

SAPINDACEAE OF SOUTHERN SOUTH AMERICA

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ABSTRACT

Sapindáceas de Sudamérica Austral. — El autor estudia las Sapindáceas austro-sudamericanas, dando claves para géneros, distribución geográfica. Crea 16 taxa nuevos y establece 6 nuevas combinaciones y estados.

The writer became interested in the Sapindaceae of Argentina and has been studying this group with the idea of preparing a monographic study.

However since it, at best, will be several years before such a study can be realized and since several novelties appear, it seems that a preliminary study incorporating these, should be desirable.

The excellent monograph, *Sapindaceae* by L. Radlkofer in *Das Pflanzenreich* IV 165: 1. 1539, published between 1932 and 1934, is the basis used for the present work. A great number of specimens not cited in that work are now available for Southern South America. The area covered by this work is Argentina and such adjacent areas as have close relationship with the flora of Argentina.

The present study has been shortened as far as possible for publication, with brief keys, citation of specimens (by date, collector and collector's number), descriptions of new entities, and with simple sketches of the leaves and, usually, fruits (when adequate material was available). The synonymy and descriptions of the species may be obtained by referring to Radlkofer's monograph. Only specimens from the herbarium of the Fundación Miguel Lillo have been cited. The sketches are by the author; stippling is used to indicate pubescence, and in the case of leaves this is indicated only on the petiole and the lower portion of the lower right hand leaflet, the leaves are in each case drawn with their lower surface showing.

KEY TO THE SOUTHERN SOUTH AMERICAN

Genera of Sapindaceae

1. Ovules single in the cavity, straight, erect or hanging. EUSAPINDACEAE
2. Leaf apex developed (in compound leaves, terminal leaflet present; inner cotyledon (or both) twice transversely folded, seldom only bent; flowers mostly obliquely symmetrical with triangular disk.
3. Climbing shrubs with tendrils and accessory leaves, seldom herbaceous and these in part without tendrils, also very seldom without secondary leaves. PAULLINEAE
 4. Petals with cup-shaped scale; flowers symmetrical; fruit a winged or wingless capsule or dry-fruit.
 5. Pericarp drupaceous or leathery.
 6. Fruit dry, 3 parted, splitting into 3 samara-like carpels; seed without aril. 1. *Serjania*
 6. Fruit a brittle-walled, 3-valved capsule, sometimes with a wing on each valve; seed usually arillate. 2. *Paullinia*
 5. Pericarp papery; seed without aril.
 6. Fruit three winged, wall brittle, dehiscent; leaves ternate. 3. *Urvillea*
 6. Fruit inflated, variously dehiscent; leaves usually biternate. 4. *Cardiospermum*
4. Petals with a divided scale or with 2 scales; flowers nearly regular; fruit a winged dry-fruit. 5. *Thinouia*
3. Tendrils and secondary leaflets shrubs and tree; flowers symmetrical; fruit a winged or wingless dry or fleshy fruit. THOUINIEAE
 4. Petals with arched crested scale.
 5. Leaves simple.
 6. Leaves not pinnately divided; fruit little winged or wingless, leathery-woody. 6. *Valenzuela*
 6. Leaves pinnately divided to entire; fruit 3-winged. 7. *Bridgesia*
 5. Leaves pinnately compound.
 6. Leaf rachis alate: fruit with 3 obliquely erect wings. 8. *Athyana*
 6. Leaf axis without wings; fruit with 2 spreading wings. 9. *Diatenopteryx*
 4. Petals with crestless or two parted scale; leaves trifoliolate (rarely unifoliolate or quinquefoliate); fruit a one or three parted stone-fruit. 10. *Allophyllus*
2. Leaf apex (apart from simple leaves) imperfectly developed (normally lacking a true terminal leaflet); cotyledons usually only bent; tree or shrub not developing tendrils nor secondary leaves; flowers mostly regular with annular disk.
3. Fruit not opening or separating as carpels without valves; seed without aril.

4. Fruit splitting into carpels. SAPINDEAE
 5. Carpels wingless, drupaceous, laterally attached; seed coat very hard. 11. *Sapindus*
 5. Carpels with basally attached wings; seed coat crustaceous. 12. *Toulicia*
4. Fruit not splitting. MELICOCCEAE
 5. Anthers extrorse; fruit granular, imperfectly 2-celled; petals with 2 scales or scaleless. 13. *Melicocca*
 5. Anthers introrse; fruit hard, at first 3-celled; petals with one long shaggy scale. 14. *Talisia*
3. Fruit splitting with valves to each cell; arillate. CUPANIEAE
 4. Calyx small, approaching cup-shaped, toothed-lobed, early open. 15. *Matayba*
 4. Sepals separate, 2-seried perianth.
 5. Petals with 2 scales; sepals more or less leathery; seed arillate. 16. *Cupania*
 5. Petals scaleless, or partly or entirely suppressed.
 6. Leaves twice pinnate; seed not winged. 17. *Dilodendron*
 6. Leaves once pinnate; seed winged. 18. *Diplokeleba*
1. Ovules mostly 2 in the cells, apotropous and erect or partially (seldom both) epitropous and hanging, or ovules many and then horizontally turned outward; trees and shrubs tendrils and secondary leaves. DYSSAPINDACEAE
 2. Leaf apex well developed; cotyledons more or less spirally bent; flowers in part symmetrical.
 3. Capsule leathery covered. COSSIGNIEAE 19. *Llagunoa*
 3. Capsule wrinkled or knobshaped, papery covered. DODONAEAE 20. *Dodonaea*
 2. Leaf apex mostly imperfectly developed; cotyledons crumpled.
 3. Fruit not splitting; flowers regular. DORATOXYLEAE 21. *Averrhoidium*
 3. Fruit splitting open; flowers partly symmetrical. HARPULLIEAE 22. *Magonia*

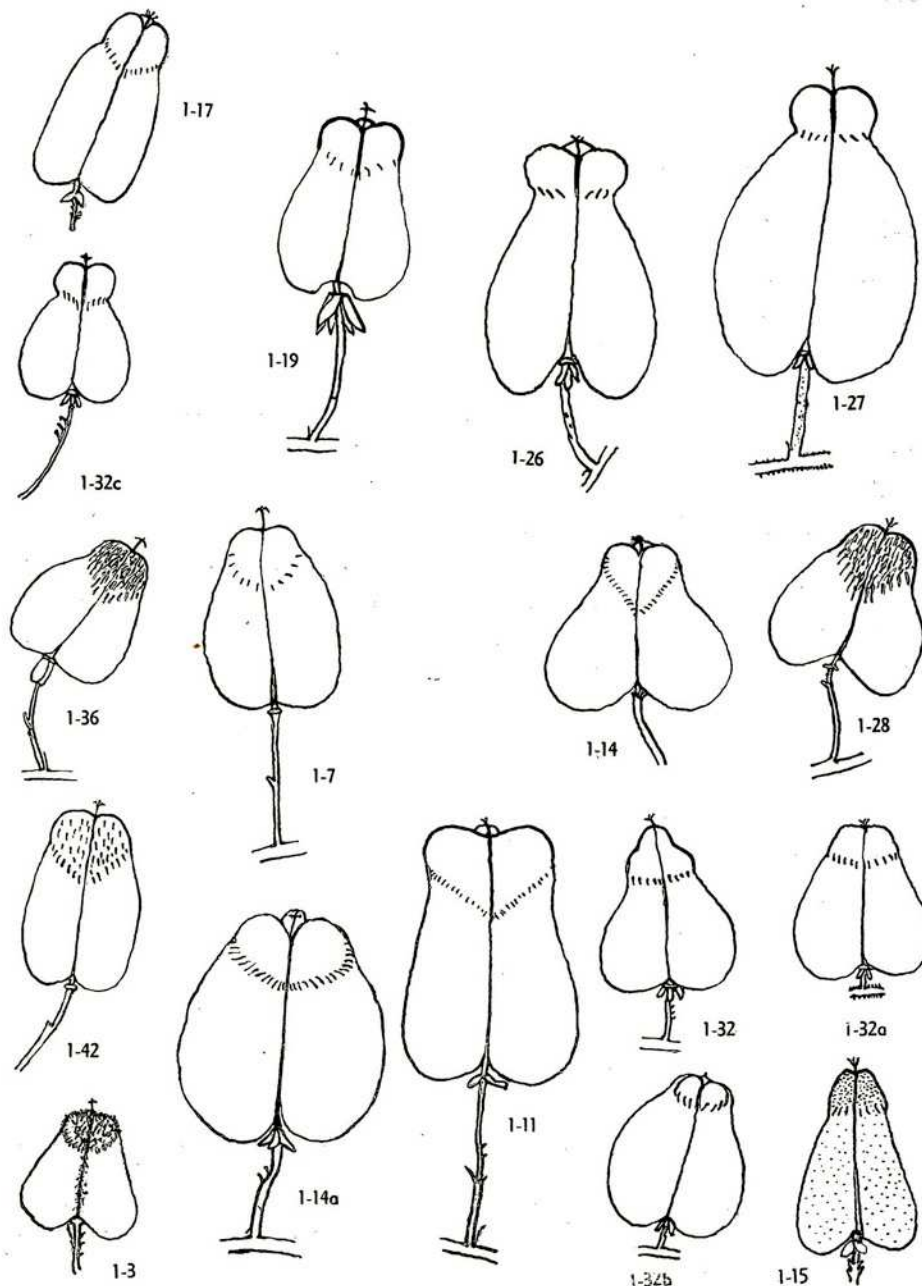
1.- *Serjania* Schumacher (1794)

1. Leaflets more than 9 at least in part.
2. Leaves triterminate at least in part.
3. Stems glabrous; leaves in part bipinnate; leaflets subcoriaceous serrate-dentate; Bolivia 1-1 *S. leucosepala*
3. Stems pubescent at least in costae.
4. Inner sepals 5 mm. long, petals 5.5 mm. long; leaflets dentate.
5. Fruit 2 cm. long; Bolivia, Paraguay, Brazil and Corrientes. 1-2 *S. perulacea*
5. Fruit 1.6 mm. long; Chaco. 1-3 *S. Meyeri*
4. Inner sepals less than 4 mm. long; petals less than 5 mm. long.
5. Sepals and petals 2.5 mm. long; leaflets membranous, mollate, remotely dentate; Bolivia. 1-4 *S. didymadenia*

5. Sepals 3.5 mm. long; petals 4.5 mm. long; leaflets thickly membranous, grossly incise-dentate; stems ferrugineously hirsute; Bolivia to Colombia. 1-5 *S. diffusa*
2. Leaves bipinnate; leaflets membranous.
3. Rachis not alate; sepals 7 mm. long; petals 9.5 mm. long; branches hirsute; leaflets dentate; Matto Grosso. 1-6 *S. setigera*
3. Rachis alate or marginate; branches glabrate.
4. Rachis narrowly marginate; sepals 3 mm. long; petals 4 mm. long; leaflets incised-dentate; Jujuy and Tucumán. 1-7 *S. Araquei*
4. Rachis broadly alate; sepals 5.5 mm. long; petals 7.5 mm. long; leaflets grossly obtuse-dentate; Paraguay, Brazil and Argentina.
1. Leaflets nine or less.
2. Leaflets 5, subrhomboidal and ovate, chartaceous-subcoriaceous.
3. Leaflets grossly lobate and dentate; rachis broadly marginate; sepals 3 mm. long; petals 4 mm. long.
4. Leaflets cano-puberulent; inflorescence contracted; Bolivia and Salta and Tucumán. 1-8 *S. incana*
4. Leaflets subglabrous; inflorescence elongated; Paraguay and Formosa. 1-9 *S. glabriuscula*
3. Leaflets entire or remotely serrate-dentate, pilose below; rachis not marginate; sepals 4 mm. long; petals 5 mm. long; Salta. 1-10 *S. platyptera*
2. Leaves ternate, or biternate at least in part.
3. Leaflets biternate, or at least in part.
4. Stems setose.
5. Leaflets lanceolate; fruits 3 cm. long; Matto Grosso. 1-11 *S. glutinosa*
5. Leaflets ovate; fruit 2 cm. long; Misiones. 1-12 *S. Descolei*
4. Stems not setose.
5. Leaflets lanceolate or shortly lanceolate; rachis not winged; branches hirtellous-tomentose; leaflets grossly subincised crenate-dentate; Brazil. 1-13 *S. Laruotteana*
5. Leaflets rhomboidal, ovate, oblong or narrowly ovate.
6. Rachis alate or subalate.
7. Petals 4 mm long; leaflets thinly coriaceous, ovate to oblong-lanceolate, entire to 1-2-dentate.
8. Leaflets glabrous; Brazil and Paraguay. 1-14 *S. marginata*
8. Leaflets pilose on the veins below; Bolivia, Salta and Tucumán. 1-14a *S. marginata* var. *pubescens*
7. Petals 5 to 5.5 mm. long; leaflets coriaceous, elliptic-oblong. 1-5 dentate; Brazil. 1-15 *S. obtusidentata*
6. Rachis at most only marginate.
7. Leaflets chartaceous, oval, remotely serrate-dentate; terminal leaflets acute, subpetiolate; petals 8 mm. long; Bolivia. 1-16 *S. grandiceps*
7. Leaflets membranous, subcoriaceous or coriaceous but not chartaceous.
8. Terminal leaflets obtuse or only subacute (but often mucronate).
9. Terminal leaflets subacute, subsessile, membranous-coriaceous.
10. Leaflets ovate-lanceolate, singly or doubly-serrate; stems rufopubescent; Paraguay, Brazil and Misiones. 1-17 *S. fuscifolia*
10. Leaflets ovate-rhomboidal, grossly serrate-dentate; stems shortly mollate; canescent; Paraguay and Brazil. 1-18 *S. tristis*

9. Terminal leaflets obtuse, sessile; leaflets coriaceous, lance-elliptic, entire to 1-3-dentate; stems glabrate; Perú, Bolivia and Brazil. 1-19 *S. lethalis*
8. Terminal leaflets acuminate to acute (but see also *S. fuscifolia*).
9. Petals 9.6 mm. long.
10. Stems velutinous-tomentose; terminal leaflets ovate-oblong, grossly incised-dentate, acute and petiolulate; Brazil. 1-20 *S. velutina*
10. Stems glabrous; terminal leaflets oblong, obtusely 2-3-dentate, abruptly acuminate and subpetiolate; Paraguay and Brazil. 1-21 *S. grandiflora*
9. Petals less than 7.5 mm. long.
10. Petals 4.5 to 7 mm. long; terminal leaflet membranous, subentire to serrate-dentate, acuminate, petiolulate.
11. Leaflets puberulent; Jujuy 1-21a *S. caracasana* var. *puberula*
11. Leaflets glabrous.
12. Fruit 2 cm. long; not winged above the seed-bearing portion. 1-22 *S. caracasana*
12. Fruit 4 cm. long; winged above the seed-bearing portion. 1-23 *S. laxiflora*
10. Petals 4.5 mm. long; or less.
11. Petals 2.5 mm. long; branches glabrous; terminal leaflets narrowly ovate, subincised-serrate, acute and subpetiolulate; Buenos Aires. 1-24 *S. decemstriata*
11. Petals 3 mm. long or longer.
12. Stems velutinous; leaflets membranous, remotely serrate, acute, subpetiolulate; petals 3.5 to 4 mm. long; Tucumán and Catamarca. 1-25 *S. foveata*
12. Stems glabrous or pubescent but not velutinous pubescent.
13. Fruit 3 cm. long; terminal leaflets subrhomboidal, subacuminate, petiolulate, grossly dentate.
14. Petals 3.5 mm. long; fruit glabrate; stems and leaflets glabrous; Brazil, Perú, Bolivia and Paraguay and Misiones. 1-26 *S. glabrata*
14. Petals about 5 mm. long; fruit pilose; leaflets mollate-pubescent; Brazil, Bolivia, Perú Ecuador and Tucumán. 1-27 *S. fulla*
13. Fruit 1.4 to 2.5 cm. long.
14. Fruit 1.4 to 1.8 cm. long.
16. Petals 4.5 mm. long; stems hirtellous; terminal leaflet acutely acuminate, remotely serrate-dentate; Paraguay, Bolivia and Salta. 1-28 *S. acoma*
16. Petals 3.5 mm. long; stems not hirtellous but glabrous or sub-puberulent; terminal leaflet acute, serrate-dentate; Brazil, Bolivia and Misiones. 1-29 *S. reticulata*
14. Fruit 1.8 to 2.5 cm. long.
15. Fruit 2.3 to 3 cm. long; petals 3.5 to 4.5 mm. long.
16. Stems glabrous.

17. Leaflets entire, subrevolute, coriaceous; Trinidad to Brazil. 1-30 *S. ichthyoctona*
17. Leaflets remotely serrate-dentate, rarely entire, not subrevolute, thickly membranous; Brazil, Bolivia and Misiones. 1-29 *S. reticulata*
16. Stems rufo-tomentose at least at first; leaflets serrate-dentate, membranous; Bolivia, Paraguay and Brazil. 1-31 *S. confertiflora*
15. Fruit 1.8 to 2.2 cm. long; stems glabrous.
16. Petals 4 mm. long; fruit 2 to 2.2 cm. long; leaflets narrowly ovate, remotely serrate-dentate, acute; Brazil, Uruguay, Paraguay, Bolivia and Entre Ríos.
17. Inflorescences long, slender, open, the peduncles of the fruit over 1 cm. long. 1-32c *S. meridionalis* var. *Borsiniae*
17. Inflorescences long, slender, compact, the peduncles of the fruit short.
18. Leaflets pilose on the veins below. 1-32b *S. meridionalis* var. *O'Donellii*
18. Leaflets glabrous.
19. Leaflets large thin. 1-32 *S. meridionalis*
19. Leaflets small, thick. 1-32a *S. meridionalis* var. *Cuezzoi*
16. Petals 3 mm. long; fruit 1.8 to 2 cm. long; leaflets ovate-lanceolate, unequally subincised serrate-dentate, shortly acuminate; Brazil. 1-33 *S. cissooides*
3. Leaves ternate, rarely one simple or 5-foliolate.
4. Petiole narrowly alate; petals 2.5 mm. long; leaves glabrous; Paraguay. 1-34 *S. minutiflora*
4. Petiole not winged; petals 5 mm. or more long.
5. Leaves ferruginously pilose.
6. Petals 5-6 mm. long; leaves profandy incised-dentate; Paraguay and Brazil. 1-35 *S. Regnellii*
6. Petals 7 mm. long; leaves subsinuate dentate, Bolivia and Brazil. 1-36 *S. Mansiana*
5. Leaves glabrous or pubescent but not ferruginously pilose.
6. Leaflets obtuse, grossly 2-3 dentate and often obtusely lobate; sepals 2.5 mm. long; petals 3 mm. long; Bolivia 1-37 *S. humifusa*
6. Leaflets acute to acuminate, not lobate.
7. Fruit 6 cm. long; petals 8 mm. long; leaves membranous, subduplicate serrate-dentate; Brazil. 1-38 *S. platycarpa*
7. Fruit 3.5 cm. or less in length.
8. Fruit 3 to 3.5 cm. long; leaflets ovate, grossly dentate; Brazil. 1-39 *S. chaetocarpa*
8. Fruit less than 3 cm. long.
9. Petals 6 mm. long; fruit 1.8 cm. long; leaflets ovate, fuscous, remotely serrate-dentate; Bolivia. 1-40 *S. rubicunda*
9. Petals and fruit larger; leaves pilose on the veins.

Fruits of *Serjania* x 1

1-3: *S. Meyeri*, Meyer 3307; 1-7: *S. Araquei*, Meyer 15119; 1-11: *S. glutinosa*, Balsans 3248; 1-14: *S. marginata*, Casaretto 2728; 1-14a: *S. marginata pubescens*, Schreiter 81463; 1-15: *S. obtusidentata*, Regnell III 348; 1-17: *S. fuscifolia*, Seala 57844; 1-19: *S. lethalis*, Rojas 14292; 1-26: *S. glabrata*, Rambo 31369; 1-27: *S. fulta*, O'Donell 3214; 1-28: *S. reticulata*, Rojas 12004 1-32: *S. meridionalis*, Montes 756; 1-32a: *S. meridionalis Cuezzoi*, Rambo 46478; 1-32b: *S. meridionalis O'Donellii*, O'Donell 3007; 1-32c: *S. meridionalis Borsiniae*, Ortiz s. n.; 1-36: *S. Mansiana*, Steinbach 1474; 1-42: *S. hebecarpa*, Rodriguez 271.

10. Fruit 2 cm. long; petals 8 mm. long; branches rufous-lanate; Paraguay and Bolivia. 1-41 *S. eriocarpa*
 10. Fruit 2.8 cm. long; petals 7 mm. long; branches glabrous; Misiones and Corrientes. 1-42 *S. hebecarpa*

1-1. *Serjania leucosepala* Radlk. Mededeel. Herb. Leiden 19: 59. 1913.

BOLIVIA: Herzog 1658.

1-2. *Serjania perulacea* Radlk. Monogr. Serj. 227. 1875.

PARAGUAY: 1 Julio 1949, Bertoni 4428 and 21 Nov. 1949, 4465; July 1929, Jörgensen 4458; 20 Julio 1945, Rojas 12889, 5 Agosto 1945, 12910, and 9 Septiembre 1946, Rojas 13554.

ARGENTINA: *Salta*: 22 Oct. 1924, Schreiter 3446; 10 Agosto 1944, Schulz & Varela 5406. *Misiones*: 18 Agosto 1945, Bertoni 1808; 1 Agosto 1944, Montes 164, 14 Julio 1946, 2442, and 2 Sept. 1946, Montes 2565; Julio 1927, Scala 57648; 18 Oct. 1949, Schwindt 2020, 28 Julio 1950, 4883, and 8 Agosto 1950, Schwindt 4973. *Chaco*: 19 Julio 1944, Rojas 11661 and 27 Agosto 1944, 12094.

1-3. *Serjania Meyeri* Barkley *

ARGENTINA: *Chaco*: Sept. 1933, Meyer 731, Agosto 1937, 2431, and Oct. 1938, Meyer 3307; 5 Agosto 1944, Rojas 11844.

1-4. *Serjania didymadenia* Radlk. Bull. Herb. Boiss. 1: 467. 1893.

1-5. *Serjania diffusa* Radlk. Monogr. Serj. 302. 1875.

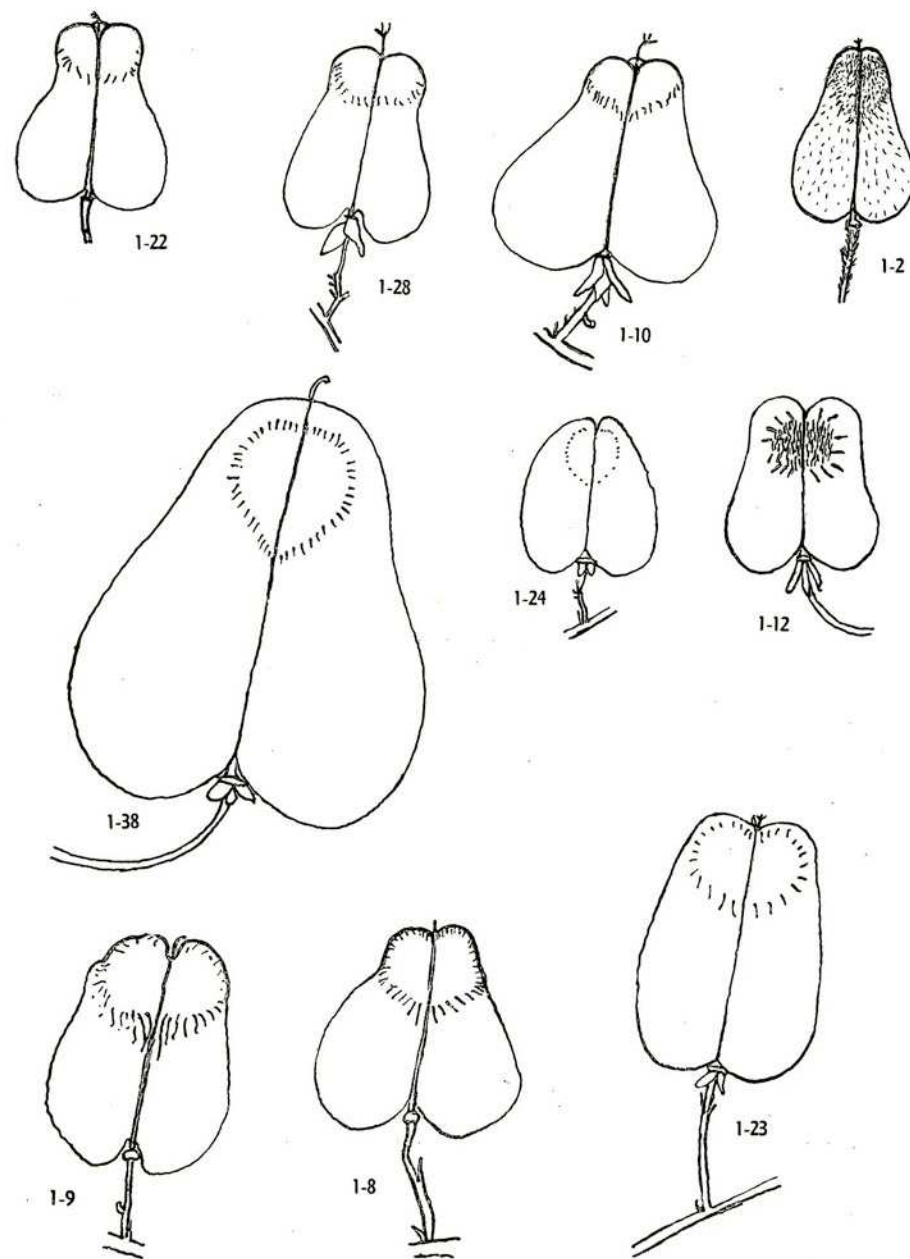
* 1-3 *Serjania Meyeri* Barkley, n. sp.

Scandens fruticosa; ramis tomentosus vel tarde glabratis; foliis triternatis; foliolis anguste ovatis; inciso-serrato-dentatis, glabris vel subpilosus subtus in axillis foliolorum; paniculis axillaribus, quam folia brevioribus vel foliis terminalibus magnitudine reductis; sepalis 3 mm. longis; petalis 4 mm. longis; fructibus 1.6-1.7 mm. longis.

Woody vine; branches scurfy-tomentose at first; leaves triternate; leaflets narrowly ovate; incised serrate-dentate, glabrous or slightly pilose underneath in the axils of the veins; panicles clustered in the axils of the uppermost leaves, shorter than the leaves, or the uppermost leaves reduced in size, the axis of the inflorescence scurfy-puberulent; sepals 3 mm. long; petals 4 mm. long; fruit 1.6-1.7 mm long, long pilose at the upper, seed-bearing end.

TYPE: ARGENTINA: *Chaco*: Fontana, Oct., 1938, T. Meyer 3307 (LIL).

This species is very similar to *S. perulacea*, however the leaves of this species are much smaller, the leaflets are narrowed, and the fruit is much smaller.



