondary veins impressed on both surfaces, tertiary veins abaxially impressed, inconspicuous adaxially. Inflorescences shorter than the subtending leaves, axillary, glabrous, few-flowered, peduncle 7–11 mm long, pedicels 2.2–2.9 mm long, bracts 1.5–2.1(3) × 0.4–0.7 mm, linear to linear-ovate, scarious; sepals 2.1–2.3 × 1.3–1.4 mm, similar in length, ovate, acuminate, the apex not reflexed, scarious, glabrous abaxially, the colleter solitary, irregularly laciniate; corolla infundibuliform, yellow, glabrous, lower part of the tube 28–37 × 1.7–2 mm, the upper part 23–26 mm long, conical to conical campanulate, 14–15 mm in diameter at the mouth, the apex of the floral bud long acuminate; lobes 18–22 × 11–13 mm, obovate, somewhat reflexed marginally; stamens inserted at the base of the lower part of the corolla tube, anthers 5.1–5.3 mm long, dorsally glabrous, the base auriculate, the auricles subtruncate, style head 2.4–2.7 mm long; ovary 1.6–1.8 mm long, glabrous; nectary annular, slightly 5-lobed, ca. half of the ovary length. Follicles 12.8–14.3 cm × 1.6–2.7 mm, not fused longitudinally, sometimes only united at the apices, glabrous, continuous to obscurely articulated; seeds 6.5–7.5 mm long, inconspicuously and minutely puberulent, coma 1.9–2.5 cm long, tannish yellow.

Etimology.—The species name refers to the habitat where it grows —white sand formations.

Distribution and habitat.—Endemic to northern Brazil —Amazonas and Para states—, growing on white sand formations —campina or campirana—; 50–100 m a.s.l. Flowering: April, June, July, and October. Fruiting: June.

Remarks.—Mandevilla arenicola sp. nov. resembles *Mandevilla scabra* having similar leaf blades, inflorescence and fruits shape, but it is distinguished by its glabrous branchlets —vs. minutely puberulent, pilose-puberulent, pilose to glabrescent—, glabrous leaf blades —vs. minutely and densely tomentulose, sparsely puberulent, hirsutulous-puberulent to rarely glabrescent on the abaxial surface—, glabrous inflorescence —vs. minutely puberulent to glabrescent—, sepals and corolla glabrous on the abaxial surface —vs. minutely puberulent, pilosule, hirsutulous to glabrescent—, lower part of the tube 28–37 mm —vs. 16–30 mm—, upper part of the corolla tube 23–26 mm long —vs. 13–20 mm—, apex of the floral bud long acuminate —vs. acute-apiculate or acute-mucronulate— (fig. 2), and minutely puberulent seeds, 6.5–7.5 mm long —vs. glabrous and 10–12 mm.

Additional specimens examined.—BRAZIL. Amazonas. Manaus-Caracarai, km 10, near Igarapé Leão, 02º 41′ S, 60º 02′ W, 19–X–1966, *G. Prance et al. 2697* (fl.) (Z).

Pará. Oriximiná, rio Mapuera, ca. 10 km upriver from Cachoeira Porteira, campinha dos Onces, ca. 1 km N from river, 30–VI–1980, *C. Davidson* and *G. Martinelli 10611* (fr.) (USF); Porto Trombetas, campina km 6, 26–IV–1987, *O. Knowles* s.n. (fl.) (INPA); Porto Trombetas, Mineração Rio do Norte, Oriximina, 17–VI–2000, *I. Miranda* and *J. Ramos* 34 (fl., fr.) (INPA).

Bignoniaceae

In Costa Rica 28 genera and 75 species of *Bignoniaceae* have been reported, including 4 endemic species (Burger & Gentry 2000; Morales & Jiménez 2009; Zuntini & al. 2015). In the phylogenetic study of Lohmann (2014), almost all the taxonomical implications derivated were published, but several combinations at the varietal level need to be validated. Two of these concerning to the treatment of *Bignoniaceae* for the *Manual of Plants of Costa Rica* project are published here.

