New species and notes on genera of the Celastraceae (incl. Hippocrateaceae). III

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Communicated by Prof. F.A. Stafleu at the meeting of February 25, 1985

ABSTRACT

A description is given of two new species in the genus *Pristimera, P. dariense* from Panama and *P. caudata* from Suriname. *P. dariense* differs by its flattened disk from the other New World species of the genus, but would fit in the subgenus *Trochantha* N. Hallé known from Africa.

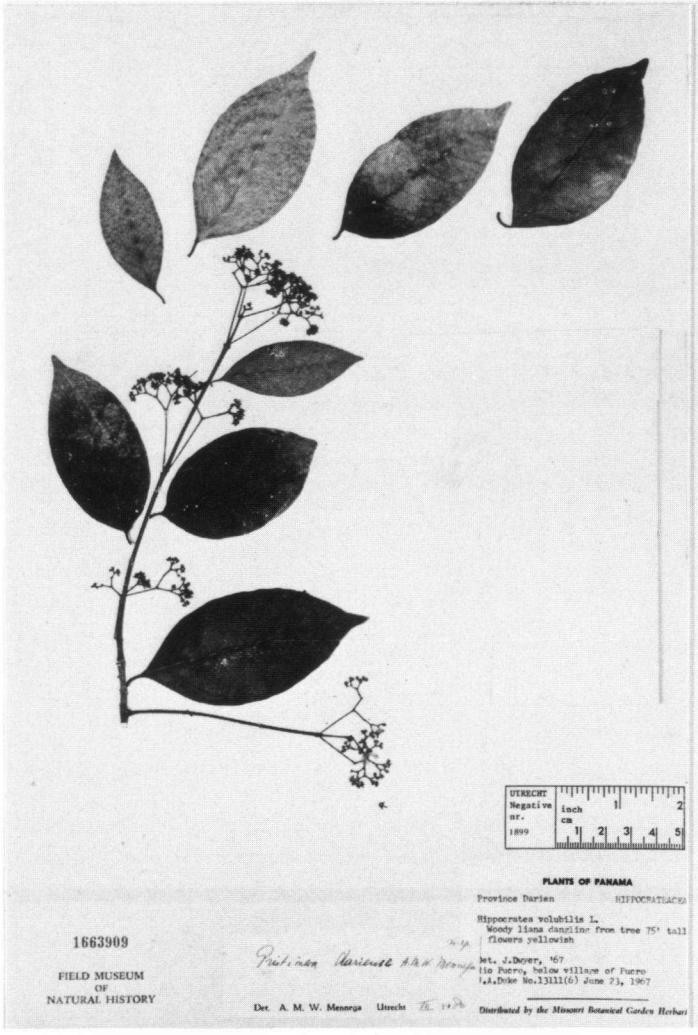
Cuervea crenulata sp. nov. is a species collected in Brazil, Minas Gerais. Another species in *Cuervea, C. mitchellae* (Johnst.) A.C. Smith is considered as a synonym of *C. kappleriana.*

Hylenaea unguiculata sp. nov. is a new species from Suriname. The material on which the new species is based was at first erronously ascribed to the genus *Tontelea* with remarkably similar flowers.

Pristimera dariense A.M.W. Mennega sp. nov. Plate I; fig. 1.

Type: Panama, Darien; Rio Pucro, below village of Pucro, 23 June 1967 (fl.), J.A. Duke 13111 (holotype MO; isotypes, F, U).

