A new species of Urvillea (Sapindaceae) from northwestern Venezuela

María S. Ferrucci

Ferrucci, M. S. (Instituto de Botánica del Nordeste, C.C. 209, 3400, Corrientes, Argentina; e-mail: msferrucci@yahoo.com.ar). A new species of *Urvillea* (Sapindaceae) from northwestern Venezuela. Brittonia 58: 83–87. 2006. The new species **Urvillea venezuelensis**, from northwestern Venezuela, is described, illustrated, and compared to its putative closest relative *U. dasycarpa*. Additionally micromorphological characters of pollen grains are described. The new species belongs to *Urvillea* section *Stenelytron*, which is characterized by compressed fruit locules.

Key words: Sapindaceae, *Urvillea venezuelensis*, *Urvillea* sect. *Stenelytron*, northwestern Venezuela.

Ferrucci, M. S. (Instituto de Botánica del Nordeste, C.C. 209, 3400, Corrientes, Argentina; e-mail: msferrucci@yahoo.com.ar). A new species of *Urvillea* (Sapindaceae) from northweastern Venezuela. Brittonia 58: 83–87. 2006. La especie nueva **Urvillea venezuelensis**, del noroeste de Venezuela, es descrita, ilustrada y comparada con la especie más próxima *U. dasycarpa*. Adicionalmente se describen caracteres micromorfológicos de los granos de polen. La especie nueva pertenece a *Urvillea* sección *Stenelytron*, la cual se caracteriza por los frutos con los lóculos complanados.

The genus *Urvillea* Kunth (Sapindaceae) comprises 16 species of woody vines native to tropical and subtropical areas of the New World, although in South America two species, *U. chacoënsis* Hunz. and *U. uniloba* Radlk., extend southward into temperate central Argentina (Radlkofer, 1878, 1932; Hunziker, 1978; Ferrucci, 1985, 1996, 1997). *Urvillea* belongs to the largely neotropical tribe *Paullinieae* subtribe *Paulliniinae,* together with the genera *Cardiospermum* L., *Houssayanthus* Hunz., *Lophostigma* Radlk., *Paullinia* L., and *Serjania* Mill. Among these genera, *Cardiospermum* is most closely related to *Urvillea* (Radlkofer, 1932; Ferrucci, 2000). Both genera share characters such as septifragal capsules, dry arils, and presence of aneuploidy. However, *Urvillea* has capsules that are slightly inflated or flattened with marginal wings, while in *Cardiospermum* capsules are completely inflated and apterous or with narrow marginal wings.

The analysis of pollen of this new species is presented in order to provide a complete description of the species. Although pollen morphology in *Urvillea* seems to be of limited taxonomic value, it is useful in differentiating *Urvillea* from the vegetatively similar genera *Lophostigma* and *Paullinia*; *Lophostigma* has prolate or prolate-spheroidal and heterocolpate grains, while *Paullinia* has oblate or peroblate and triporate grains.

The main center of distribution of *Urvillea* is in Brazil, which has eight endemic species and a total of 13 species in the phytogeographic regions of the Atlantic coast and the planalto. The distribution of *Urvillea* within Brazil agrees with the pattern found by Acevedo-Rodríguez (1990) for Brazilian *Serjania*. During the preparation of a monograph of *Urvillea* (Ferrucci, In prep.), a new species from northwestern Venezuela was discovered. Until now, only one species had been reported for Venezuela: *Urvillea ulmacea* Kunth in Humb., Bonpl. & Kunth (Radlkofer, 1932; Huber et al. 1998) is distributed from Texas and Mexico to northern Argentina and is the most widespread species of the genus.

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This species is easily recognized by its 3-seeded capsules with inflated locules.

Materials and Methods

This study is based on material from the following herbaria: A, F, G, GH, M, MO, NY, US, and VEN.

Pollen was obtained from anthers of herbarium specimens, and two collections of the new species were examined. Samples for light microscopy were acetolyzed according to the procedure of Erdtman (1966) and mounted in glycerine jelly. Permanent slides were deposited at the Palynological Laboratory of the Universidad Nacional del Nordeste (PAL-CTES).

