

**VALIDATION
OF THE NEW GENUS
Pruskortizia
(APOCYNACEAE,
ASCLEPIADOIDEAE)**

VALIDACIÓN DEL NUEVO GÉNERO
Pruskortizia
(APOCYNACEAE, ASCLEPIADOIDEAE)

por

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RESUMEN

Recientemente el autor propuso once nuevos géneros de Gonolobinae (Apocynaceae, Asclepiadoideae, Asclepiadeae) morfológicamente delimitados, varios de ellos incluidos y recuperados como grupos monofiléticos en un análisis basado en datos moleculares obtenidos a partir de 55 especies (Morillo, 2015). Dentro de las novedades propuestas en dicha publicación, se encuentra *Pruskortizia* Morillo, gen. nov., junto con combinaciones para cada una de sus especies. Sin embargo, en esa publicación, inadvertidamente se omitió la selección del tipo, por lo cual, y de acuerdo con el Artículo 40.1 del Código de Melbourn, el género *Pruskortizia* no fue validado. El presente artículo tiene por objeto la corrección de esa omisión, mediante la validación de los siguientes nombres: *Pruskortizia* Morillo, gen. nov. (tipificado por *Fischeria macrocarpa* Poepp.), *Pruskortizia dasytricha* (Schltr.) Morillo, comb. nov., y *Pruskortizia macrocarpa* (Poepp.) Morillo, comb. nov.

PALABRAS CLAVE: Gonolobinae, género nuevo, *Pruskortizia*, Sudamérica.

ABSTRACT

Eleven morphologically defined new genera of Gonolobinae (Apocynaceae, Asclepiadoideae, Asclepiadeae) were recently proposed (Morillo, 2015), several of them were included and recovered as monophyletic in combined nuclear and chloroplast DNA studies from 55 species. Among the novelties recently proposed were the *Pruskortizia* Morillo gen. nov. and combinations for each of its species. However, the type of the genus was inadvertently omitted in the earlier paper, and following Art. 40.1 of the Melbourne Code the name *Pruskortizia* was thus not validated there. The occasion is taken here to correct this oversight and to validate the three following names: *Pruskortizia* Morillo, gen. nov. (typified by *Fischeria macrocarpa* Poepp.), *Pruskortizia dasytricha* (Schltr.) Morillo, comb. nov., and *Pruskortizia macrocarpa* (Poepp.) Morillo, comb. nov.

KEY WORDS: Gonolobinae, New Genus, *Pruskortizia*, South America.

INTRODUCTION

Eleven morphologically defined Neotropical genera of Gonolobinae (Apocynaceae, Asclepiadoideae, Asclepiadeae) were recently proposed (Morillo, 2015); several of the new genera as well as key traditionally recognized ones were included in molecular studies, and were found to represent clades with high to moderate support in my recent analysis of combined data derived from three chloroplast genes and one nuclear gene. Groups here recognized as genera have pollinia with at least one face somewhat concave and/or thinner partly translucent areas close to the translators, and these pollinia are usually horizontal or somewhat pendent. Furthermore, the genera recognized by Morillo (2012, 2013, 2015) also have pubescence on stems, leaves, and inflorescences generally compose of minute capitate glandular trichomes, in addition to eglandular longer trichomes. These pollinia and pubescence characters are diagnostic of Gonolobinae as presently defined (Morillo, 2012, 2013, 2015). Within Gonolobinae (previous tribe Gonolobeae), Woodson (1941) recognized three North American genera, *Fischeria* DC. having anthers dorsally inflated and crisped corolla lobes, *Gonolobus* Michx. with dorsal anther appendages and smooth to winged follicles, and *Matelea* Aubl. as having exappendiculate anthers, non-crisped corolla lobes and muricate fruits. However, within Woodson's circumscription of *Matelea* were wide arrays of species assemblages.

