

PROPERTY OF THE BOTANY DEPARTMENT

DO NOT REMOVE FROM THE HERBARIUM

OL. 1.]

[PART 3.

FLORA
OF
TRINIDAD AND TOBAGO.

OLACALES.

CELASTRALES.

SAPINDALES.

BY

R. O. WILLIAMS.

Price: - - 1s. 3d.



TRINIDAD:
PRINTED BY THE GOVERNMENT PRINTER,
GOVERNMENT PRINTING OFFICE,
PORT-OF-SPAIN.

1930.

*The Flora of Trinidad and Tobago is being issued in parts.
Obtainable from the Director of Agriculture, Port-of-Spain, Trinidad.*

Previously issued—

<i>Vol. I Part 1.</i>	<i>Ranales pp. 1-22.</i>	<i>Price</i>	<i>1s.</i>
<i>Vol. I Part 2.</i>	<i>Parietales to Geraniales</i>		
	<i>pp. 23-164.</i>	<i>Price</i>	<i>6s.</i>
<i>Vol. II Part 1.</i>	<i>Rubiales pp. 1-48.</i>	<i>Price</i>	<i>2s.</i>

COHORT 8. OLACALES.

BY

R. O. WILLIAMS.*

- Pet. valvate1. Olacaceae.
Pet. imbricate or contorted.
Cal. valvate2. Cyrillaceae.
Cal. imbricate3. Illicaceae.

FAMILY 1. OLACACEAE.

Shrubs or trees. Lvs. alternate, simple and entire. Stip. none. Fls. small, usually perfect. Cal. small, cup-shaped, 4-6-toothed or lobed, persistent. Pet. 4-6, free or united below into a bell-shaped corolla, inserted on the receptacle at the margin of the disk, valvate. Disk various, often ringlike. Stam. 4-10, rarely 12, hypogynous or inserted on the petals; anths. 2-celled. Ovary superior, or slightly immersed in the disk, 1-3-celled; style simple; ovules 1-5, pendulous from the central placenta. Fruit a drupe, 1-celled, 1-seeded.

- Stam. twice as many as the petals....1. *Ximenia*.
Stam. equal in number to the petals....2. *Schoepfia*.

1. XIMENIA L.

Shrubs or trees with or without spines. Fls. in short axillary cymes or solitary. Cal. 4-5-toothed or lobed. Pet. 4-5, hypogynous, valvate, narrow, bearded inside. Stam. hypogynous, twice as many as the petals; anths. linear. Ovary 3-celled below; ovules 3, linear. Drup. ellipsoidal.

1. *X. americana* L.

Gr. Fl. 310; Fawc. & Rendl. Fl. Jam. 3.86; Urb. Symb. Ant. 5.185.

Shrub or tree up to 14 m., the twigs often spiny; lvs. elliptical, the apex obtuse and usually minutely apiculate, the base wedge-shaped, 3.5-7.5 cm. long, 2-3.5 cm. broad, glabrous, somewhat leathery; fls. sweetly scented; cal. about 1 mm. long, the lobes triangular; pet. 4, white, linear, 6-9 mm. long, densely bearded

*The manuscript was critically read by Mr. N. Y. Sandwith of Kew to whom the writer gratefully acknowledges considerable help.

inside; *fil.* 4 mm. long; *anths.* 4 mm. long; *style* 3 mm. long; *drupe* yellow, about the size of a pigeon's egg, flesh subacid, sweet, edible (Fawc. & Rendl.).

Herb. Trin. 3098, no locality: 9369, Freeman, beach Erin to Chatham, Trinidad.

Florida to Trop. S. America, West Indies, Trop. Africa and Asia, New Guinea.

2. *SCHOEPFIA* Schreb.

Shrubs or small *trees*, glabrous. *Lvs.* entire, leathery. *Fls.* in short axillary racemes, solitary or clustered. *Cal.* small, cup-shaped. *Disk* united to the ovary, the margin entire, much enlarged on the fruit. *Pet.* 4-6, inserted on the margin of the disk, united into a tubular-bell-shaped corolla, free at the apex, the lobes valvate. *Stam.* 4-6, opposite the petals and joined to the corolla tube. *Ovary* partly immersed in the disk. *Drupe* ringed near the apex with the margin of the disk.

1. *S. Schreberi* Gmel.

S. arborescens R. & S.

Urb. Symb. Ant. 5. 183-184: Gr. Fl. 310.

Shrub or *tree* 1.3-6.6 m. high; *lvs.* ovate or narrowly ovate, obtusely acuminate at the apex, rounded above the contracted base, 4-8 cm. long, 2-4 cm. broad; *petiole* 3-5 mm. long; *pedu.* 1-5, in the axils of the leaves, 1-4 mm. long, 2-fld., rarely 1-3-fld; *cor.* yellow or green, cylindrical-bell-shaped, united for about two-thirds its length, 4-5 mm. long, the lobes ovate-triangular, reflexed, pubescent within; *style* 1-1.3 mm. long; *fruit* obovate, 7-10 mm. long, 5-6.5 mm. broad.

Not seen (Sieb., 239, ex Urb.). Not otherwise known from Trinidad. Eggers, 5481, Mount St. George, Tobago (Herb. Kew).

Mexico, Central America, Colombia, West Indies, Venezuela.

FAMILY 2. CYRILLACEAE.

Shrubs or small *trees*, glabrous. *Lvs.* alternate, simple, entire. *Stip.* none. *Fls.* small, regular, perfect, in racemes. *Cal.* 5-lobed, valvate, persistent. *Pet.* 5, hypogynous, shortly united at the base, contorted or imbricate. *Stam.* 5 or 10, hypogynous, inserted on the receptacle; *fil.* free; *anths.* 2-celled, longitudinally dehiscent. *Ovary* superior, 2-5-celled; *ovules* 1-4 in each cell, pendulous; *style* short or none; *stig.* minute or 2-3-lobed. *Fruit* a capsule or drupe, small, 1-5-seeded.

1. CYRILLA L.

Fls. in narrow slender racemes, clustered at the ends of the twigs of the preceding season. *Sep.* acute, shorter than the petals. *Pet.* white, acute, spreading. *Stam.* 5, opposite the petals; *fil.* awl-shaped; *anths.* oval. *Ovary* ovoid, sessile, usually 2-celled, sometimes 3-celled; *ovules* 2-4 in each cell; *style* short and thick, 2-3-lobed. *Fruit* ovoid, 2-3-seeded, the pericarp spongy.

1. *C. racemiflora* L.

C. antillana Michx.

Britt. & Wils. Sc. Surv. Porto Rico, 5:515: Fawc. & Rendl. Fl. Jam. 5:18: Urb. Symb. Ant. 8:380.

Lvs. oblanceolate, obovate or oval, wedge-shaped-narrowed at the base, 5-10 cm. long, 6-25 mm. broad; *racemes* 5-15 cm. long; *fls.* small, white, numerous; *pedi.* 2-4 mm. long, about as long as the bracts; *fruit* about 2 mm. long.

Not seen (Trinidad ex Urb.). Not otherwise known from Trinidad.

S. Eastern U.S.A., West Indies, Northern South America.

FAMILY 3. ILICACEAE.

Shrubs or *trees*, usually evergreen. *Lvs.* alternate, simple, leathery. *Stip.* none. *Fls.* regular, perfect, polygamous-dioecious or unisexual, clustered in the axils or rarely solitary. *Sep.* 3-7, pointed, imbricate, usually persistent. *Pet.* 4-7, free or united at the base, hypogynous, imbricate. *Stam.* hypogynous, as many as the petals, rarely more; *anths.* 2-celled, longitudinally dehiscent. *Disk* none. *Ovary* superior, 4 or 5, rarely numerous-celled; *ovules* 1 or 2 in each cell, pendulous; *style* short or none; *stig.* disk-like or capitate. *Fruit* a drupe enclosing 3 or more nutlets.

1. ILEX L.

Shrubs or *trees*. *Cal.* small, persistent, usually 4-5-parted. *Cor.* wheel-shaped, slightly united at the base, the lobes oblong, obtuse. *Stam.* united to the base of the corolla. *Ovary* sessile, subglobose. *Drupe* globose, with 4-8 nutlets crowned with the sessile stigmas.

Lvs. the margin entire.

Fls. 5-7 parted.....1. *I. sideroxyloides*.

Fls. 4, rarely 5 parted.

Petioles 3-8 mm. long.....2. *I. guianensis*.

Petioles 1-3 cm. long.....3. *I. arimensis*.

Lvs. the margin shallowly toothed.....4. *I. Martiniana*.

1. *I. sideroxyloides* Gr.

Cassine Maurocenia Sieb.

Urb. Symb. Ant. 5:93: Britt. & Wils. Sc. Surv. Porto Rico 5:514.

Tree up to 15 m., glabrous throughout; *lvs.* mostly obovate or oblong-obovate, rounded, obtuse or shortly acuminate at the apex, narrowed or wedge-shaped at the base, 3.5-10 cm. long, leathery, entire; *petioles* 5-12 mm. long; *fls.* clustered or rarely solitary in the axils, 5-7-parted; *pedi.* 3-12 mm. long; *cal.* 3-4 mm. diam.; *pet.* 3-4 mm. long, united at the base; *drupe* globose or ovoid-globose, 6-8 mm. diam.

Sieber, 31 (Herb. Kew), 190 ex Loesener. Not otherwise known from Trinidad.

Porto Rico, Montserrat to St. Vincent.

2. *I. guianensis* (Aubl.) Kuntze.

Macoucoua guianensis Aubl. Pl. Guiane. t. 34.

Ilex Macoucoua Pers.

Britt. & Wils. Sc. Surv. Porto Rico, 5: 514.

