Survey of the Venezuelan Species of Ficus

David Walter Hall
A SURVEY OF THE VENEZUELAN
SPECIES OF FICUS

DAVID WALTER HALL
SURVEY OF THE VENEZUELAN SPECIES OF FICUS

by

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D.W.H.
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INTRODUCTION

This study was undertaken to provide a circumscription of the genus Ficus in Venezuela. The material studied was representative of the collections that have been made throughout the country. A great portion of Venezuela is apparently unexplored botanically. With this in mind I have attempted to do as complete a study as possible with the material available while fully realizing the many limitations. This circumscription is intended as a starting point for future work, not a stopping place.
METHODS OF PREPARATION

The material studied was obtained through the good graces of Dr. Gordon Paul DeWolf, Jr. and the National Herbarium of Venezuela. From time to time additional material was obtained from Dr. Julian A. Steyermark, a prominent collector in Venezuela, formerly Curator, Department of Botany, Field Museum of Natural History, Chicago.

The first undertaking was to determine the characters to be used. The gross vegetative characters were obtained from the literature. Of particular usefulness was The American Species of Ficus by G. P. DeWolf, Jr. From this and other works it was apparent that a number of the commonly used vegetative characters were not useful for this genus in the Americas.

The vegetative characters that seem to be valid for the American species of Ficus are the following:

1. Habit—whether a tree, shrub, etc. and also its height
2. Twigs—diameter and pubescence
3. Stipules—length and to some extent persistence
4. Leaves—shape, apex, base, size, number of lateral veins, petiole and the petiole's approximate length compared with the lamina
5. Figs—position, color, shape, orifice construction, peduncle length, basal bracts number and length, pedicel length, pubescence, and diameter

The receptacle of the fig seems to be very important as a species indicator. The wall was examined microscopically in several cases, but

"Unpublished Ph.D. Thesis, University of Cambridge"
because of the dried and deteriorated nature of the specimens nothing
was found that could be used as an indicator of species. The flowers
apparently are uniform and were not used as indicators.

The microscopic characteristics of the leaf epidermis seem to be
relatively good for determining the different species. Slides were
made for all the specimens studied.

The vegetative and microscopic characters to be used were listed on
paper. Each herbarium sheet was then examined in detail. All surface
or gross characteristics were noted and measured first. A standard 15
cm clear, plastic ruler was used in this. Upon completion of this phase,
the microscopic characters were obtained.

A slide of the upper and lower leaf epidermis was made for each
sheet. A small piece of a safety razor blade was obtained by breaking
it with finger manipulation. The piece was then clamped in a holding
tool. A leaf from the desired specimen was then placed under a binocular
dissecting microscope. The microscope had an optical system with a
magnification of 10-30 diameters. The bit of razor blade in the handle
was used to strip a small section of the epidermis from the leaf. The
holding tool was held as you would a pen.

The small piece of epidermis was placed on a standard 1 x 3 inch
microscope slide. Polyvinyl alcohol was used as the mounting medium.
Pieces of the epidermis were submerged in a very ample amount of the
medium placed in the center of the slide. The ample amount was necessary
because polyvinyl alcohol had a tendency to shrink excessively as it
dries. Each piece of tissue has to be thoroughly submerged in the
mounting medium and moved around to minimize the collection of air
bubbles. A cover slip was added and the slide was boiled over an
alcohol lamp. The boiling had two advantages; it further reduced the number of air bubbles and aided the clearing action. The slides were examined and the characters noted on each specimen.

Microscopic characters of the leaves used in the determinations were as follows:

1. Cystoliths—presence or non-presence, and abundance
2. Sclereids—presence or non-presence, and abundance
3. Lower epidermal cells—shape
4. Stomates—position in relation to the lower epidermal cells; superficial or sunken
5. Tabular crystal cells—presence or non-presence
6. Druse cells—presence or non-presence, and abundance
7. Pubescence—types of hairs present

All the characters to be used having been noted, the sheets were then separated into piles of like kinds. The piles were then sifted through carefully to further distribute any sheets that were misplaced. Each pile was then examined very carefully. The slides were again viewed, for each pile separately, to ascertain if the specimens fell within species boundaries.
KEY TO THE SUBGENERA

I Figs borne in pairs in the axils of the foliage leaves, male flower with 1 stamen, a red spot at the base of the style on the ovary of female and gall flowers. Microscopic 2-septate glandular hairs usually present on the lower surface of the lamina. —— Urostigma

II Figs borne singly in the axils of the foliage leaves, male flower with 2 stamens, no spot at the base of the style on the ovary. Microscopic multicellular glandular hairs on the lower surface of the lamina. —— Pharmacosycea

KEYS TO THE SPECIES

I Urostigma

1. Leaves oval, ovate, oblong, or lanceolate ———— 2
   Leaves obovate, oblanceolate, cordate, or spatulate ———— 20

2. Ostiole flush or slightly raised without an erect rim of receptacular tissue ———— 3
   Ostiole sunken, highly raised, or with an erect rim of receptacular tissue ———— 19

3. Lamina pubescent ———— 4
   Lamina not pubescent ———— 5

4. A. Thin leaves sandpapery to the touch, 1-celled stiff conical hairs covering leaf surfaces, leaves oval with slightly acuminate apex and rounded emarginate base. ————
   ——— Unknown species No. 1
B. Large leaves with somewhat star-shaped ferruginous-brown hair clusters on the lower surface, figs with short rusty matted pubescence, leaves oval to oblong.  

---------- Unknown species No. 1

C. Leaves with abundant, soft, short to very long hairs always on the lower surface and sometimes on the upper; figs with dense, soft, matted pubescence; leaves oval to ovate.—mollicula

D. 1-5 septate hairs present on the lower surface of leaves, leaves ovate to oval, large urn shaped figs.  

---------- Unknown species No. 2

5. Leaves lanceolate.  

---------- 6

Leaves not lanceolate.  

---------- 7

6. Leaves narrowly lanceolate; base cuneate or cuneate-truncate; 

figs 0.4 - 0.6 cm in diameter.  

---------- prinsides

Leaves lanceolate; base acute, rounded-truncate, rounded; 

figs 0.2 - 1.8 cm in diameter.  

---------- citrusfalia

7. Twigs 0.1 - 0.3 cm in diameter.  

---------- 8

Twigs 0.3 - 0.9 cm in diameter.  

---------- 12

8. Figs with downy minute pubescence, stipules 3.7 - 15.3 cm long, leaves with cordate bases and with sclereids, figs 0.35 - 2.7 cm in diameter.  

---------- nymphaeasfolia

Figs not downy minute pubescent.  

---------- 9

9. Small oval leaves 0.6 - 2.4 cm wide x 1.6 - 4.2 cm long, 

stipules not over 1.0 cm long, petiole 0.2 - 0.8 cm long.  

---------- Unknown species No. 7

Oval or ovate leaves to 11.7 cm wide and 29.3 cm long.  

---------- 10
10. Leaves to 6.7 cm wide and 16.1 cm long.  
    Leaves to 11.7 cm wide and 29.3 cm long.  
    Leaves oval or ovate not over 12.6 cm long, petiole
    1/4 - 1/21 the length of the lamina, cystoliths present
    on both surfaces, druse cells present only in the lower
    surface, tabular crystal cells absent.  
    Leaves oval to 16.1 cm long, petiole 1/6 - 1/3 the length
    of the lamina, cystoliths present on only the upper surface,
    druses present in both surfaces, tabular crystal cells
    present.  

11.  

12. Leaf base cordate.  
    Leaf base not cordate.  

13. Figs sessile (no peduncle).  
    Figs with peduncle.  

14. Figs sessile (no peduncle).  
    Figs not sessile (with peduncle).  

15. Leaf apex acuminate.  
    Leaf apex obtuse.  

16. Stomates superficial.  
    Stomates sunken.  

17. Tabular crystal cells present.  
    Tabular crystal cells absent.  

18. Lamina 1.8 - 9.9 cm wide x 4.5 - 18.5 cm long, petiole
    to 3.8 cm long.  
    Lamina 0.8 - 6.5 cm wide x 2.5 - 12.6 cm long, petiole
    to 2.3 cm long.
19. Ostiole sunken. .......................... 20
   Ostiole highly raised or with erect rim of receptacular
tissue surrounding it. .......................... 22
20. Ostiole without any rim of receptacular tissue.  .......... foveata
   Ostiole with rim of receptacular tissue. .................. 21
21. Rim of receptacular tissue thin. ........................... pertusa
   Rim of receptacular tissue thick. .......................... gomelleira
22. Ostiole highly raised. ..................................... 23
   Ostiole with erect rim of receptacular tissue surrounding it.  25
23. Figs somewhat cylindrical or oblong, long pubescent.  ..........
   Unknown species No. 5
   Figs globose or pyriform, minutely pubescent. ............... 24
24. Cystoliths on both surfaces, lower epidermal cells striated,
tabular crystal cells absent. .......................... glandulosa
   Cystoliths on upper surface only, lower epidermal cells
   pappilomate, tabular crystal cells present. .............. parasensis
25. Ostiole with thick, prominent surrounding ridge of
   receptacular tissue. .................................. gomelleira
   Ostiole with thin rim of surrounding receptacular tissue. .... 26
26. Ostiole encompassed by a plicate or 3-pointed rim of
   surrounding receptacular tissue. ...................... 27
   Ostiole encompassed or surrounded by a circular rim of
   receptacular tissue. ................................ 28
27. Twigs with matted pubescence, figs long pubescent, lamina
   with long multisepitate hairs. .......................... trigona
   Twigs minutely pubescent or glabrous, figs minutely
   pubescent, lamina with no multisepitate hairs. ............ iturbei
28. Twigs 0.1 - 0.3 cm in diameter, ostiole sunken, lamina to
   6.7 cm wide and 12.9 cm long. ———————————— pertusa
Twigs 0.3 - 0.6 cm in diameter, ostiole flush to slightly
raised, lamina to 13.9 cm wide and 32.3 cm long. ———— 29

