Stylosanthes (Leguminosae, Dalbergieae) of Venezuela

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Abstract

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Stylosanthes is a predominantly New World genus of economic importance. After Brazil, Venezuela has the second highest *Stylosanthes* species richness. However, knowledge about the geographic distribution of most *Stylosanthes* species in Venezuela is scarce or not documented at all, and there has been no updated taxonomic revision of the genus. For the present revision, about 1000 herbarium specimens from 35 herbaria were examined, including 103 type specimens. *Stylosanthes* has a wide natural distribution in Venezuela and eleven species occur in the country: *S. angustifolia, S. capitata, S. falconensis, S. gracilis, S. guianensis, S. hamata, S. humilis, S. scabra, S. sericeiceps, S. venezuelensis* and *S. viscosa,* three of them being endemic. The present study clarifies the taxonomy of *Stylosanthes* in Venezuela and provides illustrations and a key to identify the species.

Additional key words: *Fabaceae, Papilionoideae,* taxonomy

Introduction

Stylosanthes Sw. (*Leguminosae* Juss., *Papilionoideae* DC., *Dalbergieae* Klitg. & Lavin s.l.) is a mainly neotropical genus, which comprises about 25 species (Klitgaard & Lavin 2005) of annual, biennial and perennial herbs and subshrubs inhabiting tropical, subtropical and warm-temperate regions. In the Americas, *Stylosanthes* species are distributed from New York State, USA, to Santa Fe Province, Argentina, i.e. from approximately 41°N to 36°S (Williams & al. 1984). Outside the Americas, only *S. fruticosa* (Retz.) Alston (incl. *S. suborbiculata* Chiov., see Thulin 1993), *S. erecta* P. Beauv. and *S. sundaica* Taub. have been reported (Nooteboom 1961; Mannetje 1984).

Swartz (1788) described the genus based on two species, *Stylosanthes procumbens* Sw., nom. illeg. (≡ *S. hamata* (L.) Taub.) and *S. viscosa* (L.) Sw. Prior to Swartz, three species had been described but treated under *Hedysarum* L. and *Trifolium* L. (Linnaeus 1753, 1759; Aublet 1775). After the establishment of the genus, more than 10 *Stylosanthes* species were described (e.g. Swartz 1789; Willdenow 1802; Kunth in Humboldt & al. 1823; Don 1832) until the first revision of the genus by Vogel (1838). Since Vogel's treatment, the presence or absence of an axis rudiment, which is a "plume-like appendage" (Mannetje 1984) derived from an abortive secondary floral axis (Taubert 1890) (Fig. 1), has been the basis for dividing the genus into two sections, one including the species without axis rudiment and the other including species with axis rudiment.

The last complete revision of the genus was carried out by Mohlenbrock (1957) and updated by him a few years later (Mohlenbrock 1963). However, the material that was available to him more than half a century ago was limited in terms of specimen numbers and origins, particularly as far as Venezuelan species were concerned.

The genus is economically important, especially in areas with poor agricultural conditions such as drought and low-fertility soils, where several species are currently being used for forage, soil cover, soil improvement and the production of concentrate feed for livestock (Chakraborty 2004).

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For Venezuela, eleven *Stylosanthes* species have been found by the authors of the present paper (Calles in Hokche & al. 2008; Calles & Schultze-Kraft 2009, 2010a), ranking Venezuela second after Brazil, from where 25 species had been accounted for in the last revision (Costa & Ferreira 1984), some of them, however, with yet unclear taxonomic status. During recent work with native genetic resources of tropical legumes in Venezuela (Guenni & al. 2006), the lack of both an updated taxonomic revision of the genus and a documentation of the geographic distribution of the species in the country was felt as a particularly important shortcoming.

Therefore, the main objective of the research presented here is an updated taxonomic revision of the genus *Stylosanthes* for Venezuela, complemented by information about the geographic distribution of the species in the country. A key and illustrations are provided to facilitate species identification.

Material and methods

Over 1000 specimens, including 103 type specimens, were examined from 35 herbaria. These are B, BM, CAR, CORO, G, GUYN, HERZU, HOH, IPMY, IRBR, K, M, MER, MERC, MERF, MO, MY, MYF, NCSC, NY, P, PH, PORT, TFAV, UCOB, UOJ, US, VEN, VIA, W (abbreviations after Thiers 2008+) and five herbaria not listed in the "Index herbariorum", which are arbitrarily abbreviated in the specimen lists of the present publication: Herbarium of Universidad Nacional Experimental de los Llanos Ezequiel Zamora, Barinas, State of Barinas (BRNS), Herbario Fundación La Salle, San Carlos, State of Cojedes (COJ), Universidad del Zulia, Museo de Biología, Maracaibo, State of Zulia (HMBLUZ), Universidad Nacional Experimental del Táchira, Herbario J. J. Pacheco, San Cristóbal, State of Táchira (UNET) and Universidad Simón Bolívar, Herbario Museo de Ciencias Naturales, Caracas, Distrito Capital (USB). Due to space constraints, only two collections (if available) per species for each Venezuelan state are cited in the present paper. A complete list of the revised specimens is presented as Appendix 1 of the electronic edition of this paper. Accession numbers of the type specimens, if available, follow the herbarium abbreviation.

During field work in Venezuela, living plants of all species were also examined.

Taxonomy

Stylosanthes Sw., Prodr. 7: 108. 1788. – Lectotype (designated by Britton & Brown 1913: 393, confirmed by Burkart 1939: 234): *Stylosanthes procumbens* Sw., nom. illeg. (≡ *Hedysarum hamatum* L., *Stylosanthes hamata* (L.) Taub.)

= *Astyposanthes* Herter in Revista Sudamer. Bot. 7: 209. 1943. – Lectotype (designated by Mohlenbrock 1957: 327): *Stylosanthes humilis* Kunth

Fig. 1. *Stylosanthes venezuelensis* – lower articulation of a biarticulate pod with the floral axis rudiment still bearing the abortive flower (a) and inner bracteoles (b). – Photograph by Teodardo Calles.

Annual, biennial and perennial herbs and subshrubs, 10–150 cm tall, sparsely to much branched. *Stems* prostrate to erect, herbaceous to ligneous at the base, upper branches herbaceous, glabrous to pubescent, sometimes with tuberculate bristles; *internodes* 10–140 mm long. *Stipules* amplexicaul, glabrous to pubescent, sometimes hispid; sheath 3–14 mm long; teeth needle-like, 1–8.9 mm long. *Leaves* trifoliolate; *rachis* 0.2–3.5 mm long; *petioles* 1.2–14.6 mm long, sometimes viscid; *leaflets* linear to obovate, 6–45 × 1–10 mm; blade glabrous or nearly so, pubescent, hispid. *Inflorescences* terminal or axillary, ovoid to globose, capitate, linear, 5–45 mm long, 2- to several-flowered; *primary bracts* uni- or trifoliolate, *secondary bracts* unifoliolate; *bract leaflets* elliptic or lanceolate, glabrous to pubescent, sometimes hispid or with tuberculate bristles; *floral axis rudiment* present in some species; with 1 or 2 inner bracteoles and 1 outer bracteole. *Flowers* papilionoid with a suborbicular standard 3–10 mm long, off-white to yellow and with a dark red striation forming an arch; wing and keel petals 2–4.5 mm long, off-white to yellow. *Pods* uni- or biarticulate, glabrous to densely pubescent, lower articulation smaller than upper articulation; *pod beak* minute

to long and straight to coiled. *Seeds* cream-coloured to black, smooth.

Note on the typification of Stylosanthes. — There has been some controversy regarding the generic type of *Stylosanthes,* focussing on the question whether the typification by Britton & Brown (1913) with *S. procumbens,* nom. illeg. (≡ *S. hamata*), or by Nooteboom (1961) with *S. viscosa* is to be followed. In contrast to the argumentation by Kirkbride & Kirkbride (1987), Vogel's (1838) division of the genus into *S.* sect. *Eustylosanthes* and *S.* sect. *Styposanthes* is irrelevant for this question, because typification by restriction is not sanctioned by the Code (Art. 7.11 and Note 2, McNeill & al. 2006). The first formal lectotypification, by Britton & Brown (1913), following the mechanical practise of designating the first species to appear in the text, is non-committal but was formally confirmed by Burkart (1939) and Mohlenbrock (1957). Typification with *S. procumbens* therefore takes priority, with Britton & Brown's (1913) designation, over the lectotypification by Nooteboom (1961) with *S. viscosa.* It is likewise irrelevant that later also Mohlenbrock (1963) agreed with Nooteboom's (1961) designation.

Taxonomic remarks. — The genus *Stylosanthes* belongs to the tribe *Dalbergieae* s.l. and is closely related to the genera *Fissicalyx* Benth., *Fiebrigiella* Harms, *Chapmannia* Torr. & A. Gray and *Arachis* L. (Klitgaard & Lavin 2005). Of these genera, according to Hokche & al. (2008), only *Arachis pintoi* Krapov. & W. C. Greg., *Chapmannia prismatica* (Sessé & Moc.) Thulin and *Fissicalyx fendleri* Benth. occur in Venezuela. *A. pintoi,* however, is most likely naturalised since there are no native *Arachis* species north of the equator (Krapovickas & Gregory 1994). *Stylosanthes* species can be easily differentiated from them because *A. pintoi* has tetrafoliolate leaves and is stoloniferous while *C. prismatica* and *F. fendleri* are trees.

Key to the Venezuelan species

The differences among revisions of *Stylosanthes* depend greatly on the authors' species concept. Some based their species concept mainly on the morphology of the pods (Mohlenbrock 1957, 1963; Mannetje 1984), while others placed the emphasis on growth habit, shape and venation of leaflets, number of vascular bundles and pubescence of stems (Pittier 1944; Ferreira & Costa 1979). In the present treatment, we use mainly pod morphology (shape of the pod; length and shape of the pod beak) to differentiate *Stylosanthes* species, but we also rely on vegetative characters.

The fact that *Stylosanthes* taxa are difficult to distinguish also renders it difficult to construct a key that avoids ambiguous determinations. Therefore, users of our key are encouraged to also consider the species' geographic distribution as well as the illustrations provided for species identification. Previous keys (e.g. Pittier 1944; Mohlenbrock 1957; Ferreira & Costa 1979) directed the user to consider first the presence or absence of the floral axis rudiment, the character distinguishing the two *Stylosanthes* sections. This, however, is quite difficult as the floral axis rudiment is usually only discernable under a dissection microscope. Since our intention was to create an easy-to-handle identification key, the floral axis rudiment is not taken into consideration in this key.

1. Pod beak coiled 2
– Pod beak straight to uncinate 4
2. Pod beak less than 1 mm in length; stems viscid, with short, tuberculate bristles and densely pubescent; occurring at 0–1000 m (Anzoátegui, Barinas, Bolívar, Falcón, Mérida, Monagas, Nueva Esparta, Sucre, Trujillo and Zulia) . . . . . *S. viscosa*
– Pod beak more than 1 mm in length 3
3. Inflorescences elongated and narrowly linear (up to 45 mm long); leaflets narrowly linear; stems glabrous, shortly pubescent or with tuberculate bristles; occurring at 10–160 m (Amazonas, Apure, Bolívar and Guárico) . . . . . *S. angustifolia*
– Inflorescences short and ovoid (less than 11 mm long); leaflets narrowly lanceolate; stems hispid throughout; occurring at 30–450 m (Amazonas, Anzoátegui, Apure, Aragua, Barinas, Bolívar, Carabobo, Cojedes, Guárico, Monagas, Portuguesa and Zulia) . . . . . *S. humilis*
4. Pod beak less than 1 mm in length 5
– Pod beak more than 1 mm in length 6
5. Leaflets linear to lanceolate (13–35 × 2–4 mm); plants erect and sparsely branched; stems hispid, internodes 30–140 mm long; inflorescences capitate with tuberculate bristles; pods biarticulate, upper articulation subrounded; occurring at 10–1200 m (Amazonas, Anzoátegui, Bolívar, Carabobo, Falcón, Guárico, Monagas, Sucre, Trujillo and Zulia) . . . *S. gracilis*
– Leaflets lanceolate to oblong (18–45 × 3–10 mm); plants prostrate to erect and much branched; stems glabrous to densely pubescent, internodes 15–62 mm long; inflorescences small, obovate to large, globose with short bristles and silky pubescence; pods uniarticulate, elliptic; occurring at 70–1900 m (all states except Carabobo, Delta Amacuro and Nueva Esparta) . . . . . *S. guianensis*
6. Inflorescences more than 15 mm in length 7
– Inflorescences less than 15 mm in length 8
7. Inflorescences capitate (up to 35 mm long) with tuberculate bristles and silky cilia; stems prostrate-ascending to erect, densely and shortly whitish pubescent and with scattered setae; leaflets obovate; occurring at 20–280 m (Anzoátegui, Bolívar, Guárico and Monagas) . . . . . *S. capitata*
– Inflorescences oblong (15–25 mm long), sericeously pilose; stems ascending to erect, sericeously pilose; leaflets narrowly elliptic to lanceolate; occurring at 500–1500 m (Mérida) . . . . . *S. sericeiceps*

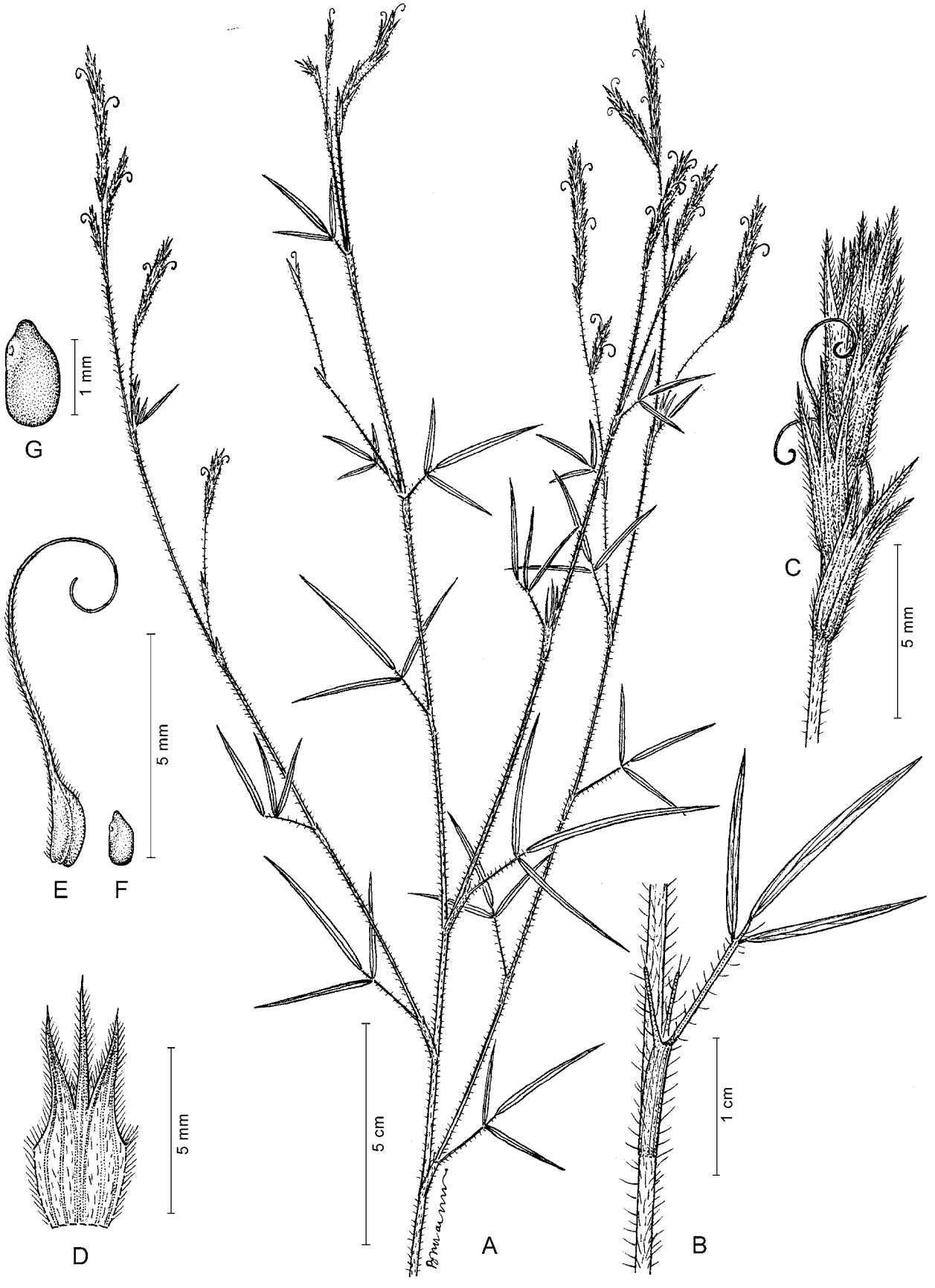

Fig. 2. *Stylosanthes angustifolia* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: inflorescence; D: bract; E: pod (upper articulation); F: seed; G: detail of the seed. – From *Delascio & al. 11239* (MO, VEN). – Drawing by Bruno Manara.

8. Stems almost glabrous or with soft tomentose pubescence 9
– Stems scabrid with scattered tuberculate bristles . 10
9. Stems mainly glabrous except for a line of short white hairs along one side; bracts translucent with silky cilia; standard petal 4–5 mm long; pod beak uncinate; occurring at 0–900 m (Aragua, Bolívar (naturalised), Distrito Capital, Falcón, Guárico, Lara, Mérida, Miranda, Nueva Esparta, Sucre, Vargas, Yaracuy and Zulia) . . . . . *S. hamata*
– Stems with whitish tomentose pubescence; bracts opaque with tuberculate bristles and silky cilia; standard petal 6–10 mm long; pod beak straight to slightly inflexed; occurring at 900–1170 m (Falcón) . . . . . *S. falconensis*
10. Stems usually viscid; leaflets of primary bracts trifoliolate; leaflets elliptic to obovate-elliptic (8–17 mm long) with conspicuous primary and secondary veins along abaxial side; upper articulation pubescent to densely pubescent; occurring at 30–1700 m (Anzoátegui, Distrito Capital, Guárico, Lara, Mérida, Miranda, Monagas, Portuguesa, Sucre, Táchira, Trujillo, Vargas and Yaracuy) . . . . . *S. scabra*
– Stems rarely viscid; leaflets of primary bracts unifoliolate; leaflets lanceolate to elliptic (11–32 mm long) with inconspicuous primary and secondary veins on both sides; upper articulation glabrous or nearly so; occurring at 870–1000 m (Distrito Capital) . . . . . *S. venezuelensis*

The Venezuelan species

A. *Stylosanthes* sect. *Astyposanthes* (Herter) Mohlenbrock in Ann. Missouri Bot. Gard. 44: 327. 1957 ≡ *Stylosanthes* sect. *Eustylosanthes* Vogel in Linnaea 12: 63. 1838 ≡ *Astyposanthes* Herter in Revista Sudamer. Bot. 7: 209. 1943 [– *S.* sect. *Stylosanthes* sensu Nooteboom 1961, Mohlenbrock 1963, Mannetje 1977, 1984, Kirkbride & Kirkbride 1987]. – Lectotype (designated by Mohlenbrock 1957: 327): *Stylosanthes humilis* Kunth

Species without floral axis rudiment and with one inner bracteole.

Nomenclatural and taxonomic remarks. — Because the lectotype of the generic name *Stylosanthes, S. procumbens,* nom. illeg. (≡ *S. hamata*) is part of Vogel's (1838) section *Styposanthes,* the latter, including the species with a floral axis rudiment and two inner bracteoles (Fig. 3), has to be renamed *S.* sect. *Stylosanthes* (Art. 22.2, McNeill & al. 2006), while for Vogel's section *Eustylosanthes* Mohlenbrock (1957) provided the sectional name *Astyposanthes*.

Herter (1943) described the separate genus *Astyposanthes* and transferred all *Stylosanthes* species without a floral axis rudiment to it. However, none of the subsequent revisions of *Stylosanthes* adopted this treatment.

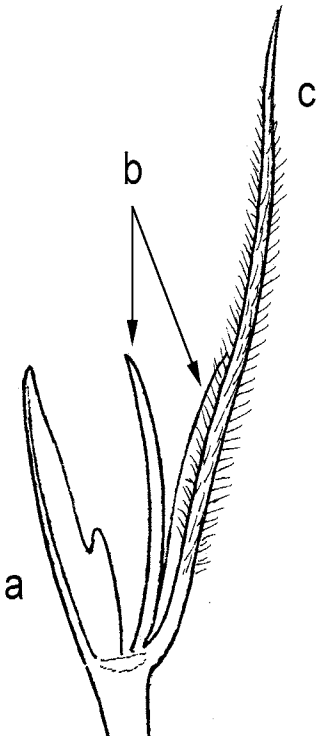

Fig. 3. Details of *Stylosanthes* floral morphology – a: outer bracteole; b: two inner bracteoles (so in *S.* sect. *Stylosanthes,* only one inner bracteole in *S.* sect. *Astyposanthes)*; c: floral axis rudiment (so in *S.* sect. *Stylosanthes,* without axis rudiment in *S.* sect. *Astyposanthes*). – Drawing by Bruno Manara.

