

Ministry of Agriculture, Lands and Fisheries
Trinidad and Tobago

Vol. II]

[Part IX

FLORA
OF
TRINIDAD AND TOBAGO

DAPHNALES

LAURACEAE	(BY D. PHILCOX)
HERNANDIACEAE	(BY D. PHILCOX)
PROTEACEAE	(BY D. PHILCOX)
THYMELAEACEAE	(BY D. PHILCOX)

ACHLAMYDOSPOREAE

LORANTHACEAE	(BY D. PHILCOX)
BALANOPHORACEAE	(BY D. PHILCOX)



Price : — — \$1.00

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GROUP 3. MONOCHLAMYDEAE

SERIES V. DAPHNALES

Ovary superior or usually so

Fruit one-seeded, not winged. Stamens in 3

or 4 whorls of 3..... 1. LAURACEAE

Fruit one-seeded. Stamens 4 or 8 4. THYMELAEACEAE

Fruit two-seeded, capsular. Stamens 4 ... 3. PROTEACEAE

Ovary inferior

Fruit one-seeded, dry, winged. Stamens

3-5..... 2. HERNANDIACEAE

FAMILY 1. LAURACEAE

BY D. PHILCOX

Trees or shrubs, usually aromatic, sometimes parasitic, leafless, twining herbs; leaves simple, usually alternate, pinnately nerved or 3-5-plinerved, exstipulate; inflorescence usually of axillary panicles, racemes, spikes or umbels; bracts deciduous or forming involucre; flowers small, regular, hermaphrodite or dioecious, perianth lobes 4 or 6 in double row, deciduous or persistent; stamens usually in 3 or 4 rows of 3, attached to perianth tube, outer 2 rows fertile, usually eglandular, introrse, rarely extrorse or staminodial, sometimes wanting, stamens of third row usually fertile with introrse, extrorse, lateral or apical cells, base of filaments with two glands at outside, fourth row usually sterile, staminodial; ovary free, usually epigynous, 1-celled with solitary, pendulous ovule; fruit a one-seeded berry or drupe with enlarged persistent flower tube surrounding base of fruit, sometimes whole perianth persistent.

In addition to the indigenous members of the family several others are frequently found here under cultivation. Most notable of these is the avocado or zaboca—*Persea americana* Mill. which is a native of continental tropical America but has now become quite naturalised in Trinidad. The other genus frequently encountered in cultivation is *Cinnamomum*. Two species are quite widely cultivated here, *C. zeylanicum* Nees, a native of India and Malaysia and the source of the spice cinnamon, and *C. camphora* Nees & Eberm. from China and Japan. These two species are frequently confused by name but the following should assist in identifying them:

Leaves opposite, usually clearly triplinerved;

petioles stout about 1 cm long *C. zeylanicum*

Leaves alternate, tripli- or sub-triplinerved;

petioles slender about 2 cm or more long..... *C. camphora*

A third species has been identified by Dr Caroline Allen as *C. cassia* Bl., a native of Burma and China. This plant was apparently cultivated at St Clair and from which several herbarium specimens were made in 1903.

A specimen of the East Indian *Litsea sebifera* Juss. presumably collected from the Island is located in the National Herbarium at St Augustine, Herb. Trin. no. 979, but no further data are available.

There are two specimens in the Kew Harbarium of material determined as *Beilschmiedia sulcata* (Ruiz & Pavon) Mez. The first specimen, Kostermans 15017, collected in 1959 from the Northern Range is a branchlet bearing immature flowers, while the second is of a solitary fruit from a collection attributed to D. W. Snow in 1960 from the Arima Valley. Hitherto this genus has not been recorded from Trinidad, and in the absence of further and more complete material I choose not to include it here in the general treatment of the family.

In the past, several collections have been made of *Nectandra cissiiflora* Nees—a native of Peru.

1 Trees or shrubs

2 Anthers 2-locular

- 3 Stamens 9; staminodes small or wanting 1. *Aniba*
- 3 Stamens 6; staminodes large, foliaceous
- 4 Inner two series staminodial 2. *Aiouea*
- 4 Outer two series staminodial ... 3. *Licaria*

2 Anthers 4-locular

- 5 Leaves alternate, sub-triplinerved 4. *Phoebe*
- 5 Leaves alternate, subopposite or opposite, pinnately nerved
- 6 Anther loculi superimposed in pairs 5. *Ocotea*
- 6 Anther loculi in horizontal, straight or arcuate rows 6. *Nectandra*

1 Herbs, parasitic, stems twining, leafless 7. *Cassytha*

1. ANIBA Aublet

Aniba Aubl., *Pl. Guian.* 1 : 327 (1775)

Trees; leaves sparse, coriaceous or subcoriaceous, pinnately nerved; flowers unisexual or hermaphrodite; inflorescence a pedunculate panicle, shorter than leaves, axillary or subterminal, or aggregated on dwarf arrested axillary shoots; perianth-tube more or less thick, sometimes at length narrowed at or towards apex, segments 6, subequal; stamens 9 (perfect), the first and second series eglandular with introrse bi-locular anthers, the third series biglandular at base with extrorse bi-locular anthers, staminodes of fourth series small or wanting; ovary included in perianth tube, style exserted; fruit a berry, included at first in subglobose perianth-tube, later exserted, enclosed at base by enlarged, indurated, cupulate, truncate perianth-tube; perianth segments persistent or deciduous.

Fully developed leaves glabrous on both surfaces; venation weakly defined 1. *A. trinitatis*

Fully developed leaves glabrous above, puberulent beneath; veins clearly reticulate beneath 2. *A. firmula*

1. *Aniba trinitatis* (Meissn.) Mez in *Jahrb. Bot. Gart. Berl.* 5: 68 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 212 (1933); Marshall, *Trees Trin. & Tob.* 82 (1934)

Laurier canelle

Aydenndron trinitatis Meissn. in DC., *Prodr.* 15, 1 : 91 (1864)

Aydenndron citrifolium Griseb., *Fl. Brit. W. Ind.* 284 (1860) non Nees (1836)

Tree, branchlets rufous-brown, glabrescent; leaves alternate, (6-)9-18(-21)cm long, (2.5-)3.5-7cm wide, elliptic-oblong to oblanceolate, glabrous, subcoriaceous, apex blunt acuminate, base cuneate, major nerves flattened or slightly prominulous above with secondary nerves indistinct, nerves prominulous beneath; petiole up to 1cm long, rufous-brown; inflorescence 5-7cm long, fascicled or aggregated on dwarf axillary shoots, shortly brownish-pubescent, flowering branches drying black; pedicels about 2mm long, usually

longer than flowers; flowers hermaphrodite; perianth c. 2mm diam., lobes concave-ovate, obtuse or subacute, externally shortly pubescent; fruit c. 15mm long, ellipsoid, cupule up to 1cm diam., surface scaly, smooth.

Trinidad: St Ann's, Crueger 59 (K, type of *Aydenndron trinitatis* Meissn.); Carenage, 23.8.1920, Broadway 7187(K); Maracas Bay, Dannouse (TRIN 6426); mile post 2½, Cumuto-Tumpuna road, 2.2.1931, Brooks (K, TRIN 12465); Arima Valley, alt. 500 ft, 19.4.1960, Snow s.n. (K), Jumbie Trace, 8.4.1961, Snow s.n. (K); Blanchisseuse road, milepost 9, alt. 510m, 29.3.1960, Ayliffe 2 (K, TRIN 16505); milepost 19, 1.2.1960, Snow s.n. (K); Arena Reserve, Brooks (TRIN 12149); Brazil, 6.3.1921, Britton, Britton & Freeman 2132 (K); Brazil to Talparo, 6.3.1921, Britton (TRIN 9636); Aripo Savannah, 9.1.1893, Alexander (TRIN 5096); Mora forest, milepost 6, 4.5.1923, Marshall (TRIN 11256); East Trinidad, alt. 100m, July, 1959, Kostermans 15000 (K), 15001 (K), 15002 (K), 15007 (K); Nariva Swamp, milepost 46, sea level, 7.12.1961, Aitken 51 (K, TRIN 18599).

Endemic to Trinidad.

2. *Aniba firmula* (Nees & Mart.) Mez in *Jahrb. Bot. Gart.*

Berl. 5:58 (1889); Kosterm. in Pulle, *Fl. Surin.* 2, 1:300 (1936)

Laurier canelle

Aydenndron firmulum Nees & Mart. in *Linnaea* 8: 36 (1836)

Aniba panurensis (Meissn.) Mez in *Jahrb. Bot. Gart. Berl.* 5: 58 (1889)

Aydenndron panurense Meissn. in DC., *Prodr.* 15, 1: 89 (1864)

Tree, branchlets rusty to pale brown tomentose; leaves alternate, 6–21cm long, 2–6cm wide, oblong-elliptic to obovate, glabrous above, minutely puberulent beneath, apex rounded to sharp acuminate, base cuneate, major nerves and veins more or less flat above, secondary veins prominently reticulate beneath; petiole up to 1cm long; inflorescence 6–10cm long, rufous tomentose, branches deeply channelled when dry; pedicels 1–2mm long, usually longer than flowers; flowers hermaphrodite; perianth c. 2mm diam., lobes oblong ovate, subacute, rufous; fruit ellipsoid c. 18mm long, cupule up to 13mm diam., distinctly verrucose.

Trinidad: Maraval, Baptiste (TRIN 5819, 5876); road to Maracas Bay, 10.7.1925, Williams, Freeman & Cheesman (K, TRIN 11242); Arima, 2.6.1900, Dannouse (TRIN 8901); Arima Valley, 23.11.1958, Snow (TRIN 15701); milepost 2 on road from Eastern Main Road to Guanapo Heights, alt. 165m, 26.6.1973, Philcox & Kalloo 7297 (K, TRIN); Aripo Valley, 3.1.1948, Baker (TRIN 14152); Aripo road, 17.12.1926, Broadway 6439 (BM, K); about 2.8 miles on Aripo Heights road from Eastern Main Road, alt. c. 135m, 6.7.1973, Philcox, Kalloo & Jurawan 7399 (K, TRIN); Arena Reserve, 19.1.1931, Brooks (K, OXF, TRIN 12458), 28.7.1931 (K, OXF, TRIN 12584).

Tobago: summit of Pigeon Hill, 22.10.1925, Freeman & Williams (TRIN 11366).

Trinidad and Tobago. Surinam and Amazonian Brazil.

2. AIOUEA Aublet

Aiouea Aubl., *Pl. Guian.* 1:310, t. 120 (1775)

Trees; leaves alternate, glabrous, coriaceous, pinnately-nerved; flowers hermaphrodite; inflorescence a panicle, axillary or pseudo-terminal; perianth tube ovoid or subcampanulate, segments 6, subequal; stamens 6 (perfect), first and second series (or more rarely first series only) with short to fairly long eglandular filaments and bi-locular introrse anthers; staminodes of third series with two large glands at base; staminodes of fourth series subsessile or absent; ovary included in perianth tube; fruit a berry, ovoid or oblong, on the usually obconic thickened pedicel.

Pedicels and perianth puberulous; pedicels

2-3mm long 1. *A. densiflora*

Pedicels and perianth glabrous; pedicels

3.5-7mm long 2. *A. schomburgkii*

1. *Aiouea densiflora* Nees in *Linnaea* 21: 513 (1848); Meissn. in DC., *Prodr.* 15, 1:83 (1864); Mez in *Jahrb. Bot. Gart. Berl.* 5: 36 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 211 (1933); Marshall, *Trees Trin. & Tob.* 82 (1934); Kosterm. in Pulle, *Fl. Surin.* 2:312 (1936) *Laurier mango*

Tree, branchlets early glabrescent; leaves 9–20cm long, 3–6cm wide, oblong to elliptic-ovate, coriaceous, apex subacute or bluntly acuminate, rarely obtuse, base cuneate, major nerves flat or slightly impressed above, prominent beneath; petiole up to 2.5cm long; inflorescence many-flowered, 7–15cm long, glabrescent; pedicels 2–3mm long, larger than flowers, brown-puberulous; perianth c. 1.5mm diam., puberulous; fruit ovoid c. 14mm long, 14mm diam. on large obconic pedicel up to c. 10mm diam. at apex.

Trinidad: without locality, Grisebach 122 (K); milepost 9 $\frac{3}{4}$, Arima-Blanchisseuse road, c. 600m, 17.7.1959, Kostermans 15029 (TRIN 15949); La Brea, near Merrimac, 29.4.1865, Finlay (TRIN 2732); Southern Watershed Reserve, 13.6.1931, Brooks (K, TRIN 12556), 20.12.1930, Russell (TRIN 12598); Arena Reserve, 30.1.1932, Gill (K, TRIN 12624); Mayaro, Broadway (K, TRIN 12208).

Tobago: Roxborough-Parlatuvier road, 4.4.1959, Cowan 1417 (TRIN).

Trinidad and Tobago. The Guianas and Brazil.

2. *Aiouea schomburgkii* Meissn. in DC., *Prodr.* 15, 1: 82 (1864); Mez in *Jahrb. Bot. Gart. Berl.* 5: 35 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 212 (1933); Marshall, *Trees Trin. & Tob.* 83 (1934) *Long leaf pulcherro*

Tree, branchlets glabrous; leaves 9–21cm long, 2.5–7.5cm wide, broadly elliptic to obovate-oblong, subcoriaceous, apex caudate or shortly acuminate, base cuneate, nerves and veins prominent on both surfaces; petiole up to 3cm long; inflorescence laxly flowered, up to 22cm long, glabrous; pedicels 3.5–7mm long, about 3 times as long as flowers, glabrous; perianth 1–1.5mm diam., glabrous; fruit ovoid, 10mm long, 8mm diam., on the enlarged obconic pedicel about 7mm diam. at apex.

Trinidad: El Tucuche, near the top of the Ortinola trail, 12.5.1949, Baker (K, TRIN 14333); mile post 9 $\frac{1}{2}$ Arima-Blanchisseuse road, 3.4.1931, Brooks (K, TRIN 12477), (TRIN 12599).

Trinidad and Guyana.

3. LICARIA Aublet

Licaria Aubl., *Pl. Guian.* 1: 313 (1775), 3: t. 121

Trees (the local species) or shrubs; leaves alternate or opposite, coriaceous, chartaceous or rigid; inflorescence a pseudoterminal or axillary panicle; perianth segments 6, equal or subequal, erect or incurved, deciduous or persistent and thickened; 6 outer stamens changed to foliaceous, scale-shaped staminodes, third row of stamens fertile, generally with basal glands, anthers bilocular, cells extrorse-apical or introrse; fourth row of stamens wanting; ovary included in perianth tube; fruit a berry, usually ellipsoid.

Licaria canella (Meissn.) Kosterm. in *Rec. Trav. Bot. Neerl.*
34: 583 (1937) *Laurier pulcherro*

Ayðendron canella Meissn. in DC., *Prodr.* 15, 1: 90 (1864)

Acrodiclidium canella (Meissn.) Mez in *Jahrb. Bot. Gart. Berl.*
5: 90 (1889)

Aniba megacarpa Hemsl. in *Hook. Ic.* 28: f. 2751 & 2752 (1903)

Tree up to 25m tall, branchlets glabrous, grey or fuscous; leaves alternate, subopposite or clustered at ends of branches. 6.5–12cm long, 3.5–6cm wide, broadly elliptic to obovate, glabrous, glossy above, coriaceous, nerves prominent and reticulate on both surfaces, apex rounded to bluntly cuspidate, base cuneate; petiole up to 12mm long; inflorescence many-flowered, 2–4cm long, axillary or subterminal, often fascicled, rusty-tomestose, pedicels slender up to 3mm long, bracteoles oblong to ovate-lanceolate, acute, c. 1mm long, caducous; perianth c. 2mm diam., globose, lobes inflexed; outer stamens sterile, those of third row fertile, glabrous, rather thick, cells introrse, basal gland small; staminodes absent; ovary completely enclosed in perianth; fruit about 5–6cm long, 15mm broad, oblong-ovoid, glabrous, half exserted; cupule up to 3.5cm diam., thick walled, prominently rusty-verrucose.