Small tree, the young twigs minutely pubescent; *lvs.* obovate-oblong, the apex rounded or obtuse, the base wedge-shaped, 6-11 cm. long, 15-38 mm. broad, leathery, glabrous, entire; *petioles* about 5 mm. long; *male infl.* once or rarely twice dichotomous, 3-7-fld. about as long as, or somewhat longer than, the petioles, 4, rarely 5, parted; *cal.* about 2 mm. diam.; *pet.* 1.5-2 mm. long; *drupe* subglobose or ellipsoidal, 4-6 mm. diam.

Forests, Pitch Lake to Cedros, Trinidad.

Porto Rico, Hispaniola, Mexico to French Guiana.

3. *I. arimensis* (Loes.) Britt. ms., sp. nov.*I. guianensis* var. *arimensis* Loes.

Twigs glabrous; *lvs.* obovate-oblong or elliptical-oblong, the apex usually abruptly acuminate, the acumen often obtuse, the base more or less wedge-shaped, up to 15 cm. long and 5 cm. broad, entire, leathery, glabrous; *petioles* 1-3 cm. long; *male infl.* up to 2.5 cm. long, twice or thrice dichotomous, up to 20 fld., the *female infl.* shorter; *cal.* about 2 mm. diam.; *pet.* 1.5-2 mm. long; *fruit* ovoid to ovoid-subglobose, 3-6 mm. diam.

The leaves are much larger than those of Trinidad material of *I. guianensis*.

Herb. Trin. 5929; Herb. Trin. 6416, Cabasterre, Arima, 1898, Dannouse (Herb. Kew); Aripo Rd. Broadway, 5841 (Herb. Kew); Long Stretch, Arima, Broadway, 5485, 6767; Trinidad, Belmont Nov. 1910, Broadway, 4052 (Herb. Kew); Tobago.

4. **I. Martiniana** Lamb.

Lvs. oblong or elliptical-oblong, the apex obtusely acuminate, the base rounded to obtusely wedge-shaped, 8-12 cm. long, 2-5 cm. broad, the margin shallowly toothed, leathery, glabrous; *petioles* about 8 mm. long; *racemes* clustered in the axils, one usually longer and about twice as long as the petiole; *fls.* 4-parted.

Herb. Trin. 5105 D.W.A., Aripo Savannah, Trinidad, Guiana.

COHORT 9. **CELASTRALES.**

BY

R. O. WILLIAMS.*

Stam. usually 3.....1. Hippocrateaceae.

Stam. 4-5.

Cal. lobes imbricate.

Pet. imbricate2. Celastraceae.

Pet. valvate3. Vitaceae.

Cal. lobes valvate.....4. Rhamnaceae.

FAMILY 1. **HIPPOCRATEACEAE.**

Vines, shrubs or trees. *Lvs.* opposite, simple. *Stip.* small, falling early. *Fls.* small, perfect, regular, in axillary panicles or cymes. *Cal.* 5-parted, imbricate, persistent. *Pet.* 5, spreading. *Disk* depressed or cup-like. *Stam.* usually 3, inserted near the base of the disk; *fil.* flattened. *Ovary* superior, 3-celled; *ovules* 2-10 in each cell; *stig.* 3-lobed. *Fruit* of 3 flat woody carpels or a berry.

Fruit of 3 woody carpels.....1. Hippocratea.

Fruit a berry.

Sep. in two series.....2. Salacia.

Sep. in one series.....3. Telemachia.

1. **HIPPOCRATEA** L.

Woody *vines.* *Lvs.* opposite. *Stip.* small, falling early. *Fls.* small, perfect, in axillary panicles or cymes. *Cal.* 5-parted, imbricate, persistent. *Pet.* 5. *Disk* depressed or cup-like. *Stam.* usually 3, inserted within the disk; *fil.* flattened; *anths.* 2-4-celled.

* The manuscript was critically read by Mr. N. Y. Sandwith of Kew to whom the writer gratefully acknowledges considerable help.

extrorse. Ovary superior, 3-celled; style short; stig. 3-lobed; ovules 2-10 in each cell. Fruit of 3, flat, leathery carpels united at the base, 2-valved or indehiscent. Seeds few, flat, winged.

- Lvs. shallowly toothed1. *H. volubilis*.
 Lvs. entire.
 Fls. 8-16 mm. diam.
 Panicles hoary-pubescent2. *H. aspera*.
 Panicles glabrous.....3. *H. Miersii*.
 Fls. about 1 mm. diam.....4. *H. comosa*.

1. *H. volubilis* L.

H. ovata Lam.

H. scandens Jacq.

Gr. Fl. 148: Urb. Symb. Ant. 8. 385-386.

Tall climbing shrub; lvs. mostly elliptical-oblong, acute, acuminate or obtuse at the apex, rounded or wedge-shaped at the base, 4-12 cm. long, 3-6.5 cm. broad, glabrous, leathery, shallowly toothed, petioles 5-10 mm. long; panicles shorter than or longer than the leaves, rusty-velvety; fls. numerous, greenish; sep. about 0.5 mm. long; pet. oblong, about 2 mm. long; disk cup-like; fruiting carpels oblong to obovate, 3-6 cm. long, 2-5.5 cm. broad, rounded at the apex; seeds samara-like, the wing blotched, 2-4.5 cm. long, 2 cm. broad, the body 1.5-2 cm. long.

Purdie 74, mountains of St. Ann's and in swampy places, Trinidad.
 Eggers, 5595, woods at Frenchfield, Tobago.
 Florida, West Indies, Cont. Trop. America.

2. *H. aspera* Lam.

H. scutellata Griseb.

Prionostemma scabridula Miers.

H. Vahlia (Camb.) Peyritsch.

Gr. Fl. 148.

Lvs. elliptical or elliptical-oblong, rounded at both ends, the apex shortly apiculate, sub-leathery, entire, petiole 5-7 mm. long; panicles hoary-velvety, longer than the leaves; fls. 10-12 mm. diam., velvety; cal. lobes ovate, 1.5-2 mm. long; pet. 4-5 mm. long, 3-4 mm. diam., shortly and broadly clawed, the limb roundish, lacerate; disk round, depressed, the margin erect, 3.5 mm. diam. velvety; stam. inserted near the centre of the disk; fil. linear, spreading; fruiting carpels obovate-oblong, up to 7 cm. long and 5 cm. broad.

St. Ann's, San Fernando, Icaicos, Trinidad.
 Guiana.

3. *H. Miersii* Loes.

Pristimera apiculata Miers.

Vine; *lvs.* ovate to elliptical-oblong, the apex shortly pointed or obtuse, the base rounded, 10-20 cm. long, 6.5-9.5 cm. broad, leathery, entire, strongly reticulate on both surfaces; *panicles* glabrous, as long as or longer than the leaves; *fls.* 12-16 mm. diam.; *pedi.* 6-10 mm. long, jointed in the upper half above the bracteoles; *cal.* lobes roundish, 1.5-2 mm. long; *pet.* obovate or obovate-oblong, about 8 mm. long, not clawed, entire, glabrous; *disk* cup-like; *fruiting carpels* orbicular, about 6 cm. long and 6 cm. diam., conspicuously radiate-nerved.

Herb. Trin. 2531, Finlay; 1109 Prestoe, no locality; ?Britt. 2544, Guayaguayare Road (*lvs.* only); Broadway, 5791, Aripo Rd., Trinidad.

St. Vincent, Guiana.

4. *H. comosa* Sw.

Hylenaea multiflora Miers.

Gr. Fl. 148.

Tall *climber*; *lvs.* oblong, 10-15 cm. long, quite entire, reticulate veined; *panicles* glabrous, equalling the leaves, bearing numerous sterile, hair-like, rusty pedicels about 16 mm. long which are much longer than the intermixed fertile ones; *fls.* minute, about 1 mm. diam.; *pet.* ovate, blunt; *disk* cup-like, thin; *stam.* very short, contiguous; *fruiting carpels* very large, broadly obovate-oblong, nerved, 5-7.5 cm. long.

Shach, Crueger and Fendler 323 (Herb. Kew). Trinidad.
Santo Domingo. Guiana ex Urb.

2. SALACIA L.

Climbing *shrubs* or small *trees*, glabrous. *Lvs.* usually opposite, leathery, entire. *Stip.* none. *Fls.* small, usually in axillary, sessile or shortly stalked clusters, sometimes solitary. *Sep.* 5. *Pet.* 5. *Stam.* 3. *Ovary* 3-celled; *style* very short or awl-shaped; *ovules* 2 to several in each cell. *Fruit* a berry, indehiscent, 1-3-celled, 1 to several seeded.

Lvs. ovate or oval or more rarely obovate 1. *S. granulata*.

Lvs. oblong 2. *S. scandens*.

1. *S. granulata* Urb.

Fedde Rep. 14 (1916) 333.

Twining *shrub*, glabrous; *lvs.* opposite, ovate or shortly ovate or oval, rarely obovate, the apex abruptly and very shortly

and obtusely acuminate, the base rounded or subtruncate, 5-13 cm. long, 3-6.5 cm. broad, entire, leathery, dotted on both sides, the dots not transparent; *infl.* solitary or clustered in the axils; *pedu.* 5-20 mm. long; *fls.* yellow, fragrant; *sep.* exterior triangular, interior suborbicular, 1 mm. long, margin subentire; *pet.* obovate or oval, 2 mm. long; *disk* cup-like, 3.5 mm. long, surrounding and equalling the ovary; *stam.* inserted within the disk at the base; *fil.* 0.7 mm. long; ovary obtusely trigonal with 2 ovules in each cell; *style* awl-shaped.

Broadway, 4460, Lot 42 and 3992 Easterfield Road, Tobago.

2. ***S. scandens* (Aubl.) Griseb.**

Aubl. Pl. Guiana t.10: Gr. Fl. 148: Cont. U.S.A. Nat. Herb. 27.243.

Climbing *shrub* or small *tree*; *lvs.* oblong or oblong-elliptical, pointed, mostly 2-2.5 cm. broad, entire, glabrous; *fruit* globose or nearly so.

Not seen, Trinidad ex Griseb. Not otherwise known from Trinidad. Guiana, Panama.

