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# Three New Species of Vitaceae from Mesoamerica

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**ABSTRACT.** Three new species, *Cissus nicaraguensis*, *C. patellicalyx*, and *Ampelocissus mesoamericana*, are described from Nicaragua, Costa Rica, and El Salvador, respectively. *Cissus nicaraguensis* can be distinguished from all other Neotropical species by the combination of urceolate calyx and simple leaves. *Cissus patellicalyx* is recognized by its subspherical floral buds, immature fruits minutely tuberculate when dried, and the distinctly raised nerves of the abaxial leaf surface. *Ampelocissus mesoamericana* is characterized by lenticels, indument, and the obpyriform flower buds.

**RESUMEN.** Se describen tres nuevas especies, *Cissus nicaraguensis*, *C. patellicalyx* y *Ampelocissus mesoamericana*, de Nicaragua, Costa Rica y El Salvador, respectivamente. *Cissus nicaraguensis* puede distinguirse de todas las otras especies neotropicales por la combinación de un cáliz urceolado y las hojas simples. *Cissus patellicalyx* se reconoce por los botones florales subesféricos, los frutos inmaduros diminutamente tuberculados cuando secos y los nervios distintamente prominentes en el lado abaxial de las hojas. *Ampelocissus mesoamericana* se caracteriza por las lenticelas y el indumento, y los botones florales obpiriformes.

**Key words:** *Ampelocissus*, *Cissus*, Mesoamerica, Vitaceae.

*Cissus* is the largest genus of Vitaceae with perhaps 350 species in the entire world (Mabberley, 1987), while *Ampelocissus* is much smaller, with ca. 95 species in Africa, Asia, and America (Mexico, south through Mesoamerica and the Caribbean) (Lombardi, 2000). I revised the family, excluding *Vitis*, in the Neotropics to include 80 species: *Cissus* (75), *Ampelocissus* (4), and *Ampelopsis* (1) (Lombardi, 2000). Since then, two new species have been described (Lombardi, 2002, 2004) and another from South America is under description (Hamilton Beltram, pers. comm.).

While working on the Vitaceae for the *Flora Mesoamericana* I found the following three new species: *Cissus nicaraguensis*, *C. patellicalyx*, and *Ampelocissus mesoamericana*.

*Cissus nicaraguensis* is from Honduras and Nicaragua, similar and perhaps close to the simple-leaved and red-flowered species-group including *Cissus biformifolia* Standley and *C. gossypifolia* Standley. *Cissus patellicalyx* is noted for its subspherical flower buds, unique among the Mesoamerican species, the minutely tuberculate dried fruit, and the raised nerves on the abaxial side of leaves. *Ampelocissus mesoamericana*, which is very similar to *Ampelocissus erdvendbergiana* J. E. Planchon, was overlooked in my monograph (Lombardi, 2000), but is distinguished by its lenticels and the obpyriform flower buds.

***Cissus nicaraguensis*** Lombardi, sp. nov. TYPE: Nicaragua. Matagalpa: Ranchería, 11 km NE de Muy Muy, 12°46'N, 85°31'W, ca. 280 m, 20–22 Aug. 1984 (fl), P. P. Moreno 24466 (holotype, MO; isotype, HNMN not seen). Figure 1.

Liana, inter species neotropicales combinatione foliis simplicibus et calyce urceolato singularis. Haec species *C. biformifoliae* et *C. gossypifoliae* similis sed calyce urceolato lateraliter tuberculato, cirrhis non ramosis squamis destitutis, alabastris ampulliformibus et inflorescentiis minoribus differt.

*Liana*; the trichomes malpighiaceous, silvery; branches terete, striated, sericeous and glabrescent or glabrous; *tendrils* unbranched, flattened, devoid of scales. *Stipules* 2–4 mm, oblong, the base sagittate or cordate, persistent; *leaves* simple, drying brown; petioles (1.5–)3–4.2(–6.3) cm long, cylindrical, blades (7.9–)12–14(–18) × (2.5–)4–6.6(–9.3) cm, triangular on vegetative branches, elliptic or rarely subtriangular on reproductive branches, base reniform to truncate on vegetative branches, cuneate or rarely reniform on reproductive branches, apex acuminate, margin denticulate, papery, sparse sericeous in both sides chiefly along nerves and glabrescent, or glabrous, spiculate on the abaxial side. *Inflorescences* compound cymes, 1–1.9 × 1–2.1 cm, flat-topped; peduncle 0.4–0.8 cm long, sericeous and glabrescent or glabrous; bracts 0.5–1 mm long, triangulate, glabrous, the base of proximal ones sagittate; pedicels (0.8–)1.5–2 mm long, sericeous and glabrescent or glabrous. *Flower*

