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A NEW SPECIES OF DAVILLA (DILLENIACEAE) AMONGST THE FLORA OF SÃO PAULO, BRAZIL

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RESUMEN

Se describe e ilustra Davilla cuatrecasasii, una especie nueva perteneciente a la sección Davilla, del estado de São Paulo, Brasil. Se discuten sus relaciones morfológicas con la especie afín, D. grandiflora St. Hil. y se incluye una clave de las especies del género presentes en Brasil.

Palabras clave: Brasil, Davilla, Dilleniaceae, Estado de São Paulo.

ABSTRACT

Davilla cuatrecasasii from amongst the flora of São Paulo, Brazil is described and illustrated. The new species is morphologically most closely related to D. grandiflora St. Hil. from Brazil. A key to the species of Davilla from Brazil is provided.

Key words: Brazil, Davilla, Dilleniaceae, São Paulo state.

INTRODUCTION

Herbarium studies at the New York Botanical Garden and United States National Herbarium, Washington, over the past several years by the author have confirmed the diversity species of Dilleniaceae in the Brazilian flora (Aymard 1998a, c, 2001). With about 30 species, Davilla Vandeli is one of most diverse genera of lianas, vines, erect or scandent shrubs of Dilleniaceae. They are distributed from southern Mexico, to Bolivia, and Paraguay, with the greatest species diversity in Brazil (Aymard 1998b, c). The genus can be distinguished from other neotropical Dilleniaceae by the following features: sepals unequal in size, the two inner ones larger, becoming crustaceous and covering the fruit completely, a paniculate inflorescence and the fruit a capsule.

Davilla cuatrecasasii Aymard. Fig. 1.

TYPE: BRAZIL. **São Paulo:** Piraçununga, "Cerrado" de Cachoeira-Emas, Octubre- 1962, J. Cuatrecasas 26615 (holotype, NY; Isotype: US).

Species proxima Davillae grandiflorae St. Hil., sed differt: foliis subcoriaceis, ellipticis, ovato-ellipticis, basi obtusis, margine non revolutis, 2,5-6 cm latis, facie papillatis et sparse pilosis, nervis lateralibus10-14, petiolis 0,5-1,5 cm

longis; inflorescentiis 3-7 cm longis, sparse strigosis, pedicellis 2-6 cm longis, sepalis externis 2-4 mm longis, internis ca. 8 mm longis, staminibus 50-60.