29. Stipules 0.5 - 1.6 cm long, lamina 1.3 - 13.9 cm wide
X 2.2 - 21.1 cm long, often with long multisepptate hairs
on the lower surface of the lamina, figs with peduncle.— velutina
Stipules 1.0 - 2.9 cm long, lamina 7.1 - 13.5 cm wide
X 17.6 - 32.3 cm long, no multisepptate hairs on the
lamina, figs without peduncle (sessile). ———— trigonata

30. Ostiole sunken, highly raised, or with thin surrounding
   rim of receptacular tissue. ———— 19
Ostiole flush, slightly raised or without thin surrounding
   rim of receptacular tissue. ———— 31

31. Twigs 0.7 - 0.9 cm in diameter. ———— 32
Twigs 0.1 - 0.7 cm in diameter. ———— 33

32. Apex acuminate, figs 0.6 - 1.0 cm in diameter. ———— longifolia
   Apex obtuse or acute, figs 1.4 - 2.5 cm in diameter. — URBANIANA

33. Figs 3.3 cm in diameter. ———— Unknown species No. 4
   Figs not over 2.7 cm in diameter. ———— 34

34. Leaves with sclereids, twigs 0.35 - 0.9 cm in diameter. ———— 35
Leaves without sclereids, twigs 0.1 - 0.5 cm in diameter. ———— 36

35. Leaf base cordate, stipules 3.7 - 15.3 cm long. — NYPHAEAEFOLIA
   Leaf base acute, slightly rounded or rounded; stipules
   0.4 - 2.4 cm long. ———— URBANIANA
36. Leaf base cuneate or cuneate-truncate, twigs 0.1 - 0.2 cm in diameter. —— prionsides

Leaf base not cuneate or cuneate-truncate, twigs 0.1 - 0.5 cm in diameter. —— 37

37. Lamina with multiseptate and 1-celled conical hairs
usually on the lower surface, twigs heavily pubescent. — scabrida

Lamina without multiseptate and 1-celled conical hairs,
twig not heavy pubescent. —— 38

38. Lamina 0.9 - 11.7 cm wide x 2.0 - 29.3 cm long; petiole
0.25 - 9.6 cm long, 1/2 - 1/12 the length of the lamina;
stomates superficial. —— citrifolia

Lamina 0.8 - 9.9 cm wide x 1.5 - 18.5 cm long; petiole
0.1 - 3.8 cm long, 1/4 - 1/21 the length of the lamina. — 39

39. Lamina 1.3 - 9.9 cm wide x 1.6 - 18.5 cm long; petiole
0.4 - 3.8 cm long, 1/4 - 1/12 the length of the lamina;
stomates sunken. —— clusisefolia

Lamina 0.8 - 6.5 cm wide x 1.5 - 12.6 cm long; petiole
0.1 - 2.3 cm long; 1/4 - 1/21 the length of the lamina;
stomates superficial or sunken. —— Mathewii
1. Twigs 0.1 - 0.4 cm in diameter. ........................................... 2
   Twigs 0.4 - 0.6 cm in diameter. ........................................... 1

2. Orifice of the fig flush or slightly raised. ............................. 3
   Orifice of the fig highly raised, crateriform. ......................... *pyponensis*

3. Twigs 0.2 - 0.45 cm in diameter, stipules 0.7 - 2.8 cm long,
   lateral veins 6 - 20, fig very minutely pubescent,
   peduncle 0.5 - 1.7 cm long, microscopic multicellular
   glandular hairs with short stalks. ..................................... *maxima*
   Twigs 0.2 - 0.6 cm in diameter, stipules 2.0 - 4.3 cm long,
   lateral veins 16 - 30, fig glabrous, peduncle obsolete
   to 2.4 cm long, microscopic multicellular glandular hairs
   with long stalks. ..................................................... *insipida*

4. Ostiole flush or slightly raised, long-stalked micro-
   scopic multicellular glandular hairs on the lower
   surface of the lamina. ............................................... *insipida*
   Ostiole highly raised to 0.5 cm in a mammillate manner,
   short-stalked microscopic multicellular glandular hairs
   on the lower surface of the lamina. ................................ *tondusii*
1937.-Venezuela.

Habit not noted. Twigs 0.2 - 0.3 cm in diameter, minutely pubescent. Stipules 0.6 - 1.9 cm long. Lamina 2.0 - 6.7 cm wide x 4.1 - 16.1 cm long, oval; apex acuminate; base acute to slightly rounded; lateral veins 14 - 16. Petiole 0.7 - 2.4 cm long, 1/6 - 1/3 the length of the lamina. Figs 0.4 - 0.7 cm in diameter, globose or slightly subglobose, glabrous or minutely rusty-brown pubescent, borne among the leaves; color not noted; peduncle 0.2 - 0.4 cm long; pedicle obsolete; basal bracts 0.15 - 0.25 cm long; pistil flush to raised.

Leaf structure: cystoliths on the upper surface only; sclereids absent; lower epidermal cells plane; stomates superficial; tabular crystal cells present on the veins beneath; druse cells present in both surfaces; pubescence absent.

Vernacular names:

None noted

Ecology:

One collection was noted to have been at 1,800 m in altitude.

A collection was made from a plant growing in a dry cleft or rift.

This was the only one noted.

Specimens studied:

Caracas: H. Pittier; 7133

Trujillo: Simane; 60
icuś citrifolíu

Ministerio de Agricultura y Cría
HERBARIO NACIONAL DE VENEZUELA

Ficus turbinata Lattier (5)

Num. 37029
Num. 37184
Ficus citrifolia Mill.

Ministerio de Agricultura y Cria
HERBARIO NACIONAL DE VENEZUELA

Ficus citrifolia Mill.
11 del Día
1963

Type (Herb.): between Río La Palma and Pto. Sono, north of El Palmar, alt. 200-250 m.

preserv.

Desecheo 12, 1969

Num. 62477
citrifolia

Ministerio de Agricultura y Cria
HERBÁRIO NACIONAL DE VENEZUELA

Selva húmeda, 35 km. E. de Los Castillos, Territorio Federal Delta Amacuro. Alt. 10 m.

Núm. 33420
Núm. Cole 17688 Col  Fecha 13-7-1961
Ficus citrifolia, P. Miller, Gard. Dict. (ed. 9), no. 10, 1768


1937. -Venezuela.

Tree to 18 m tall, parasitic when young. Twigs 0.1 - 0.45 cm in diameter, glabrous to minutely rusty-brown pubescent. Stipules 0.3 - 2.7 cm long. Lamina 0.9 - 11.7 cm wide x 2.0 - 29.3 cm long, oval to ovate, rarely oblanceolate or lanceolate; apex acuminate (usually quite long), a few are acute or obtuse; base acute, rounded-truncate, rounded, cordate-emarginate; lateral veins 5 - 17. Petiole 0.25 - 9.6 cm long, 1/12 - 1/2 the length of the lamina. Figs 0.2 - 1.8 (2.0 - 2.2) cm in diameter (the ones below 0.6 cm are believed to be so as a result of immaturity or shrinking due to drying), globose or depressed-globose (top-shaped), glabrous to minutely pubescent, borne among the leaves; color pale or rich green with pale brown or grey-green spots turning dull red to crimsoned or reddish; peduncle 0.1 - 0.9 cm long; pedicel obsolete to 0.05 cm; basal bracts 0.05 - 0.3 cm long; osticle flush to raised.

Leaf structure: cystoliths present on both surfaces but usually few to lacking on the upper surfaces; sclereids absent; lower epidermal cells plane sometimes with striations radiating out from the guard cells; stomates superficial; tabular crystal cells generally present on the veins beneath; druse cells generally present; pubescence of 2-septate glandular hairs on the lower surface and in one case on the upper surface.

Vernacular names:

Ecology:

Occurs from 10 - 1,500 m in altitude. This species is widespread, seemingly occurring throughout Venezuela. It seems to be found in woodlands, savannas, and around granitic outcrops. It occurs in cloud forests and in arid xerophytic regions.

Specimens studied:

Anzoat: E. Pittier, 1h313
Anzoategui: J. A. Steyermark; 61210
Bolivar: E. P. Killip; 37263

J. A. Steyermark; 87981, 88657
Williams; 11b53, 12920

Carabobo: J. A. Steyermark and Cora Steyermark; 95b37
Caracas: L. Aristeguieta; 6295

H. Pittier; 7103, 9631

Delta Amacuro: F. L. Little, Jr.; 17688

J. A. Steyermark; 87155, 87329-A

Distrito Federal: H. Pittier; 12273, 12277

Falcón; Croizat; 181

J. A. Steyermark and August Braun; 9h587, 9h629

Guárico: H. Pittier; 12521

Laguna: Tamayo; 1120

Los Canos, rio Caris: E. Pittier; 1hb67

Merida: E. L. Little; 16296

E. L. Little, Jr.; 1516d

Miranda: H. Pittier; 12hb2, 13058

Paraguana: Tamayo; 970

Falcón; T. Lasser and F. Foldats; 3212
Portuguesa: H. Pittier, 12077
Sucre: J. A. Steyermark; 62782, 62799
Trujillo: Dr. Christ; 54, 57, 58
    F. Delgado; 354
    H. Pittier; 10706, 10863, 13297
    J. A. Steyermark; 55811
Tamayo; 1830, 1847, 1912

Urdaeta: Dr. Christ; 55

Valencia: H. Pittier; 8817

Valle de Puerto La Cruz: H. Pittier; 9222

Yaracuy: H. Pittier; 13073

Zulia: H. Pittier; 10497


Ficus clusiaefolia

Ministerio de Agricultura y Cría
HERBARIO NACIONAL DE VENEZUELA
Ficus myriamea Pittier TIPO.
Ficus clusiaefolia, Schott ex Sprengel, Syst. Veg. (ed. 16), iv (app.):

1827 non Urostigma clusiaefolium (Schott ex Sprengel)


Tree to 15 m tall. Twigs 0.2 - 0.5 cm in diameter, minutely pubescent or glabrous. **Stipules** 0.3 - 1.4 cm long. **Lamina** 1.8 - 9.9 cm wide, 14.6 - 18.5 cm long, oval, tending to spatulate, or spatulate; apex mostly acuminate, a few obtuse; base acute or slightly rounded; lateral veins 7 - 19. **Petiole** 0.1 - 3.8 cm long, 1/12 - 1/12 the length of the lamina. **Figs** 0.3 - 1.0 cm in diameter, subglobose or globose, glabrous or scattered rusty brown pubescence, borne among the leaves; color not noted; **peduncle** 0.1 - 0.6 cm long; **pedicel** obsolete; **basal bracts** 0.1 - 0.5 cm long; **ostiole** raised.