Trinidad: Guapo to Tabaguite, Dammouse in 1900 & 1901 (TRIN 6786, K, type material of *Aniba megacarpa* Hemsl.).

Trinidad. The Guianas and Amazonian Brazil.

There are two collections from Trinidad in the Kew herbarium which have been determined by A.J.G.H. Kostermans as *Licaria guianensis* Aubl. One of these made by D.W. Snow from the Arena Reserve, 17.10.1959, is sterile while the other, Kostermans 15018, from the Central Highlands, has young flower buds and empty cupules only. They do not appear to represent the same taxon nor does the fertile one match either the description or representative material of *L. guianensis*. Both its obvious lack of rusty indumentum on the young branches and the glabrous not tomentose perianth which turns black on drying, lead me to consider it as possibly representing a new species. However, until more material is collected, I prefer to leave the identity of these two collections as *Licaria* spp.

4. PHOEBE Nees

Phoebe Nees, *Syst. Laur.* 98 (1836)

Trees and shrubs; leaves alternate, coriaceous or chartaceous, penni- or subtriplinerved; inflorescence an axillary or subterminal panicle; flowers hermaphrodite; perianth segments 6 subequal or the outer rarely smaller than inner; stamens 9 (perfect), filaments of first and second series eglandular with introrse 4-locular anthers, third series biglandular at base, anthers extrorse, 4-locular; staminodes of fourth series cordate-sagittate; ovary sessile; stigma discoid; fruiting perianth scarcely enlarged, persistent below fruit.

Phoebe elongata (Vahl) Nees, *Syst. Laur.* 116 (1836); Mez in *Jahrb. Bot. Gart. Berl.* 5: 203 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 225 (1933); Marshall *Trees Trin. & Tob.* 86 (1934) *Laurier mama z'enfants*

Laurus elongata Vahl ap. Nees, *Syst. Laur.* 116 (1836) excl. Poeppig 1311

Phoebe elongata var. *lanceolata* R.L. Brooks in *Bull. Misc. Inf. Kew* 1933: 225 (1933)

P. elongata var. *elliptica* R.L. Brooks in *Bull. Misc. Inf. Kew* 1933: 225 (1933)

Tree up to 20m tall, branchlets pubescent or glabrous, buds more or less tomentose; leaves 7–17cm long, 2–7cm wide, lanceolate or elliptic-lanceolate to broadly ovate-elliptic, chartaceous to subcoriaceous, apex acuminate, base gradually or abruptly cuneate to almost rounded, glabrescent above, generally pubescent or sparsely pilose at least on midrib beneath, axils of lower major nerves barbellate, triplinerved from just above base, midrib pinnately-nerved; petiole up to 15mm long; inflorescence up to 30cm long; peduncles shortly tomentose to glabrous; perianth up to 6mm diam., lobes ovate, puberulent; stamens with lower locules of anthers touching upper at base; ovary glabrous; fruit ellipsoid, about 14mm long, 7mm diam.

Trinidad: without locality, Crueger 282 (K), 1759 (TRIN), Prestoe s.n. (K); St Ann's reservoir, 16.1.1893, Broadway (TRIN 5117); North Post, Diego Martin, 9.4.1893, Broadway (TRIN 5375); mile post $\frac{3}{4}$, Paria-Morne Bleu road, 1.4.1931, Brooks (K, TRIN 12480); road to Maracas Waterfall, 13.5.1868, Finlay (TRIN 2731); Santa Cruz, Dannouse in 1898 (TRIN 6617); Tacarigua, 23.5.1929, Richardson (K, TRIN 12155); Arima, April 1884, Eggers 1471 (K), 5.6.1907, Dannouse s.n. (TRIN); Arima Valley, Santa Isabella trail near Simla, 10.3.1956, Smith 10094 (K); mile post 9, Arima-Blanchisseuse road, 510m, 29.3.1960, Ayliffe 1 (K, TRIN 16504); Valencia, Eggers 1414 (K), 22.5.1929, Rosalis (K, TRIN 12153); Siparia, 14.1.1909, McLean s.n. (TRIN).

Tobago: Tobago reservoir, Mt St George-Castara road, 8.9.1933, Swabey (TRIN 12960); between Hillsborough dam and Mason Hall, alt. 225m, 4.6.1973, Philcox 7043 (K, P, TRIN).

Trinidad and Tobago. Greater and Lesser Antilles.

In his notes on the Lauraceae, Brooks distinguishes two varieties, each described as distinct on account of their leaf shapes. This character, however, is not strong enough to warrant this separation and I have here included them under the species.

5. OCOTEA Aublet

Ocotea Aubl., *Pl. Guian.* 2: 780 (1775)

Trees; leaves alternate or scattered, coriaceous, pinnately-nerved; inflorescence of axillary or subterminal pedunculate panicles, lax or in small cymes, or with flowers contracted almost into heads, puberulent or tomentose; flowers hermaphrodite or unisexual and dioecious; perianth tube usually short with 6 subequal segments; stamens 9 perfect, first and second series eglandular, with introrse 4-locular anthers, the anther loculi superimposed in pairs; third series biglandular at base with extrorse 4-locular anthers; staminodes of fourth series absent; ovary more or less sunk in perianth tube narrowing into style, in male flowers narrow and functionless; fruit a globose, ovoid or oblong berry sometimes included in perianth tube when young, but at maturity seated on or enclosed at base by enlarged, hardened, cup-shaped or expanded, truncate perianth tube.

- 1 Under-surface of fully developed leaves
glabrous or at least not hairy
- 2 Nervation of upper surface of leaves more
or less impressed..... 1. *O. leucozydon*
- 2 Nervation of upper surface of leaves
slightly prominent
- 3 Venation areolate; primary nerves decur-
rent along midrib..... 2. *O. wachenheimii*
- 3 Venation not areolate; primary nerves
never decurrent along midrib..... 3. *O. trinidadensis*
- 1 Under-surface of fully developed leaves
hairy at least on midrib or in axils of
primary nerves
- 4 Nerve axils (at least lower) on under-
surface barbellate and foveolate

- 5 Primary nerves 4-6 on each side; panicles adpressed puberulent..... 4. *O. eggersiana*
- 5 Primary nerves more numerous, 7-9 (-11) on each side; panicles puberulent 5. *O. fasciculata*
- 4 Nerve axils on under-surface not barbelate or foveolate
- 6 Midrib markedly impressed above; primary nerves comparatively indistinct on upper surface..... 6. *O. canaliculata*
- 6 Midrib not markedly impressed above; primary nerves distinct on upper surface
- 7 Branchlets rusty pilose or tomentose
- 8 Under-surface of leaves glaucous, secondary nerves beneath clearly marked and sub-parallel
- 9 Leaves broadly oblong- or elliptic-lanceolate; petiole not broadly winged..... 7. *O. glomerata*
- 9 Leaves broadly elliptic to elliptic-oblong; lamina cuneate into broadly winged petiole..... 9. *O.? tomentella*
- 8 Under-surface of leaves not glaucous, secondary nerves beneath usually indistinct, rarely sub-parallel..... 8. *O. oblonga*
- 7 Branchlets adpressed-puberulent..... 1. *O. leucoxydon*

1. *Ocotea leucoxydon* (Sw.) Mez in *Jahrb. Bot. Gart. Berl.* 5: 329 (1889); Fawe. & Rendle, *Fl. Jam.* 3: 211 (1914); Brooks in *Bull. Misc. Inf. Kew* 1933: 216 (1933); Marshall, *Trees Trin. & Tob.* 86 (1934); Adams, *Fl. Pl. Jam.* 283 (1972)
Duckwood, Laurier caca poule
Laurus leucoxydon Swartz, *Prodr. Veg. Ind. Occ.* 65 (1788)
Oreodaphne leucoxydon (Sw.) Griseb., *Fl. Brit. W. Ind.* 283 (1860); Meissn. in DC., *Prodr.* 15, 1: 121 (1864)

Tree up to 15m tall, branchlets adpressed puberulent towards apex; leaves 7-19(-23)cm long, 2.5-7(-10)cm wide, oblong, elliptic-oblong to broadly elliptic, coriaceous, glabrous above, minutely furfuraceous but not hairy beneath except when young, nerves more or less flat and veins flat or impressed above, prominulous beneath, primary nerves shortly decurrent along midrib above, apex acute or shortly and subacutely acuminate, base cuneate or rarely sub-rounded; petiole up to 1.5cm long; panicles up to 17cm long, shorter than or subequal to leaves, more or less rusty-puberulent; pedicels subequal to flowers; dioecious; perianth 2mm diam., lobes ovate-oblong, yellowish-green; staminodes in female flower minute; fruit globose, purplish-black, mucronate, up to 1.5cm long; cupule about 1cm diam., saucer-shaped, white verrucose.

Trinidad: without locality, Kostermans 15010 (K), 15028 (K); road to Maracas Bay, 18.4.1926, Broadway 6131 (BM, K); El Tueuche, 450m, Beard (TRIN 13671); Northern Range Reserve, Arima-Blanchisseuse road, 15.3.1960, Ayliffe (K, TRIN 16506), 1.4.1931, Brooks (K, OXF, TRIN 12489), Kostermans 15033 (K), c. 510m, 27.3.1958, Snow (TRIN 15943), c. 540m, 8.3.1960, Ayliffe (K, TRIN 16486), mile post 7, c. 510m, Bhorai 884 (TRIN), mile post 9, 15.7.1959, Kostermans (TRIN 15953); junction of Las Lapas and Blanchisseuse roads, 26.2.1926, Broadway 5982 (K); Morne Bleu, 27.1.1921, Freeman (TRIN 9588), 23.3.1928, Freeman & Williams (TRIN 11966); head of Arima Valley, 510m, 12.6.1958, Snow (TRIN 15942); Heights of Aripo, 10.1.1922, Broadway (K, TRIN 9872), Broadway (K, TRIN 10017); Guapo, 7.8.1903, Dannouse (TRIN 12212).

Tobago: Roxborough-Parlatuvier road, 14.6.1927, Franklyn (K, OXF, TRIN 11905), 14.10.1937, Sandwith 1762 (K), 4.4.1959, Cowan 1416 (TRIN); Salem-Charleston Trace, 18.9.1927, Williams (K, TRIN 11789); summit of Pigeon Hill, 22.10.1925, Freeman & Williams (K, TRIN 11364).

Trinidad and Tobago. Greater and Lesser Antilles.

2. *Ocotea wachenheimii* R. Benoist in *Bull. Mus. Hist. Nat. Paris* 30: 510 (1924); Kosterm. in Pulle, *Fl. Surin.* 2, 1: 267 (1936) *Spicy mattack, Laurier stinker*

O. arenaensis Brooks in *Bull. Misc. Inf. Kew* 1933: 217 (1933); Marshall, *Trees Trin. & Tob.* 84 (1934)

Tree to 25m tall, branchlets puberulent, early glabrescent; leaves 6-17cm long, 2-7.5cm wide, narrowly or broadly elliptic to obovate, coriaceous, glabrous above, minutely pubescent beneath, especially on the major nerves when young, ultimate venation areolate, major nerves above slightly prominent, lateral nerves decurrent for short way along midrib, nerves and veins prominulous beneath, apex very shortly and broadly acuminate to blunt and rounded, base cuneate; petiole up to 1cm long; inflorescence up to 10cm long, puberulent; pedicels 1-1.5mm long, shorter than flowers; flowers dioecious; perianth 3mm diam., lobes ovate, obtuse, minutely puberulent; staminodes in male flower absent, rudimentary ovary densely pubescent; female flower unknown; fruit a globose berry seated on shallow flattened or saucer-shaped cupule about 6mm diam.; pedicel enlarged and hardened in fruit.

Trinidad: without locality, Kostermans 15023 (K), 15024 (K); Arena Forest Reserve, 2.10.1953, Ayliffe 149 (TRIN 15021), Ayliffe 162 (TRIN 16410), Brooks (K, OXF, TRIN 12147), 19.1.1931, Brooks (K, OXF, TRIN 12459), 12.3.1932, Brooks (TRIN 12634), 16.7.1959, Kostermans (TRIN 15955), 23.5.1929 Jeanpierre (K, holotype; OXF, TRIN 12154, isotypes); Siparia Reserve, Russell (K, OXF, TRIN 12619).

Trinidad and the Guianas.

3. *Ocotea trinidadensis* Kosterm. in *Reinwardtia* 6: 156 (1962)

Tree up to 20m tall, with smooth bark; branchlets grey, smooth, glabrous; leaves 6.5-14(-22)cm long, 2-6(-7.5)cm wide, obovate-elliptic to lanceolate-elliptic, apex acute, tip blunt, base cuneate, slightly decurrent, glabrous, coriaceous, both surfaces prominulously reticulate, above glossy, beneath less so, lateral nerves arcuately anastomosing near margin; petiole 3-5(-8)mm long; panicles up to 5cm long, few branched, minutely pubescent; pedicel c. 1mm long, perianth c. 1.5mm long, ovate, obtuse, glabrous, reflexed after anthesis; stamens glabrous, outer filaments 1-1.25mm long, anthers 0.75mm long, ovate, cells introrse, inner filaments somewhat larger with narrower thick anthers with extrorse or extrorse-

lateral cells; basal glands conspicuous; ovary glabrous, globose style thick almost 1mm long; fruit subcylindric up to 22mm long, 10mm diam., apex truncate, shortly apiculate, embedded in semiglobose cupule c. 1.5cm tall, slightly constricted at mouth about 10mm diam.

Trinidad: Caura, Richardson (K, TRIN 12674); Arima Valley, c. 540m, 23.11.1958, Snow (K, TRIN 15702); Arima-Blanchisseuse road, 16.12.1932, Brooks 12709 (K), Ayliffe (K, TRIN 16485), milepost 7, c. 510m, Bhorai 885 (TRIN), mile post 9, 2.7.1961, Snow s.n. (K), mile post $9\frac{1}{2}$, 3.4.1931, Brooks (TRIN 12387), mile post $9\frac{3}{4}$, 27.1.1933, Richardson (TRIN 12748), mile post 9-11, 21.7.1932, Richardson, TRIN 12667 (K, isotype), 16.9.1932, Marshall (K, TRIN 12677); top of Arima road, 26.4.1929, Marshall (TRIN 12131).

Restricted to the Northern Range in Trinidad.

4. *Ocotea eggersiana* Mez in *Jahrb. Bot. Gart. Berl.* 5: 363 (1889), Brooks in *Bull. Misc. Inf. Kew* 1933: 218 (1933); Marshall, *Trees Trin. & Tob.* 85 (1934)

Small leaf maddock, Laurier maddock

Tree; branchlets shortly tomentose, glabrescent; leaves 6-9(-12)cm long, 2-3.5(-5.5)cm long, narrowly or broadly elliptic to obovate-elliptic, apex gently or abruptly acuminate, base cuneate, coriaceous, glabrous or furfuraceous above when mature, adpressed puberulent, later furfuraceous beneath with some major nerve axils barbellate and foveolate, primary nerves 4-6 on each side, midrib on both surfaces subverrucose especially towards base, major nerves prominulous above, prominent beneath with lateral nerves shortly decurrent along midrib; petiole up to 8mm long, verrucose; inflorescence up to 8cm long, shortly adpressed puberulent; pedicels about 2mm long, shorter than or equal to flowers, slender; flowers dioecious; perianth about 4mm diam., lobes ovate-oblong, obtuse, patent or subpatent after anthesis; berry ellipsoid, about 8mm long, 4mm diam. (on dried specimens—possibly immature); cupule about 5mm diam., cup-shaped, enclosing lower half of berry; pedicel enlarged and hardened in fruit.