1. *Stylosanthes angustifolia* Vogel in Linnaea 12: 63. 1838 ≡ *Astyposanthes angustifolia* (Vogel) Herter in Revista Sudamer. Bot. 7: 209. 1943. – Syntypes: Brazil: "inter Campos et Victoria", *Sellow* (not seen); "inter Victoria et Bahia", *Sellow* (not seen).
[– *Stylosanthes angustissima* Klotzsch in Schomburgk, Reis. Br.-Guiana 3: 1200. 1849, nom. nud. – Guyana, Pacaraima, 10.1842, *Schomburgk 816,* P 00206027!].

Perennial herb, 30–50 cm tall, branched from the base. *Stems* ascending to erect, ligneous near the base, upper branches herbaceous, glabrous, shortly pubescent or with tuberculate bristles. *Stipules* amplexicaul with short pubescence and tuberculate bristles; sheath 3–8 mm long, with 7–9 veins; teeth needle-like, 1.5–5.8 mm long. *Leaves* trifoliolate; *rachis* obtuse-angled, shortly pubescent, 0.2–1.5 mm long; *petioles* glabrous to shortly pubescent, 2–9 mm long; *leaflets* narrowly linear, 10–40 × 1–2 mm; blade glabrous or nearly so at both sides; veins parallel, inconspicuous along adaxial side and conspicuous along abaxial side. *Inflorescences* both terminal and axillary, elongated and narrowly linear, 13–45 mm long, with 5–20 flowers, peduncles 5–25 mm long; *bracts* unifoliolate, with needle-like tuberculate bristles and whitish cilia; *bract leaflets* lanceolate with tuberculate bristles. *Flowers* with a suborbicular standard 3–4 mm long, yellow with a dark red striation forming an arch; wing and keel petals 3–4 mm long. *Pods* biarticulate but

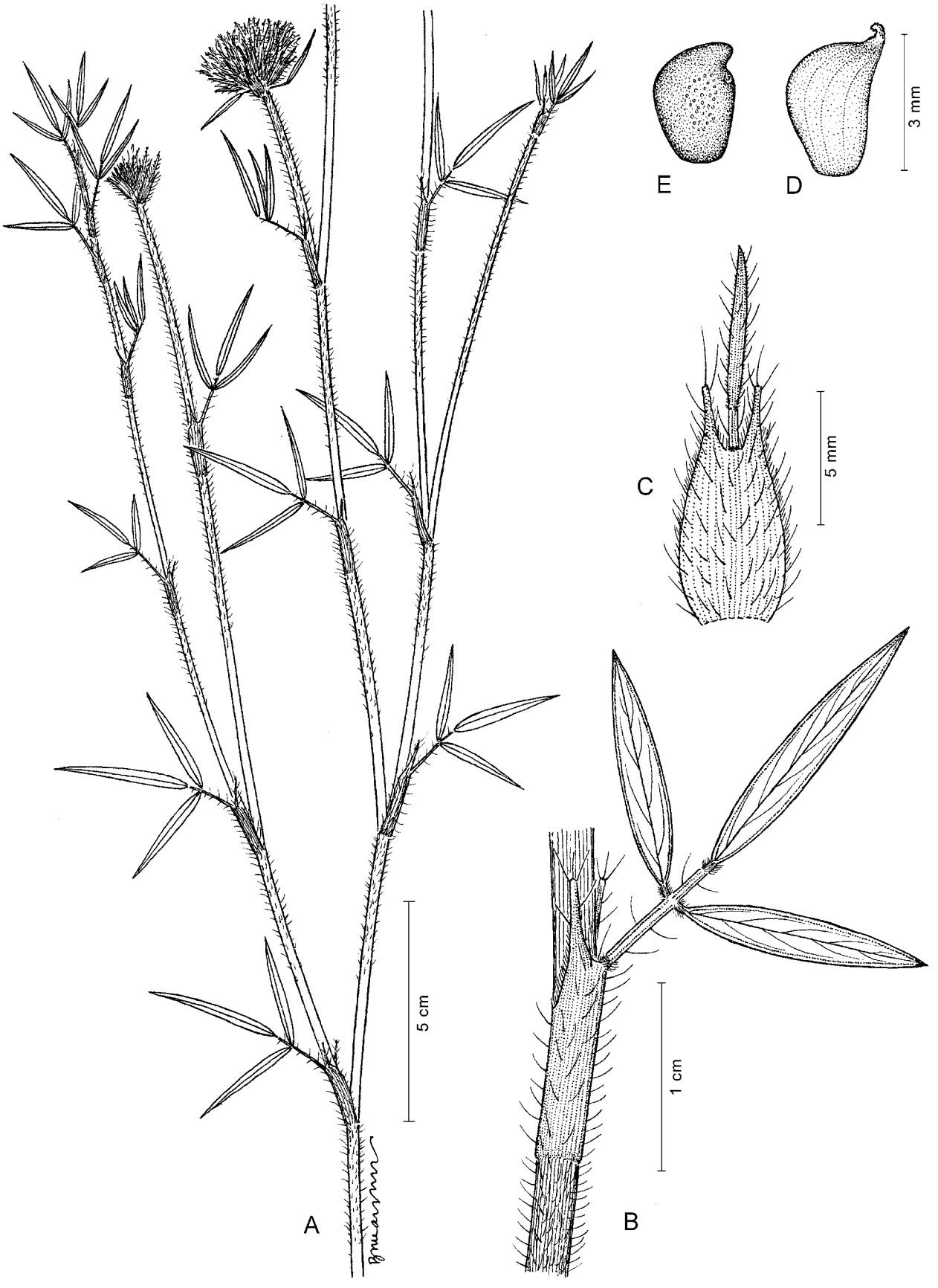

Fig. 4. *Stylosanthes gracilis* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: bract; D: pod (upper articulation); E: seed. – From *Garroni 62* (VEN, US). – Drawing by Bruno Manara.

the lower articulation not always developed, reticulate, glabrous to shortly pubescent, 1.8–2.4 × 0.8–1.2 mm; *pod beak* 4–5.5 mm long, coiled. *Seeds* black, smooth, 1.2–2×0.6–1.2 mm. – Fig. 2.

Taxonomic remarks. — Mohlenbrock (1957) synonymised *Stylosanthes angustissima* with *S. angustifolia,* based, presumably, only on the similarity of the specific epithet, because that name was published without description (Klotzsch in Schomburgk 1848). However, our examination of the original material preserved at P corroborates that both names refer to the same species.

Distribution. — Amazonas, Apure, Bolívar and Guárico. Outside Venezuela, the species has been reported from French Guiana, Guyana, Suriname and Brazil (Williams & al. 1984).

Selected specimens examined. — Amazonas: Cerro San Borja, 100 m, 12.12.1955, *Wurdack & Monaching 39850* (US). — Apure: Santos Luzardo National Park, 6°42'N, 67°6'W, 43 m, 2.11.1989, *Castillo & al. 3110* (NY); N bank of Capanaparo River, 7°1'N, 67°39'W, 52 m, 26.4.2007, *Calles & Colmenares 1016* (VEN). — Bolívar: Bajo Caroní, 7°4'N, 62°5'W, 75 m, 3.1994, *Valera 228* (GUYN, PORT, US); Caicara del Orinoco, vicinity of Cerro El Toro, 7°39'N, 66°10'W, 50 m, 1.1989, *Elcoro 210* (MO, NY, PORT). — Guárico: 39 km S of Las Mercedes, l60 m, 20.11.1973, *Davidse 4266* (MER, US, VEN); Calabozo-Cazorla road, 8°42'N, 67°17'W, 84 m, 25.4.2007, *Calles & Colmenares 1015* (VEN).

2. *Stylosanthes gracilis* Kunth in Humboldt & al., Nov. Gen. Sp. (quarto ed.) 6: 507–508. 1823 ≡ *Stylosanthes guianensis* var. *gracilis* (Kunth) Vogel in Linnaea 12: 66. 1838 ≡ *Astyposanthes gracilis* (Kunth) Herter in Revista Sudamer. Bot. 7: 209. 1943. – Neotype (designated by Calles & Schultze-Kraft 2010b: 234): Venezuela, Sucre, lower part of Turimiquiri Mountain, vicinity of El Cocollar, 10°10'N, 63°48'W, 10.2.2008, *Calles & Schultze-Kraft 1037* (VEN!; isoneotypes: HOH!, K!, US!).

= *Stylosanthes surinamensis* Miq. in Linnaea 18: 567–568. 1844. – Lectotype (designated by Calles & Schultze-Kraft 2010b: 234): Suriname, Para, Onoribo, 9.1844, *Focke 1009* (U 0003616!).

Perennial herb, 60–120 cm tall, sparsely branched. *Stems* erect, ligneous near the base, upper branches herbaceous, hispid; *internodes* 30–140 mm long with yellow-golden bristles. *Stipules* amplexicaul, hispid; sheath 8–11 mm long with more than 10 veins; teeth needle-like, 5–8 mm long. *Leaves* trifoliolate; *rachis* 1–1.6 mm long; *petioles* inwardly canaliculate and outwardly obtuse-angled, 6.5–9 mm long; *leaflets* linear to lanceolate, 13–35×2–4 mm, glabrous along adaxial side, with short tuberculate bristles along abaxial side; veins inconspicuous along adaxial side and conspicuous along abaxial side. *Inflorescences* usually terminal, capitate, 10–25 mm long and wide; *bracts* unifoliolate; sheath green with silky pubescence and yellow tuberculate bristles, veins more than 10; inner and outer bracteole 3–3.5 mm long, glabrous in the lower half and pilose in the upper. *Flowers* with suborbicular standard 4–6 mm long, yellow with a dark red striation forming an arch; wing and keel petals 3.5–4 mm long. *Pods* biarticulate, usually both articulations developed, upper articulation subrounded and with a subconical apex, reticulate, shortly pubescent, 2.2–3 × 1.7–2 mm, lower articulation reticulate and pilose; *pod beak* minute and straight to inflexed, 0.2–0.5 mm long. *Seeds* cream-coloured or black, smooth, 1.8–2.6 × 1.4–1.8 mm. – Fig. 4.

Taxonomic remarks. — Based only on pod morphology, most authors have regarded *Stylosanthes gracilis* as a variety of *S. guianensis* (Vogel 1838; Bentham 1859; Taubert 1890; Mannetje 1977, 1984) or even a synonym of it (Mohlenbrock 1957). However, based on both pod and vegetative characteristics, *S. gracilis* should be considered as a separate species (Calles & Schultze-Kraft 2010b), although these species are certainly closely related.

Based on the original description, Mohlenbrock (1957) and Mannetje (1977) placed *Stylosanthes surinamensis* as synonym of *S. gracilis*. After examining the type of the former name, we corroborate them as conspecific.

Distribution. — Amazonas, Anzoátegui, Bolívar, Carabobo, Falcón, Guárico, Monagas, Sucre, Trujillo and Zulia. Outside Venezuela, the species has been reported from Panama, Colombia, French Guiana, Guyana, Suriname, Brazil, Bolivia and Paraguay (Calles & Schultze-Kraft 2010b).

Selected specimens examined. — Amazonas: 15 km N of Puerto Ayacucho, 5°47'N, 67°30'W, 8.12.1977, *Huber 1348* (K, US, VEN); Piaroa community Montaña El Tigre, along Puerto Ayacucho-Samariapo road, 6.3.1991, *Sánchez & Moreno 112* (TFAV). — Anzoátegui: S of El Zamuro, 10°2'N, 64°17'W, 1100 m, 24.11.1981, *Davidse & González 19386* (MO, VEN); Pariaguán-El Tigre road, 8°55'N, 64°36'W, 330 m, 7.2.2008, *Calles & Schultze-Kraft 1033* (VEN). — Bolívar: Sucre Municipality, 7°30'N, 65°16'W, 50 m, 7.1990, *Delgado 1229* (MO, NY, PORT, VEN); 8 km SE of Upata, 350 m, 7.1978, *Delascio & Liesner 6906* (CAR, MO, VEN). — Carabobo: On hills near Vigirima, 19.10.1983, *Cardozo & Carmona 555* (MY). — Falcón: 0.5 km N of Avaria, 1000 m, 23.7.1983, *Wingfield 11013* (CORO). — Guárico: 90 km S of Las Mercedes, 8°6'N, 66°20'W, 120 m, 9.7.1995, *Ortiz & Ramia 2573* (MO, VEN); Las Mercedes-Santa Rita road, 8°37'N, 66°25'W, 130 m, 6.2.2008, *Calles & Schultze-Kraft 1028* (VEN). — Monagas: Barrancas Municipality, Hato Santa Clara, 26.9.1990, *De Martino & al. SPB-111* (MO, MY,

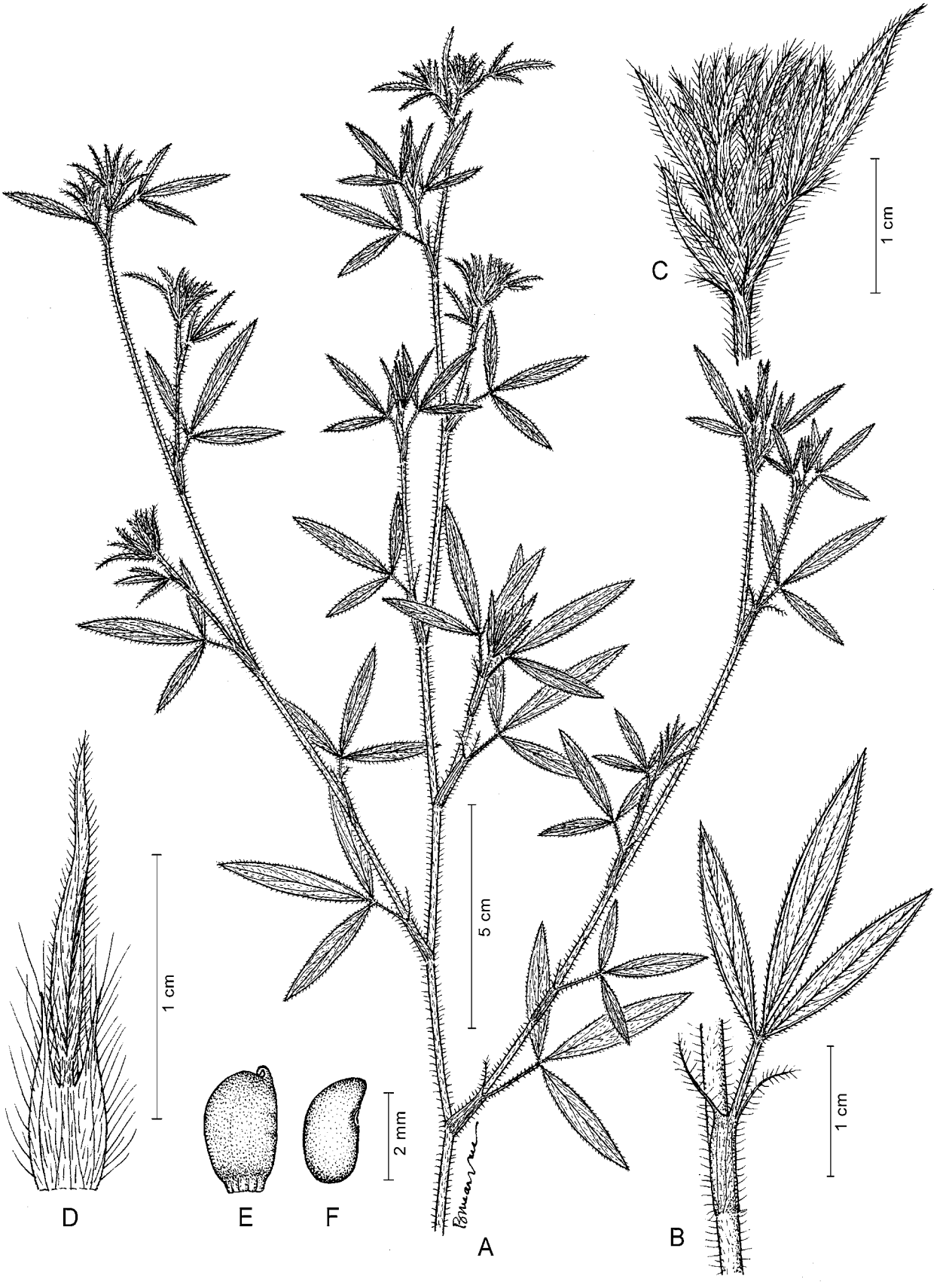

Fig. 5. *Stylosanthes guianensis* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: inflorescence; D: bract; E: pod; F: seed. – From *Guenni & al. PCC-010* (MY, VEN). – Drawing by Bruno Manara.

MYF); 5 km S of Chaguaramas, 8°35'N, 62°45'W, 85 m, 11.2.2008, *Calles & Schultze-Kraft 1039* (VEN). — Sucre: Santa Fé-El Naranjo road, 10°14'N, 64°25'W, 240 m, 9.2.2008, *Calles & Schultze-Kraft 1036* (VEN); 10 km W of Cumaná, 10 m, 20.8.1966, *Torres 1973* (IRBR). — Trujillo: Vicinity of Escuque, 11.1.1929, *Pittier 13150* (MO, NY, PH, US, VEN); 10 km NE of Agua Viva, 31.5.1981, *Bunting & Clausnitzer 9911* (US). — Zulia: Vicinity of Mata de Quiroz, 10°27'N, 70°44'W, 210 m, 14.12.1987, *Zambrano & Gutiérrez 1712* (HERZU, MO, PORT); Agua Viva-Cabimas road, 9°51'N, 70°52'W, 70 m, 27.2.2008, *Calles & Beuchelt 1050* (VEN).

3. *Stylosanthes guianensis* (Aubl.) Sw. in Kongl. Vetensk. Acad. Nya Handl. 10: 301–302. 1789 ≡ *Trifolium guianense* Aubl., Hist. Pl. Guiane 2: 776–778. 1775. – Lectotype (designated by Mannetje 1977): French Guiana, Macouria, *Aublet s.n.* (BM 000611204!).

= *Stylosanthes guianensis* var. *subviscosa* Benth. in Martius, Fl. Bras. 15(1A): 92. 1859. – Lectotype (designated here): Brazil, Minas Gerais, between Córrego do Jaraguá and Jiquitinhonha River, 1836, *Pohl s.n.* (K 000205133!).

= *Stylosanthes viscosa* var. *acutifolia* Benth. in Martius, Fl. Bras. 15(1A): 91. 1859, **syn. nov.** – Lectotype (designated here): Brazil, Pernambuco, 1838, *Gardner 972* (K 000205132!, isolectotypes: P!, W!).

= *Stylosanthes guianensis* var. *pubescens* Pilg. in Bot. Jahrb. Syst. 30: 160–161. 1902. – Holotype: Brazil, Mato Grosso, 1899, *Pilger 625* (B 100244177!).

= *Stylosanthes guianensis* var. *gracilis* Vogel f. *esetosa* Hassl. in Repert. Spec. Nov. Regni Veg. 16: 221. 1919. – Lectotype (designated here): Paraguay, Gran Chaco, Santa Elisa, 5.10.1903, *Hassler 2834* (K 000264199!; isolectotypes: BM 000538202!, W!).

Perennial herb to subshrub, 50–140 cm tall, much branched. *Stems* prostrate to erect, ligneous near the base, upper branches herbaceous, glabrous to densely pubescent, sometimes viscid; *internodes* 15–62 mm long. *Stipules* amplexicaul, glabrous to pubescent; sheath 7–14 mm long, usually 7-veined; teeth needle-like, 4.5–6 mm long. *Leaves* trifoliolate; *rachis* 0.5–0.7 mm long; *petioles* canaliculate, 3.7–14.6 mm long; *leaflets* lanceolate to oblong, 18–45 × 3–10 mm; blade glabrous to puberulent on both sides; veins inconspicuous along adaxial side and conspicuous along abaxial side. *Inflorescences* both terminal and axillary, small obovate to large globose; *bracts* unifoliolate, sheath green to purple, with silky pubescence and densely covered with short bristles, 5–9 veins; inner and outer bracteole 3–4 mm long, glabrous in the lower half and pilose in the upper. *Flowers* with suborbicular standard 3–6 mm long, off-white to yellow with a dark red striation forming an arch; wing and keel petals 3.5–4 mm long. *Pods* uniarticulate, elliptic, reticulate, glabrous to shortly pubescent, 2.5–2.9 × 1.8–2.2 mm; *pod beak* minute and inflexed, 0.2–0.4 mm long. *Seeds* cream-coloured to black, smooth, 2.1–2.5 × 1.2–1.5 mm. – Fig. 5.

Taxonomic remarks. — *Stylosanthes guianensis* shows high morphological variability and some variants have been described as infraspecific taxa. However, we concur with Mohlenbrock (1957) and Mannetje (1977), as has been stated already elsewhere (Calles & Schultze-Kraft 2010b), that these are of no taxonomic value.

Based only on the description, Mohlenbrock (1957) placed *Stylosanthes viscosa* var. *acutifolia* as synonym of *S. viscosa*. However, after reviewing the respective type specimens, we conclude that, based on pod morphology, this taxon does not belong to *S. viscosa* but to *S. guianensis* instead.