Fruits of *Serjania*. x 1

1-2: *S. perulacea*, Rojas 12094; 1-8: *S. incana*, Stuckert 21687; 1-9: *S. glabriuscula*, Morel 3032; 1-10: *S. platyptera*, Schreiter 11561; 1-12: *S. Descolei*, Descole 3244; 1-22: *S. caracasana*, Rambo 47159; 1-23: *S. laxiflora*, Schulz & Varela 5380; 1-24: *S. reticulata*, Rojas 12004; 1-28: *S. acoma*, Peredo 107; 1-38: *S. platycarpa* Regnell III-343.

1-6. *Serjania setigera* Radlk. Rep. Spec. Nov. 17: 356. 1921.

1-7. *Serjania Araquei* Barkley *

ARGENTINA: *Jujuy*: 10 Enero 1947, Garolera & Romero s.n.; 29 Enero 1947, O'Donell 4890. *Tucumán*: 5 Marzo 1917, Lillo 18838; 16 Abril 1949, Meyer 15119.

1-8. *Serjania incana* Radlk. in Chodat & Hassl. Bull. Herb. Boiss. ser 2. 3: 805. 1903.

BOLIVIA: *Santa Cruz*: 15 Marzo 1945, Peredo 431.

ARGENTINA: *Salta*: 7 Enero 1905, Lillo 3872, 7 Enero 1888, Lillo 550; 18 Julio 1946, González s.n.; 4 Abril 1945, O'Donell 2713; 25 Mayo 1946, Meyer 9904; 16 Feb. 1940, Schreiter 11155 (only sparsely pilose); 15 Abril 1910, Stuckert 21684.

1-9. *Serjania glabriuscula* (Radlk.) Barkl. n. stat. (*Serjania incana* f. *glabriuscula* Radlk. in Hassl. Rep. Spec. Nov. 8: 72. 1910.)

PARAGUAY: 10 Dic. 1946, Rojas 13843.

ARGENTINA: *Formosa*: June 1918, Jörgensen 3007; 20 Dic. 1945, Morel 710 and 725, 1 Agosto 1947, 3547, 30 Enero 1946, 751, 15 Febr. 1946, 958, 16 Abril 1947, 2577, 6 Junio 1947, 3032 and 9 Mayo 1949, Morel 7693.

1-10. *Serjania platyptera* (Radlk.) Barkl. n. stat. (*Serjania reticulata* f. *platyptera* Radlk. Pflanzenr. IV. 165: 103. 1921).

ARGENTINA: *Jujuy*: 5 Sept. 1927, Venturi 5185. *Salta*: 9 de Julio 1946, Borsini 531, 14 Julio 1946, 686, and 16 Julio 1946, Borsini 737; 1

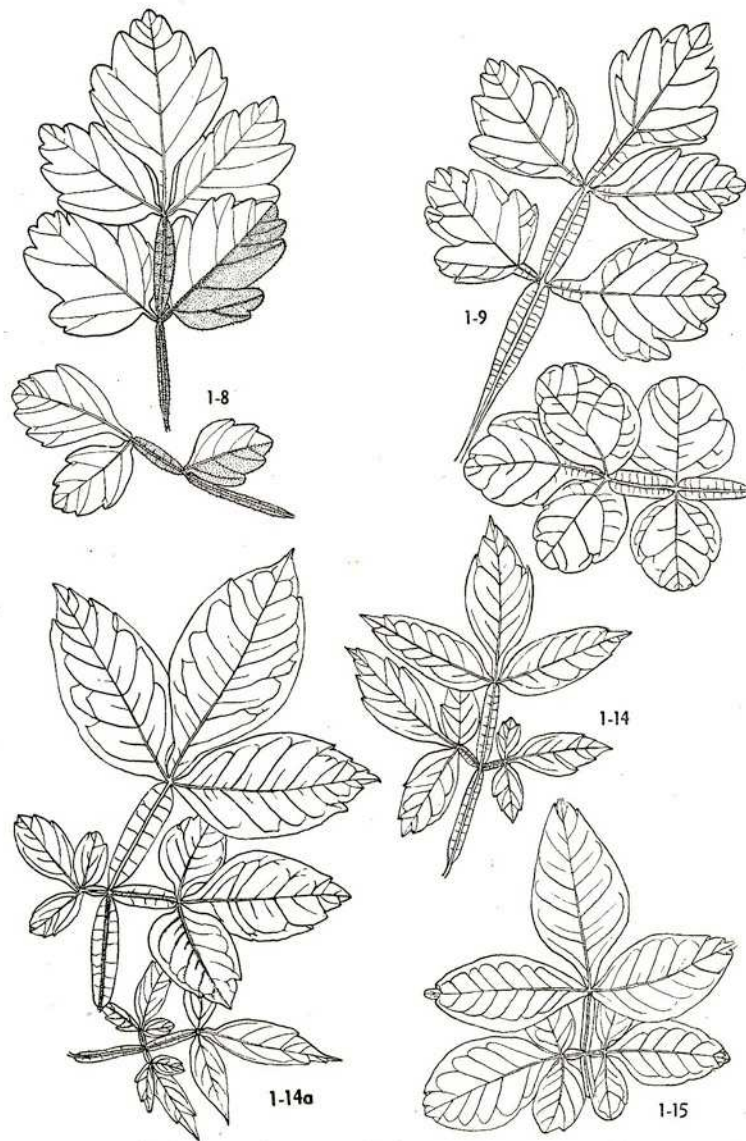
* 1-7 *Serjania Araquei* Barkley n. sp.

S. ERECTAE similis; foliis bipinnatis; foliolis lanceolatis vel foliolo terminali rhomboideo-lanceolato, acuminatis, serrato-dentatis vel inciso-dentatis, glabris, ad basin cuneatis; segmento supino rachis anguste alato; paniculis haud densis; sepalis internis puberulis. 3 mm. longis; petalis glabris, 4 mm. longis; fructibus 2.2 cm. longis, 1.7 cm. latis.

Similar to *S. erecta*, the leaves bipinnate, the leaflets lanceolate or the terminal leaflet rhomboid-lanceolate, acuminate, serrate-dentate to incised-dentate, glabrous, cuneate at base and abruptly contracted into the winged petiolule, uppermost rachis segment narrowly alate; panicle open; inner sepals finely puberulent, 3 mm. long; petals glabrous, 4 mm. long; fruit 2.2 cm. long, 1.7 cm. broad, seed-bearing portion thickly convex, 5 mm. wide, 5 mm. thick, 7 mm. long, cuneate at base.

TYPE: ARGENTINA: *Jujuy*: Lagunas Yala, 2100 m. alt., 10 Enero 1947, Garolera & Romero s.n. (LIL.).

A very distinctive but apparently uncommon species of northern Argentina.



Leaves of *Serjania* x 2/5

1-8: *S. incana*, Lillo 3872 (above), Stuckert 21684; 1-9: *S. glabriuscula*, Morel 710 (above), Morel 958; 1-14: *S. marginata*, Peredo 372; 1-14a: *S. marginata pubescens*, Schreiter 8463 (above), Meyer 8458; 1-15: *S. obtusidentata* Regnell III-348.

Agosto 1918, Castellanos s. n.; 24 Junio 1944, Ruiz de H., s. n.; 24 Junio 1944, Schulz & Varela 5063 and 11 Julio 1944, 5187; Oct. 1940, Schreiter 11461 and 27 Oct. 1924, 3424; 26 Julio 1944, Willink 222.

1-11. *Serjania glutinosa* Radlk. Monogr. Serj. 126. 1875.

BRAZIL: Marzo 1845, Regnell III 342.

PARAGUAY: 10 Mayo 1945, Bertoni 1942; April 1907-1908, Rojas 10318.

1-12. *Serjania Descolei* Barkley*

ARGENTINA: *Misiones*: 20 Feb. 1945, Descole 3244 and Feb. 1945, 3336; 21 Dic. 1948 Schwarz 7113.

1-13. *Serjania Laruotteana* Camb. in St. Hil. Fl. Bras. 1: 368. 1825.

1-14. *Serjania marginata* Casar. Nov. Stirp. Bras. Dec. 5: 44. 1843.

BRAZIL: 1857, Casaretto 2728 (glabrous). BOLIVIA: 1 Marzo 1945, Peredo 325, 7 Marzo 1945, 372 (glabrous), and 28 Marzo 1945, Peredo 499. ARGENTINA: *Salta*: 21 Feb. 1945, Abbiatti & Claps 633; 23 Enero 1949, Filipovich 234; 7 Enero 1888, Lillo 550 and 7 Enero 1905, 3873; 9 Enero 1941, Meyer 3625, 17 Feb. 1941, 4474, 26 Feb. 1943, 4907, and 3 Abril 1945, Meyer 8458; 24 Abril 1944, Rojas 11458; 15 Feb. 1940, Schreiter 11154; 20 Feb. 1947, de la Sota 1253. *Tucumán*: 26 Feb. 1888, Lillo 613; 1 Enero 1899, Castellón 2184, 14 Abril 1900; 2484, Sept. 1905, 388, and 1912, Castellón s. n.; 24 Feb. 1914, Monetti 2006; 21 Julio 1918, Schreiter 953, 13 Marzo 1921, 2194, 2 Sept. 1923, s. n., 20 Marzo 1927, 5426, and Junio 1930, Schreiter s. n.; Feb. 1919, Venturi 259, and 16 Abril 1926. 4467.

1-15. *Serjania obtusidentata* Radlk. Monogr. Serj. 233. 1875.

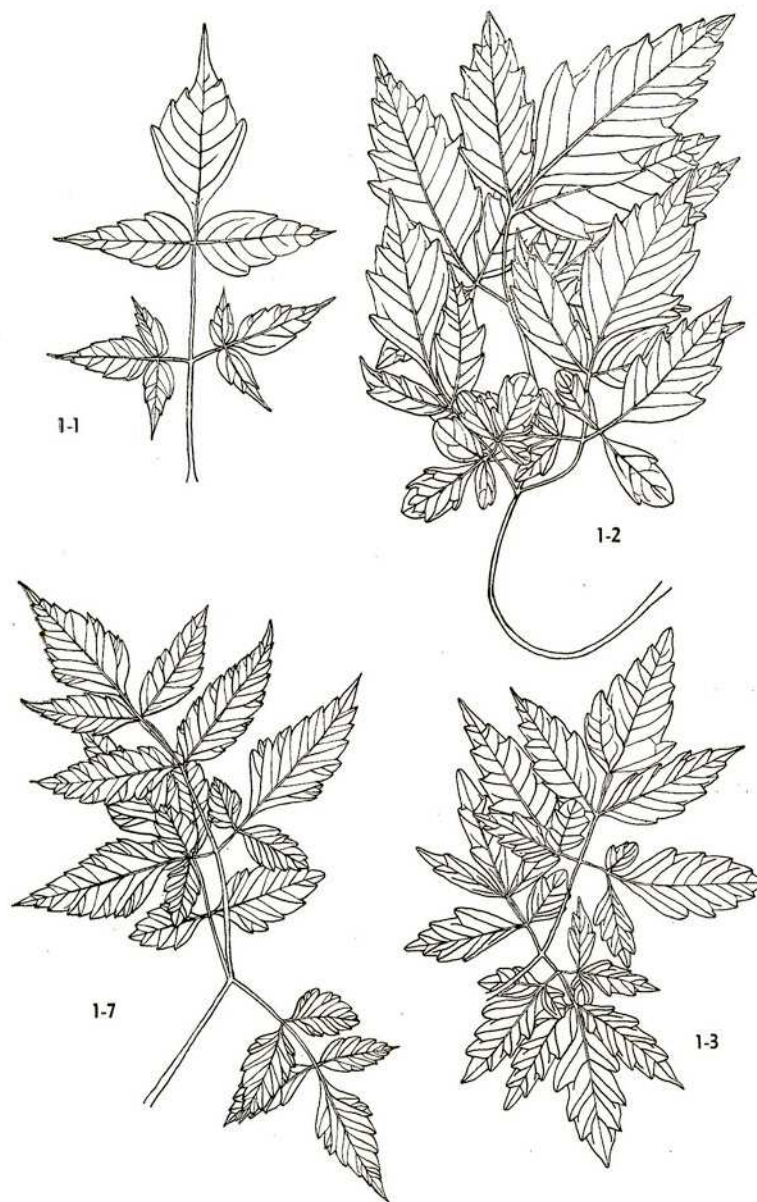
BRAZIL: 19 Oct. 1848, Regnell III 348.

* 1-12 *Serjania Descolei* Barkley, n. sp.

S. GLUTINOSAE similis, sed foliis ovatis, ramis setosissimis sepalis interioribus 3 mm. longis, petalis 4 mm. longis, fructibus 2 cm. longis, alis 1 cm. latis, cavitate seminis setoso-pilosa, fructibus cristato-alatis supra cavitatem seminis.

Similar to *S. glutinosa*, but the leaves ovate, the stems very setose, the inner sepals 3 mm. long, the petals 4 mm. long, the fruit 2 cm. long, the wings 1 cm. wide, the seed cavity setose-pilose and the fruit cristate-alate above the seed cavity.

TYPE: ARGENTINA: *Misiones*: *Iguazú*: Cataratas del Iguazú, 20 Febr. 1945, Descole 3244 (LIL.).



Leaves of *Serjania*. x 2/5

1-1: *S. leucosepala*, Herzog 1658; 1-2: *S. perulacea*, Rojas 13554; 1-3: *S. Meyeri*, Meyer 2431; 1-7: *S. Araquei*, O'Donnell 4890.

1-16. *Serjania grandiceps*. Radlk. Bull. Torr. Bot. Club 25: 336. 1898.

1-17. *Serjania fuscifolia* Radlk. Monogr. Serj. 221. 1875.

BRAZIL: 1845, Regnell III 354.

PARAGUAY: Junio 1874, Balansa 2489; 23 Mayo 1945, Bertoni 1412, 15 Julio 1949, 4283, 10 Julio 1949, 4249, 9 Agosto 1949, 4408 and 30 Junio 1949, Bertoni 4440; Julio, Jörgensen 2646 y 3746; 9 Agosto 1946, Rojas 13457a and 21 Julio 1945, 12905.

ARGENTINA: *Corrientes*: 25 Julio 1944, Ibarrola 726. *Misiones*: 16 Julio 1946, Bertoni 2818 B and 8 Junio 1948, 3651; 11 Junio 1945, Montes 919; Julio 1926, Scala 57844, 57845 y 57846; 29 Mayo 1947, Schwarz 4663 and 28 Junio 1948, 6075; 7 Junio 1947, Schwindt 298, 10 Junio 1949, 1848, 8 Julio 1949, 1956, 17 Julio 1949, 1979, and 29 Julio 1950, Schwindt 4926.

1-18. *Serjania tristis* Radlk. Monogr. Serj. 293. 1875.

ARGENTINA: *Chaco*: Oct. 1940, Meyer 5289.

1-19. *Serjania lethalis* St. Hil. Pl. remarq. 1: 206. 1824.

BRAZIL: 13 Mayo 1931, Mexia 5827; 14-19 Agosto 1865, Regnell III 348; 30 Mayo 1945, Williams & Assis 7107.

PARAGUAY: Abril 1950, Rojas 14292.

1-20. *Serjania velutina* Camb. in St. Hil. Fl. Bras. 1: 357. 1825.

1-21. *Serjania grandiflora* Camb. in St. Hil. Fl. Bras. 1: 360. 1825.

1-22. *Serjania caracasana* (Jacq.) Willd. Spec. pl. 2¹: 465. 1799.

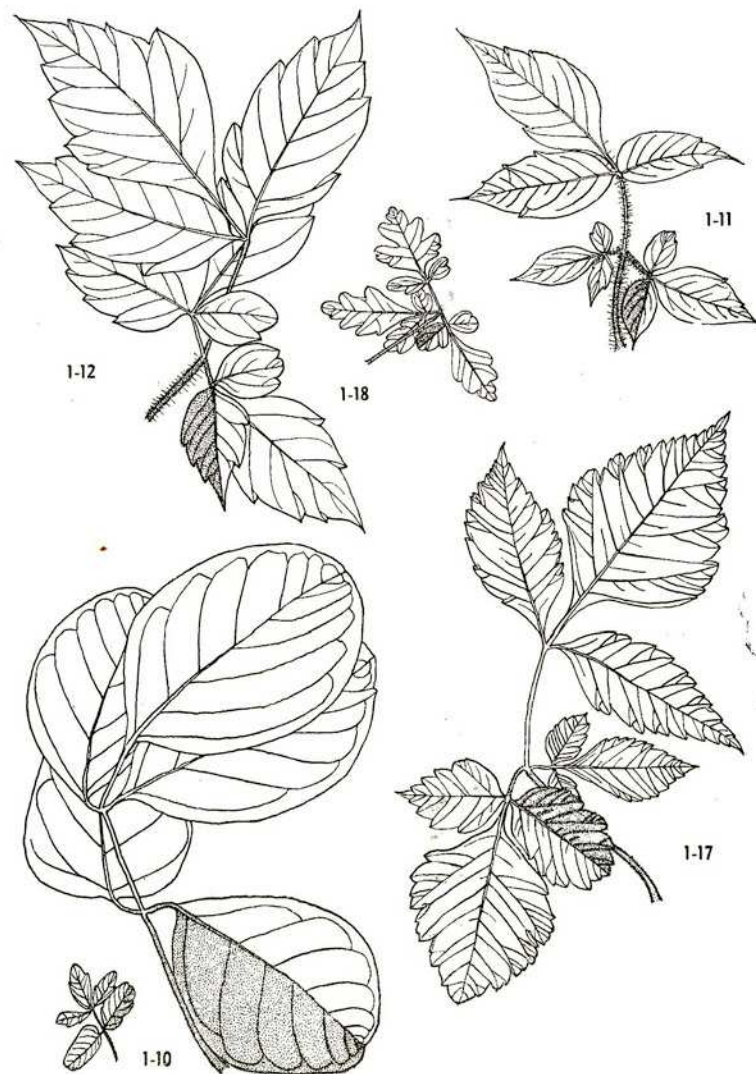
URUGUAY: 13 Nov. 1945, Bertoni 741.

BRAZIL: 17 Julio 1946, Henz 33519; 8 Sept. 1934, Rambo 1200, 13 Mayo 1949, 41513, 16 Mayo 1949, 41571, 29 Abril 1949, 42181, 21 Junio 1950, 47159, 18 Junio 1949, 4227, 28 Junio 1949, 42288, 4 Julio 1950, 48242, and 8 Abril 1949, Rambo 40928.

PARAGUAY: Mayo 1907-1908, Rojas 1044u and 16 Mayo 1946, 13392.

BOLIVIA: 1-22 Julio 1939, Krukoff 10008; Julio 1915, Steinbach 1524;

ARGENTINA: *Misiones*: 20 Mayo 1944, Bertoni 74; 24 Julio 1944, Montes 127 and 15 Mayo 1945, 945; 8 Sept. 1910, Rodríguez 351; 2 Mayo 1947, Schwarz 4575; 10 Mayo 1949, Schwindt 1643, 10 Junio 1949, 1842, 10 Julio 1949, 1896, 6 Julio 1949, 1914, 16 Julio 1949, 1964, 13 Julio 1950, 4768, 21 Julio 1950, 4797, and 29 Julio 1950, Schwindt 4911.



Leaves of *Serjania*. x 2/5

1-10: *S. platyptera*, Borsini 531 (above), Schreiter 11461; 1-11: *S. glutinosa*, Regnell III-342; 1-12: *S. Descolci*, Schwarz 7113; 1-17: *S. fuscifolia*, Schwarz 4663; 1-18: *S. tristis*, Meyer 5289.

1-23. *Serjania laxiflora* Radlk. Monogr. Serj. 135. 1875.

BOLIVIA: 1915, Steinbach 1419.

ARGENTINA: *Salta*: 28 Julio 1944, Schulz y Varela 5380.

1-24. *Serjania decemstriata* Radlk. Sitz. Ber. K. Bayer. Ak. Wiss. math. phys. Cl. 8: 223. 1878.

1-25. *Serjania foveata* Griseb. Pl. Lorentz. 60. 1874.

1-26. *Serjania glabrata* Kunth in HBK. Nov. Gen. et Sp. 5: 85. 1821.

PERÚ: 11 Febr. 1947, Woytkowski 35055 and 23 Febr. 1947, 35139.

BOLIVIA: 31 Marzo 1946, Peredo s. n.

PARAGUAY: Jörgensen 3744; 1 Agosto 1945, Bertoni 1650, 5 Marzo 1950, 4867 and 13 Marzo 1950, Bertoni 4939.

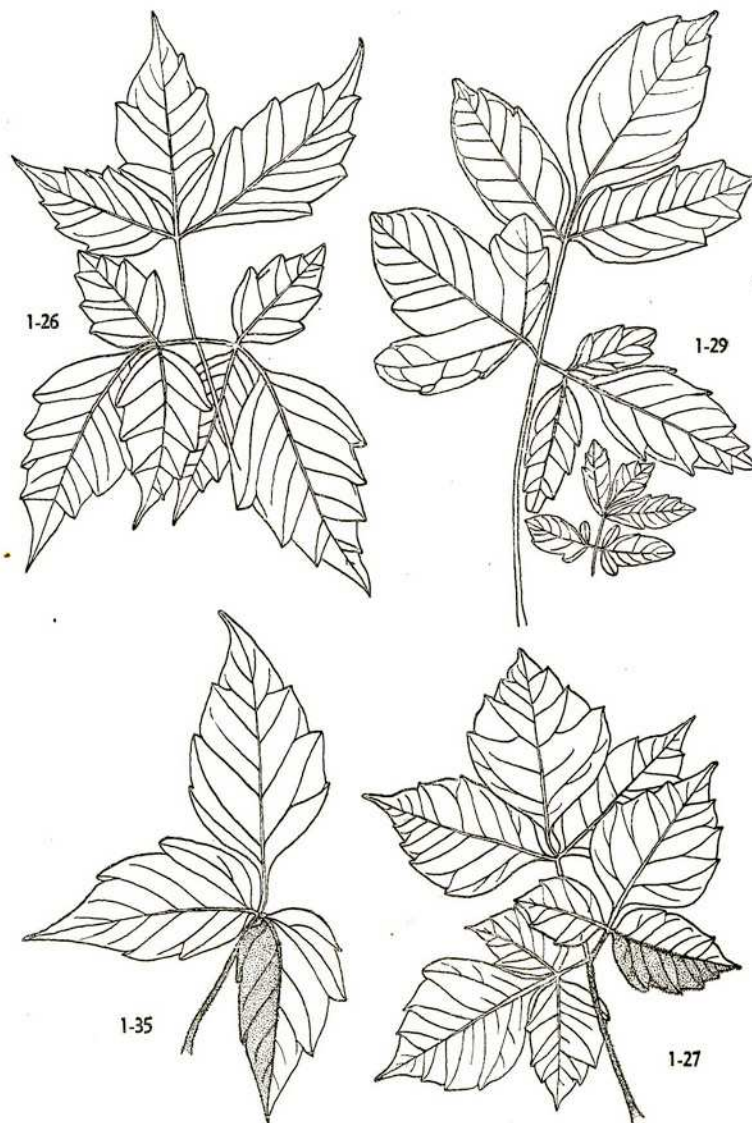
BRAZIL: Feb. 1945, Emrich 28707; 20 Enero 1949, Schwarz 7252 and 7 Febr. 1949, 7395; 25 Febr. 1946, Rambo 31369, 12 Enero 1949, 39955 and 27 Enero 1949, Rambo 40216.

ARGENTINA: *Misiones*: 22 Marzo 1945, Hayward s. n.; 20 Marzo 1944, Meyer 5543; 30 Marzo 1949, Schwindt 1368 and 11 Julio 1949, 1902.

1-27. *Serjania fulva* Gris. Pl. Lorentz. 60. 1874 (*Serjania glabrata* f. *mollis* Radlk. Serj. Monog. 168. 1875).

BOLIVIA: 7 Febr. 1946, Peredo s. n. 10 Enero 1947, s. n. and 20 Enero 1947, Peredo s. n.; 3 Sept. 1916, Steinbach 2915 and 17 Nov. 1917, 3327.

ARGENTINA: *Jujuy*: 28 Nov. 1949, Araque & Barkley 19Ar513; 22 Dic. 1948, Argañaráz 778; 4 Febr. 1906, Budin 102 and 2 Enero 1912, s. n.; Nov. 1907, Castellón (202); 18 Mayo 1945, Herrera 497; 28 Marzo 1945, Meyer 8326; 11 Abril 1945, O'Donell 3017; 12 Enero 1943, Rial & Lauro 71308; 12 Enero 1947, Romero s. n. *Salta*: 9 Feb. 1945, Abbiatti & Claps; 20 Enero 1945, Aguilar 254; 12 Julio 1946, Borsini 656; 27 Enero 1935, Carbone 10075; 17 Dic. 1947, Filipovich 450, 12 Enero 1949, 212, and 23 Enero 1949, Filipovich 243; 17 Enero 1947, Garolera & Romero s. n. and 23 Enero 1947, s. n.; 19 Febr. 1945, Herrera 145; 10 Diciemb. 1920, Inastroso s. n.; 23 Enero 1945, Krapovickas 1336 and 30 Enero 1945, 1530; 4 Febr. 1949, Legname 214; 28 Enero 1948, Luna 673; 9 Dic. 1946, Malvárez 170, 14 Dic. 1946, 296, 20 Dic. 1946, 333, 22 Dic. 1946, 377, 24 Dic. 1946, 417, 2 Enero 1947, 446, 6 Enero 1947, 467, 7 Enero 1947, 506, and 11 Enero 1947 Malvárez 534; 9 Enero 1941, Meyer 3624, 14 Enero 1941, 3626, 31 Enero 1941, 3879, 5 Marzo 1943, 4908, 29 Marzo 1945, 8369, 3 Abril 1945, 8418, 3 Mayo 1947, 12132, and 3 Mayo 1947, Meyer 12364; 15 Dic. 1948, Montenegro 115, 18 Dic. 1948, 157, and 4



Leaves of *Serjania*. x 2/5

1-26: *S. glabrata*, Bertoni 4939; 1-27: *S. fulva*, Ortiz 10; 1-29: *S. reticulata*, Rojas 11543; 1-35: *S. Regnellii*, Regnell 1-38.