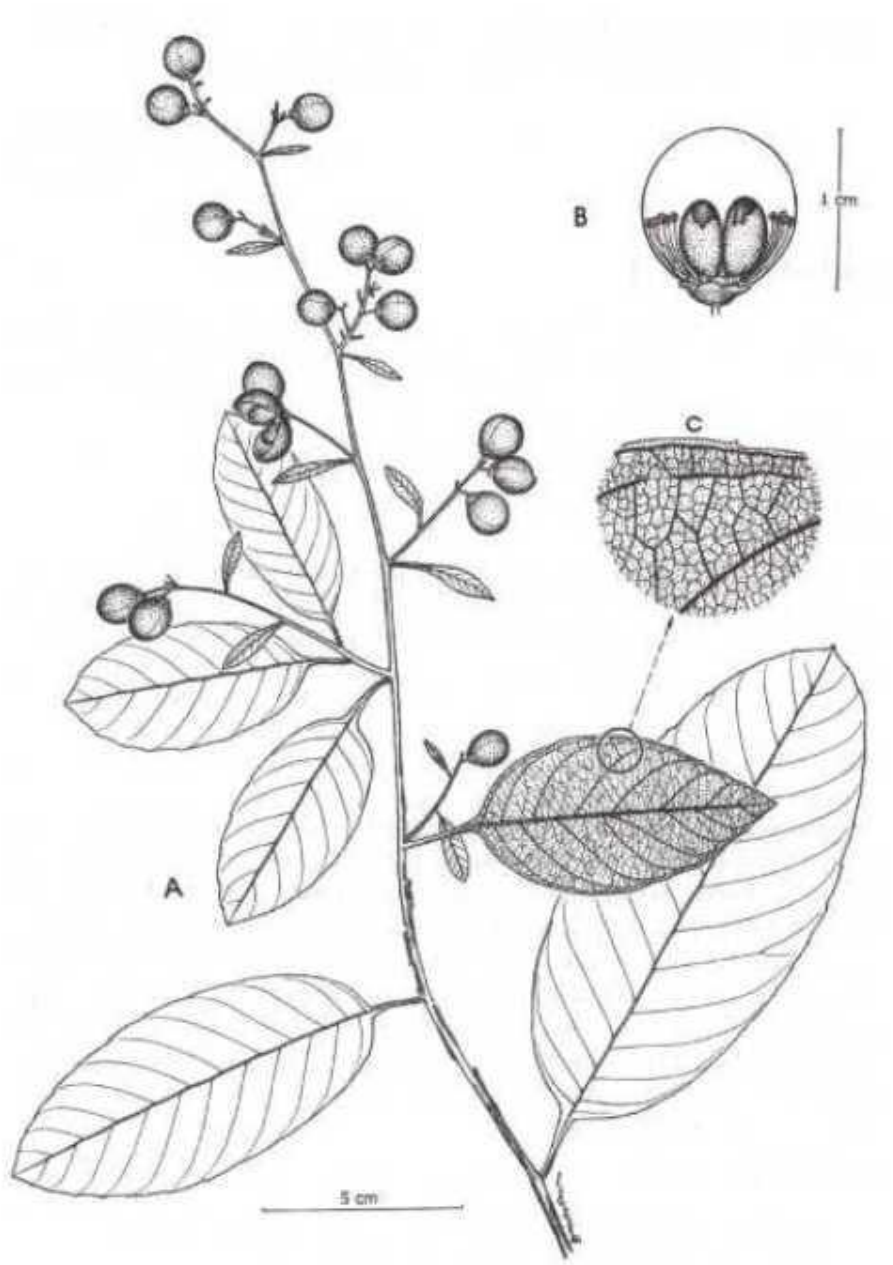

Fig. 1. *Davilla cuatrecasasii* Aymard. **a.** Habit and flowering branch. **b.** Flower showing some stamens and the two carpels. **c.** Lower surface. From *J. Cuatrecasas 26615* (NY, US).

Scandent shrub or shrubs; branches and branchelets gray, sparsely pilose, glabrescent when mature; bark flaking off. Leaf blades subcoriaceous, 6-13 cm long, 2.5-6 cm wide, elliptic, ovate-elliptic, base obtuse, apex rounded or acute, margins flattened, entire or sinuate mostly in the upper half, scabrous, papillate and sparsely pilose on the upper surface, more densely so along the midrib, sparsely villose on the lower surface, more densely so along the midrib and secondary nerves; lateral nerves 10-14, convergent and fusing close to the margin; petioles subwinged, canaliculate 0.5-

1.5 cm long, 2-3 mm wide, sparsely appressed pubescent. Inflorescence 3-7 cm long, sparsely strigose pubescent; pedicels 2-6 mm long, pubescence as of the inflorescence; bracteoles oblong, ca. 4 mm long, densely appressed pubescent; sepals 5, the external 3, suborbicular, 3-4 mm long, sparsely villose externally, glabrous internally and ciliate at the margin, internal sepals 2, sparsely pilose externally, glabrous internally and ciliate at the margin, ca. 0.8 mm long, papyraceous when mature; petals not seen. Stamens 50-60; filaments 4-6 mm long, glabrous; anthers ca. 0.8 mm long, glabrous; carpels 2, glabrous, style ca. 3 mm long, glabrous, stigma capitate. Seeds 1 per carpel, black, shiny, subreniform, 5-7 mm long; aril white, almost completely enveloping the seed.