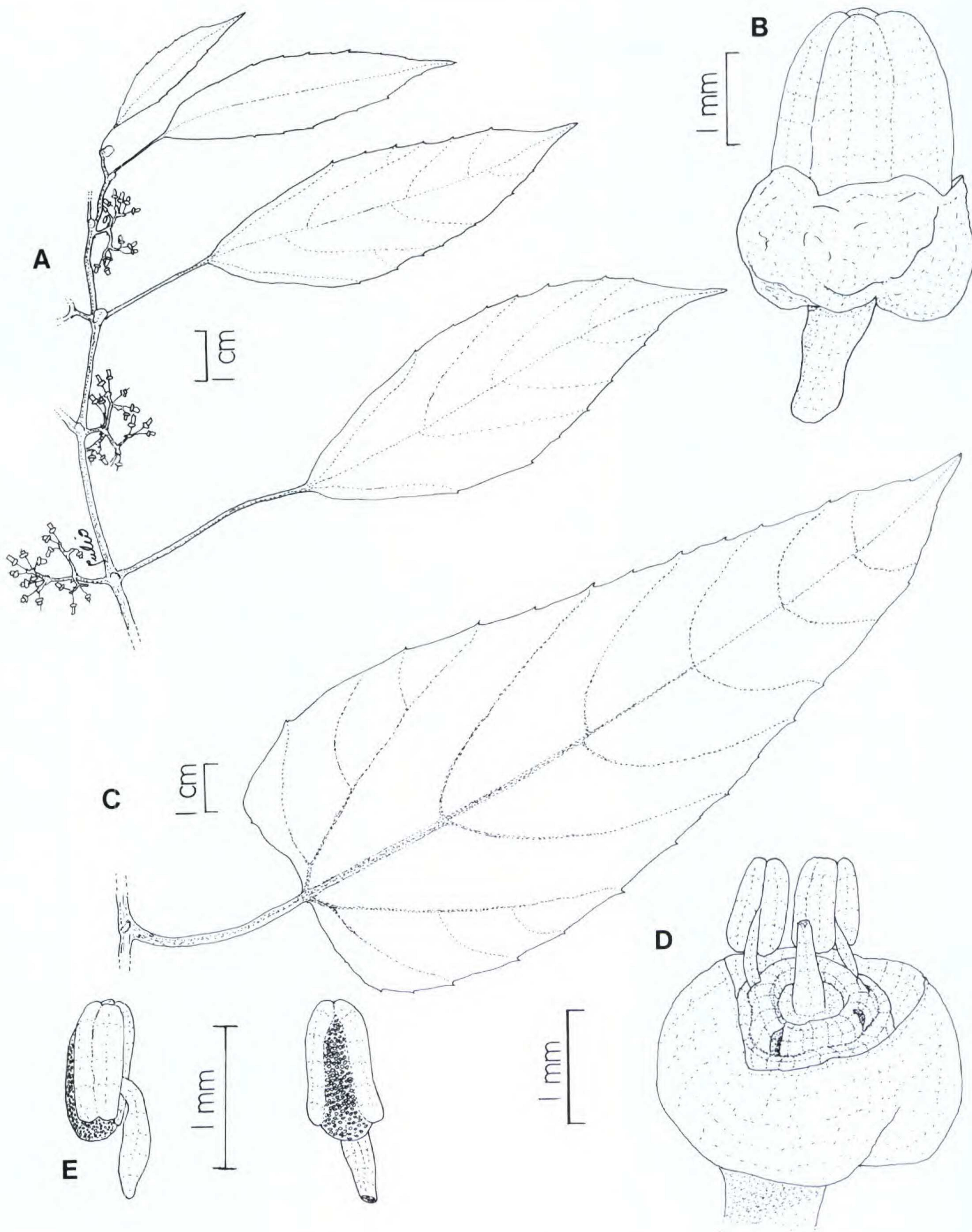


Figure 1. *Cissus nicaraguensis*.—A. Reproductive branch with leaves and inflorescences. —B. Lateral view of flower bud. —C. Leaf of vegetative branch. —D. Lateral view of disc, stamens and style, the petals and two stamens removed. —E. Lateral (left) and abaxial (right) view of stamens. (A, C from the holotype *Moreno 24466*, MO; B, D, E from *Chorley 178*, MO). Drawn by the author.