3. **TELEMACHIA Urb.**

Shrub or *tree*, glabrous. *Stip.* small, persistent. *Lvs.* opposite, decussate, crenate, leathery. *Infl.* solitary or two in the axils of scales or leaves, corymbose-cymose. *Pedi.* short. *Fls.* small, dioecious. *Sep.* in one series, open in the bud, united at the base, 3, often with 2 smaller teeth between, rarely 4. *Pet.* 3, rarely 4, free, imbricate. *Male fls.* unknown. *Female fls.*? *Disk* surrounding the base of the ovary and joined to it, barely visible. *Staminodes* 3, minute, inserted above the base of the ovary within the disk. *Ovary* sessile, shortly conical, 3-celled; *style* very short, entire; *ovules* 2 in each cell, collateral, oblong. Very young *fruit* globulose, entire.

1. ***T. trinitensis* Urb.**

Fedde Rep. 14 (1916) 334.

Stip. triangular or triangular-lanceolate, 0.5-0.7 mm. long; *lvs.* oval-elliptical to elliptical-oblong, the apex rather shortly and obtusely acuminate, the base acute, 5-10 cm. long, 2-4 cm. broad, the margin crenate; *petiole* 7-9 mm. long; *pedu.* 1-5 cm. long; *pedi.* 1-3 mm. long; *sep.* semi-orbicular or triangular, leathery, 0.3-0.5 mm. long; *pet.* ovate-triangular, 1.5 mm. long, subleathery.

Not seen. Herb. Trin. 1457, ex Urb. Trinidad.

FAMILY 2. CELASTRACEAE.

Shrubs or *trees*, sometimes climbing. *Lvs.* simple. *Stip.* when present minute and soon falling. *Fls.* small, regular, perfect or unisexual. *Cal.* 4-5-lobed or parted, persistent, the lobes imbricate. *Pet.* 4-5, spreading, imbricate. *Stam.* 4-5, inserted on the disk. *Disk* flat or lobed. *Ovary* 3-5-celled; *style* short, thick; *stig.* entire or 3-5-lobed; *ovules* 2 in each cell. *Fruit* a capsule or drupe. *Seeds* usually erect, with or without arils.

Lvs. alternate.

Stems climbing or decumbent, *fls.*

in elongated panicles1. *Celastrus*.

Stems erect; *fls.* in short clusters2. *Maytenus*.

Lvs. opposite3. *Gyminda*.

1. CELASTRUS L.

Shrubs, usually climbing, unarmed. *Lvs.* alternate. *Fls.* sometimes unisexual, in axillary and terminal panicles. *Cal.* urn-shaped at the base, 5-fid. *Pet.* 5. *Stam.* 5, inserted on the disk. *Disk* cup-shaped or concave, 5-lobed. *Ovary* 2-4-lobed, 2-4-celled; *style* short and thick or somewhat elongated; *stig.* 3-4-lobed, *ovules* 2 at the base of the cells, erect; *Caps.* leathery, 2-4-celled, 3-4-valved, loculicidally dehiscent, the cells 1-2-seeded. *Seeds* with fleshy arils.

1. *C. racemosa* var. *trinitensis* Urb.

Urb. Symb. Ant. 5:52.

Lvs. obovate, shortly and abruptly acuminate at the apex, obtuse or rounded at the base, 8-12 cm. long, 4-6 cm. broad, leathery, the margin more or less toothed; *fls.* not known; *infl.* in fruit, axillary or pseudo-terminal, compoundly racemose, 3-5 cm. long; *pedi.* 2-4 mm. long; *cal.* with 5 triangular sepals, 0.7 mm. long; *filaments* 5, threadlike, 1 mm. long; *anths.* heart-shaped, barely 0.5 mm. long; *caps.* triangular, 3-valved, the *valves* orbicular, 9-10 mm. broad, keeled on the middle within, 1-2-seeded; *seeds* obovate or oval, about 6 mm. long and 4 mm. broad, entirely covered by the aril.

Herb. Trin. 5857, Maraval, Trinidad.

Typical *C. racemosa* occurs in Mexico, Venezuela and Brazil.

2. MAYTENUS Molina.

Shrubs or small *trees*, erect, unarmed. *Lvs.* alternate, in two rows. *Fls.* polygamous, axillary, solitary or clustered. *Cal.* 5-lobed. *Pet.* 5. *Stam.* 5. *Disk* round, the margin wavy. *Ovary*

immersed in the disk, 2-4-celled; *ovules* 1 or 2 in each cell, erect; *style* short or none; *stig.* 2-4-lobed. *Caps.* leathery, 1-3-celled, loculicidally 2-3-valved. *Seeds* erect, with arils.

Lvs. entire or wavy-toothed.

Young stems more or less compressed.

Mature leaves leathery, veins impressed, obscure1. *M. Sieberiana*.

Mature leaves papery, reticulate-veined2. *M. monticola*.

Young stems quadrangular.....3. *M. reflexa*.

Lvs. densely crenulate.....4. *M. tetragona*.

1. *M. Sieberiana* Krug & Urb.

M. gonocladus Gr. Fl. 145 in part.

Urb. Symb. Ant. 5. 60.

Small tree, young branches more or less compressed particularly at the nodes; *lvs.* oval, ovate or somewhat narrowly ovate, the apex usually shortly acuminate, the point blunt or notched, the base obtuse or rounded, 7-11 cm. long, 3.5-6 cm. broad, leathery, the margin entire or wavy-toothed, recurved; *fls.* clustered; *pedi.* 4-6 mm. long; *sep.* imbricate, rounded or shortly triangular, 0.4-0.6 mm. long, 0.8-1 mm. broad, the margin minutely toothed; *pet.* shortly ovate, rounded at the apex, 1-1.2 mm. long; *stig.* bilobed; *ovary* 2-celled.

Sieber, 36, ex Urb., also at Gasparee and Manzanilla, Trinidad, Tobago.

2. *M. monticola* Sandwith, *sp. nov.*

Shrub or small tree, young branches subterete or more or less compressed; *lvs.* ovate to elliptic, oblong-lanceolate or lanceolate, abruptly and conspicuously acuminate, often subcuspidate at the apex, usually cuneate at the base, sometimes obtuse and almost rounded, commonly 8-15 cm. long, 3.5-7 cm. broad, glabrous, chartaceous and thin even in age, margin rather conspicuously wavy-toothed, rather conspicuously reticulate-veined on both surfaces, principal nerves arcuate, about 8-10 on each side of the midrib; *petiole* 4-8 (commonly 5) mm. long; *infl.* minute, glabrous, subsessile or very shortly stalked, axillary, clustered or solitary, often on leafless branchlets; *fls.* greenish-white; *pedi.* slender, 2-4 mm. long; *sep.* imbricate, very minutely ciliate, roundish-semi-orbicular, about 0.5 mm. long and 1 mm. broad; *pet.* ovate-elliptical, blunt and rounded, up to 1.5 mm. long, about 1 mm. broad; *stam.* 0.5-1 mm. long; *disk* about 1.5 mm. across; *ovary*

sunk in disk, 2-celled, *ovules* 2 in each cell; *stig.* not clearly lobed; *fruit* (in Dannouse's specimen) ellipsoid or obovoid, 1.5-2 cm. long, 0.7-1.2 cm. diam.

Apparently allied to *M. guianensis* Kl. ex Reiss., but differing in the relatively shorter and broader, chartaceous, wavy-edged, more abruptly and conspicuously acuminate leaves. The fruit is much larger than that of the Schomburgk type of *M. guianensis*.

Gully near second mile post, Aripo Rd., March, 1926, Broadway, 6036 (type in Herb. Kew); *ibid.*, fourth to fifth mile-post, Sept., 1927, Broadway, 6694 (Herb. Kew); heights of Aripo, Jan., 1922, Broadway in Herb. Trin. 10012, 10013 and in Herb. Kew; Chaguanas, Aug., 1905, Dannouse in Herb. Trin.; Trinidad.

3. *M. reflexa* Urb.

Urb. Symb. Ant. 5. 64.

Young *branches* quadrangular and more or less obsoletely 4-lined; *lvs.* ovate or broadly ovate, the apex somewhat abruptly and shortly acuminate, the point obtuse and reflexed, the base obtuse or often rounded, 6-11 cm. long, 4-6.5 cm. broad, more or less leathery, entire; *petiole* 7-12 mm. long; *fls.* clustered; *pedi.* 2-3 mm. long; *sep.* not or barely imbricate, rounded, 0.5 mm. long, 0.8 mm. broad, thickly leathery, the margin entire; *pet.* rounded, 1 mm. long and broad, leathery, entire; *style* 0.4 mm. long; *stig.* subentire; *ovary* 2-celled; *ovules* 2 in each cell.

Not seen, Sieber, 251, ex Urb., Trinidad. Not otherwise known.

4. *M. tetragona* Griseb.

M. gonocladus Gr. Fl. 145 in part.

Urb. Symb. Ant. 5.62-63.

Shrub or *tree* up to 13 m., the *branches* tetragonal; *lvs.* oval to oblong-lanceolate, the apex usually abruptly and obtusely acuminate, the base acute, 7-10 cm. long, 2.5-5.5 cm. broad, thinly leathery, densely crenulate on the margin; *fls.* clustered; *pedi.* 2-6 mm. long; *sep.* barely imbricate, rounded, 0.3-0.5 mm. long, 0.5-0.8 mm. broad; *pet.* ovate or narrowly ovate, 1.7-2 mm. long; *stig.* bilobed; *ovary* 2-celled; *fruit* obovate, 8-10 mm. long, bivalved, *valves* 5-6 mm. broad; *seeds* solitary.

Lockhart, Trinidad. Hart 6789^a Hort. Trin., specimen in Herb. Kew,
St. Vincent, Grenada.