Relationships

Because of its the innermost sepals being overlapped at the margins by the adyacent inner sepals, and the margin reflexed, not alate, Davilla cuatrecasasii belongs to the section Davilla (Kubitzki 1971). Within this group the latter is most related to Davilla grandiflora St. Hill. However, this new species differs from the latter by its subcoriaceous, elliptic or ovate-elliptic leaf blade, the obtuse base, the flattened margins, 2.5-6 cm wide, sparsely pilose on the upper surface, the lateral nerves 10-14, and the petioles 0.5-1.5 cm long. The inflorescences of the new species are 3-7 cm long, sparsely strigose, the pedicels 2-6 cm long; sepals not papillate externally, external, 2-4 mm long, internal ca. 0.8 mm long, and the stamens 50-60. In contrast, D. grandiflora has coriaceous, elliptic, oblong or lanceolate leaf blades, the base rotundate, the margins subrevolute 2.5-10 cm wide, glabrescent on the upper surface, the lateral nerves 8-12 (-17), the petioles 0.7-2 cm long, the inflorescences 5-15 cm long, glabrescent, pedicels 3-10 mm long, glabrous, sepals papillate externally, the external ones 3-7 mm long, the internal ones 1-1.5 cm long, and the stamens 80-100.

Distribution and ecology

Davilla cuatrecasasii is known only from the type locally, in Brazil, where it has been collected in macrothermic shrubby savannas “Cerrado”.

This species is named in honor of Dr. José Cuatrecasas†, who was a pioneering botanist and taxonomist in the neotropics. His research, especially in the flowering plant family Asteraceae, was devoted to the classification, biogeography, exploration, and ecology of plants of the páramo and subpáramo region of Andean South America. The type specimen was one of his collections.

KEY TO THE BRAZILIAN SPECIES OF DAVILLA

1. Margins of the innermost sepals reflexed, not alate; innermost sepals overlapped by the adjacent inner sepal (section Davilla)……..2

1. Margins of the innermost sepals pressed against each other forming circular wings; innermost sepals not overlapped by the inner sepals (section Homalochleaena).....12

2. Carpels 2.....3

2. Carpel 1.....7

3. Leaves densely tomentose-pubescent or sparsely pilose on the lower surface; sepals villose-sericeous externally or sparsely pilose.....4

3. Leaves glabrous on the lower surface or sparsely pilose-pubescence along the midrib and secondary nerves; sepals glabrescent externally 5

4. Leaves lanceolate-ovate, suborbicular or oblong, densely pubescent tomentose on the lower surface; inflorescences 10-15 cm long; sepals 5, villosesericeous externally .....D. elliptica St. Hil. (Bahia, DF, Goiás, Maranhâo, Mato Grosso, Minas Gerais, Sâo Paulo).

4. Leaves elliptic, ovate-elliptic, sparsely pilose on the lower surface; inflorescences

3-7 cm l ong; sepals 4, sparsely pilose externally .....

.....D. cuatrecasasii Aymard (Sâo Paulo).

5. Branches and branchelets glabrescent; leaves, inflorescences and pedicels glabrous or glabrescent, trichomes not ferrugineous ….....D. grandiflora St. Hil. (Bahia, DF, Goiás, Mato Grosso, Minas Gerais, Pará, Rondônia).

5. Branches and branchelets sparsely strigose; leaves sparsely pilose along the midrib and secondary nerves on the lower surface, inflorescences and pedicels strigose, the trichomes ferrugineous and spreading …...…..….. 6

6. Branches and branchlets gray; leaves subcoriaceous, 5-8 cm long, not papillate on the upper surface, apex cuspidate, lateral nerves 8-10; petioles 0.4-1.5 cm long, 0.5-2 mm wide, sparsely strigose pubescent; internal sepal papillate externally …….....D. cuspidulata Mart. ex Eichler (Amazonas, Minas Gerais)

6. Branches and branchlets brown; leaves coriaceous, 7-15 cm long, papillate on the upper surface, apex acute or emarginate, lateral nerves 11-19; petioles

1-2,5 cm long, 3-6 mm wide, densely appressed pubescent; internal sepal not papillate externally…….....…...D. sp. A (Bahia)

7. Petioles, lower surfaces of leaves, inflorescences, and sepals glabrous or sparsely pilose .....….....D. nitida (Vahl) Kub. (Acre, Amazonas, Bahia, DF, Goiás, Maranhâo, Mato Grosso, Minas Gerais, Pará, Piauí, Rondônia).