Bignonia aequinoctialis var. ***hirtella*** (Benth.) J.F.Morales comb. nov. *Bignonia sarmentosa* var. *hirtella* Benth., Bot. Voy. Sulphur: 128 (1845), basion. Types: Nicaragua, Chinandega, Realejo, s.d., *R. Hinds* s.n. leg. (lecto-, here designated: K000449689; isolecto-: K000449688).

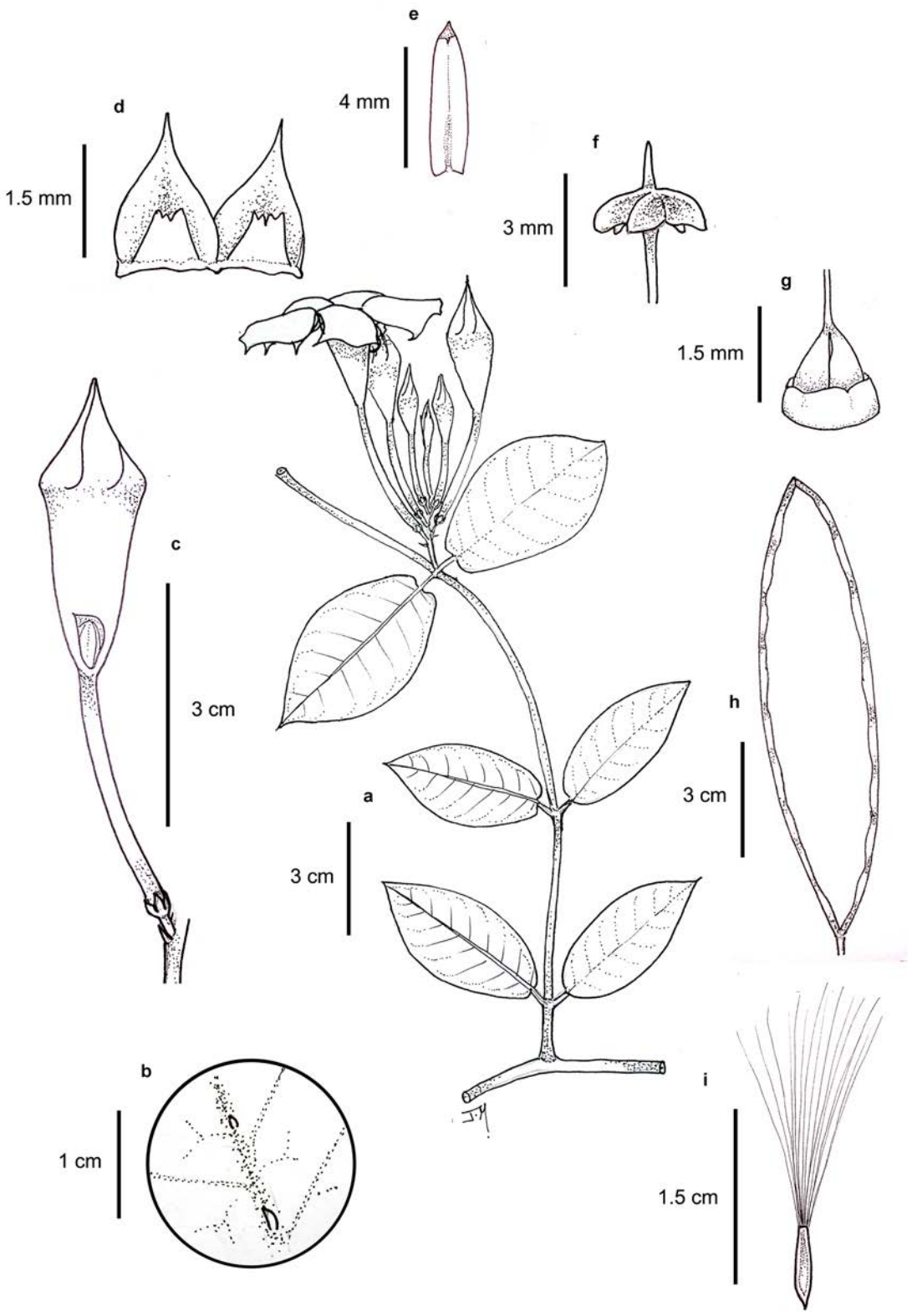

Fig. 1. *Mandevilla arenicola* J.F.Morales sp. nov.: **a,** branch with inflorescences; **b,** detail of the colleters along the midrib.; **c,** corolla partially open, showing the position of the stamens; **d,** sepals, adaxial view [a, *Prance 23535* (CR); b-d, *Miranda* and *Ramos 34* (INPA)].