Leaf structure: cystoliths occur on both surfaces but are scarce; sclereids absent; lower epidermal cells plane; stomates sunken; tabular crystal cells absent; druse cells absent; pubescence of 2-septate glandular hairs on the lower surface of some of the leaves.

Vernacular names:


Ecology:

This species is found from 560 - 1,200 m in altitude. The only note I have concerning the habitat is that one of the trees was found on a dry steep slope.
Specimens studied:

Aragua: H. Pittier; 12551
  Williams; 10213

Barinas: Bernardi; 3299

Bolivar: L. Aristeguieta; 2258

Carabobo: H. Pittier; 8706

Distrito Federal: H. Pittier; 1192h

Illegible label: Delgado; 645
  F. Tamayo; 2928

Lara: Tamayo; 3901

Miranda: A. L. Bernardi; 5715

Paragua: Cardona; 2499

Trujillo: Dr. Christ; 48

Valencia: Vereschi and ?; 1916
Ficus foestata

PLANTAS DE VENEZUELA

State of Amazonas: forested rocky slope along Rio Quereata, district of Riohacha, altitude 600 meters

JAN A. STUDEBAKER MARCH 99

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HERBARIO NACIONAL DE VENEZUELA
Ficus

a.s. "Quereata"
alt. de 65 m. de altura
Ficus foveata, Pittier, Bol. Soc. Venezolana Cienc. Nat. 8:258. 1943

(*F. foveolata, Pittier, non Wall.)*

Tree to 17 m tall. Twigs 0.25 - 0.5 cm in diameter, mostly glabrous, a few with scattered, minute, rusty-brown pubescence.

Stipules 1.0 - 1.6 cm long. Lamina 5.3 - 9.0 cm wide x 6.3 - 20.0 cm long, oval—somewhat oblong to ovate; apex acuminate sometimes slightly so; base rounded or cordate; lateral veins 8 - 10. Petiole 2.2 - 8.4 cm long, 1/7 - 1/2 the length of the lamina. Figs 1.3 - 1.9 cm in diameter, globose, glabrous, borne among the leaves; color pale or rich green; peduncle 0.4 - 0.9 cm long; pedicel none to 0.1 cm long; basal bracts 0.2 - 0.35 cm long; ostiole sunken or recessed.

Leaf structure: cystoliths present on both surfaces; sclereids absent; lower epidermal cells plane; stomates superficial; tabular crystal cells present on the veins beneath; druse cells present in lower surface, sometimes present in upper surface; pubescence absent or occasionally a few 2-septate glandular hairs present on the lower surface.

Vernacular names:

"Figueroa," and "Pigüeron."

Ecology:

Apparently this species is found growing up to 500 m in altitude on forested rocky slopes. Information about this species is somewhat brief.

Specimens studied:

Azoategui: J. A. Steyermark; 61496

Paraguana: Tamayo; 818, 968
Ficus glandulosa

1937.—Venezuela.

Habit not noted. Twigs 0.1 - 0.25 cm in diameter, glabrous or minutely pubescent. Stipules 0.35 - 2.5 cm long. Lamina 3.8 - 9.8 cm wide x 11.1 - 28.7 cm long, oval or ovate; apex acuminate; base acute or rounded; lateral veins 10 - 17. Peticole 1.8 - 8.4 cm long, 1/3 - 1/6 the length of the lamina. Figs 0.9 - 1.1 cm in diameter, somewhat globose, very minute pubescence, borne among the leaves; color not noted; peduncle 0.1 - 0.3 cm long; pedicel obsolete; basal bracts 0.2 - 0.4 cm long; ptericle raised approximately 0.1 cm.

Leaf structure: cystoliths present on both surfaces; sclereids absent; lower epidermal cells striated; stomates superficial; tabular crystal cells absent; druse cells present, usually on both surfaces; pubescence of abundant 2-septate glandular hairs on the lower surface.

Vernacular name:

Chuao.

Ecology:

Only one sheet had any information. This was that the plant had been collected at sea level on a river or stream border.

Specimens studied:

Aragua: H. Pittier; 12136

Distrito Federal: H. Pittier; 12421

LaGuaira: H. Pittier; in VEN
Ficus gommelleira

Tree 15 m. tall; leaves coriaceous, finely rugose reticulate both sides, dark green above, paler green below; petioles stem ferruginous-brown

Altitude de Nury: Forest in undulating topography bordering savanna near camping of Hato Nury, e of Hato Nury. Above 590 m. 20 de Julio 196

Tree to 15 m tall. Twigs 0.35 - 0.4 cm in diameter, pubescent.

Stipules 0.6 - 1.2 cm long. Lamina 3.8 - 9.4 cm wide x 6.7 - 16.7 cm long, broadly oval; apex rounded or acuminate; base rounded and slightly emarginate; lateral veins 8 - 12. Petiole 1.3 - 2.2 cm long, 1/5 - 2/15 the length of the lamina. Figs 2.3 - 3.0 cm in diameter, globose, glabrous, lower borne not in evidence; color not noted; peduncle 0.2 - 0.45 cm long; basal bracts 0.3 cm long; ostiole plane with the surface and with a surrounding rim of tissue which is fairly substantial.

Leaf structure: cystoliths not present on this specimen; sclereids abundant on upper surface; lower epidermal cells plane or plicate; stomates superficial or slightly sunken; druse cells absent; tabular crystal cells absent; pubescence of 1-celled short conical hairs on the veins of the lower surface.

Vernacular name:

"higuito."

Ecology:

The only specimen studied was found at 590 m in altitude growing in a forest in undulating topography bordering a savanna.

Specimen studied:

Bolivar: J. A. Steyermark, 86525
Ficus insipida
insipida


1937—Venezuela.

Tree to 40 m tall. Twigs 0.2 - 0.6 cm in diameter, glabrous or minutely pubescent. **Stipules** 2.8 - 4.3 cm long. **Lamina** 2.0 - 9.8 cm wide × 6.0 - 25.0 cm long; ovate or oblanceolate; apex mostly acuminate, a few acute or obtuse; **base** acute or rounded; **lateral veins** 16 - 30.

**Petiole** 0.9 - 1.2 cm long, 1/3 - 1/17 the length of the lamina. **Figs** 0.7 - 5.5 cm (7.0 cm) in diameter, globose or pyriform, glabrous, borne among the leaves; **color** pale green with maroon spots, turning violet when ripe; **peduncle** obsolete to 2.4 cm long; **pedicel** obsolete to 0.7 cm long; **basal bracts** 0.1 - 0.2 cm long; **stiele** flush to raised.

**Leaf structure**: **crystalliths** usually present on both surfaces; **sclereids** absent; **lower epidermal cells** plane; **stomata** superficial, slightly sunken, or sunken; **tabular crystal cells** absent; **druse cells** may be present in both surfaces; **pubescence** of long stalked, multicellular, **glandular hairs** on both surfaces, often lacking on the upper surface.

**Vernacular names**:

"Figueroa," matapalo, and "Figuirete."

**Ecology**:

This species is found from 100 - 2,200 m in altitude. It has been collected in rainy, in upper cloud, and in rich forests.

**Specimens studied**:

**Aragua**: H. Pittier, 12568

**Bolivar**: J. A. Steyermark, Bassett Maguire, and C. K. Maguire;
Distrito Federal: G. Agostini, M. Farinas, E. Castellanos, and T. Cobo; 76
Crozet; in VEN

Mario Farinas and J. A. Steyermark; 90965
Tamayo; 1225

Merida: Bernardi; 1890
E. L. Little; 15845

Miranda: J. A. Steyermark; 91618
No location: Delgado; 167

Crituco: L. Aristeguieta; 810

Papelón: E. Delgado; 121

Trujillo: Dr. Christ; 51

Zulia: F. Medina; 808
Ficus iturbeii

Ficus interfecta Pittier

Bol. Soc. Venezolana Cienc. Nat. 7:133, 1931. Venezuela

MINISTERIO DE AGRICULTURA Y CRIA
HERBARIO NACIONAL DE VENEZUELA

Ficus interfecta Petter sp.n.

Sobre Catalpas y el Río Guaramoro, granadilla sobre Upholidenia villosa

(Núm. 349)
1937.-Venezuela.

interceptor, Pittier, Bol. Soc. Venezolana Cienc. Nat. 7:133.
1941.-Venezuela.

perez-welleri, Dugand, Caldasia, h, n°. 1;67, fig. 10.
1942.-Colombia

Tree to 20 m tall, starts as a parasite. Twigs 0.2 - 0.4 cm in

diameter, minutely pubescent or glabrous. Stipules 0.6 - 1.0 cm long.

Lamina 1.5 - 3.7 cm wide x 1.9 - 18.3 cm long, oblong or usually oval;
slightly acuminate or obtuse (rarely acute); base rounded or
slightly cordate; lateral veins 5 - 12. Petiole 0.5 - 1.4 cm long,
1/6 - 1/8 the length of the lamina. Figs 0.6 - 2.0 cm (2.5 - 3.0 cm) in
diameter, globose, minutely pubescent, borne among the leaves; color not
noted; peduncle obsolete - 0.8 cm long; pedical obsolete; basal bracts
0.2 - 0.6 cm long; ostiole raised and enclosed within a plicate rim of
thin receptacular tissue.