The polar axis and equatorial diameter were measured on twenty grains using a Willd M 20 microscope. The terminology used to describe pollen grains follows Erdtman (1966) and Punt et al. (1994).

Scanning electron micrographs (SEM) were made on acetolyzed pollen grains and untreated herbarium material of young stems. All samples were coated with gold/palladium. The equipment used was a JEOL 5800 LV operating at 15 KV.

Vouchers for the SEM study were *Pittier 13081* (GH) and *Saer 748* (VEN) for *U. venezuelensis*, and *Ventura 2639*, from Veracruz, Mexico (F) for *U. dasycarpa* Radlk.

Taxonomy

Urvillea venezuelensis Ferrucci, **sp. nov.** TYPE: VENEZUELA. Falcón: Distr. [now Municipio] Democracia, alrededores de Buruica, Quebrada Araguato, entre Cerro Pozo Azul y Cerro Moporal [Maporal], 10°52'N, 70°18'W, 560–620 m, 1 Mar 1972 (fl, fr), G. *Agostini & T. de Agostini 1048* [HOLOTYPE: VEN; ISOTYPES: G, NY, US]. (Figs. 1, 2A, 3A, 3B)

Species nova *U. dasycarpa* Radlk. Affinis, sed caulibus, petiolis et axibus inflorescentiarum villis simplicibus unistratis, foliolo centrali ovato et in sicco nigrescenti, pedicellis florum et sepalis hispidis etiam apice capsulae truncato-emarginato differt.

Woody vine, villous, monoecious, with functionally unisexual flowers. Young branches, inflorescence axes and petioles densely covered with short, erect, whitish or light brown hairs, intermixed with minute, orange, glandular trichomes. *Flowering branchlets* 1.3 mm diam, terete; older ones 2.5 mm diam, with 3 or 5 rounded ribs, minutely ferruginous, lenticellate; cross section of stems with a single stele. *Leaves* 3-foliolate; stipules subulate, caducous, 3–5 × 0.5 mm, abaxially pubescent, adaxially glandular pubescent; petiole furrowed along adaxial surface, 0.7–4 cm long; petiolules up to 10 mm long on distal leaflet, 1–4 mm long on lateral ones; leaflets chartaceous, ovate, 2.5–9.5 × 1–5.5 cm, acute or obtuse at apex, mucronate, the margin dentate-serrate with 6–30 obtuse glandular teeth, the lower surface greenish brown, pubescent, with inflexed hairs, the upper surface drying blackish, densely to sparsely covered with short hairs, the midrib villous, and minute glandular hairs on both surfaces; terminal leaflets cuneate-decurrent at the base, the lateral leaflets asymmetric with a narrower acroscopic side, obtuse or obtuse-decurrent at base. *Thyrses* axillary, spicate, simple, solitary or paired, or double, the axis nearly terete in cross section, 0.6–2 cm long, the rachis slightly angular and striate, 0.6–7.5 cm long, with two caducous tendrils at its base or these absent; peduncle of cincinni 0.5–2.25 mm long, the cincinni curved, 4–5-flowered; pedicels (1.5–)2.5–3 mm long, somewhat hispid, articulated at base; bracts triangular-subulate, caducous, 1–2.25 mm long, abaxially villous, with sparsely glandular hairs adaxially; bracteoles similar to the bracts but smaller. *Flowers* 3–3.5 mm long; sepals 5, the outer two cucullate, ovate, 1.5 × 1 mm, adaxially minutely pubescent, the inner one ovate or obovate, the third and fifth connate at base, 2–2.75 × 1.25–1.75 mm; all minutely glandular at margins, all or only the outer ones somewhat hispid; petals white, oblong or obovate, clawed, 1.75–2.5 × 0.75–1 (–1.5) mm, abaxially sparsely glandular, adaxially densely glandular; appendages of the central petals with an insignificant ear-shaped crest; disc glands 4, prominent, the central two circular in outline, the lateral ones ovoid, obtuse at the apex; torus glabrous, except for a ring of hairs at the androecium base. *Staminate flowers* with stamens 2–2.75 mm long, the filaments puberulent near the base, the anthers with an