Trinidad: top of Tucuche, 26.3.1922, Williams (TRIN 10119); Aripo, Alexander (TRIN 5106); Morne Bleu, 23.3.1928, Freeman & Williams (K, TRIN 11960); Eastern Main Road, East of Valencia, 13.3.1925, Broadway 5573 (BM, K); Toco Road, 2.12.1929, Andrews (K, TRIN 12317), mile post 8½, 31.12.1929, Andrews (K, OXF, TRIN 12324); Arena Reserve, 16.5.1929, Brooks (TRIN 12150), 31.1.1930, Brooks (TRIN 12334), 19.1.1931, Brooks, (TRIN 12457) (K, OXF, TRIN 12460), 20.7.1959, c. 45m, Kostermans (TRIN 15954), Pena (K, TRIN 15403), 23.4.1929, Marshall (TRIN 12133); Mt Harris, mile post 7, Cunapo South Road, 17.3.1960, Ayliffe (K, TRIN 16487), Old Rest House, 18.3.1960, Ayliffe 22 (K, TRIN 16495).

Guadeloupe to Trinidad.

5. *Ocotea fasciculata* (Nees) Mez in *Jahrb. Bot. Gart. Berl.* 5: 248 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 218 (1933); Marshall, *Trees Trin. & Tob.* 85 (1934)

Laurier citron

Oreodaphne fasciculata Nees in *Linnaea* 21: 521 (1848)

Tree to 10m tall; branchlets adpressed pubescent, becoming puberulent; leaves 4.5–13cm long, 2–6cm wide, elliptic to oblong-lanceolate, glabrous above, furfuraceous and glabrous beneath except for lower nerve axils being barbellate and foveolate, coriaceous, primary nerves 7–9(–11) on each side, midrib and major nerves prominulous to prominent above, reticulation areolate, apex bluntly acuminate, base subcuneate; petiole up to 1cm long; inflorescence up to 9cm long, sparsely short white-puberulent, glabrescent; pedicels 2–5mm long, equal to or longer than flowers; flowers apparently strictly hermaphrodite (in Trinidad material); perianth 3–4mm diam., lobes ovate-oblong, obtuse; staminodes absent; mature fruit not seen; cupule cup-shaped, about 1cm diam., half covering immature fruit, verrucose; fruiting pedicel enlarged, hardened.

Trinidad: Botanic Garden, 20.7.1959, Ayliffe (TRIN 16503, K), 26.10.1888, Broadway (K, TRIN 2192), Kostermans 15049 (K), 15050 (K); Maraval, 4.8.1903, Dannouse s.n. (TRIN), 4.8.1903,

Dannouse (TRIN 1299); Mt St Benedict, Tunapuna, 2.4.1929, Hunter (TRIN 12123); Cats Hill Reserve, 22.4.1931, Swabey (TRIN 12545).

Trinidad—very rare. Venezuela, Guyana and Brazil.

6. *Ocotea canaliculata* (Rich.) Mez in *Jahrb. Bot. Gart. Berl.* 5: 361 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 219 (1933); Marshall, *Trees Trin. & Tob.* 84 (1934); Kosterm. in Pulle, *Fl. Surin.* 2, 1: 261 (1936) *Laurier petite-feuille*

Laurus canaliculata Rich. in *Act. Soc. Hist. Nat. Paris* 1792: 108 (1792)

Oreodaphne cayennensis Meissn. in DC., *Prodr.* 15, 1: 133 (1864)

Tree; branchlets brown, adpressed greyish or ferrugineous tomentose, glabrescent; leaves 7–15cm long, 2–4.5cm wide, elliptic to oblong-lanceolate, coriaceous, glabrous above, glaucous and puberulent beneath, midrib impressed above with lateral nerves very indistinct, midrib and nerves prominent beneath, reticulation subprominent above and beneath, apex shortly and obtusely acuminate, base cuneate; petiole 5–12mm long, tomentose; inflorescence up to 8cm long, tomentose; pedicels up to 3mm long; perianth 2–3mm diam., lobes broadly ovate, obtuse or rounded, tomentose; staminodes absent; fruit an ellipsoid berry, about 1cm long, 7–8mm diam.; cupule about 1cm diam., covering about half berry, lightly covered with brown scales; fruiting pedicel enlarged, hardened.

Trinidad: Diego Martin, Dannouse s.n. in 1901 (TRIN); Maracas, Crueger 119 (K, TRIN 1752); Arima Valley, Sta Isabella Trace, 14.3.1961, Snow s.n. (K); Arima-Blanchisseuse Road, Kostermans 15011 (K), mile post 9, 27.3.1958, Snow (TRIN 15941), mile posts 9–11, 16.8.1932, Marshall (K, TRIN 12679), mile post 10, 26.4.1929, Marshall (K, OXF, TRIN 12130), mile post 11, 29.3.1931, Brooks (K, TRIN 12478); Matura, Quebrada Grande, 5.5.1959, Ayliffe (K, TRIN 15734); Mora Trace, Mora Forest, 90m, Bell (K, TRIN 19307).

Northern Range in Trinidad. The Guianas and northern Brazil.

7. *Ocotea glomerata* (Nees) Benth. & Hook. fil., *Gen. Pl.* 3: 158 (1880); Mez in *Jahrb. Bot. Gart. Berl.* 5: 294 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 219 (1933); Marshall, *Trees Trin. & Tob.* 85 (1934); Kosterm. in Pulle, *Fl. Surin.* 2, 1: 263 (1936)

Laurier zaboca

Oreodaphne glomerata Nees in *Linnaea* 21: 515 (1848); Meissn. in DC., *Prodr.* 15, 1: 113 (1864)

Tree to 20m tall; branchlets densely rusty tomentose to shortly hirsute; leaves 8–22cm long, 3–6.5cm wide, broadly oblong- or elliptic-lanceolate, coriaceous, upper surface glabrescent, greyish-brown to rusty tomentose on major nerves, under surface glaucous, rusty tomentose usually on veins only, reticulation areolate, apex acute or acuminate, rarely obtuse and cuspidate, base cuneate; petiole 8–15(–20)mm long; inflorescence up to 22cm long, usually much larger than subtending leaves, whitish-brown to rusty tomentose to hirsute, cymes contracted almost into small heads; flowers hermaphrodite, creamy yellow, subsessile; perianth about 3mm diam., lobes densely tomentose, broadly ovate, obtuse; staminodes absent; berry ovoid-ellipsoid, about 1cm long, 6mm diam., cupule to 6mm long, 8mm diam., smooth, subsessile.

Trinidad: without locality, Broadway (TRIN 12211), Marshall s.n. in 1927 (K), 20.2.1922, Rogers (TRIN 12209); St Joseph, Crueger in 1849 (K, TRIN 1756); Maracas, Crueger (TRIN 1752); St Patrick, 8.9.1926, Cotton (OXF, TRIN 11586); Cupar Grange, Finlay (TRIN 2733); Morne L'Enfer Reserve, 27.8.1928, Williams (K, TRIN 12029); Southern Watershed Reserve, 25.8.1926, Dardaine (TRIN 11587), Russell (K, OXF, TRIN 12412), 23.8.1929, Swabey (K, OXF, TRIN 12231); Siparia, 8.4.1921, Britton 2823 (K), 25.6.1929, Williams (K, TRIN 12199); Siparia Old Road, 28.8.1959, Ayliffe 202 (K, TRIN); Erin Savannah, 26.8.1962, Purseglove 6505 (TRIN 18170); Irois, 3.7.1861, Crueger 123 (K, TRIN 1754); Moruga, 20.10.1847, Crueger (TRIN 1758).

Trinidad, The Guianas, Venezuela and Brazil.

8. *Ocotea oblonga* (Meissn.) Mez in *Jahrb. Bot. Gart. Berl.* 5: 367 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 2 (1933); Marshall, *Trees Trin. & Tob.* 86 (1934)

Laurier cypre, Fine-leaf laurier,

Mespilodaphne oblonga Meissn. in DC., *Prodr.* 15, 1: 107 (1864)

Ocotea hartiana Mez in Urb., *Symb. Ant.* 2: 251 (1900)

Tree to 20m tall; branchlets pale brown to rusty tomentose; leaves 7–15cm long, 2–5.5cm wide, elliptic to broadly elliptic-lanceolate, glabrous above except for base of midrib frequently tomentose, rusty pubescent beneath particularly on major nerves, midrib and nerves prominulous above with chief veins markedly parallel or subparallel and reticulation lax, midrib and nerves prominent beneath with reticulation more or less prominent, apex subacute or shortly and bluntly acuminate, base rather long cuneate; petiole up to 12mm long; inflorescence up to 9cm long, rusty tomentellous; pedicels 1–1.5mm long, usually shorter than flowers; flowers dioecious; perianth 4mm diam., ovate, densely tomentellous; berry ellipsoid, 12mm long, 8mm diam., cupule turbinate, about 5mm diam., pedicel much thickened and hardened.

Trinidad: without locality, Kostermans 15022 (K), 15029 (K); Maraval, Baptiste (TRIN 5882, type no. of *Ocotea hartiana*); Santa Cruz, Dannouse (TRIN 6631); Arima, Dannouse s.n. in 1900 (TRIN); Arima Valley road, 600m, 24.3.1959, Cowan & Simmonds 1183 (TRIN); Arima-Blanchisseuse Road near mile post 10½, 16.1.1925, Broadway 5528 (K); Northern Range Reserve, 1.4.1931, Brooks (K, OXF, TRIN 12488); Arena Reserve, 5.5.1929, Brooks (K, OXF, TRIN 12148), 16.7.1959, Kostermans (TRIN 15951, 15952); Tamana, 16.7.1930, Swabey & Marshall (TRIN 12400); Southern Watershed Reserve, 6.8.1930, Russel (K, OXF, TRIN 12411).

Trinidad and the Guianas.

9. *Ocotea? tomentella* Sandw. in *Bull. Misc. Inf. Kew* 1935: 130 (1936)

Tree up to 45m tall, branchlets densely yellow tomentose when young, glabrescent, canaliculate, angular to somewhat flattened above; leaves 8.5–13cm long, 4.5–6cm wide, elliptic to elliptic-oblong, apex shortly and bluntly cuspidate, base cuneate into petiole, coriaceous, glabrous above except shortly furfuraceous on midrib and occasionally on major nerves towards leaf-base, finely

and generally furfuraceous beneath, nerves more or less flat or slightly prominulous above, clearly prominulous beneath; petiole up to 2.5cm long, broadly winged to 8mm wide, canaliculate; fruit ellipsoid, drying black, up to 3cm long, 1.5cm diameter; cupule up to 1.8cm diameter, saucer-shaped; fruiting pedicel thickened.

Trinidad: Blanchisseuse road, mile post 9½, 15.3.1960, Ayliffe (K, TRIN 16494).

Trinidad. The true species is known only as a very rare plant from Guyana.

The true identity of this plant is somewhat in doubt, but I have placed it here by reason of the broadly-winged petiole and large fruit and cupule. Our material bears only mature fruit and immature inflorescence and it is because of the latter, I have chosen to exclude any description of the floral characters. This plant should be sought for and collected further.

6. NECTANDRA Rolander ex Rottboel

Nectandra Roland. ex Rottb., *Act. Lit. Univ. Hafn.* 1: 279 (1778)

Trees and shrubs; leaves alternate, subopposite or opposite, coriaceous, pinnately nerved, primary nerves often decurrent along midrib; inflorescence a usually laxly-flowered axillary or terminal panicle; flowers hermaphrodite; perianth segments 6, subequal, tube short; stamens 9 perfect, first and second series glandular, much shorter than perianth with extrorse 4-locular anthers, loculi in horizontal, straight or arcuate row, third series narrowed at base with 2 subsessile glands, anthers extrorse, 4-locular; staminodes of fourth series small, clavate; ovary small, within perianth tube or exerted; style short, rarely longer than ovary; fruit a berry, globose, ovoid or oblong, seated on or enclosed by enlarged, indurated, truncate, cupulate or expanded perianth tube; perianth segments deciduous in fruit.

1 Stem densely and distinctly pubescent at least when young

2 Nerves on upper leaf surface clearly

impressed 1. *N. kaburiensis*

- 2 Nerves on upper leaf surface more or less flat, or prominent (sometimes appearing impressed after drying)
- 3 Secondary nerves subparallel, joining midrib more or less at right angles; reticulation beneath indistinct..... 2. *N. membranacea*
- 3 Secondary nerves not markedly parallel or transverse; reticulation prominent on both surfaces 3. *N. martinicensis*
- 1 Stem pubescent only at apex when young, early glabrescent
- 4 Primary nerves markedly decurrent along midrib above, smoothly curved, branching close to margin; reticulation indistinct; leaves drying grey-green..... 4. *N. rectinervia*
- 4 Primary nerves not markedly decurrent, undulately and irregularly curved, branching well within margin; reticulation very distinct; leaves drying brown 5. *N. coriacea*

1. *Nectandra kaburiensis* Kosterm. in *Med. Bot. Mus. Utrecht* 25: 22 (1936) and in Pulle, *Fl. Surin.* 2, 1: 294 (1936) *Large leaf maddock, Laurier maddock*
- N. surinamensis* Mez in Urb., *Symb. Ant.* 2: 252 (1900), nec alibi

Tree up to 30m tall; branches when young densely yellow- to rusty-tomentose; leaves alternate, (10-)15-18(-22)cm long, (3.5-) 5-6(-8)cm wide, broadly elliptic or oblong to obovate-lanceolate, apex shortly acuminate, acute, base acute or cuneate; young leaves shortly puberulent on both surfaces becoming glabrous and somewhat glossy above with age with puberulence remaining much longer on the major nerves; adult leaves shortly hirsute or puberulent beneath; petiole thick, broad, flat above, yellow-tomentose, glabrescent, up to 18mm long; inflorescence many-flowered, axillary, pyramidal, yellow-tomentose, up to 18cm long; pedicels up to 3mm

long, flowers white or yellowish, fragrant, 5-6mm diam., perianth-tube 0.5mm long, lobes 1.5-2.5mm long, ovate or oblong, glabrescent without, densely lanuginose-papillose within; stamens of outer rows 1mm long, filaments short, tomentose, anthers elliptic or suborbicular, truncate, incurved, 0.5mm long, densely papillose; stamens of third row slightly longer, anthers cuneate, truncate at apex merging into short filaments, lower cells extrorse, upper ones lateral; basal glands very large, depressed-globose, more or less surrounding filaments; staminodes of fourth row 0.5mm long, subclavate, pilose or glabrous; ovary globose, glabrous; berry globose, 12mm diam., nearly free from eupule; eupule flat, 6mm diam., fruiting pedicel obconic, 12mm long, 5mm diam. at top.

Trinidad: cultivated in Botanic Gardens, 21.4.1922, Broadway (TRIN 10078); Maracas, Crueger (TRIN 1755), (TRIN 1763); Arena, 12.5.1931, Brooks (OXF, TRIN 12549); Tamana, 16.7.1930, Swabey (TRIN 12400); River Estate, mahogany plantation, alt. 60m, 27.7.1959, Ayliffe 201 (TRIN); Southern Watershed Reserve, alt. 75m, Ayliffe 205 (TRIN); Southern Watershed Reserve near Siparia, 1.3.1929, Russell (K, TRIN 12119).

Trinidad. The Guianas and Amazonian Brazil.