Fig. 2. Corolla buds in *Mandevilla* Lindl.: **a,** *Mandevilla scabra* (Hoffmanns. ex Roem. & Schult.) K.Schum. —mature—; **b,** *Mandevilla arenicola* J.F.Morales sp. nov. —immature.

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Anemopaegma tonduzianum Kraenzl., Repert. Spec. Nov. Regni. 17 (8–12): 116 (1921). Type: Costa Rica, Guanacaste, buissons et bords des chemins á Nicoya, 10º 08′ N, 85º 27′ W, IV–1900, *A. Tonduz 13912* (lecto-, here designated: CR13912!; isolecto-: G!, K!, P!, US!).

Distribution and habitat.—Mexico and the West Indies to Colombia, Venezuela, Brazil, and Bolivia; 0–1500 m a.s.l.

Remarks.—The specimen *Hinds* s.n. —K000449689— is selected as the lectotype of *Bignonia sarmentosa* var. *hirtella* because it is more representative than the other duplicate —K000449688—. The specimen *Tonduz 13912* deposited at the National Herbarium of Costa Rica —CR— is choosen as the lectotype of *Anemopaegma tonduzianum* because it is best preserved in comparison with the remaining duplicates.

Tanaecium pyramidatum var. ***tomentosum*** (Bureau & K.Schum.) J.F.Morales comb. nov.; *Paragonia pyramidata* var. *tomentosa* Bureau & K.Schum., Fl. Bras. 8: 182 (1896), basion. Type: Brazil. Minas Gerais: Uberabá, no chapadão na Faxa Formigas, 19º 41′ S, 47º 48′ W, 18–X–1848, *A.F. Regnell III 48* leg. (lecto-, here designated: S17-46332).

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Distribution and habitat.—Endemic to Brazil; 0–600 m a.s.l.

Clethraceae

The cosmopolitan *Clethra* L. includes ca. 78 species (González-Villareal 1996, 2006). In Costa Rica eigth species are reported —all of *Clethra* subsect. *Cuellaria* (Ruiz & Pav.) DC.—: *Clethra consimilis* Sleumer, *Clethra costaricensis* Britton, *Clethra formosa* E.Alfaro & J.F.Morales, *Clethra gelida* Standl., *Clethra hondurensis* Britton, *Clethra lanata* M.Martens & Galeotti, *Clethra pyrogena* Sleumer, and *Clethra talamancana* C.W.Ham., including two endemic —*Clethra formosa* and *Clethra talamancana*— and two more restricted to Costa Rica and western Panama —*Clethra consimilis* and *Clethra pyrogena*— (Morales & Alfaro 2006). A new species endemic to Costa Rica, which resembles *Clethra licanioides* Standl. & Steyerm. and *Clethra vicentina* Standl. is described and illustrated.

Clethra secazu J.F.Morales sp. nov. Types: Costa Rica, San José, zona protectora Cerros de Escazú, bosques secundarios y robledales alterados en la falda sur del Alto Hierbabuena, 09º 50′ 24″ N, 84º 07′ 12″ W, 24–IX–1993, *J.F. Morales, E. Lépiz* and *V.H. Ramírez 1762* leg. (holo-: CR-201143; iso-: CR, MO, MO-193925). Figs. 3, 4.

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Clethra secazu sp. nov. resembles Clethra vicentina but differs by its petioles 18–34 mm —vs. 7–15 mm—, leaf blade (3.5)4.5–7.5 cm wide —vs. 2.5–3.5 cm—, racemes (11)14–25(28) cm —vs. 12–15 cm—, sepals 2.5–3 mm long —vs. 3.5–4 mm—, and petals 2.5–3 mm long —vs. 5–6 mm.