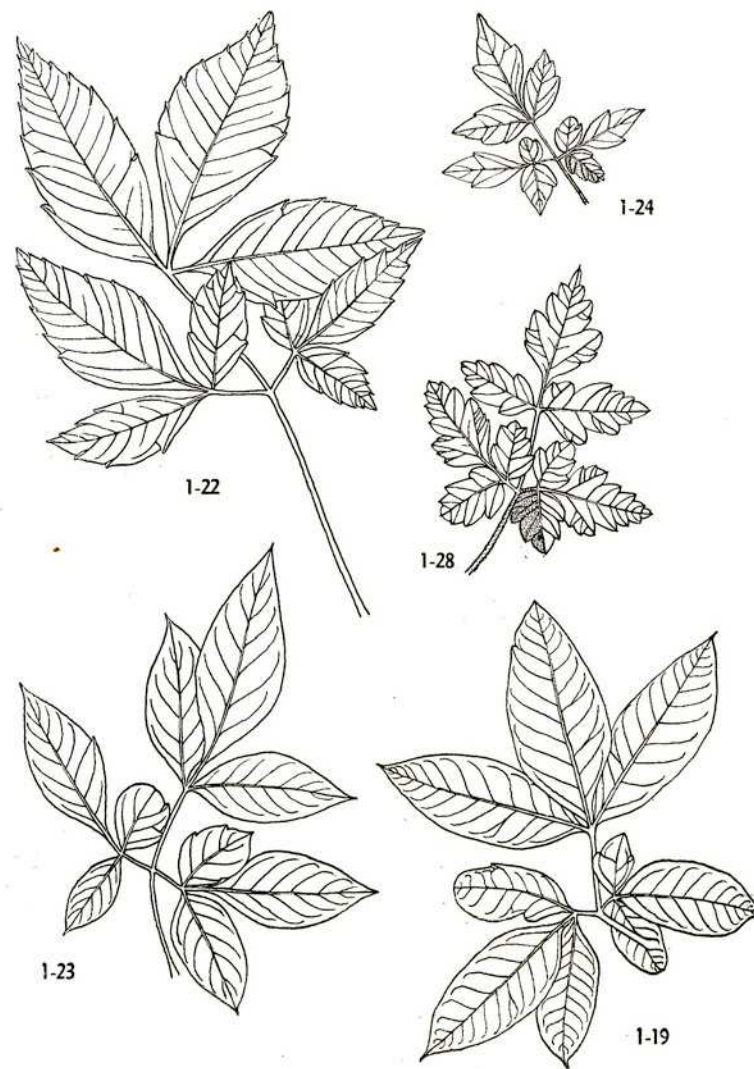
Febr. 1949, Montenegro 278; 30 Marzo 1945, O'Donell 2486, 3 Abril 1945, 2648, 28 Enero 1947, 4696, 11 Febr. 1948, 5466, 12 Febr. 1948, 5524, and 12 Febr. 1948, O'Donell 5537; 28 Abril 1947, Pierotti 6626; 19 Enero 1945, Pierotti h 5 and 27 Enero 1945, 144; 10 Mayo 1944, Ruiz de H. 489, 13 Mayo 1944, 558 and 15 Mayo 1944, Ruiz de H. 598; 19 Febr. 1947, de la Sota 102; 18 Abril 1948, Sotelo 823; Enero 1923, Vattuone 173; Villalón s. n.; Marzo 1941, Zabala 46. *Tucumán*: 25 de Dic. 1950, Araque & Barkley 20Tu700; Enero 1918, Bailetti 72; 14 Mayo 1947, Balegno 1263 and 18 Nov. 1949, 1596; Enero 1935, Carbone s. n.; Agosto 1905, Castellón 387; 20 Feb. 1938, Descole s. n.; 6 Mayo 1945, Herrero 399; 15 Enero 1888, Lillo 572, Marzo 1902, 2857, and 12 Enero 1908, Lillo 7326; Enero 1939, Meyer s. n., 10 Enero 1940, 3109, 23 Febr. 1941, 3909, 10 Mayo 1942, 4434, 26 Julio 1943, 5195, 30 Marzo 1947, 11988, and 25 Febr. 1948, Meyer 13771; 30 Julio 1913, Monetti 14772, 1 Julio 1913, 14774 and 15 Dic. 1913, Monetti 14778; 1 Abril 1945, Ortiz 10, 22 Abril 1945, s. n., 6 Mayo 1945, Ortiz s. n.; 14 Mayo 1947, Palacios 4631; 5 Marzo 1933, Peirano 9504; Abril 1914, Rodríguez 1464; 5 Sept. 1917, Schreiter s. n., Marzo 1918, 681, 9 Febr. 1919, 952, 29 Marzo 1924, s. n. and 21 Febr. 1925, Schreiter 3781; 8 Enero 1951, Seolnik, Araque & Barkley 21Tu006; 4 Febr. 1949, Sparre 5518; Dic. 1947, de la Sota 1124, Dic. 1947, 1162, Dic. 1947, 1217, and 6 Abril 1946, de la Sota 1238; 2 Febr. 1948, Sotelo 12; 8 Marzo 1944, Varela s. n.; 28 Marzo 1944, s. n.; 29 Marzo 1944, s. n., and 16 Abril 1944, Varela s. n.; Enero 1919, Venturi 194. *Catamarca*: 11 Enero 1940, Castellanos 33742; 15 Marzo 1909, Castellón 1346; 14 Enero 1947, Brizuela 112 and 15 Enero 1947, 161; 20 Marzo 1908; Lillo 9007; 21 Dic. 1946, Luna 144, 23 Dic. 1946, 195, 7 Enero 1947, 271, 27 Dic. 1946, 301, 6 Enero 1947, 416, 7 Enero 1947, 429, 2 Febr. 1947, 1061, 7 Enero 1947, 1068, 8 Febr. 1947, 1086, 9 Febr. 1947, 1090, 9 Febr. 1947, 2008, 10 Febr. 1947, 4984; 17 Enero 1942, Pierotti 11542; 9 Mayo 1944, Varela 81, 11 Mayo 1944, 82, and 12 Mayo 1944, Varela 111. *Córdoba*: 1 Abril 1944, O'Donell & Rodríguez 629; 15 Enero 1948, Terribile 867 and 16 Enero 1948, 880.

1-28. *Serjania acoma* Radlk. Monogr. Serj. 127. 1875.

PARAGUAY: 30 Oct. 1946, Rojas 13685 and 6 Dic. 1946, 13685a.

BOLIVIA: 26 Enero 1945, Peredo 112, 27 Enero 1945, 107, 7 Marzo 1945, 369 and 5 Febr. 1946, Peredo s. n.

ARGENTINA: *Salta*: 18 Febr. 1943, Meyer 4557 and 3 Abril 1945, 8467. *Tucumán*: 17 Febr. 1925, Schreiter 3782.



Leaves of *Serjania*. x 2/5

1-19: *S. lethalis*, Mexia 5827; 1-22: *S. caracasana*, Schwindt 1964; 1-23: *S. laxiflora*, Steinbach 1419; 1-24: *S. decemstriata*, Rambo 45998; 1-28: *S. acoma*, Rojas 13685;

1-29. *Serjania reticulata* Camb. in St. Hil. Fl. Bras. 1: 359. 1825.

PERÚ: 30 Junio 1949, Vargas 8246 (probably an undescribed form).

BRAZIL: 23 Junio 1869, Henschen 1-39 [f. *rubens* (Schlecht.). Radlk]

ARGENTINA: *Formosa*: 12 Junio 1947, Morel 3047, 17 Junio 1947, 3099, 19 Junio 1947, 3177, and 23 Julio 1947, Morel 3530. *Chaco*: Oct. 1917, Jörgensen 2268; 19 Agosto 1944, Rojas 12004. *Corrientes*: 20 Julio 1944, Ibarrola 708; 6 Julio 1944, Rojas 11543.

1-30. *Serjania ichthyoctona* Raldk. Monogr. Serj. 230. 1875.

1-31. *Serjania confertiflora* Radlk. Monogr. Serj. 117. 1875.

1-32. *Serjania meridionalis* Camb. in St. Hil. Fl. Bras. 1: 366. 1825.

URUGUAY: 11 Febr. 1945, Bertoni 700; April 1926, Herter 18991.

PARAGUAY: 4 Marzo 1950, Bertoni 4855; Marzo 1907-1908, Rojas 10231, and 16 Mayo 1946, 13396.

ARGENTINA: *Misiones*: 27 Marzo 1945, Bertoni 1045, 3 Abril 1945, 1072, 1 mayo 1945, 1239, 19 Febr. 1946, 2715, 7 Marzo 1946, 2749, 20 Abril 1946, 2850, 20 Febr. 1947, 3284, 24 Febr. 1947, 3286, 2 Marzo 1947, 3343, 18 Marzo 1949, 3946 and 16 Marzo 1949, Bertoni 3974; 8 Marzo 1944, Meyer 6806; 19 Abril 1945, Monte 756 and 7 Marzo 1945, 2024; 2 Febr. 1913, Rodríguez 351; 13 Febr. 1947, Ruiz de H. 5536; 1 Marzo 1945, Schwarz 728, 21 Marzo 1945, 857, 26 Marzo 1945, 893, 2 Abril 1945, 907, 24 Abril 1945, 1028, 11 Mayo 1945, 1076, 30 Enero 1946, 1963, 25 Abril 1946, s. n., 14 Enero 1947, 3876, 3 Marzo 1947, 4237, 5 Marzo 1947, 4402, 16 Abril 1947, 4482, 14 Mayo 1947, 4638, and 17 Abril 1949, Schwarz 7736; 2 Julio 1947, Schwindt 283, 24 Oct. 1947, 492, 15 Marzo 1948, 612, 6 Marzo 1949, 1347, 21 Mayo 1942, 1759 and 9 Junio 1950, Schwindt 4482. *Corrientes*: 11 Abril 1944, Ibarrola 272; Mayo 1945, Meyer 8882; 24 Marzo 1948, Palacios & Cuezzi 2137; 28 Marzo 1948, de la Sota 964. *Chaco*: 21 Marzo 1948, de la Sota 765 and 23 Marzo 1948, 818.

1-32a. *Serjania meridionalis* var. *Cuezzi* Barkley*

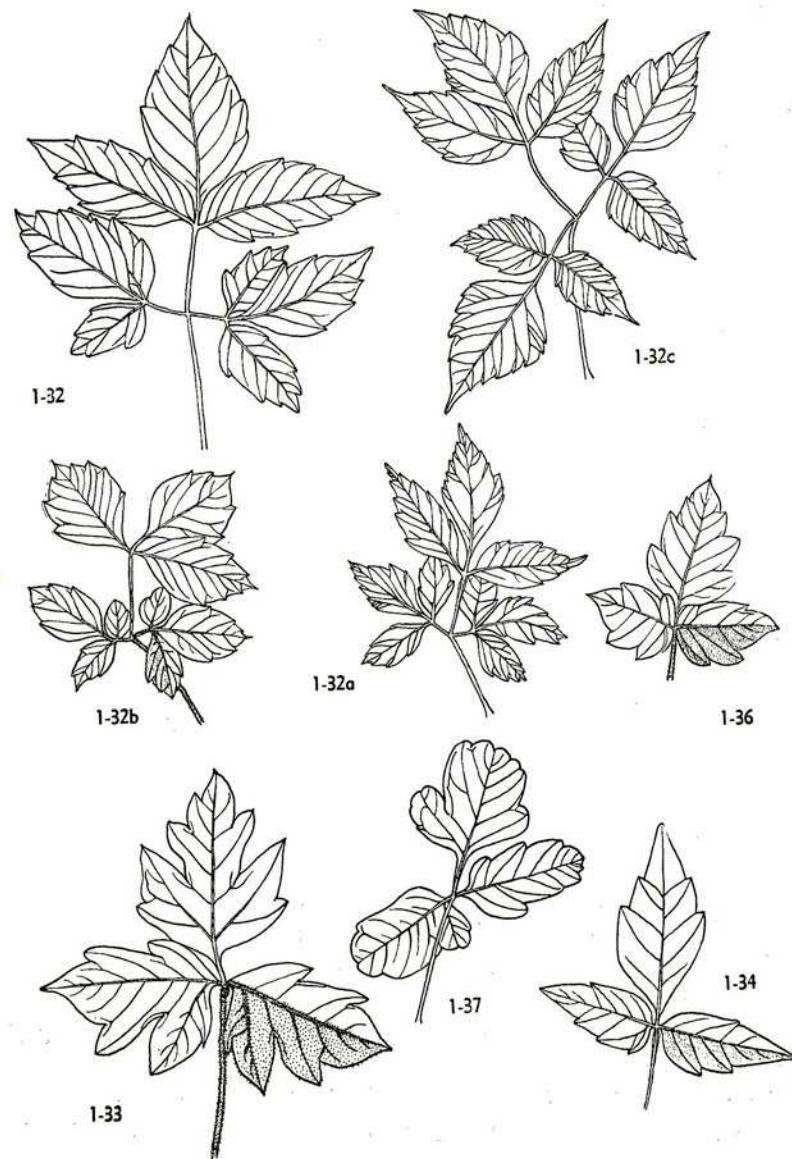
BRAZIL: 13 Marzo 1948, Palacios & Cuezzi 1798 and 6 Marzo 1948, 2093; 3 Marzo 1949, Rambo 40315, 16 Mayo 1949, 41616, 6

* 1-32a *Serjania meridionalis* var. *Cuezzi* n. var.

Varietati typicae similis sed foliolis angustioribus crassioribus, grossius dentatis. Similar to the species but leaflets narrowed, thicker, more coarsely dentate.

TYPE: BRAZIL: *Rio Grande Do Sul*: 27 Marzo 1950, Rambo 46478 (LIL.).

This variety has leaves similar in shape to *S. caracasana*, but merges into the typical variety.



Leaves of *Serjania*. x 2/5

1-32: *S. meridionalis*, Schwarz 738; 1-32a: *S. meridionalis Cuezzi*, Rambo 46478; 1-32b: *S. meridionalis O'Donellii*, O'Donell 3007; 1-32c: *S. meridionalis Borsiniac*, Meyer 3623; 1-33: *S. cissoides*, Rojas 9852; 1-34: *S. minutiflora*, Bertoni 4086; 1-36: *S. Mansiana*, Steinbach 1474; 1-37: *S. humifusa*, Herzog 589.

Junio 1949, 41849, 27 Marzo 1950, 46478, and 23 Febr. 11 Marzo 1945, Rambo 28485.

ARGENTINA: *Misiones*: 10 Marzo 1947, Schwarz 4201, 4 Marzo 1947, 4248, 10 Marzo 1947, 4299, 18 Marzo 1947, 4277 and 23 Marzo 1950, Schwarz 10271.

1-32 b *Serjania meridionalis* var. *O'Donellii* Barkley *

ARGENTINA: *Jujuy*: 10 Abril 1945, Meyer 8677; 11 Abril 1945, O'Donnell 3007. *Salta*: 2 Mayo 1947, Meyer 12243; 11 Abril 1945, Pierotti 1203.

1-32 c *Serjania meridionalis* var. *Borsiniae* Barkley **

BRAZIL: 16 Nov. 1945, Rohr 502.

BOLIVIA: 21 Marzo 1920, Steinbach 3801.

ARGENTINA: *Jujuy*: Febr. 1907, Castellón s. n.; 13 Enero 1947, Garolera & Romero s. n.; 1 Abril 1909, Lillo 9677; 7 Abril 1945, O'Donnell 2942. *Salta*: 9 Febr. 1945, Abbiatti & Claps 78 and 10 Marzo 1945, 905; Borsini 563; 7 Febr. 1949, Filipovich 475; 29 Enero 1941, Meyer 3623; 8 Febr. 1945, Pierotti h 275; Enero 1923, Vattuone 65; Febr. 1941, Zabala 16. *Tucumán*: Abril 1919, Bailetti 56 and Marzo 1919, 265; 9 Marzo 1917, Castellón 768 a & b; 5 Febr. 1945, Herrera 364; 2 Marzo 1888, Lillo 624, Marzo 1897, 1913, 15 Abril 1901, 2812, 8 Marzo 1905, 4383, and Abril 1917, Lillo 18844; 15 Febr. 1916, Monetti 15837; 8 Mayo 1945, Ortiz s. n. and 13 Mayo 1945, s. n.; 25 Febr. 1920, Schreiter 1130 and 25 Febr. 1920, 3264; Mayo 1947, de la Sota 1143; 6 Abril 1922, Venturi 1781. *Catamarca*: 5 Febr. 1950, Argañaraz 1005; 15 Marzo 1909, Castellón 1345 and 15 Enero 1911, 2023; 26 Febr. 1916, Jörgensen 1699.

* 1-32b *Serjania meridionalis* var. *O'Donellii* Barkley n. var.

Varietati typicae similis, sed foliis latius ovatis, obtusis, dense pilosis ut minime en venis superficis inferioris.

Similar to the species but leaflets more broadly ovate, obtuse, and densely pilose at least on the veins below.

TYPE: ARGENTINA: *Jujuy*: 11 Abril 1945, O'Donnell 3007 (LIL).

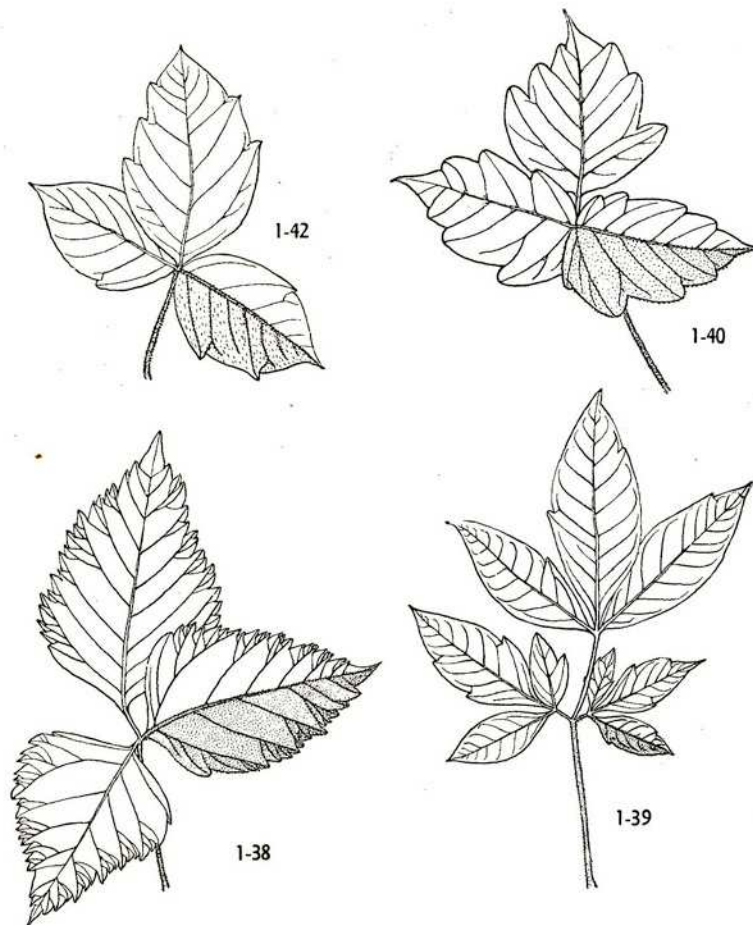
This very distinctive variety may prove to be specifically distinct when better known.

** 1-32c *Serjania meridionalis* var. *Borsiniae* Barkley n. var.

Varietati typicae similis sed foliis majoribus, magis acuminatis, sed inflorescentiis minus densis et pedunculis fructificantibus majoribus.

Similar to the species but leaflets larger, more acuminate, and the inflorescence is much more open and the fruiting peduncles are larger.

TYPE: ARGENTINA: *Jujuy*: 7 Abril 1909, Lillo 9677 (LIL.).



Leaves of *Serjania* x 2/5

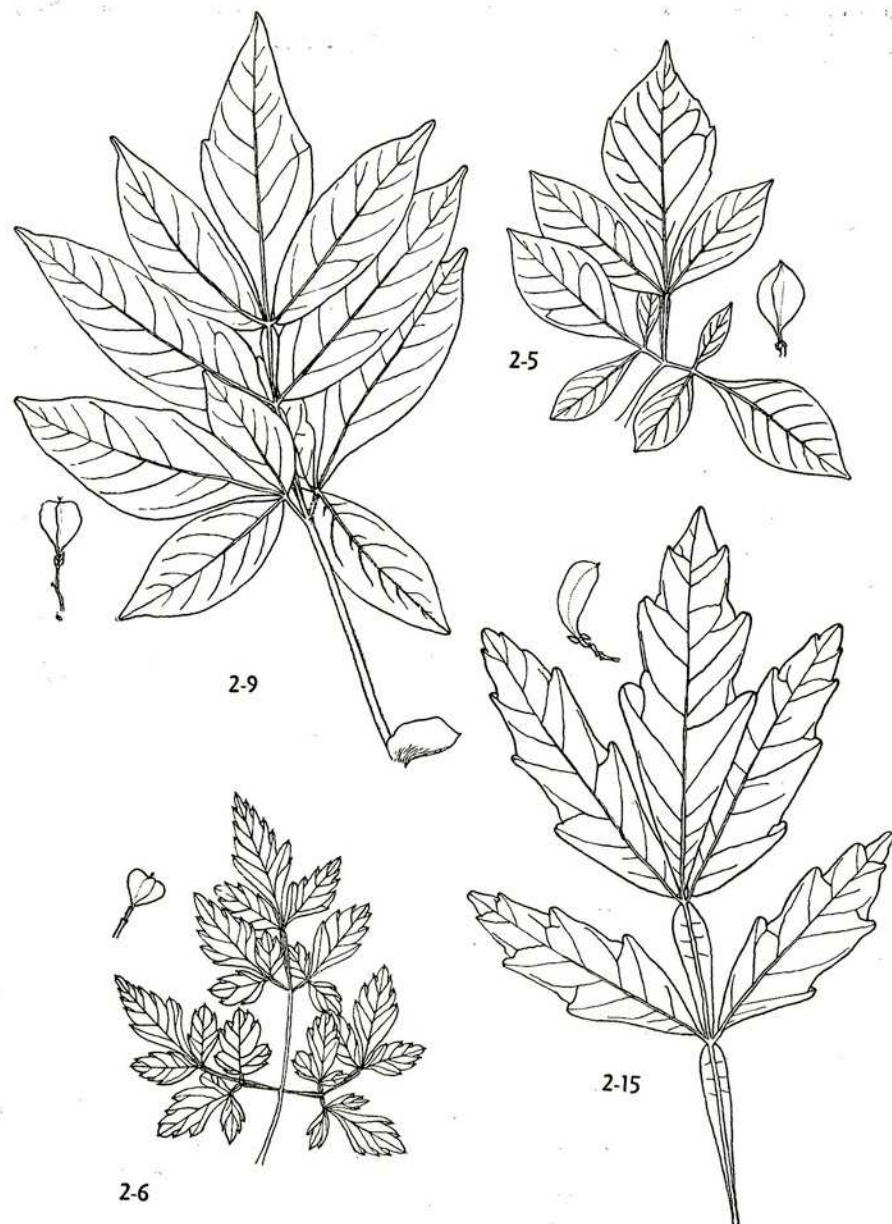
1-38: *S. platycarpa*, Regnell III-343; 1-39: *S. chaetocarpa*; 1-40 *S. eriocarpa*, Steinbach 1335; 1-42: *S. hebecarpa*, Schwarz 5584.

- 1-33. *Serjania cissoides* Radlk. Monogr. Serj. 294. 1875.
PARAGUAY: Dic. 1907-1908, Rojas 9852.
- 1-34. *Serjania minutiflora* Radlk. Resp. Spec. Nov. 17: 355. 1921.
BRAZIL: 17 Agosto 1949, Rambo 42961.
PARAGUAY: 29 Marzo 1949, Bertoni 4017, 11 Abril 1949, 4083, and Bertoni 4086.
- 1-35. *Serjania Regnellii* Schlecht. Linnaea 18: 41. 1844.
BRAZIL: Mayo 1866, Regnell I 38.
- 1-36. *Serjania Mansiana* Mart. Flora 22¹: Beibl. n. 1, 9. 1839.
BRAZIL: 25 Mayo 1847, Regnell III 344; 24-25 Mayo 1945, Williams & Assis 6962.
BOLIVIA: Sept. 1892, Bank 1583; 3 Abril 1945, Peredo 529, 8 Abril 1945, s. n.; 10 Abril 1945, s. n., and 26 Abril 1946, Peredo s. n.; Abril 1915, Steinbach 1474 and 29 Abril 1925, 7090.
ARGENTINA: *Salta*: 4 Abril 1948 Pierotti 7279 and 4 Abril 1948, 7282.
- 1-37. *Serjania humifusa* Radlk. in Herzog, Rep. Spec. Nov. 7: 355. 1909.
PARAGUAY: Herzog 589.
- 1-38. *Serjania platycarpa* Benth. Journ. Bot. 3: 192. 1851.
BRAZIL: Abril 1848, Regnell 343.
- 1-39. *Serjania chaetocarpa* Radlk. in Engl. u Prant, Nat. Pflanz. 3⁵: 302. 1895.
- 1-40. *Serjania rubicunda* Radlk. Mededeel. Rijks Herb. Leiden 19: 58. 1913.
- 1-41. *Serjania eriocarpa* Radlk. Resp. Spec. Nov. 8: 71. 1910.
BOLIVIA: Mayo 1915, Steinbach 1335, 29 Abril 1916, 2051, and 21 Mayo 1916, Steinbach 2404.
- 1-42. *Serjania hebecarpa* Benth. Hook. Journ. Bot. & Kew Gard. Misc. 3: 192. 1851.
BRAZIL: 10 Febr. 1948, Palacios & Cuezco 1016.
URUGUAY: 22 Febr. 1940, Rosengurt B-3342.
PARAGUAY: 14 Abril 1946, Rojas 13316 and 16 Mayo 1946, 13382.
ARGENTINA: *Misiones*: 3 Dic. 1944, Bertoni s. n. and 26 Marzo 1945, 1006; 4 Abril 1910 Rodríguez 271; 15 Marzo 1945, Schwarz 811, 5 Marzo

1946, 2156, 3 Abril 1946, 2407, 13 Mayo 1947, 3857, and 13 Marzo 1948, Schwarz 5584. *Corrientes*: 18 Dic. 1944, Ibarrola 1728; 24 Marzo 1948, Palacios & Cuezco 2139 and 26 Marzo 1948, 2289.

2.— *Paullinia* L. emend. Schumacher (1794).