Woody liana dangling from a tree. Twigs terete, dark purplish brown, with many tiny lenticels, glabrous. Leaves opposite, the petioles slender, c. 5 mm long, the blades elliptic, 5.5–9 mm long, 2.7–4.5 mm broad; the apex more or less abruptly acuminate, the acumen 8 mm long, the base attenuate, the margin faintly undulate with a few extremely small appressed teeth, chartaceous, concolorus, in sicco olive green or brownish green, glabrous. The midrib prominulous above, prominent below, secondary veins 5–6 pairs, arcuately ascending, the tertiary venation prominulous on both surfaces, forming a dense reticulation; the under surface minutely puncticulate. Inflorescences opposite in strictly dichotomous cymes, occasionally with accessory axes in the dichotomies, about 5 times branch-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Hippocratea volubilis L.
Woody liana dangling from tree 75' tall
flowers yellowish
Det. J.Dwyer, '67
Rio Pucro, below village of Pucro
R.A.Duke No.13111(6) June 23, 1967
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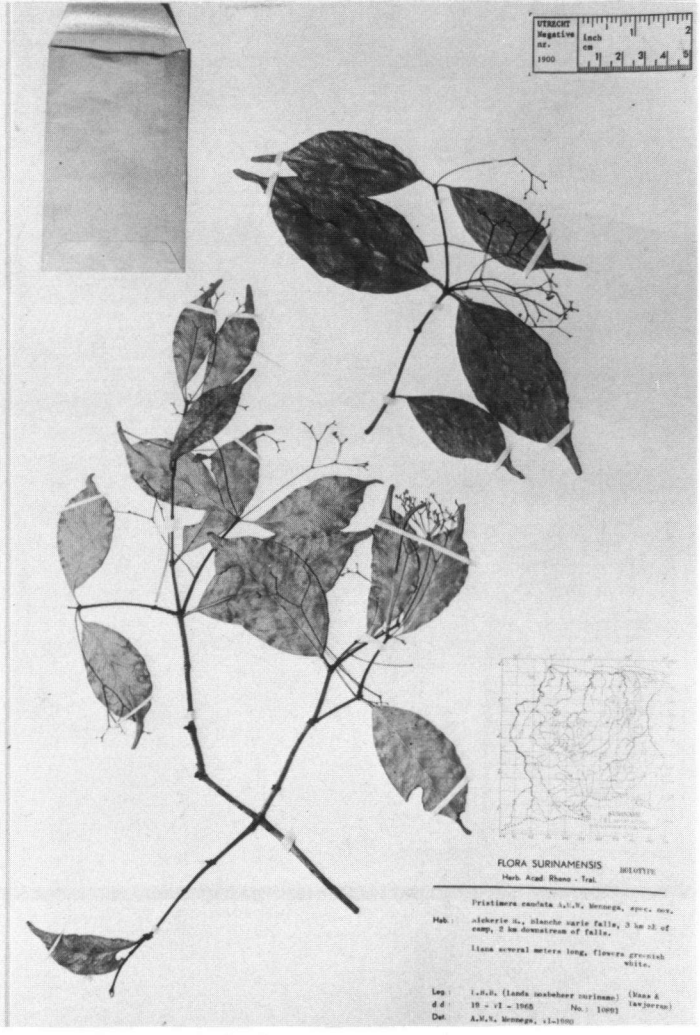
Det. A. M. W. Mennega Utrecht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Liana several meters long, flowers greenish white.
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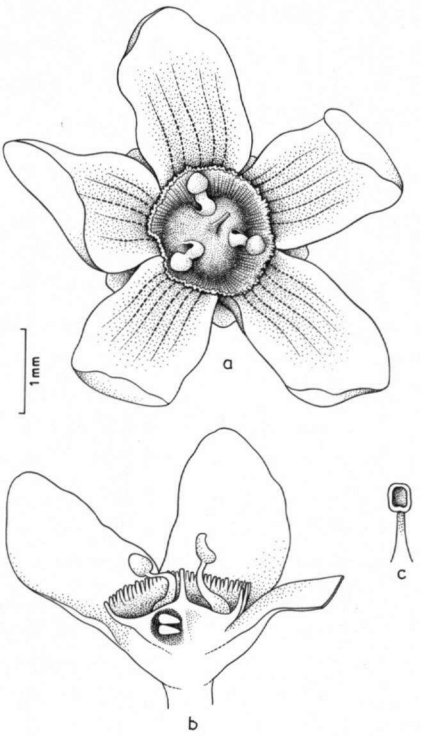

Fig. 1 *Pristimera dariense.* a. open flower, b. lgt section, c. stamen.