Trees 6–20 m, bark cream, reddish brown to tannish brown, branchlets minutely and sparsely pubescent when young, the indument cream to brown, glabrate when old. Leaves with petioles 1.8–3.4 cm, green, inconspicuously and sparsely puberulent to glabrate; leaf blade 8.5–15 × (3.5)4.5–7.5 cm, bicolorous, coriaceous, broadly elliptic, elliptic to obovate, the apex obtuse to rounded or acute, the base obtuse to rounded, not infolded, entire, very sparsely puberulent on the adaxial surface, green adaxially, densely glaucous tomentulose abaxially, the indument compound of minute, stellate, and adpressed cream hairs —only visible with amplification—, mixed with few, stellate, acicular, and irregularly distributed reddish hairs —visible without amplification—, the midvein with the indument very sparsely to glabrate abaxially, with 10–13 pairs of secondary veins, impressed and evident on both surfaces, tertiary veins slightly impressed abaxially, inconspicuous adaxially. Inflorescences panicules with 5–12 racemes, (11)14–25(28) cm, many-flowered, densely tomentulose, the indument compound of minute, stellate, and adpressed cream hairs —only visible with amplification—, mixed with few, stellate, acicular, and irregularly distributed reddish hairs —visible without amplification—; bracts 2.9–3.5 × 0.5–0.7 mm, linear elliptic, shorter than the subtending pedicels, densely tomentulose, early deciduous; pedicels 3–5 mm, slender, somewhat curved; floral buds obovoid; sepals 2.5–3 × 1.1–1.4 mm, ovate-elliptic to ovate, the apex acute to obtuse, reddish brown, tomentulose on the abaxial surface, glabrous on the adaxial surface; petals 2.5–3 × 1.7–2 mm, free, obovate, entire, glabrous on the abaxial surface, with a line of hairs adaxially, inconspicuously ciliolate; filaments filiform, 0.7–0.8 mm, flattened; anthers sagittate, 0.7–0.9 mm; ovary tricarpelate, 1.2–1.4 × 1.2–1.5 mm, densely sericeous, style 0.6–0.8 mm. Fruits 0.5–0.6 × 0.4–0.5 cm, tomentulose, seeds oblong, flat.

Etimology.—The name is an anagram of the type locality, Cerros de Escazú.

Distribution and habitat.—Endemic to Costa Rica, growing in montane and premontane wet forest; 1400–2100 m a.s.l. Flowering: May, September, and October. Fruiting: from September to December.

Remarks.—Clethra secazu sp. nov. resembles *Clethra vicentina* but it separated by its petioles 18–34 mm —vs. 7–15 mm—, leaf blade (3.5)4.5–7.5 cm wide —vs. 2.5–3.5 cm—, racemes (11)14–25(28) cm —vs. 12–15 cm—, sepals 2.5–3 mm long —vs.3.5–4 mm—, and petals 2.5–3 mm long —vs. 5–6 mm—. *Clethra secazu* sp. nov. has been identified as *Clethra licanioides* but the former species differs by its branchlets minutely and sparsely pubescent when young, with the indument cream to brown —vs. densely ferrugineous-tomentose—, longer petioles —18–34 mm vs. 10–13 mm—, inconspicuously and sparsely puberulent to glabrate —vs. densely ferrugineous-tomentose—, inflorescences densely tomentulose, with the indument cream —vs. ferrugineous tomentose—, bracts shorter than the pedicels —vs. equalling or longer than the pedicels—, and smaller sepals —2.5–3 mm vs. 4–5 mm.

Additional specimens examined.—COSTA RICA. Cartago. Santa María de Dota, 09º 37′ N, 83º 57′ W, 28–X–1994, *L. González* 183 leg. (CR); San Isidro de Cartago, ca. 8 km al S, 09º 47′ N, 83º 57′ W, 18–XII–1974,

Fig. 3. *Clethra secazu* J.F.Morales sp. nov., *J.F. Morales 21606* (USJ). [Photograph by J.F. Morales.]

Fig. 4. *Clethra secazu* J.F.Morales sp. nov.: **a,** pubescence of branchlets; **b,** abaxial view of the leaf blade; **c,** immature fruits; **d,** mature fruits. *[J.F. Morales 21618* (USJ).]