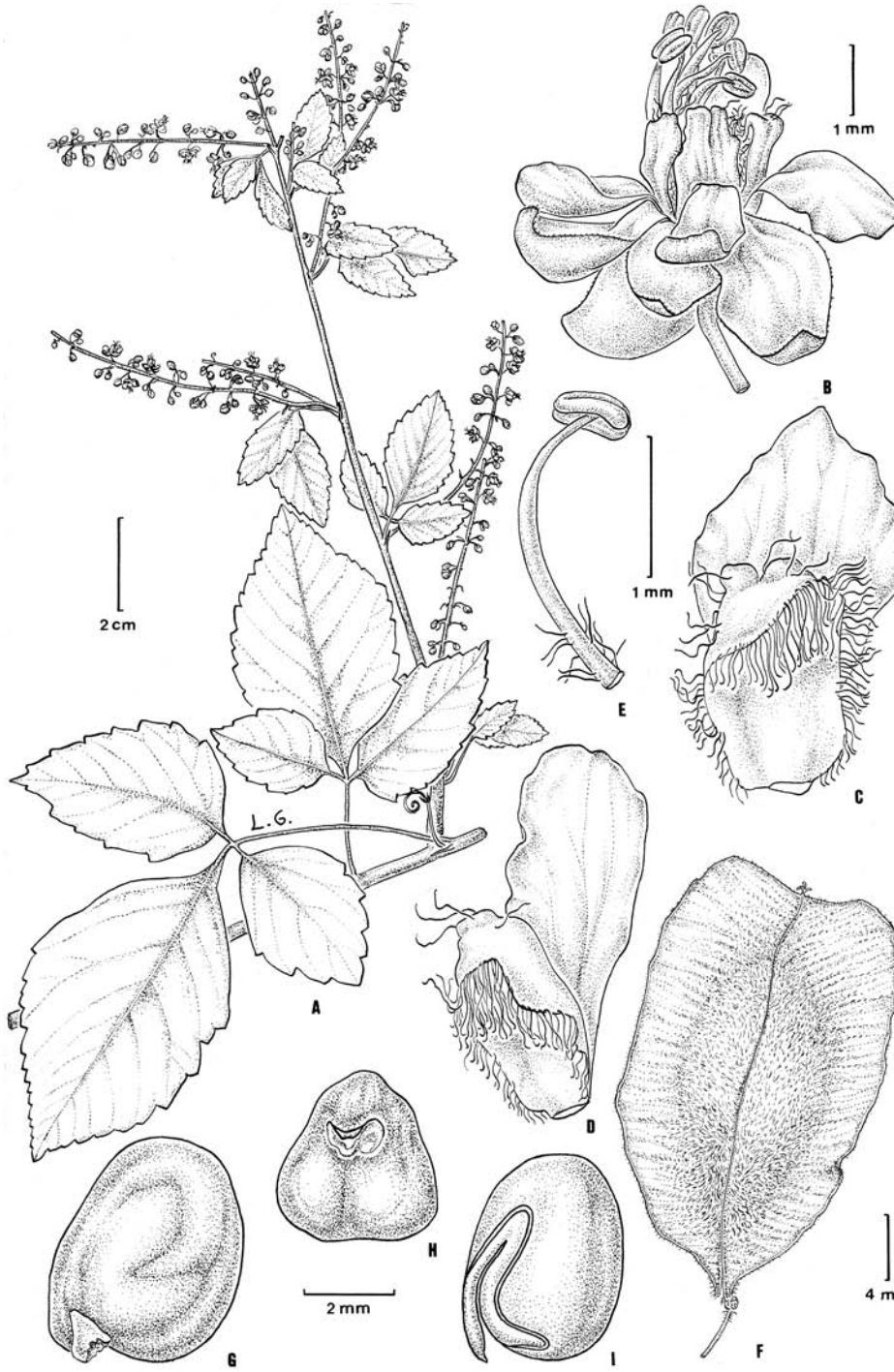

FIG. 1. *Urvillea venezuelensis*. **A.** Portion of a flowering branch. **B.** Staminate flower. **C**. Central petal with adnate appendage. **D.** Lateral petal with adnate appendage. **E.** Stamen from staminate flower, the anther appendage is not visible in the illustration due to the angle of it. **F.** Fruit. **G.** Seed, lateral view. **H.** Seed, frontal view. **I.** Embryo. (A from *Saer d' Heguert 748* [F]; B–E from *Pittier 13081* [US]; F from *Agostini & Agostini 1048* [isotype US]; G–I from *López & Gutierrez 620* [VEN].)

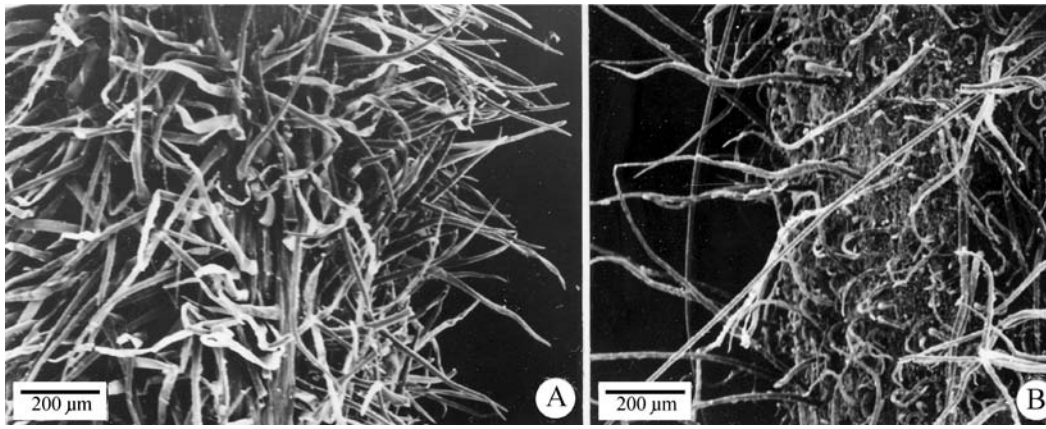

Fig. 2. Scanning electron micrographs of young stems showing the hair layers. **A.** *Urvillea venezuelensis*. **B**. *U. dasycarpa*. (A from *Saer d' Heguert 748* [VEN]; B from *Ventura 2639* [F].)

inconspicuous appendage at apex; pistillode 0.8 mm long, with few glandular hairs. *Pollen grains* heteropolar, hemitrisyncolporate, peroblate or oblate, polar axis (13.1–) 15.7(–19.6) mm, equatorial diam (26.2–) 32.3(–43.2) mm, proximal polar side perforate-microreticulate, distal polar side perforate-microreticulate or perforate-fossulate. *Pistillate flowers* with staminodia 1.75 mm long, anthers indehiscent; gynoecium 2.75 mm long, the ovary trigonous, ellipsoid in outline, villous, with sparsely glandular hairs, the style shorter than or as long as the stigmas. *Capsules* septifragal, chartaceous, 1-seeded (2 ovules aborted), obovate or oblong in outline, light brown, apex truncate-emarginate, 2.4–3.1 × 1.5–1.8 cm, the stipe 0.5–2.5 mm long, the locules compressed, 9–10 × 2–3 mm, the wings 4–6 mm wide; epicarp villous on the seed-bearing portion, the wings with simple and glandular hairs; endocarp pubescent, the hairs curly.