1. Leaves trifoliolate; leaflets subcoriaceous.
 2. Leaflets entire; Brazil. 2-1 *P. coriacea*
 2. Leaflets not entire.
 3. Leaflets sinuate-lobate and dentate; Brazil. 2-2 *P. monogyne*
 3. Leaflets repand-dentate to subentire; Peru and Bolivia 2-3 *P. neglecta*
1. Leaflets more than 3.
 2. Leaves twice ternate.
 3. Rachis not marginate; Brazil. 2-4 *P. cristata*
 3. Rachis alate; Brazil. 2-5 *P. trigonia*
 2. Leaves pinnate.
 3. Leaves supraecomposite.
 4. Rachis above submarginate; leaflets incised-serrate-dentate, membranous; wings of fruit persistent; Brazil. 2-6 *P. australis*
 4. Rachis marginate above; leaflets sparsely dentate near apex, chartaceous-membranous; wing of fruit evanescent; Brazil. 2-7 *P. thalictrifolia*
 3. Leaves simply pinnate.
 4. Leaves 3-4-jugate, with the basal leaflets often ternate; rachis alate.
 5. Capsule not winged; Brazil. 2-8 *P. pachycarpa*
 5. Capsule winged; Brazil, Paraguay and Misiones 2-9 *P. meliaefolia*
 4. Leaves 5-foliolate, the basal pair of leaflets not ternate.
 5. Capsule winged; rachis not marginate.
 6. Capsule narrowly winged, base narrow; Bolivia. 2-10 *P. boliviana*
 6. Capsule broadly winged, apex and base more or less equal; Brazil. 2-11 *P. dasyphylla*
 5. Capsule not winged.
 6. Rachis not marginate.
 7. Thyrsus lax; Colombia to Argentina 2-12 *P. elegans*
 7. Thyrsus dense, spikelike; Colombia to Brazil 2-13 *P. spicata*
 6. Rachis marginate.
 7. Rachis narrowly marginate.
 8. Capsule triquetrous or triangular.
 9. Leaflets oblong or elliptic-lanceolate; Colombia to Brazil. 2-13 *P. spicata*
 9. Leaflets linear-lanceolate; Brazil 2-14 *P. aspera*

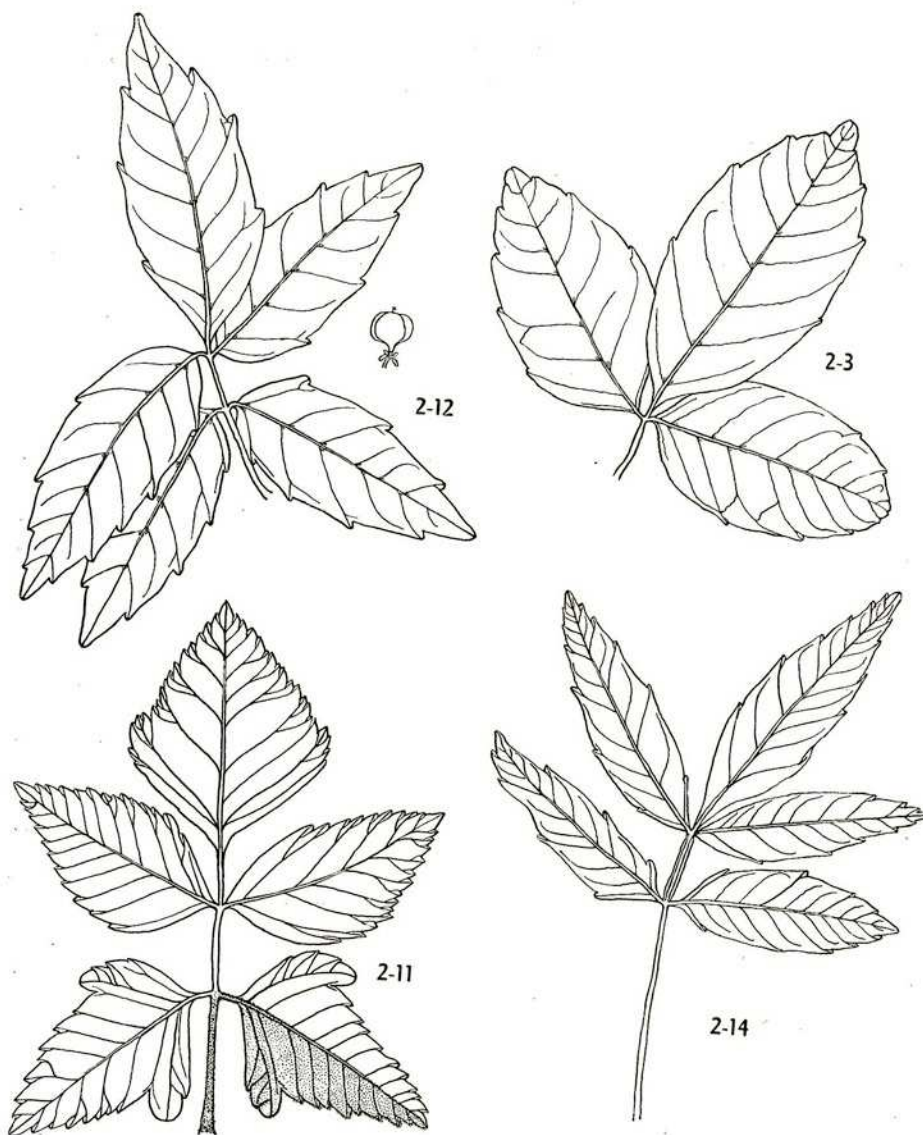


Leaves and fruit of *Paullinia*. x 1/2

2-5: *Paullinia trigonia*, Rojas 40926; 2-6: *Paullinia australis*, Leaf: Meyer 10613, Fruit: Schulz 303; 2-9: *Paullinia meliaefolia*, Schwarz 5772; 2-15: *Paullinia pinnata*, Meyer 8883.

- 8. Capsule globose; Bolivia 2-14 *P. bilobulata*
- 7. Rachis broadly alate.
- 8. Leaflets subcoriaceous; fruit stipitate, pyriform; Central America to Argentina 2-5 *P. pinnata*
- 8. Leaflets chartaceous; fruit exstipitate, triquetrous; Brazil. 2-16 *P. seminuda*

- 2-1. *Paullinia coriacea* Casar. Nov. Stirp. Bras. Dec. 3: 27. 1842.
- 2-2. *Paullinia monogyna* (Hoffmannsegg) Radlk. Monogr. Serj. 74. 1875.
- 2-3. *Paullinia neglecta* Radlk. Monogr. Serj. 42. 1875.
- BOLIVIA: 16 Nov. 1946, Peredo s. n. and 20 Nov. 1946, s. n.; 3 Sept. 1916, Steinbach 2884 and 5 Nov. 1916, 3122.
- 2-4. *Paullinia cristata* Radlk. Monog. Paull. 322. 1896.
- 2-5. *Paullinia trigonia* Vell. Fl. Flum. 1: 159. 1825.
- BRAZIL: 8 Marzo 1946, Hatschbach 240; 8 Abril 1949, Rambo 40926, 18 Abril 1949, 41100, 29 Mayo 1949, 41757, 5 Agosto 1949, 42742, 6 Marzo 1950, 46128, 17 Marzo 1950, 46354, 10 Abril 1950, 46739, 17 Abril 1950, 46833, and 24 Abril 1950, 46948.
- 2-6. *Paullinia australis* St. Hil. Bull. Soc. Philom. de Paris 76. 1824.
- PERÚ: 18 Enero 1949, Vargas 7603 (atypical).
- ARGENTINA: *Entre Ríos*: 1 Dic. 1946, Meyer 10613; 1 Nov. 1945, Schulz 303.
- 2-7. *Paullinia thalictrifolia* A. L. Juss. Ann. Mus. d'Hist. nat. 4: 347. 1804.
- 2-8. *Paullinia pachycarpa* Benth. Journ. Bot. 3: 196. 1851.
- 2-9. *Paullinia meliaefolia* A. L. Juss. Ann. Mus. d'Hist. nat. 4: 347. 1804.
- BRAZIL: 17 Abril 1947, Hatschbach 701; 7 Febr. 1949, Schwarz 7422;
- PARAGUAY: 1909-1910, Fiebrig 5443; Mayo 1938, Rojas 7963 and 22 Mayo 1943, 7963A.
- ARGENTINA: *Misiones*: 29 Enero 1945, Bertoni 679, 18 Marzo 1945, 920, 19 Marzo 1945, 941, 28 Marzo 1945, 991, 27 Julio 1945, 1631, 17 Oct. 1946, 2991, and 19 Oct. 1946, Bertoni 3002; Descole 3424; 4 Marzo 1945, Herrera 215; 12 Julio 1945, Hunziker 791; 30 Enero 1945, Krapovickas 1539; 29 Dic. 1910, Lillo 10592; 6 Marzo 1944, Meyer 5504 and 10 Marzo 1944, 6789; 16 Sept. 1915, Osten & Rojas 8274; 15 Nov.

Leaves and fruit of *Paullinia*. x 1/2

2-3: *Paullinia neglecta*, Steinbach 2884; 2-11: *Paullinia dasyphylla*, Hoehne 3978,
 2-12: *Paullinia elegans*, Leaf: Schwarz 9463, Fruit: Meyer 5619; 2-14: *Paullinia
 aspera*, Hoehne 3963.

1946, Pierotti 5421; Julio 1927, Scala 277; 24 Marzo 1945, Schwarz 877 and 878, 14 Dic. 1945, 1656, 27 Dic. 1945, 1748, 31 Enero 1946, 1984, 7 Marzo 1946, 2183, 17 Abril 1946, 2548, 13 Mayo 1946, 2644, 27 Mayo 1946, 2693, 4 Julio 1946, 2820, 6 Julio 1946, 2848, 27 Junio 1949, 2867, 1 Agosto 1946, 2882, 27 Julio 1946, 3052, 28 Julio 1946, 3066, 31 Julio 1946, 3080, 13 Agosto 1946, 3176, 28 Agosto 1946, 3259, 19 Nov. 1946, 3441, 20 Febr. 1947, 4150, 10 Marzo 1947, 4293, 18 Marzo 1947, 4372, 6 Abril 1947, 4414, 13 Marzo 1947, 4459, 10 Mayo 1947, 4625, 16 Abril 1948, 5772, 20 Mayo 1948, 5997, 28 Junio 1948, 6080, 7 Dic. 1948, 6830, 9 Nov. 1948, 6556, 7 Mayo 1949, 7796, and 14 Junio 1949, Schwarz 7877.

2-10. *Paullinia boliviana* Radlk. in Rusby, Mem. Torr. Bot. Club 4: 206. 1895.

2-11. *Paullinia dasyphylla* Radlk. in Engler, Das Pflanzenreich IV 165: 337. 1932.

2-12. *Paullinia elegans* Camb. in St. Hil. Fl. Bras. 1: 370. 1825.

URUGUAY: 12 Febr. 1945, Bertoni 729.

BRAZIL: Enero 1943, Buck 11114; 10 Febr. 1948, Palacios & Cuezco 961 and 16 Marzo 1948, 1912; 16 Nov. 1931, Rambo 1198, 3 Enero 1948, 39409, 10 Abril 1949, 40983, 18 Abril 1949, 41079, and 20 Abril 1949, Rambo 41147; 21 Enero 1949, Schwarz 7226 and 18 Febr. 1949, 7537.

PARAGUAY: Jörgensen 3754; 18 Enero 1944, Rojas 10910 and 12 Dic. 1944, 12458; 7 Abril 1945, de los Santos 43.

BOLIVIA: 30 Enero 1946, Peredo s. n. and 2 Febr. 1947, s. n.; 28 Dic. 1916, Steinbach 3205 and 6 Febr. 1925, 6913 (atypical).

ARGENTINA: *Misiones*: 30 Mayo 1944, Bertoni s. n., 7 Enero 1945, 591, 3 Mayo 1945, 1260, 6 Junio 1945, 1467, 26 Julio 1945, 1840, 4 Nov. 1945, 2276, 15 Enero 1946, 2643, 1 Febr. 1946, 2680, 2 Mayo 1946, 2834, and 2 Abril 1947, Bertoni 3370; Denis s. n.; 13 Nov. 1945, Hayward s. n.; 9 Nov. 1944, Ibarrola 1154; 16 Febr. 1944, Meyer 5562 and 10 Marzo 1944, 5619; 20 Marzo 1944, Montes 22, 12 Dic. 1944, 452, and 19 Abril 1945, Montes 758; 12 Enero 1913, Rodríguez 717; 13 Febr. 1947, Ruiz 5110; 6 Febr. 1948, Schulz 7019; 23 Dic. 1944, Schwarz 412, 26 Dic. 1946, 3737, 7 Enero 1947, 3809, 17 Enero 1947, 3904, 29 Enero 1947, 4005, 27 Febr. 1947, 4196, 5 Marzo 1947, 4262, 18 Marzo 1947, 4376, 19 Dic. 1948, 7084, and 27 Dic. 1948, Schwarz 7199; 10 Julio 1947, Schwindt 362, 19 Enero 1949, 1139, 25 Enero 1950, 3028, 12

Abril 1950, 3335 and 5 Mayo 1950, Schwindt 4286; 2 Abril 1944, Sesmero s. n., 23 Mayo 1944, 66, 11 Junio 1944, 71, 15 Enero 1945, 309, 30 Febr. 1945, 333 and 1 Febr. 1945, Sesmero 355. *Corrientes*: 23 Mayo 1944, Ibarrola 635, 27 Nov. 1944, 1473, 26 Enero 1945, 2240, and 14 Dic. 1945, Ibarrola 3910; 3 Febr. 1944, Meyer 5735, 8 Febr. 1944, 6291, 24 Enero 1944, 6431, and Mayo 1945, Meyer 8884; 24 Marzo 1948, Palacios & Cuezco 2138; 26 Marzo 1945, Ruiz 1793, 28 Abril 1945, 2038, 20 Abril 1945, 2064, 8 Mayo 1945, 2213, 21 Enero 1947, 4238, 20 Enero 1947, 4281, and 28 Enero 1947, Ruiz 4738; 23 Nov. 1944, Schwarz 185, 30 Nov. 1944, 255, 12 Dic. 1944, 338, 19 Oct. 1944, 386, 18 Enero 1950, 9206, 19 Enero 1950, 9218, 27 Enero 1950, 9395, 29 Enero 1950, 9463, 23 Febr. 1950, 9803, and 1 Marzo 1950, Schwarz 9910; 12 Dic. 1944, Sesmero 233; 26 Marzo 1948, de la Sota 873 and 28 Marzo 1928, 977. *Formosa*: Enero 1918, Jörgensen 3088; 11 Enero 1945, Krapovickas 1142 and 1177; 8 Nov. 1945 Morel 206, 14 Nov. 1945, 284, 22 Nov. 1945, 352, 28 Nov. 1945, 475, 6 Febr. 1946, 836, 9 Febr. 1946, 882, 24 Agosto 1946, 1095, 31 Dic. 1946, 2007, 11 Enero 1947, 2098, 16 Mayo 1947, 2852, 20 Julio 1947, 3497, 22 Oct. 1947, 4027, 7 Enero 1948, 4370, 10 Febr. 1948, 4626, 14 Febr. 1948, 4674, 20 Abril 1948, 5418, 24 Junio 1948, 5734, 7 Agosto 1948, 6078, 30 Oct. 1948, 6469, 3 Nov. 1948, 6517, 29 Dic. 1948, 6829, 19 Enero 1949, 6942, 27 Enero 1949, 7061, 16 Nov. 1949, 7213, 18 Nov. 1949, 7261, 14 Marzo 1949, 7412, 21 Nov. 1949, 8939, 29 Nov. 1949, 9028, 20 Dic. 1949, 9113, 18 Enero 1950, 9265, and 26 Dic. 1949, Morel 9486; 17 Dic. 1946, Reales 104, 22 Marzo 1947, 383, and 22 Marzo 1947, Reales 384. *Chaco*: 12 Dic. 1945, Aguilar 581, 6 Enero 1946, 621 and 4 Dic. 1946, Aguilar 977; 10 Marzo 1916, Lillo 18194; Dic. 1942, Meyer 5173, and Julio 1927, 729A; 21 Marzo 1948, de la Sota 752, 20 Marzo 1948, 792, 22 Nov. 1948, 804, and 23 Marzo 1948, de la Sota 814; 7 Mayo 1948, Vega 853; 11 Enero 1904, Venturi 71 and 12 Dic. 1928, 7902.

2-13. *Paullinia spicata* Benth. Journ. Bot. 3: 193. 1851.

2-14. *Paullinia aspera* Radlk. in Engler, Das Pflanzenreich IV 165: 254. 1931.

2-15. *Paullinia pinnata* L. Spec. Pl. 366. 1953.

PARAGUAY: 1909-1910, Fiebrig 6467; 14 Enero 1929, Jörgensen 4457; 2 Febr. 1945, Rojas 11010.

ARGENTINA: *Corrientes*: Mayo 1945, Meyer 8883; 14 Abril 1945, Ruiz 1941. *Formosa*: 31 Dic. 1946, Morel 2008, 21 Marzo 1947, 2238, 1 Abril

1947, 2385, 26 Abril 1947, 2703, 24 Nov. 1947, 4240, and 4 Marzo 1948, Morel 4953. *Chaco*: Nov. 1912, Jörgensen 2270; 10 Marzo 1916, Lillo 18199; Dic. 1932, Meyer 729 and Dic. 1937, 2429; 7 Julio 1944, Rojas 11565.

2-16. *Paullinia seminuda* Radlk. Monogr. Serj. 47: 51. 1875.

3.- *Urvillea* Kunth in H. B. K. (1821)

1. Cells of the fruit inflated.
 2. Thyrsus umbelliform; Brazil, Paraguay and Bolivia. 3-1 *U. filipes*
 2. Thyrsus racemiform.
 3. Leaflets ovate.
 4. Leaflets densely pubescent underneath; Texas to Jujuy. 3-2 *U. ulmacea*
 4. Leaflets subglabrous underneath; Uruguay and Brazil. 3-2 *U. ulmacea* var. *Berteriana*
 3. Leaflets lanceolate.
 4. Leaflets sparsely pilose below 3-3a *U. uniloba* var. *incana*
 4. Leaflets glabrous below except in axils of the veins.
 5. Leaflets very thin. 3-3b *U. uniloba* var. *debilis*
 5. Leaflets thick-membranous. 3-3 *U. uniloba*
1. Cells of the fruit compressed.
 2. Leaves 5-foliolate pinnate. 3-4 *U. Fiebrigii*
 2. Leaves 3-foliolate.
 3. Leaves glabrous; leaflets acutely acuminate.
 4. Leaflets narrowly ovate, membranaceous; Brazil. 3-5 *U. stipitata*
 4. Leaflets ovate, chartaceous; Brazil and Bolivia. 3-6 *U. laevis*
 3. Leaves pilose; leaflets obtuse. 3-7 *U. Sparrei*

3-1. *Urvillea filipes* Radlk. in Rep. Spec. Nov. 7: 354. 1909.

BOLIVIA: 26 Febr. 1945, Peredo 301; 7 July 1916, Steinbach 2444, 11 Agosto 1916, 2685 and 20 Sept. 1928, Steinbach 8121.

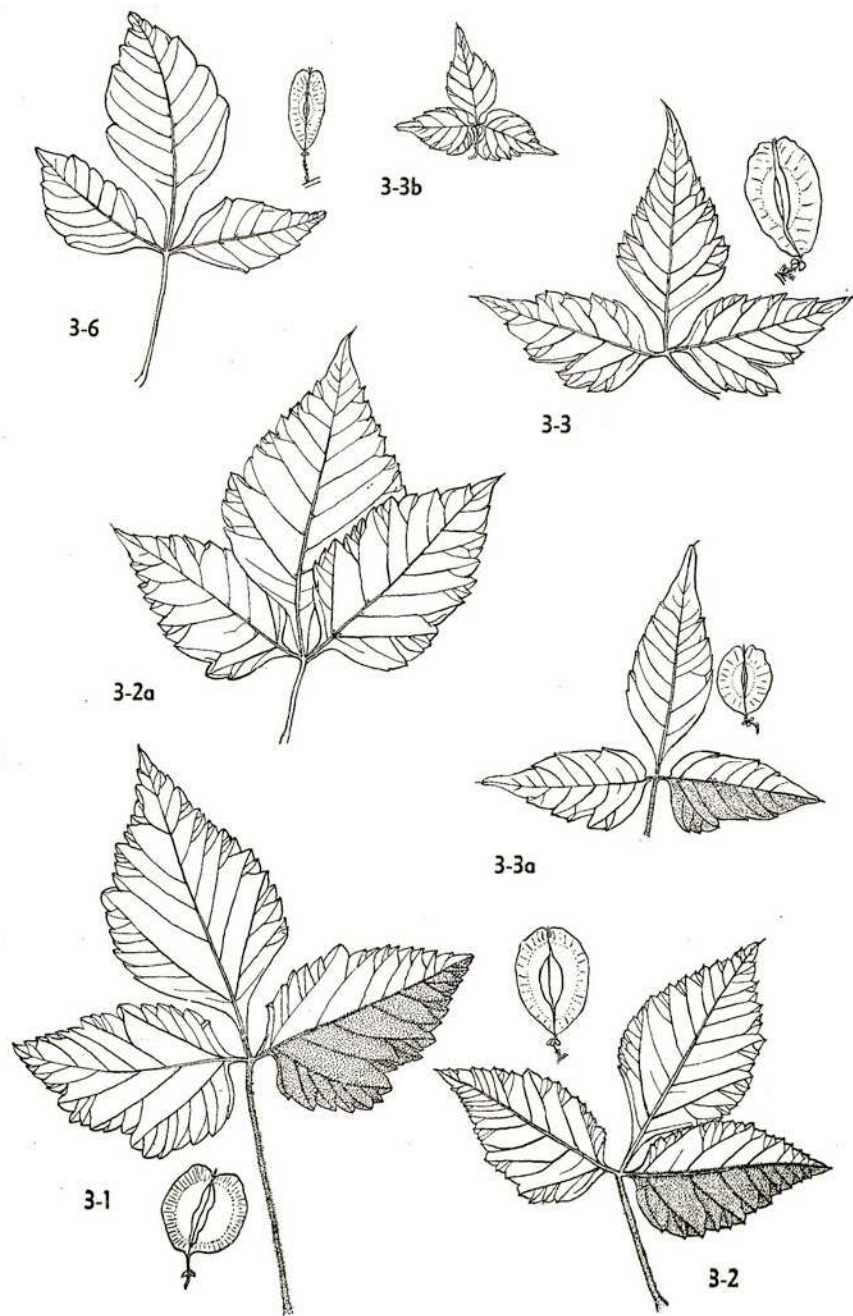
3-2. *Urvillea ulmacea* Kunth in HBK. Nov. Gen. et Sp. 5: 82. 1821.

UNITED STATES OF AMERICA: *Texas*: May-Aug. 1941, Shiller 704.

MÉXICO: *Nuevo León*: 5 Sept. 1904, Pringle 11949.

COLOMBIA: *Atlántico*: 2 Enero 1949, Araque & Barkley 19At045; *Cundinamarca*: 16 Julio 1947, Uribe 1593.

BRAZIL: 15 Junio 1947, Hatschbach 729; Sept. 1868, Henschen II 35; 15 Marzo 1933, Rambo 306, 25 Junio 1949, 42187, 28 Junio 1949, 42214, 2 Julio 1949, 42301, 5 Junio 1949, 42377, 20 Julio 1949, 42622, 12 Agos-



Leaves and fruit of *Urvillea*. x 1/2

3-1: *Urvillea filipes*, Steinbach 2495; 3-2: *Urvillea ulmacea*, Hunziker 393; 3-2a: *Urvillea ulmacea* Berteriana, Rambo 45866; 3-3: *Urvillea uniloba*, Schulz 53; 3-3a: *Urvillea uniloba* incana, Schwarz 3887; 3-3b: *Urvillea uniloba* debilis; Rambo 39954; 3-6: *Urvillea laevis*, Steinbach 8163.

to 1949, 42918, 22 Agosto 1949, 43010 and 43023, 2 Junio 1950, 47168, 4 Julio 1950, 47212 and 7 Agosto 1950, Rambo 48698; Junio 1862, Regnell II 35; 18 Agosto 1945, Reitz C1170.

PARAGUAY: 5 Agosto 1949, Bertoni 4399; 16 Julio 1919, Jörgensen 4455, 9 Agosto 1946, Rojas 13544.

ARGENTINA: *Salta*: 16 Junio 1946, Borsini 738; 21 Junio 1944, Ruiz s. n.; 17 Agosto 1944, Schulz & Varela 5446. *Misiones*: 7 Julio 1948, Bertoni 3693 and 10 Julio 1948, 3646; 23 Julio 1945, Hunziker 918, 24 Julio 1945, 939, and 26 Julio 1945, Hunziker 962; Julio 1945, Martínez 3542; Julio 1926, Scala 170; 4 Agosto 1945, Schwarz 1112, 15 Julio 1946, 2996, 28 Julio 1946, 3055, 4 Julio 1947, 4700, 18 Abril 1949, 7876, and 5 Agosto 1949, Schwarz 7979; 5 Junio 1949, Schwindt 1791 and 4 Agosto 1950, 4943.

3-2a. *Urvillea ulmacea* var. *Berteriana* Barkl. n. stat. (*Urvillea Berteriana* DC., Prodr. 1: 602. 1824).

BRAZIL: 16 Mayo 1949, Rambo 41600 and 21 Febr. 1950, 45866.

3-3. *Urvillea uniloba* Radlk. Monogr. Serj. 173. 1875.

BRITISH GUIANA: 31 Mar. 16 Abril 1938, Smith 3499.

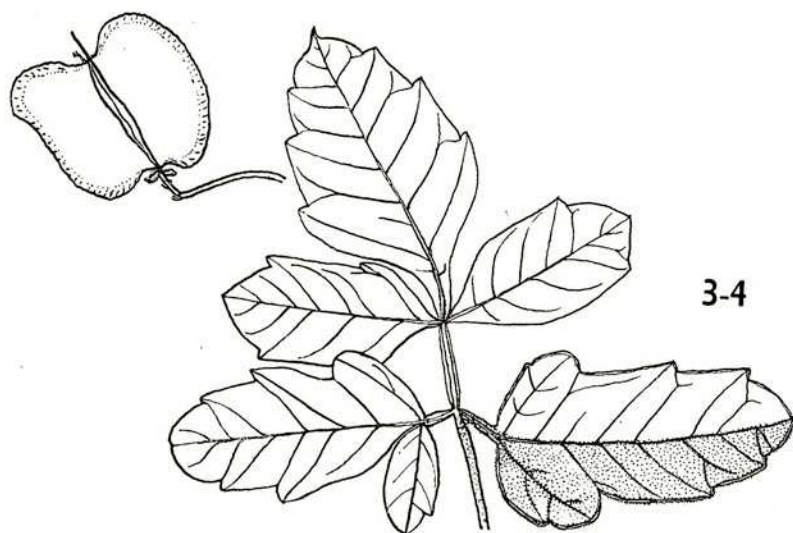
URUGUAY: 21 Abril 1943, Gallinal, Aragone, Bergalli, Campal & Rosengurt PE-5180; 19 Abril 1935, Legrand 552.

BRAZIL: 21 Enero 1948, Palacios & Cuezco 186, 10 Febr. 1948, 899, 29 Febr. 1948, 1574, 1621 and 1692, and 18 Marzo 1948, Palacios & Cuezco 1996; 15 Febr. 1934, Rambo 11204, 6 Febr. 1946, 31634, 24 Dic. 1948, 39134, 12 Enero 1949, 39945, and 7 Julio 1949, Rambo 42477; 5 Febr. 1946, Reitz C1386.

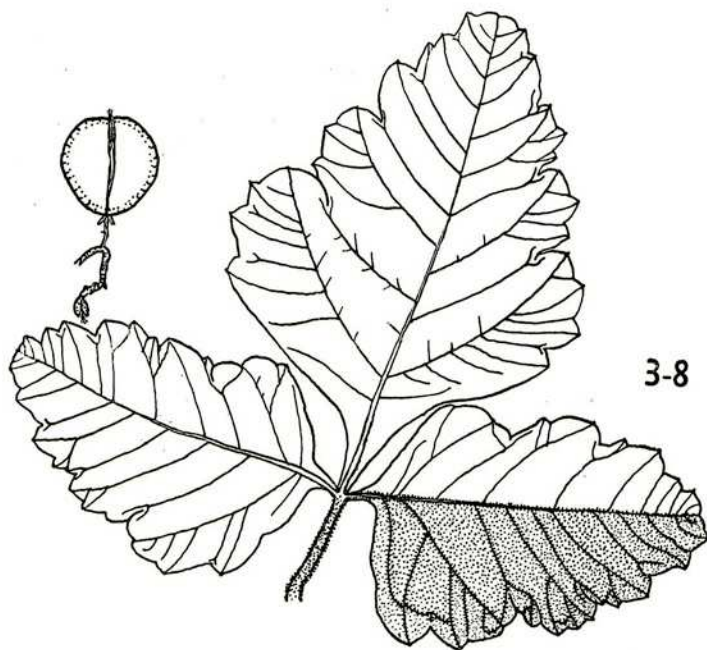
PARAGUAY: 2 Agosto 1945, Bertoni 1712 pr. p.