7. Petioles, lower surfaces of leaves, inflorescences, and s epals always notably pubescent.....….8

8. Venation prominently lacunose-areolate on the lower surface ....…D. lacunosa Mart. (Amazonas, Bahia, Mato Grosso, Minas Gerais).

8. Venation not lacunose-areolate on the lower surface ….....…….9

9. Petioles, midribs, and lateral veins on lower surface of leaf blades pilose, the trichomes spreading-ferrugineous 10

9. Petioles, midribs, and lateral veins on lower surfaces of leaf blade appressed-pubescent, the trichomes white or brown, but never ferrugineous …..…...11

10. Leaves blades elliptic, oblong or o vate, sparsely-strigose on the lower surface, with trichomes ferrugineous-spreading along the midrib and secondary nerves; lateral nerves 6-12.....….....……..D. rugosa Poir. var. rugosa (Amapá, Amazonas, Bahia, Espirito Santo, Maranhâo, Mato Grosso, Minas Gerais, Pará, Paraná, Rio Janeiro, Santa Catarina, Sâo Paulo).

10. Leaves blades ovate lanceolate, white pubescent on the lower surface; lateral nerves 15-18…….....……..D. rugosa var. riedelii Eichler (Mato Grosso).

11. Leaves 2-10 cm wide, elliptic to suborbicular, sometimes lanceolate; leaf margins dentate; petioles 2-4 mm wide, appressed white pubescent; petals 4-6; carpels glabrous, to sparsely pubescent ……...……D. kunthii St. Hil.

(Acre, Amapá, Amazonas, Bahia, Mato Grosso, Maranhâo, Pará, Roraima).

11. Leaves 7-15 cm wide, broadly ovate to orbicular, margins grosse-serrate, petioles 5-6 Mm wide, densely appressed incanous-pubescent; petals 3-4; carpels densely hispid-incanous……...D. sp. B (Amazonas, Pará).

12(2). Leaves prominently reticulate-bullate on the lower surface…...……..
.....…...D. glaziovii Eichler (Rio de Janeiro).

12. Leaves not reticulate-bullate on the lower surface ……....……13

13. Petiole vaginate, the wings 5-12 mm wide….....……..…….14

13. Petiole not winged or discretely winged; the wings 0-4 mm wide .....……16

14. Leaves, petiole wings and bracteoles papyraceous, 5-14 mm wide; leaves ovate, ovate-elliptic; lateral nerves 26-34; inflorescences 3-4 cm long; pedicels 3-4 mm long; stamens 40-60……..... D. papyraceaAymard (Minas Gerais).

14. Leaves, petiole wings and bracteoles coriaceous or rigidly coriaceous, 2-7 mm wide; leaves elliptic or obovate- lanceolate; lateral nerves 14-22; inflorescences
6-18 cm long; pedicels 6-15 mm long; stamens 100-200 …...…….....15

15. Leaves elliptic, smooth on the upper surface sparsely yellow pubescent, glabrescent when mature, venation not lacunose-areolate on the lower surface;
petioles 4- 6 cm long; petals 5 ……....…D. alata (Vent.) Briq. (Amapá).

15. Leaves obovate-lanceolate, scabrous on the upper surface; densely ferrugineous pubescent and venation prominently lacunose-areolate on the lower surface; petioles
1-2 cm long; petals 3 ……..….....D. steyermarkii Kub. (Brazil-Venezuela border, Bolívar State).