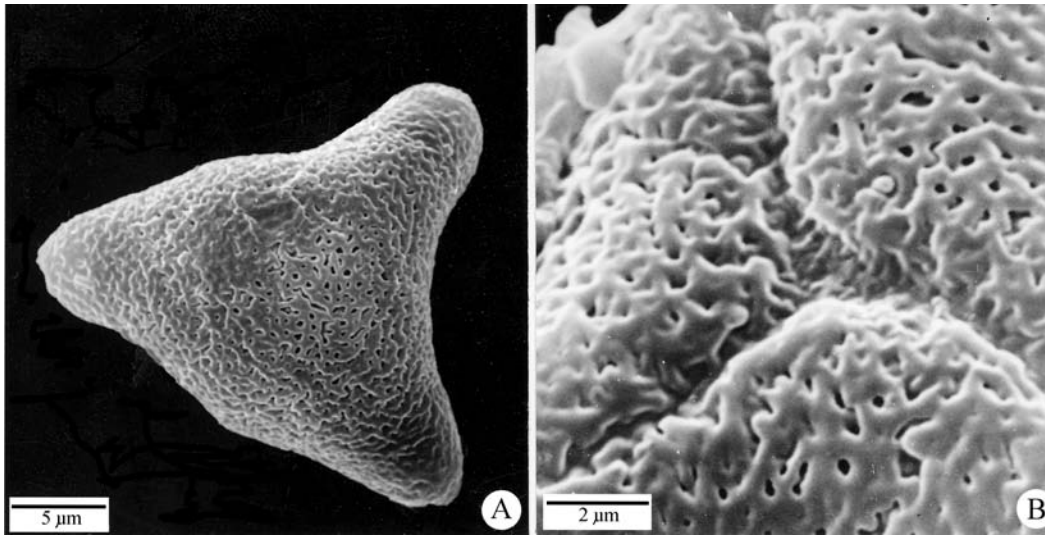

Fig. 3. Scanning electron micrographs of *Urvillea venezuelensis*. **A.** Pollen grain, distal polar view. **B.** Detail of syncolpate aperture. (From *Pittier 13081* [GH].)

Seeds ellipsoid in lateral view, trigonous in transverse section, 4.8–5.3 × 3.5–3.9 mm, inserted near the base of the locule; aril dry, yellowish and crescent-shaped; embryo with the outer cotyledon curved and the inner one biplicate.

Distribution and ecology.—*Urvillea venezuelensis* is endemic to middle elevations of northwestern Venezuela; it is cited as a vine in coffee-plantations (*Pittier 13081*). It grows in rocky soils, in areas between 450–620 m elevation. Flowering from January to March, and fruiting in April.

Common name: "guacharaco" (*Agostini & Agostini 1048*).

Additional specimens examined: **VENEZUELA. Cojedes**: NW of San Carlos, 12 Apr 1981, *R. López & Gutierrez 620* (VEN). **Lara**: Las Cojobas, Jan 1931, *J. Saer d' Heguert 748* (F, VEN); from "Las Tunas" to Duaca, 12 Jan 1967, *R. Smith 592* (UCOB, VEN). **Yaracuy**: Hacienda Iboa near San Pablo, 13 Jan 1928, *H. Pittier 12604* (A, G, MO, NY, VEN); Iboa, 3 Jan 1929, *Pittier 13081* (A, F, G, GH, M, MO, NY, US, VEN).

Urvillea venezuelensis belongs in *Urvillea* sect. *Stenelytron* Radlk. based on its fruits with compressed locules. It seems to be closely related to *U. dasycarpa* from Mexico, Honduras, and Nicaragua (Ferrucci, 2000; not cited in Flora de Nicaragua, Robbins, 2001), with which it shares similar stipules, flowers, and fruits. However, *U. venezuelensis* differs from *U. dasycarpa* because the former has villous indument; simple hairs in one layer on stems, inflorescence axes, and petioles (Fig. 2A); leaflets ovate, with the upper surface drying blackish and the midvein and lateral veins only slightly prominent; pedicel and sepals hispid; and fruits truncate-emarginate at the apex. In contrast, the pubescence in *U. dasycarpa* is of short curly hairs intermixed with long, erect trichomes distributed on stems, inflorescence axes, and petioles (Fig. 2B); leaflets are nearly rhomboidal, adaxially greenish brown with a prominent midvein on upper surface; pedicels and sepals are glabrous; and fruits are emarginate at the apex. The latter species has been reported only for Mexico, based on three herbarium specimens collected by Andrieux without any other locality information (Radlkofer, 1932).

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