

NEW PHANEROGAM SPECIES FROM CHOCO, COLOMBIA

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Very many new species of flowering plants have been discovered in recent years in the course of our collaborative plant exploration program in the western Colombian Chocó. Here we describe four additional novelties belonging to four different families: Ampelocera macrocarpa Forero & Gentry (Ulmaceae), Pithecellobium longipendulum Forero & Gentry (Leguminosae), Neoptychocarpus chocoensis Gentry & Forero (Flacourtiaceae), and Jacaratia chocoensis Gentry & Forero (Caricaceae).

AMPELOCERA MACROCARPA Forero & A. Gentry, sp. nov.

Arbor 10-30 m alta. Folia oblongo-elliptica, acuminata, basi oblique inaequilateralia, plerumque 8-25 cm longa, 4-10 cm lata, integra, glabra. Fructus subglobosus, 1.8-2 cm diametro, minute puberulus.

Tree, 10-30 m tall, to 50 cm dbh., the branchlets terete, inconspicuously minutely puberulous to glabrate, drying dark with a reddish tint when young, becoming raised-lenticellate with age. Leaves 8-25 cm long, 4-10 cm wide (very narrowly oblong to an extreme of 30 X 5.3 cm in Nicaraguan sapling leaves), oblong-elliptic, entire, short-acuminate, the acumen 1-1.5 cm long, oblique and asymmetric at base, not obviously 3-nerved, the secondary veins strongly ascending, the tertiary venation more or

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less parallel, prominulous above and below, punctate-glandular below, otherwise glabrous on both surfaces, or occasionally with a few appressed trichomes on midvein when young, reported as having a dark blue color when young and not yet fully expanded; petiole rather thick, 0.2-1.2 cm long. Inflorescence (in Costa Rica) thick-branched, contracted-corymbose, less than 2 cm long, inconspicuously minutely puberulous. Flowers unknown. Fruit subglobose, 1.8-2 cm in diameter, minutely puberulous, yellow at maturity, the woody pericarp ca. 2-3 mm thick, single-seeded.

Type: COLOMBIA: Chocó: Upper Río Truandó between La Teresita and mouth of Río Ramón, 20 Jan 1974, Gentry 9436 (holotype, COL; isotype, MO).

Additional collections examined: COLOMBIA: Chocó: Trail from Río Tigre base camp up Serranía del Darién W of Unguía, 300-600 m, 17 Jul 1975, Gentry & L. E. Aguirre 15286A (COL, MO). COSTA RICA: Heredia: Finca La Selva, Puerto Viejo, Sarapiquí, 10°26'N, 84°1'W, 30 May 1974, Hartshorn 1495 (MO). NICARAGUA: Zelaya: Sur de Río Wawa, 60 km N.O. de Puerto Cabezas, 40 m alt., 83°56'W, 14°19'N, 13 Mar 1971, Little 25135 (MO), 16 Mar 1971, Little 25165 (MO); road from Siuna to El Dos ca. 1 km E of Cerro Livico, 400-600 m, 13°46'N, 84°47'W, 12 Dec 1980, Stevens 18687 (MO); comarca de San Isidro, Río Pajarito, 3 Oct. 1982, Angela Laguna 85 (MO).

N.v.: "rescaldo" (Costa Rica); "cuscano" (Nicaragua); "yayo" (Nicaragua).

Ampelocera is a rather nondescript and exceedingly poorly known genus. There are probably more specimens filed as familial "indets" in the world's herbaria than correctly identified. Although it can be locally fairly common, it is apparently rarely fertile and most collections are sterile. The new species described here is closest to A. latifolia Ducke of upper Amazonia (many specimens of which have been misidentified as A. ruizii Kl.). It differs most conspicuously from A. latifolia in its much larger, thicker-walled, less asymmetric fruit (ca. 1.5 x 1 cm in A. latifolia). The flowers of both species are unknown; of the rather numerous collections of A. macrocarpa cited above all but the type and the single Costa Rican collection are sterile.