ARGENTINA: *Misiones*: 27 Marzo 1944, Bertoni s.n., 19 Marzo 1945, 943, and 2 Mayo 1946, Bertoni 2835; 8 Julio 1945, Lourteig 9081; 16 Abril 1948, Schwarz 5759; 14 Mayo 1950, Schwindt 4200 and 9 Mayo 1950, 4343. *Entre Ríos*: 25 Oct. 1946, Meyer 10011, 9 Dic. 1946, 10897 and 20 Dic. 1946, Meyer 11045; 15 Dic. 1944, Schulz 53. *Buenos Aires*: Nov. 1899, Bettfreund 7627; 19 Enero 1947, Krapovickas 3258; 6 Mayo 1937, Pujals 60.

3-3a. *Urvillea uniloba* var. *incana* (Radlk.) Barkl. n. stat. (*Urvillea uniloba* f. *incana* Radlk. in Mart. & Eichl. Fl. Bras. 13³: 423. 1897.



3-4



3-8

Leaves and fruit of *Urvillea*. x 1/23-4: *Urvillea Fiebrigii*, Jörgensen 3089; *Urvillea Sparrei*, Rojas 12681.

ARGENTINA: *Misiones*: 2 Nov. 1945, Bertoni 766, 8 Enero 1946, 2622, 19 Febr. 1946, 2696, 7 Marzo 1946, 2748 and 19 Febr. 1948, Bertoni 3629; Julio 1945, Martínez 3420; 15 Enero 1948, Schwarz and 16 Abril 1948, 4758.

3-3b. *Urvillea uniloba* var. *debilis* Barkley*

BRAZIL: 12 Enero 1949, Rambo 39954.

3-4. *Urvillea Fiebrigii* Barkley**

PARAGUAY: 5 Mayo 1914, Jörgensen 3089; 7 Febr. 1947, Reales 270; Marzo 1916, Rojas 1659.

ARGENTINA: *Formosa*: 19 Sept. 1946, Morel 1315.

3-5. *Urvillea stipitata* Radlk Sitzungsber. bayer. Ac. 8: 264. 1878.

3-6. *Urvillea laevis* Radlk. Atti del Congresso internaz. bot. tenuto in Firenze 63. 1876.

* 3-3b *Urvillea uniloba* var. *debilis* Barkley n. var.

Varietati typicae similis sed foliolis minoribus tenuioribus, floribus minoribus.

Similar to the species but the leaflets smaller and thinner, and the flowers smaller.

TYPE: BRAZIL: *Rio Grande Do Sul*: S. Leopoldo: Ferrabraz, 12 Enero 1949. Rambo 39954 (LIL.).

This variety has the appearance of being a half-size miniature of the typical variety.

* 3-4 *Urvillea Fiebrigii* Barkley n. sp.

Liana; ramis striatis, pilosis; foliis pinnate 5-foliolatis compositis; foliolis obovatis, obtusis lobatis, serrato-dentatisque, supra nitidis, subtus et en venis supra, piloso-pubescentibus, decurrentibus; rachis anguste alatis; petiolis non alatis; pedunculo longo; paniculo brevi; floribus paucis; floribus circa 4 mm. longis; capsula triquetra, triangulari, circa 3 cm. longa et lata, glabra.

Woody vine, with striate, pilose-puberulent branches; leaves 5-foliolate pinnately compound; leaflets obovate, obtuse, lobate and serrate-dentate, darker above, pilose-puberulent below and on the veins above, the laminae decurrent the entire length of the petiolules, rachis narrowly, winged, the petiole not alate; peduncle of the panicle long, tendriloid, the panicle short and few-flowered flowers about 4 mm. long; the fruit tricarpetate, each carpel flat, chartaceous, nearly 3 cm. long and broad, glabrous.

TYPE: ARGENTINA: *Formosa*: *Pilcomayo*: 19 Sept. 1946, Ismael Morel 1315 (LIL.).

A species most difficult to place. The fruit places it best in *Urvillea* but fruits of some species of *Serjania* and some of *Paullinia* approach it. The leaves are most reminiscent of *S. humifusa*.

BOLIVIA: 3 Abril 1945, Peredo 528 and 6 Febr. 1947 s. n.; 8 Oct. 1928, Steinbach 8163 pr. p.

3-7. *Urvillea Sparrei* Barkley*

PARAGUAY: 5 Mayo 1945, Rojas 12681.

4.- *Cardiospermum* L. (1753)

1. Sepals 5; leaflets 3; cells of the fruit broadly winged.
 2. Leaves densely pilose. 4-1 *C. pterocarpum*
 2. Leaves sug'abrous. 4-1a *C. pterocarpum* var. *Balegnoi*
1. Sepals 4; leaves biternate; cells of fruit narrowly winged or wingless.
 2. Cells of fruit narrowly winged; plant herbaceous; sparsely puberulent; hilum broadly cordate.
 3. Leaves large; fruit nearly spherical. 4-2 *C. halicacabum*
 3. Leaves small; fruit much broader than long.
 - 4-2a *C. halicacabum* var. *microcarpum*
 2. Cells of fruit wingless; plant subherbaceous; glabrous to densely pilose; hilum obscurely cordate.
 3. Leaves less than 10 cm. long; pilose to glabrous; fruit about 3 cm. long; sepals about 2 mm. long.
 4. Leaves finely dissected. 4-3a *C. corindum* var. *angustisezum*
 4. Leaves not finely dissected.
 5. Leaves densely velvety pilose. 4-3b *C. corindum* var. *loaxense*
 5. Leaves sparsely puberulent.
 6. Leaflets broadly lanceolate or narrowly ovate. 4-3c *C. corindum* var. *elongatum*
 6. Leaflets lanceolate.
 - 4-3d *C. corindum* var. *subglabratum*

* 3-7 *Urvillea Sparrei* Barkley n. sp.

Scandens fruticosa usque ad 6 m.; ramis lignis, triangularis, pilosis vel tarde glabratibus; trifoliolatis; foliolis ovatis, obtusis, dentato-lobatis, supra nitidis, subtus et supra in venis, molliter et dense tomentosus, obtusis ad basin et decurrentibus foliolis terminalibus circa 8 cm. longis, lateralibus minoribus petiolis 2 cm. longis. pilosis; floribus circa 5 mm. longis; sepalis extus dense tomentosus; fructibus circa 1.5 cm. longis latisque.

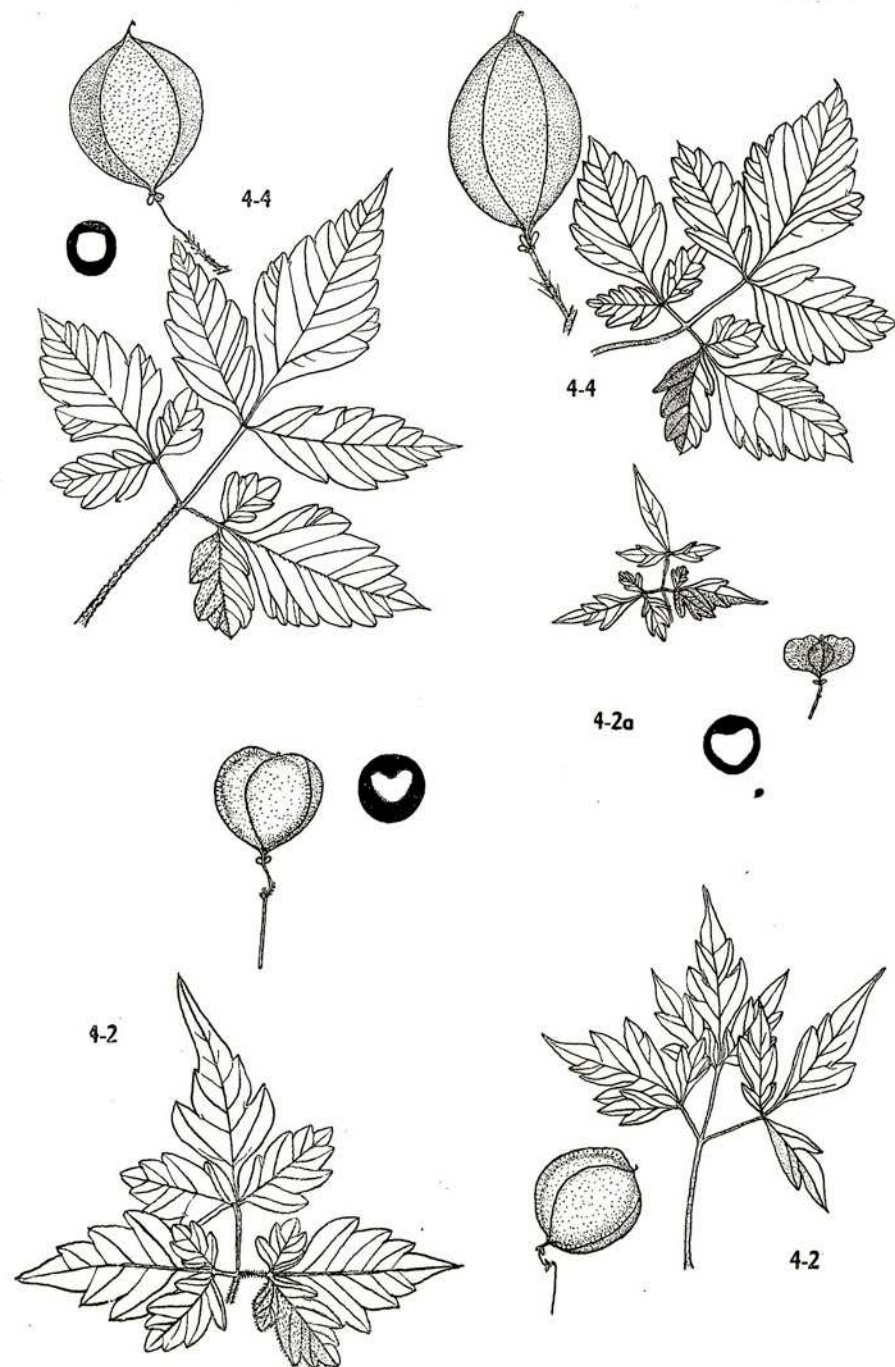
Liana climbing to 6 meters; stems woody, triangular, at first scurfy-pilose but soon glabrate; leaves with leaflets 3; leaflets ovate, obtuse, dentate-lobate, shining above, velvety-pilose below and on the veins above, obtuse at base and decurrent the entire length of the petiolules, the terminal about 8 cm. long the lateral smaller; petiole about 2 cm. long, pilose; panicles shorter than the leaves, pilose; flowers about 5 mm. long; outer sepals densely tomentose; fruit about 1.5 cm. long and broad.

TYPE: PARAGUAY: barranca selvática del río Tebicuary, San Fernando, 5 de Mayo 1945, T. Rojas 12681 (LIL).

3. Leaves over 10 cm. long, pilose; fruit about 4 cm. long, sepals over 3 mm. long. 4-4 *C. grandiflorum*

4-1. *Cardiospermum pterocarpum* Radlk. in Chodat & Hassl. Bull. Herb. Boiss. sér. 2. 3: 806. 1903.

ARGENTINA: *Jujuy*: 16 Mayo 1945, Herrera 473 and 20 Mayo 1945, 553; 12 Abril 1945, Meyer 8664; 12 Abril 1945, O'Donell 3074; 10 Junio 1949, Reales 1416, 11 Junio 1949, 1421 and 12 Junio 1949, Reales 1432. *Salta*: 21 Febr. 1945, Abbiatti & Clapps 640; 9 Julio 1946, Borsini 534; 20 Febr. 1949, Legname 441; 16 Abril 1908, Lillo 8072; 20 Mayo 1947, Luna 116, 13 Abril 1948, 921, and 28 Mayo 1948, Luna 1059; 29 Marzo 1945, Meyer 8358 and 8370, 3 Abril 1945, 8417, 26 Mayo, 9875, 25 Mayo 1946, 9903 and 2 Mayo 1947, 12242; 3 Abril 1945, O'Donell 2612, 4 Abril 1945, 2693, 14 Abril 1945, 3151 and 14 Abril 1945, O'Donell 3166; 24 Junio 1944, Rojas 11320 and Junio 1944, s. n.; 26 Marzo 1935, Schreiter 10121; 24 Julio 1944, Schulz & Varela 5384. *Tucumán*: Abril 1917, Bailetti 81, Marzo 1918, 305 and Marzo 1919, Bailetti s. n. and 321; 20 Febr. 1938, Deseole s. n.; 1 Marzo 1886, Lillo 195, 17 Marzo 1888, 704, 13 Marzo 1890, 1671, 12 Abril 1897, 1914, Mayo 1899, 2263, 25 Abril 1910, s. n.; Abril 1912, 11862 and 14 Mayo 1916, Lillo s. n.; 31 Mayo 1913, Monetti 14773; 8 Mayo 1945, Ortiz s. n.; 16 Abril 1933, Peirano 9643 and 16 Abril 1933, 9650; Mayo 1947, de la Sota 1177 and 1202; Sept. 1905, Schreiter 386, 4 Abril 1920, 1258, 24 Enero 1926, s. n., 27 Febr. 1921, 2192, 28 Nov. 1923, 2193, and 14 Nov. 1930, Schreiter 8125; 29 Marzo 1944, Varela s. n.; 30 Marzo 1944, s. n., 4 Abril 1944, s. n. and 18 Abril 1944, Varela s. n.; Marzo 1919, Venturi 297. *Chaco*: 30 Dic. 1944, Aguilar 199; Abril 1918, Jörgensen 2281; 15 Febr. 1947, Malvárez 719; Junio 1934, Meyer 845, 30 Abril 1945, 8545, 30 Abril 1945, 8765, and 5 Mayo 1945, Meyer 8829; 22 Abril 1945, O'Donell 3180; 18 Junio 1944, Rojas 11254; 20 Junio 1946, Schulz 893. *Catamarca*: 20 Enero 1950, Argañaraz 1054; 12 Abril 1947, Brizuela 1127, 13 Abril 1947, 1142, 24 Abril 1947, 1161, 23 Abril 1947, 1183, 9 Mayo 1947, 1242, and 8 Mayo 1947 Brizuela 1251; 5 Febr. 1950, Brizuela 684, 28 Febr. 1950, 787, 2 Marzo 1950, 806, 9 Marzo 1950, 928, 28 Marzo 1950, 1078, 30 Marzo 1950, 1136, 14 Abril 1950, 1281, 24 Abril 1950, 1303 and 22 Abril 1950, Brizuela s. n.; 22 Febr. 1909, Castellón 1344, 20 Marzo 1908, 1344 (77), 15 Marzo 1909, 1346 and 27 Oct. 1910, Castellón 14571; 6 Abril 1947, Muller 29, 8 Abril 1947, 50 and 15 Abril 1947, Muller 106; 18 Mayo 1944, Pierotti h s. n. and 12 Marzo 1944, s. n.; Schunck 9699 and 9701; 8 Mayo 1950, Sopaga 10; 5 Mayo 1944, Varela 4, 6 Mayo 1944,



Leaves, fruit and seed of *Cardiospermum*.

Leaves and fruit x 1/2. Seed x 2.

4-2: *C. halicacabum*, Monetti 1976; 4-2: *C. halicacabum*, Brizuela 704; 4-2a: *C. halicacabum microcarpum*, Morel 2370; 4-4: *C. grandiflorum*, Lillo 11863; 4-4: *C. grandiflorum*, Schwarz 3063.

28 and 22 Mayo 1944, Varela 156. *Santiago del Estero*: 15 Abril 1944, García s. n.; 1-15 Abril 1944, 2. n., 29 Dic. 1944, 291, 12 Enero 1945, 789, and 28 Enero 1945, García 850; 14 Abril 1947, Luna 36, 12 Dic. 1948, 1350 and 1 Abril 1949, Luna 1437; 20 Julio 1944, Meyer 6835 and 3 Abril 1947, 12020; Marzo 1944, Pierotti *h* 102, 31 Marzo 1944, s. n., 4 Abril 1944, s. n., 9 Abril 1944, s. n. and Pierotti *h* s. n. *La Rioja*: 15 Abril 1942, Alaníz 80; 7 Marzo 1950, Brizuela 900; 18 Enero 1905, Giacomelli 4822; 5 Enero 1948, de la Sota 366.

4-1a. *Cardiospermum pterocarpum* var. *Balegnoi* Barkley*

ARGENTINA: *Tucumán*: Abril 1900, Stuckert 10127. *Santiago del Estero*: 23 Nov. 1944, Balegno 62; 14 Abril 1945, Farhat; 18 Abril 1945, García 938; 10 Abril 1907, Lillo 6167. *Córdoba*: 20 Dic. 1947, Balegno 1457; 7 Marzo 1950, Brizuela 904; 16 Dic. 1947, Meyer 12995; 19 Enero 1947, O'Donell 4412; 3 Abril 1944, O'Donell & Rodríguez 394, 23 Marzo 1944, 572, 31 Marzo 1944, 645, and 28 Marzo 1944, O'Donell & Rodríguez 1285.

4-2. *Cardiospermum halicacabum* L. Sp. Pl. 1: 366. 1753.

UNITED STATES OF AMERICA: 10 Oct. 1945, Tharp & Warnock 45-54.

HONDURAS: 16 Oct. 1943, Vabrio 1229.

COLOMBIA: 3 Dic. 1947, Cardeñoso, Murgueitio & Barkley 17C947.

BRAZIL: 23 Febr.-11 Marzo 1945, Rambo 28135.

PARAGUAY: 19 Oct. 1946, Rojas 13621.

URUGUAY: 19 Marzo 1947, Lombardo s. n.

ARGENTINA: *Salta*: 29 Marzo 1945, Meyer 8350; 1 Abril 1945, O'Donell 2586; 17 Enero 1925, Schreiter 5060 and 7 Feb. 1921, 2195; 26 Mayo 1941, Zabala 120. *Tucumán*: Enero 1918, Bailetti 1 and Febr. 1919, 65; 8 Marzo 1917, Castellón 182 and 182b, 22 Marzo 1917, 214, Agosto 1905, 385, 15 Febr. 1913, 2605 and 30 Abril 1900, Castellón 2512; 4 Marzo 1945, Herrera 257; 12 Mayo 1888, Lillo 196 and 689, 13 Abril 1890, 1668, and 16 Abril 1905, Lillo 4446; Febr. 1914, Monetti 1976; 8 Mayo

* 4-1 *Cardiospermum pterocarpum* var. *Balegnoi* Barkley n. var.

Varietati typicae similis, sed foliolis paulum crassioribus angustioribus glabris vel subglabratibus, fructibus latius alatis.

Similar to the species, but the leaflets somewhat heavier, narrower, and glabrous or subglabrate, the fruit proportionately broader winged.

TYPE: ARGENTINA: *Córdoba*: 20 Dic. 1947, Balegno 1457 (LIL.).

1945, Ortiz s. n.; Abril 1933, Peirano 9629; Marzo 1918, Schreiter 768, 6 Enero 1922, 1912 and 21 Marzo 1924, Schreiter s. n.; Mayo 1947, de la Sota 1181; 5 Febr. 1949, Sparre 5608; 19 Abril 1944, Varela s. n.; Marzo 1919, Venturi 290 and 16 Abril 1926, 4712. *Formosa*: Dic. 1917, Jörgensen 2271; 22 Oct. 1946, Morel 1520, 15 Nov. 1946, 1669 and 2 Dic. 1948, Morel 6677; 8 Enero 1947, Reales 113. *Misiones*: 21 Mayo 1947, Ruiz 4852 and 14 Febr. 1947, 5429. *Chaco*: 15 Abril 1937, Meyer 2292. *Corrientes*: 30 Marzo 1944, Ibarrola 417, and 16 Febr. 1945, 2433; 26 Marzo 1948; Palacios & Cuezco 2238. *Entre Ríos*: 13 Dic. 1944, Schulz 35. *Catamarca*: 8 Febr. 1947, Brizuela 755, 28 Febr. 1947, 877, 6 Febr. 1947, 961 and 26 Abril 1947, Brizuela 1207; 2 Febr. 1950, Brizuela 552, 28 Marzo 1950, 1085, 11 Abril 1950, 1208, 14 Abril 1950, 1227 and 18 Marzo 1950, Brizuela 1247; 22 Febr. 1909, Castellón 1343; 24 Marzo 1915, Jörgensen 1419; 12 Marzo 1944, Pierotti h s. n.; 3 Febr. 1949, Reales 1546; 24 Marzo 1944, Varela 172. *Santiago del Estero*: 12 Abril 1944, García 205 and 15 Abril 1945, 872; 28 Mayo 1913, Monetti 14771. *Córdoba*: Marzo 1920, Castellanos s. n.; 19 Marzo 1947, Gutiérrez 128; 8 Abril 1950, Krapovickas 6634; 6 Mayo 1899, Lillo 10115; 10 Marzo 1944, O'Donell & Rodríguez 460, 1 Abril 1944, 628, 26 Marzo 1944, 687, 23 Marzo 1944, 768 and 14 Marzo 1944, O'Donell & Rodríguez 891; 14 Febr. 1944, Pierotti s. n.; 11 Marzo 1944, Ruiz s. n. and 25 and 8 Abril 1944, 379; 27 Febr. 1950, de la Sota 2192; 16 Dic. 1901, Stuckert 10677. *San Luis*: 7-9 Abril 1944, Ruiz 9190. *Santa Fe*: 5 Mayo 1947, Schulz 1241. *Buenos Aires*: 20 Febr. 1945, Boffa s. n.

4-2a. *Cardiospermum halicacabum* var. *microcarpum* (Kunth) Blume, Rumphia 3: 185. 1847.

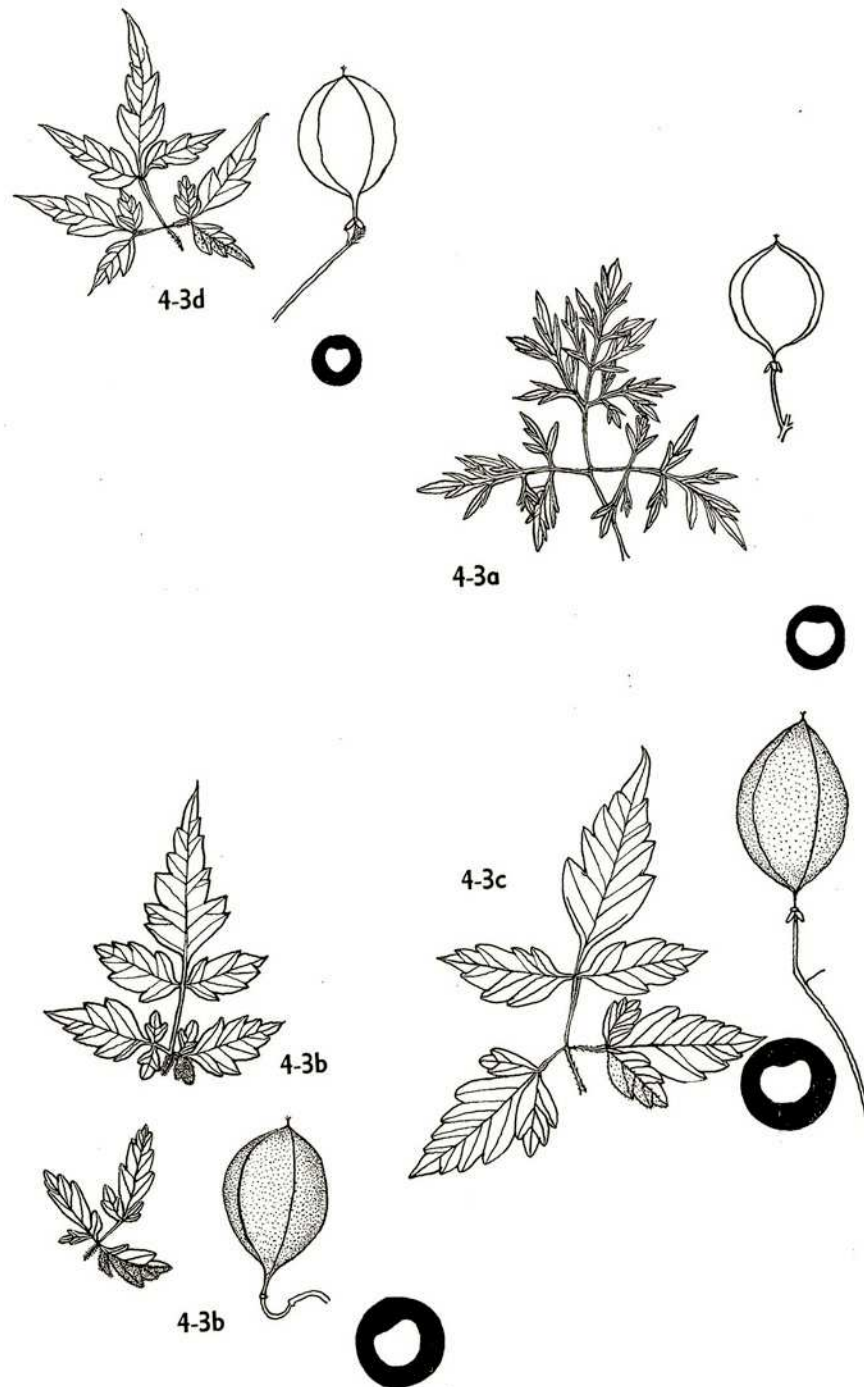
UNITED STATES OF AMERICA: 15 Mayo 1901, Tracy 7483.

BOLIVIA: 28 Marzo 1894, Bañg 2110; Oct.-Dic. 1912, Buchtien s. n.

PARAGUAY: 9 Marzo 1949, Bertoni 3927; Enero, Jörgensen 3743; 17 Enero 1944, Rojas 10909.

ARGENTINA: *Formosa*: Enero 1919, Jörgensen 3131; 12 Enero 1946, Morel 650, 31 Enero 1946, 769 and 31 Marzo 1947, Morel 2370. *Chaco*: Junio 1941, Schulz 1757 and Marzo 1950, 7499. *Misiones*: 21 Febr. 1944, Meyer 5837; 31 Marzo 1910, Rodríguez 262; 24 Febr. 1947, Schwarz 4184 and 2 Mayo 1947, 4577; 6 Mayo 1947, Schwindt 266, 28 Febr. 1949, 1266, and 5 Mayo 1950, Schwindt 4273.

4-3. *Cardiospermum corindum* L. Sp. Pl. ed. 2: 526. 1762.



Leaves, fruit and seed of *Cardiospermum*.

Leaves and fruit x 1/2. Seed x 2.

4-3a: *C. corindum angustisectum*, Meyer 10395; 4-3b: *C. corindum loxense*, Venturi 4919; 4-3b: *C. corindum loxense*, Buchtein s.n.; 4-3c: *C. corindum elongatum*, Schwarz & Varela 5418; 4-3d: *C. corindum subglabratum*, Bailetti 299.