ed, 3–4 cm long. The slender peduncle 1.5–2.5 cm long, peduncle and branchlets of the inflorescence quadrangular. Bracts and bracteoles nearly 1 mm long, acute, the margins slightly erosulous. Flowers with pedicels less than 1.5 mm long to almost sessile. Buds globose, the sepals not enclosing the imbricate petals; at anthesis flowers 4 mm wide, the petals spreading. Calyx lobes 5, unequal, semiorbicular, 1 mm long and broad, thin, the border fimbriate or erosulous. Petals yellow, thin-carnose oblong, 2 mm long, 1 mm broad, the apex rounded, the border entire or slightly erosulous, lineolate. Disk saucer-like, 1.3 mm in diameter, 0.4 mm high, the margin flattened and strongly fimbriate. Stamens inserted between the ovary lobes, the filaments ligulate, widened towards the base, 0.5 mm long, 0.15 mm broad, strongly reflexed in the open flower; the anthers small, 0.2 mm long and broad, opening by a horizontal cleft. Ovary completely immersed in the disk, deeply 3-sulcate, with two superposed ovules per locule, the style subulate, 0.5 mm long with three minute stigmatic knobs. Fruit unknown.

Ab omnibus speciebus generis *Pristimerae* disco conspicue patelliformi margine plane fimbriata bene distincta, *Pristimera austin-smithii* et *Pristimera*

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Plate I. Left. *Pristimera dariense* A. Mennega sp. nov. (Duke 13111, Panama). Right. *Pristimera caudata* A. Mennega sp. nov. (Lands Bosbeheer (LBB) 10891, Suriname).

tenuiflorae affinis. A *P. austin-smithii* disco plusminus conspicuo margine tamen integra ornata, floribus etiam sessilibus vel brevissime pedicellatis distinguitur. A *P. tenuiflora* disco plusminus conspicuo et in *P. austin-smithii* sed cupulato margine integra floribus majoribus differt.

REMARKS

The new species has in its flower and leaf characters features in common with the genera *Elachyptera, Prionostemma* and *Pristimera.*

The form of the disk with the flattened laciniate margin is reminiscent of *Prionostemma,* but in that genus the much larger flowers have unguiculate petals and the numbers of ovules are from 6–14 in each locule, according to the revised generic description given by Hallé (1981). Furthermore the leaves and branches of *Prionostemma aspera,* the sole American species, are covered by short conical hairs not found elsewhere in the family as stated by Den Hartog & Baas (1978), its disk is tomentose and the stem contains a red juice.

A greater resemblance exists with *Elachyptera* species as described by Smith (1940) for New World species and by Hallé (1978) in his revised generic description of the genus, in the supernumerous branchlets in the axils of the inflorescences, the faintly quadrangular branchlets and the form, size and texture of the leaves. *Elachyptera* differs, however, by the form of its disk, which is cupular or tubular often with short pointed projections between the stamens, and by the semi-erect petals in the open flowers.

In *Pristimera* the disk usually is unobtrusive, flat and very short, but in *P. austin-smithii* it is more pronounced and its margin is somewhat flattened like in the new species, *P. tenuiflora* possesses more or less quadrangular branchlets in the inflorescences as well as accessory branchlets in the axils and dichotomies, a slightly tubular disk and a triangular stigmatic shield.

Taking into account the similarities and dissimilarities pointed out above, the new species is best placed in *Pristimera,* and has greatest affinity with *P. austin-smithii* and *P. tenuiflora.* A flattened round disk, and spreading petals in the open flower like in *P. dariense* are also characteristic for two African species of *Pristimera,* recently placed by Hallé (1981) in the subgenus *Trochantha* N. Hallé.

Pristimera caudata A.M.W. Mennega, sp. nov. Plate I.

Type: Suriname, Nickerie R., Blanche Marie Falls, 3 km SE of camp, 2 km downstream of falls, 19 June 1965 (fl.), Lands Bosbeheer Suriname (LBB) 10891 (holotype U; isotypes PAR, NY, K).