Sáenz and *L. Poveda* s.n. leg. (CR); Parque nacional Tapantí, camino al ICE, 09º 45′ N, 83º 47′ W, 6–X–1995, *J. Sánchez 582* leg. (CR).

Heredia. Monte de la Cruz, 10º 04′ N, 84º 04′ W, 2–XII–1971, *D. McCaffrey 64* leg. (CR).

Puntarenas. Cordillera de Talamanca, Rio Cotón, entre Sitio Cotón (Cotonsito) y Sitio Tablas, 08º 57′ N, 82º 46′ W, 2–IX–1983, *G. Davidse 24493* leg. (CR, MO); Monteverde, 10º 18′ N, 84º 48′ W, 22–V–1981, *W. Haber 539* leg. (CR, MO).

San José. Escazú, San Antonio, cerros de Escazú, base de cerro Pico Blanco, río Londres, 09º 52′ 28″ N, 84º 08′ 16″ W, 3–IX–2007, *A. Estrada* & *J. Sánchez 4016* leg. (CR); Tarrazú, San Lorenzo, Cerro Pito, camino entre San Marcos de Tarrazú y Quepos, 09º 34′ 51″ N, 84º 04′ 05″ W, 29–X–2008, *A. Estrada* and *R. Chacón 4368* leg. (CR); Reserva forestal Los Santos, Fila Dota, La Guaria, camino a San Joaquín, 09º 36′ 15″ N, 83º 58′ 30″ W, 25–IX–1998, *J.F. Morales 6665* leg. (CR, MO); Reserva forestal Los Santos, Fila Dota, quebrada Guaria, 09º 36′ 20″ N, 83º 58′ 30″ W, 22–XI–2003, *J.F. Morales 10130* leg. (CR); Reserva forestal Los Santos, Fila Dota, 09º 36′ N, 83º 58′ W, 22–XI–2017, *J.F. Morales 21606* leg. (CR); Reserva forestal Los Santos, Fila Dota, camino a Naranjito, 09º 36′ N, 83º 58′ W, 22–XI–2017, *J.F. Morales 21618* leg. (CR).

Cunoniaceae

Weinmannia L. comprises ca. 160 species distributed in the tropics and subtropics (Rogers 2002; Morales 2010a;