## PITHECELLOBIUM LONGIPENDULUM Forero &amp; A. Gentry, sp. nov.

Arbor 6-8 m alta, ramulis teretibus, rufo pubescentibus. Folia pinnis 6-12 jugis; petiolo 2-3.5 cm longo, puberulo, eglanduloso, rachi 8-17 cm longo, inter pinnas glandula urceolata instructo, axibus pinnarum 2-10 cm longis, villosis, basi et infra 1-3 paribus distalibus foliolorum glandulis munitis; foliola 10-25 juga, ovato-lanceolata, 3-12 mm longa, 1.5-4 mm lata, inaequilatera, basi obtusa, apice acuta, supra costa media pubescentia, margine ciliata, subtus glabra vel glabrescentia. Capitula axillares, pedunculis 18-27 cm longis, pubescentibus. Flores sessiles, rosei; calyx 1.5-3 mm longus, breviter dentatus, apice pilis ornatus; corolla calycem triplo excedens, glabra, ca. 11 mm longa, lobis apice barbatis; tubus stamineus inclusus, staminibus numerosis, glabris; ovarium atque stylus glabratum. Fructus haud visus.

Tree 6-8 m tall; branchlets terete, ferruginous-pubescent, lenticellate. Leaves bipinnate, the pinnae 6-12 jugate; pulvinus not clearly differentiated, 0.3-0.5 cm long, puberulous; petiole 2-3.5 cm long, puberulous, eglandular; rachis 8-17 cm long, densely villous, with rachis glands below insertion of each pair of pinnae; pinnae 2-10 cm long, villous, with an urceolate gland near base and with more or less developed glands just below insertions of the 1-3 distal pairs of leaflets; leaflets 10-25 jugate, ovate-lanceolate, inequilateral (midrib excentric), the apex acute, the base obtuse, the margin ciliate, glabrous above except for the pubescent midrib, glabrous or glabrescent below except the sparsely pubescent midrib, venation reticulate. Inflorescence capitulate, dense, axillary, pendulous, the peduncles 18-27 cm long, puberulous, more densely so distally. Flowers pink, sessile, bracteolate, the calyx 1.5-3 mm long, the tube sparsely puberulous or glabrescent, the teeth short, densely puberulous; corolla up to 11 mm long (measured in bud), three times as long as the calyx, glabrous, the lobes apically barbate; stamen tube included, the stamens numerous, glabrous; ovary short stipitate, glabrous, the style 12 mm long, glabrous. Fruit not seen.

Type: COLOMBIA: Chocó: Río Mutatá, tributary of Río El Valle, between base of Alto del Buey and mouth of river, alt. 100-150 m, 7 Aug 1976, Gentry & Fallen 17284 (holotype, COL; isotype, MO).

Additional collection examined: COLOMBIA: Chocó: Bahia Solano, dense forest along Quebrada Jellita, alt. 50-100 m, 22 Feb 1939, Killip & García-Barriga 33566 (COL).

A very distinct species which can be easily recognized by the long-pedunculate, pendulous inflorescence to which the name refers. This species is known from the region of Bahia Solano in western Chocó. Both collections studied come from the same general area. Killip apparently recognized that his collection represented an undescribed species of what he recognized as the segregate genus Cojoba, but "filipes," the name he wrote on the label of the COL specimen, was never published and anyway cannot be used in Pithecellobium where it is predated by P. filipes Benth.

NEOPTYCHOCARPUS CHOCOENSIS A. Gentry & Forero, sp. nov.

Arbor dioecia parva usque ad 8 m alta. Folia oblongo-elliptica, acuminata, cuneata, glabra, punctata, 18-35 cm longa, 6-13 cm lata. Flores viriduli, sessiles, axillares, fasciculati, bracteolis 1-3 mm longis subtenti, calyce tubulare, 2-3 mm longo, 4-lobato; staminibus 8, quatuor longioribus, ovario glabro, ovoideo, stigmate 3-4-partito. Fructus subglobosus, rubrus, 1 cm latus, irregulariter dehiscens.