Distribution. — Amazonas, Anzoátegui, Apure, Aragua, Barinas, Bolívar, Cojedes, Distrito Capital, Falcón, Guárico, Lara, Mérida, Miranda, Monagas, Portuguesa, Sucre, Táchira, Trujillo, Vargas, Yaracuy and Zulia. Outside Venezuela, the species has been reported from México, Central America, Colombia, French Guiana, Guyana, Suriname, Brazil, Peru, Bolivia and Paraguay (Williams & al. 1984).

Selected specimens examined. — Amazonas: On north side of Sierra Parima, 3°49'N, 64°35'W, 800 m, 4.11.1983, *Huber & Colchester 8376* (MYF, NY, US, VEN); 3 km from mouth of Jayuwapuey River, on left bank, 3°5'N, 64°38'W, 220 m, 1.1990, *Fernández 6761* (MO, PORT). — Anzoátegui: 10 km N of Nuevo Mundo, 9°55'N, 64°5'W, 1400 m, 8.1.1987, *Hahn & Grifo 3426* (MO, NY); El Chaparro-Pariaguán road, 8°56'N, 64°45'W, 7.2.2008, *Calles & Schultze-Kraft 1031* (VEN). — Apure: Between El Nulita and El Nula, 15.1.1978, *Trujillo & Torres 14546* (MY); Mantecal, 20.2.1973, *Ramia & Montes 5106* (VEN). — Aragua: Maracay, El Castaño, Circunvalación Avenue, 16.12.1985, *Rodríguez 1897* (MY, NY); 12–18 km N of La Victoria, 890–1560 m, 8.12.1982, *Steyermark & al. 127684* (BM, VEN). — Barinas: 2 km from Barinitas on road to Apartaderos, 9.3.1964, *Breteler 4195* (K, MER, NY, P, US); Santa Cruz de Mora, 7.11.1983, *Marquina & Briceño 38* (MERC). — Bolívar: 10 km SW of Karaurin Tepui, 5°19'N, 61°3'W, 900–1000 m, 26.4.1988, *Liesner 23850* (MO, PORT); Bajo Caroní, 7°27'N, 63°13'W, 300 m, 5.1994, *Díaz 2297* (GUYN). — Cojedes: 2 km from Vallecito, 9°52'N, 68°26'W, 552 m, 16.2.2001, *Guenni & al. PCC-039* (MY, NCSC, VEN); Cerro Azul, NE of La Sierra, 1100–1350 m, 2.1976, *Delascio 7642* (COJ). — Distrito Capital: El Avila National Park, on path Los Castillitos-El Rincón, 1200 m, 22.2.1973, *Morillo & Manara 332* (VEN); Caracas and vicinity, 15.12.1920, *Bailey & Bailey 97* (PH, US). — Falcón: San Lorenzo, Sierra San Luis, 8.4.1979, *Wingfield 5777* (CORO); above Macuquita, 900 m, 3.2.1983, *Wingfield*

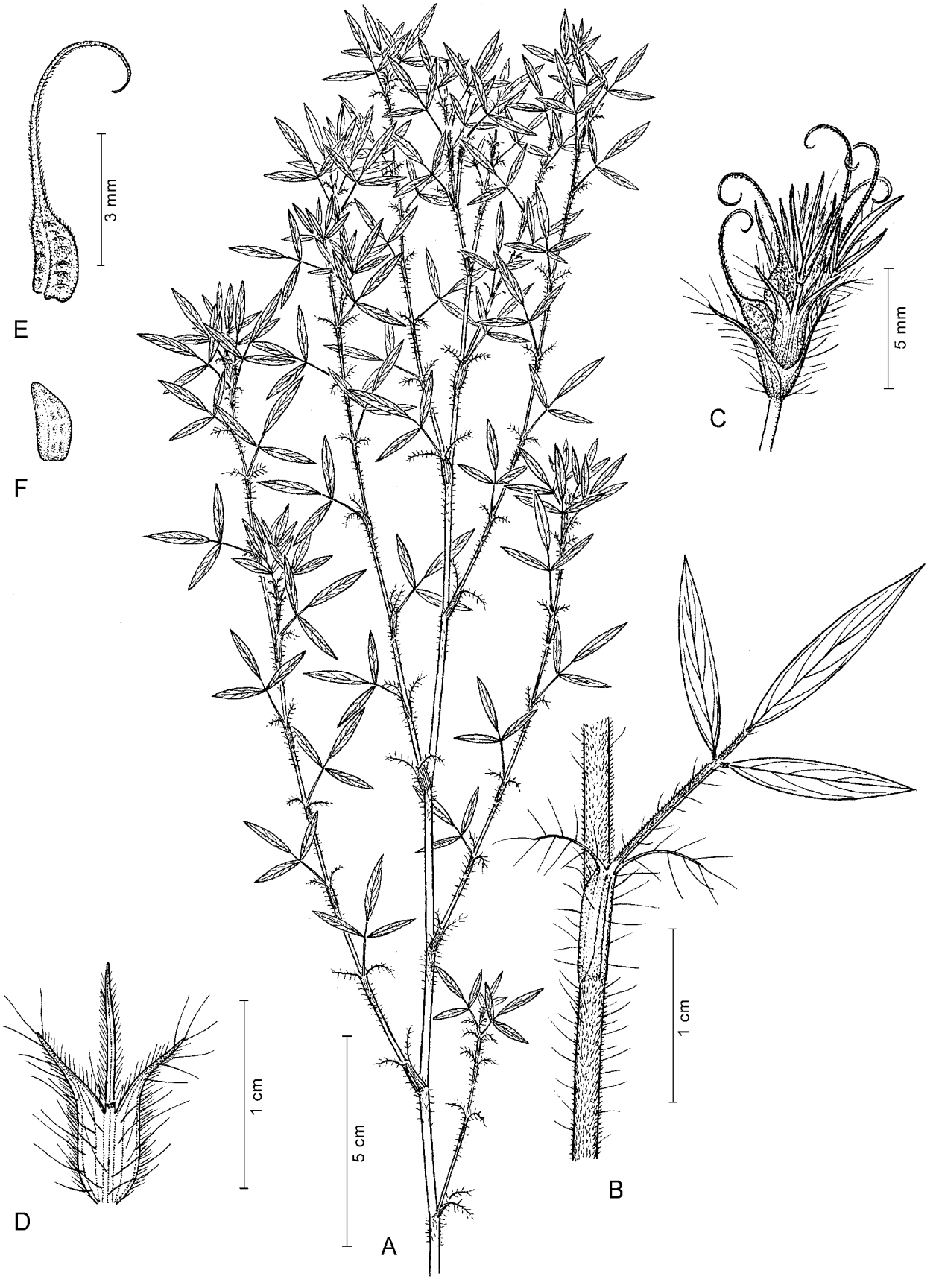

Fig. 6. *Stylosanthes humilis* – A: stem; B: leaf with amplexicaul stipule; C: inflorescence; D: bract; E: pod (upper articulation); F: seed. – From *Davidse & al.* 3890 (VEN). – Drawing by Bruno Manara.

10451 (CORO). — Guárico: 39 km SW of Calabozo, 8°34'N, 67°35'W, 100 m, 3.9.1983, *Rondeau 500* (US); Estación Biológica de los Llanos, 60 m, 9.11.1971, *Davidse 2918* (US). — Lara: On road to Cerro El Tarascón, 10°20'N, 70°38'W, 1800 m, 8.1.1987, *Rivero 1105* (PORT); Humocaro Alto-El Obispo Waterfall road, 9°36'N, 69°59'W, 1180 m, 23.2.2008, *Calles & Beuchelt 1048* (VEN). — Mérida: Tabay, 1900–2200 m, 26.8.1930, *Gehriger 358* (NY, PH, US, VEN); Mérida-El Morro road, 8°32'N, 71°11'W, 1560 m, 20.2.2008, *Calles & Beuchelt 1046* (VEN). — Miranda: Baruta, 1080 m, 11.1941, *Gines 534* (CAR); behind the gym of the USB, Baruta, 14.10.1988, *Hurtado 1* (MY, NY, VEN). — Monagas: 6 km E of El Furrial, 9°42'N, 63°30'W, 50–100 m, 19.4.1973, *Agostini & Agostini 1695* (K, MER, MY, NY, US, VEN); Cerro El Tope, La Guanota, 8.7.1984, *Rondón 199* (IRBR). — Portuguesa: 4 km NW of Córdoba, 10°24'N, 69°52'W, 1000 m, 11.12.1986, *Aymard 5163* (PORT, MO, NY); Guanare, on fields of UNELLEZ, 9°4'N, 69°49'W, 1.11.1985, *Stergios & Aymard 8765* (MER, MO, PORT). — Sucre: Sine loco, 1.1966, *Castillo 55* (VEN); Marigüitar, *Bonpland s.n.* (P). — Táchira: Granjas Integrales UNET, 11.8.1999, *Monsalve 1710* (UNET); SE slopes of Cerro El Morro, 7°57'N, 71°42'W, 1150–1250 m, 22.6.1990, *Dorr & Barnett 7132* (MO, MY, PORT, VEN). — Trujillo: Vicinity of Loma de Bonilla, 1300 m, 11.8.1983, *Trujillo & Ponce 18549* (MO, MY); El Mamón, 1350 m, 25.3.1994, *Niño 143* (PORT). — Vargas: km 17 of El Junquito-Carayaca road, 22.10.1994, *Hernández & Contreras 16* (MY); km 17 of El Junquito-Carayaca road, 22.10.1994, *Hernández & Contreras 17* (MY). — Yaracuy: 5.2 km E of Salom, 10°10'N, 68°25'W, 780–790 m, 4.8.1982, *Croat 54589* (MO). — Zulia: Vicinity of Mene Grande, 28.10.1922, *Pittier 10588* (US).

4. *Stylosanthes humilis* Kunth in Humboldt & al., Nov. Gen. Sp. (quarto ed.) 6: 506. 1823 ≡ *Astyposanthes humilis* (Kunth) Herter in Revista Sudamer. Bot. 7: 209. 1943. – Holotype: Venezuela, Carichana, *Humboldt & Bonpland s.n.* (P!).

Annual herb, 20–50 cm tall, much branched. *Stems* usually ascending, often growing prostrate when cut or grazed in young stage, herbaceous to subligneous at the base, hispid throughout, hairs sometimes not to be found on the lower stems but always present on stipules and/or young branches. *Stipules* amplexicaul, hispid throughout; sheath 4–6 mm long with two conspicuous veins in the middle; teeth needle-like, 3.5–7 mm long. *Leaves* trifoliolate; *rachis* glabrous to hispid, 1–3 mm long; *petioles* hispid, 3–9 mm long; *leaflets* narrowly lanceolate, 7–20 × 2.3–4 mm; blade hispid at both sides; veins inconspicuous along adaxial side and conspicuous along abaxial side. *Inflorescences* both terminal and axillary, short, ovoid, 5–10 mm long, 3–7 flowers; *primary bracts* trifoliolate, *secondary bracts* unifoliolate, hispid throughout; *bract leaflets* lanceolate and hispid. *Flowers* with suborbicular standard 3–4 mm long, yellow with a dark red striation forming an arch; wing and keel petals 3–4 mm long. *Pods* biarticulate with usually only the upper articulation developing, oblong, reticulate, scarcely ciliate, 2–3×1–2 mm; *pod beak* coiled, 3–5.5 mm long. *Seeds* dark brown to black, smooth, 1.8–2.2×0.9–1.4 mm. – Fig. 6.

Taxonomic remarks. — *Stylosanthes humilis* is very similar to *S. hamata*. However, *S. humilis* lacks the floral axis rudiment (section *Astyposanthes*) which *S. hamata* does have (section *Stylosanthes*); *S. humilis* has stems that are hispid throughout while those of *S. hamata* are glabrous, showing just a line of short white hairs along one side; the inflorescences of *S. humilis* have hispid bristles while *S. hamata* spikes are sericeously pubescent. Furthermore, in *S. humilis* the pod beak is longer and coiled while it is shorter and uncinate in *S. hamata*.

A Venezuelan specimen (*Fendler 1793*) reported by Mohlenbrock (1957) as *Stylosanthes humilis* from the Andean state of Mérida (where no other *S. humilis* specimens have been reported from) definitely belongs to *S. hamata* and seems to have actually been collected at Colonia Tovar, State of Aragua ("prope coloniam Tovar legit" on the specimen label).

Distribution. — Amazonas, Anzoátegui, Apure, Aragua, Barinas, Bolívar, Carabobo, Cojedes, Guárico, Monagas, Portuguesa and Zulia. Outside Venezuela, the species has been reported from Mexico, Central America, Cuba, Colombia and Brazil (Williams & al. 1984).

Selected specimens examined. — Amazonas: Puerto Ayacucho, 11.4.1986, *Trujillo & al. 20177* (MO, MY). — Anzoátegui: 25 km before Ciudad Bolívar, 1.1974, *Rodríguez 3* (MY); Soledad, 13.10.1975, *Patiño & Montes VEN-26-P* (MY). — Apure: Hato Turagua, W of Mantecal, 20.1.1986, *Chacón & Torres 16* (MY); 21 km NE of Mantecal, 9.11.1973, *Davidse & al. 3890* (VEN). — Aragua: Guanayen, between Camatagua and Barbacoa, 260 m, 18.10.1986, *Zamora s.n.* (MY); along Cata-Cuyagua road, 300 m, 24.9.1978, *Trujillo 14819* (MY). — Barinas: Barinas, UNELLEZ, 28.9.1982, *Estrada 111* (MY); Barinas, on fields of UNELLEZ, 22.10.1982, *Licata & al. 73* (PORT). — Bolívar: 28 km W of Caura River, along road 19, 60 m, 24.11.1973, *Davidse 4430* (NY, VEN); 7 km S of Distribuidor La Paragua, 8°0'N, 63°32'W, 119 m, 12.2.2008, *Calles & Schultze-Kraft 1043* (VEN). — Carabobo: Valencia, 6 km S of El Palotal (El Paito), 5.12.1969, *Bunting 4213* (MY). — Cojedes: Near El Tinaco along road to Altamira, 9°40'N, 68°23'W, 162 m, 19.10.2000, *Guenni & al. PCC-017* (MY, NCSC, VEN); Hato Piñero, Laguna Los Monos, 20.11.1996, *Delascio & Gamarra 17284* (COJ, GUYN). — Guárico: 1 km W of Santa

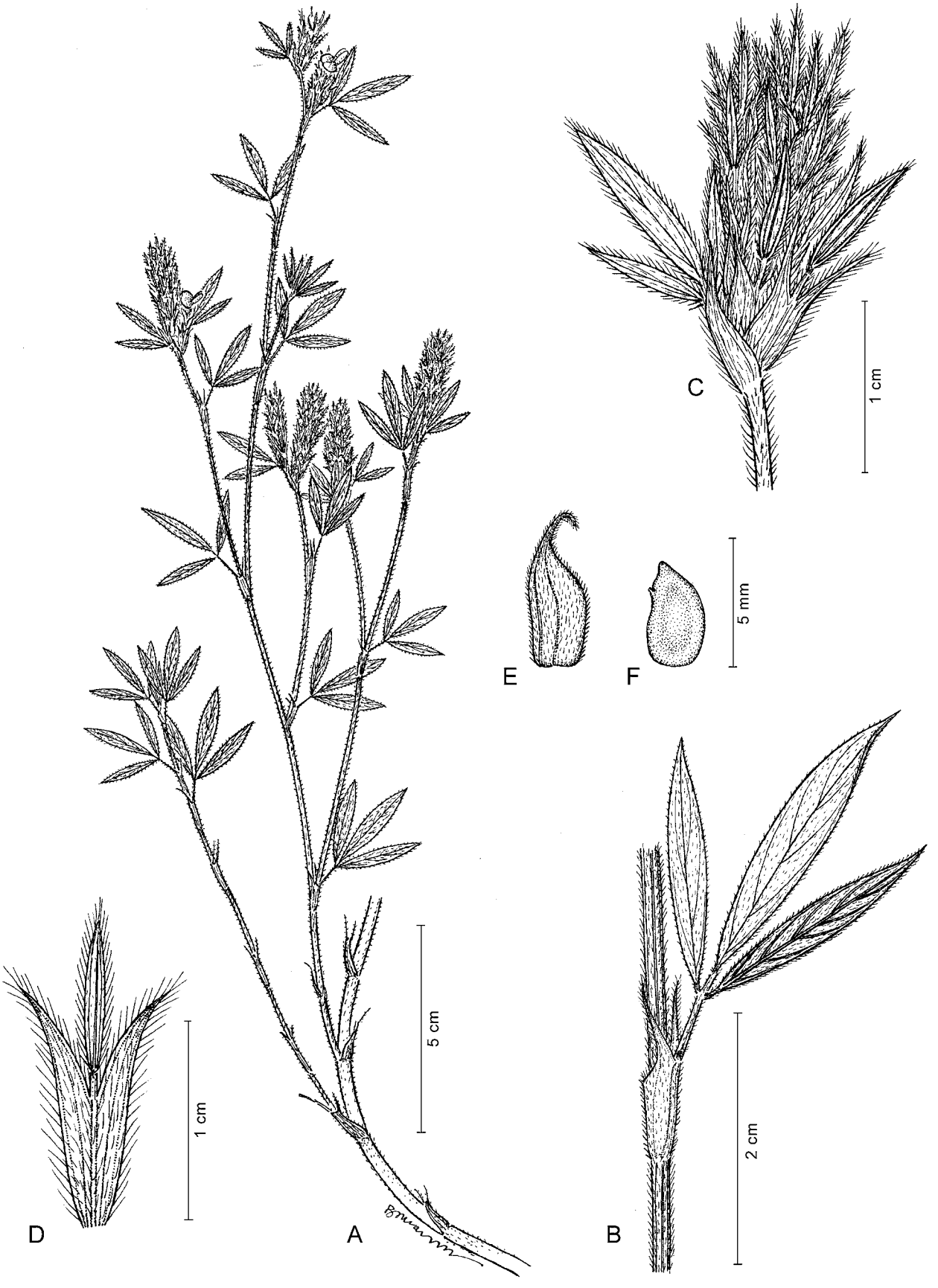

Fig. 7. *Stylosanthes sericeiceps* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: inflorescence; D: bract; E: pod (upper articulation); F: seed. – From *Jahn 678* (G, US). – Drawing by Bruno Manara.

Fig. 8. *Stylosanthes sericeiceps* – A: bifid outer bracteole with a very deep opening; B: less pronounced opening. – Photograph by Teodardo Calles.

Rita, 8°7'N, 66°15'W, 60 m, 20.10.1994, *Ortiz & Ramia 2215* (MO, VEN); near Palo Seco graveyard, 9°3'N, 67°14'W, 130 m, 6.2.2008, *Calles & Schultze-Kraft 1027* (VEN). — Monagas: Jusepín, 6.10.1983, *Cumana 2165* (IRBR, MO); Jusepín, 10.10.1969, *González & Vera 5* (UOJ). — Portuguesa: Guanare, on fields of UNELLEZ, 9°4'N, 69°48'W, 260 m, 14.12.2007, *Calles 1022* (VEN); Hato Bacaemonte, 50 km NE of Guanare, 4.12.1974, *Ramos 81* (MY). — Zulia: Maracaibo Botanical Garden, 21.6.1983, *Bunting 13091* (US, VEN); vicinity of Maracaibo, 10.11.1922, *Pittier 10698*[*a*] (NY).

5. *Stylosanthes sericeiceps* S. F. Blake in Contr. U.S. Natl. Herb. 20(13): 524. 1924. – Holotype: Venezuela, State of Mérida, Lagunillas, 6.10.1921, *Jahn 678* (US 00001957!; isotype: G!).

Perennial subshrub, ligneous near the base, to 70 cm tall, much branched. *Stems* ascending to erect, greyish, 3–5 mm thick, old branches glabrous and young ones sericeously pilose. *Stipules* amplexicaul; sheath densely silky-pilose, 5–8 mm long; teeth needle-like, 3–7 mm long. *Leaves* trifoliolate; *rachis* pilose, 2–3.1 mm long; *petioles* pilose, 5.2–7.5 mm long; *leaflets* narrowly elliptic to lanceolate, 22–40 × 4.5–5.5 mm; blade pilose at both sides. *Inflorescences* oblong, 15–25 mm long, more than 15 flowers; *primary bracts* trifoliolate, *secondary bracts* unifoliolate, bracts translucent, sericeously pilose; *bract leaflets* lanceolate, sericeously pilose at both sides; inner bracteole ciliate in upper half, outer bracteole bifid, ciliate in upper half. *Flowers* with a pedicel 3.5–4.5 mm long; corolla yellow, glabrous, standard petal suborbicular, 4.8–5.8 mm long, wing and keel petals 3.2–3.7 mm long. *Pods* biarticulate, but not always both articulations develop, articulations reticulate, densely pilose, 2.5–4.5 × 1.5–2.1 mm; *pod beak* uncinate, 1.2–1.5 mm long. *Seeds* cream-coloured to brown, smooth, 2.2–4 × 1.3–2.1 mm. – Fig. 7–8.