4-3a. *Cardiospermum corindum* var. *angustisectum* (Griseb.) Barkl. n. comb. (*Cardiospermum halicacabum* var. *angustisectum* Griseb. Symb. Arg. 78. 1879; *Cardiospermum corindum* f. *angustisectum* Radlk. Mart. & Eichl. Fl. Bras. 13³: 448. 1897).

ARGENTINA: *Santiago del Estero*: 24 Enero 1944, Argañaraz 522; 16 Dic. 1947, Balegno 1337. *La Rioja*: Stuckert 17011. *Córdoba*: 28 Dic. 1946, Balegno 1205; 27 Enero 1922, Castellanos s. n.; 7 Nov. 1945, Cuez-zo 892; 25 Febr. 1945, Krapovickas 1901; 16 Dic. 1947, Meyer s. n. and 18 Dic. 1947, 13095; 20 Nov. 1947, Ragcnese & Puccinini 6110; 7 Enero 1948, de la Sota 222 and 30 Nov. 1949, 1418; 5 Dic. 1901, Stuckert 10328; 21 Dic. 1946, Villafañe 136, 10 Enero 1947, 381 and 22 Enero 1947, Villafañe 462.

4-3b. *Cardiospermum corindum* var. *loxense* (Kunth) Barkl. n. comb. (*Cardiospermum loxense* Kunth in HBK. Nov. Gen. et Sp. 5: 79. 1821; *Cardiospermum corindum* f. *loxense* Radlk. in Mart. & Eichl. Fl. Bras. 13³: 447. 1897).

BOLIVIA: Nov. 1911, Buchtien s. n.

ARGENTINA: *Jujuy*: 16 Febr. 1927, Venturi 4919.

4-3c. *Cardiospermum corindum* var. *elongatum* (Radlk.) Barkl. n. stat. (*Cardiospermum corindum* f. *elongatum* Radlk. in Mart. & Eichl. Fl. Bras. 13³: 448. 1897).

COLOMBIA: 25 Oct. 1947, Klevens, Gutiérrez & Barkley 17C361.

BOLIVIA: 10 Abril 1946, Peredo s. n. pr. p.; 28 Febr. 1916, Steinbach 1795.

ARGENTINA: *Jujuy*: Dic. 1945, Herrera 513. *Salta*: 13 Enero 1947, Malvárez 569; 12 Agosto 1944, Schulz & Varela 5418. *Tucumán*: 13 Abril 1897, Lillo 1915.

4-3d. *Cardiospermum corindum* var. *subglabratum* (Radlk.) Barkl. n. stat. (*Cardiospermum corindum* f. *subglabratum* Radlk. in Mart. & Eichl. Fl. Bras. 13³: 447. 1897).

JUJUY: 6 Enero 1923, Castillon 9270; 11 Abril 1945, O'Donell 3020 and 12 Abril 1945, 3085. *Salta*: 4 Abril 1945, O' Donell 2744 and 18 Febr. 1947, 5388; 17 Oct. 1925, Schreiter 5060. *Tucumán*: 20 Abril 1903, González 10118; Mayo 1918, Bailetti 297 and 299; 15 Marzo 1905, Bodenbender s. n.; 5 Abril 1914, Monetti 2207; 24 Febr. 1920, Schreiter



Leaves, fruit and seed of *Cardiospermum*.

Leaves and fruit x 1/2. Seed x 2.

4-1: *C. pterocarpum*, Herrera 473; 4-1: *C. pterocarpum*, Malvárez 719; 4-1: *C. pterocarpum*, Schreiter 10121; 4-1: *C. pterocarpum*, García 938; 4-1: *C. pterocarpum*, Meyer 12020; 4-1a: *C. pterocarpum* Balegnoi, O'Donell & Rodríguez 1285; 4-1a: *C. pterocarpum* Balegnoi, Balegno 1457.

1131; Stuckert 16993 and 26 Marzo 1910, 21623. *Santa Fe*: 8 Dic. 1905. Venturi 288.

4-4. *Cardiospermum grandiflorum* Swartz, Prodr. 64. 1788.

COLOMBIA: 15 Enero 1947, García 12189; 7-9 Enero 1947, Gutiérrez 1166; 1 Enero 1949, Yunis, Araque & Barkley 19At040.

PERÚ: 21 Abril 1949, Ferreyra 5966 (stems setose); Enero 1949, Marín 1298; 22 Febr. 1947, Waytkowski 35144 and 24 Febr. 1947, 35154.

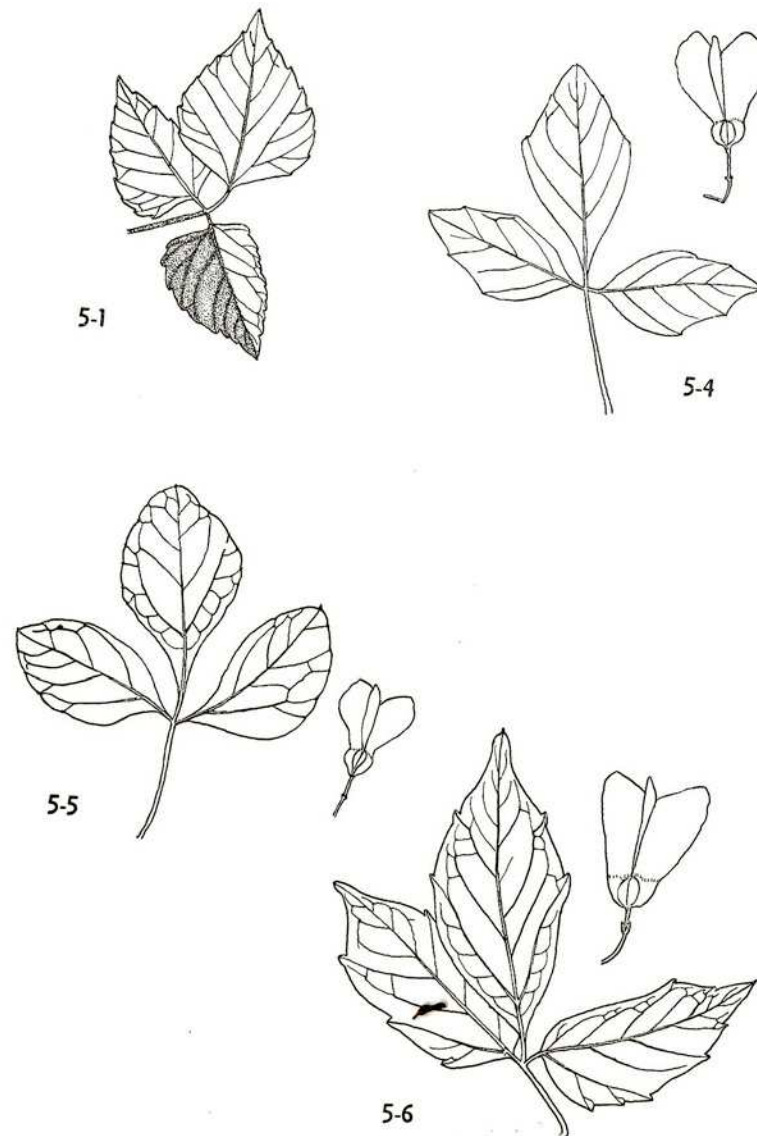
BOLIVIA: 10 Abril 1946, Peredo s. n. pr. p.; 21 Junio 1916, Steinbach 2406, 26 Agosto 1916, 2774 and 30 Agosto 1925, Steinbach 7206.

BRAZIL: 2 Oct. 1945, Friedrichs 32924; 17 Oct. 1945, Henz 32785; 29 Febr. 1948, Palacios & Cuezso 1603; 8 Agosto 1934, Rambo 1199, 15 Febr. 1934, 1201, 23 Junio 1949, 42133, 2 Julio 1949, 42339, 24 Agosto 1949, 43064, 21 Junio 1950, 47157, 26 Junio 1950, Rambo 47194.

URUGUAY: 30 Junio 1930, Herter 1375.

PARAGUAY: 2 Julio 1945, Bertoni 1712 pr. p. and 9 Junio 1949, 4261; 1909-1910, Fiebrig 6011 (stems setose); Enero, Jörgensen 3755; 5 Nov. 1944, Rojas 12426.

ARGENTINA: *Tucumán*: Junio 1912, Lillo 11863 and Julio 1913, 12903; 14 Abril 1921, Venturi 1273 and Enero 1919, 1299. *Formosa*: Dic. 1917, Jörgensen 2271; 9 Enero 1945, Krapovickas 1115; 22 Nov. 1945, Morel 370, 10 Enero 1947, 2055, 21 Junio 1947, 3132 and 11 Julio 1947, Morel 3360. *Misiones*: 10 Abril 1944, Bertoni s. n. 22 Abril 1945, 1311, 17 Junio 1945, 1494, 10 Julio 1945, 1547, 15 Julio 1945, 1582, 13 Julio 1945, 1589, 31 Julio 1945, 1790, 16 Julio 1946, 2818A, 24 Abril 1946, 2859, 9 Mayo 1949, 4175 and 11 Mayo 1949, Bertoni 4196; Julio 1945, Martínez 3388; 17 Dic. 1945, Montes 1559, 12 Mayo 1940, 1626, 12 Mayo 1949, 1640 and 6 Junio 1946, Montes 2325; 20 Abril 1910, Rodríguez 284; 28 Julio 1946, Schwarz 3064, 20 Abril 1947, 4523, 6 Mayo 1947, 4618, 3 Julio 1947, 4684, 10 Agosto 1947, 4718, 3 Junio 1948, 6027 and 6028, 25 Sept. 1948, 6166 and 5 Abril 1950, Schwarz 10380; 16 Julio 1947, Schwindt 340, 6 Junio 1949, 1802, 10 Mayo 1950, 4395, 17 Mayo 1950, 4454 and 8 Agosto 1950, Schwindt 4993. *Corrientes*: 11 Mayo 1944, Ibarrola 479, 20 Julio 1944, 710, 15 Dic. 1944, 1698, 28 Nov. 1945, 3782, 5 Dic. 1945, 3932 and 29 Marzo 1946, Ibarrola 4399; 13 Dic. 1944, Schwarz 353 and 16 Nov. 1949, 8734. *Córdoba*: 9 Mayo 1897, Stuckert 8159. *Buenos Aires*: 25 Mayo 1941, de Carlo 40; Febr. 1896, Lillo 1865; 22 Mayo 1941, Turner 32.



Leaves and fruit of *Thinouia*. x 1/2

5-1: *Thinouia paraguayensis*, Peredo s.n.; 5-4: *Thinouia mucronata*, Montes 2430;
5-5: *Thinouia repanda*, Schwarz 4375; 5-6: *Thinouia ventricosa*, Rambo 42578.

5.- *Thinouia* Triana & Planch. (1862)

1. Terminal leaflet deltoid.
2. Terminal leaflet obtuse, pilose below; Paraguay and Brazil.
 - 5-1 *T. paraguayensis*
 - 5-2 *T. sepium*
2. Terminal leaflet subacute, subglabrous; Brazil
1. Terminal leaflet not deltoid.
2. Terminal leaflet ovate-subrhomboid to oblong-lanceolate; Brazil.
 - 5-3 *T. scandens*
2. Terminal leaflet not as above.
3. Terminal leaflet oval, obtuse, subdentate; Brasil to Argentina.
 - 5-4 *T. mucronata*
3. Terminal leaflet sublanceolate, acute, repand-dentate.
4. Wing apex of fruit rotund; Paraguay, Brazil, Bolivia and Argentina.
 - 5-5 *T. repanda*
4. Wing apex of fruit obliquely truncate; Brazil.
 - 5-6 *T. ventricosa*

5-1. *Thinouia paraguayensis* (Morong & Britton) Radlk. in Engler & Prantl. Nat. Pflanzenf. 3⁵: 308. 1895.

BOLIVIA: 20 Enero 1945, Peredo 22 and 27 Dic. 1946, s. n.

5-4. *Thinouia mucronata* Radlk. Sitzungsab. Bayer. Akad. 8: 282. 1878.

ARGENTINA: *Misiones*: 18 Julio 1946, Montes 2430; 11 Enero 1913, Rodríguez 715; 27 Febr. 1947, Schwarz 4203; 2 Enero 1948, Schwindt 519, 2 Junio 1948, 684, 28 Febr. 1949, 1271, 16 Abril 1950, 3929 and 13 Julio 1950, Schwindt 4767.

5-5. *Thinouia repanda* Radlk. in Engl. & Prantl, Nat. Pflanzenf. 3⁵: 308. 1895.

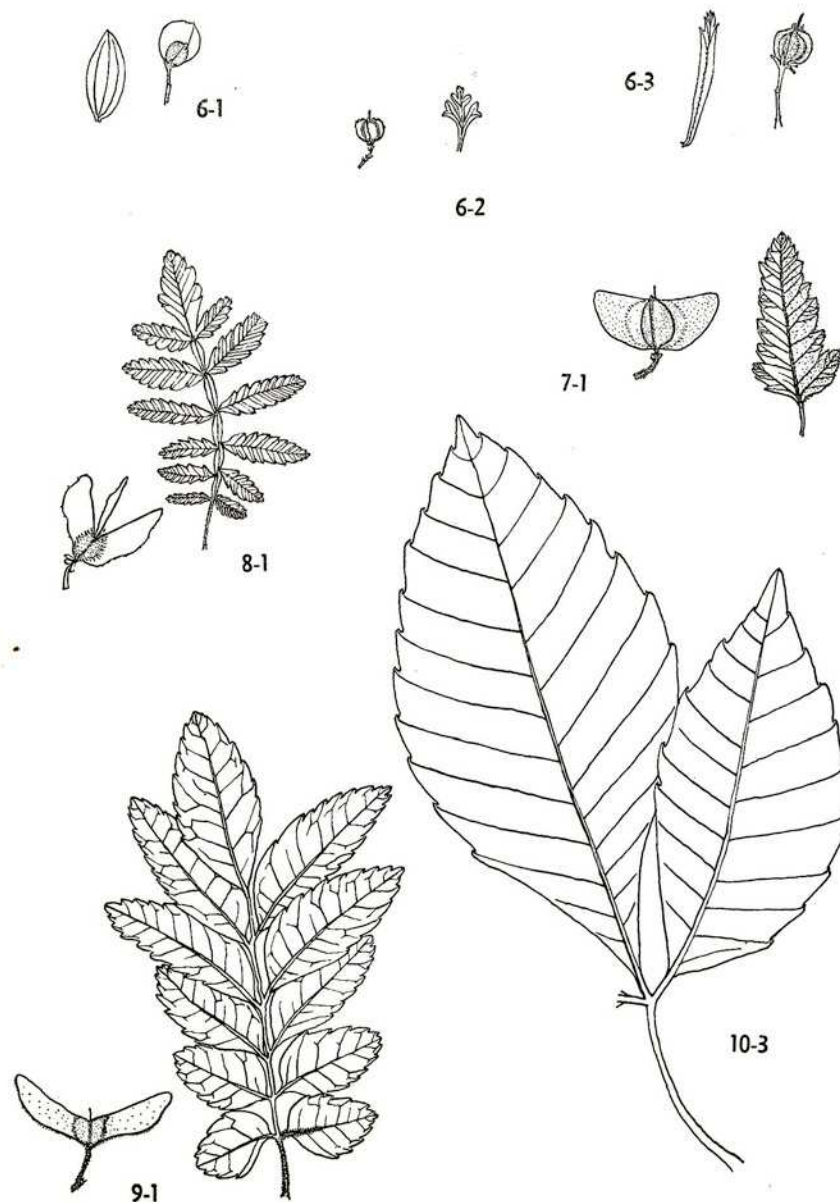
ARGENTINA: *Misiones*: 17 Mayo 1949, Montes 1692; 18 Marzo 1947, Schwarz 4375.

5-6. *Thinouia ventricosa* Radlk. Atti del Congr. Internaz. Bot. ten. Firenze 161. 1876.

BRAZIL: 18 Julio 1949, Rambo 42578.

6.- *Valenzuela* Bertero (1830)

1. Carpels of fruit not winged; leaves three nerved; Chile and Mendoza.
 - 6-1 *V. trinervis*
1. Carpels of fruit winged.
2. Leaves dissected; fruit glabrous, small; Mendoza
 - 6-2 *V. dissecta*
2. Leaves linear, serrate at the truncate apex; fruit puberulent, large; Catiamarca to San Juan.
 - 6-3 *V. cristata*



Leaves and fruit: *Valenzuela*, *Bridgesia*, *Athyana*,
Diatenopteryx and *Allophyllus*. x 1/2

6-1: *Valenzuela trinervis*, Werdermann 483; 6-2: *Valenzuela dissecta*, Semper 573;
6-3: *Valenzuela cristata*, Schreiter 6279; 7-1: *Bridgesia incisifolia*, Giles 512; 8-1:
Athyana weinmannifolia, Rojas 11466; 9-1: *Diatenopteryx sorbifolia*, Schwindt 2334;
10-3: *Allophyllus paniculatus* Steinbach 2572.

6-1. *Valenzuela trinervis* Bert. Comm. e. Hb. DC. etc. 1830.

CHILE: 1828-1835, Gay s. n.; Dic. 1924, Werdermann 483.

6-2. *Valenzuela dissecta* Covas & Burkart, Darwiniana 6: 604. 1944.

ARGENTINA: *Mendoza*: 13 Enero 1944, Covas 1375 and 20 Marzo 1944, 2890; 6 Abril 1947, García 188; 15 Abril 1945, Semper 573.

6-3. *Valenzuela cristata* Radlk. Bull. Hb. Boiss. II, 2: 12. 1902.

ARGENTINA: *Catamarca*: 7 Febr. 1930, Schreiter 6279 and 9 Febr. 1930, 6341.

7.- *Bridgesia* Bertero (1830)

One species; Chile.

7-1 *B. incisifolia*

7-1. *Bridgesia incisifolia* Bertero, comm. e. Hb. DC. etc. 1830.

CHILE: 15 Agosto 1947, Jiles 221, 28 Nov. 1947, 512 and 5 Sept. 1949, Jiles 1306; 5 Agosto 1939, Wagenknecht 18410; Nov. 1923. Werdermann 92.

8.- *Athyana* (Griseb.) Radlk. (1887)

One species; Bolivia and Argentina.

8-1 *A. weinmannifolia*

8-1. *Athyana weinmannifolia* (Griseb.) Radlk. in Durand, Ind. Gen. 73. 1887.

ARGENTINA: *Jujuy*: 5 Julio 1911, Rodríguez 10794 and 29 Oct. 1911, 10848; Dic. 1909, Venturi 334b and 11 Oct. 1927, 5419. *Salta*: 20 Nov. 1911, Rodríguez 104; 27 Junio 1944, Rojas 11466; 25 Sept. 1925, Schreiter 5032; 10 Julio 1944, Schulz & Varela 3138; 26 Nov. 1909, Venturi 334.

9.- *Diatenopteryx* Radlk. (1878)

One species; Brazil, Bolivia, Paraguay, and Argentina.

9-1 *D. sorbifolia*

9-1. *Diatenopteryx sorbifolia* Radlk. Sitzungsber. Bayer. Akad. 8: 284. 1878.

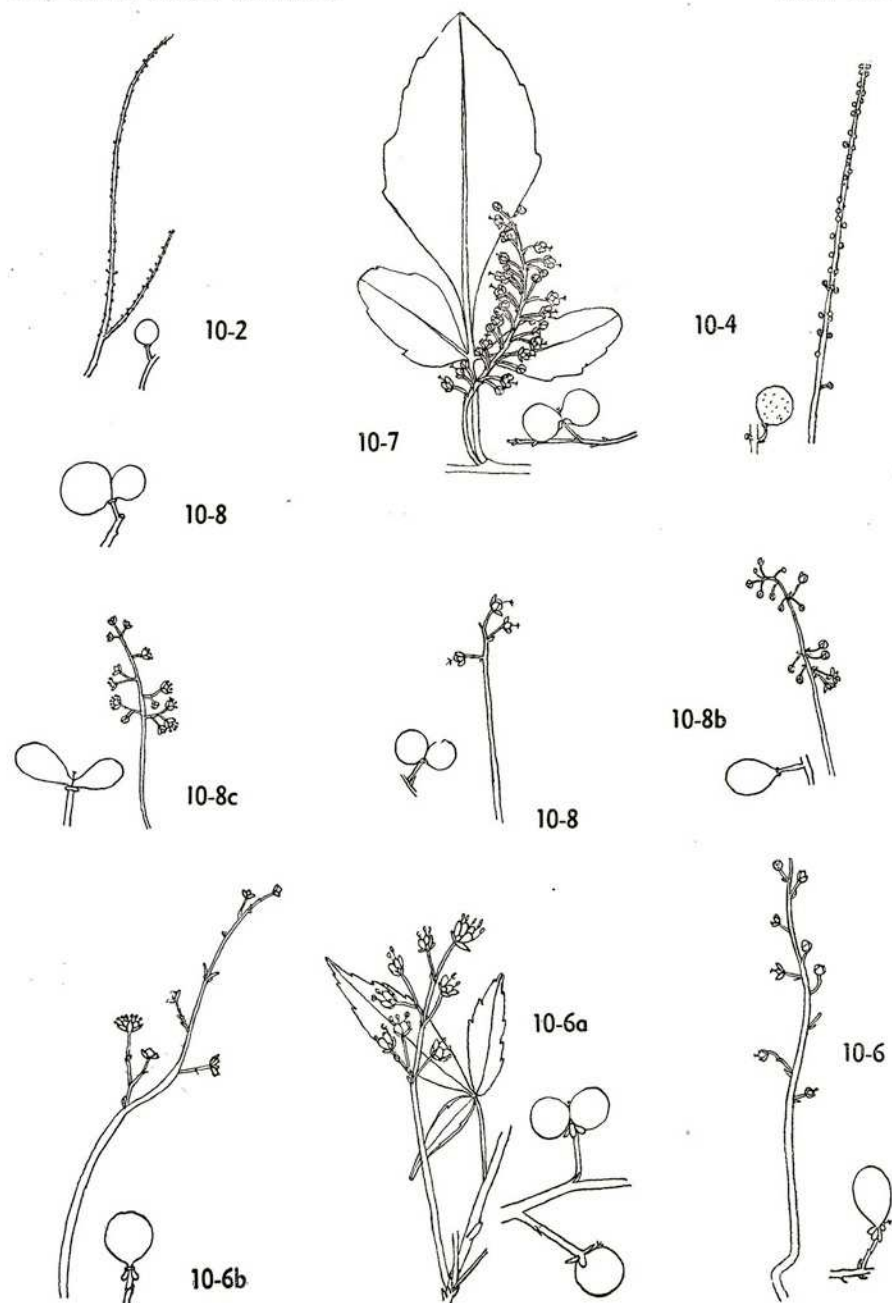
ARGENTINA: *Misiones*: 8 Sept. 1945, Bertoni 1890, 18 Sept. 1945, 1925, 15 Sept. 1945, 2898, 25 Sept. 1946, 2955, 27 Oct. 1948, 3788 and 18 Oct. 1948, Bertoni 3795; 5 Sept. 1945, Schwarz 1207, 7 Oct. 1947, 4902, 15

Oct. 1947, 4973, 15 Oct. 1948, 6407, 2 Sept. 1950, Schwarz 10787; 17 Oct. 1947, 441, 9 Oct. 1948, 805, 26 Oct. 1948, 778 and 7 Nov. 1949, Schwindt 2334.

10.- *Allophyllus* L. (1753) *

1. Thyrsus branched; leaflets subcoriaceous to coriaceous, glabrous, entire or serrulate - subentire.
 2. Thyrsus somewhat branched.
 3. Leaves 6 to 16 cm. long, acuminate; Brazil and Bolivia.
 - 10-1 *A. petiolulatus*
 3. Leaves 3 to 5 cm. long, obtuse; Bolivia.
 - 10-2 *A. Steinbachii*
 2. Thyrsus much branched.
 - 10-3 *A. paniculatus*
1. Raceme essentially unbranched; leaflets various.
 2. Lateral leaflets distinctly petiolulate.
 3. Leaflets narrowly obovate.
 4. Leaflets acute, coriaceous; leaves about 15 cm. long; inflorescence with flowers subsessile, about 1 mm. in diameter; sepals pilose and glandular ciliate; Brazil and Bolivia.
 - 10-4 *A. strictus*
 4. Leaflets acuminate, membranous; leaves about 20 cm. long; inflorescence with flowers distinctly pedicellate, about 2 mm. in diameter; sepals pilose ciliate; Brazil and Bolivia.
 - 10-5 *A. semidentatus*
 3. Leaflets lanceolate or narrowly ovate leaves 15 cm. long or less; inflorescence with flowers distinctly pedicellate, about 2 mm. in diameter, sepals glandular ciliate.
 4. Leaves coriaceous to subcoriaceous; fruit ovoid; Brazil, Uruguay, Paraguay and Bolivia.
 - 10-6 *A. edulis*
 4. Leaves membranous, fruit spherical.
 5. Leaves lanceolate, serrate; Misiones.
 - 10-6a *A. edulis* var. *gracilis*
 5. Leaves ovate, dentate-serrate; Salta and Tucumán.
 - 10-6b *A. edulis* var. *Rosae*
 2. Lateral leaflets sessile or subsessile.
 3. Lateral leaflets subsessile, leaflets coarsely sublobate-dentate, subacute, subcoriaceous.
 4. Leaflets glabrous except for pilose tufts below in the axils of the veins; Brazil, Uruguay, Paraguay and Argentina.
 - 10-7 *A. guaranticus*
 4. Leaflets soft-pilose below; Misiones.
 - 10-7a *guaranticus* var. *pilose*
 3. Lateral leaflets sessile, leaflets serrate-dentate, acuminate.

* *Allophyllus*. Prepared jointly by Fred A. Barkley & Martín Villa Carenzo.



Inflorescences and fruit of *Allophyllus*. x 1

10-2: *Allophyllus Steimbachii*, Steinbach 8040; 10-4: *Allophyllus strictus*, infl.: Gardner 3073, fruit: Steinbach 7491; 10-6: *Allophyllus edulis*, infl.: Rambo 42394, fruit: Rambo 42901; 10-6a: *Allophyllus edulis gracilis*, infl.: Schwandt 4960, fruit: Schwarz 10761; 10-6b: *Allophyllus edulis Rosai*, infl.: Schreiter 11493, fruit: Rosa 251; 10-7: *Allophyllus guaranticus*, infl.: Schwarz 10412, fruit: Schwandt 4949; 10-8: *Allophyllus pauciflorus Rojasii*, Rojas 13626; 10-8: *Allophyllus pauciflorus*, Morel 8389; 10-8b: *Allophyllus pauciflorus Lilloi*, infl.: Schreiter 5204, fruit: Schreiter 11337; 10-8c: *Allophyllus pauciflorus Schreiteri*, infl.: 3421, fruit: Lillo 5329.

1. Leaves subcoriaceous; Bolivia and Argentina. 10-8 *A. pauciflorus*
4. Leaves membranous.
 5. Leaves very thin; fruit spherical; leaflets finely serrate-dentate; Paraguay. 10-8a *A. pauciflorus* var. *Rojasii*
 5. Leaves thicker; fruit ovoid; leaflets serrate-dentate.
 6. Median leaflet broadly ovate; Tucumán. 10-8b *A. pauciflorus* var. *Lilloi*
 6. Median leaflets narrowly ovate to lanceolate; Tucumán and Salta. 10-8c *A. pauciflorus* var. *Schreiteri*

10-1. *Allophyllus petiolulatus* Radlk. Abh. bayer. Akad. 2: 181. 1886.