Liana, the branches cinereous, lenticellate, but not verrucose. Leaves opposite, the petioles canaliculate, 5–6 mm long, the leaf blades elliptic or ovate-elliptic, 5–11 cm long, 2–2.5 cm broad, obtuse or decurrent at the base, abruptly caudate at the apex, acumen 10–12 mm long, the margins almost entire, undulate, with an occasional tooth in the distal part, glabrous, concolorus, in sicco greyish green to yellowish green. The midrib raised on both surfaces, yellowish, the secondary veins in 5–7 pairs, arcuately ascending, the tertiary venation reticulate,

prominulous and conspicuous on both surfaces. Inflorescences opposite, strictly dichotomous cymes, 4–7 cm long, very slender, few-flowered, 4–5 times branched. The peduncles 2.5–5 cm long, very slender, faintly angled, the bracts subopposite to opposite, membranous, ovate, acute, c. 1 mm long. Flowers 2.5–3 mm wide at anthesis, the pedicels 1 mm long. Buds globose, the calyx lobes not enclosing the petals. Calyx lobes semiorbicular, membranous, 1 mm long and broad, the margin erosulous. Petals greenish white, semipatent, orbicular, membranous, 1.5 mm long and broad, the margin entire. Disk saucer-like, 1.3–1.5 mm in diameter, 0.2 mm high, the margin smooth, entire. Stamens with the ligulate filaments strongly widened towards the base, 0.5 mm long, 0.6 mm broad at the base, reflexed at anthesis; the anthers 0.3 mm long and broad, opening by a wide, horizontal confluent cleft. Ovary 0.6–0.8 mm in diameter, with 4 superposed ovules per locule; the style subulate 0.25 mm long, relatively thick. Fruit unknown.

A *Pristimera verrucosa* (H.K.B.) Miers differt ramis lenticellis minis conspicuis, foliis apice caudatis, pedicellis longioribus, floribus majoribus petalis orbiculatis.

The nearest relative of the new species is *P. verrucosa* (H.K.B.) Miers, a species from Colombia and Venezuela. *P. caudata* differs from *P. verrucosa* in the less conspicuous lenticels on the branches, the caudate leaf tips, the longer pedicels, the somewhat larger flowers and flower parts, and the orbicular instead of ovate petals.

Cuervea crenulata A.M.W. Mennega sp. nov. Plate II; fig. 2.

Type: E.P. Heringer & Rizzini 9883 (holotype UB, isotype NY), Brazil, Minas Gerais, Januaria. 28 X 1964.

Woody liana, the branchlets opposite, cinereous, quadrangular, lenticellate. Leaves almost sessile or with petioles up to 2 mm long, stipules patelliform, 1 mm broad ending in a short, fine, dark spine; leafblades chartaceous, greyish green in the dried specimens, glabrous, often falcate, elliptic to oblong lanceolate, 4–8 cm long, 1.2–4 cm broad, the margins crenulate, cordate at the base, gradually acuminate at the apex, the apex glandular; the costa prominent on both surfaces, the secondary nerves 6 to 8 per side, arcuately ascending, prominulous on both surfaces, the veinlets inconspicuous. Inflorescences 3 to 5 cm long, the peduncle very slender, about 3 cm long, or (less often) almost absent; the lateral branches alternate, few-flowered, 2 to 4 times branched; the bracts ovate, 0.5 mm long with an acute apex, entire. Flowers 7–8 mm in diameter at anthesis, the pedicels slender, 4–6 mm long above the articulation. Sepals unequal in form and size, deltoid and broadly ovate, 1.5–2 mm long and broad, entire, submembranous, flabellate-nerved. Petals orbicular, of the same texture as the sepals, 3 mm long and broad, entire. Disk almost flat, 2–2.3 mm in diameter, 0.25 mm high, membranous, the margin undulate. Stamens reflexed, filaments ligulate, 1.1 mm long, strongly broadened toward the base, anthers 0.8 mm broad, 0.4 mm high, ex-