3. GYMINDA Sarg.

Shrub or tree. Lvs. opposite, entire or toothed above the middle. *Fls.* minute, unisexual, dioecious, in axillary, stalked, few-fl'd. cymes. *Sep.* 4, free or nearly so. *Pet.* 4, white, recurved. *Male fls.: Stam.* 4, inserted in the lobes of the disk. *Ovary* undeveloped. *Female fls.: Stam.* none. *Ovary* 2-celled, combined with the disk. *Stig.* 2-lobed; *ovules* solitary in each cell, pendulous. *Drupe* black or dark blue, often 1-celled. *Seeds* 1, rarely 2.

1. *G. latifolia* (Sw.) Urb.

Myginda latifolia Sw.

Urb. Symb. Ant. 5. 81-82: Fawc. & Rendl. Fl. Jam. 5.29-30.

Shrub or tree up to 7 m., young *twigs* with four raised lines; *lvs.* variable, usually obovate-wedge-shaped, with a rounded apex, 1.5-6 cm. long, 1.3-5 cm. broad; *petioles* 1-5 mm. long; *sep.* roundish or semi-circular, 0.6-0.8 mm. long; *pet.* elliptical, 1.6-2.2 mm. long; *drupe* narrow to roundish-ellipsoidal, 4-8 mm. long.

Not seen, Sieb., 211 ex Urb. Not otherwise known from Trinidad. Florida Keys, West Indies, Mexico.

FAMILY 3. VITACEAE.

Vines climbing by means of tendrils, with copious watery sap and swollen nodes. *Lvs.* alternate, simple or digitately 3-foliolate, stipulate. *Fls.* in panicles, racemes or cymes, opposite the leaves, regular, perfect or polygamous-dioecious. *Cal.* 4-5-toothed. *Pet.* 4-5, valvate, soon falling. *Stam.* 4-5, opposite the petals, inserted at the base of the disk or between its lobes. *Disk* between the stamens and ovary, sometimes obsolete or wanting. *Ovary* usually immersed in the disk, 2-6-celled; *ovules* 1 or 2 in each cell, ascending. *Fruit* a berry, usually 1-2-celled.

1. CISSUS L.

Mostly climbing *vines*. *Lvs.* simple or 3-foliolate. *Fls.* perfect or sometimes polygamous. *Pet.* usually 4, spreading. *Disk* cup-shaped, united to the base of the ovary, usually 4-lobed. *Stam.* 4, inserted on the margin of the disk. *Ovary* 2-celled; *ovules* 2 in each cell. *Berries* ovoid or globose.

Lvs. simple1. *C. sicyoides*.

Lvs. trifoliolate.

Plant glabrous2. *C. erosa*.

Plant densely hairy3. *C. rhombifolia*.

1. *C. sicyoides* L.

Snake Bush.

Fawc. & Rendl. Fl. Jam. 5.77.

Vine climbing or rambling, glabrous or nearly so; *lvs.* simple, ovate, ovate-oblong or ovate-heart-shaped, acute, acuminate or rounded at the apex, truncate or heart-shaped at the base, up to 15 cm. long and 9 cm. broad, somewhat fleshy, the margin with distant bristle-like teeth, *petiole* 1-3 cm. long, *tendrils* slender; *fls.* small, greenish-yellow, in stalked cymes; *berry* black, obovoid-globose, 4-6 mm. long. The plant is reported from Tobago as being "good for boils."

Spondylantha aphylla Presl is a monstrous form due to the fungus *Mycosyrinx Cissi* DC. in which the branches and flowers are in whorls. It is commonly found.

General Trinidad, Tobago and Little Tobago.
Florida, West Indies, Cont. Trop. America.

2. *C. erosa* L. C. Rich.

Britt. & Wils. Sc. Surv. Porto Rico 5.540.

Vine climbing or rambling, *stems* 4-angled, becoming glabrous; *lvs.* trifoliolate; *lfts.* variable, mostly lanceolate to broadly-ovate, acute, acuminate or sometimes obtuse at the apex, wedge-shaped to somewhat rounded at the base, 4-10 cm. long, 1.5-5.5 cm. wide, the margin toothed, glabrescent, conspicuously reticulate-veined, especially beneath, sessile or nearly so; *petioles* 1.5-3 cm. long; *fls.* small, red, in long stalked cymes; *berry* subglobose, globose-ovoid or globose-obovoid, 4-6 mm. long.

General, Trinidad and Tobago.
Porto Rico, Hispaniola, St. Vincent, Cont. Trop. America.

3. *C. rhombifolia* Vahl.

Vine, *stems* pubescent; *lvs.* trifoliolate; *lfts.* mostly rhomboid, acute, acuminate or obtuse at the apex, wedge-shaped to truncate at the base, 5-13 cm. long, 3-6.5 cm. broad, more or less hairy above, densely hairy beneath, the margin toothed, sessile or shortly petioluled; *petioles* 3-5 cm. long; *fls.* red, in long stalked cymes; *fruit* black, obovoid, 8-10 mm. diam.

Herb. Trin. 4625 no locality: 2921 San Fernando Hill and 8736 Tabaguite: Fendler, 262 (Herb. Kew) Broadway, 6385, San Juan, Sept., 1926. Trinidad.

West Indies, Central and South America.

FAMILY 4. RHAMNACEAE.

Climbing *shrubs* (e.g., the local spp.) *Lvs.* simple, alternate or opposite. *Stip.* small. *Fls.* small, perfect, mostly in axillary cymes. *Cal.* tubular, 4-5-lobed, valvate. *Pet.* 5, in the local spp. *Stam.* 5, opposite the petals and often enclosed by them; *anths.* 2-celled, longitudinally dehiscent. *Disk* perigynous. *Ovary* free, or immersed in the disk, 3 (2-4)-celled; ovules solitary, rarely 2 in each cell, erect from the base. *Fruit* of 3-4-winged cocci in the local spp. *Seeds* solitary in the cells.

Cal. lobes and disk united.....1. *Reissekia*.

Cal. lobes and disk lobes free from each other2. *Gouania*.

1. REISSEKIA Endl.

Climbing *shrubs* bearing tendrils. *Lvs.* alternate, heart-shaped, toothed. *Fls.* small, yellow, polygamous, in cymes or subumbels; *pedi.* long. *Cal.* tube obconical, united to the ovary, 5-lobed, reduplicate. *Disk* lining the calyx tube, without free lobes. *Pet.* hooded. *Stam.* 5. *Ovary* 3-4-celled; *style* short, 3-4-fid.; *stig.* obtuse. *Fruit* of 3-4, winged, indehiscent cocci, the wings bipartitioned by the separation of the cocci.

1. *R. smilacina* (Sm.) Steud.

Gr. Fl. 101.

Branchlets slender, puberulous, at length glabrate; *lvs.* cordate-oblong, apiculate, about 5 cm. long, minutely serrate, glabrous or nearly so; *pedu.* usually as long as the leaves; *caps.* emarginate, the wings three times as broad as the seed, somewhat spongy, wings about 8 mm. long and 10-12 mm. diam.

Lockhart in Herb. Kew, probably an introduced plant. Otherwise unknown from Trinidad.

Brazil.

2. GOUANIA L.

Woody *vines* with tendrils. *Lvs.* alternate. *Stip.* soon falling. *Fls.* small, polygamous, in panicle spikes or racemes. *Cal.* tube obconical, adhering to the ovary, 5-lobed. *Disk* 5-lobed. *Pet.* 5, inserted below the margin of the disk, hooded. *Stam.* 5. *Ovary* immersed in the disk, 3-celled; *style* 3-parted. *Fruit* of 3, winged, indehiscent cocci. *Seeds* shining.

Fruit woolly, especially the body.....1. *G. velutina*.

Fruit glabrous or at most pubescent.....2. *G. polygama*.

1. *G. velutina* Reiss.

Vine, the branches woolly. *Lvs.* ovate to ovate-oblong, usually acute to acuminate at the apex, more or less heart-shaped at the base, 5-14 cm. long, 2.5-8 cm. broad, woolly or pubescent beneath, the margin notched; *petioles* 1-2 cm. long, woolly; *cal.* woolly, about 1.5 mm. long; *fruit* 8-13 mm. broad, including the wings, yellowish woolly, *cocci* longer than broad, the wings kidney-shaped, 6-7 mm. long; seeds ovoid or elliptical, about 2 mm. long.

General, Trinidad.

Guiana and Venezuela.

2. *G. polygama* (Jacq.) Urb.

G. tomentosa Jacq.

Rhamnus polygamus Jacq.

Urb. Symb. Ant. 4.378-379: Gr. Fl. 101: Britt. & Wils. Sc. Surv. Porto Rico, 5.538.

Vine; *lvs.* ovate to elliptical, the apex shortly acuminate, the base more or less heart-shaped, 5-9 cm. long, glabrous or pubescent, the margin notched; *infl.* pubescent; *cal.* pubescent outside, 1-2 mm. long; *fruit* 8-12 mm. broad; *cocci* broader than long, the wings obovate to obliquely oblong, narrowed near the body, 4-5 mm. long, glabrous or pubescent.

Trinidad and Tobago.

Porto Rico, Cuba, Hispaniola, Cont. Trop. America.

COHORT 10. SAPINDALES.

BY

R. O. WILLIAMS.*

Ovary 3-celled or 2-3-celled in *Melicocca*...1. Sapindaceae.Ovary 1-celled, except *Spondias*, whenit is 2-5-celled.....2. [†]Anacardiaceae.

FAMILY 1. SAPINDACEAE.

Trees, shrubs or climbers. Lvs. alternate and compound, very rarely opposite or simple. *Stip.* usually absent. *Infl.* various. *Fls.* usually small and polygamous-dioecious. *Sep.* usually 4-5, free or more or less united, imbricate, rarely valvate. *Pet.* 3-5 or rarely more, often absent, equal or unequal, imbricate, often with a scale within. *Disk* usually present, sometimes unilateral. *Stam.* usually 8, or more or less hypogynous; *anths.* 2-celled. *Ovary* superior, entire, lobed or divided nearly to the base, 1-4 (often 3-celled); *style* terminal or between the lobes, rarely styles 2-4, simple or divided; *ovules* 1-2, or rarely many in each cell, inserted on the central axis and usually ascending. *Fruit* various. *Seeds* often with arils.