Attempts to circumscribe a monophyletic *Matelea* were offered first by Stevens (2001), and Stevens and Morales (2008) and later by Morillo (2012, 2013, 2015), who in his recent 2015 paper analyzed morphology

and molecular data from 55 species of the subtribe Gonolobinae (Apocynaceae, Asclepiadoideae). Krings *et al.* (2008) found that the small genus *Fischeria* DC., which contains fewer than ten species, is probably monophyletic, and Morillo (2015) provides evidences that neither *Matelea* s.l. nor *Gonolobus* s.l. (sensu Stevens & Morales 2009), each at various points circumscribed as containing 100+ species, are monophyletic. The non-monophyly of these genera of Gonolobinae has been documented by Krings *et al.* (2008), Krings and Morillo (2015), Morillo (2012, 2013), and Morillo *et al.* (2013), and the findings of Morillo (2015) basically concur with the earlier studies. Morillo (2015), based on results of molecular studies and morphology, provided evidences that could contribute to a more accurate systematic classification, and to the establishment of a working phylogenetic framework circumscribing the Neotropical genera of Gonolobinae, which is being tested in ongoing studies (e.g. Morillo *et al.* in prep.; and Mangelsdorff *et al.* in prep.).

The goal of the present study is to supplement Morillo (2015) by validating *Pruskortizia* (Apocynaceae, Asclepiadoideae, Gonolobinae), which was documented and proposed there as a new genus, but for which I inadvertently omitted type designation; and also to lectotypify *Gonolobus daytrichus*. A slightly altered subsequent version of Morillo (2015) that on 16 July 2015 appeared on the web is not effectively published (K. Gandhi pers. comm., viz Art. 30.3). The present text provides a translation of much of the Spanish text in Morillo (2015), and additional information which includes a more complete

description of the genus. Here, *Pruskortizia* is described, and typified by *Fischeria macrocarpa* Poepp., a name which was treated subsequently as *Matelea macrocarpa* (Poepp.) Morillo (Morillo 1984), but which based on my studies belongs to a different genus.

MATERIALS AND METHODS

Grouping of species based on correlation of morphological characters, geographic distribution and ecological patterns, were used in trying to obtain information for a more accurate circumscription of genera within the Gonolobinae (Apocynaceae, Asclepiadoideae). For that purpose, dry herbarium samples of 250 species (about half of the species of the subtribe) representing 36 genera throughout the range of the Gonolobinae, were studied. Photos and illustrations of type species for many genera were also consulted (e.g. *Hypolobus* E. Fourn., probably extinct). Genera represented in the study are: *Callaeolepium* H. Karst., *Chthamalia* Decne., *Dictyanthus* Decne., *Edisonia* Small, *Fischeria* DC., *Gonolobus* Michx., *Gyrostelma* E. Fourn., *Heliostemma* Woods., *Himantostemma* A. Gray, *Ibatia* Decne., *Jacaima* Rendle, *Labidostelma* Schltr., *Lachnostoma* H.B.K., *Lhotzkyella* S. Rauschert (*Pulvinaria* E. Fourn.), *Macroscepis* H.B.K., *Malinvaudia* E. Fourn., *Matelea* Aubl., *Microdactylon* Brandegee, *Odontostephana* Alexander, *Pachystelma* Brandegee, *Pekoltia* E. Fourn., *Phaeostemma* E. Fourn., *Pherotrichis* Decne., *Poicilla* Griseb., *Polystemma* Decne., *Prosthecidiscus* Donn. Sm., *Ptycanthera* Decne., *Rojasia* Malme, *Rothrockia* A. Gray, *Rytidoloma* Turcz., *Schubertia* Mart., *Stelmagonum* Baill., *Trichosacme* Zucc., *Tylodontia* Griseb., *Urostephanus* B.L. Rob., & Greenm., *Vincetoxicum* of north

American authors. Genera previously published by Morillo are not included in the list.

Voucher specimens used in the study are deposited or were loaned by the following institutions (acronyms sensu Thiers et al. 2015): BM, C, F, FLA, G, K, M, MER, MERF, MEXU, MG, MO, MYF, NY, P, QCNE, S, SEL, U, UBT, US, VEN.