buds flask-shaped, red; calyx 1.1–1.4 × 2–2.5 mm, cotyliform, fleshy, glabrous or sparse sericeous on the base and glabrescent, lobes deltate and undulate, urceolate, laterally tuberculate, base truncate; corolla in bud 1.9–2.1 × 1.5–1.7 mm, slightly 4-angled in section, petals coherent, caducous after anthesis, glabrous; stamens 4, 1–1.5 mm long, filament 0.5–0.8 mm long, the connective lanceolate, granular, drying yellow, the anther 0.5–1 × 0.5 mm, ovate, latrorsely dehiscent; disc 1 mm diam., minutely tubular, covering the apex of ovary; style ca. 1 mm long after anthesis, terete; stigma punctate, obscurely papillose. *Fruit* and seed unknown.

*Distribution and ecology.* *Cissus nicaraguensis* is known only from Nicaragua and Honduras, at altitudes of 280–600 m. Flowering in August and September.

*Cissus nicaraguensis* resembles *C. biformifolia* and *C. gossypifolia*, both from Mexico, Mesoamerica, and northwestern South America, by the blade shape (in *C. gossypifolia* the leaves on the reproductive shoots only), the red flowers, and the minutely tubular disc (only in *C. biformifolia*). The new species is distinguished easily by the urceolate calyx laterally tuberculate (vs. not urceolate and not tuberculate calyx of the other two species), the unbranched tendrils devoid of scales (vs. branched with subtending triangular scales), the flask-shaped flower buds (vs. conical in *C. biformifolia* and ellipsoid in *C. gossypifolia*), the corolla in bud slightly 4-angled in section (vs. circular), and the smaller inflorescences (1–1.9 × 1–2.1 cm vs. (1.8)3.5–4.6(6.2) × (1.8)2.3–3.4(5.5) cm).

The urceolate calyx combined with the simple leaves of this species is unique among the known Neotropical species, all other species with urceolate calyces featuring (3-foliolate) leaves.

*Paratypes.* HONDURAS. **Olancho:** Catacamas, outskirts of town, roadside vine on tall planted nettle hedge, 11 Sep. 1991, *M. Chorley 178* (BM not seen, MO). NICARAGUA. **Matagalpa:** Ranchería, 11 km NE de Muy Muy, 20–22 Aug. 1984, *P. P. Moreno 24424* (HNMN not seen, MO). **Nueva Segovia:** El Jícaro, 7 km NE del Jícaro, valle Casas Viejas, 2 Aug. 1980, *P. P. Moreno 1680* (HNMN not seen, MEXU, MO).

***Cissus patellicalyx*** Lombardi, sp. nov. TYPE: Costa Rica. Cartago: Parque Nac. Tapanti, along road from main gate to hydroelectric plant, 3–4 km from main gate, 09°45'20"N, 83°47'00"W, 1250–1350 m, 7 Sep. 1996 (fl, young fr), *T. B. Croat 79030* (holotype, MO [1 of 2; 2 of 2]; isotypes, BHCB, BM not seen, EAP not seen, INB not seen, MEXU not seen, PMA not seen). Figure 2.

Liana, inter species Mesoamericanas alabastris subsphaericis et calyce patelliformi singulis. Haec species *C. verticillatae* et *C. tiliaceae* affinis sed trichomatibus malpighiaceis, nervis distincte prominentibus foliorum abaxiali superficie, calyce patelliformi, alabastris subsphaericis et fructibus lenticellatis minute tuberculatis (in sicco) facile distincta.