Blighia sapida Koen. the Akee, native of W. Trop. Africa is sometimes planted in Trinidad and Tobago but not commonly used for food purposes. *Nephelium Litchi* Cambess. the Litchi, native of China is represented by a few trees in the Botanic Gardens.

*The manuscript was critically read by Mr. N. Y. Sandwith of Kew to whom the writer gratefully acknowledges considerable help especially as regards the genera *Paullinia*, *Serjania*, *Cupania*, *Malayba* and *Tapirira*.

Climbing herbs, shrubs or vines.

Fruit 3-angled or 3-winged, the wings or angles surrounding the seed.

Lvs. with 3 leaflets (ternate)..... 1. *Urvillea*.

Lvs. with more than 3 leaflets (biternate or compound)

Caps. with inflated membranous lobes 2. *Cardiospermum*.

Caps. leathery not inflated..... 3. *Paullinia*.

Fruit of 3 samaras with the seeds at the apices.....

4. *Serjania*.

Shrubs or trees.

Lvs. pinnate.

Fruit a capsule (dehiscent).

Sepals distinct..... 5. *Cupania*.

Sepals united, 4-5-lobed..... 6. *Matayba*.

Fruit a drupe (indehiscent).

Fil. glabrous.

Pet. without scales..... 7. *Melicocca*.

Pet. with shaggy scales..... 8. *Talisia*.

Fil. hairy..... 9. *Sapindus*.

Lvs. simple..... 10. *Dodonaea*.

1. URVILLEA H. B. K.

Climbing *shrubs*. Lvs. alternate, composed of 3 leaflets. Fls. whitish, irregular, polygamous-dioecious, in axillary racemes, the *peduncles* with 2 tendrils at the apex. *Sep.* 5, concave, imbricate, the two exterior smaller. *Pet.* 4, bearing scales within. *Disk* unilateral with 2-4 glands. *Stam.* 8; *fil.* free or barely united at the base. *Ovary* sessile, 3-celled; *style* short, 3-fid; *ovules* solitary in the cells. *Fruit* composed of 3 samaras, connected in the middle, at length separating, the wings membranous and surrounding the body. *Seeds* subglobose, arillate at the base.

1. *U. ulmacea* H. B. K.

U. seriana Gr.

Gr. Fl. 123.

Stem slender; *lfts.* ovate, acuminate and bristle-like at the apex, wedge-shaped to truncate at the base, 3-10 cm. long, 1.5-4.5 cm. wide, coarsely toothed, the teeth often apiculate, membranous, pubescent or glabrate; *racemes* 5-14 cm. long, including the pedu. which is $\frac{1}{4}$ to $\frac{1}{2}$ the length of the raceme; *fls.* glabrous except for the woolly scales; *sep.* the outer pair oblong,

rounded, 1.5 mm. long, the three inner 1.5-2 mm. long; *pet.* 1.5-2 mm. long; *scales* 1 mm. long, woolly; *stam.* 1.5-2 mm.; *fruit* up to 2.5 cm. long, 1 cm. broad; *seeds* 2-2.5 mm. long.

Chacachacare, Monos, Macqueripe, Maraval, Arima, Matchepoorie, Trinidad.

West Indies and Cont. Trop. America.

2. CARDIOSPERMUM L.

Climbing *herbs*. *Lvs.* alternate, bipinnate or decompound. *Fls.* small, irregular, polygamous-dioecious, in axillary corymbs; *pedu.* with 2 tendrils near the top; *pedi.* jointed. *Sep.* 4, concave, broadly imbricate, the 2 exterior smaller. *Pet.* 4, 2 larger and 2 smaller, bearing scales at the base. *Disk* one-sided, wavy. *Stam.* 8; *fil.* unequal. *Ovary* 3-celled; *style* short, 3-fid; *ovules* one in each cell. *Caps.* 3-lobed or 3-angled, the lobes inflated and surrounding the seed. *Seeds* globose, with a large hilum.

Caps. 3-angled, 1-1.5 cm. long.....1. *C. microcarpum*.
Caps. subglobose, 3-4 cm. long.....2. *C. Halicacabum*.

1. *C. microcarpum* H.B.K.

C. Halicacabum var. *microcarpum* (H.B.K.) Bl.

Gr. Fl. 122; Urb. Symb. Ant. 8,390; Britt. & Wils. Sc. Surv. Porto Rico, 5,525.

Slender climbing *herb*; *stems* finely pubescent; *lvs.* thin, 4-8 cm. long; *lfts.* ovate to lanceolate, coarsely lobed or cut; *pedu.* slender, about as long as the *lvs.*; *corymbs* few-fl.; *fls.* about 4 mm. broad; *outer sep.* 0.75 mm. long; *pet.* obovate, about 2 mm. long, *scales* woolly; *fil.* pubescent; *caps* 3-angled, depressed at the apex, pubescent, up to 1.5 cm. long and 2.3 cm. broad; *seeds* black, 3 mm. diam., the *hilum* white, large, heart-shaped.

Trinidad and Tobago.

Trop. and Sub-Tropical Regions.

2. *C. Halicacabum* L.

Fawc. and Rendl. Fl. Jam. 5,48.

Annual or biennial *herb* up to 2 m. or more, simple or branched; *larger lvs.* 8-12 cm. long, including the 3-4 cm. long petiole; *lfts.* incised and obtusely serrate; *infl.* about as long as the leaves; *fls.* 4 mm. long; *disk glands* spheroidal; *sep.* 2 outer roundish-ovate, the inner oblong, twice as long as the outer; *caps.* 3-4 cm. long, subglobose; *seed* about 5 mm. diam; *hilum* white.

Crueger, Chacachacare, Oct. 1861, in Herb. Kew.

Tropics.

3. PAULLINIA L.

Woody vines. *Lvs.* alternate, pinnate or decompound, with stipules. *Fls.* irregular, polygamous-dioecious, in axillary thyrses (racemes of cymes) with usually 2 tendrils. *Sep.* 5, concave, imbricate. *Pst.* 4, with 2 small scales. *Disk* ring-like. *Stam.* 8; *fil.* free or united at the base. *Ovary* 3-celled; *style* 3-fid or 3-parted; *ovules* 1 rarely 2 in each cell. *Fruit* a capsule, 3-winged or 3-angled.

Petiole prominently winged.

Caps. club-shaped.

Infl. crowded into short dense fascicles

on the branchlets.....1. *P. fasciculata*.

Infl. solitary.

Lfts. five.....2. *P. pinnata*.

Lfts. three.....3. *P. Cururu*.

Caps. globose.....4. *P. leiocarpa*.

Petiole not winged.

Ripe capsules conspicuously winged.

Infl. fasciculate in the axil. of the leaves 5. *P. tetragona*.

Infl. solitary.

Lvs. 5-foliolate, pinnate.....6. *P. excisa*.

Lvs. bipinnate.....7. *P. fuscescens*.

Ripe capsules subtrigonous, costate rather

than winged.....8. *P. dasygonia*.

1. *P. fasciculata* Radlk.

Mon. Paullinia, 58 (1895).

Climber, glabrous; young branches triangular, older three-grooved with concave sides; *lvs.* 5-foliolate; *petiole* and *leaf-rhachis* prominently winged, *petiole* 6-12 cm. long; *lfts.* broadly elliptic, repand-dentate above the middle, terminal 16 cm. long, 8 cm. broad, lateral smaller; *petiolules* 4-6 mm. long; *inflorescences* pubescent, crowded in small bunches against the stems; *fruiting bedi.* about 5 mm. long; *fruit* (fide Radlk.) subglabrous, 2 cm. long, including the stipe which is 8 mm. long, 6 mm. broad.

Eggers, 5805, in forest, Great Dog River, Tobago, French Guiana.

2. *P. pinnata* L.

Gr. Fl. 124; Urb. Symb. Ant. 8,389; Britt. & Wils. Sc. Surv. Porto Rico, 5,524.

Tall climber; stems angular, pubescent when young; *lvs.* up to 18.5 cm. long, composed of 2 pairs of leaflets and an odd

terminal one; *petiole* and *rhachis* prominently winged, somewhat pubescent; *petiole* 1-7 cm. long; *lfts.* lanceolate-oblong to ovate-oblong, the apex acute or short acuminate, the base rounded, up to 14 cm. long and 6 cm. broad, coarsely toothed, leathery, usually pubescent on the veins beneath and bearded in the axils; *fls.* white, about 5 mm. broad, on long-stalked, narrow, pubescent thyrses; *caps.* club-shaped, 3-angled and 3-valved, 1.5-3 cm. long, beaked at the top; *seeds* oblong, about 1 cm. long.

Thickets and woodlands in moist districts, Trinidad and Tobago, West Indies, Cont. Trop. America, Trop. Africa.

3. *P. Cururu* L.

Urb. Symb. Ant. 8, 389.

Climber; young *stems* angled, glabrous or nearly so; *lvs.* composed of 3 *lfts.*; *lfts.* ovate or elliptical, the apex acute or obtuse, the base wedge-shaped, 5-10 cm. long, 2.5-4 cm. broad, coarsely toothed above the middle, membranous, glabrous except for beards in the axils of the veins beneath; *petiole* 4-8 cm. long, prominently winged; *fls.* on long-stalked, narrow, glabrous or slightly pubescent thyrses; fruit club-shaped, about 2 cm. long, 3-angled, 3-valved.

Herb. Trin. 2141, San Fernando, Pitch Valley, Trinidad.
West Indies and Continental Tropical America.

4. *P. leiocarpa* Griseb.

Gr. Fl. 124.