16. Inner sepals glabrous to glabrescent, ciliate at the margins
….....…...17

16. Inner sepals sparsely pilose or densely appressed pubescent externally, margins

not ciliate …..….....…….....….22

17. Tertiary venation strongly reticulate on both surfaces, more evident on the

upper surface ..……..….....…18

17. Tertiary venation evident or inconspicuous on both surfaces
….....……19

18. Leaves 2-16 cm long, 2-7 cm wide, petioles 1-2 cm long, 1-2 mm wide; internal

sepals 1.2-1.4 cm when mature, stamens 90-100, filaments ca. 3.5 mm long……

.....…..….D. flexuosa St. Hil.

(Bahia, Espirito Santo, Minas Gerais, Pernambuco, Sergipe).

18. Leaves 11-27 cm long, 6-12 cm wide, petioles 0.5-1 cm long, 3-5 mm wide;

internal sepals 1.5-1.8 cm when mature, stamens ca. 130, filaments ca. 8 mm long

…….……...…….D. macrocarpa Eichler (Bahia, Espirito Santo).

19. Leaves 3-6 cm wide; lateral nerves joining ca. mm to the margins; carpels

apically pilose ….. D. glabrata Mart. ex Eichler (Rio de Janeiro, Espirito Santo).

19. Leaves 6-12 cm wide; lateral nerves joining 2-5 mm to the margin; carpels

glabrous.....20

20. Petiole deeply canaliculate, pedicels 2-8 mm long...D. latifolia Casaretto

(Minas Gerais, Rio de Janeiro, Sâo Paulo).

20. Petiole not canaliculate, pedicels 10-30 mm long ……..21

21. Branches and branchlets striate, scabrous; leaf blades lanceolate to lanceolate-elliptic,

The lateral nerves joining 1-2 mm to the margin; petioles 3-5 cm long; stamens

150-200; carpels lenticellate …..….….....D. moriiAymard (Bahia).

21. Branches and branchlets smooth; leaf blades elliptic to oblong, the lateral nerves joining 3-5 mm to the margin; petioles 1-3 cm long; stamens 120-130; carpels smooth …….....…D. macrocarpa Eichler (Bahia, Espirito Santo).

22. Leaves narrow-lanceolate to lanceolate, 1.5-3.5 cm wide …..……..... .....D. angustifolia St. Hil. (Bahia, Minas Gerais).

22. Leaves oblong, ovate, elliptic, obovate, elliptic-lanceolate or ovatelanceolate, 4.5-18 cm wide …….....……23

23. Inner sepals 2-2.5 cm wide….....D. grandifolia Moric. ex Eichler (Bahia, Espirito Santo).

23. Inner sepals 1-1.5 cm wide …….....…….24

24. Leaves coriaceous, branchlets and leaves on the lower surface densely ferrugineous-tomentose ….....…D. sellowiana Schltdl. (Rio de Janeiro).

24. Leaves subcoriaceous or chartaceous, branchlets and leaves on the lower surface glabrescent, pilose or densely strigose ……25

25. Leaves scabrous on the upper surface, densely strigose along midrib and the secondary nerves on the lower surface; inflorescences 20-40-flowered …… .....……D. strigosa Kub. (Maranhâo, Pará).

25. Leaves smooth on the upper surface, glabrescent to sparsely appressed pubescent along midrib and the secondary nerves on the lower surface; inflorescences 1-15-flowered…...…….…….26

26. Inflorescences 1-4-flowered, pedicels 1-3 cm long …D. pedicellaris Benth. (Amazonas, Pará).

26. Inflorescences 6-10-flowered, pedicels 0.3-1 cm long ……....……..27

27. Leaves elliptic or elliptic-lanceolate, base obtuse-cuneate; lateral nerves 17-21;

inner sepals not sericeous-pubescent ..... D. kubitzkiiAymard (Pará).

27. Leaves oblong, the base rotundate or subcordate; lateral nerves 10-15, inner sepals sericeous-pubescent …….D. cearensis J.Huber (Ceará, Maranhâo).

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