Taxonomic remarks. — Blake (1924) and later Mohlenbrock (1957, 1963) considered *Stylosanthes sericeiceps* to have an axis rudiment "in the two lowest flowers of the spike" (Blake 1924) and placed it in the corresponding section. However, both authors had access to only two specimens altogether. During our study, we had access to plenty of living material of the species and were unable to find the axis rudiment. We also studied the floral parts contained in the pocket of the type specimen (i.e. inflorescences that had most likely been dissected by Blake) and we could only find bracteoles but no axis rudiment. We suspect that Blake (1924) and Mohlenbrock (1957, 1963) might have been led astray by the bifid bracteole (Fig. 8, left) which is sometimes very thin and has a deep opening, thus resembling the axis rudiment. Because of the lack of the axis rudiment, we treat *S. sericeiceps* as a member of section *Astyposanthes*.

Distribution. — *Stylosanthes sericeiceps* is endemic to Venezuela where it occurs only in the State of Mérida.

Selected specimens examined. — Mérida: Along road to Los Guáimaros, 8°31'N, 71°19'W, 900 m, 20.2.2008, *Calles & Beuchelt 1045* (VEN); 22 km SW of Mérida, 1000 m, 1.9.1965, *Breteler 4546* (K, MER, US).

6. *Stylosanthes viscosa* (L.) Sw., Prodr. 7: 108. 1788 ≡ *Hedysarum hamatum* var. *viscosum* L., Pl. Jamaic. Pug.: 20–21. 1759 ≡ *Astyposanthes viscosa* (L.) Herter in Revista Sudamer. Bot. 7: 209. 1943. – Lectotype (Kirkbride & Kirkbride 1987: 455): Jamaica, Sloane 1:186 t.119 f.1 (BM 000589678!).

= *Stylosanthes glutinosa* Kunth in Humboldt & al., Nov. Gen. Sp. (quarto ed.) 6: 507. 1823. – Holotype: Mexico, Acapulco, 1803, *Humboldt & Bonpland 3865* (P!; isotypes: B-W13743-010!, P 00206069!).

= *Stylosanthes prostrata* M. E. Jones, Contr. W. Bot. 15: 135–136. 1929. – Lectotype (designated here): Mexico, Todos Santos, 15.2.1928, *Jones 24269* (US 00001963!).

Perennial herb to subshrub, 30–100 cm tall, much branched. *Stems* ascending to erect, growing prostrate when cut or grazed in young stage, ligneous at the base, upper branches herbaceous, very viscid, with short, tuberculate bristles and densely pubescent. *Stipules* amplexicaul, viscid, densely pubescent and with tuberculate bristles; sheath 3.5–7.3 mm long; teeth needle-like, 1–5.7 mm long. *Leaves* trifoliolate; *rachis* hispidulous, viscid, 1.5–2 mm long; *petioles* hispidulous, viscid, 4–6 mm long; *leaflets* elliptic to obovate-elliptic, 6–14 × 3–5 mm; blade with short bristles and densely pubescent

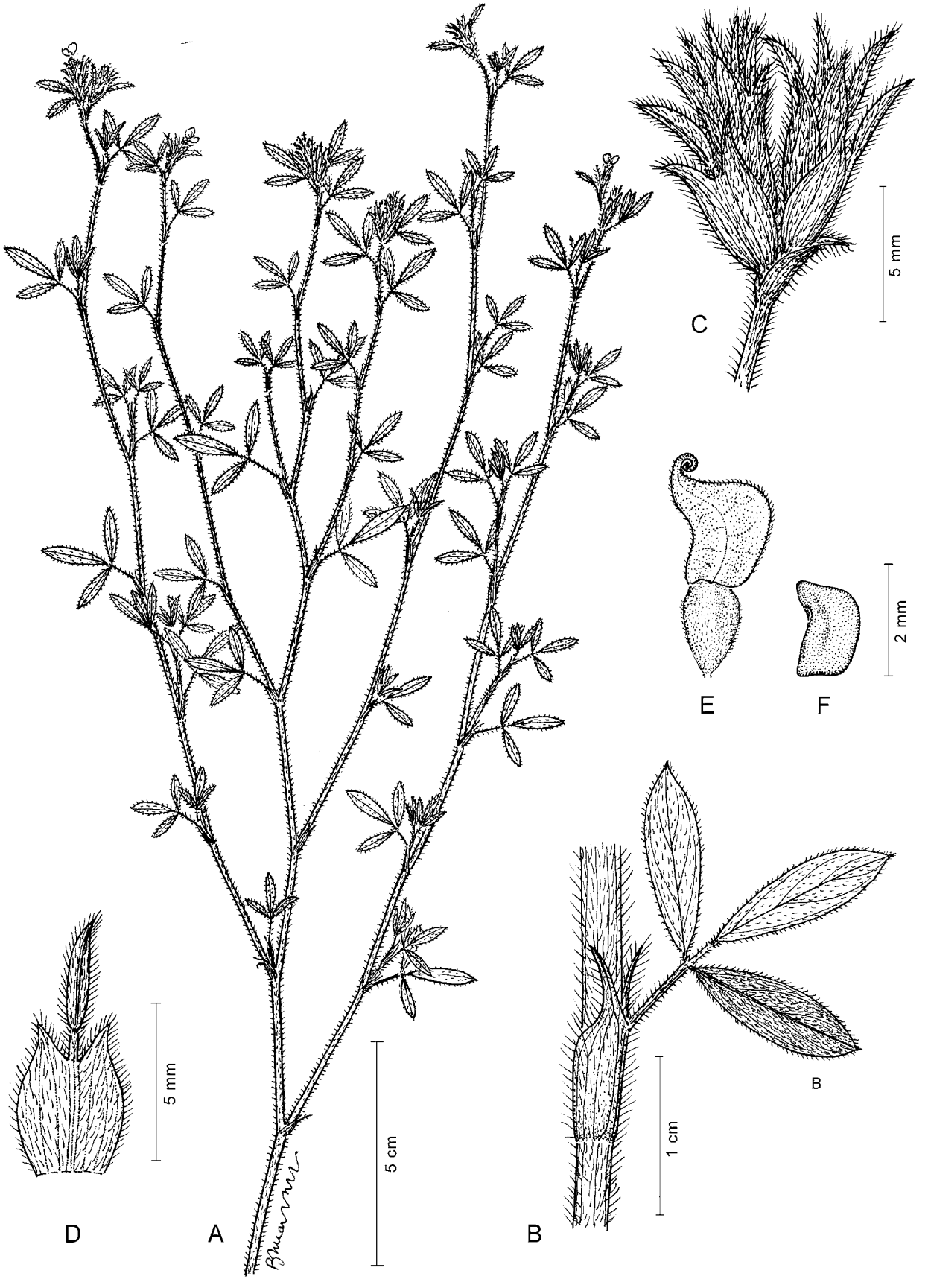

Fig. 9. *Stylosanthes viscosa* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: inflorescence; D: bract; E: bi-articulate pod; F: seed. – From *Patiño & Flores VEN-10-P* (MY). – Drawing by Bruno Manara.

at both sides; veins usually inconspicuous along both sides of the blade, sometimes conspicuous along abaxial side. *Inflorescences* both terminal and axillary, small, crowded, ovoid, 6–11 mm long, 2–8 flowers; *primary bracts* usually unifoliolate, sometimes trifoliolate, with tuberculate bristles and silky pubescence; *bract leaflets* elliptic with tuberculate bristles and short pubescence. *Flowers* with suborbicular standard 4–6 mm long, yellow with a dark red striation forming an arch; wing and keel petals 2.7–3.9 mm long. *Pods* biarticulate, reticulate, shortly hairy, 1.5–2.5 × 1.4–2 mm; *pod beak* coiled, 0.5–0.9 mm long. *Seeds* cream-coloured to light brown, smooth, 1.4–1.7 × 0.8 – 1 mm. – Fig. 9.

Taxonomic remarks. — Viscid forms of *Stylosanthes guianensis* and *S. scabra* are sometimes misidentified as *S. viscosa*. However, characteristic features of *S. viscosa* are its particular pod shape and the coiled pod beak (Fig. 9E); both features are quite constant and permit accurate identification.

Based on the original descriptions, Mohlenbrock (1957) placed *Stylosanthes glutinosa* and *S. prostrata* as synonyms of *S. viscosa*. After examining the type specimens of these taxa, we corroborate that they are conspecific.

Specimens *Calles 1026, Fernández 12135* and *Fernández 12157* share some morphological characteristics with *Stylosanthes viscosa* and *S. scabra,* but they differ in that they originate from an elevation of 2500–2600 m, which is very unusual for both species (and for *Stylosanthes* in general). Since no axis rudiments could be found, we tentatively identified them as *S. viscosa;* however, additional studies with different techniques (e.g. molecular markers) should be conducted to clarify the taxonomic status of these specimens.

Distribution. — Anzoátegui, Barinas, Bolívar, Falcón, Mérida, Monagas, Nueva Esparta, Sucre, Trujillo and Zulia. Outside Venezuela, the species has been reported from Mexico, some Central American countries, some major Caribbean islands, Colombia, French Guiana, Guyana, Suriname and Brazil (Williams & al. 1984).

Selected specimens examined. — Anzoátegui: El Tigre, 17.7.1946, *Burkart 17302* (NY); Urica, 11.1982, *Ramia 7807* (MY). — Barinas: Road to Punta de Piedra, 16.8.1975, *Rodríguez 188* (MY). — Bolívar: Cerro María Luisa, 5.1994, *Valera 514* (GUYN, NY); along Ciudad Bolívar-La Paragua road, near La Ceiba, 11.2.2008, *Calles & Schultze-Kraft 1040* (VEN). — Falcón: Coro-La Tabla road, 200 m, 12.2.2006, *Calles & Schultze-Kraft 1005* (VEN); above Macuquita, 700–750 m, 25.7.1981, *Wingfield 8403* (CORO). — Mérida: Entrance to El Paramito, 8°28'N, 71°12'W, 2500 m, 18.2.2007, *Calles 1026* (VEN); road to El Paramito, 8°29'N, 71°11'W, 2,600 m, 11.1997, *Fernández 12135* (PORT). — Monagas: 3.5–5.5 km NW of Jusepín, 220–250 m, 27.6.1967, *Pursell & al. 9436* (NY, VEN); El Merey, 8°39'N, 62°50'W, 65 m, 9.8.1996, *Díaz & Elcoro 2958* (GUYN, NY). — Nueva Esparta: El Valle, 30.1.1901, *Miller & Johnson 268* (K, NY); Margarita Island, Macanao, 22.12.1951, *Domínguez 76* (CAR). — Sucre: Between Punta Garrapata and Punta Aguirre, 0–15 m, 11.9.1973, *Steyermark & al. 108030* (NY, VEN); between Manicuare and Tacarigua, 10°34'N, 64°10'W, 42 m, 6.5.2007, *Calles & García 1017* (VEN). — Trujillo: Loma de Morón, vicinity of Valera, 18.11.1922, *Pittier 10721* (NY). — Zulia: Vicinity of La Villa del Rosario, 12.3.1963, *Ramia 2789* (MY); along La Villa del Rosario-Machiques road, *Villaruel 34* (HMBLUZ).

B. *Stylosanthes* sect. *Stylosanthes* ≡ *Stylosanthes* sect. *Styposanthes* Vogel in Linnaea 12: 68. 1838.

Species with floral axis rudiment and with two inner bracteoles.

7. *Stylosanthes capitata* Vogel in Linnaea 12: 70. 1838. – Type: Brazil, between Victoria and Bahia, *Sellow s.n.* (not seen).

Perennial herb to subshrub, 30–100 cm tall, branched from the base. *Stems* prostrate-ascending to erect, growing prostrate when cut or grazed in young stage, ligneous near the base, upper branches herbaceous, densely and shortly whitish pubescent and with scattered setae. *Stipules* amplexicaul with whitish tomentose pubescence and tuberculate bristles; sheath 4–9 mm long, 4–6 veins; teeth needle-like, 3–7 mm long with tuberculate bristles throughout. *Leaves* trifoliolate; *rachis* obtuse-angled, whitish pubescent, 1.5–3.5 mm long; *petioles* obtuse-angled, whitish pubescent, 3–9 mm long; *leaflets* obovate, 7–25 × 4–9 mm; blade tomentose, pubescent at both sides; veins inconspicuous along adaxial side and conspicuous along abaxial side. *Inflorescences* mostly terminal, capitate, 15–35 × 10–18 mm, with several flowers; *bracts* unifoliolate, translucent, with tuberculate bristles and silky cilia; *bract leaflets* lanceolate with tuberculate bristles and silky cilia throughout; axis rudiment ciliate, 4–5 mm long. *Flowers* yellow, standard petal suborbicular, 5–7 mm long; wing and keel petals 3.3–4.5 mm long. *Pods* biarticulate, upper articulation reticulate, glabrous or sparsely pubescent, 2–5 × 1.3–2.6 mm, lower articulation densely pubescent, 2.2–4.8 × 1.5–3.4 mm; *pod beak* uncinate to coiled, 0.6–1.7 mm long. *Seeds* cream-coloured with small dark spots, smooth, 1.5–4.5 × 1.4–2.8 mm. – Fig. 10.

Taxonomic remarks. — *Stylosanthes capitata* is sometimes misidentified as *S. scabra;* however, the characteristic capitate spike and the fact that the bract leaflets in *S. capitata* are reduced to a small laminal extension of the midvein clearly distinguish the species from *S. scabra*.

Fig. 10. *Stylosanthes capitata* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: bract; D: biarticulate pod; E: seed. – From *Aristigueta & Vera 7551* (VEN). – Drawing by Bruno Manara.

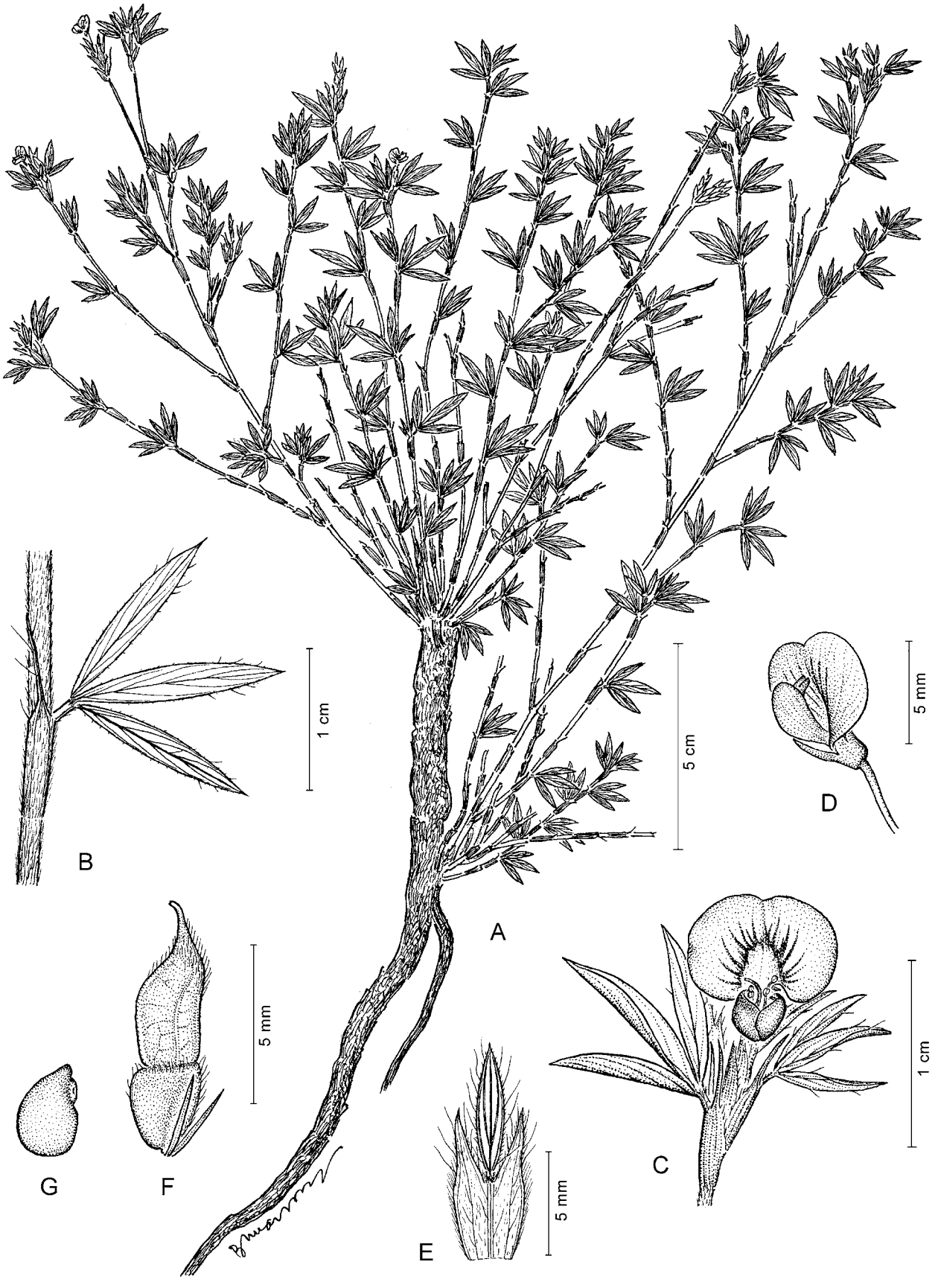

Fig. 11. *Stylosanthes falconensis* – A: plant with inflorescences; B: leaf with amplexicaul stipule; C: inflorescence with one flower; D: flower; E: bract; F: biarticulate pod; G: seed. – From *Calles 1027* (VEN). – Drawing by Bruno Manara.

Fig. 12. *Stylosanthes hamata* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: inflorescence; D: bract; E: bi-articulate pod; F: seed. – From *Bunting 8190* (US, VEN). – Drawing by Bruno Manara.

Distribution. — Anzoátegui, Bolívar, Guárico and Monagas. Outside Venezuela, the species has been reported from Brazil and Bolivia (Williams & al. 1984).

Selected specimens examined. — Anzoátegui: Near Mapire, 9.1943, *Lasser 775* (US); El Alcornoque farm, 8°36'N, 64°33'W, 180 m, 8.2.2008, *Calles & Schultze-Kraft 1034* (VEN). — Bolívar: Ciudad Bolívar and vicinity, 27.2.1921, *Bailey & Bailey 1434* (NY, US); 7 km S of Distribuidor La Paragua, 8°0'N, 63°32'W, 119 m, 12.2.2008, *Calles & Schultze-Kraft 1042* (VEN). — Guárico: 8 km S of Santa Rita, 7°58'N, 66°14'W, 56 m, 6.2.2008, *Calles & Schultze-Kraft 1030* (VEN); 17 km S of Santa Rita, 7°59'N, 66°14'W, 60 m, 18.11.1995, *Ortiz & Ramia 3186* (MO). — Monagas: 5 km N of Chaguaramas, 8°42'N, 64°46'W, 66 m, 11.2.2008, *Calles & Schultze-Kraft 1038* (VEN); Jusepín, 4.6.1979, *Lárez & Mayz 910* (UOJ, VEN).

8. *Stylosanthes falconensis* Calles & Schultze-Kr. in Kew Bull. 65: 73–76. 2010. – Holotype: Venezuela, State of Falcón, vicinity of Carrizalito, 11°7'N, 69°45'W, 1170 m, 12.2.2006, *Calles & Schultze-Kraft 1006* (VEN!; isotypes: HOH!, K!, M!, MO!, NY!, US!).

Perennial subshrub, 35–50 cm tall, much branched from the base; strong tap root. *Stems* prostrate to ascending, ligneous near the base, upper branches herbaceous, slender, with whitish tomentose pubescence. *Stipules* amplexicaul, whitish tomentose; sheath 4.5–6.9 mm long with a midrib ± 0.5 mm wide; teeth needle-like, 3–6.2 mm long. *Leaves* trifoliolate; *rachis* pubescent, 0.7–0.9 mm long; *petioles* pubescent, 1.2–2.2 mm long; *leaflets* narrowly lanceolate, 11–24 × 2.3–3.8 mm; blade glabrous or nearly so on both sides; veins inconspicuous along adaxial side, conspicuous along abaxial side. *Inflorescences* both terminal and axillary, oblong, 8–10 mm long, 6–11 flowers; *primary bracts* trifoliolate, *secondary bracts* unifoliolate; sheath of the primary and secondary bracts opaque and with needle-like tuberculate bristles and silky cilia; *bract leaflets* lanceolate with conspicuously tuberculate bristles at margins; axis rudiment ciliate, 3.5–4.5 mm long. *Flowers* with a pedicel 5.5–7 mm long; corolla yellow, glabrous, standard petal suborbicular, 6–10 mm long, wing and keel petals 4–4.5 mm long. *Pods* biarticulate (but only in 44 % of the cases studied ($n = 30$) did the lower articulation develop), upper articulation reticulate-veined, densely whitish pubescent, 3.1–4 × 1.8–2 mm, lower articulation densely pilose; *pod beak* straight to slightly inflexed, 2.2–3.3 mm long. *Seeds* cream-coloured, smooth, 1.8–2.8 × 1.2–1.9 mm. – Fig. 11.