Climber; *stems* angular, pubescent; *lvs.* composed of 2 pairs of leaflets and an odd terminal one; *petiole* and *leaf rhachis* prominently winged, pubescent; *petiole* 3-7.5 cm. long; *lfts.* ovate or ovate-oblong, up to 14 cm. long and 6 cm. broad, with a few blunt or obsolete teeth towards the top, more or less hairy on both sides; *fls.* in spike-like, densely pubescent thyrses shorter than the *petiole*; *sep.* 2-3 mm. long, densely appressed and pubescent outside; *pet.* 5-6 mm. long; *caps.* globose, smooth, pubescent, 15-20 mm. long, 3-valved; *seeds* shining black, about 12 mm. long.

Thickets and moist districts, Trinidad.
Northern South America.

5. *P. tetragona* Aubl.

P. ingifolia Gr. Fl., non Rich. ed. Juss.

Gr. Fl. 124.

Tall *climber*; *lvs.* bipinnate, up to 40 cm. long including the *petiole*; *petiole* up to 14 cm. long, glabrous, not winged, *rhachis*

not winged except sometimes in the upper division; *lfts.* ovate-oblong, the terminal one the largest 9-18 cm. long, sub-entire or with a few deep notches, glabrous; *thyrses* about half as long as the leaves, clustered in the axils; *caps.* 3-winged, 1-1.5 cm. long; *seeds* 3-angled, about 9 mm. long and 6 mm. broad.

Laventille and Maraval, Trinidad.
Guiana.

6. *P. excisa* Radlk.

Mon. Paullinia, 207 (1895).

Climber, glabrescent; *branches* 4-5-ribbed and furrowed; *lvs.* 5-foliolate; *petiole* 3-7 cm. long, puberulent; *rhachis* narrowly winged; *lfts.* shortly oval or subobovate, lower ovate, all shortly obtusely acuminate, remotely obtuse-dentate above the middle, somewhat papery, thinly reticulate, subsessile, 7-10 cm. long, 3.5-5 cm. broad, glabrous above, barbate in the axils of the nerves beneath; *stip.* conspicuous, linear-subulate, 1 cm. long; *infl.* 4-24 cm. long; *fruiting pedi.* 3-4 mm. long; *caps.* red, 2 cm. long including the stipe which is 5 mm. long, 1.5 cm. broad including the wings which are 3-4 mm. broad. *Fls.* not collected.

Not seen. Eggers 5723, valley of R. Bacolet towards Cradley, Nov. 1889. Endemic, Tobago.

7. *P. fuscescens* H.B.K.

P. barbadensis Kuntze, non Jacq.

P. curassavica Gr. non Jacq.

Gr. Fl. 124: Britt. & Wils. Sc. Surv. Porto Rico, 5:524.

Tall *climber*, pubescent or nearly glabrous; *lvs.* mostly bipinnate, 6-15 cm. long, *petioles* wingless, 1.5-4.5 cm. long, *rhachis* narrowly winged; *lfts.* mostly elliptical or ovate, the terminal one largest 2.5-5 cm. long, the margin deeply cut, more or less hairy beneath, bearded in the axils of the nerves; *fls.* in long stalked, densely pubescent *thyrses*; *caps.* obovate, 3-winged, 1-2 cm. long.

Thickets and forest borders in moist districts, Trinidad.
West Indies, Continental Trop. America.

8. *P. dasygonia* Radlk.

Mon. Paullinia 257 (1895).

Climber; *branches* subterete, yellowish-hirtellous especially on the angles; *lvs.* imparipinnate with 3-4 pairs of *lfts.*, lowest pair ternate; *petiole* 1-3 cm. long, puberulent; *rhachis* narrowly winged; *lateral lfts.* elliptic-lanceolate often more or less obovate,

terminal subrhomboid, all obtuse at the apex, rarely subacute, subsessile, remotely serrate-dentate above the middle, revolute, papery-leathery, 2-3 cm. long, 1-1.5 cm. broad, terminal slightly larger, glabrous above, sometimes obscurely barbate in the axils of the nerves beneath, otherwise glabrous; *stip.* minute; *fls.* in sessile or pedunculate puberulent thyrses; *caps.* narrowly 3-winged, finally subtrigonal, shortly obovate-ellipsoid and stipitate, 9-12 mm. long, 7-8 mm. broad, ciliate, otherwise subglabrate.

Fendler 277; Herb. Trin. 1348, St. Ann's; Broadway 6692, Arouca and Herb. Trin. 9070, Dannouse, Trinidad, Guiana.

4. SERJANIA H.B.K.

Shrubs climbing by peduncular or axillary tendrils. *Lvs.* alternate, biternate in the Trinidad spp. *Stip.* none or minute. *Fls.* irregular, polygamous, in axillary racemes or panicles. *Sep.* 5, or sometimes 4, 2 more or less united, imbricate, the outer smaller. *Pet.* 4, each bearing a scale, the scales of the two inferior petals appendaged at the apex. *Disk* with 4 glands, 2 large and 2 small or undeveloped. *Stam.* 8. *Ovary* sessile or shortly stalked; *style* 3-lobed. *Fruit* of 3 samaras, broadly winged below, united in the axis, with indehiscent cells at the apex. *Seeds* with short arils.

Samaras pubescent.....1. *S. paucidentata*,
Samaras glabrous.....2. *S. caracasana*.

1. *S. paucidentata* DC.

Balbac.

Gr. Fl. 123.

Vine, stems angled; *lvs.* biternate, 10-23 cm. long, including the petiole; *lfts.* elliptical, entire, except for 2-4 large notches near the apex, glabrous, the leaf rhachis narrowly winged; *infl.* downy, exceeding the leaves; *fls.* white, about 5 mm. diam.; *sep.* with brownish basal markings; *pet.* obovate, the appendages erect and tipped with yellow, the 2 larger pouched; *fil.* hairy; *samaras* 3-3.5 cm. long, wings sparsely pubescent, the body densely woolly.

Hill-sides and forest borders in wet or moist districts, Trinidad, Broadway, 3508 and 4484, Tobago, Guiana, Brazil.

2. *S. caracasana* Willd. forma *genuina* Radlk.

Mon. Serjania 146.

S. ierensis Britt. Bull. Torr. Bot. Club. 50.52 (1923).*S. paniculata* in Herb. Trin. List, 1908.

Vin; *lvs.* biternate; *lfts.* ovate or ovate-lanceolate, the apex acute or acuminate (or often rounded or obtuse on the lateral segments), narrowed at the base, 2-10 cm. long, 1-4.6 cm. broad, leathery, finely reticulate, barbellate in the axils of the nerves on the lower surface, occasionally feebly pilose on the nerves themselves, otherwise glabrous; *thyrses* pubescent; *outer sep.* glabrescent, inner densely greyish-tomentellous; *samaras* glabrous, 1-3 cm. long, 0.7-2.5 cm. broad, the wing finely reticulate veined.

S. ierensis Britton seems to be a form described from young terminal shoots with small leaflets and fruits. These vines require to be collected and studied from the same locality in all stages of their development.

Dry thickets, Arouca, San Fernando Hill, Pointe-a-Pierre, Oropouche, Palo Seco, Trinidad.

Trop. S. America.

DOUBTFUL SPECIES.

S. lamprophylla Radlk. is recorded from Trinidad by Radlkofer in his Monograph of *Serjania*, p. 234, the specimen cited being one of Lockhart's. As the other localities of this species are Rio de Janeiro and Minas Geraes, it must be presumed that the Trinidad specimen was of garden origin, cf. *Reissekia smilacina*. The specimen is not at Kew.

5. CUPANIA L.

Trees. *Lvs.* alternate, pinnate, with or without an odd leaflet; *lfts.* alternate or opposite, *Stip.* none, *Fls.* small, regular, polygamous-dioecious, in large terminal panicles or paniced racemes. *Sep.* 4 or 5, imbricate, in two series. *Pet.* 5, with one or two scales. *Stam.* 8, sometimes more or less, inserted within the disk; *fil.* short; *anths.* oblong. *Ovary* 3-celled; *ovules* one in each cell, joined to the axis near the base. *Caps.* subglobose or top-shaped, usually 3-angled or 3-lobed, 3-valved. *Seeds* subglobose with arils.

- Lfts.* densely pubescent beneath, capsule
 subglobose, 3-angled 1. *C. americana*.
Lfts. glabrous to thinly pubescent beneath
 caps. top-shaped, 3-lobed 2. *C. rubiginosa*.

1. *C. americana* L.*C. tomentosa* Sw.

Gr. Fl. 125: Urb. Symb. Ant. 8394: Fawc. & Rendl. Fl. Jam. 555: Britt. & Wils. Sc. Surv. Porto Rico, 5527.

Tree up to 20 m., rusty-velvety; *lvs.* 2-4 dm. long, *lfts.* 4-8, obovate, oblong or elliptical-oblong, 7-20 cm. long, 4-9 cm. broad, the apex rounded, the base wedge-shaped or obtuse, slightly toothed, glabrous or nearly so above, densely pubescent beneath, leathery; *fls.* white, about 3 mm. broad; *caps.* depressed, subglobose, bluntly 3-angled, about 1.5 cm. long and 1.5-2 cm. diam., densely rusty-velvety.

In Forests, Trinidad and Tobago.

West Indies and Northern South America.

2. *C. rubiginosa* (Poir.) Radlk.*Robinia rubiginosa* Poir.*Cupania Poirerii* Kunth.

Tree; young *stems* rusty-woolly; *leaf rhachis* rusty-woolly, *lfts.* about 8, obovate or oblong-obovate or elliptical, rounded or acute at the apex, more or less wedge-shaped at the base, up to 16 cm. long and 6 cm. broad, entire or more or less toothed, glabrous above, glabrous to thinly pubescent beneath (in Trinidad specimens); *infl.* rusty-woolly; *fls.* whitish; *sep.* felted, ovate, blunt, 2-3 mm. long; *cor.* 2-3 mm. long; *stam.* 7-10; *style* 3-branched; *caps.* top-shaped, 3-lobed, golden-brown, woolly both within and without, 1.5-2 cm. broad; *seeds* black, almost enveloped in a cup-shaped basal aril, the *aril* membranous, fringed above, at first yellow.