Leaf structure: cystoliths present on both surfaces, usually
fewer in the lower surface; sclereids absent; lower epidermal cells
usually plane; stomates superficial or sunken (occur on same leaf);
tabular crystal cells absent; druse cells occasionally present in the
lower surface; pubescence of 2-septate glandular hairs on the lower sur-
face, short conical hairs which may be on both surfaces, or entirely
lacking.

Vernacular names:
matapalo, and Higuero.
Ecology:

This plant has been found between 230 m and 1750 m in altitude. Only one specimen had a habitat notation. It was found in a hot-temperate region.

Specimens studied:

Anezategui: H. Pittier; 1h316, 1hB65
El Tigre: V. Varyhi; 6h19
Pusagasuga: E. Perez-Arbelas; 10992
Guarico: H. Pittier; 12319, 1h7h6
Guasipati: Cordova; 2108
Ficus longifolia

**THE NEW YORK BOTANICAL GARDEN VENEZUELAN EXPEDITION 1935**

**PLANTS OF VENEZUELA**

**TERITORIO DELLA ANZOÁTEGUI**

No. 319  Ficus caballina Standl.

**Fruit pod, "Lechero". Occasional along Río Cuyutín 1-10 km north, Dto. Anaco.**

**Ministerio de Agricultura**

**HERBARIO NACIONAL DE VENEZUELA**

**Num. 18715**

Nim. Col. Col. Fecha
**Ficus longifolia**, Schott ex Sprengel, Syst. Veg. (ed. 16), iv(add.):59, 1827.

Epiphytic shrub or tree to 20 m. Twigs 0.7 - 0.9 cm in diameter. Stipules 1.2 - 3.5 cm long. Lamina 1.9 - 11.0 cm wide x 17.7 - 39.6 cm long; apex acuminate; base cuneate or acute; lateral veins 17 - 24.

Petiole 1.0 - 2.9 cm long, 1/11 - 1/28 the length of the lamina. Figs 0.6 - 1.0 cm in diameter, globose, glabrous or minutely puberulent, borne on short shoots among and usually behind the leaves; color salmon-buff turning red; peduncle 0.2 - 0.7 cm long; basal bracts 0.15 - 0.3 cm long; ostiole flush to raised.

Leaf structure: cystoliths on both surfaces; sclereids abundant on both surfaces; stomates sunken; tabular crystal cells absent; druse cells a few present on lower surface; pubescence absent.

Vernacular name:

"lechero."

Ecology:

Found from the wet cloud forests at 600 m in the Altiplanicie de Nuria down to the mouth of the Rio Cuyubini at sea level in Delta Amacuro.

Specimens studied:

**Estado Bolivar:** E. L. Little, Jr.; 17643

J. A. Steyermark; 38513

**Tamatama:** Williams; 15260

**Territorio Delta Amacuro:** J. A. Steyermark; 87315

J. J. Murdock; 319
Mathewsii

Ficus

Il tree, fruit red, Guárama Pitón, alt. 2, Cerro Pitón, Cordillera Eastern.

September 9-11.
Mathewsii

tree 25 m. tall by 50 cm. D.B.H.; fruit red-tinged with greenish-yellow maculations; rare

NEW YORK BOTANICAL GARDEN—CHICAGO NATURAL HISTORY MUSEUM EXPLORATION
Chichamari Massif
Aguaroainu-nepui
Estado Bolivar, Venezuela

No. 1128
Plants

Southeast-facing forested slopes below evergreen pine.

Julian A. Steyermark
John J. Wardbeck
February 26, 1968

Ministerio de Agricultura y Cria
HERIBARIO NACIONAL DE VENEZUELA
Mathewsii

Holotipo de
Ficus obovata Pittier.
1937 - Venezuela.

HERBARIO DEL MUSEO COMERCIAL DE VENEZUELA
Ficus obovata Pittier
E.V. Higuera
Alrededores de Caracas, Trujillo.
Méjico
Núm. Cat. 13128 Col. M. PITTIER Fecha Diciembre 10,

Ministerio de Agricultura y Cria
HERBARIO NACIONAL DE VENEZUELA
Ficus obovata Pittier

Núm. 3679
(no. 55), 1867 (Urostigma in Hooker, Lond. Journ. Bot.,
v. 15.9, 1847)

Venezuela.

1937.-Venezuela.

equalifolia, Pittier, Bol. Soc. Venez. Cien. Nat. 11, no. 30:73,
fig. 1937.-Venezuela.

1937.-Venezuela.

Tree to 35 m tall. Twigs 0.1 - 0.5 cm in diameter, glabrous to
minutely pubescent. Stipules 0.2 - 2.6 cm long. Lamina 0.8 - 6.5 cm
wide x 1.5 - 12.6 cm long; oval, oboval, ovate, obovate, or oblanceolate;
apex obtuse, acuminate, or sometimes acute; base acute, somewhat rounded,
rounded, and occasionally oblique; lateral veins 5 - 27. Petiole 0.1 -
2.3 cm long, 1/4 - 1/21 the length of the lamina. Figs 0.2 - 1.0 cm in
diameter; globose, subglobose, or slightly pyriform; glabrous to small
or minute rusty-brown pubescence; borne among the leaves or on short
shoots behind the leaves; color pale green, red, red-tinted, dull maroon
with greenish-yellow or yellowish maculations, crimson, dull yellow with
rose, or orange; peduncle obsolete - 0.5 cm long; pedicel obsolete to
rarely 0.05 cm long; basal bracts 0.05 - 0.3 cm long; ostiole flush,
slightly raised, or raised.

Leaf structure: cystoliths present on both surfaces, often few or
lacking on the lower surface; sclereids absent; lower epidermal cells
plane; stomates superficial, slightly sunken, or sunken; tabular crystal
cells absent or occasionally present on the veins beneath; druse cells usually present in the lower surface; pubescence of 2-septate glandular hairs usually present on the lower surface.

Vernacular names:

Ecology:
This species ranges in altitude from 10 - 2,500 m in altitude.
The trees may be found growing in cloud or humid forests, in dense primary forests, in evergreen forests, in building lots, on meadowy or forested slopes, by the roadside, in a rolling forest, in temperate forests, by south-facing igneous rock outcrop on a hill, and in living hedges or fences.

Specimens studied:
- Anzoategui: J. A. Steyermark; 61377
- Apure: V. Badillo; 1371
  - M. Ramis; 1584
  - Veles; 2660
- Aragua: E. L. Little; 15130
- Avila: Delgado; 161
- Bolivar: Bassett Maguire, J. A. Steyermark, and Celia K. Maguire; 53702
  - J. A. Steyermark; 59619, 59856, 86689, 89295, 93210
  - J. A. Steyermark and John J. Wurdack; 1128
- Carabobo: J. A. Steyermark and Cora Steyermark; 95330
- Delta Amazon: E. L. Little; 17689
- Distrito Federal: Croizat; 18
H. Pittier; 9865, 13005

F. Tamayo; 3880

Osinias: Williams; lhh27

Ouarico: L. Aristeguieta; 4583

Tamayo; 4006

Karansayin: Lasser; 1822, 1941

Merida: Gehriger; 150

L. Little; 15137, 15500

Felipe Matos; BAIL-30

Miranda: L. Aristeguieta; 3016

J. A. Steyermark; 90900

Monagas: J. J. Buza; Bu/105 - 7605

J. A. Steyermark; 61813

No location: Delgado; 2hl

Rancho Grande Parque Nacional: Williams; 9982

San Antonio: Williams; 19081

Sucre: F. Tamayo; 2765

Tamatsama: Williams; 15237

Trujillo: H. Pittier; 11128, 11162

Sibnee; 61

Discussion:

This group possibly contains two or more species. Extensive work
and thought has failed to produce any clear lines of distinction so
they must be grouped together for the present.
Ficus maxima

Leaf blade 10 cm x 7 cm, ovate-oblong, base cuneate, margin entire, green above, hairy, dull green below; fruit green, subtended by 7 cm long, 3 cm broad.

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Ficus maxima

Collected by: [Name]
Date: [Date]
Locality: [Location]
Ficus maxima, P. Miller, Gard. Dict. (ed. 9);(no. 6), 1768.

Tree to 25 m tall. Twigs 0.2 - 0.45 cm in diameter, glabrous or pubescent. Stipules 0.7 - 7.8 cm long. Lamina 2.1 - 11.0 cm wide x 5.0 - 23.8 cm long, oval or somewhat spatulate; apex acuminate; base mostly acute, a few somewhat rounded; lateral veins 8 - 20. Petiole 0.5 - 7.7 cm long, 1/3 - 1/25 the length of the lamina. Figs 0.8 - 2.2 cm in diameter; somewhat pyriform, subglobose or globose; very minutely pubescent; borne among the leaves; color green; peduncle 0.5 - 1.7 cm long; pedical obsolete to 0.3 cm long; basal bracts 0.05 - 0.6 cm long; ostiole slightly raised or flush. Pittier: 1073.

Leaf structure: cystoliths present on both surfaces; sclereids absent; lower epidermal cells mostly plane a few striated around cystoliths; stomates flush, slightly sunken, or sunken; tabular crystal cells occasionally present on the veins beneath; druse cells present on both surfaces, usually abundantly so; pubescence of multicellular glandular hairs on the lower surface and very rarely on the upper surface; 1-celled, conical hairs project from the cystoliths of both surfaces, these are also more prevalent on the lower surface.

Vernacular names:

"Matapalo," "higuito," and Matapalo-Copey.

Ecology:

This tree occurs from 65 - 1,500 m in altitude. It apparently grows in rain, cloud, or tall forests.

Specimens studied:

Aragua: H. Pittier; 14036

H. Pittier and W. Nakichenovich; 15648

Barinas: Bernardi; 1178
Bolivar: J. A. Steyermark; 86419, 88286

Caracas: L. Aristeguieta; 4297

Delta Amacuro: J. A. Steyermark; 87237, 87770

Distrito Federal: H. Pittier; 10359, 12215, 12h09

Merida: Bernardi; 1287

Miranda: H. Pittier; 7807

No location: Croizat; 106

Veitia; in VEN 1032

Trujillo: Dr. Christ; 50

H. Pittier; 10758
Ficus mollicula

Venezuela.