Taxonomic remarks. — *Stylosanthes falconensis* is closely related to *S. hamata,* but it differs in being perennial (*S. hamata* is annual to biennial); the stems of *S. falconensis* have a whitish tomentose indumentum while those of *S. hamata* are glabrous except for a line of short white hairs along one side; the primary and secondary bracts of *S. falconensis* are opaque with tuberculate bristles and silky cilia while *S. hamata* has translucent bracts with sericeous cilia along the margins; the bract leaflets of *S. falconensis* have tuberculate bristles along the margins while those of *S. hamata* have sericeous cilia along the margins; *S. falconensis* has a conspicuously larger standard petal (6–10 mm long) than *S. hamata* (4–5 mm).

Distribution. — *Stylosanthes falconensis* is endemic to Venezuela where it occurs only in the State of Falcón.

Selected specimens examined. — Falcón: Vicinity of Cucaire, 13.9.1980, *Trujillo & al. 16741* (MO, MY); between Carrizalito and Cucaire, 11°7'N, 69°45'W, 1170 m, 23.7.2007, *Calles 1019* (VEN).

9. *Stylosanthes hamata* (L.) Taub. in Verh. Bot. Vereins Prov. Brandenburg 32(1): 22. 1890 ≡ *Hedysarum hamatum* L., Syst. Nat., ed. 10, 2: 1170. 1759 ≡ *Stylosanthes procumbens* Sw., Prodr. 7: 108. 1788, nom. illeg. – Lectotype (Kirkbride & Kirkbride 1987: 455) Jamaica, Sloane 1:187 t.119 f.2 (BM 000589680!).

Annual to biannual herb, 20–70 cm tall, often much branched. *Stems* ascending, spreading, usually prostrate when cut or grazed in young stage, mainly glabrous with just a line of fine pubescence along one side. *Stipules* amplexicaul, papery, glabrous to finely pubescent; sheath 3–7 mm long, 4–10 veins, the two central ones being conspicuous; teeth needle-like, 1.5–7.5 mm long. *Leaves* trifoliolate; *rachis* whitish pubescent, 2–3.5 mm long; *petioles* scarcely pubescent, 4–6.4 mm long; *leaflets* elliptic to lanceolate, 12–27 × 2.5–4.5 mm; blade glabrous or nearly so at both sides; veins inconspicuous along adaxial side and conspicuous along abaxial side. *Inflorescences* both terminal and axillary, oblong, 9–12 mm long, 6–8 flowers; *bracts* unifoliolate, sheath translucent, with silky cilia; *bract leaflets* lanceolate, glabrous or nearly so; axis rudiment ciliate, 3.8–6 mm long. *Flowers* yellow; standard petal suborbicular, 4–5 mm long, wing and keel petals 2.8–3.4 mm long. *Pods* biarticulate, upper articulation reticulate, glabrous or with pockets of pubescence, 2.5–3.5 × 1.4–2 mm, lower articulation densely pubescent, 2–3.5 × 1.4–2 mm; *pod beak* uncinate, 2–3.8 mm long. *Seeds* cream-coloured to light brown, smooth, 1.8–2.8 × 0.9–1.2 mm. – Fig. 12.

Taxonomic remarks. — *Stylosanthes hamata* is very similar to *S. humilis;* however, there are some clear differences (see under *S. humilis*).

Distribution. — Aragua, Bolívar (naturalised), Distrito Capital, Falcón, Guárico, Lara, Mérida, Miranda, Nueva Esparta, Sucre, Vargas, Yaracuy and Zulia. Outside Venezuela, it has been reported from the USA (south-

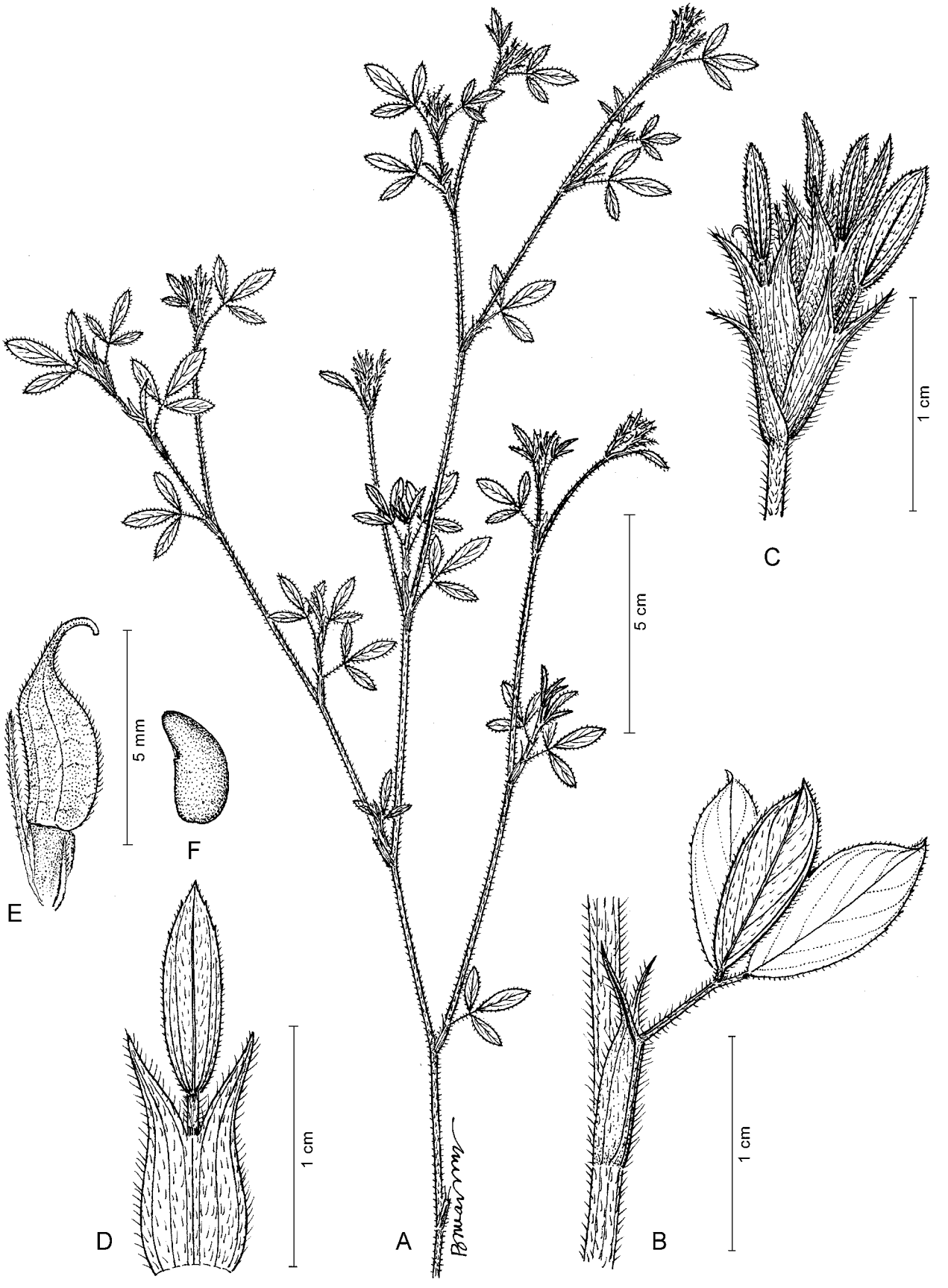

Fig. 13. *Stylosanthes scabra* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: inflorescence; D: bract; E: bi-articulate pod; F: seed. – From *Cárdenas & Peña 3552* (MY). – Drawing by Bruno Manara.

ern Florida), a number of Caribbean islands, Guatemala, Nicaragua, Colombia and Brazil (Williams & al. 1984).

Two specimens *(Picón 1631* and *Salazar 54)* originate from the State of Bolívar, close to Ciudad Bolívar. These specimens, which were collected in the 1990s, are the only ones reported from the State of Bolívar, in spite of rather intensive botanical and genetic resource explorations conducted in this state (Flores & Schultze-Kraft 1994). Therefore, we suspect that the specimens stem from naturalised populations, which are likely to be a result of historical transhumance between the eastern coast of Venezuela and the Ciudad Bolívar (in colonial times: Angostura) region.

Selected specimens examined. — Aragua: Vicinity of Colonia Tovar, 1856–57, *Fendler 1793* (PH); Maracay, Universidad Central de Venezuela, 18.11.1984, *Cárdenas & León 3446* (MY). — Bolívar (naturalised): E of Maravilla Island (Caroní River), 8°14'N, 62°45'W, 50 m, 26.2.1990, *Picón 1631* (NY); Ciudad Bolívar, Jardín Botánico del Orinoco, 15 m, 20.4.1995, *Salazar 54* (GUYN, IRBR). — Distrito Capital: Caracas and vicinity, 15.12.1920, *Bailey & Bailey 121* (PH); Caracas Botanical Garden, 24.6.1978, *Liesner 5371* (VEN). — Falcón: On hills near Morrocoy town, 10°52'N, 68°18'W, 203 m, 8.4.2007, *Calles & Walle 1014* (VEN); 2 km E of Santa Ana, 4.1.1980, *Wingfield 7382* (CORO). — Guárico: Between El Calvario and Hato El Punzón, 31.8.1961, *Ramia 2606* (MY). — Lara: Central Río Turbio, 400 m, 4.3.1971, *Smith V6500* (UCOB); Barquisimeto, near Distribuidor Moyetones, 10°4'N, 69°23'W, 640 m, 24.2.2008, *Calles & Beuchelt 1049* (VEN). — Mérida: Diagonally Las González, 8°30'N, 71°19'W, 750 m, 17.12.2007, *Calles 1024* (VEN). — Miranda: La Guarita-Los Naranjos road, 2 km from Cueva del Indio National Park, 11.2.2006, *Calles & Schultze-Kraft 1003* (VEN). — Nueva Esparta: Margarita Island, Cerro Copey National Park, 10°57'N, 63°51'W, *Xena & Madriz 1149* (VEN); La Asunción, 9.8.1901, *Miller & Johnson 68* (NY). — Sucre: 20 km NW of Cariaco, 10°38'N, 63°40'W, 0–100 m, 17.–18.5.1981, *Liesner & González 12032* (CAR, NY); Cumaná, vicinity of IRBR Herbarium, 10°25'N, 64°11'W, 26 m, 12.5.2007, *Calles 1018* (VEN). — Vargas: Maiquetía Airport, 25.9.1972, *Freites s.n.* (MY); Naval Academy, 10°36'N, 67°2'W, 5 m, 12.6.1990, *Ramírez 2714* (MO, MY, VEN). — Yaracuy: Between Chivacoa and Campo Elías, 400 m, 10.7.1971, *Benítez 1035* (MY). — Zulia: 32 km from Maracaibo along Maracaibo-Perijá road, 100 m, 9.10.1977, *Bunting 5632* (NY, US, VEN); Santa Rosa de la Tierra, 10.11.1922, *Pittier 10698(b)* (VEN).

10. *Stylosanthes scabra* Vogel in Linnaea 12: 69–70. 1838. – Lectotype (designated here): Brazil, 1840, *Sellow s.n.* (K 000264211!).

= *Stylosanthes gloiodes* S. F. Blake in Proc. Biol. Soc. Wash. 33(9): 45–46. 1920. – Holotype: Ecuador, Cariamanga, 24.11.1910, *Townsend A-57* (US 00001974!).

= *Stylosanthes plicata* S. F. Blake in Proc. Biol. Soc. Wash. 33(9): 46–47. 1920. – Holotype: Brazil, Mato Grosso, 7.1892, *Kuntze s.n.* (US 00001966!).

= *Stylosanthes tuberculata* S. F. Blake in Proc. Biol. Soc. Wash. 33(9): 48–49. 1920, **syn. nov.** – Holotype: Bahamas, New Providence, Southwest Landing, 11.2.1905, *Britton 3336* (US 00001979!).

= *Stylosanthes diartha* S. F. Blake in Proc. Biol. Soc. Wash. 33(9): 49–50. 1920. – Holotype: Venezuela, State of Trujillo, Valera, 31.10.1910, *Jahn 169* (US 00001934!).

= *Stylosanthes subsericea* S. F. Blake in Proc. Biol. Soc. Wash. 33(9): 50–51. 1920, **syn. nov.** – Holotype: Mexico, Oaxaca, Cerro de Picacho, 7.1914, *Purpus 7152* (US 00001956!).

= *Stylosanthes nervosa* J. F. Macbr. in Field Mus. Nat. Hist., Bot. Ser. 13(3/1): 411. 1943, **syn. nov.** – Holotype: Peru, Cajamarca, Jaen, near the confluence of Chinchipe and Marañón, 5.1912, *Weberbauer 6215* (F; isotype: US 00001967!).

= *Stylosanthes scoparia* Standl. & L. O. Williams in Ceiba 1(3): 145–146. 1950, **syn. nov.** – Holotype: Honduras, Morazán, Yeguare River Valley, 17.12.1946, *Williams & Molina 11261* (US 00001958!; isotypes: F, GH, LL, MO).

Perennial subshrub, 50–150 cm tall, much branched; strong tap root. *Stems* ascending to erect, ligneous near the base, upper branches herbaceous, scabrid, usually viscid. *Stipules* amplexicaul, often viscid, scabrid and with tuberculate bristles; sheath 5–7 mm long with three conspicuous veins in the middle; teeth needle-like, 4–5 mm long. *Leaves* trifoliolate; *rachis* pubescent, often viscid, 1–1.5 mm long; *petioles* pubescent, often viscid, 3.5–5 mm long; *leaflets* elliptic to obovate-elliptic, 8–17 × 3–4.3 mm; blade densely and shortly pubescent and with tuberculate bristles at both sides; veins inconspicuous along adaxial side and conspicuous along abaxial side. *Inflorescences* both terminal and axillary, often viscid, short, crowded, oblong, 6–14.5 mm long with more than 15 flowers; *primary bracts* trifoliolate, *secondary bracts* unifoliolate, often viscid, with tuberculate bristles and densely pubescent; *bract leaflets* elliptic, often viscid, with short, tuberculate bristles and densely pubescent; axis rudiment ciliate, 4.5–5.5 mm long. *Flowers* yellow; standard petal suborbicular, 4–6 mm long; wing and keel petals 2.5–3.8 mm long. *Pods* biarticulate, reticulate, upper articulation pubescent to densely pubescent, 2.5–3.8 × 1.5–2 mm, lower articulation densely pubescent, 1.9–2.8 × 1.1–1.8 mm; *pod beak* uncinate, 1.1–2.2 mm long. *Seeds* cream-coloured to light brown, smooth, 1.6–2.5 × 1–1.4 mm. – Fig. 13.

Taxonomic remarks. — *Stylosanthes scabra* shows such a large morphological variability that many of its variants

Fig. 14. *Stylosanthes venezuelensis* – A: branch with inflorescences; B: leaf with amplexicaul stipule; C: flower; D: biarticulate pod. – From *Calles & al. 1001* (VEN, HOH, K, M, MO, NY, US). – Drawing by Bruno Manara. First published in Calles & Schultze-Kraft (2009), reproduced with permission of Fundación Instituto Botánico de Venezuela (FIBV).

have been described as new species. Mohlenbrock (1957) synonymised Blake's (1920) *S. diarthra*, *S. gloiodes* and *S. plicata* with *S. scabra,* and after studying the respective types, we corroborate that these are conspecific.

Likewise, after studying the type material of *S. tuberculata* and *S. nervosa,* we agree with Mannetje (1984) that these species fall within the range of variation of *S. scabra*.

Blake (1920) described *Stylosanthes subsericea* but in the description he did not mention to which species it was related. He referred to *S. subsericea* as being distinguishable from other species of the section by its dense subsericeous pubescence and its strongly mucronate leaflets. At the same time, he admitted to know *S. scabra* only from its description. We compared the type material of *S. scabra* and *S. subsericea* and conclude that *S. subsericea* is conspecific with *S. scabra*.

Standley & Williams (1950) described *Stylosanthes scoparia* as being clearly different from all other *Stylosanthes* species known from Honduras (i.e. *S. humilis* and *S. guianensis*), but they did not compare it with non-Honduran species. The type of *S. scoparia,* however, is referrable to *S. scabra*. The holotype of *S. scoparia* was originally deposited at EAP but transferred to US in 1956 (Dorr & al. 2009).

Mohlenbrock (1957) reported two collections of *Stylosanthes mexicana* from Venezuela, viz., *Pittier 9679* (GH, US, NY) and *Pittier 7319* (GH, US). The former specimen was examined and discussed during this work with the late Prof. L. Mannetje and we agreed that in all respects it falls within the range of variation that exists within *S. scabra*.

Distribution. — Anzoátegui, Distrito Capital, Guárico, Lara, Mérida, Miranda, Monagas, Portuguesa, Sucre, Táchira, Trujillo, Vargas and Yaracuy. Outside Venezuela, the species has been reported from Colombia, Ecuador, Brazil, Bolivia and Argentina (Williams & al. 1984).

Selected specimens examined. — Anzoátegui: El Chaparro-Pariaguán road, 8°56'N, 64°45'W, 7.2.2008, *Calles & Schultze-Kraft 1032* (VEN). — Distrito Capital: Caracas, Observatory Hill, 800–1000 m, 14.8.1921, *Pittier 9679* (US). — Guárico: Palo Seco, 140 m, 10.1978, *Delascio & Delascio 7483* (CAR, VEN). — Lara: Humocaro Alto-El Obispo Waterfall road, 9°36'N, 69°59'W, 1180 m, 23.2.2008, *Calles & Beuchelt 1047* (VEN); 18 km S of Quibor, 9°49'N, 69°40'W, 5.8.1982, *Croat 54678* (CAR). — Mérida: Along Las González-Acequias road, before crossing Tostós Creek, 12.9.1985, *Ataroff 25* (MER); Ejido, La Enfadosa, 1550 m, 9.7.1968, *López-Palacios 2135* (MER, MERF, VEN). — Miranda: Vicinity of Baruta, 600–700 m, 13.8.1949, *Trujillo & Fernández 249* (MY); Las Minas de Baruta, 25.8.1949, *Gines 596* (CAR). — Monagas: 2 km SW of Jusepín, 125–150 m, 6.3.1967, *Pursell & al. 8246* (US); Jusepín, 4.3.1983, *Cumana & Bermúdez 1343* (IRBR). — Portuguesa: 23 km W of Guanare River bridge, 9°5'N, 69°55'W, 320 m, 10.12.1991, *Aymard & Flores 9658* (MO, PORT); Guanare, on fields of UNELLEZ, 9°4'N, 69°49'W, 6.10.1981, *Aymard 575* (PORT). — Sucre: 7 km E of the Mochima highway intersection, 250 m, 16.12.1973, *Davidse 5042* (MO, VEN); Santa Fé-El Naranjo road, 10°14'N, 64°25'W, 240 m, 9.2.2008, *Calles & Schultze-Kraft 1035* (VEN). — Táchira: E entrance of Lobatera, 56°8'N, 72°14'W, 1010 m, 19.2.2008, *Calles & Beuchelt 1044* (VEN); along former San Cristóbal-Ureña road, 27.12.1984, *Cardozo & Labrador 793* (MY). — Trujillo: Valera, 550 m, 31.10.1910, *Jahn 169* (US). — Vargas: Along former road to La Guaira, 12.7.1964, *Delgado 58* (MY). — Yaracuy: San Felipe, Sabana de Cascabel, 26.10.1949, *Trujillo & Fernández 488* (MY); between Sabana de Méndez and Buenos Aires, 28.3.1981, *Sobrevila & al. 975* (USB).

11. *Stylosanthes venezuelensis* Calles & Schultze-Kr. in Acta Bot. Venez. 32(1): 153–157. 2009. – Holotype: Venezuela, Distrito Capital, hills behind Caracas Botanical Garden, 10°49'N, 66°54'W, 900–1000 m, 10.2.2006, *Calles & al. 1001* (VEN!; isotypes: HOH!, K!, M!, MO!, NY!, US!).

Perennial herb, 40–50 cm tall, much branched. *Stems* ascending to erect, herbaceous, scabrid with whitish pubescence and tuberculate bristles sparsely distributed, rarely viscid. *Stipules* amplexicaul, whitish pubescent; sheath 7–8.3 mm long; teeth needle-like, 2.5–8.9 mm long. *Leaves* trifoliolate; *rachis* pubescent with sparsely distributed bristles, 1.8–3 mm long; *petioles* pubescent with sparsely distributed bristles, 7–8.9 mm long; *leaflets* lanceolate to elliptic, 11–32×4–7 mm; blade finely pubescent along adaxial side, sparsely distributed tuberculate bristles along abaxial side, margin with tuberculate bristles, veins inconspicuous on both sides. *Inflorescences* terminal, oblong, 7–10 mm long, with 12–14 flowers; *primary and secondary bracts* unifoliolate with tuberculate bristles; axis rudiment ciliate, 3–5 mm long. *Flowers* yellow, standard petal suborbicular, glabrous, 4–5 mm long; wing and keel petals 3–4 mm long, calyx green. *Pods* biarticulate, upper articulation glabrous or nearly so, 3–3.6×1.8–2.2 mm, lower articulation densely pubescent, 2.4–3.5×1.8–2.5 mm (in 80 % of the cases studied (n = 30) did the lower articulation develop); *pod beak* uncinate, 1.8–2.2 mm long. *Seeds* cream-coloured, smooth, 2–2.6×1.2–1.6 mm. – Fig. 1, 14.