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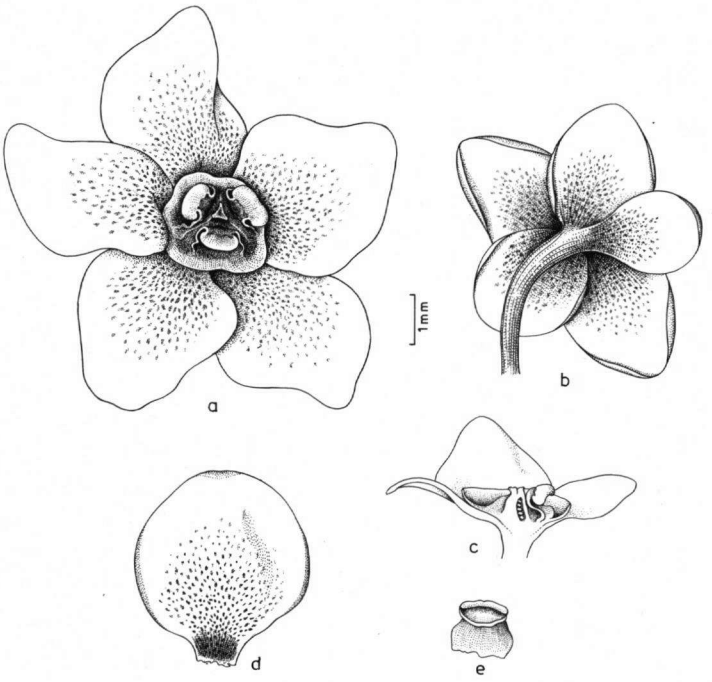

Fig. 2. *Cuervea crenulata*. a. open flower, b. basal view of flower showing unequal calyx lobes, c lgt. section of flower, d. petal, e. stamen.

trorsely nutant, the locules opening with a wide, confluent, horizontal cleft. Ovary 1–1.2 mm in diameter, deeply sulcate, gradually tapering into the truncate 0.2 mm long style, the stigmas flattened, deltoid, obtuse, 0.1 mm long, opposite the stamens; ovules superposed, 8 per locule. Fruits still very young, the capsules dark brown (in the dried condition), obovate, 2 cm long, 1.5 cm broad.

Cuervea crenulata a generis Cuerveae speciebus duabus ceteris disco complanatis, pedicellis longioribus, ramulis quadrangularibus, loculis ovulas numeresiorus gerentibus differt. A *C. kappleriana* distinguitur foliis florisbusque minoribus, petiolis brevissimis, lamina margine crenulata nec integra. A *C. integrifolia* distinguitur praesertim lamina margine crenulata, sepalis petalisque integris, stigmatibus bene evolutis.

REMARKS

Cuervea crenulata differs from the other two species of *Cuervea* by its flattened disk, the longer pedicels, the quadrangular branches, and by having more numerous ovules per locule. It is furthermore distinguished from *C. kappleriana*

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Plate II. Left. *Cuervea crenulata* A. Mennega sp. nov. (Heringer & Rizzini 9883, Brazil). Right. *Hylenaea unguiculata* A. Mennega sp. nov. (Focke 1238, Suriname).

by the smaller size of leaves and flowers, the very short petioles, and the crenulate rather than almost entire leaf margin. From *C. integrifolia* it differs in particular by the crenulate leaf margin, the entire sepals and petals, and the well developed stigmas.

Cuervea mitchellae (Johnst.) A.C. Smith is to be considered as a synonym of *C. kappleriana* (Miq.) A.C. Smith. *C. mitchellae* from Honduras and Mexico resembles *C. kappleriana* so closely that it may be considered as conspecific with the latter species. In his treatment of the Hippocrateaceae of the New World, A.C. Smith (1940) stated "that it *(C. mitchellae)* is hardly separable, except for the perianth-texture and the white petals, whereas those of *C. kappleriana* appear to be consistently yellow". The last statement is not correct. In the type specimen, Kappler nr. 1972, the label reads: frutex scandens, flos alba. In the numerous specimens of *Cuervea kappleriana* seen by me the flower colour is always indicated as white, with the exception of three collections with yellow flowers (Cooper nr. 474 from Panama, Vasquez nr. 242 (Mexu 40850), and Dorantes nr. 2867 (Mexu 40799) both from Vera Cruz). In these specimens the texture of the petals is membranous and not densely glandular-punctate as described for *C. mitchellae*. The conclusion from the foregoing must be that the differential characters as given by Smith do not always correlate with each other, thereby rendering it impossible now to maintain two separate species or subspecies.