*Liana:* the trichomes malpighiaceous, silvery; branches terete, lenticellate, sericeous and glabrescent; *tendrils* not seen. *Stipules* 2–4 mm, deltate, the margin scarious, persistent; *leaves* simple, drying green with cream-colored nerves on the abaxial side; petioles (0.9–)3(–5.6) cm long, canaliculate, blades (6.9–)12(–15.5) × (4.3–)7.7(–11.2) cm, oblong, subtriangular or rhombic, slightly asymmetric, base truncate to reniform, apex acuminate, margin denticulate, papery, sparsely sericeous on both sides, chiefly along veins on the abaxial side and on the blade base, glabrescent, veins very prominently raised on the abaxial side, secondary veins forming domatia at the junction with primary vein. *Inflorescences* compound cymes, 1.5–4.5 × 1.5–2.5 cm, flat-topped; peduncle 0.8–2.8 cm long, sparsely sericeous, chiefly in the extremities, glabrescent; bracts 0.3–1 mm long, triangulate, glabrous; pedicels 2–3 mm long, glabrous. *Flower* buds subspherical, green; calyx 1.4–1.6 mm diam., patelliform, papery, glabrous, truncate, base rounded; corolla in bud 1.4–1.6 × 1.6–1.7 mm, slightly enlarged on middle section, petals coherent, caducous after anthesis, glabrous; stamens 4, 1.5 mm long, filament 1.1 mm long, the connective deltate, granular, drying yellow-brown, the anther 0.5 × 0.5 mm, deltate, latrorsely dehiscent; disc 1.5 mm diam., not covering the apex of ovary, margin minutely raised, irregular; style ca. 0.6 mm long before anthesis, terete; stigma punctate, obscurely convex. *Immature berry* 6 × 6 mm, subspherical, green, lenticellate, drying minutely tuberculate; seed 1, 6 × 4 mm, subturbinate, transversely ribbed.

*Distribution and ecology.* *Cissus patellicalyx* is known only by two collections from Costa Rica, where it occurs in forest, at altitudes of 1250–1400 m. Flowering and fruiting in August and September.

*Cissus patellicalyx* superficially resembles *C. tiliacea* Kunth and *C. verticillata* (L.) D. H. Nicolson & C. E. Jarvis by its leaves and green flowers, but is easily distinguished by the patelliform calyx (vs. cotyliform), subspherical flower buds (vs. ellipsoid), malpighiaceous trichomes (vs. unbranched), lenticellate immature fruits drying tuberculate (vs. smooth, not lenticellate), and by the prominently raised nerves on the abaxial side of blades (vs. not particularly prominent nerves).