Taxonomic remarks. — *Stylosanthes venezuelensis* is closely related to *S. scabra,* but the upper articulation of *S. venezuelensis* is glabrous or nearly so while in *S. scabra* it is densely pubescent; the primary bracts of *S. venezuelensis* are unifoliolate, those of *S. scabra* trifoliolate; veins are inconspicuous in *S. venezuelensis* while in *S. scabra* they are distinguishable even with the naked eye.

Distribution. — *Stylosanthes venezuelensis* is endemic to Venezuela where it occurs only in the Distrito Capital.

Selected specimens examined. — DISTRITO CAPITAL: Surrounding hills of Hacienda Sosa, El Valle, 900–1000 m, 23.9.1949, *Trujillo & Fernández 419* (MY); reforested hills of the Caracas Botanical Garden, 870–980 m, 2.10.1974, *Berry 370* (VEN).

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Appendix: Complete list of specimens

Collections already cited in the text under "Selected specimens seen" are cited in this Appendix with collector and collection number only. Collection locality information was translated into English (where necessary), standardised and kept as short as possible. Georeferenced locations are given in degrees and minutes (without decimals); seconds (if available) were suppressed. UTM (Universal Transverse Mercator) georeferences were transformed to latitude and longitude coordinates using the web-based converter of the Montana State University Research Coordination Network (http://www.rcn.montana.edu/resources/tools/coordinates.aspx). Elevations in feet and distances in miles were converted into metres and kilometres, respectively. "Sine loco" refers to collections without precise locality information, sine numero ("s.n.") to unnumbered collections, sine dato ("s.d.") to collections without collecting date and "unknown location" to collections for which not even the state (e.g. Amazonas, Apure, etc.) was recorded. Collection numbers with a letter added in brackets refer to specimens that share the same collection number but differ regarding species or collection locality. For abbreviations of herbaria, see Material and methods. Names of localities were crosschecked using maps of the Venezuelan SAGECAN (Servicio Autónomo de Geografía y Cartografía Nacional) and the web database of MapPlanet (http://www.mapplanet.com).

1. *Stylosanthes angustifolia*. — Amazonas: *Wurdack & Monaching 39850* (US). — Apure: *Calles & Colmenares 1016* (VEN); *Castillo & al. 3110* (NY); 11 km E of Paso San Pablo, 7°2'N, 67°39'W, 45 m, 8.–9.5.1977, *Davidse & González 12919* (VEN). — Bolívar: Laguna de Los Francos, Ciudad Bolívar, 11.1958, *Aristeguieta 3707* (US); Caicara del Orinoco–Puerto Ayacucho road, 6°50'N, 66°30'W, 100 m, 18.11.1984, *Aymard & Stergios 3142* (NY, PORT); Las Galderas, 8°18'N, 63°7'W, 10–20 m, 24.11.2003, *Díaz & al. 6745* (GUYN, PORT); *Elcoro 210* (MO, NY, PORT); La Arenosa, 7°39'N, 66°10'W, 50 m, 1.1989, *Elcoro 216* (PORT), *219* (MO, PORT), *220* (MO); right bank of Parguaza River mouth, 15.7.1971, *Trujillo 10750* (MY); *Valera 228* (GUYN, PORT, US). — Guárico: *Calles & Colmenares 1015* (VEN); Las Mercedes–Santa Rita road, 8°37'N, 66°25'W, 130 m, 6.2.2008, *Calles & Schultze-Kraft 1029* (VEN); *Davidse 4266* (MER, US, VEN); Saladillal Los Galapagos, 9°6'N, 67°54'W, 62 m, 12.1981, *Delascio & al. 11239* (MO, VEN); 30 km SE of Calabozo, 8°42'N, 67°17'W, 93 m, 6.3.2001, *Guenni & al. PCC-045* (MY, NCSC, VEN); 70 km S of Calabozo, 150 m, 17.10.1963, *McKee 10842* (P); Hato Becerra, 6.12.1960, *Montaldo 3108* (MY); 42 km S of Santa Rita, 7°46'N, 66°15'W, 40 m, 18.11.1995, *Ortiz & Ramia 3211* (VEN); Guariquito River bank, 4.1.1985, *Rodríguez 1687* (MY); 10 km S of Calabozo, 7.10.1966, *Schulz 710* (MER); 20 km S of Santa Rita, 23.11.1973, *Trujillo 12538* (MY).

2. *Stylosanthes gracilis*. — Amazonas: 8 km S of Puerto Ayacucho, 5°36'N, 67°37'W, 85 m, 13.–15.4.1978, *Davidse & Huber 14946* (VEN); 12 km N of Manapiare, 5°19'N, 66°6'W, 150 m, 16.10.1977, *Huber 1182* (K, US, VEN); *Huber 1348* (K, US, VEN); N of Laguna Maguari, 5°43'N, 65°48'W, 300 m, 9.10.1979, *Huber 4572* (VEN); 30 km N of Puerto Ayacucho, 5°48'N, 67°20'W, 80 m, 27.2.1982, *Huber 6279* (US); Sipapo River, 1 km ahead of Guayapo River mouth, 120 m, 25.9.1975, *Morillo & Ishikawa 3504* (MER, MY); *Sánchez & Moreno 112* (TFAV). — Anzoátegui: Las Piedritas, 16.7.1946, *Burkart 17270* (VEN); *Calles & Schultze-Kraft 1033* (VEN); *Davidse & González 19386* (MO, VEN); Morichal La Leonita, 9°6'N, 63°30'W, 127 m, 26.10.2003, *Delascio & Rodríguez 19129* (GUYN); El Tigre, CIAE-Anzoátegui, 14.6.1994, *Fariñas s.n.* (IRBR); 6–7 km W of Oritupano, 9°2'N, 23°30'W, 110–120 m, 22.2.1998, *Fernández & al. 12293* (MO); 25 km N of El Tigre, 16.5.1964, *Fosberg 45572* (US); between Guanipa and Cantaura, 1942, *Garroni 62* (US, VEN); 17 km SW of Pariaguán, 17.8.1984, *Montes 2179* (MO); 30 km S of La Viuda, 11.9.1984, *Montes 2538* (MO); Los Caños, 200 m, 9.12.1940, *Pittier 14472* (US, VEN). — Bolívar: Island inside Guri Reservoir, 7°40'N, 62°51'W, 270 m, 6.–9.2.1990, *Aymard & al. 7710* (PORT); island inside Guri Reservoir, 7°40'N, 62°51'W, 270 m, 8.1990, *Aymard & Norconk 8796* (PORT); km 238 of El Dorado–Santa Elena road, 14.6.1973, *Badillo 6360* (MY); vicinity of Canaima Camp, 4.5.1979, *Benítez 2540* (MY); Piña River, road to Aro River, 1943, *Cardona 614* (US); Morichal Santa Isabel, 6.1943, *Cardona 642* (US); sine loco, 25.8.1947, *Curran 189* (NY); sine loco, 25.8.1947, *Curran 191* (NY); Ciudad Bolívar, 1864, *de Grosourdy s.n.* (P); *Delascio & Liesner 6906* (CAR, MO, VEN); Hato Santa Rita, 8°8'N, 63°32'W, 12–18 m, 25.2.2001, *Delascio & al. 17840* (GUYN); Clavellinal, 100 m, 19.9.2001, *Delascio & Paschen 18121* (GUYN); La Poza, 7°28'N, 63°18'W, 0–250 m, 31.10.2002, *Delascio & al. 18571* (GUYN); *Delgado 1229* (MO, NY, PORT, VEN); Bajo Caroní, 7°46'N, 62°56'W, 125 m, 23.3.1994, *Díaz & Valera 2121* (GUYN, PORT); Bajo Caroní, 7°27'N, 63°13'W, 300 m, 5.1994, *Díaz 2301* (GUYN); Morichal Los Perros, 8°1'N, 63°28'W, 60–120 m, 21.7.1999, *Díaz & al. 4156* (GUYN, VEN); Orocopiche, 7°59'N, 63°34'W, 180 m, 10.1987, *Elcoro 24* (PORT); Maripa, 50 m, 1.1990, *Elcoro 607* (PORT); Maripa–Aripao, 7°29'N, 65°20'W, 80 m, 2.1990, *Elcoro 663* (NY, PORT, VEN); near La Becerra River, 1.–2.1984, *Fernández 867* (VEN); between Hato El Manguito and Oronata River, 7°36'N, 62°14'W, 200 m, 5.1986, *Fernández 2814* (GUYN, MYF); Hato El Nazareno, 6°31'N, 62°33'W, 0 m, 5.1986, *Fernández 2947* (PORT); 14 km SW of El Pao de la Fortuna, 7°1'N, 63°16'W, 320 m, 3.1987, *Fernández 4165* (PORT, VEN); Hato Pisurca, Maniapure, 6°55'N, 66°32'W, 60–70 m, 11.7.1999, *Fernández 15201* (GUYN); Camarata, 800 m, 23.4.1972, *Ferrari 1092* (MY); 16 km N of El Manteco, 7°28'N, 62°27'W, 300 m,

21.9.1982, *Huber & Alarcón 6463* (NY, US; VEN); at foot of Auyantepui, 5°42'N, 62°39'W, 500 m, 24.11.1982, *Huber & al. 6822* (NY); 10 km SW of Ueitepui, 4°56'N, 60°41'W, 1100 m, 21.1.1985, *Huber 9963* (MYF, VEN); 45 km SE of Upata, 240 m, 13.2.1985, *Johnson 4009* (MO); between Ciudad Bolívar and El Cristo, 100–300 m, 3.4.1943, *Killip 37217* (US, VEN); 4.6 km N of Santa Elena, 500 m, 28.7.1983, *Kral & González 70550* (MO); San Pedro de las Bocas, 6°59'N, 62°59'W, 200 m, 24.7.1978, *Liesner & González 5506* (MO, P, VEN); 10 km SW of Karaurin Tepui, 5°19'N, 61°3'W, 900–1000 m, 2.5.1988, *Liesner 24130* (MO, VEN); San Ignacio de Yuruaní, 5°0'N, 61°10'W, 850 m, 8.5.1988, *Liesner 24364* (MO, NY); 2 km S of Ciudad Piar, 300 m, 18.10.1953, *Maguire & al. 35827* (K, US); km 597 of Tumeremo–El Dorado road, 180 m, 11.10.1975, *Patiño & Flores VEN-15-P* (MY); Ciudad Piar–Ciudad Bolívar, 13.10.1975, *Patiño & Flores VEN-24-P* (MY); Monserrat farm, 36 km from Ciudad Bolívar, 10.1976, *Rodríguez 26* (MY); Monserrat farm, 12 km from Ciudad Bolívar, 17.5.1978, *Rodríguez 44* (MY); between Cuidad Piar and Orocopiche River, 1.6.1974, *Ruiz-Terán & al. 10789* (MERF); Ciudad Bolívar, Jardín Botánico del Orinoco, 26.6.1992, *Salazar 103* (IRBR); Ciudad Bolívar, Jardín Botánico del Orinoco, 15 m, 6.6.1995, *Salazar 163* (GUYN); E of Miamo, 400 m, 10.1.1961, *Steyermark 88320* (K, US); SE of Canaima, 6°14'N, 62°45'W, 450 m, 19.–20.7.1972, *Steyermark 106407* (VEN); 123 km N of Santa Elena de Uairén, 5°20'N, 61°25'W, 1200 m, 3.12.1982, *Steyermark & Liesner 127623* (MO, VEN); 35 km SW of Caicara del Orinoco, 7°30'N, 66°20'W, 100–300 m, 3.9.1985, *Steyermark & al. 131242* (MO, VEN); Santa Elena, Gran Sabana, 11.2.1946, *Tamayo 2736* (US); Gran Sabana, Hato Santa Teresa, 3.1946, *Tamayo 3202* (US); vicinity of El Pao crossroads, 28.8.1954, *Trujillo 2431* (MY); vicinity of Ciudad Piar, 7.11.1963, *Trujillo 5918* (MY); at Ciudad Bolívar–Ciudad Piar crossroads, 13.9.1972, *Trujillo 11629* (MY); Bajo Caroní, 7°4'N, 62°5'W, 75 m, 3.1994, *Valera 253* (PORT), *395* (GUYN, PORT), *404* (PORT); Bajo Caroní, 7°4'N, 62°5'W, 100 m, 5.1994, *Valera 473* (GUYN); 6 km NW of Tumeremo, 14.10.1979, *Xena 482, 483* (VEN). — Carabobo: *Cardozo & Carmona 555* (MY). — Falcón: *Wingfield 11013* (CORO). — Guárico: *Calles & Schultze-Kraft 1028* (VEN); E of El Mejo, 150 m, 11.1981, *Delascio & al. 10020* (US); Mesa de San Ramón, 160 m, 9.1981, *Delascio & al. 10615* (VEN); Morichal Indio Viejo, 9°50'N, 67°54'W, 100 m, 12.1981, *Delascio & al. 11526* (VEN); Morichal Lamedero, 9°54'N, 67°54'W, 100 m, 12.1981, *Delascio & al. 11601* (MO, VEN); 40 km S of Santa María de Ipire, 5.1991, *De la Ville SPB-966* (MYF); *Ortiz & Ramia 2573* (MO, VEN); 75 km S of Las Mercedes, 8°31'N, 66°23'W, 150 m, 10.9.1995, *Ortiz & Ramia 2835* (VEN); Hato Los Mangos, on Cabruta–Chaguaramas road, 200 m, 15.10.1975, *Patiño & Montes VEN-33-P* (MY). — Monagas: Jusepín, 29.8.1970, *Aristeguieta 7631, 7636* (MO); 8 km S of Maturín, 11.1955, *Badillo 3697* (MY); *Calles & Schultze-Kraft 1039* (VEN); 55 km NW of San Félix, 70 m, 1.12.1973, *Davidse & al. 4611* (MO); *De Martino & al. SPB-111* (MO, MY, MYF); between Liceo Penitenciario and La Gaviota, 9°8'N, 63°23'W, 180 m, 5.8.1998, *Fernández 13780* (PORT); Jusepín, 28.4.1989, *Figuera 3106* (UOJ); Jusepín, 10.10.1969, *González & Vera 15* (UOJ); Jusepín, 5.1.1969, *González & Vera 2037* (UOJ); Aguasay, 170 m, 18.7.1965, *Ijjasz 671* (MY); Jusepín, 28.3.1979, *Lárez & Mayz 845* (UOJ); along Jusepín–Punta de Mata road, 3.4.1979, *Lárez & Mayz 861* (UOJ); near Jusepín, 9°48'N, 63°23'W, 147 m, 19.1.1991, *León & al. 67* (PORT); Santa Barbara Camp, 26.10.1948, *Maguire & al. 27283* (NY); Punta de Mata, 70 m, 8.10.1963, *McKee 10783* (P); S of Monagas, 17.10.1969, *Ramia 2893, 3260* (MY); W of El Tejero, 31.7.1970, *Ramia & al. 3793* (VEN); Jusepín, 11.10.1968, *Rodríguez & Vera 80* (UOJ); FUSAGRI Uracoa Substation, 16.12.1974, *Trujillo 13108* (MY); Jusepín, 11.9.1973, *Vera & Leonett 4145* (UOJ). — Sucre: San Juan de Macarapana, 15.11.1969, *Bhat 133* (IRBR); *Calles & Schultze-Kraft 1036* (VEN); *Calles & Schultze-Kraft 1037* (HOH, K, US, VEN); Mochima National Park, 9.7.1986, *Cumana 2815* (IRBR); Bella Vista, Mochima National Park, 24.8.1990, *Cumana & Véliz 4477* (IRBR); Cerro Imposible, on road to Cumanacoa, 7.8.2000, *Cumana & al. 6693* (IRBR); 5 km SW of Santa Fe, 150 m, 15.12.1973, *Davidse 4992* (MO, US, VEN); 8 km S of Santa Fe, 64°24'N, 10°16'W, 230 m, 19.11.1981, *Davidse & González 19106* (MO, VEN); between La Sabana and Zurita, 500–600 m, 18.8.1973, *Steyermark & al. 107768* (MO, VEN); S of Barranquín, 45–60 m, 15.9.1973, *Steyermark & al. 108492* (VEN); top of Mochima Mountain, 10°20'N, 64°20'W, 350–400 m, 16.9.1973, *Steyermark & al. 108578* (MO, VEN); *Torres 1973* (IRBR). — Trujillo: *Bunting & Clausnitzer 9911* (US); *Pittier 13150* (MO, NY, PH, US, VEN). — Zulia: Along Valera–Mene Grande road, 2.2.1954, *Aristeguieta 2040* (NY); between El Pensado and Las Mercedes, 250–300 m, 12.10.1977, *Bunting 5702* (US); *Calles & Beuchelt 1050* (VEN); vicinity of Mene Grande, 27.10.1922, *Pittier 10553* (NY, US); *Zambrano & Gutiérrez 1712* (HERZU, MO, PORT); El Venado–La Raya road, 9°50'N, 70°50'W, 60 m, 24.6.1989, *Zambrano & al. 1950* (HERZU). — Unknown location: s.d., *Anonymous 2299* (IRBR); bank of the Orinoco, 27.9.1886, *Chaffanjon 50* (P); along El Tigre–Ciudad Bolívar road, 16.5.1978, *Rodríguez 47* (MY); along Puerto La Cruz road, 30 m, 21.9.1966, *Torres 2024* (IRBR); 23.12.1891–92, *Warmings 100* (US).

3. *Stylosanthes guianensis*. — Amazonas: *Fernández 6761* (MO, PORT); *Huber & Colchester 8376* (MYF, NY, US, VEN); Gavilán INOS Station, 70 m, 15.10.1988, *Romero 1729* (TFAV); 7–8 km S of Puerto Ayacucho, 5°34'N, 67°36'W, 70–110 m, *Sánchez & al. 37* (TFAV); along Puerto Ayacucho–Puerto Venado road, 20.3.1985,