10-2. *Allophyllus Steimbachii* Barkley & Villa*

BOLIVIA: 11 Junio 1928, Steinbach 8040.

10-3. *Allophyllus paniculatus* (Poepp. & Endl.) Radlk. in Engl. & Prantl, Nat. Pflanzenfam. 3⁵: 312. 1895.

BOLIVIA: Agosto 1915, Steinbach 1545, 11 Agosto 1916, 2572, 21 Agosto 1916, 2651, and 12 Agosto 1917, Steinbach 3375.

10-4. *Allophyllus strictus* Radlk. in Engl. & Prantl, Nat. Pflanzenfam. 3⁵: 312. 1895.

BOLIVIA: 4 Marzo 1926, Steinbach 7491.

10-5. *Allophyllus semidentatus* (Miq.) Radlk. in Eng. & Prantl. Nat. Pflanzenfam. 3⁵: 312. 1895.

BOLIVIA: 29 Sept. 1916, Steinbach 2854, 20 Oct. 1916, 3052 and 2 Enero 1926, Steinbach 7394.

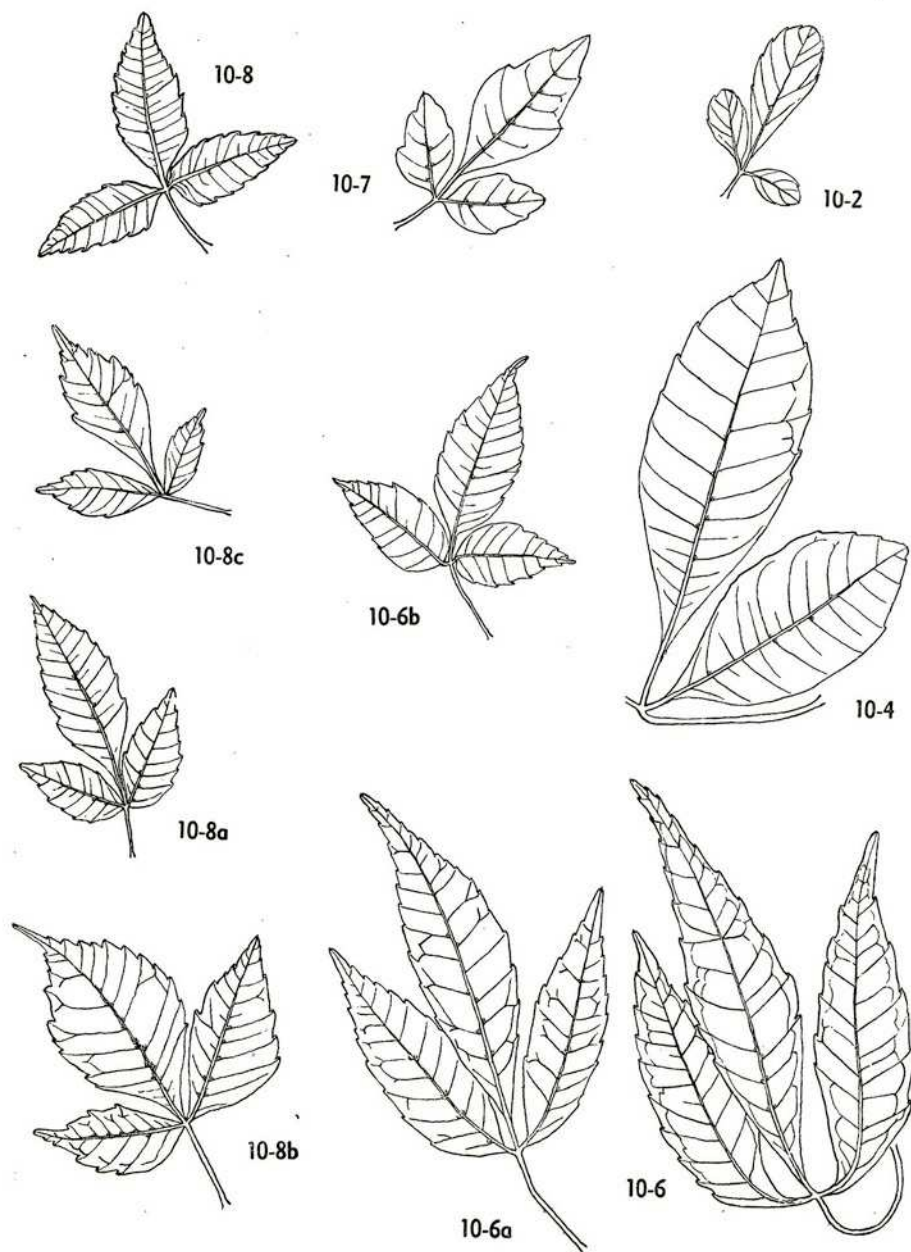
10-6. *Allophyllus edulis* (St. Hil.) Radlk. in Warming, Symb. 37: 995. 1890.

* 10-2 *Allophyllus Steimbachii* Barkley & Villa, n. sp.

Frutex, ramis gracilibus, glabris; foliis circa 5 cm. longis, glabris fasciulis pilosis sub axillis foliolorum exceptis; foliolis coriaceis, obovatis, obtusis, crenulato-serratis, sessilibus, foliolis lateralibus multo minoribus quam foliola terminalia; inflorescentiis simplicibus sed plerumque semel ramificatis; floribus pedicellatis; drupis sphaericis, 4 mm. diametro.

Shrub; branches slender, glabrate; leaves about 5 cm. long, ternate, glabrous except for pilose tufts in the axils of the veins underneath the leaflets; leaflets coriaceous, abovate, obtuse, finely crenate-serrate, sessile, the lateral leaflets 1/3 to 1/2 as long as the terminal; inflorescence simple or usually once-branched; flowers shortly pedicellate; fruit spheroidal, 4 mm. in diameter.

TYPE: BOLIVIA: Santa Cruz: Cercado: Urubo. 450 m. alt., 11 Junio 1928, Steinbach 8040 (LIL.).

Leaves of *Allophyllus*. x 1/2

10-2: *Allophyllus Steimbachii*, Steinbach 8040; 10-4: *Allophyllus strictus*, Steinbach 7491; 10-6: *Allophyllus edulis*, Rambo 42901; 10-6a: *Allophyllus edulis gracilis*, Schwarz 10761; 10-6b: *Allophyllus edulis Rosai*, Rosa 251; 10-7: *Allophyllus guaniticus*, Schwindt 4949; 10-8: *Allophyllus pauciflorus*, Morel 8389; 10-8a: *Allophyllus pauciflorus Rojasii*, Rojas 13626; 10-8b: *Allophyllus pauciflorus Lilloi*, Schreiter 5204; 10-8c: *Allophyllus pauciflorus Schreiteri*, Schreiter 3421.

BRAZIL: Agosto 1944, Henz 27573, 3 Oct. 1945, 22650 and 17 Agosto 1946, 33445; 7 Sept. 1932, Rambo 667, 15 Agosto 1945, 29006, 11 Agosto 1948, 37448, 5 Julio 1949, 42394, 7 Julio 1949, 42465, 18 Julio 1949, 42574, 25 Julio 1949, 42706, 5 Agosto 1949, 42743, 12 Agosto 1949, 42901, 17 Agosto 1949, 42939 and 28 Julio 1949, Rambo 43126.

PARAGUAY: 1909-1910, Fiebrig 5406.

ARGENTINA: *Formosa*: 23 Julio 1947, Morel 3531. *Misiones*: 11 Oct. 1946, Bertoni 3013; 3 Oct. 1946, Medina 28 and 9 Oct. 1946, 48; 5 Agosto 1944, Montes 178; 20 Agosto 1945, Schwarz 1133, 25 Agosto 1945, 1153, 28 Agosto 1945, 1168, 22 Agosto 1946, 3205, 28 Agosto 1946, 3250, 25 Agosto 1947, 4737, 30 Agosto 1947, 4852, 8 Oct. 1947, 4913, 9 Nov. 1948, 6555, 11 Agosto 1950, 10515, 15 Agosto 1950, 10593, 2 Sept. 1950, 10761, 6 Sept. 1950, 10806 and 6 Sept. 1950, Schwarz 10827; 14 Agosto 1947, Schwindt 395, and 10 Oct. 1949, 2023; 2 Julio 1909, Venturi 23. *Corrientes*: 7 Oct. 1949, Schwarz 8144.

10-6a. *Allophyllus edulis* var. *gracilis* Radlk. in Chodat, Bull. Herb. Boiss. 7 Append. 1: 69. 1899.

BRAZIL: 5 Oct. 1947, Hatschbach 772; 12 Sept. 1945, Rambo 29091 and 25 Oct. 1940, 49041; 18 Agosto 1945, Reitz C-1168 and 24 Dic. 1948, 2765.

URUGUAY: 13 Oct. 1946, Rosengurtt & Gallinal 5686; 10 Oct. 1948, Gallinal, Aragone, Bergalli, Campal & Rosengurtt PE-5306; 29 Oct. 1912, Herter 589; 8 Oct. 1946, Lombardo s. n.; Sept. 1934, Rosa 558; 13 Nov. 1942, Rosengurtt B-4175 and 22 Enero 1948, B-5083.

ARGENTINA: *Formosa*: 30 Sept. 1946, Morel 1410, 21 Junio 1947, 3152, 17 Julio 1947, 3453, 19 Julio 1947, 3475, 4 Oct. 1947, 3796, 17 Oct. 1947, 3928, 24 Oct. 1947, 4054, 8 Nov. 1949, 8788 and 21 Nov. 1949, Morel 8923; 5 Oct. 1945, Pierotti 4171. *Misiones*: 18 Agosto 1945, Bertoni 1802, 16 Agosto 1945, 1848, and Sept. 1945, Bertoni 2916; 16 Sept. 1915, Osten & Rojas 8230; 29 Agosto 1946, Montes 2539; 4 Sept. 1946, Schwarz 3298, 19 Sept. 1946, 3398, 4 Oct. 1947, 4884, 10 Oct. 1947, 4937, 27 Sept. 1948, 6181, 6 Oct. 1948, 6920, 8 Oct. 1948, 6335, and 10 Agosto 1949, Schwarz 8003; 17 Oct. 1947, Schwindt 442 and 5 Agosto 1940, 4960. *Corrientes*: 26 Nov. 1945, Ibarrola s. n.; 2 Oct. 1949, Schwarz 8038, 2 Oct. 1949, 8041, 12 Oct. 1949, 8215, 15 Oct. 1949, 8279, 20 Oct. 1949, 8367, 21 Oct. 1949, 8391, 9 Nov. 1949, 8625 and 17 Nov. 1949, Schwarz 8763; 9 Oct. 1945, Wurth 160. *Entre Ríos*: 4 Sept. 1944, Jozami 197; 16 Nov. 1946, Meyer 10267 and 20 Nov. 1946, 10268. *Santa Fe*: 14 Dic. 1938, Meyer 2789; 13

Nov. 1903, Venturi 35. *Buenos Aires*: 28 Oct. 1945, Hunziker 1056; 14 Oct. 1945, Krapovickas 2602 and 28 Oct. 1945, 2643; 31 Oct. 1929, Scala s. n.

10-6b. *Allophyllus edulis* var. *Rosae* Barkley & Villa *

BOLIVIA: Oct. 1915, Steinbach 1724.

PARAGUAY: Sept. Jörgensen 3747 and 3749.

ARGENTINA: *Jujuy*: 6 Enero 1947, Garolera & Romero 72; 16 Oct. 1927, Venturi 5418. *Salta*: 8 Dic. 1946, Malvárez 132; Nov. 1941, Rosa 251; 23 Oct. 1923, Schreiter 3421 and Oct. 1940, 11493; 2 Nov. 1944, Schulz 5512. *Tucumán*: Enero 1918, Bailetti 132 and Feb. 1919, 179. 1911, Castillón 2200, 1 Oct. 1912, 2127, 19 Nov. 1912, 2239, 1911, 2282, and 26 Nov 1913, Castillón 2982; 14 Dic. 1906, Dinelli 7748; 23 Agosto 1887, Lillo 463 Oct. 1889, 1470, 17 Oct. 1897, 2041, 17 Nov. 1897, 2094, and Nov. 1910, Lillo 10696; 8 Nov. 1940, Meyer 3387, 2 Dic. 1940, 3426 and 6 Oct. 1947, Meyer 12637; 14 Oct. 1913, Monetti 1243 and 1253, 13 Nov. 1913, 1412, 15 Nov. 1913, 1466, 16 Nov. 1913, 1477 and Dic. 1914, Monetti 3048; 30 Nov. 1944, Olea 51; 29 Oct. 1937, Pereira 10695 and 16 Oct. 1948, s.n.; 17 Oct. 1917, Schreiter 169 and 3 Nov. 1930, 6446; Dic. 1947, de la Sota 1125; 19 Nov. 1946, Terribile 349; 30 Dic. 1909, Venturi 401, Sept. 1919, 452 and 4 Sept. 1920, Venturi 452a; 3 Nov. 1945, Villa 583. *Catamarca*: 10 Enero 1948, Argañaraz 680 and 7 Nov. 1948, 708; 3 Enero 1940, Castellanos 33741.

10-6x7. *Allophyllus guaranticus* x *Allophyllus edulis*?

ARGENTINA: *Corrientes*: 26 Julio 1944, Ibarrola 746; 25 Mayo 1945, 1945, Meyer 8998.

10-7. *Allophyllus guaranticus* (St. Hil.) Radlk. in Engl. & Prantl, Nat. Pflanzenfam. 3⁵: 312. 1895.

BRAZIL: Enero 1945, Buck 11572; 10 Enero 1945, Rambo 2631, 26 Dic. 1944-14 Enero 1945, 26131, 6 Marzo 1945, 28407, 25 Febr. 1946, 31366, 28 Enero 1949, 40255, 23 Junio 1949, 42081, 13 Julio 1949, 42524, 24 Oct. 1949, 44073 and 7 Febr. 1950, Rambo 45702; 15 Febr. 1946, Reitz C-1537.

* 10-6b *Allophyllus edulis* var. *Rosae* Barkley & Villa n. var.

Varietati typicae similis sed foliolis minoribus magis ovatis dentatisque, fructibus majis globosis.

Leaflets smaller, more ovate, more dentate, fruit more spherical than in the typical variety.

TYPE: ARGENTINA: *Catamarca*: El Alto, 10 Enero 1948, Argañaraz 680 (LIL).

ARGENTINA: *Corrientes*: 16 Marzo 1946, Ibarrola 4317. *Formosa*: Febr. 1918, Jörgensen 1979; 13 Oct. 1948, Morel 6178.

10-7a. *Allophyllus guaranticus* var. *pilosus* Barkley & Villa *

BRAZIL: 17 Febr. 1949, Schwarz 7516.

PARAGUAY: 1909-1910, Fiebrig 6127; Abril, Jörgensen 4454.

ARGENTINA: *Misiones*: 17 Marzo 1944, Bertoni s. n., 19 Marzo 1944, s. n. 28 Abril 1945, 1538, 12 Marzo 1946, 2763, 9 Abril 1946, 2865, 12 Mayo 1946, 2846 and 30 Abril 1949, Bertoni 4161; 8 Julio 1945, Hunziker 754; 8 Julio 1945, Krapovickas 2312; 14 Marzo 1947, Medina 301; 10 Marzo 1944, Meyer 6139 and 6798, 4 Febr. 1947, Meyer 11859; 2 Julio 1944, Montes 69, 21 Julio 1944, 125, 15 Junio 1945, 242, 18 Abril 1945, 755, 25 Abril 1949, 1602, 1 Mayo 1946, 1955, 7 Junio 1946, 2337 and 29 Agosto 1946, Montes 2543; 4 Abril 1910, Rodríguez 274; 20 Enero 1946, Schwarz 1862, 1 Febr. 1946, 1889, 28 Marzo 1946, 2340, 25 Febr. 1946, 3103, 13 Agosto 1946, 3217, 23 Febr. 1947, 4180, 18 Marzo 1947, 4369, 6 Abril 1947, 4423, 13 Abril 1947, 4451, 30 Sept. 1947, 4859, 17 Marzo 1948, 5625, 23 Sept. 1948, 6132, 6 Abril 1949, 6763, 22 Julio 1949, 7933, 12 Agosto 1949, 8019, 25 Marzo 1950, 10276, 10 Abril 1950, 10412, 11 Agosto. 1950, 10514 and 14 Agosto 1950, Schwarz 10571; 10 Julio 1947, Schwindt 318, 15 Marzo 1948, 621, 1 Abril 1949, 1393 and 1443, 8 Abril 1949, 1541, 28 Feb. 1950, 3241, 21 Abril 1950, 4012, 10 Mayo 1950, 4400, 28 Junio 1950, 4594, 29 Junio 1950, 4628 and 4 Agosto 1950, Schwindt 4949.

10-8. *Allophyllus pauciflorus* Radlk. in Herzog, Mededeel. Herb. Leiden 19: 61. 1913.

ARGENTINA: *Formosa*: 8 Sept. 1949, Morel 8389.

10-8a. *Allophyllus pauciflorus* var. *Rojasii* Barkley & Villa **

PARAGUAY: 20 Oct. 1946, Rojas 13636.

* 10-7a *Allophyllus guaranticus* var. *pilosus* Barkley & Villa, n. var.

Varietati typicae similis sed foliolis forma variabilioribus et subtus densius velutino-pilosis, ramis primis dense pilosis.

Leaflets more variable in shape and more densely velvety pilose below than in the typical variety; the stems densely pilose at first.

TYPE: ARGENTINA: *Misiones*: *San Ignacio*: 14 Marzo 1947, B. R. Medina 301 (LIL.)

** 10-8a *Allophyllus pauciflorus* var. *Rojasii* Barkley & Villa, n. var.

Varietati typicae similis sed foliolis tenuiter membranaceis, fructibus majoribus.

Leaflets thinly membranous; fruit larger than in the typical variety.

TYPE: PARAGUAY: *Chaco Paraguay*: 20 Oct. 1946, T. Rojas 13626 (LIL).

10-8b. *Allophyllus pauciflorus* var. *Lilloi* Barkley & Villa *

ARGENTINA: *Salta*: 2 Nov. 1911, Rodríguez 21; 30 Dic. 1925, Schreiter 5204 and Febr. 1940, 11279 and 11337; Nov. 1915, Steinbach 1713; 20 Dic. 1926, Venturi 5321.

10-8c. *Allophyllus pauciflorus* var. *Schreiteri* Barkley & Villa **

ARGENTINA: *Salta*: 23 Oct. 1924, Schreiter 3421. *Tucumán*: 14 Dic. 1906, Lillo 5339; 5 Dic. 1913, Monetti 1618.

11.- *Sapindus* L. (1753)

One species in southern South America; the Americas, Africa and Oceanica.

11-1 *Sapindus Saponaria*

11-1. *Sapindus Saponaria* L. Sp. Pl. 1: 367. 1753.

MÉXICO: 1841-1843, Liebmann 2998.

HONDURAS: 13 Marzo 1945, Valerio 2338.

COLOMBIA: 20 Oct. 1947, Balekman, Mejía & Barkley 17M264; 16 Agosto 1944, Haugth 4310; Enero 1949, Romero 1394; 7 Enero 1949, Bechara, Araque & Barkley 19Bo090.

PERÚ: 8 Marzo 1950, Velarde 2347.

PARAGUAY: 10 Enero 1939, Jörgensen 4556.

BOLIVIA: 1-22 Julio 1939, Krukoff 10265; 19 Oct. 1916, Steimbach 3083; 8 Oct. 1925. 7292 and 24 Febr. 1926. Steinbach 7486.

ARGENTINA: *Formosa*: Nov. 1918, Jörgensen 2055; 29 Dic. 1946, Morel 1103, 11 Enero 1947, 2092, 3 Abril 1947, 2436, 23 Febr. 1948, 4859, 4

* 10-8b *Allophyllus pauciflorus* var. *Lilloi* Barkley & Villa n. var.

Varietati typicae similis sed foliolis maioribus magis membranaceis, fructibus magis ovoideis, inflorescentiis floribus pluribus praeditis.

Leaflets larger, more membranous, fruit more ovoid, inflorescence with more flowers, than in the typical variety.

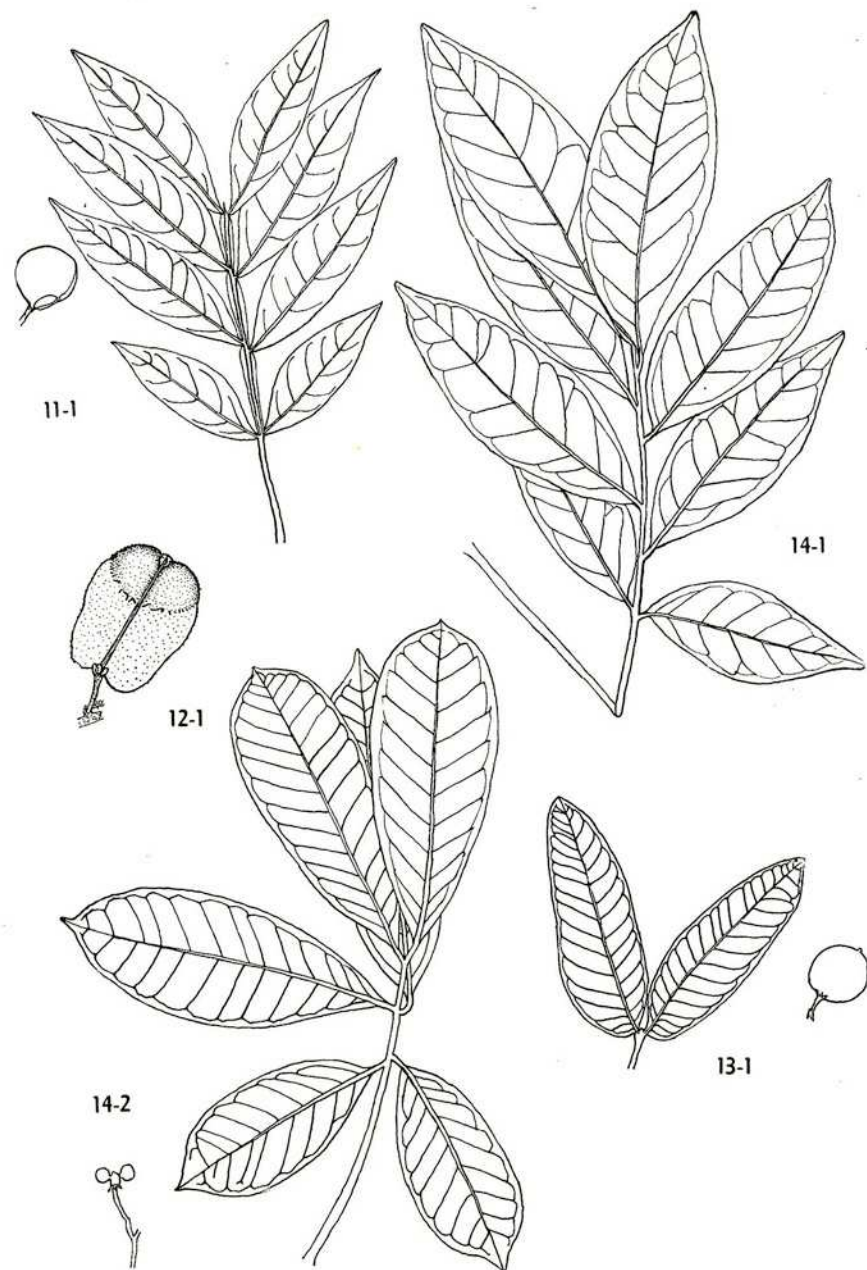
TYPE: ARGENTINA: *Salta*: *Orán*: 500 m. alt., Feb. 1940, Schreiter 11337 (LIL).

** 10-8c *Allophyllus pauciflorus* var., *Schreiteri* Barkley & Villa n. var.

Varietati typicae similis sed foliolis tenuioribus et magis lanceolatis, fructibus magis elongatis.

Leaflets thinner and more lanceolate, and fruit more elongate than in the typical variety.

TYPE: ARGENTINA: *Salta*: *Tartagal*: 500 m. alt., 23 Oct. 1924. Schreiter 3421 (LIL).



Leaves and fruit: *Sapindus*, *Toulicia*, *Melicocca*, and *Talisia* x 1/2.

11-1: *Sapindus saponaria*, Morel 5407; 12-1: *Toulicia tomentosa*, Williams 8185; 13-1: *Melicocca lepidopetala*, Meyer 6050; 14-1: *Talisia esculenta*, Steinbach 7604; 14-2: *Talisia longifolia*, Steinbach 3511.

Marzo 1948, 4951, 20 Abril 1948, 5407, 28 Junio 1948, 5804, 29 Dic. 1948, 6849, 19 Enero 1949, 6990, 16 Febr. 1949, 7219, 14 Marzo 1949, 7438, 17 Mayo 1949, 7753 and 24 Oct. 1949, Morel 8670. *Chaco*: 14 Nov. 1913, Munez, Acevedo & Curran 24; Meyer 795 and 17 Mayo 1945, 8616; 5 Agosto 1944, Rojas 11876. *Misiones*: Agosto 1925, Scala 86 and Junio 1926, 171. *Corrientes*: 24-28 Enero 1944, Meyer 6600. *Santa Fe*: 14 Oct. 1905, Venturi 109 and 16 Sept. 1909, 197.

12.- *Toulicia* Aubl. (1775)

A single species in southern South America; Brazil, Bolivia and Paraguay.

12-1 *T. tomentosa*

12-1. *Toulicia tomentosa* Radlk. Sitzungsber. bayer, Akad 8: 373. 1878.

BRAZIL: 20 Agosto 1944, William 8185.

13.- *Melicocca* L. (1762)

A single species in southern South America; Bolivia, Paraguay and Arizona.

13-1 *M. lepidopetala*

13-1. *Melicocca lepidopetala* Radlk. Sitzungsber. bayer. Akad. 8: 344. 1878.

BOLIVIA: 6 Oct. 1924, Steinbach 6568.

PARAGUAY: 7 Enero 1928, Jørgensen 3756.

ARGENTINA: *Formosa*: 12 Sept. 1946, Morel 1293. *Chaco*: Acosta s.n. *Corrientes*: 25 Enero 1944, Meyer 6050.