2. *Nectandra membranacea* (Sw.) Griseb., *Fl. Brit. W. Ind.* 282 (1860); Meissn. in DC., *Prodr.* 15, 1: 161 (1864); Mez in *Jahrb. Bot. Gart. Berl.* 5: 450 (1889); Fawc. & Rendle, *Fl. Jam.* 3: 215 (1914); Urb., *Symb. Ant.* 8: 233 (1920); Britt. & Wils., *Sci. Surv. Porto Rico* 5: 323 (1924); Brooks in *Bull. Misc. Inf. Kew* 1933: 223 (1933); Marshall, *Trees Trin. & Tob.* 83 (1934); Gooding & Loveless, *Fl. Barbado.* 160 (1965); Adams, *Fl. Pl. Jam.* 284 (1972)

Sweet myers

Laurus membranacea Sw., *Prodr. Veg. Ind. Occ.* 65 (1788)

Tree to 15m tall; young branches puberulent; leaves alternate, 10-18 (-22)cm long, 2.5-6cm wide, elliptic to oblong-ovate, apex acutely subcaudate, acuminate, base cuneate, upper surface glabrous except for puberulent, glabrescent nerves, under surface puberulent, nerves tomentose; primary nerves on upper surface more or less flat to prominulous, usually decurrent down midrib though more distinct on lower surface, principal veins subparallel,

meeting midrib more or less at right angles, reticulation indistinct; petiole up to 1.5cm long; inflorescence axillary, up to about 12cm long, puberulent; pedicels up to 3mm long, equal to or longer than flowers; flowers hermaphrodite, 4-5mm diam.; perianth lobes oblong-ovate, rounded, white-tomentose without; staminodes clavate; berry subglobose, about 10mm diam.; cupule saucer-shaped, 6-7mm diam., turbinate; fruiting cupule and pedicel verrucose.

Trinidad: Maraval, Baptiste (TRIN 5849); Heights of Aripo, 10.1.1922, Broadway (K, TRIN 9873); Aripo, on way to caves, 20.7.1959, Kostermans (TRIN 15977); Main Ridge, Kostermans 15021 (K).

Tobago: Mt St George, Castara Main Road, 18.9.1927, Williams (K, TRIN 11805); The Widow, near Easterfield, 11.3.1910, Broadway 3512 (BM, K).

Trinidad and Tobago. Greater and Lesser Antilles.

3. *Nectandra martinicensis* (Jacq.) Mez in *Jahrb. Bot. Gart. Berl.* 5: 439 (1889); Fawc. & Rendle, *Fl. Jam.* 3: 216 (1914); Brooks in *Bull. Misc. Inf. Kew* 1933: 222 (1933); Marshall, *Trees Trin. & Tob.* 83 (1934)

Main Ridge laurier, Laurier cypre

Laurus martinicensis Jacq., *Coll.* 2: 109, t. 5, f. 2. (1789)

Tree to 15m tall; young branches sericeous, becoming adpressed pubescent in age, terminal buds white-silky tomentose; leaves alternate, 9-21cm long, 2.5-6cm wide, oblong-elliptic, shortly and sparsely hirsute on both surfaces, denser on main nerves, midrib and primary nerves flat or prominent above, though towards base midrib occasionally becomes impressed, reticulation distinct and prominent, apex broadly acuminate, base cuneate; petiole up to 1.4cm long; inflorescence lateral or subterminal, up to 15cm long, rather long pedunculate, grey-tomentose to glabrescent, cymes rather aggregated on lateral branches; pedicels slightly longer than flowers, like buds densely grey-tomentose; flowers 5-6mm diam., perianth lobes ovate or oblong, or obovate, obtuse; berry ellipsoid, about 11mm long, 8mm diam.; cupule about 5mm diam., saucer-shaped, turbinate.

Trinidad: Brigand Hill, alt. 75m, 29.10.1959, Ayliffe (K, TRIN 16497); Plum Road, 23.9.1930, Marshall (K, OXF, TRIN 12428); Tabaquite, 25.8.1897, Dannouse (TRIN 12213); Victoria Fuel Plantations, North Road, 8.7.1930, Marshall (TRIN 12392); mile post 10½, Penal-Rock Road, 26.6.1929, Williams (K, TRIN 12173); Southern Watershed Reserve, 2.7.1930, Swabey (TRIN 12391), 16.7.1930, Marshall (K, OXF, TRIN 12406); Main Ridge Road, alt. 60m, 28.8.1959, Ayliffe 203 (K, TRIN), 204 (K, TRIN); Quinan Reserve, 22.7.1926, Marshall (TRIN 11642), Cotton (TRIN 11643); Quinan Land Settlement, 31.10.1939, Williams & Cheesman (TRIN 13955).

Tobago: Calder Hall, riverside, 27.6.1910, Broadway 3814 (BM).

Trinidad and Tobago. Greater and Lesser Antilles, Panama.

4. *Nectandra rectinervia* Meissn. in DC., *Prodr.* 15, 1: 158 (1864); Mez in *Jahrb. Bot. Gart. Berl.* 5: 440 (1889); Brooks in *Bull. Misc. Inf. Kew* 1933: 222 (1933); Marshall, *Trees Trin. & Tob.* 84 (1934) *St Ann's laurier*

Tree; young branchlets pubescent only at apices, very early glabrescent; leaves alternate, 5–15cm long, 2–4.5cm wide, elliptic or oblong-lanceolate or oblanceolate, minutely adpressed pubescent, glabrescent above and beneath, apex rounded to bluntly acuminate, base cuneate, nerves prominent above, prominent beneath, primary nerves markedly decurrent along midrib, leaves drying grey-green above; petiole up to 1.2cm long; inflorescence lateral-subterminal, up to 10cm long, puberulous; pedicels up to 3.5mm long, longer than the flowers; perianth about 6mm diam., lobes ovate-oblong, obtuse, shortly strigose; berry ellipsoid, 12mm long, 6mm diam. (not seen in Trinidad specimens); cupule about 9–10mm diam., cup-shaped, verrucose; fruiting pedicel enlarged and hardened.

Trinidad: St Ann's, 9.9.1921, Broadway (K, TRIN 12210), 2.10.1929, Marshall (K, OXF, TRIN 12259); Laventille, 1.8.1847, Crueger (TRIN 1768); Arouca, 13.8.1861, Crueger 281 (K, TRIN); Arima, 5.6.1901, Dannouse s.n. (TRIN); Cipiro Bridge, 16.8.1866 Finlay (TRIN 2734), (TRIN 3039).

Trinidad. Mexico, Nicaragua, Panama, Colombia and Venezuela.

5. *Nectandra coriacea* (Sw.) Griseb., *Fl. Brit. W. Ind.* 281 (1860); Meissn. in DC., *Prodr.* 15, 1: 163 (1864); Mez in *Jahrb. Bot. Gart. Berl.* 5: 459 (1889); Fawc. & Rendle, *Fl. Jam.* 4: 217 (1914); Adams, *Fl. Pl. Jam.* 284 (1972)

Laurus coriacea Sw., *Prodr. Veg. Ind. Occ.* 65 (1788)

Tree up to 15m tall; glabrous branches except for pubescent, early glabrescent, apical shoots; leaves alternate, 6–13cm long, 2.5–5cm wide, elliptic, oblong-elliptic or lanceolate-elliptic, apex acuminate, base acute or obtuse, nerves prominulous above, prominent beneath, reticulation prominent and distinct on both surfaces, primary nerves somewhat obscurely decurrent with midrib; petiole up to 1.2cm long; inflorescence about 5cm long, puberulous; pedicels about 2.5mm long, longer than flowers; perianth 5–6mm diam., lobes oblong to ovate, obtuse, puberulous; berry subglobose to obovoid, about 12mm long, 8.5mm diam.; cupule saucer-shaped, about 4–7mm diam., fruiting pedicel thickened, merging into cupule.

Tobago: Bacolet, 6.10.1937, Sandwith 1626 (K); Frenchfield, Eggers 5602 (K).

Tobago (not recorded from Trinidad). Florida, Central America, West Indies and Venezuela (Island of Margarita).

7. CASSYTHA *Linnaeus*

Cassytha L., *Sp. Pl.* 35 (1753)

Climbing, parasitic, perennial herb; stems leafless, twining, attaching themselves to their hosts by means of suckers (haustoria); leaves reduced to scales or wanting; flowers small, sessile or pedicelled in the axils of scale-like bract and two bracteoles, usually pedunculate in racemes, spikes or heads; perianth tube small, increasing in fruit, lobes 6, outer 3 smaller than the inner; stamens 9 perfect, those of the first and second series eglandular with introrse 2-locular anthers, those of the third series with two subsessile glands and extrorse 2-locular anthers; staminodes conspicuous; ovary scarcely included in perianth tube till after flowering; fruit drupaceous, included in large perianth tube, succulent.

Cassytha filiformis L., *Sp. Pl.* 35 (1753); Meissn. in DC., *Prodr.* 15, 1: 255 (1864); Fawc. & Rendle, *Fl. Jam.* 3: 219 (1914); Gooding & Loveless in Gooding, Loveless et al., *Fl. Barbado.* 160 (1965); Adams, *Fl. Pl. Jam.* 281 (1972)

C. americana Nees, *Syst.* 644 (1836); Griseb., *Fl. Brit. W. Ind.* 285 (1860); Meissn. in DC., *Prodr.* 15, 1: 256 (1864); Mez in *Jahrb. Bot. Gart. Berl.* 5: 490 (1889); Britton & Millsp., *Bahama Fl.* 144 (1920)

Stem up to 2mm thick, glabrous, yellowish, in tangled masses on herbs and small shrubs; flowers about 2mm long, whitish; fruit 5-6mm diam., globose, enclosed by succulent perianth tube which is crowned by persistent perianth lobes.

Trinidad: without locality, Cruieger s.n. in 1851 (K), Fendler 1011 (BM, K); Aripo, 9.4.1912, Freeman (TRIN 7938); Aripo Savanna, ? Cruieger (TRIN 2735), 26.3.1893, Broadway (TRIN 5322), 21.4.1920, Freeman (TRIN 9080), 18.7.1848, Purdie 101 (K), 13.2.1959, alt. 30m, Richardson 568 (K, TRIN); Erin, on sea shore, 11.11.1915, Broadway (TRIN 7338), 29.2.1948, Simmonds 294 (TRIN); Tabaguite, Dannouse s.n. (TRIN); Guayaguayare, 22.3.1928, Mota (TRIN 11974).

Tobago: Bacolet, Eggers 5479 (K); Little Courland Bay, Baker (TRIN 15290); Highmore, 10.10.1909, Broadway 3059 (BM).

Widely distributed through tropics.

FAMILY 2. HERNANDIACEAE

BY D. PHILCOX

Trees, shrubs or climbers; leaves alternate, exstipulate, petiolate, usually entire, pinnately to palmately nerved; inflorescence axillary or rarely terminal; flowers hermaphrodite, polygamous or monoecious; bracteoles present or absent; perianth segments in one or two whorls of 3-5; stamens 3-5 in one row opposite outer perianth segments; anthers 2-celled, introrse, dehiscent by valves, filaments often with basal glands; ovary inferior, 1-celled with solitary, pendulous, anatropous ovule; fruit dry, winged, included in inflated cupule.

HERNANDIA *Linnaeus*

Hernandia L., *Sp. Pl.* 2: 981 (1753)

Trees; leaves usually palmately nerved; inflorescence of corymbose panicles; flowers usually in 3-flowered cymes surrounded by involucre of 4-5 bracts; male flower with 6-8 perianth segments; stamens 3, glands either twice as many as stamens, attached on each side at base of filaments or wanting; female flower surrounded at base by cupule, perianth segments 8, glands usually 4, opposite outer segments; stigma dilated, irregular, peltate-discoïd, large, style included; fruit a globular stony nut.

Hernandia sonora L., *Sp. Pl.* 2: 981 (1753); Griseb., *Fl. Brit. W. Ind.* 285 (1860); Meissn. in DC., *Prodr.* 15, 1: 263 (1864); Urb., *Symb. Ant.* 4, 2: 250 (1905); Marshall, *Trees Trin. & Tob.* 87 (1934); Kosterm. in Pulle, *Fl. Surin.* 2: 342 (1937) pro parte excl. *H. catalpifolia*; Kubitzki in Engl., *Bot. Jahrb.* 89: 150, t. 36 (1969)

Toporite, Toforite, Foforite

H. sonora L. var. ? *guadeloupensis* Meissn. in DC., *Prodr.* 15, 1: 264 (1864)

H. peltata Sessé & Mocino *Fl. Mex.*, ed. 2: 213 (1894) non Meissn.

Tree up to 10m tall; leaves of lower branches 16-30cm long, 10-24cm wide, distinctly peltate with petiole inserted 1.2-2cm above leaf-base, broadly lanceolate-ovate to lanceolate, apex

acute or shortly acuminate, base rounded or subcordate, somewhat obtuse, membranaceous or coriaceous, 3 major nerves arising from point of insertion of petiole, midrib with 3-5 pairs of lateral nerves, major nerves minutely pubescent beneath; petiole up to 19cm long, minutely pubescent; upper leaves 8-15cm long, 5-8cm wide, barely peltate, lanceolate-ovate; inflorescence axillary near top of branches, up to 30cm long including peduncle up to 15cm long; flowers clustered usually 3 together with centre one female, involucre bracts 4, oblong, about 7mm long, 3.5mm broad, buds 3-5mm long, whitish; male flowers with 6 perianth segments, fleshy, elliptic, obtuse, up to 6mm long, 3mm broad, stamens 3, filaments pilose to glabrous, biglandular; female flowers with cupule, cup-shaped, about 2mm long, 3mm broad; fruit ellipsoid-ovoid, about 2.5cm long with 6-8 longitudinal ribs, completely included in inflated globose cupule up to 6cm diameter.

Trinidad: without locality, Sieber 84 (K); Botanic Gardens, Hart (K, TRIN 1352); Carenage, 23.8.1920, Broadways.n. (K, TRIN); Heights of Aripo, cultivated as shade trees in cacao field, 10.1.1922, Broadway (K, TRIN 10020); Irois Depot, along sea coast, 28.12.1867, Finlay (TRIN 2736); Crown Lands, Siparia, 18.10.1926, Cotton (OXF, TRIN 11600); Southern Watershed Reserve, 31.1.1930, Russell (K, TRIN 12346), near beach below rest house, 26.8.1959, Webster, Ellis & Miller 9898 (TRIN).

Trinidad. Continental tropical America, West Indies, Pacific region.

FAMILY 3. PROTEACEAE

BY D. PHILCOX

Trees, shrubs or rarely herbs; leaves alternate, opposite or whorled, simple or compound, entire or dentate, pinnately-nerved, exstipulate; flowers hermaphrodite, in terminal or axillary racemes, spikes or heads, rarely solitary, actinomorphic or zygomorphic, perianth 4-lobed, lobes free, equal; stamens 4, opposite perianth lobes and usually connected with them; ovary superior, sessile, unilocular; ovules 1-many, attached to central placenta or pendulous; style simple, terminal with lateral or terminal stigma; hypogynous glands 4, free or united; fruit capsular or drupaceous, dehiscent or indehiscent.

Only the genus *Roupala* is native to Trinidad and Tobago, but two other genera are occasionally cultivated. The Silky Oak of eastern Australia—*Grevillea robusta* Cunn.—is occasionally grown here, and there is a tree of the Queensland Nut—*Macadamia ternifolia* F. Muell.—in the Botanic Garden. The latter was planted towards the end of the 19th century and has flowered and fruited quite regularly since 1892.

ROUPALA Aublet

Roupala Aubl., *Pl Guian.* 1: 83, t. 32 (1775)

Trees or shrubs; leaves alternate, simple or pinnate, entire or dentate; inflorescence terminal or axillary, racemose; stamens lacking filaments or nearly so, the anthers sessile on upper part of lobes; ovary unilocular with 2 ovules; stigma terminal; fruit capsular with 2 seeds.

Leaves subentire, dentate or serrate, rarely truly entire; petiole 1-4(-6)cm long; inflorescence up to 8cm long; pedicels 2mm long

1. *R. montana*

Leaves always entire; petiole 1-1.5cm long; inflorescence 14-16cm long; pedicels 3-5mm long.....