Schultze-Kraft & Flores 200385-7, 200385-15 (TFAV); Puerto Ayacucho, 11.9.1986, *Trujillo & al. 20178* (MY). — Anzoátegui: *Calles & Schultze-Kraft 1031* (VEN); San Diego, 13.9.1991, *Cumana & Delgado 4862* (IRBR); S of El Zamuro, 64°17'N, 10°2'W, 1100 m, 24.11.1981, *Davidse & González 19356* (IRBR, NY, VEN); 6–7 km W of Oritupano, 9°2'N, 23°30'W, 110–120 m, 22.2.1998, *Fernández & al. 12234* (MO); 7 km NE of Pariaguán, 5.4.1985, *Figueroa 161* (PORT); *Hahn & Grifo 3426* (MO, NY); 25 km before Ciudad Bolívar, 1.1974, *Rodríguez 1, 2* (MY). — Apure: Hato El Frío, 24.11.1979, *Baruch 335* (*USB*); 30 km S of Bruzual, 100 m, 22.3.1985, *Lock 85/44* (K); *Ramia & Montes 5106* (VEN); Módulo Fernando Corrales (UNELLEZ), 15.12.1983, *Rojas & Rojas 3160* (MY); *Trujillo & Torres 14546* (MY). — Aragua: Maracay, Henri Pittier National Park, 20.11.1986. *Arispe s.n.* (MY); vicinity of Gabante, along Pie del Cerro–Colonia Tovar road, 2000 m, 18.2.1982, *Badillo 7656* (MY, NY); Maracay, El Castaño, 10.2.1995, *Cárdenas & León 4074* (MY); Maracay, Universidad Central de Venezuela, 450 m, 14.10.1987, *Carmona 56* [right plant] (MY); vicinity of Colonia Tovar, 1854–55, *Fendler 297* (K, PH); along road to Choroní, 18.10.1978, *Granadillo 13* (MY); along Maracay–Choroní road, 30.10.1985, *Guzmán 7* (MY); Maracay, El Castaño, 10°19'N, 67°33'W, 10.1985, *Rodríguez & al. 276* (VEN); Rancho Grande, 24.9.1975, *Rodríguez 277* (MY); Maracay, El Castaño, Circunvalación Avenue, 650 m, 28.10.1985, *Rodríguez 1807* (MY, NY); *Rodríguez 1897* (MY, NY); km 15 of La Victoria–Colonia Tovar road, 4.11.1973, *Romero 260* (MY); *Steyermark & al. 127684* (BM, VEN); along Maracay–Choroní road, 700 m, 2.1965, *Trujillo 7146(b)* (MY); Maracay, El Castaño, Los Chaguaramos Street, 650 m, s.d., *Vera 7569* (MY); El Limón, 12.11.1950, *Zerpa 23* (MY). — Barinas: *Breteler 4195* (K, MER, NY, P, US); between Socopó and El Bumbún, 10.2.1986, *Cárdenas & Peña 3602* (MY); Barinas, UNELLEZ, 24.11.1982, *Estrada 118* (MY); near Altamira, east hillside of Peña del Gobernador, 1500 m, 15.1.1985, *Fernández 1487* (PORT); San Silvestre, 13.12.2001, *Ferraras 448* (PORT); Barinas, on fields of UNELLEZ, 22.10.1982, *Licata & al. 84* (PORT); La Soledad, 1100 m, 12.8.1983, *Luque 135* (MERC); *Marquina & Briceño 38* (MERC); road to Altamira, 850 m, 12.8.1983, *Marquina & Briceño 91* (MERC); vicinity of Barinas–Pedraza crossroads, 200 m, 10.4.1965, *Trujillo 7288* (MY, US); Barinitas–Apartaderos, 900 m, 10.4.1965, *Trujillo 7334* (MY, US). — Bolívar: El Polaco mining area, 4°32'N, 61°26'W, 950 m, 6.1993, *Díaz & Elcoro 1406* (GUYN); *Díaz 2297* (GUYN); headwaters of Maurak River, 5°26'N, 61°35'W, 2.1986, *Fernández 2215* (MYF); Tunaca, S of Caicara, 23.8.1972, *Ferrari 1235* (MY); Topopo savannah, opposite Arekuna, 6°30'N, 62°55'W, 400 m, 30.8.1983, *Huber & al. 8181* (VEN); *Liesner 23850* (MO, PORT); 10 km SW of Karaurin Tepui, 5°19'N, 61°3'W, 900–1000 m, 29.4.1988, *Liesner 24041* (MO); Monserrat farm, 12 km from Ciudad Bolívar, 17.5.1978, *Rodríguez 45, 46* (MY); Monserrat farm, 20 km from Ciudad Bolívar, 7.1979, *Rodríguez 65* (MY); Reserva Forestal Imataca, 22.5.1982, *Stergios & al. 6498* (PORT). — Cojedes: Macapo–Vallecito road, 9°52'N, 68°26'W, 537 m, 4.4.2007, *Calles 1013* (VEN); *Delascio 7642* (*COJ*); Near Vallecito, 9°51'N, 68°26'W, 496 m, 12.10.2000, *Guenni & al. PCC-010* (MY, VEN); *Guenni & al. PCC-039* (MY, NCSC, VEN); 3 km from el Cacao, 9°43'N, 68°39'W, 345 m, 15.2.2001, *Guenni & al. PCC-061* (MY, VEN); Hato Mataclara, Sector Cumbito, 8°59'N, 68°8'W, 118 m, 22.11.2002, *Méndez 7* (PORT); Cerros de El Baúl, 8°58'N, 68°14'W, 12.1977, *Ramia 6785* (VEN); Cerros de El Baúl, 1.1978, *Ramia 6910* (VEN); Cerros de El Baúl, 8°58'N, 68°14'W, 100 m, 12.1986, *Ramia & Ortiz 8660* (VEN); San Carlos, El Limón Experimental Station, 22.11.1943, *Rudd 331* (US). — Distrito Capital: Caracas, 1000 m, 6.12.1938, *Alston 5364* (BM, NY, US); *Bailey & Bailey 97* (PH, US); Ingomar (Turmerito), 930–1025 m, 21.3.1943, *Killip 37138* (NY, US); *Manara s.n.* (VEN); *Morillo & Manara 332, 334* (VEN); El Carite, 24.5.1950, *Trujillo 1032* (MY). — Falcón: *Wingfield 5777* (CORO); 0.5 km W of Curimagua, 1100 m, 31.12.1982, *Wingfield 10305* (CORO); *Wingfield 10451* (CORO). — Guárico: *Davidse 2918* (US); 40 km S of Santa María de Ipire, 5.1991, *De la Ville SPB-978* (MYF); Calabozo, 150 m, 16.10.1963, *McKee 10819* (K, P); Calabozo, Laguna Los Patos, 150 m, 17.10.1963, *McKee 10848* (K, P); Estación Biológica de los Llanos, 8°56'N, 67°25'W, 30.9.1979, *Ramírez 170* (VEN); Estación Biológica de los Llanos, 8°56'N, 67°25'W, 21.11.1982, *Ramírez 689* (VEN); *Rondeau 500* (US); Estación Biológica de los Llanos, 12.11.1967, *Trujillo 8610* (MY). — Lara: *Calles & Beuchelt 1048* (VEN); *Rivero 1105* (PORT); between Quibor and Sanare, 1000 m, 18.7.1964, *Trujillo 6535* (MY). — Mérida: Between San Rafael and El Morro, 18.8.1972, *Benítez 1516* (MY); 10 km NE of Mérida, 1900 m, 9.9.1965, *Breteler 4581* (MER, NY, US); *Calles & Beuchelt 1046* (VEN); *Gehriger 358* (NY, PH, US, VEN); La Mesa, 1524 m, 14.8.1938, *Hanbury-Tracy 32* (K); Cerro Las Flores, Sector La Hechicera, 1885–1900 m, 25.9.1996, *Hornung & Garbiso 26* (MERC); vicinity of Mérida, 1700 m, 14.9.1952, *Humbert 26106* (MER, P); Montes de Zerpa, 19.9.1942, *Lasser 314* (US); El Vigía, 27.7.1965, *López-Palacios 702* (MERF, MY); La Hechicera, 1900 m, 11.7.1983, *Luque & Vielma 69* (MERC); Los Giros, 720 m, 2.8.1984, *Luque & Vielma 148* (MERC); Santa Cruz de Mora, 7.11.1983, *Marquina & Briceño 38* (MERC); sine loco, 1865, *Moritz 1442* (BM); El Alto, 1200 m, 27.7.1974, *Quintero & Ricardi 492* (MER); La Hechicera, 1652 m, 22.10.1974, *Quintero 635* (MER); Santa Rosa, 21.9.1990, *Ricardi 18* (MERC); Mérida, Campo de Oro, 1370–1380 m, 13.7.1977, *Ruiz-Terán & Dugarte 13959* (VEN); 10 km NW of Mérida, 1800–1820 m, 14.8.1978, *Ruiz-Terán & Ruiz 15535* (VEN); Mérida, Campo de Oro, 1400–1550 m, 19.5.1977, *Ruiz-Terán & al. 13550* (VEN); vicinity of Las Cruces,

along Mérida–La Azulita road, 6.3.1962, *Trujillo 5228* (MY). — Miranda: *Gines s.n.* (CAR); Los Guayabitos, 4.1944, *Gines 150* (CAR); Piedras Pintadas, 9.4.1949, *Gines 410* (CAR); Baruta, 1080 m, 11.1941, *Gines 534* (CAR); *Hurtado 1* (MY, NY, VEN); Colinas de Carrizal, 1250 m, 30.10.1977, *Morillo 4758* (VEN); 1.5 km N of Los Teques, 10°19'N, 67°2'W, 1200 m, 3.5.1981, *Morillo & Palacios 8547* (VEN); Hoyo de la Puerta, 10°27'N, 66°57'W, 12.1981, *Rodríguez 33* (VEN); Sartanejas (USB), 1350 m, 18.5.1979, *Sobrevila 79205, 79215* (VEN); San Antonio de los Altos, 15.12.1940, *Tamayo 1503* (US); vicinity of Los Chorros, 12.1949, *Trujillo & Fernández 731, 734* (MY); vicinity of Los Chorros, 16.10.1949, *Velasco 161, 172, 178* (MY). — Monagas: *Agostini & Agostini 1695* (K, MER, MY, NY, US, VEN); Plomito Creek, 9°14'N, 63°58'W, 240 m, 18.11.2003, *Delascio & Rodríguez 19231* (GUYN); Jusepín, 28.4.1989, *Figuera 3107* (UOJ); 2 km SE of Maturín, 15.5.1964, *Fosberg 45228* (US); on road to Rucio Viejo, 24.1.1977, *Lárez 731* (UOJ), *737* (UOJ, VEN); on road to Musipán, 29.3.1979, *Lárez & Mayz 854* (UOJ); along Jusepín–Punta de Mata road, 3.4.1979, *Lárez & Mayz 860* (UOJ); 3.5–5.5 km NW of Jusepín, 220–250 m, 28.3.1967, *Pursell & al. 8549* (NY, VEN); *Rondón 199* (IRBR); La Guanota, 20.8.1984, *Rondón 362* (IRBR); sine loco, 29.3.1968, *Vera 1025* (UOJ). — Portuguesa: Guanare, on fields of UNELLEZ, 9°4'N, 69°49'W, 6.10.1981, *Aymard & Ortega 576* (PORT); Guanare, on fields of UNELLEZ, 9°4'N, 69°49'W, 13.11.1983, *Aymard 2217* (PORT, VEN); Guanare, on fields of UNELLEZ, 9°4'N, 69°49'W, 200–250 m, 6.2.1984, *Aymard 3118* (PORT, VEN); Colonia Agrícola, 9°7'N, 69°53'W, 200 m, 5.11.1985, *Aymard 4332* (PORT, US); Colonia Agrícola, 9°7'N, 69°53'W, 200 m, 29.11.1985, *Aymard 4357* (PORT); 14 km NE of Guanare, 9°5'N, 69°35'W, 180 m, 22.11.1986, *Aymard & Cuello 4964* (PORT, US); *Aymard 5163* (PORT, MO, NY); Guanare, vicinity of UNELLEZ plant nurseries, 300 m, 9.1989, *Barrios 17* (MO, MYF); Núcleo San Nicolas, 15.1.1969, *Castillo 19* (MY); Unidad San Nicolas, 500 m, 23.–24.7.1973, *Ramos 24* (MY); Guanare, on fields of UNELLEZ, 5.10.1982, *Rodríguez 176* (PORT); Guanare, on fields of UNELLEZ, 13.11.1982, *Rodríguez 177* (PORT); Guanare, on fields of UNELLEZ, 25.11.1982, *Rodríguez 193* (PORT); Guanare, on fields of UNELLEZ, 28.2.1981, *Stergios & al. 2512* (VEN); on road to Palma Sola, 24.10.1981, *Stergios & al. 3035* (PORT); *Stergios & Aymard 8765* (MER, MO, PORT). — Sucre: Marigüitar, s.d., *Bonpland s.n.* (P); *Castillo 55* (VEN); El Zamuro–Paradero, 8.12.1989, *Cumana & Cabeza 3505(a)* (IRBR). — Táchira: Cerro Minas, 1250 m, 15.8.1988, *Badillo & al. 7840* (MY); between Michelena and Páramo El Zumbador, 23.8.1983, *Cárdenas 3287* (MY, MYF, VEN); Volador, 9.2.1986, *Cárdenas & Peña 3586* (MY); along road to Represa Dorada, 1100 m, 19.4.1997, *Cárdenas & al. 4201* (MY, VEN); between San Cristóbal and Chorro El Indio, 950–1050 m, 22.8.1976, *Croat 38404* (MO); *Dorr & Barnett 7132* (MO, MY, PORT, VEN); near Santo Domingo, 6.12.1970, *Guevara 1234* (MY); *Monsalve 1710* (UNET); near Aldea San Miguel, 1600 m, 7.9.1984, *Pacheco & al. s.n.* (*UNET*); Navay–Siberia, 1300 m, 15.4.1986, *Pacheco 634* (*UNET*); along El Corozo–Santa Ana road, 670 m, 16.10.1975, *Patiño VEN-43-P* (MY); Aldea La Hojita, 800 m, 5.10.1984, *Pérez & al. s.n.* (*UNET*); Páramo del Zumbador, along Táriba–El Cobre road, 22.11.1976, *Stergios 739* (PORT); sine loco, s.d., *Tapias 88* (*UNET*); La Taquerena farm, vicinity of Rubio, 860 m, 19.11.1980, *Trujillo & al. 17610* (MY, *UNET*); San Pedro del Río–La Popa road, 8°2'N, 72°17'W, l070 m, 16.11.2001, *Trujillo & al. 25269-213* (MY); Colón, 31.8.1999, *Vera & Pabón 13961* (VEN). — Trujillo: Near Carminia, along Valera–Mendoza road, 800–850 m, s.d., *Bono 8047* (MY); from Carminia to Santa Rita, 900–1000 m, 10.4.1989, *Bono 8093* (MY); above Carminia, 1000–1100 m, 11.4.1985, *Bono 8146* (MY); *Niño 143* (PORT); along Flor de Patría–Boconó road, 1800 m, 24.5.1977, *Pérez 98* (MY); along Trujillo–Boconó road, 28.8.1941, *Tamayo 1846* (US); *Trujillo & Ponce 18549* (MO, MY). — Vargas: *Hernández & Contreras 16, 17* (MY). — Yaracuy: *Croat 54589* (MO). — Zulia: *Pittier 10588* (US). — Unknown location: 3.6.1950, *Aristeguieta 340* (US); 24.11.1981, *Davidse & González 19378* (VEN); 1893–1894, *Mocquerys 1090* (P); along El Tigre–Ciudad Bolívar road, 16.5.1978, *Rodríguez 48* (MY); 1868, *Stevens s.n.* (NY).

4. *Stylosanthes humilis*. — Amazonas: *Trujillo & al. 20177* (MO, MY). — Anzoátegui: 1 km N of San Mateo, 10.10.1983, *Johnson 3042* (MO); Soledad, 13.10.1975, *Patiño & Montes VEN-26-P* (MY); *Rodríguez 3* (MY). — Apure: Hato El Frío, 24.11.1979, *Baruch 343* (USB); *Chacón & Torres 16* (MY); *Davidse & al. 3890* (VEN). — Aragua: El Limón, Henri Pittier National Park, 20.11.1986, *Arispe s.n.* (MY); *Trujillo 14819* (MY); *Zamora s.n.* (MY). — Barinas: *Estrada 111* (MY); *Licata & al. 73* (PORT). — Bolívar: *Calles & Schultze-Kraft 1043* (VEN); *Davidse 4430* (NY, VEN); km 38 of Ciudad Bolívar–Puerto Ordaz road, 90–100 m, 23.1.2002, *Delascio & Delascio 18160* (GUYN); Carichana, s.d., *Humboldt & Bonpland s.n.* (P); vicinity of Ciudad Piar, 400 m, 13.10.1975, *Patiño & Flores VEN-22-P* (MY); Los Pijiguaos, 50–150 m, 29.5.1997, *Salazar 211* (GUYN). — Carabobo: *Bunting 4213* (MY). — Cojedes: *Delascio & Gamarra 17284* (COJ, GUYN); near Vallecito, 9°51'N, 68°26'W, 451 m, 12.10.2000, *Guenni & al. PCC-009* (MY, VEN); 5 km N of San Carlos, 9°40'N, 68°31'W, 173 m, 12.10.2000, *Guenni & al. PCC-012* (MY, VEN); *Guenni & al. PCC-017* (MY, NCSC, VEN); El Tinaco–Altamira road, 9°39'N, 68°23'W, 140 m, 19.10.2000, *Guenni & al. PCC-018* (MY, VEN); vicinity of San Carlos, 9°35'N, 68°30'W, 116 m, 20.10.2000, *Guenni & al. PCC-025, PCC-026* (MY, VEN); S of Galeras del Pao, 10.1981, *Ramia & Gil*

7527 (VEN); Hato Paraima, 9°26'N, 68°10'W, 100 m, 12.1990, *Ramia & Ortiz 8789* (MO); El Mogote, on road to El Baúl, 11.10.1985, *Rodríguez & Cardozo 1776* (MY); Hato Paraima, 12.10.1985, *Rojas & Rojas 3261* (MY). — Guárico: Estación Biológica de los Llanos, 7.10.1979, *Agudo 5* (MYF); Estación Biológica de los Llanos, 8.1965, *Aristeguieta 5704* (VEN); 2 km N of Ortiz, 19.9.1968, *Bunting & Fernández 3224* (MY); *Calles & Schultze-Kraft 1027* (VEN); 21 km SE of Calabozo, 95 m, 5.11.1973, *Davidse 3762* (VEN); Fundo Chacao, 180 m, 9.1981, *Delascio & al. 10412* (MO); *Ortiz & Ramia 2215* (MO, VEN); along Cabruta–Chaguaramas road, 150 m, 15.10.1975, *Patiño & Montes VEN-29-P* (MY); Fundo Los Olivos, along Las Mercedes–Chaguaramas road, 220 m, 15.10.1975, *Patiño & Montes VEN-35-P, VEN-38-P* (MY); Mesa de El Sombrero, 10.9.1927, *Pittier 12489* (US); between La Encrucijada and Misión de Arriba, 9.11.1941, *Pittier 14925* (VEN); Estación Biológica de los Llanos, 8°56'N, 67°25'W, 75 m, 31.8.1990, *Ramírez 2947* (NY); 12 km SE of Calabozo, 8°56'N, 67°25'W, 75 m, 31.8.1990, *Ramírez 2948* (VEN); Ortiz, 5.10.1975, *Rodríguez 320, 325* (MY); near Ortiz, 16.11.1982, *Rodríguez 1521* (MY); between San Antonio and Fundo El Carmen, 5.–6.11.1983, *Rodríguez 1597* (MY); Estación Biológica de los Llanos, 9.10.1966, *Schulz 715* (MER); near Estación Biológica de los Llanos, 10.1961, *Tamayo 4516* (MY); vicinity of San Francisco de Tiznados, 400–500 m, 5.12.1983, *Trujillo & al. 18313* (MY). — Monagas: *Cumana 2165* (IRBR, MO); *González & Vera 5* (UOJ); 7 km from Barrancas–Tucupita crossroads, 13.12.1974, *Trujillo 13004* (MERF, MY). — Portuguesa: Colonia Agrícola, 26.10.1981, *Aymard & Stergios 631* (PORT); *Aymard 2214* (PORT, VEN); Los Baños Creek, on road to Las Panelas, 9°5'N, 69°55'W; 320 m, 10.12.1991, *Aymard & Flores 9651* (PORT); *Calles 1022* (VEN); *Ramos 81* (MY); Guanare, on fields of UNELLEZ, 9°4'N, 69°49'W, 10.11.1983, *Stergios 6525* (PORT, VEN); Guanare, facilities of UNELLEZ, 19.6.1984, *Stergios & Aymard 6891* (PORT); between Apartaderos and Acarigua, 9.4.1965, *Trujillo 7256* (MY). — Zulia: *Bunting 13091* (US, VEN); 5 km SE of El Guanábano, 4.11.1983, *Bunting 13171* (VEN); *Pittier 10698(a)* (NY). — Unknown location: Along Dos Caminos–El Tinaco road, 380 m, 15.10.1975, *Patiño & Montes VEN-40-P* (MY).

5. *Stylosanthes sericeiceps*. — Mérida: 36 km SW of Mérida, along road to San Cristóbal, 950 m, 30.7.1964, *Breteler 4070* (MER); *Breteler 4546* (K, MER, US); Lagunillas–La Trampa road, 8°31'N, 71°24'W, 1260 m, 17.12.2007, *Calles 1023* (VEN); vicinity of Las González, 8°30'N, 71°19'W, 720 m, 17.12.2007, *Calles 1025* (VEN); *Calles & Beuchelt 1045* (VEN); Las González, 13.7 km SW of Mérida, 14.9.1990, *Feldmeier 10* (MERC); between Ejido and Las González, 860 m, 30.5.1996, *Garbiso & al. 33* (MERC); valley of Chama River, downstream Ejido, 1100 m, 4.–10.10.1952, *Humbert 26514* (MER, US); *Jahn 678* (G, US); along Mérida–Lagunillas road, 850 m, 14.7.1990, *Meléndez 11* (MERC); between Ejido and Lagunillas, 1000 m, 28.12.1968, *Oberwinkler & Oberwinkler 14116* (VEN); El Moral farm, near Ejido, 1167 m, 11.6.1974, *Quintero & al. 281* (MER); on road to La Trampa, 1150 m, 13.9.1976, *Quintero & Ricardi 1582* (MER); Los Guáimaros, 1200 m, 20.11.1984, *Quintero 3118* (MER); Brecenio farm, 1158 m, 2.10.1931, *Reed 603* (US); between Chiguará and Estanques, 450–600 m, 4.11.1971, *Ruiz-Terán & López-Palacios 6241* (MERF, VEN); Los Guáimaros, along Ejido–Las González road, 900 m, 19.9.1975, *Ruiz-Terán & al. 12649* (MERF, VEN); Mérida, Campo de Oro, 1400–1500 m, 18.6.1977, *Ruiz-Terán & Ruiz-Pérez 13756* (VEN).