Small dioecious tree to 8 m tall, with myristicaceous branching, the branchlets more or less terete to obscurely 3-angled, glabrous. Leaves alternate, distichous, oblong-elliptic, acuminate, cuneate at base, chartaceous, glabrous, drying conspicuously dark brown or blackish, often with a slightly reddish tinge, somewhat inconspicuously serrate, pellucid-punctate, 18-35 cm long, 6-13 cm wide; petiole thick, not well differentiated, 0.3-1 cm long; stipules minute, suborbicular, coriaceous, ca. 1 mm long, early caducous leaving scar. Flowers greenish, sessile, fasciculate in the leaf axils or from the axils of fallen leaves, subtended by a calyx-like series of cupular ca. 1-4 mm long bracteoles and bracts. Calyx tube of male flowers 2-3 mm long with 4 narrow 1-2 mm long suberect lobes, densely hairy inside at mouth of tube and base of stamens, the stamens 8, 4 long and 4 shorter, the filaments of longer stamens ca. 1 mm long, the short thick anthers ca. 0.3-0.5 mm long; female flowers similar but the calyx tube ca. 2 mm across; ovary glabrous, irregularly ovoid, slightly 3-angled,

the style ca. 1 mm long, with short 3-4-fid stigma. Fruit subglobose, red, fleshy, tardily irregularly dehiscent, ca. 1 cm across before opening, 1.5 cm across after dehiscence; seeds few, ca. 2 or 3 per fruit, round or irregularly compressed, ca. 5 mm across.

Type: COLOMBIA: Chocó: Road (under construction) to Lloró (2 km S of Yuto) from km. 27 of Quibdó-Istmina road, alt. ca. 100 m, tropical pluvial forest, 5°30'N, 76°37'W, 15 Jun 1982, Gentry & J. Brand 36955 (holotype, COL; isotypes, MO, JAUM, to be distributed).

Locally very common in the Quibdó region of central Chocó with a density of three individuals per 1000 m<sup>2</sup> in a vegetational sample from that area (Evolutionary Biology 15: 1-84. 1982; as Symplocos?).

Additional collections examined: COLOMBIA: Chocó: Carretera (en construcción) Yuto-Lloró, 1 km de Yuto, alt. 70 m, 9 Sep 1976, Forero & Jaramillo 2724 (COL, MO); road S from Yuto to Lloro, pluvial forest, 100 m, 17 Aug 1976, Gentry & Fallen 17827 (COL, MO); Quibdó-Tutunendo road ca. 3 km W of Tutunendó, pluvial forest, 80-90 m alt., 17 Jan 1979, Gentry & Renteria 24317 (COL, MO), 5 Jan 1981, Gentry et al. 30093 (COL, MO), 7 Jan 1981, Gentry et al. 30283 (COL, MO). Antioquia: Munic. Anorí, Corregimiento Providencia, Buenos Aires, entre Dos Bocas y Anorí, alt. 400-900 m, 24-31 May 1973, Soejarto et al. 4066 (COL, MO). Valle: Bajo Calima, 10 km N of Buenaventura, alt. 50 m, 3°56'N, 77°8'W, Mazuera 59 (MO).

It is perhaps not surprising that this nondescript member of a generally nondescript family has remained unrecognized and undescribed despite being very common in parts of Chocó Department. It has constituted the bulk of the Chocó familial "indets" at MO for a number of years. Over the years one of us (AG) variously tried to identify it as Icacinaceae, Ilex (Aquifoliaceae), Securinega (Euphorbiaceae), and most recently Symplocos (Symplocaceae); showing the specimens to a number of knowledgeable botanists provided no leads either, although the notoriously grab-bag family Euphorbiaceae was suggested. In hindsight, it seems strange that we failed to consider the other half of that well-known field ecologist's maxim: "When in doubt, try Euphorbiaceae or Flacourtiaceae". The pellucid punctate leaves are especially suggestive of this alliance. Perhaps

the most serious obstacle to identification was caused by misinterpretation of the flowers, the bracteoles of which resemble a calyx while the four fused sepals suggest a sympetalous corolla.