2. *R. tobagensis*

1. *Roupala montana* Aubl., *Pl. Guian.* 1: 83, 3: t. 32 (1775); Griseb., *Fl. Brit. W. Ind.* 277 (1860); Mennega in *Rec. Trav. Bot. Neerl.* 30: 179 (1933) and in Pulle, *Fl. Surin.* 1: 155 (1934); Marshall, *Trees Trin. & Tob.* 87 (1934); Sleumer in *Engl., Bot. Jahrb.* 76: 170 (1954) *Bois bande Rhopala montana* R. Brown in *Trans. Linn. Soc.* 10: 191 (1810)
- R. dentata* R. Brown in *Trans. Linn. Soc.* 10: 192 (1810)
- Roupala montana* Aubl. *B. complicata* (Kunth) Griseb., *Fl. Brit. W. Ind.* 277 (1860)
- R. montana* Aubl. var. *dentata* (R. Br.) Sleumer in *Engl. Bot. Jahrb.* 76: 173 (1954)

Tree; branchlets glabrous, greyish-brown, densely brown-lenticelled, rather thin; leaves simple, 3-11(-14)cm long, 1.5-6.5(-8)cm wide, or pinnately divided, up to 30cm long with up to 20 leaflets, lamina or leaflets entire, glabrous, often complicate, ovate, narrowly or broadly oblong to lanceolate, short caudate, acuminate, obtuse to mucronate at apex, acutely tapering into petiole, midrib somewhat impressed above, strongly prominent beneath, primary nerves equally prominent on both surfaces, ultimate nervation rather loosely reticulate, flat to prominulous above, prominulous beneath; petiole 1-4(-6)cm long; inflorescence axillary, laxly flowered, shortly light or dark brown puberulent to subglabrous, up to 8cm long; pedicels slender, 2mm long, adpressed pilose; flowers white, fragrant; perianth lobes 7mm long, linear, twisted, short adpressed pubescent; anthers sessile on upper part of lobes, linear, 2mm long; ovary light brown villous, 1mm long; style glabrous, 6mm long; fruit up to 4cm long, drying greyish-brown.

Trinidad; without locality, Grisebach 280 (K), Prestoe (TRIN 1040); Botanic Gardens, 27.2.1889, Broadway (TRIN 3556). 15.2.1926, Williams (OXF, TRIN 11513), 12.3.1931, Williams (K, TRIN 12469); St Ann's, 20.2.1861, collector unknown (TRIN 632), 13.3.1923, Broadway 5117 (BM), Crueger (TRIN 634), s.n. (K); Lady Chancellor Road, Broadway (TRIN 9202), 10.3.1920, Britton & Broadway 593 (K, TRIN); Hololo Mountain Road, St Ann's, 24.4.1930, Broadway s.n. (BM); St Joseph, 20.3.1920, Broadway (TRIN 9352); Maracas, 3.9.1861, Crueger (TRIN 633);

Arima, 6.6.1905, McLean s.n. (TRIN); c. mile post 7, Valencia to Cumaca Road, 18.6.1973, Philcox & Kalloo 7221 (K, P, TRIN); Mount Harris, 27.4.1930, Broadway s.n. (BM); mountains of North Trinidad, Purdie s.n. in 1851 (K).

Trinidad. Mexico through Central America to tropical South America.

2. *Roupala tobagensis* Sleumer in Engl., *Bot. Jahrb.* 76: 155 (1954)

Tree or shrub; branchlets dark brown tomentose, very early glabrous; leaves simple, (9-)10-15cm long, (4-)5-7(-9)cm wide, entire, glabrous, coriaceous, oblong, apex shortly acuminate and acute to obtuse, rounded, base cuneate, slightly inequilateral, midrib lightly immersed above or slightly prominulous, prominent beneath, lateral nerves prominulous on both surfaces, ultimate nervation reticulate above; petiole 1-1.5cm long; inflorescence densely reddish-brown pilose becoming less so in maturity, 14-16cm long; pedicels up to 5mm long; perianth yellowish, 12mm long, laxly shortly brown pilose; ovary shortly brown tomentose; style slender, suberect.

Tobago: The Widow, 5.8.1910, Broadway 4060 (BM, isotype; S, holotype).

Known only from the type collection.

FAMILY 4. THYMELAEACEAE

BY D. PHILCOX

Shrubs or trees with strongly fibrous inner bark, or rarely herbs; leaves alternate or opposite, simple, entire, exstipulate; inflorescence capitate, racemose, spicate or fascicular, flowers rarely solitary; flowers apetalous, actinomorphic, bisexual or unisexual, mostly dioecious; calyx tubular, cylindric or urceolate; stamens borne on calyx, often in 2 series; anthers erect, 2-celled, longitudinally dehiscent; ovary superior, 1-locular with one pendulous ovule; stigma terminal, usually capitate; fruit usually indehiscent.

In addition to the two species treated below, this family is further represented in Trinidad and Tobago by *Lagetta lagetto* (Sw.) Nash, the Jamaican Lace Tree which is cultivated in the Botanic Gardens and elsewhere.

- Leaves up to 40cm long, 12cm wide; male
flowers with 4 stamens.....1. *Schoenobiblus*
- Leaves rarely more than 15cm long, 6cm
wide; male flowers with 8 stamens in two
series.....2. *Daphnopsis*

1. *SCHOENOBIBLUS* Martius & Zuccarini

Schoenobiblus Mart. & Zucc., *Nov. Gen. & Sp.* 1: 65 (1824)

Shrubs or small trees; leaves alternate, large, membranaceous; flowers umbellate, solitary or paniculate, dioecious; calyx 4-lobed; stamens 4.

Schoenobiblus grandifolia Urb., *Symb. Ant.* 2: 455 (1901)

Mahoe piment

S. daphnoides Griseb., *Fl. Brit. W. Ind.* 278 (1860), non Mart. & Zucc.

Shrub or small tree to 5m tall; leaves 16–40cm long, 5–12cm wide, obovate-elliptic, apex acuminate, base cuneate into petiole about 1cm long, glabrous; inflorescence terminal, cymose with long-pedunculate umbels, rusty-pilose; peduncles up to 4cm long; male flowers with calyx tube up to 22mm long, slender, lobes about

4mm long, broadly ovate-oblong, patent to reflexed at anthesis, stamens attached to base of calyx lobes, filaments about 1.5mm long, rudimentary ovary present; female flowers with tube about 1.5mm long, lobes 1.5mm long (in bud), ovary about 0.8mm long, ovoid; fruit broadly ellipsoid, 10mm long, 6mm broad, style persistent.

Trinidad: Mt Tucuche, 4.4.1920, Freeman (TRIN 9040), 12.5.1949, Baker (K, TRIN 14325); 14.5.1868, Finlay (TRIN 2823, lectotype); Tucuche and Arima, Crueger (TRIN 109); Morne Bleu, 23.3.1928, Freeman & Williams (K, TRIN 11962), summit, 30.4.1926, Freeman & Williams (TRIN 11544); near Arima, Purdie s.n. (K, syntype); Arima to Blanchisseuse road, mile post 10, alt. 540m, 7.3.1963, Bhora 859 (TRIN), mile post 10½-11, 29.4. 1927, Broadways s.n. (OXF); l'Orange road via Arima, 21.9.1924, Broadway 5497 (K); Aripo road, 25.9.1924, Williams & Cheesman (K, TRIN 10788), 15.5.1927, Broadway s.n. (OXF); Heights of Aripo, Broadway (K, TRIN 10018), Broadway (K, TRIN 10019), 16.3.1921, Britton 2331 (TRIN), 2332 (TRIN); Mt Aripo, 29.3.1959, Cowan 1358 (TRIN), 1370 (TRIN); between Platanal and El Cupan rivers, Matura Forest Reserve, 20.7.1973, Philcox & Cope 7541 (K, NY, P, TRIN); Caura, Alexander (TRIN 6726); Plum Road, 30.4.1928, Williams & Freeman (K, TRIN 11985).

Tobago: mile post 27, North Coast Road, 6.12.1949, Baker & Dennis (TRIN 14520); above Parlatuvier, 24.10.1937, Sandwith 1900 (K); above Hermitage River, 12.4.1959, Cowan 1548 (TRIN).

When he described this species Urban (1901) cited two syntypes. I have chosen as the lectotype Finlay's collection from El Tucuche (TRIN 2823), deposited in the Trinidad National Herbarium.

Trinidad and Tobago.

2. *DAPHNOPSIS* Martius & Zuccarini

Daphnopsis Mart. & Zucc., *Nov. Gen. & Sp.* 1: 65 (1824)

Shrubs or small trees; leaves alternate, thin or subcoriaceous; flowers in terminal or axillary clusters or solitary, dioecious; stamens 8 in two series of 4.

Daphnopsis americana (Mill.) J. R. Johnst. in *Contrib. Gray Herb.*, n.s. 37: 242 (1909) *Mahoe piment*

(a) subsp. *caribaea* (Griseb.) Nevl. in *Ann. Mo. Bot. Gard.* 46: 315 (1959)

D. tinifolia (Sw.) Meissn. in DC., *Prodr.* 14: 523 (1857) pro parte

D. caribaea Griseb., *Fl. Brit. W. Ind.* 278 (1860)

D. siebertii Standl. in *Ann. Mo. Bot. Gard.* 24: 192 (1937)

Shrub or tree up to c. 12m tall; leaves 8-11(-14)cm long, 2-4.5cm wide, elliptic-lanceolate to lanceolate-oblong, rounded to acute to acuminate at apex, base cuneate, glabrous, petiolate; petiole 3-10mm long; inflorescence terminal, dichotomously branched, umbelliform, densely to moderately white- or cream-pubescent to pilose; male flowers with calyx tube up to 4.5mm long, lobes 1-2.5mm long, up to 2mm wide, lower stamens inserted at mouth of calyx tube, upper on lobes above mouth of tube, rudimentary gynoecium present, 1-1.5mm long; female flowers with calyx tube 1.5-2mm long, lobes c. 1.5mm long, 1mm wide, gynoecium 1.5-2mm long, oblong-ovoid; fruit ovoid, 6-7mm long, 3-4mm diam.

Trinidad: cultivated, Botanic Gardens, Hart s.n. in 1896 (TRIN 6090).

Tobago: Mt St George to Castara road, above dam, alt. 300m, 12.7.1954, Baker (TRIN 15340); Adelphi, 29.10.1925, Davies (TRIN 11461); Frenchfield, Eggers 5542 (K); French Hill, alt. 200m, 9.10.1937, Sandwith 1690 (K); Pigeon Hill, 7.4.1959, Cowan & Forster 1452 (TRIN), 16.10.1937, Sandwith 1813 (K).

Tobago (not recorded from Trinidad). Costa Rica, Nicaragua, Panama, Colombia, Venezuela, Puerto Rico and Lesser Antilles.

GROUP 3. MONOCHLAMYDEAE

SERIES VI. ACHLAMYDOSPOREAE

Shrubs, parasitic on shrubs and trees,

with green leaves 1. LORANTHACEAE

Fleshy herbs, parasitic on roots of
shrubs and trees, without chloro-
phyll but often brightly coloured

2. BALANOPHORACEAE

FAMILY 1. LORANTHACEAE

BY D. PHILCOX

Shrubs, parasitic on shrubs and trees; leaves simple, opposite, alternate or rarely verticillate, occasionally reduced to scales, exstipulate, petiolate or sessile; inflorescence racemose, cymose or spicate; flowers small, inconspicuous, or large and brightly coloured, hermaphrodite or unisexual, 3-6-merous; calyculus (a small fringe below the perianth) where present truncate or lobed; perigonium (perianth) polypetalous or gamopetalous, petaloid or sepaloid; stamens equal to and opposite tepals, free or adnate with perigonium, anthers 2-celled; ovary inferior; fruit baccate with solitary, usually albuminous seed.

- 1 Flowers minute, immersed in fleshy rhachis;
calyculus present or absent
- 2 Flowers 3-merous, calyculus absent;
spike articulate 1. *Phoradendron*
- 2 Flowers 6-merous, calyculus present;
spike not articulate 2. *Oryctanthus*
- 1 Flowers small to very large, never inserted
in rhachis; calyculus present
- 3 Flowers large, showy, up to 5cm long ... 3. *Psittacanthus*
- 3 Flowers small, up to 6mm long
- 4 Filaments thick, fleshy, sides excavate 4. *Phthirusa*
- 4 Filaments thin, filiform 5. *Struthanthus*

1. PHORADENDRON *Nuttall*

Phoradendron Nutt. in *Journ. Acad. Nat. Sci. Philad.*, ser. 2, 1: 185 (1847)

Parasitic shrubs, more or less fleshy; leaves opposite, usually petioled or with lamina cuneate at base forming a pseudopetiole; inflorescence of axillary, usually several-jointed spikes; flowers

NOTE: My thanks are due to Mr Roland Ayliffe for the use of his unpublished thesis entitled *Taxonomy of the Loranthaceae of Trinidad*, on which much of this treatment is based.

sessile, sunken in rhachis, small, 3- or more rarely 2-, 4- or 5-merous; tepals distinct, persistent in fruit, valvate; stamens inserted on base of tepals, with 2-celled ovoid or ellipsoid anthers dehiscing by subapical slits or pores; ovary 1-celled with 1 ovule; short style with scarcely dilated terminal stigma; fruit baccate, with single seed.

- 1 Cataphylls (scales) on basal joint only of each branch
- 2 Leaves basally nerved
- 3 Fruit elongated; tepals erect 1. *Ph. obtusissimum*
- 3 Fruit spherical, ovoid or ellipsoid; tepals erect or inflexed
- 4 Flowers mostly in 6-series 2. *Ph. perrottetii*
- 4 Flowers in 4- or 4+2-series
- 5 Flowers mostly 2-ranked at each joint; fruit verrucose
- 6 Spikes very short, 0.5cm long, only 2-jointed; tepals erect, not meeting 3. *Ph. chaguarama-sanum*
- 6 Spikes longer, about 1.5cm long, 3-5-jointed; tepals inflexed, meeting 4. *Ph. ottonis*
- 5 Flowers mostly 4-ranked at each joint; fruit not verrucose
- 7 Young stems 4-winged or 4-angled
- 8 Young stems markedly 4-winged, becoming quadrangular 5. *Ph. tetraplerum*
- 8 Young stems somewhat sharply quadrangular
- 9 Tepals inflexed, meeting or about meeting in fruit 6. *Ph. quadrangulare*
- 9 Tepals erect, parted and not meeting in fruit 7. *Ph. trinervium*
- 7 Young stems terete or compressed, 2-edged
- 10 Leaves drying thin, sharply nerved

- 11 Stems quickly terete 8. *Ph. hartii*
- 11 Stems sharply ancipital, slowly
terete 9. *Ph. anceps*
- 10 Leaves drying coriaceous or heavy
 - 12 Sharply nerved..... 2. *Ph. perrottetii*
 - 12 Obscurely nerved 7. *Ph. trinervium*
- 2 Leaves pinnately nerved 10. *Ph. ayliffii*
- 1 Cataphylls (scales) on all joints of each
branch
 - 13 Cataphylls bearing flower spikes 11. *Ph. crassifolium*
 - 13 Cataphylls not bearing flower spikes
 - 14 Flowers in 6-series
 - 15 Leaves basally 3-5 nerved; plant
drying yellowish green 12. *Ph. flavens* var.
australe
 - 15 Leaves pinnately nerved; plant drying
brownish green..... 13. *Ph. fanchawei*
 - 14 Flowers in 2-or 4+2-series
 - 16 Flowers in 2-series; fertile joints
usually 2-4-flowered; leaves basally
nerved 14. *Ph. inequiden-*
tatum
 - 16 Flowers in 4+2-series; leaves pin-
nately nerved
 - 17 Spikes up to 3cm long with 3-5
fertile joints; young internodes
quadangular becoming terete..... 15. *Ph. racemosum*
 - 17 Spikes up to 8cm long with 6-9
fertile joints; internodes terete..... 16. *Ph. piperoides*
- 1. **Phoradendron obtusissimum** (Miq.) Eichl. in Mart.,
Fl. Bras. 5, 2: 134 (1868); Urb. in Engl., *Bot. Jahrb.* 23,
Beibl. 57: 9 (1897); Trel., *Gen. Phorad.* 92, pl. 125 (1916);
Krause in Pulle, *Fl. Surin.* 1, 1: 20 (1932)
Viscum obtusissimum Miq. in *Linnaea* 18: 602 (1844)

Branches percurrent; internodes up to 5cm long, compressed when young, becoming terete; cataphylls a single pair at base of lowest internode of branch only; leaves up to 6cm long, 2.5cm wide, obovate, retuse apex, cuneate at base into 10–15mm long pseudopetiole, basally 3–5-nerved; spikes clustered at nodes, 1–1.5cm long with 2 or 3 joints with about 6 flowers in 4 or 4+2 series; fruit fusiform, white to fleshy pink, tepals erect.