6. *Stylosanthes viscosa*. — Anzoátegui: Las Piedritas, 16.7.1946, *Burkart 17274* (VEN); *Burkart 17302* (NY); Morichal La Leonita, 9°6'N, 63°30'W, 127 m, 26.10.2003, *Delascio & Rodríguez 19130* (GUYN); vicinity of La Ceiba, 1.6.1979, *Lárez & Mayz 880* (UOJ, VEN); Soledad, 180 m, 13.10.1975, *Patiño & Montes VEN-25-P* (MY); El Tigre, Guanipa Experimental Station, 280 m, 14.10.1975, *Patiño & Montes VEN-27-P* (MY); *Ramia 7807* (MY); Arturo Sabino's farm, 10.1976, *Rodríguez 25* (MY); Hato El Samán, 19.6.1978, *Rodríguez 50* (MY, VEN); near Orinoco bridge, 16.5.1982, *Stergios & al. 3451* (PORT); 80 km S of El Tigre, 19.9.1967, *Vareschi 8194* (VEN). — Barinas: *Rodríguez 188* (MY). — Bolívar: Caroní River (Guri), 200 m, 12.8.1968, *Alejandro 26* (CAR); *Calles & Schultze-Kraft 1040* (VEN); Ciudad Bolívar, Jardín Botánico del Orinoco, 8°8'N, 63°33'W, 10–15 m, 21.12.2002, *Chacón & al. 46* (GUYN); Heres Municipality, 8°15'N, 63°35'W, 18 m, 16.4.2001, *Chacón 964* (GUYN); 8 km SE of Upata, 350 m, 7.1978, *Delascio & Liesner 6876* (CAR); Hato Santa Rita, 8°8'N, 63°33'W, 12–18 m, 25.2.2001, *Delascio & al. 17832* (GUYN); Hato Santa Rita, 100 m, 29.7.2001, *Delascio & al. 18054* (GUYN); Bajo Caroní, 7°27'N, 63°13'W, 300 m, 5.1990, *Díaz 2302* (GUYN); Cantera El Rubí, 8°2'N, 63°20'W, 150 m, 24.7.1996, *Díaz & al. 2876* (GUYN); Guri Camp, 1.–2.1984, *Fernández 1005* (PORT); Sector Las Patillas, 7°36'N, 62°34'W, 300 m, 5.1986, *Fernández 2974* (PORT); Piedra El Peñón, Ciudad Bolívar–Caicara del Orinoco road, 7°39'N, 62°7'W, 120–200 m, 22.10.1993, *Gröger 1185* (NY, VEN); Ciudad Bolívar, 35 m, 4.–25.11.1929, *Holt & Gehringer 48* (NY); 16 km N of El Manteco, 7°28'N, 62°27'W, 300 m, 21.9.1982, *Huber & Alarcón 6484* (MYF, NY, VEN); between Ciudad Bolívar and El Cristo, 100–300 m, 3.4.1943, *Killip 37234* (US); near El Pao de la Fortuna, 7°8'N, 63°10'W, 200 m, 29.7.1978, *Liesner & González 5790* (MO, NY); km 111 of Puerto Ordaz-Cerro Bolívar railroad, 300–350 m, 26.10.1953, *Maguire & al. 36014* (NY); km 528 of La Guadaña-El Callao–Tumeremo road, 75 m, 11.10.1975, *Patiño & Flores VEN-12-P* (MY); km 597 of El Callao–Tumere-

mo road, 180 m, 11.10.1975, *Patiño & Montes VEN-13-P* (MY); along Ciudad Piar–Ciudad Bolívar road, 300 m, 13.10.1975, *Patiño & Montes VEN-23-P* (MY); Monserrat farm, 20 km from Ciudad Bolívar, 7.1979, *Rodríguez 63* (MY); along Tumeremo–Bochinche road, vicinity of Batanamo River, 19.5.1982, *Stergios & al. 3679* (PORT); along Tumeremo–Fuerte Tarabay road, vicinity of Aliviadero River, 20.5.1982, *Stergios & al. 3750* (PORT); between Upata and Caroní River, 31.7.1944, *Steyermark 57563* (VEN); along Ciudad Piar–Puerto Ordaz road, 8.11.1963, *Trujillo 5954* (MY); San Martín de Turuban, 6.10.1988, *Trujillo & Martínez 21368* (MO, VEN); Bajo Caroní, 7°4'N, 62°5'W, 100 m, 5.1990, *Valera 471, 475* (GUYN); *Valera 514* (GUYN, NY); NE of Maripa, 7°32'N, 65°18'W, 50 m, 8.1990, *Velazco 1617* (PORT); 30 km NW of Tumeremo, 14.10.1979, *Xena 487* (VEN). — Falcón: *Calles & Schultze-Kraft 1005* (VEN); 6 km SE of Coro, 100 m, 11.12.1978, *Flora de Falcón 124* (CORO); Buchivacoa District, Camino Sur, 100 m, 5.12.1971, *Smith V6595* (UCOB); *Wingfield 8403* (CORO); Serranía de Avaria, 1000 m, 1.8.1983, *Wingfield 11183* (CORO); Cerro Caujarao, 200–250 m, 26.4.1985, *Wingfield 13887* (CORO). — Mérida: *Calles 1026* (VEN); *Fernández 12135* (PORT); *Fernández 12157* (PORT). — Monagas: 28 km S of Guanipa River on road to Barrancas, 9.1955, *Badillo 3636* (MY); *Díaz & Elcoro 2958* (GUYN, NY); 2 km S of El Arenal, 9°15'N, 63°42'W, 210 m, 6.2003, *Fernández 19421* (GUYN); NW of Jusepín, 5.1.1969, *González & Vera 39* (UOJ); Chaguaramas Camp, 17.9.1983, *González 58, 81, 82, 103* (MER); Jusepín, 15.6.1979, *Lárez & Mayz 900* (UOJ, VEN); between Santa Barbara and Aguasay, 19.9.1979, *Lárez & Mayz 926* (UOJ); near Jusepín, 9°48'N, 63°23'W, 147 m, 19.1.1991, *León & al. 37* (PORT); Los Barrancos, on Chaguaramas–Chalana road, 10 m, 10.10.1975, *Patiño & Flores VEN-10-P* (MY); *Pursell & al. 9436* (NY, VEN); vicinity of Jusepín, 1970, *Ramia & al. 3783* (UOJ); on road to San Juan de Buja, 11.1982, *Ramia 7817* (VEN); Jusepín, s.d., *Vera s.n.* (UOJ); near Punta de Mata, 7.10.1968, *Vera 1891* (UOJ); Jusepín, 11.9.1973, *Vera & Leonett 4115* (UOJ). — Nueva Esparta: Margarita Island, Robledal, 8.1953, *Anonymous s.n.* (CAR); Margarita Island, 8.1955, *Anonymous 2480* (NY); Margarita Island, between El Valle del Espíritu Santo and Cerro Palma Real, 800 m, 22.9.1973, *Benítez 1664* (MY); Margarita Island, Península de Macanao, La Carmela, 50 m, 10.4.1979, *Benítez 2441* (MY); Margarita Island, between San Francisco de Macanao and Robledal, 29.8.1955, *Bernardi 2480* (MER); Margarita Island, Península de Macanao, 9.5.1985, *Cervigon & Cumana 7-II* (IRBR); *Domínguez 76* (CAR); Margarita Island, Cerro de Manzanillo, 1.12.1951, *Domínguez 249* (CAR); Margarita Island, Robledal, 14.12.1951, *Linares 277* (CAR); *Miller & Johnson 268* (K, NY); Margarita Island, Cerro Copey National Park, 3.2.1998, *Ramírez & Briceño 5453* (VEN). — Sucre: *Benítez 2935* (MY, VEN); Manicuare–Tacarigua road, 10°34'N, 64°10'W, 42 m, 6.5.2007, *Calles & García 1017* (VEN); Península de Araya, 6.–11.7.1950, *Croizat s.n.* (NY); Península de Araya, Chacopata, 5.7.1984, *Cumana 2445* (IRBR); Península de Araya, El Guamache, 26.11.1988, *Cumana & Cabeza 2974(a)* (IRBR); Península de Araya, Los Cachicatos, 26.11.1988, *Cumana & Cabeza 2974(b)* (IRBR); Península de Araya, La Sortija, 3.12.1988, *Cumana & Cabeza 3195* (IRBR); Península de Araya, Punta Araya, 20.11.1988, *Cumana & Cabeza 3451* (IRBR); El Zamuro–Paradero, 8.12.1989, *Cumana & Cabeza 3505(b)* (IRBR); *Steyermark & al. 108030* (NY, VEN); Cachimena Beach, 0 m, 8.9.1973, *Steyermark & al. 108149* (VEN); vicinity of Guamache, 24.12.1983, *Trujillo & Ponce 18665* (MY); vicinity of Chacopata, 20.12.1983, *Trujillo & Ponce 18738* (MO, MY); Guamache–Taguapire, 5.4.1992, *Trujillo & Fernández 22755* (MY). — Trujillo: *Pittier 10721* (NY). — Zulia: Perijá, 19.12.1992, *Arguello & Soto DA-003* (HMBLUZ); Caserío Los Robles (Sinamaica), 13.2.1988, *Bono 6483* (VEN); *Ramia 2789* (MY); vicinity of La Villa del Rosario, 10.5.1972, *Trujillo 10994* (MY); *Villaruel 34* (HMBLUZ). — Unknown location: 1868, *Stevens s.n.* (NY).

7. *Stylosanthes capitata*. — Anzoátegui: Las Piedritas, 16.7.1946, *Burkart 17276* (VEN); *Calles & Schultze-Kraft 1034* (VEN); El Tigre, 8°52'N, 64°13'W, 280 m, 12.1996, *Fernández & al. 10277* (PORT); *Lasser 775* (US); Arturo Sabino's farm, 10.1976, *Rodríguez 27* (MY); Freites District, 3.1978, *Rodríguez 43* (MY). — Bolívar: *Bailey & Bailey 1434* (NY, US); *Calles & Schultze-Kraft 1042* (VEN); Ciudad Bolívar, 8°3'N, 63°40'W, 20–40 m, 11.8.1999, *Díaz & al. 4126* (GUYN). — Guárico: *Calles & Schultze-Kraft 1030* (VEN); 1 km W of Santa Rita, 8°7'N, 66°15'W, 60 m, 20.10.1994, *Ortiz & Ramia 2214* (VEN); *Ortiz & Ramia 3186* (MO); 17 km S of Santa Rita, 7°59'N, 66°14'W, 60 m, 23.8.1995, *Ortiz & Ramia 3391* (PORT). — Monagas: Jusepín, 24.8.1970, *Aristeguieta & Vera 7551* (VEN); *Calles & Schultze-Kraft 1038* (VEN); between Liceo Penitenciario and La Gaviota, 9°8'N, 63°23'W, 180 m, 5.8.1998, *Fernández 13790, 13798* (PORT); vicinity of Punta de Mata, 31.5.1979, *Lárez & Mayz 867* (UOJ); Jusepín, 11.6.1979, *Lárez & Mayz 892* (UOJ); *Lárez & Mayz 910* (UOJ, VEN); Punta de Mata, 70 m, 8.10.1963, *McKee 10785* (P); El Tejero, 14.5.1951, *Trujillo 1460* (MY).

8. *Stylosanthes falconensis*. — Falcón: *Calles & Schultze-Kraft 1006* (HOH, K, M, MO, NY, US, VEN); vicinity of Carrizalito, 11°8'N, 69°45'W, 1140 m, 13.2.2006, *Calles & Schultze-Kraft 1008* (VEN); *Calles 1019* (VEN); Cucaire–La Peña road, 11°6'N, 69°44'W, 900 m, 24.7.2007, *Calles 1020* (VEN); E border of Cucaire, 11°7'N, 69°45'W, 1140 m, 25.7.2007, *Calles 1021* (VEN); vicinity of Carrizalito Cave, 26.6.1979, *Flora de Falcón 846* (CORO); *Trujillo & al. 16739* (MY); vicinity of Cucaire, 13.9.1980, *Trujillo & al. 16741* (MO,

MY); above La Peña, 950 m, 15.4.1978, *Wingfield 5207* (CORO).

9. *Stylosanthes hamata*. — Aragua: *Arraiz 47* (MY); Maracay, Universidad Central de Venezuela, 18.11.1984, *Cárdenas & León 3446* (MY); Maracay, Universidad Central de Venezuela, 450 m, 14.10.1987, *Carmona 56* [left plant] (MY); vicinity of Colonia Tovar, 1856–57, *Fendler 1793* (PH); Maracay, Universidad Central de Venezuela, 19.10.1987, *Perez s.n.* (MY); Ocumare de la Costa–El Farallón road, 10°28'N, 67°46'W, 26.11.1983, *Rodríguez 118, 119, 122* (VEN); Maracay, Universidad Central de Venezuela, 13.12.1982, *Rodríguez & Torrecilla s.n.* (CAR, MY); Maracay, Universidad Central de Venezuela, 14.10.1987, *Trujillo 15861* (MY); Maracay, Universidad Central de Venezuela, 28.10.1985, *Urbano 7* (MY). — Bolívar: *Picón 1631* (NY); *Salazar 54* (GUYN, IRBR). — Distrito Capital: *Bailey & Bailey 121* (PH); *Liesner 5371* (VEN). — Falcón: Guaibacoa, 350 m, 7.1.1991, *Benítez & al. 4068* (MY); *Calles & Walle 1014* (VEN); vicinity of Cerro El Togogo, 13.12.1998, *Cárdenas & al. 4296* (MY); between Borojó and Mene de Mauroa, 120 m, 7.2.1999, *Cárdenas & al. 4310* (MY); Tucacas, 19.1.1969, *Castillo 34* (MY); along Tucuato–Punto Fijo road, 27.11.1978, *Flora de Falcón 21* (CORO); 2 km SE of Punto Fijo, 20 m, 27.11.1978, *Flora de Falcón 34* (CORO); Paraguaná, Las Cumaraguas, 10 m, 24.2.1977, *Ruiz & al. 567* (VEN); Paraguaná, Guanadito, 30 m, 9.3.1977, *Ruiz & al. 698* (VEN); Paraguaná, Tacuato, 20 m, 17.3.1977, *Ruiz & al. 792* (VEN); El Paramito, 250 m, 24.3.1977, *Ruiz & al. 976* (CORO, VEN); Istmo de los Médanos, 10.1.1974, *Ruiz-Terán & López-Palacios 10276* (CORO); San Juan de los Cayos, 10 m, 6.12.1971, *Smith V6605* (UCOB); Tucacas–Sanare road, 10°48'N, 68°20'W, 2 m, 5.9.1982, *Steyermark & Narbaiza 126551* (VEN); Paraguaná, Adícora, 12.1938, *Tamayo 950, 977* (US); Morrocoy National Park, 5.1976, *Visscher 5* (MER); Paraguaná, Cerro Arajó, 130 m, 2.1.1980, *Wingfield 7309* (CORO); Paraguaná, Cerro Colorado, 4.1.1980, *Wingfield 7352* (CORO); *Wingfield 7382* (CORO); Médanos de Coro National Park, near pumping station, 2 m, 3.4.1980, *Wingfield 7689* (CORO); Paraguaná, Cardón, 5 m, 8.5.1981, *Wingfield 8284* (CORO). — Guárico: *Ramia 2606* (MY). — Lara: Barquisimeto, vicinity of airfield, 6.7.1946, *Burkart 17151* (VEN); *Calles & Beuchelt 1049* (VEN); 17 km N of Bobare, 600 m, 28.8.1981, *Ponce & Trujillo 321* (MY); along Bobare–Aguada Grande road, 29.8.1981, *Ponce & Trujillo 343* (MY); Serranías de Terepaima, 800–1000 m, 8.1930, *Saer 631* (VEN); Central Río Turbio, 400 m, 4.3.1971, *Smith V6500* (UCOB); between Barquisimeto and El Cují, 17.7.1964, *Trujillo 6524* (MY); La Mata de Algarí, 2 km from road to Bobare, 19.7.1964, *Trujillo 6578* (MY). — Mérida: *Calles 1024* (VEN). — Miranda: *Calles & Schultze-Kraft 1003* (VEN). — Nueva Esparta: La Asunción, 9.8.1901, *Miller & Johnson 68* (NY); *Xena & Madriz 1149* (VEN). — Sucre: Península de Araya, Punta Araya, 1.1968, *Aristeguieta & al. 6546* (VEN); *Calles 1018* (VEN); along Cumaná–San Juan de Macarapana road, 27.2.1970, *Cumana 35* (IRBR, VEN); Península de Araya, 14.11.1988, *Cumana & Cabeza 3454* (IRBR); Península de Araya, Punta Araya, 20.11.1988, *Cumana & Cabeza 3483* (IRBR); *Liesner & González 12032* (CAR, NY). — Vargas: *Freites s.n.* (MY); *Ramírez 2714* (MO, MY, VEN). — Yaracuy: *Benítez 1035* (MY). — Zulia: *Bunting 5632* (NY, US, VEN); Maracaibo, Paseo del Lago, 3.5.1978, *Bunting & Galué 6279* (US, VEN); near Santa Fe beach, 21.11.1979, *Bunting 8190* (US, VEN); Maracaibo Botanical Garden, 20.6.1983, *Bunting 13107* (US, VEN); vicinity of Maracaibo, 8.1989, *Cumana 3758-A* (IRBR); Coquivacoa, 20.11.1997, *Marcano 72* (*HMBLUZ*); vicinity of Ciudad Ojeda, 18.10.1975, *Patiño VEN-50-P* (MY); *Pittier 10698(b)* (VEN); Mara Municipality, Centro Frutícola del Estado Zulia, 11.3.2004, *Sthormes 62* (HERZU); Maracaibo, 2nd Circunvalación Avenue, 11.5.1972, *Trujillo 11047* (MY, NY, VEN). — Unknown location: s.d., *Anonymous s.n.* (IRBR); 11.11.1996, *Villaruel 7* (HMBLUZ).

10. *Stylosanthes scabra*. — Anzoátegui: *Calles & Schultze-Kraft 1032* (VEN). — Distrito Capital: *Pittier 9679* (US). — Guárico: *Delascio & Delascio 7483* (CAR, VEN). — Lara: 2 km NE of Barquisimeto, 10°4'N, 69°18'W, 18.11.1978, *Agostini & Agostini 2622* (VEN); Humocaro Alto–Buenos Aires road, 9°37'N, 70°1'W, 19.7.1984, *Agostini & al. 2803* (VEN); El Tocuyo, near Maria Consuelo Torcatis school, 9°50'N, 69°46'W, 622 m, 27.3.2007, *Calles & Guenni 1012* (VEN); *Calles & Beuchelt 1047* (VEN); 18 km S of Quibor, 9°49'N, 69°40'W, 5.8.1982, *Croat 54678* (CAR); on road to Terepaima, 600 m, 20.7.1964, *Trujillo 6588* (MY). — Mérida: *Ataroff 25* (MER); *López-Palacios 2135* (MER, MERF, VEN); along former San Juan de Lagunillas–Lagunillas road, 18.3.1998, *Vivas & al. 52* (MERC). — Miranda: *Gines 596* (CAR); *Trujillo & Fernández 249* (MY). — Monagas: Near Temblador, 9.1955, *Badillo 3672* (MY); Jusepín, 4.3.1983, *Cumana 1343* (IRBR); *Cumana & Bermúdez 1343* (IRBR); Urica, 11.1978, *Delascio & Delascio 7499* (CAR, VEN); *Pursell & al. 8246* (US). — Portuguesa: *Aymard 575* (PORT); Colonia Agrícola, 2.11.1982, *Aymard 1431* (PORT); *Aymard & Flores 9658* (MO, PORT). — Sucre: Caserío Los Cocos, on road to Puerto La Cruz, 10.2.1970, *Bhat 182* (IRBR); *Calles & Schultze-Kraft 1035* (VEN); El Zamuro–Paradero, 8.12.1989, *Cumana & Cabeza 3511* (IRBR); La Zona, 7.6.1989, *Cumana & al. 3654* (IRBR); Cancamure, 28.2.1990, *Cumana & al. 3823* (IRBR); Turimiquire reservoir, 15.11.1997, *Cumana & Olivares 6435* (IRBR); *Davidse 5042* (MO, VEN); Mochima National Park, 2.1.1981, *García s.n.* (IRBR); Rio Grande, along San Antonio del Golfo–Santa María road, 19.10.1974, *Lampe 34* (IRBR); Cerro Arrojata, Mochima National Park, s.d., *Robles & al. 287* (IRBR); Cer-

ro Arrojata, Mochima National Park, 135 m, 9.12.1992, *Sanabria & al. 293* (IRBR). — Táchira: *Calles & Beuchelt 1044* (VEN); upper part of Lobatera, 8.2.1986, *Cárdenas & Peña 3552* (MY); *Cardozo & Labrador 793* (MY); Hato La Virgen, 2.11.1984, *Pacheco 260* (MY); near La Grita, 1200 m, 17.10.1975, *Patiño VEN-44-P* (MY); near La Grita, 1500–1850 m, 7.10.1978, *Ruiz-Terán & Dugarte 15869, 15872* (VEN). — Trujillo: *Jahn 169* (US). — Vargas: *Delgado 58* (MY). — Yaracuy: *Sobrevila & al. 975* (*USB*); San Felipe, Sabana de Cascabel, 26.10.1949, *Trujillo & Fernández 488* (MY); *Trujillo & Fernández 579* (MY). — Unknown location: La Llanada, 22.6.1983, *Cumana 1887* (IRBR).

11. *Stylosanthes venezuelensis.* — Distrito Capital: *Berry 370* (VEN); *Calles & al. 1001* (HOH, K, M, MO, NY, US, VEN); Caracas Botanical Garden, 900–950 m, 21.6.1982, *Gómez 294* (*USB*); *Trujillo & Fernández 419* (MY).