Discovery of the type, with male flowers, confirms the identification as Neoptychocarpus. The Soejarto collection, also with male flowers, was subsequently discovered filed under Casearia with a determination by Sleumer as "Casearia cf. resinifera Spruce ex Eichl. not cited in Fl. Neotropica"; obviously Dr. Sleumer was puzzled by this plant as well.

The Chocó plant would key to N. killipii (Monachino) Buchheim of upper Amazonia in the Flora Neotropica Flacourtiaceae treatment on account of its relatively few, curved-ascending secondary veins. Its flowers are much smaller and the inflorescences denser than those of N. killipii or N. apodanthus (Kuhl.) Buchheim, the only other previously known species. Other differences include green rather than white flower color, slender filaments, and a smaller smooth-surfaced fruit.

JACARATIA CHOCOENSIS A. Gentry & Forero, sp. nov.

Arbor dioecia 6 m alta, sine spinis. Folia 4-5-foliolata, foliolis ellipticis, acuminatis, cuneatis, supra glabris, infra dense puberulis, petiolo 19-40 cm longo. Inflorescentia paniculata, laxa, pauciflora. Flores masculini virides, calyce cupulato, corollae lobis angustatis, 1 cm longo, staminibus exsertis. Flores feminini non visi. Fructus non visus.

Dioecious tree 6 m tall, with abundant latex, not spiny. Leaves palmately compound, 4-5-foliolate, the leaflets broadly elliptic, long acuminate, cuneate at base, 15-27 cm long, 7-13 cm wide, glabrous above, below densely minutely puberulous and the surface canescent; petiolules well-developed, 2-3 cm long, the petiole 19-40 cm long. Inflorescence a lax rather few-branched and few-flowered panicle from the axil of a fallen leaf, with a few more or less lepidote trichomes, otherwise glabrous. Male flowers green when fresh, the calyx bluntly 5-toothed, cupular, 1-1.5 mm long, the corolla with a narrow basal tube ca. 1.7 cm long and 1-1.5 mm wide and five narrow 1 cm long lobes, stamens exerted by 3 mm, the anthers 2 mm long, with a connective minutely extended beyond the anther. Female flowers

and fruit not seen.

Type: COLOMBIA: Chocó: Municipio de San José del Palmar, hoya del Río Torito (afluente del Río Hábita), Finca "Los Guadales", 630-830 m, 5 Mar 1980, E. Forero, R. Jaramillo, J. Espina, & P. Palacios 6699 (holotype, COL; isotype, MO).

This plant is completely distinct from any of the previously known species of the genus. In Badillo's (Publ. Assoc. Prof., Maracay, Venez. 1971) monograph this species keys out with J. heptaphylla (Vell.) DC. of coastal Brazil on account of the exerted equal-length anthers and absence of spines. That species differs in such fundamental characters as much narrower glabrous sessile leaflets and contracted masculine inflorescences. Jacaratia chocoensis is reminiscent of sympatric J. spinosa (Aubl.) DC. in the similar striking whitish indument of the leaf undersurface but differs in lacking spines, the much larger differently shaped leaflets, and long well-differentiated petiolules.

One other Jacaratia from the Chocó region may be undescribed. This is a collection from near Santo Domingo de los Colorados, Pichincha Province, coastal Ecuador (Dodson et al. 8527 (MO)) which one of us (AG) originally determined as J. dolichaula (D. Smith) Woodson. The flowers are immature but the inflorescence seems much more open than typical for J. dolichaula, previously known only from Central America. The leaflets are somewhat broader and have longer petiolules than other material of that species but are of the same general form.