Trinidad: Valencia Old Road, 14.6.1949, Aylliffe 81 (TRIN); Long Stretch, Aylliffe 126 (OXF, TRIN).

Host plant as recorded from specimens: *Pithecellobium jupunba*

Trinidad, Surinam, Guyana and Venezuela.

2. **Phoradendron perrottetii** (DC.) Eichl. in Mart., *Fl. Bras.* 5, 2: 112 (1868); Trel., *Gen. Phorad.* 88, pl. 119 (1916)

Viscum perrottetii DC., *Prodr.* 4: 280 (1830)

Branches percurrent; internodes up to 10cm long, slightly compressed when young, terete; cataphylls 2 pairs at base of lowest internode of each branch; leaves up to 15cm long, 5cm wide, falcately or dimidiately elliptic or lance-elliptic to ovate-lanceolate, pointed, rounded or obtuse, base cuneate into pseudopetiole about 1cm long, basally 5–7-nerved; spikes up to 8cm long, with up to 11 joints, each joint with up to 40 flowers usually in 6-series; fruit globose, large, ? white, tepals prominent, inflexed not meeting.

Trinidad: Long Stretch, 14.6.1949, Aylliffe 78 (TRIN) Valencia Old Road, 17.6.1949, Aylliffe 82 (TRIN); Quare Road, 23.8.1949, Aylliffe 130 (OXF, TRIN).

Host plants as recorded from specimens: *Protium insigne*, *Rheedia lateriflora*

Trinidad, Guyana and Cayenne.

3. **Phoradendron chaguaramasanum** Trel. in *Bull. Torr. Bot. Club* 48: 330 (1922)

Branches pseudodichotomous; internodes 1–3(–4)cm long, quadrangular to somewhat 4-winged or subrhomboidally compressed; cataphylls a single basal pair, shortly tubular, deeply bifid; leaves

1.5–3cm long, 0.7–1.2cm wide, spatulate to obovate-oblong, apex obtuse, rounded to subtruncate, base cuneate, petiole about 5mm long, basally 3-nerved; spikes solitary in leaf axils, very short to 5mm long with 2–3 short, 4-flowered joints; scales ciliate; young fruit subglobose, verrucose, tepals erect not meeting.

Trinidad: Chaguaramas, 4.4.1921, Britton 2718 (TRIN, isotype of *Phoradendron chaguaramasanum*); Monos, Finlay (TRIN 2717).

Endemic to Trinidad.

4. *Phoradendron ottonis* Eichl. in Mart., *Fl. Bras.* 5, 2: 119 (1868); Trel., *Gen. Phorad.* 118, pl. 173 (1916)

Ph. caerulescens Trel. in *Bull. Torr. Bot. Club* 48: 330 (1922)

Branches pseudodichotomous; internodes 1–3.5cm long, smooth, upper ancepitally compressed to c. 7mm wide at nodes, lower quadrangular; cataphylls a single basal pair, tubular, glossy; leaves 1–2.5cm long, 0.8–2cm wide, round to broadly obovate; shortly mucronate-acuminate, base cuneate into short petiole up to 5mm long, basally 3–(or occasionally obscurely) 5-nerved, spikes 1–1.5(–1.8)cm long, with 3–5 short, 4-flowered joints, solitary in leaf axils; young fruit globose, verrucose, tepals inflexed.

Trinidad: Chacachacare, 27.5.1925, Williams & Cheesman (TRIN 11062), Britton, Freeman & Watts 2701 (TRIN), 12.6.1949, Ayliffe 112 (OXF, TRIN), 1.4.1951, Ayliffe (TRIN 14699); Monos, 25.6.1930, Broadway 7574 (BM).

Trinidad and Venezuela. In Trinidad, only recorded from the islands of Chacachacare and Monos where it has been found only on *Capparis coccolobifolia*.

5. *Phoradendron tetrapterum* Krug & Urb. in Engl., *Bot. Jahrb.* 24: 35 (1897); Fawc. & Rendle, *Fl. Jam.* 3: 95 (1914); Trel., *Gen. Phorad.* 72, pl. 92 (1916); Adams, *Fl. Pl. Jam.* 243 (1972)

Branches percurrent; internodes 2–8cm long, markedly and deeply 4-winged when young becoming quadrangular to subterete; cataphylls a single basal pair, shortly tubular to annular, shallowly bifid; leaves 4–6(–10)cm long, 1.5–2.5(–3.5)cm wide, elliptic-oblong to obovate, occasionally subfalcate, obtuse to rounded

at apex, cuneate into clasping pseudopetiole, 5-nerved basally; spikes usually somewhat clustered at nodes, up to 6cm long with 5-6 fertile joints, up to 26(-30) flowers on each joint in 4+2 series; fruit ellipsoid to globose, white to orange-brown when mature, tepals not meeting.

Trinidad: mile post 4½, Valencia to Cumaca road, alt. 360m, 15.6.1973, Philcox & Kalloo 7171 (K, TRIN); North Coast Road, 5.6.1949, Ayliffe 88 (TRIN), 29.7.1949, Ayliffe 121 (TRIN); Mt Harris, 3.6.1949, Ayliffe 63 (TRIN), 70 (TRIN), 14.6.1949, Ayliffe 79 (TRIN); Plum Road, 3.6.1949, Ayliffe 68 (TRIN); River Estate, 8.6.1949, Ayliffe 103 (TRIN).

Host plants as recorded from specimens: *Cordia* sp., *Sterculia caribaea*, *Cecropia peltata*, *Phoradendron anceps*, *Ph. inequidentatum*, *Ph. quadrangulare* and *Ph. piperoides*.

West Indies.

6. *Phoradendron quadrangulare* (H.B.K.) Krug & Urb. in Engl., *Bot. Jahrb.* 24: 35 (1897); Trel., *Gen. Phorad.* 108, pl. 154, (1916); Adams, *Fl. Pl. Jam.* 243 (1972)

Loranthus quadrangularis H.B.K., *Nov. Gen. & Sp.* 3: 444 (1818)

Viscum quadrangulare (H.B.K.) DC., *Prodr.* 4: 283 (1830)

V. salicifolium Presl., *Epimel. Bot.* 254 (1849)

Phoradendron salicifolium (Presl.) Eichl. in Mart., *Fl. Bras.* 5, 2: 110 (1868)

Ph. venezuelense Trel., *Gen. Phorad.* 111, pl. 159 (1916)

Branches more or less pseudodichotomous; internodes up to 7cm long, rhomboidally compressed above becoming quadrangular, terete; cataphylls a single pair towards the base, spreading; leaves 2-5(-7)cm long, 0.5-1(-1.5)cm wide, narrowly obovate or elliptic-oblong to ovate-lanceolate, apex obtuse, mucronate, base cuneate into short 3mm long petiole, basally 3-5-nerved; spikes 0.7-1(-1.5)cm long, slender to stout, usually clustered at nodes, 3-5 fertile joints, up to 14 flowers on each joint in 4+2 series; fruit white to greenish-yellow, tepals inflexed, meeting or slightly separated.

Trinidad: without locality, Crueger s.n. (K), Fendler 651 (BM, K, OXF); Botanic Gardens, Ayliffe 6 (TRIN), 9.8.1949, Ayliffe 116 (TRIN), 5.5.1955, Ayliffe (TRIN 16412), Emperor Valley, 16.12.1890, Broadway (TRIN 4419), Lookout Hill, 24.9.1896, Hart 6116 (K, TRIN), 22.5.1928, Broadway 6945 (BM, K), 6.5.1949, Ayliffe 28 (TRIN); St Ann's, Broadway 5096 (BM); Diego Martin, River Estate, 10.1.1922, O'Connor (TRIN 10043); Arima, 19.5.1949, Ayliffe 33 (TRIN); Arima-Blanchisseuse road, alt. 180m, Wiles 35 (K, TRIN); Blanchisseuse village, 26.3.1933, Broadway 9148 (BM, K); c. 4½ miles along Valencia to Cumaca road, alt. 360m, 15.6.1973, Philcox & Kalloo 7172 (K, NY, P, TRIN); Pointe Gourde, 8.6.1949, Ayliffe 91 (TRIN); Tabaguite, 19.9.1918, Broadway (K, TRIN 9692), 19.10.1918, Broadway (TRIN 8706); Guaya-guayare, 26.5.1949, Ayliffe 57 (TRIN).

Host plants as recorded from specimens: *Guazuma ulmifolia*, *Cordia alliodora*.

Trinidad, Venezuela, Colombia and Ecuador; Jamaica, Hispaniola and Antigua.

7. **Phoradendron trinervium** (Lam.) Griseb., *Fl. Brit. W. Ind.* 314 (1860); Urb. in Engl., *Bot. Jahrb.* 24: 37 (1897); Trel., *Gen. Phorad.* 103, pls. 144, 145, 146 (1916); Britton & Millsp., *Bahama Fl.* 110 (1920); Gooding & Loveless *Fl. Barbados* 129 (1965); Adams, *Fl. Pl. Jam.* 243 (1972)

Viscum trinervium Lam., *Encycl.* 3: 57 (1789)

V. myrtilloides Willd., *Sp. Pl.* 4, 2: 739 (1806)

V. oblongifolium DC., *Prodr.* 4: 283 (1830)

V. tetragonum DC., loc. cit. 282 (1830)

V. jamaicense Macfadyen, *Fl. Jam.* 2: 195 (1850)

Phoradendron oblongifolium (DC.) Eichl. in Mart., *Fl. Bras.* 5, 2: 134 (1868)

Ph. zuloagae Trel., *Gen. Phorad.* 105, pls. 9, 150 (1916)

Branches pseudodichotomous or percurrent; internodes 2-8cm long, sharply quadrangular to subrhomboidally compressed becoming terete; cataphylls a single basal pair, shortly tubular, shallowly bifid; leaves 2-5(-7.5)cm long, 1-2(-3.75)cm wide, obovate to elliptic-oblong, obtuse, rounded or retuse, mucronate,

cuneate-subsessile or into 3mm long pseudopetiole, basally 3(-5)-nerved; spikes solitary to clustered, 1-1.5cm long with 3-4 joints, 6-18 flowers on each joint in 4+2 series; fruit ellipsoid when young, becoming subglobose at maturity, tepals erect, parted.*

Trinidad: without locality, Freeman (TRIN 8098); Chacachacare, 5.4.1921, Britton, Freeman & Brown 2760 (K, TRIN), 22.12.1922, Broadway (TRIN 10486); Teteron Bay, 8.6.1949, Ayliffe 92 (TRIN), 93 (TRIN); Botanic Gardens, Renwick (TRIN 8644), 9.8.1949, Ayliffe 114 (OXF, TRIN), 5.5.1955, Ayliffe (TRIN 16411); St Ann's, Hart (TRIN 6103), 11.4.1920, Britton & Hazen s.n. (K); Laventille, 7.3.1930, Broadway 7709 (BM, K); North Coast road, 5.6.1949, Ayliffe 86 (OXF, TRIN); Guanapo, Dannouse (TRIN 8645); Southern Guanapo road, 23.4.1926, Broadway 6145 (BM, K); Long Stretch, 17.6.1949, Ayliffe 84 (TRIN); Mt Harris, Cunapo south road, 3.6.1949, Ayliffe 64 (TRIN); Cedros, 2.10.1915, Gladys King (TRIN 7298); Moruga road, Sixth Company road, 4.12.1931, Broadway 7821 (BM); Moruga, 9.2.1916, Broadway (TRIN 7914), 2.12.1932, Broadway 9088 (BM, K); Pointe Gourde, 8.6.1949, Ayliffe 90 (TRIN), 29.5.1932, Broadway 8084 (BM, K); Mt Hope, Ayliffe 111 (TRIN); Marabella, Finlay (TRIN 2721).

Tobago: Pigeon Hill, 16.10.1937, Sandwith 1809 (K), 7.4.1959, Cowan & Foster 1449 (TRIN); Castara, 12.8.1910, Broadway 4062 (BM).

Host plants as recorded from specimens: *Lonchocarpus punctatus*, *Tabebuia* sp., *Cordia lockhartii*, *Rollinia* sp., *Machaerium robinifolium*, *Ficus* sp., *Pisonia* sp.

West Indies.

8. *Phoradendron hartii* Krug & Urb. in Engl., *Bot Jahrb.* 24: 40 (1897); Trel., *Gen. Phorad.* 98, pl. 136 (1916)

*NOTE: This very variable species as represented here may in fact, after more precise study in the field, prove to contain more than one element. In the past it has been considered that some of the above cited material represented the Venezuelan *Phoradendron zuloagae* Trel. However, on the material available for comparison together with Trelease's concept of this species, it is felt that his reason for continued separation of these two is not clearly defined, and I have here chosen to accept all of our material under the name *Ph. trinercium*.

Branching more or less pseudodichotomous; internodes up to 10cm long, compressed when very young, soon terete; cataphylls usually one nearly basal pair, tubular, bifid, white-margined; leaves 6–13cm long, 1.5–2.5cm wide, narrow-ovate to subfalcate-lanceolate, obtuse to more rarely acute at apex, base cuneate, pseudopetiolate, coriaceous, drying grey-green, obscurely 3–5 basally nerved; spikes up to 3.5cm long, clustered at nodes, 4(–5) fertile joints, up to 10-flowered in 4+2 series, scales somewhat inflexed, shortly ciliate; fruit yellow-green, 4mm long, 3mm diam., tepals inflexed, not meeting.

Trinidad: without locality, Dannouse (TRIN 6645), Hart 6117 (K); Diego Martin, River Estate, 8.6.1949, Ayliffe 100 (TRIN); St Ann's, 26.4.1920, Broadway 8976 (K), Hart (TRIN 6101, holotype of *Ph. hartii*); Botanic Gardens, Broadway (TRIN 9132), 9.8.1949, Ayliffe 124 (TRIN), 5.5.1955, Ayliffe (TRIN 16413), Lookout Hill, Lunt 6117 (TRIN); Santa Cruz, Dannouse (TRIN 8643); Arima, Dannouse (TRIN 8642); Arima-Blanchisseuse road, alt. 210m, Wiles 9 (K, TRIN 18958); Jeremy Hill, Aripo, 12.1.1965, alt. 210m, Wiles 30 (K); North Coast road, Ayliffe 4 (TRIN), 5.6.1949, Ayliffe 85 (TRIN), 29.7.1949, Ayliffe 119 (TRIN); San Fernando Promenade, Finlay (TRIN 2722).

Host plants as recorded from specimens: *Cordia alliodora*, *Picrodendron excelsa*, *Machaerium* sp.

Endemic.

9. *Phoradendron anceps* (Spreng.) Krug & Urb. in Engl. *Bot. Jahrb.* 24: 40 (1897); Trel., *Gen. Phorad.* 98, pl. 135 (1916); Adams, *Fl. Pl. Jam.* 242 (1972)

Viscum anceps Spreng., *Syst.* 1: 487 (1825)

Branches percurrent, not branching at all nodes; internodes 1–5cm long, rhomboidal to ancipital when young, gradually becoming terete; cataphylls one pair at base of lowest internode only; leaves 6–10cm long, 2–3cm wide, lanceolate to subfalcate, acute, rounded or mucronate, cuneate at base into pseudopetiole about 1cm long, basally nerved; spikes 2cm long, 5-jointed with up to 18 flowers on each joint in 4+2 series; fruit small, globose, tepals inflexed.

Trinidad: North Coast road, 29.7.1949, Ayliffe 120 (TRIN);
Tucker Valley, 8.6.1949, Ayliffe (TRIN).