Hylenaea unguiculata A.M.W. Mennega, sp. nov. Plate II; fig. 3.

Type: Focke 1238 (holotype U, isotypes K, NY), Suriname. Other specimens Irwin et al. 55536 (F, K, NY, U) Suriname, Wilhelmina Mts., Lucie R. in riverine forest, 2–10 km below of confluence Oost R. alt. 225 m, fl. Sept. 1963.

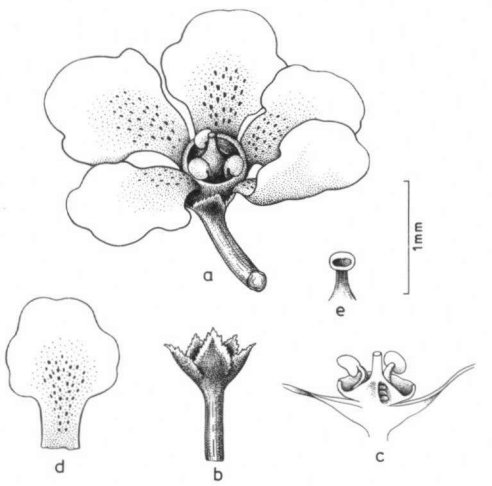

Fig. 3. *Hylenaea unguiculata.* a. open flower, b. calyx, c. lgt. section of flower showing cup-shaped disk, d. unguiculate petal, e. stamen.

Woody liana, to 15 m long. Branchlets opposite, with faint longitudinal ridges, bark dark brown, exfoliating. Leaves opposite, petioles slender, 6–10 mm long, terete, slightly winged; leaf blades thinly coriaceous, brown or greenish when dried, ovate to ovate-elliptic, (7–)12–16 cm long, (5–)7–10 cm broad, obtuse to cordate at the base, obtuse and rounded or with a short blunt acumen at the apex, entire, the margins faintly undulate, slightly revolute, somewhat lustrous above; costa prominent on both surfaces, secondary nerves 7–8 per side, arcuate ascending, prominent on both surfaces, veinlets prominulous forming a slightly elevated, lax reticulation on both sides. Inflorescences axillary, 6–20 cm long, many flowered, lax, thyrsoid-paniculate, peduncle and rachis dark purplish brown, several times (6–8) pseudo-dichotomously branched, the ultimate branchlets alternate, branchlets slightly thickened towards the nodes, bracts semiorbiculate, less than 1 mm long, more or less erosulous, bracteoles minute, acute, pedicels very short, slender, less than 1 mm long. Flowers yellowish, small, ca. 2.5–3 mm wide at anthesis, the petals spreading or reflexed. Calyx broadly cup-shaped with semiorbicular or deltoid lobes, 0.4–0.8 mm long, 0.6–1 mm broad, the apex rounded or acute, margins membranous and scariose, subcarnose and punctate at the base. Petals membranous, glandular punctate and unguiculate in the basal part, in the upper part circular to ovate, 1.4–1.6 mm long, 1.2–1.4 mm broad, margin entire, undulating, obtuse at the apex. Disk thin-carnose, cylindric, 0.1–0.2 mm high, 0.7 mm wide, margin entire. Stamens inserted between the ovary-lobes, the filaments upright or strongly reflexed, membranous, widened towards the base, 0.3 mm long, anthers ellipsoid, 0.1 mm long, 0.15 mm broad, dehiscing by horizontal confluent clefts. Ovary depressed-trigonous, the style slender, 0.3 mm long, tapering, stigmas obscure, ovules 6–8 per locule, superposed in two rows. Fruit unknown.

H. unguiculata a *Hylenea praecelsa* differt floribus duplo majoribus, pedicellis ca. 2-plo brevioribus, petalis unguiculatis; a *H. comosa* differt axibus inflorescentiae non capillaceis, floribus majoribus.