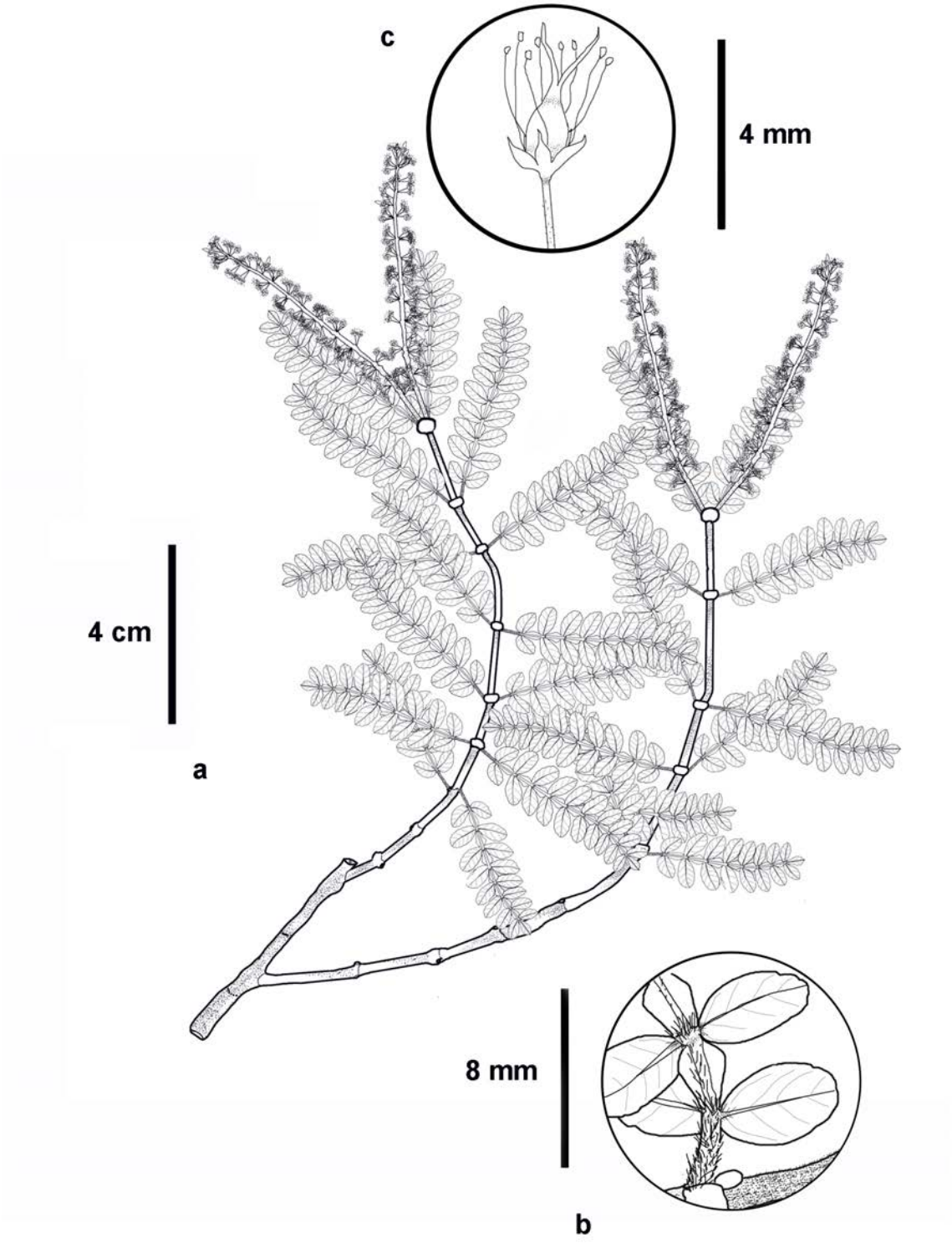

Fig. 5. *Weinmannia abstrusa* J.F.Morales sp. nov.: **a,** branch with inflorescences; **b,** abaxial view of the rachis and leaflets; **c,** flower. *[D. Mejía 100* (CR).]

Fuentes & Rogers 2010). In the New World, it is more diverse in the Andes, with few species present in Mexico and Central America (Harling 1999; Morales 2005b, 2010b). During the preparation of the *Cunoniaceae* for the *Flora Mesoamericana,* several specimens from Honduras with leaves with more than 17 leaflets and subentire to slightly crenate leaf blade were provisionally included in *Weinmannia fagaroides* Kunth by Morales (2010b). After field work in the last five years and the study in detail of preserved flowers, the material from Honduras is proposed as a new species.

Weinmannia abstrusa J.F.Morales sp. nov. Type: Honduras, Lempira, Norte Río Arcágual, filo al N del Campamento Arcágual, 13 km al SO de Gracias, Parque Nacional de Celaque, 14º 34′ N 88º 41′ W, 15–V–1992, *D. Mejía 100* leg. (holo-: MO-254327; iso-: CR, EAP, TEFH). Fig. 5.

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Weinmannia abstrusa sp. nov. resembles Weinmannia fagaroides, but it is separated by its leaves 19–25 foliolate —vs. 7–15–foliolate—, rachis wing 1.9–2.2 mm wide —vs. 2.7–3.2 mm wide—, and calyx lobes 0.6–0.7 mm —vs. 1–1.4 mm—, with the apices acuminate —vs. acute.