I have encountered subspherical buds among the

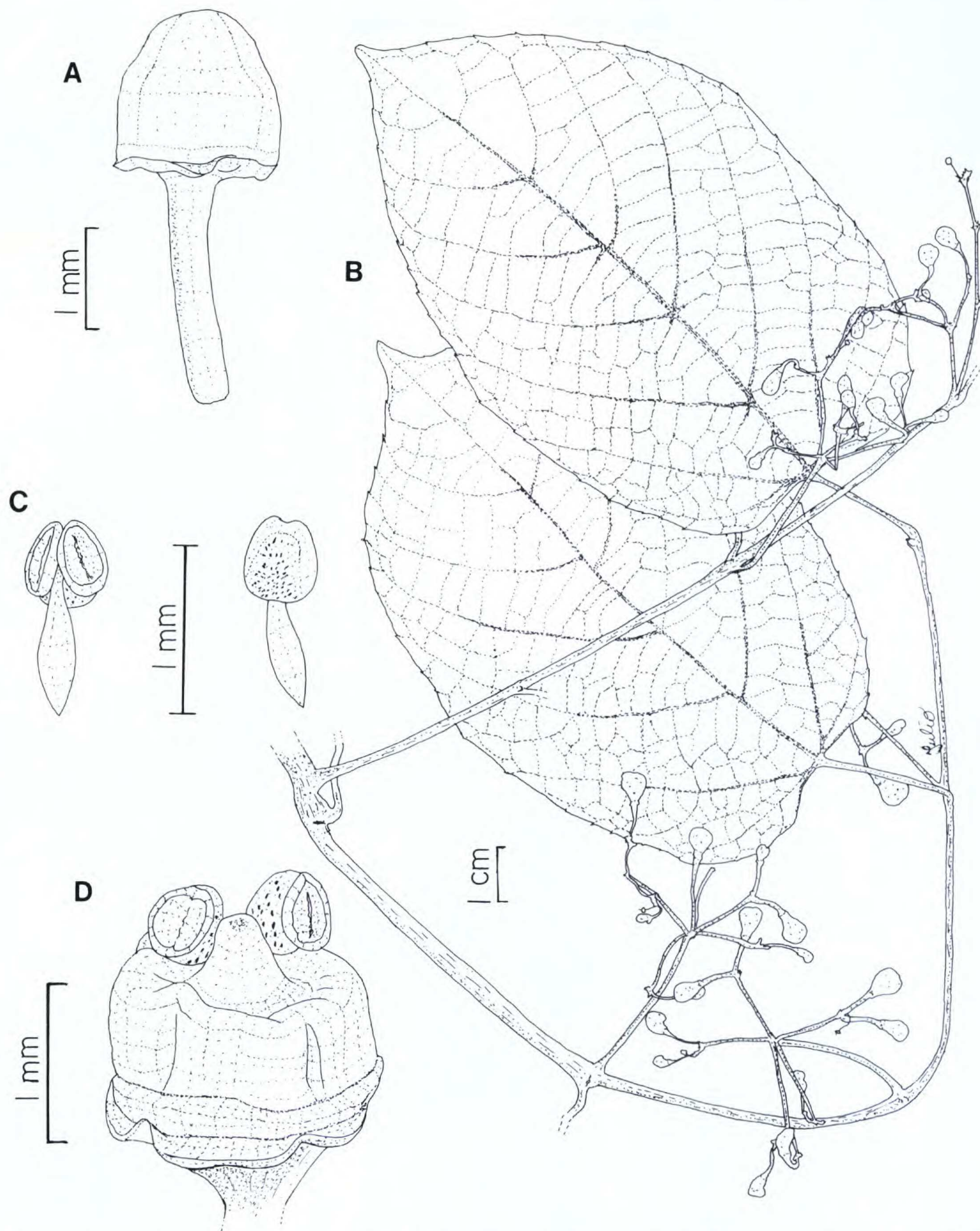


Figure 2. *Cissus patellicalyx*.—A. Lateral view of flower bud. —B. Reproductive branch with leaves and inflorescences. —C. Adaxial (left) and abaxial (right) view of stamens. —D. Lateral view of disc, stamens and style, the petals and two stamens removed. (A–D from the isotype Croat 79030, BHCB). Drawn by the author.

Neotropical species only in *Cissus inundata* (J. G. Baker) J. E. Planchon, an endemic of rocky grasslands (“campos rupestres”) from northern Minas Gerais in Brazil. The patelliform calyx is also unique among the other *Cissus* species from the

Neotropics; only the calyx of the species of *Ampelocissus*, *Ampelopsis*, and *Vitis* can be described as patelliform.

The collections perhaps suggest this is a rare species with a restricted distribution; fortunately