Venezuela.

Tree 3 - 5 m tall. Twigs 0.15 - 0.25 cm in diameter, pubescent.

Stipules 0.3 - 0.6 cm long. Lamina 0.6 - 6.2 cm wide x 1.0 - 9.5 cm long, oval to ovate; apex acuminate to acute; base acute to slightly rounded or even cordate, sometimes tending to be slightly oblique; lateral veins 5 - 12. Petiole 0.4 - 1.6 cm long; 1/9 - 1/4 the length of the lamina. Figs 0.3 - 0.8 cm in diameter, globose, dense soft matted pubescence, borne among the leaves; color not noted; peduncle obsolete; pedicel obsolete; basal bracts to 1 cm long; ostiole flush to slightly raised.

Leaf structure: cystoliths none observed to be present; sclerenchyma absent; lower epidermal cells plane; stomata superficial; tabular crystal cells absent; druse cells absent; pubescence of abundant short to very long apparently single celled hairs on the lower surface; the upper surface may or may not have abundant, medium to long thin walled, apparently unicellular and multiseptate hairs; also the upper surface may have some short, conical, one-celled hairs.

Vernacular name:

Matapalo.

Ecology:

This species apparently is found from 95 - 500 m in altitude around granite places usually at the brow of a hill.

Specimens studied:

Alto Orinoco: Williams; 13145
Anzoátegui: J. A. Steyermark; 61b67
Apure: Velez; 26hl
Bolivar: Velez; 233l
Williams; 133l7
Ficus nymphaeifolia
Ficus nymphaeifolia, P. Millier, Gardner's Dictionary (ed. 8), no. 9, 1768.

Tree to 15 m tall. Twigs 0.35 - 0.7 cm in diameter, glabrous to minutely pubescent. Stipules 3.7 - 15.3 cm long. Lamina 7.6 - 17.4 cm wide x 11.0 - 24.8 cm long, cordate, obovate or oval; apex obtuse or acuminate sometimes slightly so; base cordate; lateral veins 7 - 13.

Petiole 3.7 - 15.3 cm long, 1/4 - 1/2 the length of the lamina. Figs 0.35 - 2.7 cm in diameter (usually above 1.0 cm in diameter), globose or transversely elliptical, downy minute pubescence, borne among the leaves; color green; pedicle obvolute to 0.15 cm long; pedicel obsolete; basal bracts 0.2 - 1.5 cm long; ostiole raised.

Leaf structure: cystoliths present on lower surface, sometimes on upper; sclereids abundant in upper surface, few in lower; lower epidermal cells irregularly shaped; stomates superficial; tabular crystal cells rarely present on the veins beneath; druse cells usually abundant in lower surface, few in upper; pubescence of 2-septate glandular hairs on the lower surface.

Vernacular names:

"Higuerote," and "Mata palo.

Ecology:

This species is found from 100 - 1,300 m in altitude. Only one note was made of the habitat on these specimens, and it was to the effect that the specimen was found in a dense humid forest.

Specimens studied:

Bolivar: J. J. Wurdack and F. W. Wright; 207
Caracas: H. Pittier; 7h25, 10313, 12h05
Williams; 10663
Delta Amacuro: Carlos Blasco; 251
Distrito Federal: H. Pittier; 12175
J. A. Steyermark; 92099
El Limon: H. Pittier; 9231
El Palmar: F. Cardona; 2115
Miranda: A. L. Bernardi; 5922
Monagas: J. A. Steyermark; 622hl
Sucre: J. A. Steyermark and Octulio Agostini; 92265

Belioz (no. 49), 1867, (Urostigma in Hooker, Lond. Journ. Bot.,
Casiquiare (no. 28), 1877


Maracaípean. Littig; 1820.

Tree to 15 mitall, epiphytic at start. Twigs 0.2 - 0.6 cm in
diameter, minutely pubescent. Stipules 1.3 - 1.7 cm long. Lamina 1.2 -
8.0 cm wide X 3.1 - 22.0 cm long; oval, sometimes tending to be
oblanceolate or oblong; apex usually long acuminate; base acute or
rounded; lateral veins 6 - 25. Petiole 0.3 - 1.8 cm long, 1/11 - 1/10
the length of the lamina. Figs 0.5 - 1.9 cm in diameter, globose (some-
times squatly so) or pyriform, minutely pubescent, borne among the
leaves; color pale green; peduncle obsolete - 0.2 cm long; pedical
obtuse; basal bracts 0.1 - 0.4 cm long; ostiole raised, may be up to
0.3 cm high.

Leaf structure: cystoliths on upper surface only; sclereids absent;
lower epidermal cells papillomate; stomates superficial or very
slightly sunken; tabular crystal cells present on the veins beneath;
druse cells occasionally present in the upper surface; pubescence of
generally long 2-septate glandular hairs.

Vernacular names:

Matapalo, and Higuerote.

Ecology:

This tree has been collected from 65 - 1,220 m in altitude growing
in dense, easily inundated, rain, and high forests.

Specimens studied:

Alto Orinoco: Williams; 15201
Anacoataguaju: J. A. Steyermark; 61160
Bolivar: J. A. Steyermark; 60794
Casiquiare: Williams; 15622
Delta Amacuro: J. A. Steyermark; 87266
Merida: E. L. Little; 16208
E. L. Little, Jr.; 15825
No location: J. A. Steyermark; in VEN
F. Tamayo; 3077
Ficus pertusa

"Adventive"
True 60 feet tall; leaves finely membranaceous, deep green above, dull green below; fruit pyriform, 6-12 cm. high, 1 cm. in diameter, olive green turning yellow-buff with dull brick spots.

State of Aragua: forested rocky slopes along the Quebrada of Mogotes, altitude 300 meters.

JULIAN A. STEYERMARK

Ministerio de Agricultura y Cría
HERBARIO NACIONAL DE VENEZUELA
Ficus pertusa, L.f., Supplementum Plantarum, 2: 1781.


1937. Vénézuela.

Tree to 25 m tall, starts as a strangler. Twigs 0.1 - 0.3 cm in diameter, glabrous to minutely pubescent. Stipules 0.25 - 1.3 cm long.

Lamina 0.5 - 6.7 cm wide x 0.8 - 12.8 cm long, oval to oblanceolate (sometimes narrowly so); apex mostly acuminate with a few being obtuse; base acute to rounded; lateral veins 8 - 25. Petiole 0.2 - 2.2 cm long, 1/2 - 1/21 the length of the lamina. Figs 0.3 - 1.4 cm in diameter, globose to somewhat pyriform, glabrous, on current growth borne among and just below the leaves; color pale olive green turning yellow-buff with dull brick spots; peduncle 0.15 - 1.0 cm long; pedicel obsolete; basal bracts 0.1 - 0.2 cm long; pistil mostly sunken with a thin rim of receptacular tissue surrounding it, a few are slightly raised with what appears to be a slight rim of tissue surrounding them.

Leaf structure: crystaliths present on both surfaces; sclereids absent; lower epidermal cells mostly plane sometimes somewhat striated; stomates superficial; tabular crystal cells may or may not be present on the veins beneath; druse cells are usually present in both surfaces; pubescence is absent.

Vernacular names:


Ecology:

It apparently occurs in rainy forests with rocky to fertile soil from 100 - 950 m. It is quite common around Caracas.

Specimens studied:

Anzoátegui: J. A. Steyermark; 91929
Between Bolivar and Delta Amacuro: F. J. Breteler; 3928
Bolivar: Carlos Blanco; 571
        Williams; 72860
Carabobo: Alstan; 370, Williams; 10997
        J. A. Steyerman; 92311
Caracas:  L. Aristeguieta; 1294
        H. Pittier; 7066, 7079, 7102, 7104, 9185, 9666, 9667, 11526
Distrito Federal: H. Pittier; 13491
        J. A. Steyerman; 91929
Falcon:  Dr. Christ; 56
Guarico: H. Pittier, 12324
Guayana: F. Cardona; 375
Merida:  Bernardi; 1942
        H. Pittier, 12770
Miranda: H. Pittier; 9270
Sucre:  V. Vareschi; 3918
Tachira: E. L. Little; 16118
Trujillo: Dr. Christ; 53
Ficus prinsoides, H et B ex Willdenow, Species Plantarum, (ed. 1),
Vol. iv (2): 116 (no. 59), 1806. (synonym: F. alata)

Tree to 15 m tall. Twigs 0.1 - 0.2 cm in diameter, often minutely pubescent, sometimes glabrous. Stipules 0.1 - 1.0 cm long. Lamina 0.55 - 3.0 cm wide x 1.9 - 3.6 cm long, a few oval or linear mostly lanceolate to oblanceolate sometimes narrowly so; apex mostly acuminate, a few obtuse or acute; base usually cuneate or cuneate-truncate, a few slightly rounded; lateral veins 9 - 22. Petiole 0.3 - 1.5 cm long, 1/4 - 1/17 the length of the lamina. Figs 0.2 - 0.55 cm in diameter, globose, glabrous, borne among the leaves; color green or dull yellow with magenta red dots; peduncle 0.2 - 0.5 cm long; pedicle obsolete; basal bracts 0.05 - 0.15 cm long; ostiole slightly raised.

Leaf structure: cystoliths few on upper surface generally abundant on the lower surface; sclereids absent; lower epidermal cells plane and somewhat striated around the guard cells; stomates superficial; tabular crystal cells present on the veins beneath; druse cells present in both surfaces, generally abundant in the lower; pubescence of few conical one-celled hairs sometimes present on upper surface.

Vernacular name:
Matapalo.

Ecology:

This species apparently occurs in rain forest, or in inundated areas and in dry areas and rocky open slopes from 80 - 950 m in altitude. The plants in the drier areas seem to have much wider leaves tending more toward lanceolate to oval.
Specimens studied:

Altiplano de Nuria: J. A. Steyermark; 88633
Between La Margarita and Puerto Miranda: J. A. Steyermark; 87720
Delta Amacuro: J. A. Steyermark; 87503, 87773
Miranda: E. Pittier; 7605
Monagas: J. A. Steyermark; 61779
Orinoco Delta: W. M. Curran; 1288
Zulia: L. Aristeguieta; 1957
Ficus scabrida

Ministerio de Agricultura y Cría
HERBARIO NACIONAL DE VENEZUELA

UNIVERSIDAD DE LOS ANDES
FACULTAD DE CIENCIAS FORESTALES-HERBARIO
NEOBA-venezuela

Geography: Venezuela.