REMARKS

A.C. Smith (1940) recognized in his treatment two species of *Hylenaea*. One, *H. praecelsa* (Miers) A.C. Smith, occurring in Panama, and the Canal Zone, the other *H. comosa* (Swartz) Miers, with a wider distribution. The type specimen of the latter was collected in Haiti, and there were also specimens from Trinidad, Venezuela, Guyana and French Guiana.

Since 1940 collections of *H. praecelsa* were made outside the Panama area, revealing a much wider distribution for this species as well. It is now known from Colombia, Choco (J.A. Duke 1167); Brazil, R. Demini (G.T. Prance et al. 10286), State of Para (T. Plowman et al. 8486); Bolivia, Pando, R. Madeira (G.T. Prance et al. 6274). In spite of this there remains the impression that it is a rare species outside Panama.

Among specimens of Hippocrateae collected in Suriname were two, Focke 1238 and Irwin et al. 55536 (a Maguire series number), which were difficult to identify. The first one was tentatively placed in *Tontelea* by A.C. Smith. The Ir-

win material, which closely resembled the Focke specimen, was considered by me as a new species of *Tontelea, T. unguiculata.* This name was not published but only used to annotate herbarium sheets. It was copied on labels of duplicate specimens distributed by the New York Botanical Garden. In the course of continued examination of Hippocrateaceae from the New World, suspicion arose about the correctness of my determination of the two specimens as *Tontelea.* The obvious cause of the error is the similarity of the flowers structure between some species of *Tontelea* and *Hylenaea,* as was already pointed out by Smith in his discussion on the genus *Hylenaea.*

Inspection of the cross section of the wood of a twig of the specimens revealed the presence of broad rays and the absence of banded parenchyma. Such a wood structure is characteristic for the genera with capsular fruits (Mennega, 1972). *Tontelea,* however, has drupaceous fruits, and consequently my determination of the two collections in question as *Tontelea* must be regarded as wrong.
Among the eight genera with capsular fruits, *Cuervea* and *Hylenaea* were the most likely to accomodate the specimens. In Smith's key to the genera (based on flower characters) *Hylenaea, Cuervea* and *Tontelea* are placed close together, the chief distinction being the form of the sepals and the flower sizes. In *Hylenaea* the flowers are minute, in *Cuervea* they are large (8–17 mm), and in *Tontelea* they are intermediate, i.c. less than 7 mm wide. *Hylenaea* and *Cuervea* resemble each other very much apart from the flower size, and the numerous flowers in the inflorescences of *Hylenaea.* In one species, *H. comosa,* the unusual inflorescence resembles a bunch of hairs. There is also a distinction in the form of the fruits and seeds, but they were not present in the material at hand. A vegetative character which differentiates *Cuervea* from *Hylenaea* is the occurrence in *Cuervea* of rhomboidal crystals in special epidermal cells of the leaves whereas such crystals are not found in species of *Hylenaea* (Den Hartog & Baas, 1978). In other vegetative characters the two genera are hardly different. The only ones worth mentioning are that in dry material of *Hylenaea* the twigs tend to have a dark purplish brown colour and an exfoliating bark, and that in the leaves the number of secondary veins is slightly larger than in *Cuervea* species.

Because the unknown species resembled *Hylenaea* in its inflorescence, its vegetative and epidermal characters, it was assigned to that genus. In vegetative features the similarity with *H. praecelsa* is striking, but by differences in length of the pedicels, form of the petals, and size of the flowers the new species is sufficiently distinct. However, it will not be possible to assign not-flowering material to one species or the other. Regarding our extended knowledge of the area of distribution of *H. praecelsa* occurrence of this species in the Guianas should not be excluded.

Fruits are not yet known and they will be needed to complete the description of the new species.

ACKNOWLEDGEMENTS

The author is much indebted to Drs. A. Görts-van Rijn and Drs. L.Y.Th. Westra for discussions and comments. She wishes to thank the latter for his cor-

rection of the English text and for the Latin diagnoses of the new species. The assistance of Mr. T. Schipper with the illustrations is gratefully acknowledged.

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