Host plants as recorded from specimens: *Cordia* spp.

10. *Phoradendron ayliffii* Philcox, sp. nov. affinis *Ph. pteroneuron* Eichl. sed foliis rotundato-ellipticis, caulibus teretibus nec angulatis nec carinatis, inflorescentia 4-articulata differt.

Frutex parasiticus; ramis percurrentibus; internodiis 1-4(-5)cm longis, teretibus; cataphyllis binatus, 1-6, tantum ad nodos basales ramulorum, acutis et divergentibus; foliis pseudopetiolatis; laminis 8-10cm longis, 2-3cm latis, ellipticis, ovatus vel ovato-lanceolatis, apice rotundatis, basi in petiolum cuneatim angustatis, obscure penninerviis; spicis 4cm longis, 4-articulatis, articulis 10-14-floris, 4+2 seriatis; baccis globosis, 4mm diam., tepalis inapertis.

Phoradendron ayliffii Philcox, sp. nov.

Branches percurrent; internodes 1-4(-5)cm long, terete; cataphylls binate, 1-6, usually at the base of each branch, acute and divergent; leaves pseudopetiolate, 8-10cm long, 2-3cm wide, elliptic, ovate or ovate-lanceolate, apex rounded, base narrowly cuneate into pseudopetiole, obscurely pinnately nerved; spikes 4cm long, 4-jointed with 10-14 flowers on each joint in 4+2 series; fruit globose, 4mm diam., tepals not parted.

This species is closely allied to *Phoradendron pteroneuron* Eichl., but differs in having rounded-elliptic to ovate leaves, and terete not angular or carinate stems.

Trinidad: North Coast road, on "serrette" (*Byrsonima spicata*), Ayliffe 118 (TRIN, holotype).

Endemic.

11. *Phoradendron crassifolium* (Pohl) Eichl. in Mart., *Fl. Bras.* 5, 2: 125 t. 40 (1868); Urb. in Engl., *Bot. Jahrb.* 24: 51 (1897); Trel., *Gen. Phorad.* 144, pl. 215 (1916); Krause in Pulle, *Fl. Surin.* 1, 1: 24 (1932)

Viscum crassifolium Pohl in DC., *Prodr.* 4: 280 (1830)

Branches percurrent or dichotomous; internodes up to 10cm long, terete; cataphylls up to 4 pairs on each internode, subannular, the lower one or two pairs frequently sterile, upper pairs fertile, spaced at intervals of 1.5–3cm; leaves 4–18cm long, 1.5–4.5cm wide, ovate-lanceolate, apex acute, base rounded or attenuate for some 5–20mm, basally 5-nerved; spikes up to 6cm long, 3–9 fertile joints, up to 10 flowers on each joint in 4+2 series; fruit globose, white to red, tepals subinflexed, parted to erect.

Trinidad: without locality, Kostermans 15042 (K); near O'Meara Savanna, 26.6.1950, Baker (K, TRIN 14606); milepost 8½, Arima Valley, 10.9.1961, Snow s.n. (K); Arena Forest, alt. 60m, 9.6.1950, Baker (K, TRIN 14593); mile post 1¼ on road to Aripo Heights from Eastern Main Road, alt. 120m, 6.7.1973, Philcox, Kalloo & Jurawan 7387 (K, P, TRIN); Valencia, 23.8.1949, Ayliffe 129 (TRIN), 128 (TRIN); near mile post 3 on Valencia to Cumaea road, 18.6.1973, Philcox & Kalloo 7180 (K, P, TRIN); Long Stretch, various dates, Ayliffe 29, 47, 48, 61, 75, 80, 83, 96, 127 (TRIN), (TRIN 15731, TRIN 15732, TRIN 15733); Turure River forests, 23.2.1930, Broadway 7708 (BM, K).

Host plants as recorded from specimens: *Symphonia globulifera*, *Myristica surinamensis*, *Ilex arimensis*, *Virola* sp.

Tropical Central America to Brazil.

12. **Phoradendron flavens** (Sw.) Griseb. var. **australe** Trel.,
Gen. Phorad. 155 (1916)

Branches pseudodichotomous or percurrent, internodes 2–11cm long, terete; cataphylls one pair about 1cm above each node, with occasionally a second pair a similar distance above, broadly triangular, keeled, pointed; leaves 4–15cm long, 1.5–7cm wide, broadly lanceolate, obliquely acuminate, cuneate into pseudopetiole, sessile, basally 3–5-nerved; spikes up to 4.5cm long, somewhat clustered at nodes, 6–7 fertile joints with 18–24 flowers on each joint in 6-series; fruits globose, white, tepals small, inflexed.

Trinidad: Tucuche, 28.4.1925, Williams (TRIN 11013), Britton, Hazen & Mendelsohn 1288 (K, TRIN), 15.5.1868, Finlay (TRIN 2720); Arouca, 11.1.1904, Damouse (TRIN 8639); ridge above mile post 10½, Blanchisseuse road, 26.4.1931, Broadway 7468 (BM,

K); Oropouche, near Arima, 21.1.1861, Crueger 111 (K); Aripo road, 23.1.1926, Williams (TRIN 10921) mile posts 3-4, 15.5.1927, Broadway 7396 (BM); Valencia, 16.4.1920, Britton (TRIN 9246), Ayliffe 125 (TRIN); 5 miles along Valencia to Cumaca road, alt. 336m, 18.6.1973, Phileox & Kalloo 7211 (K, P, NY, TRIN).

Host plant as recorded from specimens: *Vismia* sp.

Trinidad, Dominica, St Vincent and Grenada.

13. *Phoradendron fanshawei* Maguire in *Bull. Torr. Bot. Club* 75: 300 (1948)

Branches pseudodichotomous or percurrent; internodes 4-15cm long, terete, swollen below nodes; cataphylls one pair at base of every internode with one or two further pairs spaced along internode, broadly triangular, separate almost to base; leaves 8-12cm long, 5-10cm wide, elliptic to subrounded, rounded or retuse, cuneate at base into pseudopetiole 2-3mm long, obscurely pinnately-nerved, drying light brownish-green; spikes up to 8cm long, clustered at each node, with 4-5 or more fertile joints having up to 30 flowers on each joint in 6-series; fruit pyriform when young becoming globose, tepals closed.

Trinidad: Valencia, 16.4.1920, Britton (TRIN 9244); Miller Trace, Valencia Old Road, 2.6.1949, Ayliffe 58 (TRIN); Long Stretch 23.8.1949, Ayliffe 131 (TRIN), 74 (TRIN); Arena, Ayliffe 1 (TRIN), 7 (TRIN), Forest Reserve, Ayliffe (TRIN 14264), 9.6.1959, Baker (TRIN 14593).

Host plants as recorded from specimens: *Hieronyma caribaea*, *Calophyllum brasiliense* var. *antillarum*, *C. lucidum*.

Trinidad and Guyana.

14. *Phoradendron inequidentatum* Rusby in *Bull. Torr. Bot. Club* 27: 137 (1909)

Phoradendron jenmani Trel., *Gen. Phorad.* 85, pl. 114 (1916)

Branches more or less pseudodichotomous; internodes up to 8cm long, terete; cataphylls on each internode, one sub-basal pair with 1-2 pairs at intervals of 1-2 cm along internode, tubular-bifid; leaves 3-6.5cm long, 2-3cm wide, elliptic-ovate, obtuse, cuneately

subpetioled for c. 10mm, basally 5-nerved; spikes up to 2.5cm long, more or less clustered at each node, 3-5 fertile joints each usually with 2-4 flowers in 2-series; fruits about 5mm long, 3-4mm diam., yellow to red, tepals erect to subdivergent.

Trinidad: McNair, 3.6.1949, Ayliffe 95 (TRIN), 30.6.1949, Ayliffe 109 (TRIN); Mt Harris, 28.4.1949, Ayliffe 21 (TRIN), 3.6.1949, Ayliffe 66 (TRIN), 15.6.1949, Ayliffe 73 (TRIN), 77 (TRIN), (K, TRIN 14320).

Host plant as recorded from specimens: *Sterculia caribaea*.

Trinidad and Guyana.

15. **Phoradendron racemosum** (Aubl.) Krug & Urb. in Engl. *Bot. Jahrb.* 24: 46 (1897); Northrop in *Mem. Torr. Bot. Club* 12: 33 (1902); Trel., *Gen. Phorad.* 137, pls 202, 203 (1916); Britton & Millsp., *Bahama Fl.* 110 (1920); Krause in Pulle, *Fl. Surin.* 1, 1: 19 (1932)

Viscum racemosum Aubl., *Pl. Guian.* 2: 895 (1775)

V. latifolium Lam., *Encycl.* 3: 57 (1789)

Branching at almost every node; internodes long, up to 12cm or more long, quadrangular when young, becoming terete; cataphylls a basal pair, annular, rarely one or more further pairs, these cataphylls found on every internode due to branching at every node; leaves up to 6cm long, 4cm wide, broadly elliptic to ovate or sub-orbicular, apex obtuse to emarginate, cuneate at base into petiole up to 10mm long; spikes few, clustered at node, to 3cm long, with 4-5 fertile joints, each joint with 14-18 flowers in 4+2 series; fruit round-ellipsoid, tepals inflexed.

Trinidad: Northern Range Reserve, milepost 9½ on Blanchisseuse road, 12.3.1960, Ayliffe (K, TRIN 16499), on *Chrysophyllum* sp.

Trinidad, upper West Indies and northern South America.

16. **Phoradendron piperoides** (H.B.K.) Trel., *Gen. Phorad.* 145, pls 217-222 (1916); Krause in Pulle, *Fl. Surin.* 1, 1: 23 (1932); Adams, *Fl. Pl. Jam.* 242 (1972)

- Viscum latifolium* Sw., *Prodr.* 1: 268 (1797) non Lam. (1789)
Loranthus piperoides H.B.K., *Nov. Gen. & Sp.* 3:443 (1818)
Viscum piperoides (H.B.K.) DC., *Prodr.* 4: 281 (1830)
Phoradendron latifolium (Sw.) Griseb., *Fl. Brit. W. Ind.* 314
 (1860); Urb. in Engl., *Bot. Jahrb.* 24: 49 (1897)

Branches pseudodichotomous; internodes up to 9cm long, terete; cataphylls one basal pair on every internode, with occasionally 1-2 further pairs above but usually on the basal internode of each branch; leaves 4-11.5cm long, 1-4.5cm wide, broadly lanceolate to ovate, bluntly acuminate, cuneate into pseudopetiole about 5mm long, obscurely pinnately nerved; spikes mostly clustered, up to 8cm long, 6-9 fertile joints with up to 22 flowers on each joint in 4+2 series; fruits ovoid, brownish-orange, tepals erect to divergent.

Trinidad: without locality, Carmody (TRIN 8646), Fendler 654 (BM, K), Finlay (TRIN 2723), Prestoe (TRIN 1649); Fort George, near lighthouse, 21.2.1930, Broadway 7546 (BM, K); Botanic Gardens, collector unknown, (TRIN 8641), Lookout Hill, 24.9.1896, Lunt 6118 (K, TRIN); Diego Martin, River Estate, 8.6.1949, Rudolpho 102 (TRIN); Morne l'Enfer, 18.5.1949, Ayliffe (Kennedy) 55 (TRIN); road to Maracas Falls, 12.3.1926, Broadway 6013 (BM, K); Arima, Dannouse (TRIN 8640); Arima Valley to La Laja road, alt. 310m, 12.6.1973, Philcox & Wood 7069 (K, P, TRIN); mile post 5½ on road from Eastern Main Road to Guanapo Heights, alt. 150m, 26.6.1973, Philcox & Kalloo 7321 (K, P, TRIN); Old Valencia Road, 23.8.1949, Ayliffe 132 (TRIN); Cumaca road, mile post 3, alt. c. 120m, 27.12.1948, Simmonds 313 (TRIN); North Coast road, 5.6.1949, Ayliffe 89 (TRIN); Tabaquite, 19.9.1918, Broadway 8705 (TRIN), 8707 (TRIN), 9693 (K, TRIN); Tamana, 1.5.1949, Ayliffe 25 (TRIN); Four Roads, 19.2.1919, Broadway s.n. (TRIN); Brazil to Arena road, 31.3.1959, Cowan & Simmonds 1403 (TRIN); Mt Harris, various dates, Ayliffe 23, 49, 51, 53, 62, 67, 69, 72, 76 (TRIN), (K, TRIN 14371); near Princes Town, 19.8.1918, Broadway (TRIN 8741); Cedros, 23.9.1915, Caroline King (TRIN 7113); Erin, 15.3.1916, Broadway (TRIN 7631); Guayaguayare, 15.4.1949, Simmonds 345 (TRIN), Ayliffe 56 (TRIN); Cap-de-Ville, 31.3.1916, Broadway (TRIN 7629).

Tobago: Mt St George to Castara Trace, alt. 250m, 10.4.1959, Cowan 1536 (TRIN); Great Dog River valley, 12.10.1937, Sandwith 1741 (K); Pigeon Hill, 7.4.1959, Cowan & Foster 1466 (TRIN); Cocoaawatee, 31.8.1910, Broadway 3982 (BM); King's Bay Estate, 26.6.1913, Broadway 4528 (BM).

Host plants as recorded from specimens: *Spondias mombin*, *Theobroma cacao*, *Cecropia peltata*, *Mimusops balata* var. *cruegeri*, *Vismia* sp., *Struthanthus* sp., *Tectona grandis*, *Manilkara bidentata*, *Erythrina* sp.

Trinidad and Tobago; West Indies, Mexico to Argentina.

2. *ORYCTANTHUS* Eichler

Oryctanthus Eichl. in Mart., *Fl. Bras.* 5, 2: 87 (1868)

Parasitic shrubs often with creeping adhering roots; leaves opposite, coriaceous; inflorescence spicate, simple, rarely branched; flowers hermaphrodite, very rarely dioecious, small, sessile in grooves on rhachis, 6-merous, calyculus short, entire; tepals free, alternatively broad and obtuse or narrower and acute; filaments filiform, united at base with tepals; ovary obovoid with fleshy annular disc; style cylindric, stigma capitate; fruit oblong.

Oryctanthus amplexicaulis (H.B.K.) Eichl. in Mart., *Fl. Bras.* 5, 2: 88 (1868)

Loranthus amplexicaulis H.B.K., *Nov. Gen. & Sp.* 3: 445 (1818)

L. alveolatus H.B.K., *Nov. Gen. & Sp.* 3: 444 (1818)

Oryctanthus spicatus Urb. in Engl., *Bot. Jahrb.* 24: 30 (1897)
non Eichl. (1868)

Branches terete, when young rusty-furfuraceous becoming glabrous with age; leaves broadly ovate, ovate-elliptic to orbicular-ovate, 2.5–10cm long, 2.5–8.5cm wide, apex rounded, very obtuse, base rounded or subtruncate, glabrous except for rusty-furfuraceous on margin and on midrib above petiole with age; petiole 1–5mm long, furfuraceous; inflorescence spicate, solitary axillary or collective raceme of spikes at ends of branches; peduncles 0.5–1cm long, rusty-furfuraceous; flowers small, to about 2mm long; fruit ovate-oblong.

Trinidad: Botanic Gardens, 9.8.1949, Ayliffe 115 (OXF, TRIN), 5.5.1955, Ayliffe (TRIN 16414); St Ann's, Hart (TRIN 6099).

Trinidad, Guyana, Venezuela, Colombia and Ecuador.

There is no material of this species from Trinidad in the Kew Herbarium; however, in 1931 the late N.Y. Sandwith of that institution compared the Hart (TRIN 6099) material in the Berlin Herbarium with other Kew specimens from Guyana. He considered them well matched, and subsequently noted that they agreed excellently with the Bonpland type material of *Loranthus alveolatus* from the Paris Herbarium. More recently (1973) the genus was studied by Professor J. Kuijt, who considered the correct name to be applied to this material was *Oryctanthus amplexicaulis* (H.B.K.) Eichler. As Urban's (1897) description of the material—including the Hart specimen—under the name of *Oryctanthus spicatus* (Jacq.) Eichler does not match that of the type of that name, I here follow Kuijt's view and include the other names in synonymy.