Tree to 8 m tall; Twigs 0.2 - 0.4 cm in diameter, heavily pubescent.

Stipules 0.5 - 0.9 cm long. Lamina 1.4 - 6.9 cm wide x 2.4 - 14.0 cm long, obovate to slightly spatulate or oval; apex acuminate or obtuse; base rounded, some tending to be cordate; lateral veins 5 - 9. Petiole 0.3 - 2.0 cm long, 1/16 - 1/6 the length of the lamina. Figs 0.6 - 1.1 cm in diameter, globose or a little pyriform, stiff and somewhat long pubescence, borne among the leaves; color fulvous-brown - olive green; peduncle 0.15 - 0.55 cm long; pedicel obsolete; basal bracts 0.1 - 0.2 cm long, petiole flush to very slightly raised.

Leaf structure: crystalliths not present; sclereids absent, lower epidermal cells somewhat plicate; stomates superficial; tabular crystal cells absent; druse cells usually present, may be on both surfaces; pubescence of multiseptate, 1-celled conical, and 2-septate glandular hairs on both surfaces, usually few on the upper surface.

Vernacular names:

"matapalo," and biguero.

Ecology:

This species is noted to have been found from 90 - 300 m in altitude in tall or inundated forests and at a riverside.

Specimens studied:

Bolivar: J. A. Steyermark; 86616

J. A. Steyermark, Bassett Maguire, and Celia F. Maguire;

66995

Carabobo: N. Pittier; 1415b

Delta Amacuro: J. A. Steyermark; 87507
Lara: Dr. Christ; 49
Cumanare: E. Belgado; 118
Yaracuy: A. L. Bernardi; 6967
Ficus tonduzii

HOLOTIPO DE
Ficus tonduzii Pittier.

Det.: Mr. E. D. W. y F. Alston. 1910

MINISTERIO DE AGRICULTURA Y CRIA
HERBARIO NACIONAL DE VENEZUELA


1937.—Venezuela.

Tree to 25 m tall. Twigs 0.1 - 0.6 cm in diameter, glabrous. Stipules 2.0 - 3.5 cm long. Lamina 7.5 - 19.5 cm wide x 14.5 - 33.7 cm long, ovate or oval; apex acuminate or obtuse; base truncate or rounded (occasionally acute); lateral veins 12 - 14. Petiole 1.5 - 7.8 cm long, 1/3 - 1/7 the length of the lamina. Figs 2.4 - 4.3 cm in diameter; globose; short, stiff pubescence; none attached to plants; color not noted; peduncle ± 1.2 cm long; pedical not noted (figs in poor condition on observed specimens); basal bracts not observed on these specimens; ostiole highly raised—to 0.5 cm long.

Leaf structure: cystoliths present on both surfaces; sclereids absent; lower epidermal cells plane; stomata superficial or slightly sunken; tabular crystal cells usually present on the veins beneath; druse cells usually present on both surfaces, quite often in abundance; pubescence of multicellular glandular hairs on the lower surface (rarely on the upper surface) and 1-celled conical hairs from the cystoliths on the lower surface.

Vernacular name:

higuera.

Ecology:

These specimens were recorded as being from 1,000 - 1,500 m in altitude and were growing in cloud or wet sub-tropical forests.

Specimens studied:

Aragua: W. Pittier and M. Nakichenovich; 15h19

Caracas: E. Pittier; 80
Merida: F. L. Little, Jr.; 15373
No location: F. Delgado; 39
Rancho Grande Parque Nacional: Williams; 9986
Trujillo: Dr. Christ; 52
Ficus tovarensis

1937.-Venezuela.

Tree to 15 m tall. Twigs 0.3 - 0.6 cm in diameter. pubescent.

Stipules 1.1 - 1.0 cm long, persistent. Lamina 4.5 - 9.3 cm wide x 8.3 - 19.3 cm long, oval sometimes somewhat oblong or ovate; apex acuminate; base rounded, cordate slightly emarginate; lateral veins 10 - 16. Petiole 1.2 - 3.0 cm long, 1/10 - 1/6 the length of the lamina.

Figs 0.6 - 1.6 cm in diameter, transversely elliptical, glabrous to sparse minute pubescence, borne among the leaves; color green; peduncle obsolete; pedicel obsolete; basal bracts 0.2 - 0.45 cm long; ostiole flush to raised (usually only slightly so).

Leaf structure: cystoliths present on both surfaces; sclereids absent; lower epidermal cells plane; stomata superficial; tabular crystal cells present on the veins beneath; druse cells occasionally present, may be on both surfaces; pubescence of 2-septate glandular hairs mainly on the lower surface, multisepctate hairs on lower surface of some plants, occasional leaves with short conical 1-celled hairs.

Vernacular names:

higuero, and Finchon.

Ecology:

This tree is found from 1,500 to 2,200 m in altitude growing in temperate forests.

Specimens studied:

Aragua: Herbig and Vareshi; 7522b

H. Pittier; 10019

El Junquito: Lasser; 1065
Merida: L. Aristeguieta; 5230
Felipe Matos; BAIL-29
E. L. Little; 15217
Ficus trigona

Leaves silvery green beneath, pubescent on upper side, margins erose, pubescent, at base of most facing escarpment, Sierra Orinoco, Nueva Esparta.

September 11,
Ficus trigona, L.f., Supplementum Plantarum. . . , s.l.l., 1781.

Shrub or tree to 15 m tall. Twigs 0.2 - 0.4 cm in diameter, matted pubescent. Stipules 0.9 - 3.1 cm long. Lamina 2.3 - 8.6 cm wide X 4.8 - 16.4 cm long, oval; apex acuminate; base rounded, slightly oblique; lateral veins 6 - 11. Petiole 0.8 - 3.8 cm long, 1/4 - 1/10 the length of the lamina. Figs 0.6 - 1.0 cm in diameter, globose, long pubescent, borne among the leaves; color pale olive green; peduncle obsolete to 0.1 cm long; pedicel obsolete to .05 cm long; basal bracts 0.1 - 0.2 cm long; ostiole raised with a thin, three-pointed arrangement of receptacular tissue encompassing it.

Leaf structure: cystoliths present on the upper surface; sclereids absent; lower epidermal cells plane or striated around the stomata; stomates superficial; tabular crystal cells present on the veins beneath; druse cells present on the lower surface; pubescence of long multisepitate hairs and 2-sepitate glandular hairs.

Vernacular names:
none noted.

Ecology:

This plant is found from 80 - 350 m in altitude. It has been collected in rain forests and at the base of a west-facing escarpment.

Specimens studied:

Bolivar: Delgado; 466

Bassett Maguire, J. A. Steyermark, and Celia K. Maguire; 53813
J. A. Steyermark; 80664

Delta Amacuro: J. A. Steyermark; 87759
Ficus trigonata
Ficus trigonata, L., Fl. Surinam: 17, 1775


1937.-Venezuela.

Habit not noted. Twigs 0.3 - 0.5 cm in diameter, glabrous or minutely to long pubescent. Stipules 1.0 - 2.9 cm long. Lamina 7.1 - 13.5 cm wide x 17.6 - 32.3 cm long, oval or ovate; apex obtuse or acuminate; base rounded or acute; lateral veins 9 - 15. Petiole 3.0 - 7.5 cm long, 1/7 - 1/4 the length of the lamina. Figs 1.7 cm in diameter, globose, minutely pubescent, borne among the leaves; color not noted; peduncle obsolete; pedicel obsolete; basal bracts 0.2 cm long; petiole slightly raised in a slight rim of receptacular tissue.

Leaf structure: cystoliths present on both surfaces, but generally few or lacking on the lower surface; sclereids absent; lower epidermal cells generally plain, few striated around the guard cells; stomates superficial; tabular crystal cells absent; druse cells may be present on both surfaces; pubescence of 1-celled conical hairs on the lower surface and occasionally on the upper surface; 2-septate glandular hairs may be present on the lower surface.

Vernacular name:

none noted.

Ecology:

not noted.

Specimens studied:

Cuarico: H. Pittier; 12522, 12523

La Guaira: H. Pittier; 12h19, in VEN H®734
Ficus Urbaniana, Warb. in Urb. Symb. Ontill. iii. 159.-Ind. occ.

Tree to 20 m tall, may start as an epiphyte. Twigs 0.1 - 0.9 cm in diameter, glabrous or minutely pubescent. Stipules 0.1 - 2.4 cm long. Lamina 4.0 - 16.2 cm wide x 7.5 - 29.3 cm long; oval, slightly spatulate or obovate; apex obtuse to acute, a few slightly acuminate; base acute, slightly rounded or rounded, slightly truncate, and occasionally slightly inequilateral; lateral veins 7 - 13. Petiole 1.3 - 6.9 cm long, 1/4 - 1/13 the length of the lamina. Fig 1.4 - 2.5 cm in diameter (from 0.6 cm upwards when immature), globose to transversely elliptical or depressed globose, very minute and scattered to dense pubescence, borne among the leaves; color turning dark purple with pale green below or yellowish; peduncle obsolete to 0.6 cm long; pedicel obsolete; basal bracts 0.3 - 1.6 cm long; ostiole raised.

Leaf structure: cystoliths present on both surfaces less common on the lower; sclereids abundant on the upper surface, usually few on the lower surface; lower epidermal cells plane; stomates flush, slightly sunken or sunken; tabular crystal cells usually present on the veins beneath; druse cells present in both surfaces, usually abundant in the lower surface, scarce in the upper surface; pubescence of usually abundant 2-septate glandular hairs on the lower surface.

Vernacular names:

matapalo, Higos, Higuaron, and Higueroote.