14.- *Talisia* Aubl. (1775)

1. Leaves membranous; petals subglabrate on outer surface; Brazil, Paraguay and Bolivia.

14-1 *T. esculenta*

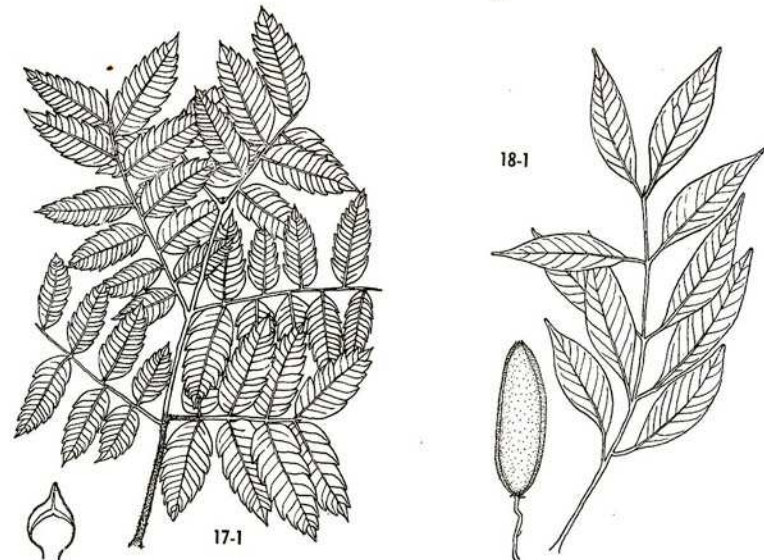
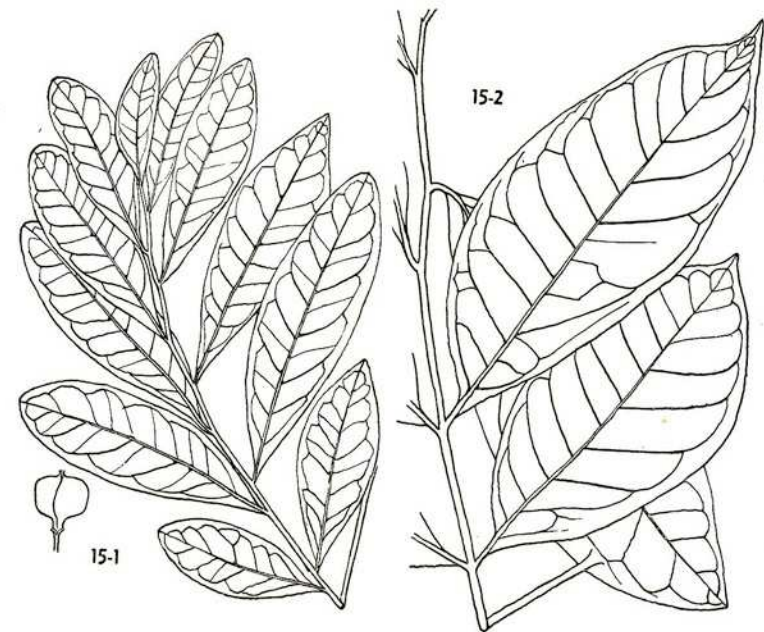
1. Leaves coriaceous; petals sericeous on outer surface; Brazil and Bolivia.

14-2 *T. longifolia*

14-1. *Talisia esculenta* (St. Hil.) Radlk. Sitzungsber. bayer. Akad. 8: 345. 1878.

BOLIVIA: 8 Oct. 1926, Steinbach 7604.

14-2. *Talisia longifolia* (Benth.) Radlk. Sitzungsber. bayer. Akad. 8: 348. 1878.



Leaves and fruit: *Matayba*, *Dilodendron* (fruit after Radlkofer) and *Diplokeleba*. $\times 2/5$.

15-1: *Matayba claeagnoides*, Leaf: Schneur 1563, Fruit: Rambo 40331; 15-2: *Matayba Steinbachii*, Steinbach 6301; 17-1: *Dilodendron bipinnatum*, Steinbach 6479; 18-1: *Diplokeleba floribunda*, Meyer 257.

BOLIVIA: 3 Oct. 1916, Steinbach, 2905, 10 Junio 1917, 3337 and 10 Oct. 1917, Steinbach 3511.

15. *Matayba* Aubl. (1775)

1. Leaflets broadly lanceolate, obtuse to acute at apex; Brazil, Paraguay, Uruguay and Argentina. 15-1 *M. elaeagnoides*

1. Leaflets ovate acuminate at apex; Bolivia. 15-2 *M. Steinbachii*

15-1. *Matayba elaeagnoides* Radlk. Sitzungsber. bayer. Akad. 9: 535. 1879.

BRAZIL: 12 Oct. 1945, Emrich 1142; 31 Oct. 1935, Rambo 2063, 24 Dic. 1944, 26053, 3 Oct. 1945, 29612, 5 Enero 1946, 31060, 14 Nov. 1948, 38021, 29 Enero 1949, 40331, 5 Nov. 1949, 44249 and 3 Dic. 1949, Rambo 44620; 3 Oct. 1945, Schneur 1562 and 30 Sept. 1946, 2142; 4 Dic. 1938, Viegas 3151.

PARAGUAY: 12 Mayo 1945, Bertoni 1454; 1909-1910, Fiebrig 5469 and 5611; Jörgensen 3751; Dic. 1916, Rojas 1918.

URUGUAY: Nov. 1927, Herter 1174.

ARGENTINA: *Misiones*: 15 Oct. 1945, Bertoni 2176, 19 Oct. 1946, 2999, 29 Nov. 1946, 3103, 9 Dic. 1946, 3110 and 20 Oct. 1947, Bertoni 3418; 17 Julio 1914, Curran 705 and 716; 20 Febr. 1944, Meyer 5632; 26 Sept. 1909, Rodríguez 75b, 11 Sept. 1912, 115, and 10 Dic. 1912, Rodríguez s. n.; 12 Sept. 1945, Schwarz 1265, 12 Sept. 1945, 1265, 31 Nov. 1946, 3501, 8 Oct. 1947, 4912, 4 Nov. 1947, 5102, 14 Nov. 1947, 5177, 11 Oct. 1948, 6348, 19 Nov. 1948, 6612 and 2 Dic. 1948, Schwarz 6729; 23 Dic. 1947, Schwindt 562, 2 Junio 1948, 751, 10 Nov. 1948, 896 and 3 Nov. 1949, Schwindt 2307; 19 Junio 1909, Venturi 34. *Corrientes*: 15 Oct. 1950, Bertoni 5042, 17 Oct. 1950, 5052, 19 Oct. 1950, 5068, 20 Oct. 1950, 5078 and 21 Oct. 1950, Bertoni 5089; 4-9 Marzo 1946, Ibarrola 4338; 5 Mayo 1945, Ruiz 2178.

15-2. *Matayba Steinbachii* Melchior, Notizbl. Bot. Gart. Berlin-Dahlem 10: 349. 1928.

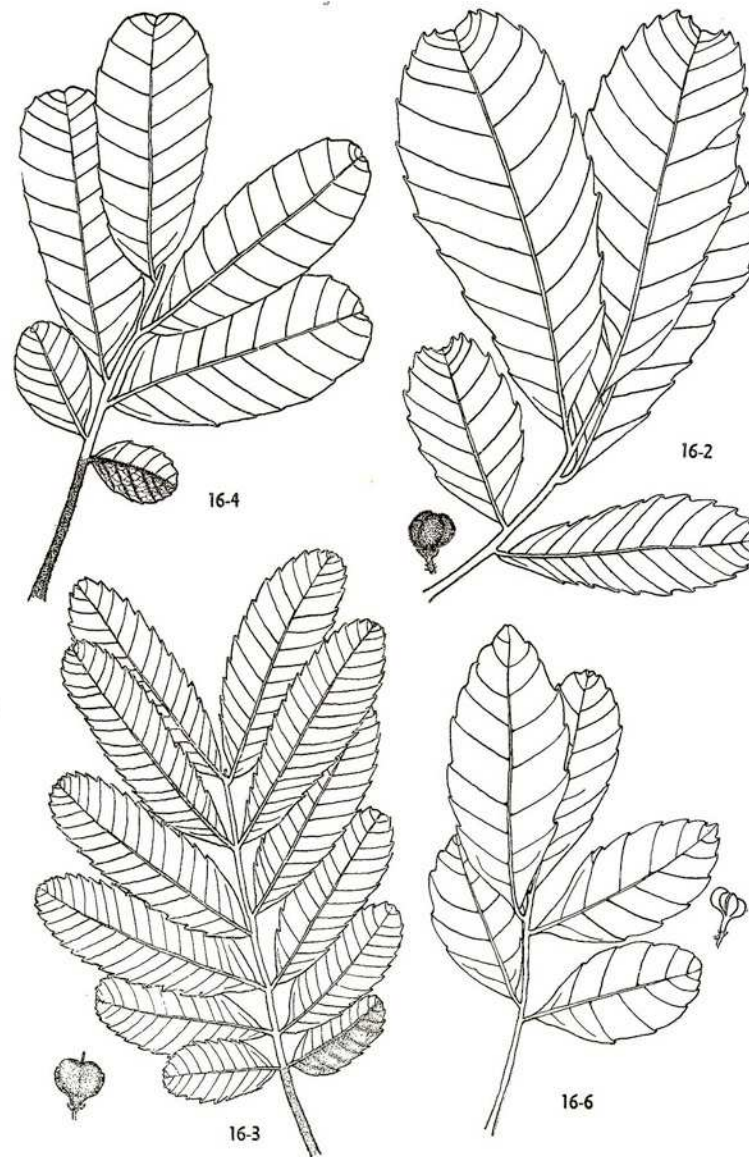
BOLIVIA: 28 Agosto 1916, Steinbach 2869 and 15 Agosto 1924, 6301.

16.- *Cupania* [Plum.] Adans. (1763)

1. Leaflets densely tomentose below, suboblong, serrate-dentate; disk tomentose.

2. Leaflets 2-4.5 cm. broad; Brazil.

16-1 *C. castaneaefolia*



Leaves and fruit of *Cupania*. x 2/5

16-2: *Cupania polydonta*, Steinbach 2314; 16-3: *Cupania vernalis*, Leaf: Rojas 11949, Fruit: Schwindt 2; 16-4: *Cupania Bangii*, Bang 2254; 16-6: *Cupania Cardenasii*, Steinbach 2777.

2. Leaflets 4-7 cm. broad; Colombia, Ecuador and Bolivia 16-2 *C. polydonta*
1. Leaflets glabrous or sparsely pubescent below disk glabrous.
2. Leaflets oblong, serrate-dentate, pubescent below; capsule pilose.
3. Leaflets serrate dentate, thin coriaceous; Brazil, Bolivia, Paraguay, Uruguay and Argentina. 16-3 *C. vernalis*
3. Leaflets obscurely repand-dentate, thick coriaceous; Bolivia. 16-4 *C. Bangii*
2. Leaflets obovate, subdentate, glabrous; capsule glabrous.
3. Sepals 3-3.5 mm. long; Brazil. 16-5 *C. oblongifolia*
3. Sepals 1 mm. long; Bolivia. 16-6 *C. Cardenasii*

16-1. *Cupania castaneaefolia* Mart. Flora 21: Beibl. 4, 71. 1838.

16-2. *Cupania polydonta* Radlk. in Engl. & Prantl, Nat. Pflanzenfam. Nachtr. 32: 205. 1907.

COLOMBIA: 15 Enero 1947, García 12194; 24 Julio 1948, García, Hawkes & Villarreal 12997; Febr. 1948, Romero 725 and 9 Marzo 1948, 905.

BOLIVIA: 4 Dic. 1946, Peredo s. n.; 14 Nov. 1924, Steinbach 6648 and 15 Dic. 1924, 6745.

16-3. *Cupania vernalis* Camb. in St. Hil. Fl. Bras. 1: 387. 1825.

URUGUAY: 22 Nov. 1940, Legrand 2367.

BRAZIL: 16 Sept. 1932, Rambo 61, 26 Julio 1933, 610, Junio 1938, 3347, 25 Mayo 1949, 41721, 4 Julio 1950, 47216, and 12 Julio 1950, Rambo 47277; 27 Abril 1940, Reitz C-3538; 17 Julio 1946, Stahl 33516.

PARAGUAY: 10 Junio 1949, Bertoni 4251, 9 Junio 1949, 4257 and 30 Junio 1949, Bertoni 4439; Jörgensen 3745.

ARGENTINA: *Jujuy*: 11 Sept. 1927, Venturi 5206. *Salta*: 16 Julio 1946, Borsini 715; 23 Mayo 1944, Ibarrola 639; 2 Marzo 1943, Meyer 4791; 11 Abril 1945, Pierotti 1202 and 25 Marzo 1945, 1004; Febr. 1940, Schreiter 11295; 10 Julio 1944, Schulz & Varela 5154; 28 Agosto 1949, Willink 378. *Tucumán*: Abril 1913, Bailetti 502; Agosto 1905, Castellón 384a, Junio 1911, s. n. and 1 Oct. 1912, Castellón 2126; 6 Mayo 1945, Herrera 410; 1 Mayo 1887, Lillo 444, 8 Enero 1899, 2211, 10 Mayo 1903, 3173, Julio 1909, 9752 and Abril 1917, Lillo 18818; 9 Sept. 1945, Meyer 9175 and 16 Junio 1949, 15161; 16 Nov. 1913, Monetti 1474; 3 Marzo 1945, Olea s. n.; 6 Mayo 1945, Ortiz s. n.; 20 Junio 1950, Rocha 1013, 17 Mayo 1917, Schreiter 91, 2 Sept. 1923, 91, 14 Junio 1925, s. n., 6 Agosto 1925, s. n. and 3 Nov. 1930, Schreiter

6457; Mayo 1947, de la Sota 1140; 27 Dic. 1909, Venturi 289 and Marzo 1920, 779. *Formosa*: 4 Sept. 1946, Morel 1192 and 2 Junio 1947, 2994; Agosto 1917, Jörgensen 2052; Junio 1937, Meyer 2315; 24 Julio 1944, Rojas 11724 and s. n. *Misiones*: 30 Abril 1944, Bertoni 407, 13 Junio 1945, 1492, 16 Julio 1945, 1561, 15 Oct. 1945, 2178, 26 Mayo 1946, 2870, 26 Agosto 1948, 3706, and 11 Mayo 1949, Bertoni 4197; 2 Dic. 1913, Curran 42; 9 Julio 1945, Hunziker 778; 9 Julio 1945, Krapovickas 2331; 25 Julio 1944, Montes 61, 14 Julio 1945, 1001 and 11 Mayo 1949, Montes 1613; 18 Abril 1910, Rodríguez 293; 26 Abril 1945, Schwarz 1053, 6 Mayo 1947, 4615, 20 Abril 1947, 4524, 4 Junio 1947, 4671, 28 Junio 1948, 6084, 8 Oct. 1948, 6341, 18 Mayo 1949, 7801, 27 Julio 1949, 7946, 5 Abril 1950, 10374 and 15 Agosto 1950, Schwarz 10585; 5 Mayo 1947, Schwindt 214, 2 Abril 1948, 685, 14 Oct. 1949, 2053, 28 Junio 1950, 4589 and 29 Julio 1950, Schwindt 4928; 19 Abril 1909, Venturi 34. *Corrientes*: 13 Mayo 1944, Ibarrola 14, 21 Junio 1945, 3125 and 9 Dic. 1945, 3849; 21 Mayo 1945, Meyer 8999; 12 Oct. 1949, Schwarz 8234 and 10 Dic. 1949, 9076. *Entre Ríos*: 24 Febr. 1945, Schulz 621.

16-4. *Cupania Bangii* Barkley *

BOLIVIA: Bang 2254.

16-5. *Cupania oblongifolia* Mart. Flora 21: Beibl. 4: 67. 1838.

* 16-4 *Cupania Bangii* Barkley n. sp.

Arbor; ramis ferrugineose pilosis; foliis paripinnate compositis; foliolis oblongo-obovatis, acutis ad apice, cuneatis inaequalisque ad base, obscure repand-denticulatis subrevolutisque supra nitidis, pilosis in venis subtis, 3-10 cm. longis, 2-4 cm. latis; inflorescentibus paniculis subterminalis sparse ramificatis, dense puberulentis.

Tree; branches ferruginously pilose; leaves paripinnately compound; leaflets oblong-obovate, acute at apex, broadly cuneate and unequal at the base, obscurely repand-dentate and subrevolute, shining above, pilose on the veins below, leaflets 3-10 cm. long, 2-4 cm. broad; inflorescences subterminal little-branched panicles, densely ferruginously puberulent.

TYPE: BOLIVIA: Bang 2254 (LIL.).

This most closely resembles *C. vernalis*, to which the type was assigned by Radlkofer, but it differs in many respects from other specimens of that species. In particular its margin is so obscurely repand-dentate as to appear entire and its leaflets are noticeably more coriaceous than in other specimens.

16-6. *Cupania Cardenasii* Barkley, *

BOLIVIA: Agosto 1915, Steinbach 1514 and 4 Sept. 1916, 2777.

17.- *Dilodendron* Radlk. (1878)

One species, Brazil, Paraguay, Bolivia and Perú.

17-1 *D. bipinnatum*

17-1. *Dilodendron bipinnatum* Radlk. Sitzungsab. Bayer. Akad. 8: 357. 1878.

PERÚ: 29 Junio 1949, Vargas 8228.

BOLIVIA: 27 Sept. 1924, Steinbach 6479.

18.- *Diplokeleba* N. E. Brown in Kerr. (1894)

1. Leaflets lanceolate, mostly 6 to 8, glabrous; Brazil, Paraguay and Argentina.

18-1 *D. floribunda*

1. Leaflets ovate, mostly 10-12, puberulent below; Bolivia

18-2 *D. Herzogii*

18-1. *Diplokeleba floribunda* N. E. Brown, in Kerr, Trans. & Proc. Bot. Soc. Edinb. 20: 50. 1894.

BOLIVIA: 6 Dic. 1945, Peredo s. n.

PARAGUAY: Dic. 1916, Rojas 1922.

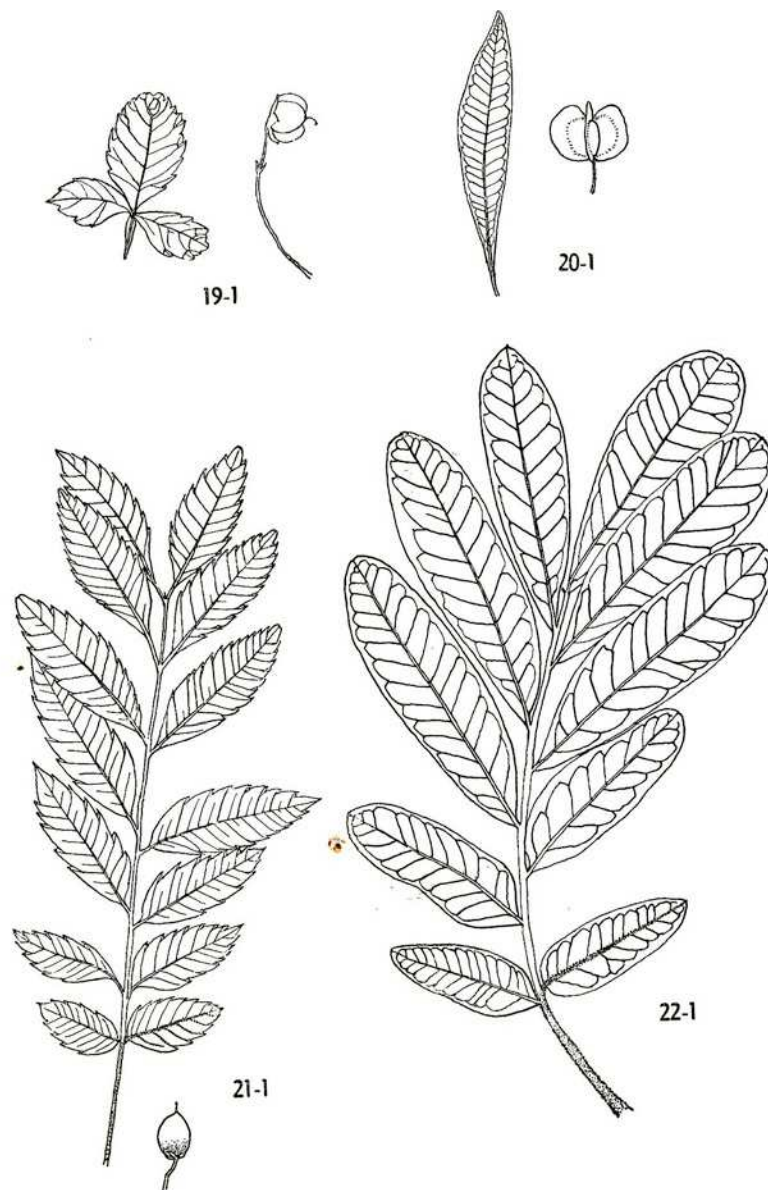
ARGENTINA: *Formosa*: Febr. 1918, Jörgensen 1972; 7 Enero 1945, Krapovickas 1062; Meyer s. n.; 11 Nov. 1945, Morel 326, Dic. 1946, 1732, 10 Enero 1947, 2064, 17 Junio 1947, 3097, 21 Junio 1947, 3129, 2 Julio 1947, 3311, 24 Oct. 1947, 4060 and 18 Nov. 1949, Morel 8888; 26 Nov. 1944, Pierotti 19. *Chaco*: Dic. 1917, Jörgensen 1947; Febr. 1931, Meyer 257, Nov. 1938, 2701, 15 Mayo 1945, 8601, 16 Mayo 1945,

** 16-6 *Cupania Cardenasii* Barkley n. sp.

Arbor; ramis puberulentis; foliis paripinnate compositis; foliolis anguste obovatis, ad apice obtusis ad base cuneatis inaequalisque, subdentato-repandis, supra nitidis, subter opacis, glabris, 2.5-10 cm. longis, 1.5-4 cm. latis; inflorescentibus 1.5-4 cm. latis; terminalibus puberulentibus; capsulis glabris, triquetris.

Tree; branches at first puberulent; leaves paripinnately compound; leaflets narrowly obovate, obtuse at apex, cuneate and unequal at base, subdentate-repand, shining above, dull below, glabrous, leaflets 2.5-10 cm. long; 1.5-4 cm. broad, inflorescence terminal, puberulent; fruit glabrous, triquetrous.

TYPE: BOLIVIA: *Santa Cruz*: del Sara 450 m. alt., 4 Sept. 1916, Steinbach 2777 (LIL.).



Leaves and fruit: *Llagunoa*, *Dodonaea*, *Averrhoidium* and *Magonia*. x 1/2

19-1: *Llagunoa glandulosa*, Jiles 514; 20-1: *Dodonaea viscosa*, Bailetti 298; 21-1: *Averrhoidium paraguayense*, Rojas 10648a; 22-1: *Magonia glabrata*, Rojas 10614.

8615 and 10 Mayo 1945, Meyer 9087; 9 Agosto 1944, Rojas 11569. *Corrientes*: 29 Sept. 1945, Ibarrola 3373. *Santa Fe*: 15 Dic. 1903, Venturi 72, 20 Sept. 1909, 162 and 26 Agosto 1909, Venturi 196.

18-2. *Diplokeleba Herzogii* Radlk. in Engl. & Prantl. Nat. Pflanzenfam. 3⁵: Nachtr. 460. 1896.

19.- *Llagunoa* Ruiz & Pavon (1794)

One species in southern South America; Chile.

19-1 *L. glandulosa*

19-1. *Llagunoa glandulosa* (Hook. & Arn.) Don, Gen. Syst. 1: 673. 1831.

CHILE: 31 Agosto 1947, Jiles 647, 28 Nov. 1947, 514, 6 Julio 1948, 647 and 5 Sept. 1949, Jiles 1310; 1828-1834, Gay 177.

20.- *Dodonaea* L. (1771)

One species in southern South America; cosmopolitan.

20-1 *D. viscosa*

20-1. *Dodonaea viscosa* (L.) Jacq. Enum. pl. carib. 19. 1760.

UNITED STATES OF AMÉRICA: 6 Dic. 1933, Duckett 236; 15 Mayo 1901, Tracy 7481.

MÉXICO: 14 Julio 1935, Fisher 33441; 14 Oct. 1932, von Rezyński 398; 21 Julio 1947, Webster, Rowell & Barkley 17M560.

SANTO DOMINGO: Junio 1911, Fuertes 317; Febr. 1910, von Türckheim 2970.

COLOMBIA: Haugth 5785.

ECUADOR: 8 Marzo 1942, Haugth 3156; 6 Marzo 1935, Mexia 7047.

PERÚ: 30 Dic. 1948, Vargas 7501.

BOLIVIA: 1890, Bang 372; 26-27 Agosto 1939, Krukoff 10707; 24 Sept. 1947, Seolnik & Luti 569; 13 Marzo 1920, Steinbach 3729, 30 Marzo 1921, 3930, and 6017 and 1 Nov. 1928, Steinbach 8602.

BRAZIL: 10 Oct. 1904, Dusen s.n. 25 Agosto 1945, Emrich 1105; 24 Julio 1947, Hatschbach & Imaguire 747; 17 Oct. 1945, Henz 32704 and 25 Julio 1946, 33482; 29 Enero 1948, Palacios & Cuezco 515; 15 Agosto 1945, Rambo 28991, 5 Sept. 1945, 29521, 17 Oct. 1945, 16 Julio 1948, 37326, 2 Agosto 1949, 43215, 20 Sept. 1949, 43472, 21 Oct.

1949, 44006, 14 Nov. 1949, 44400, 24 Nov. 1949, 44563, 31 Julio 1950, 48686, 7 Sept. 1950, 48735 and 11 Sept. 1950, Rambo 48765; 1 Sept. 1945, Reitz C-1190; 7 Junio 1945, Rohr 411; 1905, Ben s. n.

URUGUAY: 29 Sept. 1929, Herter 7010; Enero 1938, Lourteig 274, Sept. 1934, Rosa 576 and Oct. 1937, 1775; 20 Enero 1938, Rosengurt B-2425.

ARGENTINA: *Jujuy*: 30 Oct. 1911, Lillo 10832. *Salta*: 28 Oct. 1931, Díaz 6631; 26 Marzo 1929, Schreiter 6631. *Tucumán*: Marzo 1918, Balletti 298; Sept. 1890, Lillo 1710 and 6 Dic. 1906, 5386; 14 Enero 1913, Monetti 25; 11 Nov. 1921, Schreiter 1680; 6 Nov. 1921, Venturi 1392, 12 Oct. 1923, 2233 and 5 Nov. 1924, Venturi 2233b. *Buenos Aires*: Nov. 1939, López 5; Dic. 1935, Lourteig 228; Enero 1944, Martínez 2482; 20 Julio 1946, Palacios 12.

21.- *Averrhoidium* Baill. (1874)

One species in southern South America; Paraguay.

21-1 *A. paraguayense*

21-1. *Averrhoidium paraguayense* Radlk. Rep. Spec. Nov. 8: 72. 1910.

PARAGUAY: Oct. 1907, Rojas 10648 and 10648a.

22.- *Magonia* St. Hil. (1824)

1. Branches and under surface of leaflets pubescent; Brazil and Bolivia.

22-1 *M. pubescens*

1. Branches and under surfaces of leaflets (except the midvein) glabrous; Brazil, Paraguay and Bolivia.

22-2 *M. glabrata*

22-1. *Magonia pubescens* St. Hil. Bull. Soc. Philom. París 78. 1824.

22-2. *Magonia glabrata* St. Hil. Bull. Soc. Philom. París 78. 1824.

BOLIVIA: 3 Sept. 1916, Steinbach 2891.

PARAGUAY: Sept. 1907-1908, Rojas 10614, Dic. 1907-1908, 10614a and Dic. 1907-1908, Rojas 10614b.

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