3. PSITTACANTHUS *Martius*

Psittacanthus Mart. in *Flora* 13: 106 (1830)

Parasitic shrubs; leaves coriaceous, opposite or rarely alternate; flowers hermaphrodite, large and conspicuous, 6- or rarely 5-4-merous; calyculus entire, crenate or denticulate; tepals free or connate, at apex alternatively broad and obtuse or narrow and acute; stamens with thin filaments; ovary obovoid or globose.

Psittacanthus americanus (L.) Mart. in *Flora* 13: 108 (1830)

Loranthus americanus L., *Sp. Pl.* 1: 331 (1753)

Branches stout, minutely puberulent when young, soon becoming glabrous; leaves opposite or rarely subopposite, 4.5-9cm long, 1-3.5cm wide, lanceolate-oblong to oblong-elliptic or falcate (TRIN 3596), apex obtuse, rounded to acute, attenuate at base, subsessile; inflorescence terminal at ends of branches, branches minutely puberulent, paniculate; calyculus truncate, becoming laxly and shallowly crenate; flowers red, subfalciform or arcuate, 4-5cm long, tepals free, linear, acute; fruit to 14mm long, 5mm diam., black, oblong-ellipsoid.

Trinidad: without locality, TRIN 3596 (K, TRIN); Botanic Gardens, Bharath (TRIN 15448); Chaguanas, 17.9.1864, Finlay (TRIN 2719); Couva, 27.11.1933, Broadway 9344 (BM, K); Balmain, near Couva, 22.11.1931, Broadway 7826 (BM); Arima, 15.11.1861, Crueger 306 (K); San Fernando, 18.3.1903, Lewis (TRIN 8638).

Trinidad, St Lucia, Martinique, Dominica and possibly Venezuela.

4. PHTHIRUSA *Martius*

Phthirusa Mart. in *Flora* 13, 1: 110 (1830)

Erect or scandent shrubs, parasitic; branches terete, compressed or 4-angled; leaves usually opposite, rarely alternate, subcoriaceous; inflorescence simple or branched, racemose or spicate; flowers small, greenish-white, cream or reddish, usually dioecious, 6(4-5)-merous; calyculus entire or dentate; tepals free, fleshy, alternatively narrower and acute or broader and obtuse; stamens unequal; filaments thick, fleshy, sometimes produced, wholly adnate with tepals or only at base, excavate; anthers elliptic, in female flowers reduced; ovary usually obovoid; style cylindric or angulate towards apex; stigma capitate; fruit baccate, small, oblong.

Young branches rusty-furfuraceous; inflorescence slender, simple; flowers up to 2mm

long, reddish-brown to red 1. *Phth. pyrifolia*

Whole plant glabrous; inflorescence stouter, much branched; flowers 4-6mm long, cream to greenish-white

2. *Phth. adunca*

1. *Phthirusa pyrifolia* (H.B.K.) Eichl. in Mart., *Fl. Bras.* 5, 2: 63, t. 17 (1868)

Loranthus pyrifolius H.B.K., *Nov. Gen. & Sp.* 3: 441 (1818)

Struthanthus pyrifolius (H.B.K.) G. Don, *Gen. Syst.* 3: 413 (1834)

Branches terete, young branches compressed, rusty-furfuraceous, soon glabrous; leaves thinly coriaceous, ovate to ovate-lanceolate, 3.5-8cm long, 1.5-5cm wide, obtuse, cuspidate or shortly acuminate apex, obtuse to rounded at base, petiolate, furfuraceous when young, becoming glabrous except for midrib

beneath; petiole 4–10mm long; inflorescence axillary, slender, thyrsoid composed of subsessile triads, 4–5(–8)cm long; flowers small, reddish-brown to red, hermaphrodite, 1.5–2mm long; calyculus minutely denticulate; tepals linear-lanceolate; stamens inserted near base of tepals; fruit red, oblong.

Tobago: Rockly Vale, Scarborough, 29.8.1913, Broadway 4687 (BM, K); Concordia, 3.10.1912, Broadway 4249 (BM, K); Frenchfield, Eggers 5598 (K); Great Dog River, 12.10.1937, Sandwith 1733 (K); mile post $\frac{1}{4}$, Orange Hill road, Bennett s.n. in 1952 (TRIN); Roxborough-Bloody Bay road, alt. 300m, 12.8.1958, Purselove 6329 (K, TRIN 17392); Parlatuvier, 28.1.1920, collector not known (TRIN); King's Bay Estate, 26.6.1933, Broadway 4531 (BM).

Host plants as recorded from specimens: *Cordia collococca*, *Theobroma cacao*, *Citrus* spp, *Cecropia peltata*.

Tobago (not recorded from Trinidad), Grenada.

2. *Phthirusa adunca* (Meyer) Maguire in *Bull. Torr. Bot. Club* 75: 301 (1948)

Loranthus aduncus Meyer, *Prim. Fl. Esseq.* 149 (1818)

L. paniculatus H.B.K., *Nov. Gen. & Sp.* 3: 442 (1820)

L. orinocensis Spreng., *Syst.* 2: 129 (1825)

L. theobromae Willd. ex Roem. & Schult., *Syst.* 7: 132 (1829)

Struthanthus aduncus (Meyer) G. Don, *Gen. Syst.* 3: 414 (1834)

S. paniculatus (H.B.K.) G. Don, *Gen. Syst.* 3: 414 (1834)

Phthirusa theobromae (Willd.) Eichl. in Mart., *Fl. Bras.* 5, 2: 56 (1868)

Phth. seitzii Krug & Urb. in Engl., *Bot. Jahrb.* 24: 16 (1897)

Phth. paniculata (H.B.K.) Macbr. in *Publ. Field Mus. Nat. Hist. Bot.* 11: 17 (1931)

Branches terete or compressed, glabrous, pale greyish; leaves coriaceous, 3.5–11cm long, 3–7.5cm wide, mostly ovate to ovate-lanceolate, occasionally oblong-lanceolate or subrounded, apex acute or shortly acuminate, base cuneate to rounded or subcordate; petiole 5–16mm long; inflorescence paniculate, axillary or terminal, composed of subsessile triads, 5–18cm long; flowers white, dioecious,

4-6mm long; calyculus cupuliform to cylindric, 0.5-1.5mm long, truncate; tepals linear to sub lanceolate; stamens inserted at base of tepals; fruit red, oblong to ovoid, about 7mm long, 3.5mm diam.

Trinidad: without locality, Crueger s.n. (K), Fendler 653 (BM, K, OXF), Finlay (TRIN 2718), Grisebach s.n. (K); Chaguanas, Broadway (TRIN 4188); Woodbrook, 29.8.1927, Broadway s.n. (OXF); Botanic Gardens, 15.6.1916, Broadway (TRIN 8192), 18.2.1920, Broadway (TRIN 9426); St Ann's, Hart 6100 (K, TRIN), syntype of *Phthirusa seitzii*, 2.9.1923, Broadway 5097 (BM), Simla Zoological Station, alt. 60m, 27.10.1964, Wiles 8 (K, TRIN); Belmont, 12.9.1932, Broadway 9007 (K); St Joseph, 27.5.1922, Wood (TRIN 10139); road to Maracas Falls, 7.6.1949, Simmonds 374 (K, TRIN); Mt St Benedict Monastery, alt. c.180m, 3.6.1973, Philcox 7030 (K, P, TRIN); c. 2 miles north of Mt St Benedict, alt. 225m, 3.6.1973, Philcox 7028 (K, P, TRIN); St Augustine, alt. 30m, 25.10.1964, Wiles 6 (K, TRIN), 31.10.1964, Wiles 11 (TRIN), Wiles 12 (K, TRIN), Wiles 13 (K, TRIN), 12.1.1948, Simmonds 246 (TRIN), Simmonds 249 (TRIN); Arima, 18.3.1921, Britton, Britton & Brown 2405 (TRIN); mile post 2 on Lopinot Road, alt. 125m, 16.7.1973, Philcox, Wood & Kalloo 7475 (K, P, TRIN); Arima-Blanchisseuse road, alt. 60m, 27.10.1964, Wiles 7 (K, TRIN); Aripo, Naranja Estate, alt. 180m, 12.1.1965, Wiles 32 (K); San Fernando Hill, 18.7.1926, Broadway 6367 (K); Rio Claro, 3.3.1965, Wiles 50 (TRIN), 55 (TRIN), 56 (TRIN), 57 (TRIN); North Trace, near Princes Town, 19.8.1918, Broadway (TRIN 8742); Tabaquite, 6.9.1918, Broadway s.n. (K); Cumuto road, 1½ miles from San Rafael, alt. 30m, 28.10.1964, Wiles 1 (K, TRIN), 2 (K, TRIN); Arena Forest, near rest house, Ayliffe (TRIN 14263); 2 miles west of Mayaro, 17.12.1964, Wiles 14 (K, TRIN), 15 (K, TRIN); Erin Estate, south coast, alt. 30m, 8.1.1965, Wiles 18 (K, TRIN), 19 (K, TRIN), 20 (K); Henry Estate, Moruga, alt. 24m, 7.2.1965, Wiles 47 (TRIN), 49 (TRIN).

Tobago: without locality, Eggers 5521 (K); Wellbeck, Scarborough, 2.9.1913, Broadway 4689 (BM, K); Bacolet, 6.10.1937, Sandwith 1627 (K); Montgomery, Roxborough Bay, 15.6.1879, collector unknown (K); Roxborough-Bloody Bay road, alt. 300m, 12.8.1958, Purselove 6330 (K).

Host plants as recorded from specimens: *Coffea* spp, *Theobroma cacao*, *Citrus* spp, *Myristica fragrans*, *Ixora lutea*, *Gliricidia sepium*, *Erythrina pallida*, *Hieronyma caribaea*, *Peltophorum ferrugineum*, *Ilex* sp., *Casuarina* sp.

Trinidad and Tobago, tropical Central and South America.

5. STRUTHANTHUS *Martius*

Struthanthus Mart. in *Flora* 13: 102 (1830)

Much branched parasitic shrub; branches terete or compressed, glabrous; leaves opposite, rarely alternate, thinly coriaceous; inflorescence composed of triads, racemose, paniculate or contracted; flowers small, usually 6-merous, dioecious; calyculus entire or denticulate; tepals free, alternately narrow-acute and broad-obtuse; stamens unequal; filaments filiform; ovary obovoid, style cylindric, stigma capitate; fruit usually obovoid to oblong.

Struthanthus dichotrianthus Eichl. in Mart., *Fl. Bras.* 4, 2: 75 (1868); Krause in Pulle, *Fl. Surin.* 1, 1: 10 (1932)

Scandent, densely branched; branches terete, compressed towards apex; leaves broadly elliptic to lanceolate-ovate to oblong, 3-9cm long, 1.5-5cm wide, apex attenuate to rounded, frequently minutely mucronate, base attenuate; petiole 5-10mm long; inflorescence of triads, shortly pedicellate, arranged in dichotomous or trichotomous axillary umbels; flowers white, 4-6mm long; calyculus minutely denticulate; tepals linear or narrowly lanceolate, acute; style filiform; fruit ovoid-oblong, about 6-7 mm long, 3.5-4.5mm diam., purple to black.

Trinidad: without locality, Fendler 652 (BM, K); Botanic Gardens (TRIN 5988); Arima, 19.5.1949, Ayliffe 32 (TRIN); Arima valley to La Laja road, 12.6.1973, Philcox & Wood 7070 (K, P, TRIN); Arima-Blanchisseuse road, alt. c. 200m, 27.10.1964, Wiles 10 (K, TRIN), alt. 300m, Wiles 16 (K, TRIN); Cocorite, 4.4.1930, Broadway 7645 (K); mile post 1½ on Lopinot Road, alt. 150m, 16.7.1973, Philcox, Wood & Kalloo 7467 (K); Jeremy Hill, Naranja Estate, Aripo, alt. 270m, 12.1.1965, Wiles 23 (K, TRIN), alt. 195m, Wiles 27 (K), 29 (K, TRIN), 31 (K, TRIN), alt. 270m, Wiles 34

(K, TRIN); 5 miles along Valencia-Cumaca road, alt. 565m, 15.6.1973, Philcox & Kalloo 7214 (K, TRIN); North Coast road, 5.6.1949, Ayliffe 87 (TRIN), 29.7.1949, Ayliffe 123 (TRIN); River Estate, 6.5.1949, Ayliffe 27 (TRIN), 8.6.1949, Ayliffe 99 (TRIN), 101 (TRIN); near Old Mayaro road, Rio Claro, alt. 45m, 3.3.1965, Wiles 53 (TRIN); Mt Harris, 3.6.1949, Ayliffe 65 (TRIN); Arena, Ayliffe 3 (TRIN), 14.8.1947, Ayliffe 10 (TRIN), 21.5.1949, Ayliffe 42 (TRIN), 44 (TRIN), 46 (TRIN); Plum Road, near Brigand Hill quarry, 20.5.1949, Ayliffe 41 (TRIN), 39 (TRIN), 37 (TRIN), 36 (TRIN).

Host plants as recorded from specimens: *Citrus* spp, *Theobroma cacao*, *Spondias mombin*, *Rudgea freemani*, *Cedrela mexicana*, *Eschweilera subglandulosa*, *Croton gossypifolium*, *Persea americana*, *Tabebuia* sp.

Trinidad, Colombia, Venezuela, Guyana and Peru.

FAMILY 2. BALANOPHORACEAE

BY D. PHILCOX

Fleshy herbs, parasitic on roots of trees and shrubs, lacking chlorophyll but often brightly coloured; inflorescences usually arising from a lobed or entire ring or volva; peduncles often scaly, supporting unisexual or bisexual heads or spadices; flowers unisexual, densely crowded on spadices; male flowers usually with 3-8-lobed perianth; stamens opposite perianth lobes, free or united, anthers 2-many celled; female flowers with or without tubular perianth; ovary 1-3-celled; styles filiform; ovules solitary in each loculus, pendulous; fruit 1-seeded, nutlike.

HELOSIS *Richard*

Helosis Rich. in *Mem. Mus. Hist. Nat. Paris* 8: 416, t. 20 (1822)

Fleshy herbs with tuberous rhizome; inflorescence arising from annular, frequently dentate volva; peduncles naked, supporting bisexual spadices, flowers densely crowded and surrounded by jointed, clavate hairs; male flowers with 3-lobed tubular perianth; stamens 3, with filaments connate at base, anthers 3-celled; female flowers without tubular perianth; ovary oblong; styles 2.

Helosis cayennensis (Sw.) Spreng., *Syst.* 3: 765 (1826);
Lanjouw in Pulle, *Fl. Surin.* 1, 1: 46 (1932)

Cynomorium cayennensis Sw., *Fl. Ind. Occ.* 1: 13 (1797)

Helosis guyanensis Rich. in *Mem. Mus. Hist. Nat. Paris* 8: 416,
t. 20 (1822)

Plants purplish to reddish-brown with dirty-white rhizomes 3-7mm thick; volva basal, undulate to dentate; peduncles 2-35cm long, 2-7mm thick, terete; spadices 2-4cm long, 1.25-2cm diam. when mature, ovoid-oblong, mauve-brown to pink or red, jointed hairs 2-3mm long, white; male flowers exserted, 5-7mm long, tube white; female flowers 2-3mm long, styles exserted; fruit oblong, brownish-orange.

Trinidad: Waller Field, east end near Aripo Savanna, 12.1.1957, Herklots (K, TRIN 15416); Arena Road, c. mile post $\frac{1}{2}$, 10.1.1927, Broadway & Hombersley (TRIN 11179); Arena, 9.5.1847, Crueger s.n.(K); Mt Tamana, Finlay (TRIN 1839), Purdie 106 (K).

Trinidad, Guyana, Brazil, Venezuela, Peru and Cuba?.