Ecology:

Very little mention is made of this. It seems to be found from 90 -
1,200 m in altitude and in inundated or rainy forests. It also appears to be cultivated.

Specimens studied:

Aragua: H. Pittier; 1231h
Barinas: L. Bernardi; 3325
Carabobo: H. Pittier; 8796, 12110
Caracas: H. Pittier; 7057, 9669, 10h19, 12280
Delta Amacuro: J. A. Steyermark; 8743h
Distrito Federal: Croisat; 130

H. Pittier; 12276, 1257h
Guarico: H. Pittier; 12533
Merida: E. L. Little; 15163
E. L. Little, Jr.; 15951
H. Pittier; 12782
Miranda: H. Pittier; 12536
Sucre: L. Aristeguieta and S. Agostini; b761
Trujillo: Dr. Christ; b7
Zulia: Lasser; 2463

Julio Iescarbours; 65
Ficus velutina
(no. 34), 1805.

Tree 8 - 12 m tall. Twigs 0.3 - 0.6 cm in diameter, glabrous or pubescent. Stipules 0.5 - 1.6 cm long. Lamina 1.3 - 13.9 cm wide x 2.2 - 21.1 cm long, oval to ovate and sometimes slightly obovate; apex acute, slightly acuminate or obtuse; base rounded and sometimes emarginate. Lateral veins 6 - 12. Petiole 0.3 - 3.9 cm long, 1/3 - 1/4 the length of the lamina. Figs 0.6 - 1.3 cm in diameter usually pyriform but occasionally globose; color deep green; peduncle 0.1 - 1.0 cm long; basal bracts 0.1 - 0.4 cm long; pedicel obsolete to 0.2 cm long; ostiole flush to slightly raised with a thin erect rim of receptacular tissue surrounding it.

Leaf structure: crystaliths present on the upper surface, few or usually absent on the lower surface; sclereids absent; lower epidermal cells somewhat plicate; stomates superficial occasionally slightly sunk; druse cells present in upper surface; tabular crystal cells are occasionally present in the veins of the lower surface; pubescence ranges from none to long multisepitate hairs, 1-celled conical hairs and 2-septate glandular hairs on the lower surface, and a few scattered 1-celled conical hairs are sometimes present on the upper surface.

Vernacular names:

Higuito, Murcielagüero, Araguate, and Miguercote.

Ecology:

This species is found from 1,000 - 1,800 m in altitude. Only two habitats are noted: a moist virgin forest and the inclination of a cleft in the ground.
Specimens studied:

Between Caracas and La Guaira: H. Pittier; 9173

Caracas: H. Pittier; 7952, 9561, 9645

Distrito Federal: Delgado; 642

J. A. Steyermark and Mario Jarina; 90951

Williams; 9922

La Guaira: S. Bonsanto; 11530

Los Venados: L. Aristeguieta; 517

Merida: H. Pittier; 12738

Miranda: Croizat; 135

L. Aristeguieta; 3030, 5509

No location: Delgado; 168

H. Pittier; in WVN 473

Trujillo: H. Pittier; 10760

Shnee; 62

Tree to 20 m tall. Twigs 0.1 - 0.3 cm in diameter, glabrous.
Stipules 1.6 - 9.0 cm long, persistent. Lamina 1.2 - 8.6 cm wide x 6.0 - 27.2 cm long, oblanceolate; apex acuminate, rarely acute; base acute; lateral veins 20 - 42. Petiole 0.3 - 3.9 cm long, 1/4 - 1/12 the length of the lamina. Figs 0.7 - 1.8 cm (2.5 cm) in diameter, globose to somewhat pyriform, glabrous or occasionally minutely pubescent, borne among the leaves; color rich green with pale green spots; peduncle 0.2 - 1.1 cm long; pedicel obsolete to 0.6 cm long; basal bracts to 0.1 cm long; ostiole crateriform to 0.1 cm high.

Leaf structure: cystoliths present on both surfaces, those present on the lower surface sometimes having conical hairs projecting from them; sclereids absent; lower epidermal cells plane; stomates superficial; tabular crystal cells absent; druse cells present in both surfaces though usually lacking in the upper surface; pubescence of short stalked, multicellular, glandular hairs.

Vernacular names:

*Hiçuerete,* and "Lechero blanco."

Ecology:

This species is found from 450 - 1,600 m in altitude. It has been collected in secondary subtropical forests, in tropical rainy forests, at the margin of the mouth of a river, on forested mountain slopes, in evergreen forests, and cultivated in a garden.

Specimens studied:

*Anzoategui:* J. A. Steyermark; 61710

*Aragua:* F. L. Little, Jr.; 15490
Carabobo: J. A. Steyermark and Cora Steyermark; 950, 36
Caracas: Croizat; 734
H. Pittier; 7750
Dr. E. Tejera; $/¥
Chorros: F. Tamayo; 428
Merida: E. L. Little; 15185, 15878
Miranda: A. L. Bernardi; 5817
Monagas: J. A. Steyermark; 61955
No location: Dr. Basalo; in VÉM 350
H. Pittier; in VÉM
Trujillo: H. Pittier; 13328
Yaracuy: L. Aristeguieta; 4291
species No. 1
Unknown species No. 1

Tree to 20 m tall. Twigs 0.1 - 0.2 cm in diameter, pubescent.
Stipules 0.5 - 0.7 cm long. Lamina 1.2 - 5.6 cm wide x 2.8 - 8.8 cm long, oval; apex slightly acuminate; base rounded and emarginate;
lateral veins 5 - 10. Petiole 0.5 - 1.8 cm long 1/5 - 1/7 the length of the lamina. Figs 0.4 - 0.65 cm in diameter, globose, glabrous to minutely pubescent, borne among the leaves; color reddish; peduncle obsolete to 0.05 cm long; pedical none; basal bracts to 0.1 cm long; ostiole raised slightly.

Leaf structure: cystoliths present in both surfaces; sclereids absent; lower epidermal cells plane; stomates superficial; tabular crystal cells absent; druse cells present, abundant on lower surface; pubescence of short, one-celled, thick-walled, stiff, conical hairs on both surfaces and a few two-celled glandular hairs on the lower surface.

Vernacular name:
"matapalo."

Ecology:
The only note made of this was that Little recorded it as found in a forest at approximately 120 m in altitude.

Specimens studied:

Apure: M. Ramie; 1454

Barinas: E. L. Little, Jr.; 15111
species No. 2

HERBARIO DEL MUSEO COMERCIAL DE VENEZUELA
Ricinus communis L.

Ministerio de Agricultura y Cria
HERBARIO NACIONAL DE VENEZUELA
Ficus pumila L.
Unknown species No. 2

Habit not noted. Twigs 0.3 - 0.4 cm in diameter, pubescent.

Stipules 0.9 - 1.4 cm long. Lamina 2.6 - 5.1 cm wide x 3.8 - 10.1 cm long, usually ovate to oval; apex acute to slightly acuminate; base slightly cordate, or rounded and emarginate sometimes tending to be slightly oblique; lateral veins 6 - 7. Petiole 0.6 - 1.5 cm long, 1/5 - 2/19 the length of the lamina. Figs 2.0 - 3.1 cm in diameter, pyriform or urn shaped, long haired pubescence tending to be tufted around the orifice, the position is not noted; color not noted; peduncle 0.4 - 0.9 cm long; pedicel 0.6 - 0.8 cm long; basal bracts are not evident in the examined specimens; ostiole raised.

Leaf structure: cystoliths not present; sclereids absent; lower epidermal cells plane; stomates probably sunken; tubular crystal cells abundant on the veins of both surfaces; druse cells sometimes present in upper surface; pubescence of 1 - 5 septate medium length conical hairs present on the lower surface.

Vernacular names:

not noted.

Ecology:

This species may be cultivated on the walls of a house. Altitude was noted on only one of two specimens and it was found at 930 m.

Specimens studied:

Distrito Federal: Croiset, 167

Ingemar (Turmerito): H. Fittier, 13660
Unknown species No. 3

EXPEDEICION ALTO PARAGUA

No. 3041

Ficus sp.

Tree 10 m. tall; leaves coriaceous, dark green above, ferruginous-brown below; flowers globous, pale green with fulvous; petiole pale green speckled brown; bud scale ferruginous brown.

Along south side of river

MINISTERIO DE AGRICULTURA Y CRÍA
HEDRAGO NACIONAL DE VENEZUELA

Ficus sp. (not matched at U.S. N.Y. Herbar)

Lat. 4° 40'
Long. 69° 40'
Unknown species No. 3

Tree to 10 m tall. Twigs 0.1 - 0.5 cm in diameter, glabrous to short dense pubescence. Stipules to 1.1 cm long. Lamina 3.3 - 12.8 cm wide x 8.5 - 31.0 cm long, oval to oblong; apex acuminate; base rounded to almost acute; lateral veins 11 - 20. Petiole 1.6 - 10.0 cm long 1/3 - 1/5 the length of the lamina. Figs 0.7 - 0.8 cm in diameter, globose, short rusty matted pubescence, borne among the leaves; color pale green; peduncle 0.05 - 0.1 cm long; pedicel obsolete; basal bracts 0.2 - 0.3 cm long; ostiole flush with surface.

Leaf structure: cystoliths few in upper surface; sclereids absent; lower epidermal cells plane; stomates superficial to very slightly sunken; tabular crystal cells absent; druse cells absent; pubescence of somewhat star-shaped ferruginous-brown clusters on the lower surface.

Vernacular name:

Mapalo.

Ecology:

It seems to be found where there is a plentiful water supply such as a rainy forest or along a river. The two specimens studied were found at an altitude of 500 m.

Specimens studied:

Bolivar: J. A. Steyermark; 90401
Territoria Federal Delta Amacuro: Luis Marcano Berti; 1445
known species No. 4
Unknown species No. 4

Habit not noted. Twigs 0.3 cm in diameter, pubescent. Stipules 0.5 - 0.6 cm long. Lamina 1.6 - 1.4 cm wide x 3.6 - 13.5 cm long, oblongolate; apex obtuse or acuminate; base acute; lateral veins 10 - 16. Petiole 1.2 - 3.4 cm long, 1/3 - 1/4 the length of the lamina. Figs approximately 3.3 cm in diameter, shape not noted, glabrous, position not noted; color not noted; peduncle not noted or in evidence; pedical probably obsolete; basal bracts approximately 0.3 cm long; ostiole insufficient evidence.