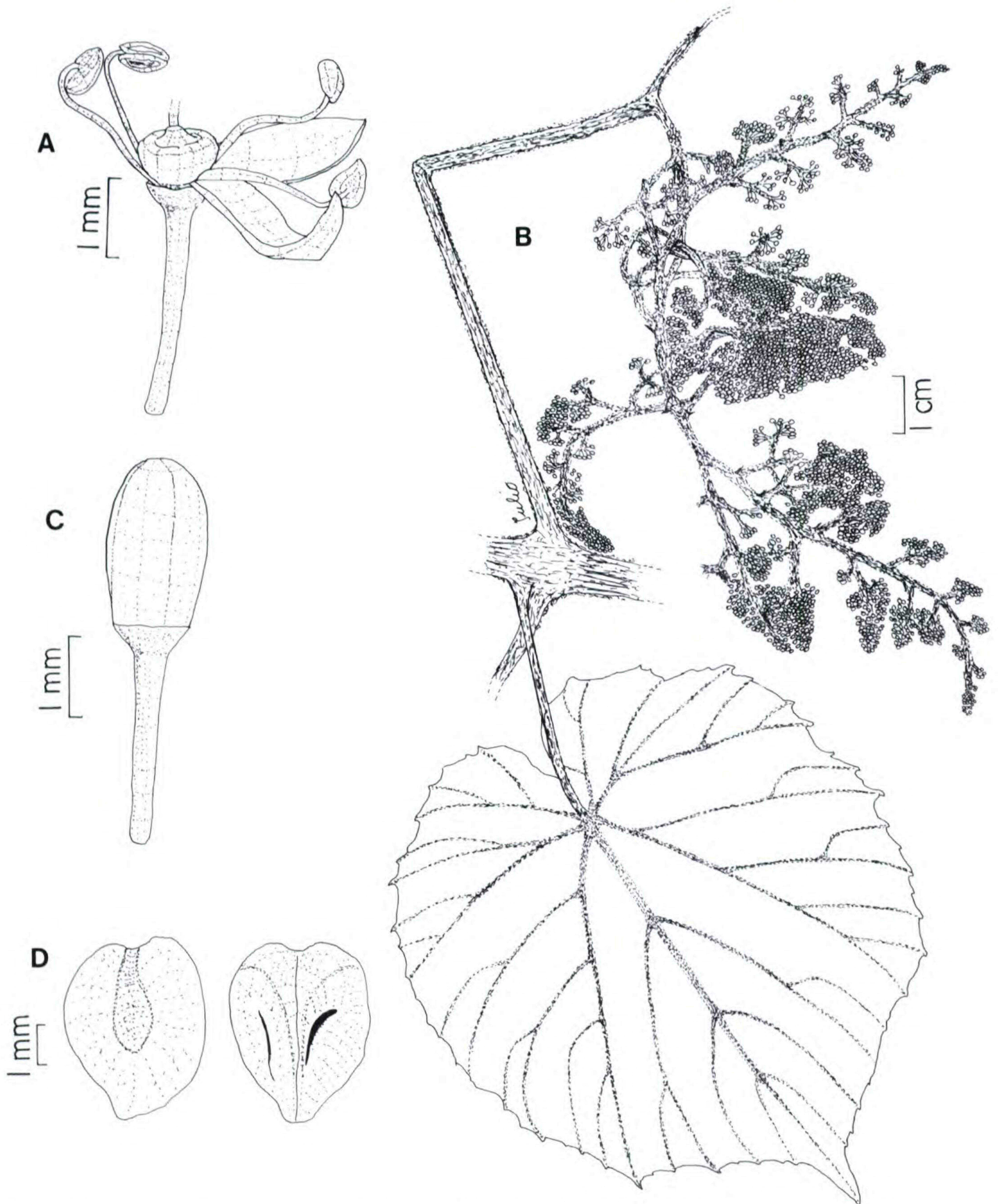


Figure 3. *Ampelocissus mesoamericana*.—A. Lateral view of disc, stamens and style, three petals and one stamen removed. —B. Reproductive branch with vegetative branch leaf. —C. Lateral view of flower bud. —D. abaxial (left) and adaxial (right) view of seeds. (A–C from the holotype *Tucker 905*, US; D from *Ton 2444*, F). Drawn by the author.

the specimens were collected inside a protected area, the P. N. Chirripó, in Costa Rica.

*Paratype*. COSTA RICA. **San José**: Cantón de Pérez Zeledón, P. N. Chirripó, Cuenca Terraba-Sierpe, Sendero El Llano, 6 Aug. 1997, *E. Alfaro 1226* (INB not seen, MO).

***Ampelocissus mesoamericana*** Lombardi, sp. nov. TYPE: El Salvador. San Miguel: ca. 200 m W of Hacienda Potrero Santo, S side of Lake Olomega, 13°17'N, 88°05'W, ca. 60 m, 5 Feb. 1942 (fl), *J. M. Tucker 905* (holotype, US; isotype, UC not seen). Figure 3.

Liana bisexualis, *A. erdvenbergiana* proxima sed ramis veteribus lenticellis prominentibus praeditis, foliis haud hirsutis margines versus et alabastris obpyriformibus differt.