From the 250 species studied, about 220 have been treated by several authors as *Gonolobus* Michx. s.l. or as *Matelea* Aubl. s.l. (e.g. Woodson 1941; Morillo 1984, Stevens 2001, Stevens & Morales 2009). However, results from Krings *et al.* (2008), and recent analysis of morphological and molecular data from 55 species of the subtribe by Morillo (2015), indicated that neither *Gonolobus* Michx. s.l., nor *Matelea* s.l. are monophyletic. Based on the integration of those results, Morillo (2015) proposed eleven morphologically defined new genera, one of them *Pruskortizia* Morillo, which by omission of type designation, was not validated.

After a further morphological comparison between *Pruskortizia* and the rest of the known genera of Gonolobinae (36 of them listed above), it clearly emerge a distinct group, and therefore is here propose as a new genus.

RESULTS

TAXONOMIC TREATMENT

Pruskortizia Morillo, gen. nov.

Type. *Fischeria macrocarpa* Poepp.

Diagnosis. A new genus of two species in the subtribe Gonolobinae, originally assigned to *Fischeria*, *Gonolobus* or *Phaeostemma* E. Fourn., and more recently to *Matelea*, but

differing from them by the combination of the following characters: densely pubescent stems, leaves, inflorescences, and fruits, the pubescence mixed, of brown or yellowish long eglandular (1–8 mm long) and short glandular trichomes (0.1–0.25 mm long); obovate, obovate-elliptic, or oblong-elliptic very large (more than 15 cm long when mature), obtuse or shortly and narrowly cordate leaves; few-flowered (3–6 flowers) subsessile cymes, long-pedicellate flowers, with very large (33–65 mm diam.) rotate, green or yellowish–green reticulate corollas with spreading to somewhat reflexed lobes, relatively small flat sessile gynostegia, radially prominent anthers that are supported by a well differentiated ring of spongy tissue (anther ring), with triangular or deltate apical membrane, and without dorsal appendages, corona gynostegial, usually dark purple, made of five hemidisciform lobes adnate to the corolla, with a short central ridge that gets to the base of the anthers, pollinia horizontal, large (0.8–1 mm long), oblongoid or narrowly calceolate, and fruits large (15–22 cm long), broadly ovoid, thick-walled, pubescent, and somewhat tuberculate, with small conic protuberances.

Description. Woody shrubby vines, with white latex; stems thick (4–10 mm), flexuous, terete or somewhat angulate, 5+ m long, densely pubescent, pubescence throughout, mixed, of brown or yellowish-brown long eglandular (1–8 mm long) and short glandular trichomes (0.1–0.25 mm long); similar pubescence on leaves and inflorescence. Leaves opposite, almost decussate, long petiolate, blades coriaceous or subcoriaceous, obovate, obovate-elliptic, or oblong-elliptic very large (more

than 15 cm long when mature), obtuse or shortly and narrowly cordate, with 5–8 digitate colleters at base, densely pubescent at least on one face, and on margins. Inflorescences subaxillary, one from each node, few-flowered (3–6 flowers) subsessile or short pedunculate cymes; peduncles thick, less than 20 mm long, with few small linear bracts. Flowers odorless, long-pedicellate; calyx parted nearly to the base, with one colleter per sinus, lobes narrowly lanceolate, long attenuate-acuminate, abaxially densely pubescent, adaxially glabrous; corolla rotate, very large, 33–65 mm diam., green or yellowish–green, with spreading to somewhat reflexed, reticulate lobes, lobes imbricate in bud, ovate to oblong-ovate, obtuse, adaxially glabrous, abaxially pubescent, eglandular trichomes 0.25–4 mm long, glandular trichomes 0.1–0.2 mm long, rarely glabrous; corona gynostegial, dark purple to black, adnate to the corolla tube, 5-lobed, 6–7 mm diam., lobes hemidiscoidal, almost flat, with a short central ridge that gets to the base of the anthers, and minute crenulate margins; gynostegium relatively small, sessile, 2.9–3.5 mm diam., style head almost circular, flat-convex; anthers, horizontal, subtriangular or subrhombic, supported by a thick ring of spongy tissue (anther ring), with outer margin radially prominent and somewhat concave, without dorsal appendages, short wings, apical membrane thin, white, triangular to deltate, that covers most of style head; pollinarium: retinaculum narrowly-sagittate, caudicles articulate, with a hyaline membrane, pollinia horizontal, large (0.8–1 mm long), oblongoid or narrowly calceolate, with a translucent upper margin; ovaries ventricose, glabrous to shortly and sparse puberulent,