Leaf structure: cystoliths not present; sclereids absent; lower epidermal cells plane; stomates sunken; tabular crystal cells absent; druse cells absent; pubescence absent.

Vernacular name:
not noted.

Ecology:
not noted.

Specimen studied:
Unable to translate: E. Delgado, 173
Unknown species No. 5
Maragani E. L. Little and E. H. Lillie, Jr.

Tree to 20 m tall, parasitic when young. Twigs 0.45 - 0.6 cm in diameter, pubescent or glabrous. Stipules 0.7 - 3.3 cm long. Lamina 3.6 - 13.9 cm wide x 6.3 - 24.0 cm long, oval or obovate; apex acuminate; base cordate or rounded; lateral veins 7 - 18. Petiole 1.7 - 7.3 cm long, 1/3 - 1/6 the length of the lamina. Figs 0.6 - 1.3 cm in diameter; globose, somewhat cylindrical or oblong; long pubescent; borne among the leaves; color green; peduncle obsolete; pedicel obsolete; basal bracts 0.4 - 1.2 cm long; ostiole well raised.

Leaf structure: cystoliths present on both surfaces, generally few on the upper surface; sclereids absent; lower epidermal cells plane; stomates superficial; tabular crystal cells usually present on the veins beneath; druse cells present on both surfaces; pubescence of 2-septate glandular hairs on both surfaces, rarely on upper surface; occasionally there are multiseptate hairs on the lower surface.

Vernacular names:
"Higuero de Nohu," and higuero.

Ecology:

This species ranges from 700 - 1,800 m in altitude. It apparently grows on south-facing steep slopes in temperate forests or in subtropical rain forests of secondary growth. One specimen was collected below limestone bluffs.

Specimens studied:

Anzoategui: J. A. Steyermark; 61573
Barinas: E. L. Little, Jr.; 15371
Merida: E. L. Little, 15773
Monagas: J. A. Steyermark; 61879
Parque Nacional Chiquitos: E. Pittier and M. Nakichenovich; 15Jul2

Sucre: Marvin Rabe and J. A. Steyermark; 96327
Unknown species No. 6

Tree to 20 m tall. Twigs 0.3 - 0.8 cm in diameter, glabrous. Stipules 0.9 - 2.9 cm long. Lamina 2.3 - 10.1 cm wide x 4.5 - 22.0 cm long, oval or oblique; apex obtuse; base oblique, acute, or slightly rounded; lateral veins 7 - 12. Petiole 0.4 - 1.3 cm long, 1/9 - 1/3 the length of the lamina. Figs 0.85 - 1.7 (2.0) cm in diameter; transversely elliptical, obovoid-subglobose; glabrous or covered with small, rusty-brown pubescence; borne among the leaves; color pale olive green with paler-yellow spots; peduncle obsolete; pedicel obsolete; basal bracts 0.3 - 0.6 cm long; osticle raised.

Leaf structure: cystoliths present on both surfaces though sometimes few in number; sclereids absent; lower epidermal cells plicate; stomates superficial to slightly sunken; tabular crystal cells absent; druse cells often present on the lower surface, only occasionally present on the upper surface; pubescence of 2-septate glandular hairs on the lower surface.

Vernacular name:

none noted.

Ecology:

This species seems to be located between 1,100 and 1,800 m in altitude. Only one sheet studied had a habitat noted. It was collected in a dwarf forest. All the specimens studied were from Bolivar.

Specimens studied:

Bolivar: Cardona; 2621

J. A. Steyermark; 13520, 75161

J. A. Steyermark and Sven Nilsson, 383
Unknown species No. 7

PLANTS OF VENEZUELA

State of Bolivar; elevation: 2225-2255 meters

Ministerio de Agricultura y Cria
HERBARIO NACIONAL DE VENEZUELA

Ficus
Arbol de 15 m. de altura

Num. 35922
Num. Col. 6009/Col.

Published: Nov. 19
Tree to 20 m tall. Twigs 0.1 - 0.2 cm in diameter, minutely pubescent. Stipules 0.4 - 1.0 cm long. Lamina 0.6 - 2.4 cm wide x 1.6 - 4.2 cm long, oval; apex acuminate; base acute to slightly rounded; lateral veins 10 - 16. Petiole 0.2 - 0.8 cm long, 1/5 - 1/6 the length of the lamina. Figs 0.55 cm in diameter, globose, glabrous, borne among the leaves; color not noted; peduncle ± 0.1 cm long; pedicel obsolete; basal bracts ± 0.1 cm long; ostiole raised.

Leaf structure: cystoliths present on both surfaces; sclereids absent; lower epidermal cells plane; stomates superficial; tabular crystal cells may be present on the veins beneath; druse cells may be present in both surfaces; pubescence absent.

Vernacular names:
none noted.

Ecology:

This species is found from 1,800 - 2,255 m in altitude. The only noted habitat is that of a rich mossy forest of uneven ground.

Specimens studied:

Bolivar: J. A. Steyermark; 60071, 93642
nammable new species "A"
Probable new species "A"

Habit not noted, but the plant is 15 m tall. Twigs 0.3 - 0.4 cm in diameter. Stipules 0.8 - 1.4 cm long, persistent. Lamina 1.3 - 4.3 cm wide x 5.2 - 10.0 cm long, oblong-lanceolate; apex obtuse or acuminate; base acute; lateral veins 8. Petiole 0.7 - 1.5 cm long, 1/7 the length of the lamina. Figs are borne on the current growth but are immature.

Leaf structure: cystoliths are present on the upper surface only; sclereids absent; lower epidermal cells plicate; stomates superficial; tabular crystal cells absent; druse cells present in the lower surface; pubescence of abundant 2-septate glandular hairs on the lower surface.

Vernacular names:

none noted.

Ecology:

This plant was found at 100 m in altitude growing in a rainy forest.

Specimen studied:

Zulia: E. L. Little, Jr.; 16135
Probable new species "B"
Probable new species "B"

Tree to 30 m tall. Twigs 0.25 - 0.35 cm in diameter, rusty-brown pubescent. Stipules 1.5 - 2.0 cm long. Lamina 2.6 - 6.1 cm wide X 5.8 - 16.3 cm long, lanceolate; apex acuminate; base rounded to slightly cordate; lateral veins 13 - 16. Figs (immature) 0.35 - 0.45 cm in diameter, glabrous, borne among the leaves; orifice raised.

Leaf structure: crystalliths present only on the upper surface; sclereids absent; lower epidermal cells plane; stomates superficial; tabular crystal cells absent; druse cells present in both surfaces; pubescence absent.

Vernacular names:
none noted.

Ecology:
This plant was found at 750 m in a forest.

Specimen studied:
Aragua: H. Pittier; 15206
Probable new species "C"
Probable new species "G"

Tree to 5 m tall. Twigs 0.2 - 0.3 cm in diameter, pubescent.

Stipules 0.5 - 0.7 cm long. Lamina 1.6 - 7.4 cm wide x 3.8 - 18.5 cm long, oval; apex acuminate; base rounded; lateral veins 7 - 13. Petiole 0.5 - 1.3 cm long, 1/8 - 1/16 the length of the lamina. Figs ± 0.1 cm in diameter, globose, very minutely pubescent, position not known; color not noted; peduncle ± 0.2 cm long; pedical obsolete; basal bracts 10.2 cm long; ostiole contained within 3 plicate folds of the receptacular tissue.

Leaf structure: crystaliths absent; sclereids absent; lower epidermal cells striated to plicate; stomates superficial; tabular crystal cells absent; druse cells present in the lower surface; pubescence absent.

Vernacular name:
Matspalo.

Ecology:

This plant was found at 121 m in altitude growing in the margin of the river town.

Specimen studied:

Tamatsa: Williams; 15115

Discussion:

This specimen was quite different, particularly in reference to the ostiole, from any of the others examined. Since only one specimen was seen, there was reluctance to designate this a separate species.
Probable new species "P"
Probable new species "D"

Tree to 20 m tall. Twigs 0.3 cm in diameter, pubescent. Stipules 0.5 cm long. Lamina 3.0 - 5.3 cm wide x 1.9 - 11.3 cm long, oval; apex slightly acuminate to almost obtuse; base cordate; lateral veins 10 - 12. Petiole 2.2 - 2.6 cm long, 1/4 - 1/5 the length of the lamina.

Figs 0.7 - 0.9 cm in diameter, somewhat globose, minutely pubescent, borne among the leaves; color not noted; peduncle 0.3 cm long; pedicel obsolete; basal bracts 0.1 - 0.2 cm long; ostiole raised, contained within a roughly triangular rim of fairly thick receptacular tissue.

Leaf structure: cystoliths absent; sclereids absent; lower epidermal cells plicate; stomates superficial; tabular crystal cells absent; druse cells absent; pubescence of short to medium length multiseptate hairs mostly on the veins of the lower surface; and short, 1-celled, conical hairs on the larger veins of the upper surface.

Vernacular name:

Higuerote.

Ecology:

This plant was collected at 100 m in altitude in an elevated forest on an island.

Specimen studied:

El Ratin or Rateir: Williams; 13208
CONCLUSIONS

The species treated in this thesis probably are representative of most of the species in Venezuela. Because the country has large areas that are as yet unexplored botanically, more species may be present. Several of the included species are represented by too few specimens. These few specimens might be due to insufficient collections or the scarcity of the plant itself. Further botanical exploration of Venezuela might prove very interesting.

The lack of available literature is quite detrimental. The absence of this literature has made this survey somewhat incomplete; however, the majority of the species that were found seem to have rather definitive boundaries.

This study is intended to be a beginning and as such does not completely circumscribe all the species in Venezuela. It circumscribes the collections of the species in the country to the present time, however.