Forest in wet or moist districts, Trinidad.

Montserrat, Guadeloupe, Guiana, Brazil.

6. *MATAYBA* Aubl.

Trees. *Lvs.* alternate to sub-opposite, abruptly pinnate. *Stip.* none. *Fls.* small, regular, polygamous-dioecious, in panicked racemes. *Cal.* small, 4-5-lobed. *Pet.* 4-5, rarely rudimentary, with 2 scales. *Stam.* 7-10; *fil.* shaggy; *anths.* oblong. *Ovary* 2-3-celled; *ovules* one in each cell; *stig.* 2-3-lobed. *Caps.* 1-3-lobed, the lobes subglobose, dehiscent; *seeds* with arils.

Caps. topshaped, lobed, conspicuously stipitate, glabrous within.....

1. *M. arborescens.*

Caps. 3-angled to subglobose, barely stipitate, woolly within.....

2. *M. guianensis.*

1. *M. arborescens* Radlk.

Sapindus arborescens Aubl. Pl. Guiane, 357-358. t. 139.
Ratonia arborescens Griseb. not DC.

Small trees; *lvs.* up to 30 cm. long; *lfts.* usually 4-6, ovate, oblong or elliptical-oblong, the apex abruptly pointed, the base wedge-shaped, entire, glabrous, papery, 6-15 cm. long; 2.5-6 cm. broad; *fls.* in axillary, simple or compound racemes; *disk* glabrous or with scattered hairs; *sep.* obovate, acute, about 1 mm. long, imbricate; *pet.* triangular, rather smaller than the sepals, with long hairs on both sides; *scales* woolly, exceeding the petals; *fil.* about as long as the sepals, pubescent below; *ovary* thickly hairy; *caps.* glabrescent outside, glabrous within, usually with only 1 fertile lobe, the outer 2 abortive, lobes red, oval, 1-2.5 cm. long.

Forests in wet or moist districts, Trinidad.
St. Vincent, Guiana, Brazil.

2. *M. guianensis* Aubl. emend. Radlk.

Small tree; *lvs.* up to 35 cm. long; *lfts.* 2-12, elliptic-lanceolate, oblong-lanceolate, ovate-lanceolate, oblong or sub-linear, the apex acuminate or acute, rarely subobtuse, attenuate or abruptly contracted at the base, entire, glabrous, or pilosulous beneath, papery, 5-15 cm. long, 1.5-5.5 cm. broad; *fls.* in axillary, large or contracted panicles equalling or exceeding the leaves, puberulous or tomentellous; *disk* glabrous; *cal.* 1-2 mm. long, adpressed hairy, lobes rounded; *pet.* 1-2 mm. long, obovate, more or less emarginate at the apex; *scales* reddish-woolly, equalling the petals; *fil.* densely reddish-pubescent at the base; *ovary* whitish-tomentose; *caps.* glabrescent outside, densely tomentose within, 1-2 cm. long.

Broadway 4464, Tobago, fide Urban.
Guiana, Brazil, Peru.

7. *MELICocca* L.

Trees, glabrous. *Lvs.* alternate, abruptly pinnate with 2 to 3 pairs and sub-opposite, sessile, entire, membranous leaflets. *Stip.* none. *Fls.* small, regular, polygamous-dioecious, on elongated, simple or paniculate racemes. *Cal.* deeply 4-5-lobed, the lobes rounded, glabrous, membranous and imbricate. *Pet.* 4 or 5, rounded or obovate; *disk* 4-5-lobed. *Stam.* 8; *fil.* glabrous. *Ovary* 2-3-celled; *ovules* one or two in each cell. *Stig.* 2-3-lobed. *Drupe* one-celled, one-seeded. *Seed* erect, enclosed in a large pulpy aril.

1. *M. bijuga* L. Genip.

Fawc. & Rendl. Fl. Jam. 5-53.

Large tree up to 25 m.; *lfts.* elliptical or ovate-elliptical, the apex usually acute or acuminate, the base wedge-shaped, somewhat unequal-sided, 4-10 cm. long, 2.5-4 cm. broad; *racemes* 6-10 cm. long; *fls.* fragrant, about 5 mm. diam.; *pedi.* about 3 mm. long; *cal.* about 2 mm. long; *pet.* obovate, obtuse, minutely fringed, 3-4 mm. long; *drupe* green, subglobose, 2-4 cm. diam., *pulp* salmon-coloured, gelatinous, edible, subacid.

Naturalized in Trinidad and Tobago.

Cont. Trop. America.

8. *TALISIA* Aubl.

Trees or shrubs. *Lvs.* alternate, abruptly pinnate. *Stip.* none. *Lfts.* oblong, acuminate, leathery. *Fls.* regular, small, polygamous-dioecious with much branched panicles. *Sep.* erect, in 2 series, imbricate. *Pet.* usually 5, imbricate, each with a densely pilose scale about as long as the limb. *Disk* fleshy. *Stam.* 8, glabrous, inserted between the margin of the disk and the ovary. *Ovary* 3-celled, 3-lobed; *ovules* solitary in the cells; *stig.* 3-lobed. *Fruit* indehiscent, ovoid or rounded, pubescent or glabrous.

T. olivaeformis Radlk., the yellow Genip, a medium-sized tree, native of Colombia, is cultivated in the Botanic Gardens.

1. *T. hexaphylla* Vahl.

Cacao Macaque.

Small tree; *lvs.* with 6-8 *lfts.*; *lfts.* oblong-lanceolate or sometimes somewhat obovate-oblong, the apex shortly acuminate or rounded, the base wedge-shaped, 10-20 cm. long, 3-7.5 cm. broad, entire, glabrous on both sides, papery; panicles simple or subsimple, fasciculate, 3-20 cm. long; *sep.* triangular, acute, about 2.5 mm. long; *pet.* and *scale* about 3.5 mm. long; *stam.* 3 mm. long; *fruit* not seen.

Van Rohr: Crueger 211, April 10, 1861 (*lvs.* and few flowers only); Herb. Trin. 10138, Belmont. Endemic, Trinidad.

9. *SAPINDUS* L.

Trees or shrubs. *Lvs.* alternate, abruptly pinnate; *lfts.* entire. *Stip.* none. *Fls.* regular, polygamous, in terminal or axillary racemes or panicles. *Sep.* 4 or 5, in two series, broadly

imbricate. *Pet.* 4 or 5. *Stam.* 8-10; *fil.* hairy; *anths.* versatile. *Ovary* 3-celled; *ovules* one in each cell; *stig.* 2-4-lobed. *Fruit* fleshy, of 1-3 cocci; cocci globose, indehiscent; seeds globose, without arils.

S. trifolius L. = *S. emarginatus* Vahl, an Asiatic tree with hairy fruit is known from cultivated specimens in Trinidad.

1. *S. saponaria* L.

Soap berry. Soap tree.

S. inaequalis DC.

Fawc. & Rendl. Fl. Jam. 5:51-52: Britt. & Wils. Sc. Surv. Porto Rico, 5. 529.

Tree up to 20 m. high; *lvs.* 2-4 dm. long, sometimes pubescent when young, becoming glabrous with age; *petiole* and *rhachis* sometimes narrowly winged; *lfts.* usually 6-10, elliptical, oblong or lanceolate, usually unequal-sided, the apex usually acuminate, base wedge-shaped, up to 21 cm. long and 6.5 cm. broad; panicles about as long as the leaves, many-flowered; *fls.* white, small, 4-6 mm. broad; *sep.* rounded, unequal, 1-2 mm. long, puberulous; *pet.* obovate, rather shorter than the sepals, shaggy, especially within; *stam.* slightly longer than the sepals; cocci globular, 1-2 cm. diam., brown, the pulp translucent; seeds black, 1 cm. diam. The gelatinous-like seed vessel is made use of for washing purposes, hence the name soap berries. The seeds are made into necklaces, rosaries, &c.

St. Clair, St. Anns, St. Joseph, Chaguanas, Trinidad.
West Indies, Trop. and Sub-trop. America.

10. *DODONAEA* L.

Shrubs, viscous. *Lvs.* simple, alternate. *Stip.* none. *Fls.* small, unisexual or polygamous-dioecious, in axillary or terminal racemes, corymbs or panicles. *Sep.* 3-5. *Pet.* none. *Disk* absent in the male flower and small in the female. *Stam.* 5-8; *fil.* short; *anths.* 4-angled. *Ovary* sessile, 3-6-angled, 3-6-celled; *ovules* 2 in each cell. *Caps* membranous or leathery, 2-6-angled, the angles winged, septically 2-6-valved. *Seeds* without arils.

1. *D. viscosa* L.

Slender *shrub*, 1-5 m. high; *lvs.* oblanceolate to oblong-lanceolate, the apex rounded or obtuse and usually apiculate, wedge-shaped at the base, barely petioled, entire, membranous, glabrous, dotted; *fls.* greenish-yellow; *pedi.* slender; *sep.* oblong, 2-3 mm. long; *stam.* shorter than the sepals; *ovary*

2 mm. long; style 3-4 mm. long; caps. 1-2.5 cm. diam. including the wings; wings membranous, surrounding the capsule, not united at the apex and base; seeds subglobose, black, 2.5-3 mm. diam.

Santa Cruz, sea-shore in Southern districts, Trinidad.

General in Tropics.

FAMILY 2. ANACARDIACEAE.