styles shorter than ovaries. Follicles broadly and unevenly ovate, obtuse at apex, 15–22 cm long, somewhat tuberculate, thick-walled, walls 5–8 mm thick, pubescent, eglandular trichomes, 2.8–3.2 mm long, glandular trichomes, 0.1–0.15 mm long; seeds many, narrowly obovate, minutely and coarsely toothed, comose.

Characters in putative related genera that distinguish them from *Pruskortizia* are as follows. In *Fischeria* inflorescences are long-pedunculate, corolla lobes are incurved and crisped in one distal margin, corona lobes form an annulus adnate and surrounding the proximal half of the gynostegium, and anthers are dorsally inflated; in *Gonolobus* stems, leaves, and inflorescences have usually much shorter and sparse pubescence, there is an annulus in addition to the gynostegial corona, anthers have short narrow apical membranes and dorsal laminal appendages, and fruits are usually 3–5 winged; in *Phaeostemma* corollas are campanulate, corona lobes are digitate, there is a well developed stipe, pollinia are somewhat pendent, and fruits have five wings and several small conic projections in between; and *Matelea* (see illustration in Krings & Morillo, 2015) has short inconspicuous pubescence on stems, leaves, and inflorescences, corollas are small to medium size (5–17 mm diam.), there is no anther ring clearly differentiated, anthers have a very narrow apical membrane, and are not dorsally prominent, pollinia are relatively small (less than 0.5 mm long), usually obovoid, unevenly obovoid, or triangular-obovoid, and fruits are small, with thin walls, and usually smooth, 5-costate

or 5-winged, never muricate. There is no obvious morphological evidence of a close relationship between *Pruskortizia* and other genera described by Morillo (2012, 2013, 2015), or known for the subtribe *Gonolobinae*.

Distribution and Ecology. The genus occurs in Colombia, Ecuador, Peru, Bolivia, and western Brazil and has been reported for humid Andean and western Amazonian forests.

Etymology. *Pruskortizia* is named after John Pruski, dedicated specialist of Neotropical Asteraceae, botanical explorer of various countries of our continent, professor, Associate Editor of the journal *Brittonia*, and Assistant Curator of Flora Mesoamericana, and to Rosa Ortiz, student of her native Peruvian flora, and noted specialist of the Menispermaceae in South America, who together collected *P. macrocarpa* (type species) in San Martín, Peru, sent me their photographs used here, and who contributed valuable information aiding in the delimitation of this new taxon.

Pruskortizia is circumscribed here as containing two closely related South American species, which occur in very humid Andean and western Amazonian forests in Colombia, Ecuador, Peru, Bolivia, and Brazil. Both species are high-climbing large-leaved lianas, with moderate or dense vestiture, and very large corollas and fruits.

Pruskortizia dasytricha (Schltr.) Morillo, comb. nov. [FIGURE 1].

Gonolobus dasytrichus Schltr., Notizbl. Königl. Bot. Gart. Berlin 6: 177. 1914.

Matelea dasytricha (Schltr.) Fontella, *Bradea* 4(9): 55. 1984.



MISSOURI
BOTANICAL GARDEN
HERBARIUM
No 36325

Matelea dasytricha (Schltr.) Fontella

Determined by W. D. Stevens, 2000
Missouri Botanical Garden (MO)

The New York Botanical Garden
Plants of BOLIVIA

Asclep. *Matelea macrocarpa* (P. & E.) Morillo
det. G. Morillo, 1988

Depto. Pando, Prov. Manuripi, along Rio Madre
Dios, 2 km. W of Humaita.