*Liana*, hermaphrodite; young branches cobwebby, terete, older sparsely cobwebby, glabrescent, with prominent cleft lenticels, occasionally with scars from shoot abscission; *trichomes* cobwebby, white or rusty colored, or unbranched short trichomes. *Stipules* 2–3 mm, triangular; *leaves* simple, caducous; petioles 2.9–4.5 cm; blade 6.9–9.3 × 7.1–9.7 cm, widely-ovate, when young cobwebby on both sides, mature blades sparsely cobwebby and puberulent along vein and nerves in adaxial side, cobwebby in abaxial side, base sagittate, lobes sometimes overlapping, margin toothed, sometimes slightly 3-lobed, apex acute or rounded, papery. *Inflorescences* 20–25.4 × 11.2–37 cm, panicles with long lateral branches; peduncles 3.9–12.1 cm, cobwebby, green; pedicels 2–3 mm, glabrous, red. *Flower* buds obpyriform, red; calyx 0.7 mm diam, gamosepalous, cotyliform, truncate, glabrous; corolla in bud 1.3–1.5 × 1–1.3 mm, petals 5, 2.6 × 0.8 mm, elliptic, coherent by margins, caducous, glabrous; stamens 5, 1.6–2.3 mm, filaments red, anthers 0.5 mm long, disc adherent to ovary, disc and pistil 0.9 × 0.6 mm, red, 5-sulcate, ovary apex red, glabrous, style obsolete, stigma punctate. *Berry* 8–10 mm, spherical, purple; seeds (1)3 or 4, 4.7–5.8 × 3.8–4 mm, heart-shaped, smooth, brown.

*Distribution and ecology.* *Ampelocissus mesoamericana* occurs in low deciduous forests, high subevergreen forests, and dry savannahs on slopes at altitudes of 60–1350 m in Mexico and El Salvador. Flowering in January and February, fruiting in February, April, and May–August.

I had overlooked this species while studying *Ampelocissus* specimens for their treatment in *Flora Neotropica*. *Ampelocissus mesoamericana* is very similar to *A. erdvenbergiana* (illustration in Lombardi, 2000: 21) in the inflorescence with long lateral branches (vs. short branches in sympatric *A. acapulcensis* (Kunth) J. E. Planchon) and mature

leaves absent at flowering time, but *A. mesoamericana* differs from *A. erdvenbergiana* in the prominent lenticels that mimic little emergences (vs. smooth branches), the leaf margin not hirsute (vs. hirsute), and the obpyriform flower buds (vs. spherical).

*Paratypes.* MEXICO. **Chiapas:** Chiapa de Corzo, El Chorreadero 9 km E of Chiapa de Corzo along Hwy. 190, *D. E. Breedlove* 8462 (F); Tuxtla Gutiérrez, along road to El Sumidero de Tuxtla, 20 km N of Tuxtla Gutiérrez, *D. E. Breedlove* 9050 (F, US); La Trinitaria, along Hwy. 190, 21 km S of La Trinitaria, *D. E. Breedlove & P. H. Raven* 8439 (F); Tzimol, ca. 7 km SE of Comitán, ca. 3 km SE of Tzimol, *R. J. Hampshire, A. Reyes-Garcia & L. Hernández Z.* 1148 (BM); Chiapa de Corzo, El Chorreadero 9 km E of Chiapa de Corzo along Hwy. 190, *R. M. Laughlin* 193 (F, MEXU); W of La Concordia, along the Río de la Concordia, *A. S. Ton* 2444 (F); Avispero, Comitán-Motuzintla, *E. H. Xolocotzi X-1398* (MEXU). **Veracruz:** Tepetzintla, Tierra Blanca, camino para la Sierra de San Juan Otontepec, *J. Calzada* 5523 (F). GUATEMALA. **Zacapa:** Serra de Las Minas, Loma El Picacho, above Santa Rosalía, *J. A. Steyermark* 42732 (F). HONDURAS. **La Paz:** Quebrada Salada, 1 km al N de La Paz, valle de Comayagua, *B. K. Holst* 1622 (TEFH). EL SALVADOR. **Ahuachapán:** near Salto de Atehucéa, *P. C. Standley & E. Padilla V.* 2863 (F). **Santa Ana:** vicinity of Metapán, *P. C. Standley & E. Padilla V.* 3085 (F).

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