Trees (1)8–30 m, young branchlets minutely and densely puberulent, glabrescent with age. Leaves compound, with 19 to 23(25) leaflets; leaf blade 5–7 × 3.2–4.1 mm, obovate-elliptic to obovate, mostly obtuse to rounded at the apex —the terminal leaflet acute—, obtuse to rounded basally, sessile, membranaceous, usually glabrous on both surfaces, but the midvein with few dispersed hairs along the proximal half on the abaxial surface, the distal half slightly crenate, not revolute; rachis very sparsely puberulent on both surfaces, with the indument more dense on the nodes, winged, wings 1.9–2.2 mm wide; petioles 3–4 mm, not winged, minutely and densely puberulent, stipules 3–6 mm, broadly ovate to suborbicular, early deciduous. Inflorescences 5–6.5 cm long, the rachis sparsely puberulent, pedicels 1–2.2 mm long, inconspicuously and sparsely puberulent to glabrescent; calyx lobes 0.6–0.7 mm long, inconspicuously and sparsely puberulent to glabrescent, apices acuminate, petals not seen, early deciduous, ovary 1.1–1.3 mm long, glabrous. Capsules not seen.

Etimology.—The name comes from the Latin *abstrusus, -a, -um,* hidden, concealed, having been concealed. It refers to the fact that this species has been collected in isolated areas fo the Celaque National Park.

Distribution and habitat.—Endemic to Honduras, growing in dense mixed cloud forest and mixed *Pinus-Quercus-Persea* forest; 2450–2900 m a.s.l.

Remarks.—Weinmannia abstrusa sp. nov. has been confused with *Weinmannia fagaroides,* but differs by its leaves 19–25 foliolate —vs. 7–15-foliolate—, rachis wing 1.9–2.2 mm wide —vs. 2.7–3.2 mm wide—, and calyx lobes 0.6–0.7 mm —vs. 1–1.4 mm—, with the apices acuminate —vs. acute—. The descriptions of W. fagaroides given by Morales (2010 a,b) are based on both species. Weinmannia abstrusa also resembles W. intermedia Schltdl. & Cham. —endemic to Mexico—, but it is separated by its smaller leaflets —5–7 × 3.2–4.1 mm vs. (5)8–16(20) × 3–8(11) mm—, with the distal half slightly crenate —vs. serrate to crenate-serrate along their entire margin— and petioles 3–4 mm long —vs. 5–9 mm.

Additional specimens examined.—HONDURAS. Comayagua. Río Acajual, SO de Gracias, 14º 33′ N, 88º 40′ W, 16–V–1992, *W. D´Arcy 17955* leg. (EAP, MO); Río Acagual, 14º 33′ 51″ N, 88º 40′ 05″ W, 11–V–2015, *L. Flores* and *J.F. Morales* s.n. leg. (CR, EAP).

Lempira. Al NO de El Súcte, parque nacional de Celaque, 14º 33′ N, 88º 40′ W, 17–II–1993, *D. Mejía* 310 leg. (EAP); Montaña de Celaque, valle del río Arcagual, 14º 33′ 26″ N, 88º 40′ 00″ W, V–1991, *G. Davidse* and *R. Zúñiga* 34823 leg. (EAP, MO, TEFH); Celaque, 14º 38′ N, 88º 41′ W, XI–1974, *D. Hazlett 2231* leg. (MO); Celaque, 14º 33′ N, 88º 40′ W, 4–6–VI–1978, *D. Hazlett* and *Coe* 2879 leg. (TEFH); Río Arcagual, parque nacional de Celaque, 14º 40′ N, 88º 42′ W, 15–XI–1991, *T. Hawkins 72* leg. (EAP, TEFH); El Mojón, 14º 40′ N, 88º 42′ W, 17–V–1992, *T. Hawkins et al. 353* leg. (EAP, MO, TEFH); Cerro Las Minas, montaña de Celaque, Gracias, 14º 33′ N, 88º 40′ W, 20–V–1998, *A. Padgett et al. 266* leg. (EAP).

ACKNOWLEDGEMENTS

Many thanks to Mia Ehn (S) for providing scanned images of the type of *Paragonia pyramidata* var. *tomentosa* and the staff of the National Herbarium of Costa Rica (CR), Museo Nacional for the facilities given for the study of their collections. Financial or logistical support was provided partially by the University of Bayreuth Graduate School (Germany), the Deutscher Akademischer Austauschdienst (Germany), the Missouri Botanical Garden (USA), and Dopontoes group (Costa Rica). The following herbaria allowed the study of their collections: CR, EAP, G, INPA, K, MO, P, R, S, TEFH, USF, USJ, Z. I grateful to one anonymous reviewer for review the English version of the manuscript.

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