12°01'S, 68°17'W

alt. 150 m

[FIGURE 1] *Pruskortizia dasytricha* (Schltr.) Morillo. Herbarium sample with leaves and flowers (From Nee 31679, MO). Photographed by Gilberto Morillo.

Type. Brazil. Alto Acre-Gebiet, schlingpflanze beim Seringal S. Francisco, 300 m, Jul 1911, *E. Ule 9530* (B, probably destroyed, photograph in F, Macbride neg. 4092; lectotype (designated here from among isotypes): K; isotypes: G, L).

Phaeostemma grandifolia Rusby, Descr. S. Am. Pl. 101. 1920.

Mateleia grandifolia (Rusby) Morillo, *Ernstia* 18: 4. 1983.

Type. Bolivia. Charopampa, 22 Sep 1901, R.S. Williams 797 (holotype: NY; isotypes: BM, K).

Pruskortizia dasytricha and *P. macrocarpa* are very similar and presumably sister species. It is likely that more detailed studies at the molecular level are needed to clarify the precise affinities of the two taxa. Morphologically, *P. dasytricha* may be distinguished from *P. macrocarpa* by patent to curved antrorse eglandular longer stems trichomes (2–5.5 mm long), short (0.15–0.3 mm long) eglandular trichomes along the nerves of the abaxial leaf blade surface, densely ciliate leaf blade margins with patent cilia 2–4.5 mm long, pedicels and calyx lobe abaxial surfaces densely villous with very long eglandular trichomes 2.5–6 mm long, somewhat smaller corollas (33–40(–48) mm diam.), with lobes abaxial surfaces sparsely hispidulous, with longer eglandular trichomes (2–4 mm long), and seeds ca. 8 × 6 mm.