Trees or shrubs, resinous. *Lvs.* alternate, very rarely opposite, simple or compound. *Stip.* none. *Fls.* usually regular, perfect or polygamous-dioecious. *Cal.* 3-7-fid. or parted. *Pet.* 3-7, rarely none. *Disk* usually ring-like. *Stam.* often twice as many as the petals, rarely equal in number, or numerous, inserted at the base of the disk; *fil.* usually free; *anths.* 2-celled, opening longitudinally within. *Ovary* superior, 1-celled, rarely, as in *Spondias* 2-5-celled; *ovules* solitary in the cells; *styles* 1-5. *Fruit* usually a drupe.

Lvs. simple.

Fruit nut-like with a pear-shaped edible stalk.....

1. *Anacardium*.

Fruit a drupe, the stalk not developed.....

2. *Mangifera*.

Lvs. compound.

Stam. 8-10.

Ovary 1-celled.....

3. *Tapirira*.

Ovary 2-5-celled.....

4. *Spondias*.

Stam. 5.....

5. *Astronium*.

1. *ANACARDIUM* Rottb.

Shrubs or trees. *Lvs.* alternate, simple, entire. *Fls.* small, polygamous, in terminal panicles. *Cal.* 5-parted, deciduous, imbricate. *Pet.* 5, linear, recurved, imbricate. *Stam.* 8-10, unequal, all fertile or some barren; *fil.* united at the base. *Ovary* free, sessile, obovate or obcordate; *style* thread-like. *Fruit* leathery, nut-like, indehiscent, borne on an enlarged, pear-shaped, juicy stalk.

1. *A. occidentale* L.

Cashew.

Spreading tree, about 10 m.; *lvs.* obovate to elliptical, rounded at the apex, the base wedge-shaped or obtuse, up to 18 cm. long and 10 cm. broad, leathery, glabrous; *petiole* 1-2 cm. long;

panicles many-flowered, longer than the leaves, pubescent; *cal.* 4-5 mm. long; *pet.* 7-13 mm. long, pinkish; *fruit* nut-like, kidney-shaped, enlarged at the base, about 3 cm. long and 2.5 cm. broad at the base, green, somewhat embedded in the much larger juicy stalk; this false fruit is 10-20 cm. long and 4-8 cm. broad.

The juicy fruit stalk is somewhat astringent but can be eaten either raw or cooked; it is also useful for preserves. Four varieties have been noticed, a large and small yellow and a large and small red. The seeds are excellent when roasted and are marketed as Cashew nuts. During the roasting process an oil is given off which will blister the skin if allowed to come in contact.

Common in dry places, Trinidad and Tobago.

Trop. America.

2. MANGIFERA L.

Trees. *Lvs.* alternate, simple, entire, leathery. *Fls.* polygamous-dioecious, in terminal panicles. *Cal.* 4-5-parted, deciduous, imbricate. *Pet.* 4-5, narrow, imbricate. *Disk* fleshy, 5-lobed, the lobes alternating with the petals. *Stam.* 1-5, unequal, often 1 only fertile which is much larger than the others. *Ovary* free, sessile, 1-celled with 1 ovule; *style* lateral; *stig.* simple. *Drupe* somewhat ellipsoidal or kidney-shaped, fleshy, the seed fibrous.

1. *M. indica* L.

Mango.

Tree 10-20 m. high or more; *lvs.* lanceolate or oblong-lanceolate, narrowed at both ends, glabrous, petiole swollen at the base, about 2-5 cm. long; *panicles* longer than the leaves, puberulous; *fls.* numerous, greenish-yellow or pinkish, fragrant, about 6 mm. diam.; *pet.* about 4 mm. long with 3-5 yellow, fleshy ridges on the lower half; *fertile stam.* about 3 mm. long; *sterile stam.* about 1 mm. long; *drupe* variable in the many varieties, varying in weight from 1 or 2 oz. up to 2 or 3 lb.; *seed* flattened with a varying amount of fibre. The so-called wild mangos are abundant, the fruits of which are mostly rather poor, i.e., with a pronounced turpentine flavour and very stringy; select varieties are propagated by grafting.

Widely naturalized in Trinidad and Tobago.

Trop. Asia. Widely cultivated and naturalized in the tropics.

3. TAPIRIRA Aubl. emend. L. March.

Trees. *Lvs.* alternate, imparipinnate; *lfts.* opposite. *Fls.* small, polygamous-dioecious, in panicles. *Cal.* 5-parted, with persistent imbricate lobes. *Pet.* 5, imbricate, longer than the

calyx lobes. Disk rather broad, sulcate. *Stam.* 10, inserted under the disk, unequal, the shorter opposite the petals. *Ovary* free, sessile, 1-celled; in the male flowers sterile and immersed in the disk, 4-5-angled, with 4-5 styles; styles in the female flowers connate, short and conical. *Ovule* pendulous from the apex. *Drupe* obliquely oblong, or ovoid, fleshy; seed oblong, with thinly membranaceous testa.

1. *T. guianensis* Aubl.

Tree, up to 30 m. and about 2 m. girth; *lfts.* 1-7 pairs, very variable in number and size, oblong or elliptic-oblong, attenuate at both ends, shortly acuminate at the apex, or sometimes obtuse and emarginate, entire, membranaceous to thinly papery, 6-20 cm. long, 3-7 cm. broad; *petiolules* about 5 mm. long, that of the larger terminal leaflet up to 3 cm. long; *male panicles* axillary and terminal, usually very large; *pedi.* pubescent, bibracteolate, up to 2 mm. long; *female panicles* much smaller, usually in the axils of small leaves; *cal.* lobes about 0.75 mm. long and broad, glabrous or pubescent; *pet.* ovate, yellowish-white, 1.5-2.5 mm. long, spreading and reflexed in the male flowers; *longer stamens* in the male flowers 2-3 mm. long; *ovary* pilose or glabrescent; *drupe* ovoid, slightly oblique, laterally subcompressed, glabrous, 7.5 mm. long, 6 mm. diam.

In forests at Valencia, Nov., 1883; Eggers 1409 (Herb. Kew.)
Herb. Trin. 12204, Marshall, June, 1929, Central Range Reserve;
Herb. Trin. 12265, Marshall, Oct., 1929, Toco Road, Trinidad.

Tropical South America.

4. *SPONDIAS* L.

Trees. *Lvs.* alternate, pinnate with an odd leaflet; *lfts.* opposite, usually long-acuminate. *Fls.* small, polygamous, in terminal or axillary panicles or racemes. *Cal.* small, deciduous, 4-5-lobed, lobes slightly imbricate. *Pet.* 4 or 5, narrow, sub-valvate. *Disk* cup-shaped, crenate. *Stam.* 8-10. *Ovary* sessile, free, 2-5-celled; *vules* solitary in the cells, pendulous; *styles* 3-5. *Drupe* fleshy, 1-5-celled, the *putamen* bony or woody.

The golden apple, *Spondias cytherea* Sonner., native of Oceania, is commonly grown for its subacid fruits which are often about 10 cm. long.

Infl. terminal; fls. greenish-yellow.....1. *S. Monbin.*

Infl. lateral; fls. reddish.....2. *S. purpurea.*

1. *S. Monbin* L.*S. lutea* L.

Fawc. & Rendl. Fl. Jam. 5.15

Tree up to 20 m.; *lvs.* 2-3 dm. long, *lfts.* 9-19, ovate to ovate-lanceolate or oblong-lanceolate, acuminate at the apex, rounded at the base, unequal-sided, 5-15 cm. long, 2.5-6 cm. broad, entire, membranous, glabrous, shortly stalked; *panicles* terminal, about as long as the leaves; *cal.* minute, about 0.5 mm. long, lobes triangular; *pet.* greenish-yellow, oblong, about 3 mm. long; *drupe* yellow, ovoid, 3-4 cm. long, *endocarp* thick and woody, the *exocarp* yellow, fleshy.

Hillsides and Forests, Trinidad and Tobago.

Tropics.

2. *S. purpurea* L.

Jamaica Plum.

Fawc. & Rendl. Fl. Jam. 5.16.

Tree about 3-10 m., the bark warty, roughened; *lvs.* about 1.5 dm. long, glabrous; *lfts.* about 9-19 or sometimes more, obovate or oblong-elliptical, acute at the apex, the base wedge-shaped, 1.5-4 cm. long, 1-2 cm. broad, unequal-sided, minutely toothed in the upper part, membranous, glabrous; *panicles* lateral, minutely puberulous; *fls.* bright red; *cal.* segments minute, obtuse; *pet.* oblong, acuminate, about 3 mm. long; *drupe* ovoid or ovoid-oblong, purple, about 2.5 cm. long, the *pulp* yellow.

There is a yellow-fruited form in cultivation.

Naturalized in Trinidad and Tobago.

West Indies, Cont. Trop. America.

5. *ASTRONIUM* Jacq.

Trees. *Lvs.* pinnate, with an odd terminal leaflet. *Fls.* perfect, polygamous or dioecious, small, numerous, in axillary and terminal panicles. *Cal.* 5-parted, the lobes increasing on the fruit. *Pet.* 5, orbiculate, imbricate, in the female flowers sometimes scale-like. *Disk* ring-like, 5-lobed, *Stam.* 5, inserted at the base of the disk. *Ovary* 1-celled, free, sessile; *ovule* pendulous; *styles* 3, short. *Fruit* oblong, rounded, beaked, leathery. *Seed* oblong.

1. *A. obliquum* Griseb.

Yoke.

Gr. Fl. 176.

Lfts. 7-9, ovate-lanceolate, acute or acuminate at the apex, unequal sided at the somewhat rounded base, 2.5-7.5 cm. long, 2-3 cm. broad, entire, somewhat leathery, glabrous; *panicles* 7-17 cm. long, glabrous; *cal.* about 7 mm. long, lobes oblong, increasing in size on the fruit and somewhat scarious; *pet.* somewhat shorter than the calyx, imbricate; *stam.* half as long as the petals; *ovary* oblong, exceeding the stamens; *fruit* immature, 7 mm. long.

Crueger 289, no locality: Purdie, in northern mountain woods, ex Griseb.; Britt. & Hazen 1706, Scotland Bay. Endemic, Trinidad.