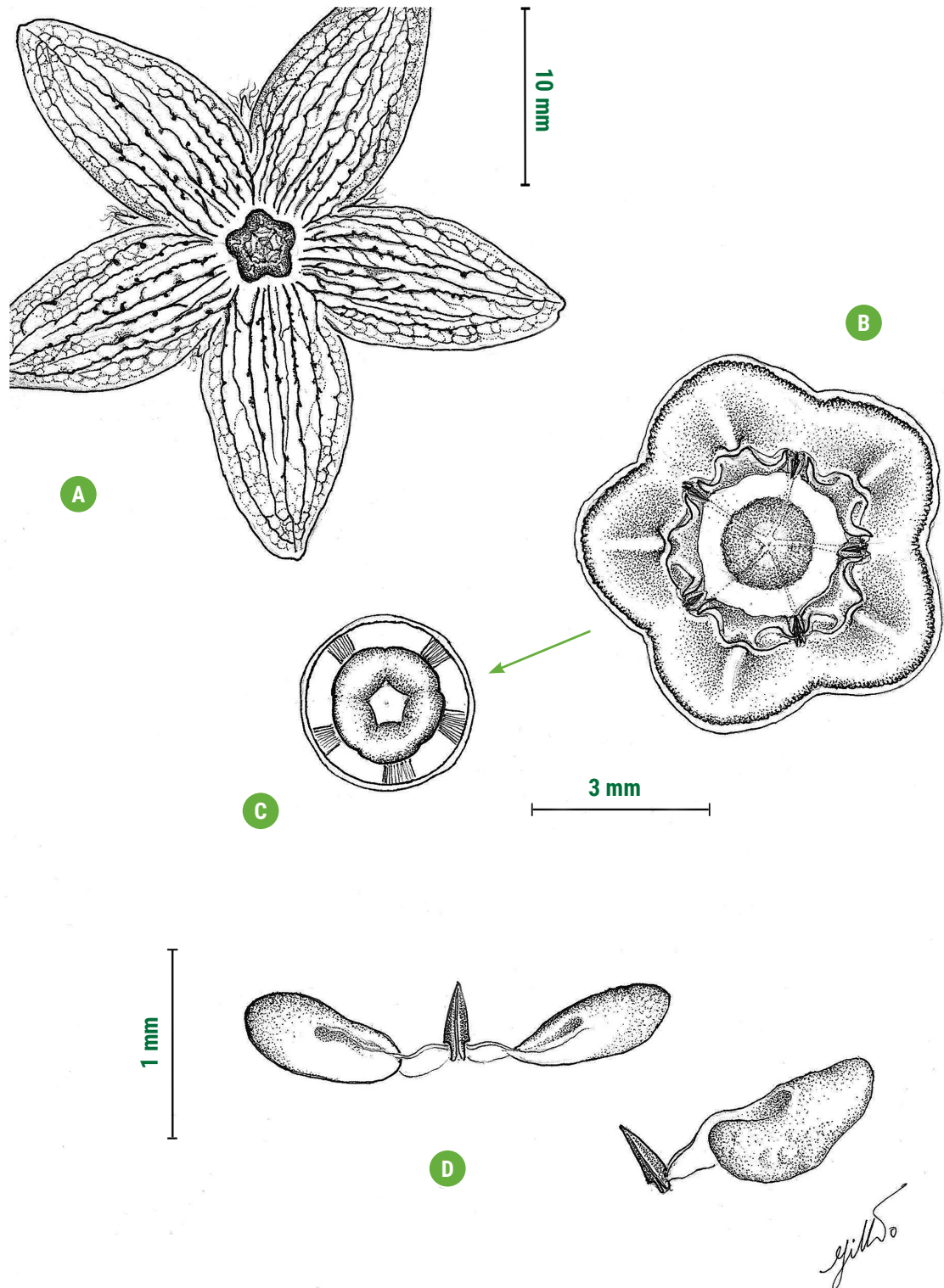
Distribution and Ecology. It occurs in the western Amazon basin, in northern Colombia, Ecuador, Brazil, Perú, and Bolivia. *Pruskortizia dasytricha* is known from humid macrothermic forests where it is a component of riparian vegetation, and has been collected between 100–480 meters elevation.

Etymology. The specific epithet, from the Greek, dasy = thickly, and thricho = hair, referring to the dense pubescence present on most organs of the plant.

Specimens Examined. BOLIVIA. Pando: Prov. Manuripi, along rio Madre de Dios, 2 km SW of Humaita, 150 m, 31 Aug 1985, *Nee 31679* (MO, NY). Santa Cruz: Río Surutu, 400 m, 1 Oct 1925, *Steinbach 7242* (MO); Prov. Ichilo, intersecc. Río Surutú, y Pitasama, 400 m, 19 Sept 1987, *Sandinas 102* (NY). Charopampa, 1600 ft., 22 Sep 1901, *Williams 797* (BM, K, NY). BRAZIL. Acre: Alto Acre-Gebiet, schlingpflanze beim Seringal S. Francisco, 300 m, Jul 1911, *E. Ule 9530* (G, K, L). COLOMBIA. Antioquia: Vic. Planta Providencia, 26 km S of Zaragoza, in valley of río Anori, 2 Sep 1976, *Shepherd 624* (MO, VEN). ECUADOR. Napo: Jatun Sacha, 450 m, 28 Dec 1987 (st.), *Gentry et al. 60002* (MO). PERÚ. Madre de Dios: Prov. Manú, Parque Nacional Manú, near Cocha Cashustation, 350 m, 16 Aug 1973, *Foster 2632* (F, MO, NY).

Pruskortizia macrocarpa (Poepp.) Morillo, comb. nov. [FIGURES 2, 3A, 3B]. *Fischeria macrocarpa* Poepp., Nov. Gen. Sp. Pl. 3: 68, t. 276. 1845. *Mateleia macrocarpa* (Poepp.) Morillo, *Ernstia* 24: 37. 1984. Type. Perú. Huánuco: Subandinae sylvis ad Cuchero, 2000 m, Feb 1830, *E. Poeppig 1714* (W, photograph in F, Macbride neg. 31843; isotypes: G, L).

Pruskortizia macrocarpa is closely related to *P. dasytricha*, but differs from it by shorter trichomes on stems, leaves, and inflorescences (stems with yellowish eglandular trichomes 2–3.5 mm long), leaf blades with curved



[FIGURE 2] *Pruskortizia macrocarpa* (Poepp.) Morillo: **[A]** Flower from above. **[B]** Gynostegium and corona. **[C]** Anther ring. **[D]** Pollinarium, front view (left), lateral view (right) (all from Rodriguez & Leiva 2122, MO). Drawing by Gilberto Morillo.



[FIGURE 3] **[A]** *Pruskortizia macrocarpa* (Poepp.) Morillo. Flowering branch held by Rosa Ortiz, photographed by John Pruski (Ríos et al., 39-66). **[B]** Fruiting branch held by Rosa Ortiz, photographed by John Pruski (Ríos et al., 39-66).

antrorse trichomes 1–1.6 mm long, more compact densely tomentose pubescence on margins and veins that obscures the veins (trichomes 0.5–1.5 mm long), pedicels and abaxial face of calyx lobes with compact pubescence of eglandular antrorse trichomes 1.5–2.5 mm long, usually larger corollas (40–65 mm diam.) with abaxial lobe surfaces moderate to densely hispidulous, with shorter eglandular trichomes (0.2–0.5 mm long), and larger seeds (12–13 × 8 mm).

Distribution and Ecology. It occurs in the western Amazon basin and Andean foothills, and has been collected in Peru, Ecuador and Colombia. *Pruskortizia macrocarpa* is known from the Andean piedmont, in montane and premontane forests, and is especially frequent near rivers, between 700–2550 meters elevation.

Etymology. The specific epithet, *macrocarpa*, from Greek macro=large, and carpus= fruit, referring to the large fruits of the plant.

Specimens Examined. COLOMBIA. Antioquia: Parque Nacional Las Orquídeas, margen derecha del río Venados, 1430 m, 15 Feb 1989,

Cogollo et al. 4008 (MO). Boyacá. El Humbo, 130 mls N of Bogotá, 3500 ft., 23 Sep 1932, *Laurence 463* (GH). ECUADOR. Morona-Santiago: E slopes of Cordillera, valley of the ríos Negro and Chupianza, trail from Sevilla de Oro to Mendez, 3400–4600 ft., 1 Nov 1944, *Camp E-817* (MO, NY). Napo. Cantón Archidona, 1100 m, 1–4 May 1989, *Palacios 4201* (MO, QCNE). Zamora-Chinchipec: Palanda Cantón, río Vergel valley, W of Cordillera del Condor, 1500 m, 14 Nov 2006, *van der Werff et al. 22067* (MO). PERÚ. Cajamarca: Caserío Estrella de Oriente, 1600–1650 m, 14 Nov 1998, *Rodríguez & Leiva 2122* (MO). Loreto: Pumayacu, between Balsapuerto and Moyobamba, 600–1200 m, Aug–Sep 1933, *Klug 3190* (MO). Pasco: Oxapampa, 1400–1500 m, 25 May 2005, *Arias et al. 357* (MO); Oxapampa, Centro Bocaz, camino a Purus, 1590 m, 19 Sep 2003, *Perea et al. 374* (MO); Oxapampa, Parque Nacional Yanachaga-Chemillén, sector Huampal-trocha Pan de Azucar, 706 m, 4 Apr 2008, *Ramírez & Flores 71* (MO). San Martín: Prov. Tocache, IIAP Inventario Biológico en el bosque de Shunté y Mishollo, valle del río Tocache, km 7 carretera entre Metal y Manan, 1600 m, 14 Jul 2014, *Ríos, Mori, Ortiz, Pruski & Torres 3966* (IIAP-2 sheets).

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