

## CLITORIA (LEGUMINOSAE) ANTILLARUM

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Fantz, Paul R. (Department of Horticultural Science, North Carolina State University, Box 7609, Raleigh, NC 27695-7609). *Clitoria* (Leguminosae) Antillae. *Moscoso* 6: 152-166. 1990.- A key and taxonomic treatment is provided for the eight species of *Clitoria* known from the Antilles. *Clitoria arborescens* and *C. javitensis* are cultivated lianas and *C. dendrina* and *C. fairchildiana* are cultivated trees of subg. *Bractearia*. *Clitoria ternatea* is a cultivated and naturalized African introduction of subg. *Clitoria*. *Clitoria falcata*, *C. guianensis* and *C. laurifolia* are native members of subg. *Neurocarpum*. New combinations include *C. falcata* var. *falcata* f. *heteromorpha*, *C. falcata* var. *glabrescens*, *C. laurifolia* f. *glabrior* and *C. ternatea* var. *ternatea* f. *albiflora*. New taxa include *C. guianensis* f. *imperfecta* and *C. ternatea* var. *pleniflora*.

El género *Clitoria* (leguminosae-Papilionoideae) en el Caribe. Se presentan una clave y las descripciones de las ocho (8) especies nativas e introducidas en las islas caribeñas.

*Clitoria* L. (Leguminosae) comprises 60 species distributed primarily within the tropical-subtropical belt worldwide. Most species are native to the Neotropics with four native to Africa, six to Southeast Asia, and one to Australia. The genus is characterized by its showy, resupinate, papilionaceous flowers, infundibular calyx with persistent bracteoles at the base, persistent stipules and stipels, and stalked ovaries with a geniculate, bearded style. *Clitoria* often is cited as herbaceous, but it is a woody genus consisting of trees, shrubs, lianas, and suffrutescent herbs bearing annual aerial stems, prostrate, erect or climbing, from subterranean xylopodia. Members are cultivated for their showy flowers and for their reported medicinal and economic properties (Lindley 1938; Morton 1981; Uphof 1968).

*Clitoria* in the Antilles includes eight species, no endemics, yet has members of all three subgenera as defined by Fantz (1979, 1988). These are *C. arborescens* R. Brown, *C. dendrina* Pitt., *C. fairchildiana* Howard and *C. javitensis* (H. B. K.) Benth of subg. *Bractearia* (Mart. ex Benth.) Fantz (Fantz 1979), *C. ternatea* of subg. *Clitoria* and *C. falcata* Lam., *C. guianensis* (Aubl.) Benth. and *C. laurifolia* Poir. of subg. *Neurocarpum* (Desv.) Baker. The latter four species have been included as native or naturalized in floras either under the correct name or a synonym (Adams, 1972; Barker & Dardeau, 1930; Britton 1924; D'Arcy, 1967; Duss, 1897; Fawcett & Rendle, 1920; Gooding et al., 1965; Grisebach, 1864; Grisebach, 1866; Leon, 1951; Liogier, 1965; Moscoso, 1943; Stahle, 1936; Stehle, 1937; Stehle, Stehle & Quentin, 1948). Duss (1897), Stahl (1936) and Stehle, Stehle & Quentin (1948) have reported *C. arborescens* as cultivated in the botanical gardens of Martinique and St. Vincent, but it is not native to Puerto Rico as reported by Stahl (1936).

Sub. *Bractearia* includes neotropical trees, shrubs and lianas. Members are characterized by large, flat, ecostate, long-stipitate fruits, large, smooth, lenticular seeds, striated calyces, nodose inflorescences, and elongate ovaries, staminal sheaths and petiolules. Members of subg. *Bractearia* are rare in the Antilles, found only in cultivation.

Subg. *Clitoria* comprises four endemics and one widespread native of the paleotropics. Members are characterized by small, flat, ecostate, sessile fruits, small, smooth, reniform seeds, 10-veined calyces which shrink in size in fruit, and 5-11-foliolate leaves, rarely 3-1-foliolate. One member in the Antilles of subg. *Clitoria* is a vine commonly cultivated and naturalized.

Subg. *Neurocarpum* includes shrubs to suffrutescent herbs of tropic to temperate regions. Members are characterized by small, convex, costate or ecostate, stipitate fruits, 10-nerved calyces, small viscid seeds, and cleistogamy. The three members naturalized in the Antilles of subg. *Neurocarpum* originated in Brazil, but are now widely distributed in the neotropics, possibly spread by their viscid seeds. These are the only three species of the subgenus to exhibit costate fruits as well as fruits with costa lacking or imperfectly formed.

### Taxonomic Treatment

CLITORIA L., Sp. Pl. ed. 1, 2:753. 1753. *Ternatea* Tourn. ex Mill., Gard. Dict. ed. 4, 3:TERNATEA. 1754. *Neurocarpum* Desv., Journ. Bot. 1:119. 1813. *Martusia* Schultes, Mant. 1:69. 1822.

Trees, shrubs, subshrubs to perennial suffrutescent herbs and vines. LEAVES alternate, odd-pinnately compound, petiolate to sessile; stipules and stipels persistent, striate; petiolules subquadrate. INFLORESCENCES axillary, terminal or cauliferous, bearing chasmogamous or infrequently cleistogamous flowers, multiflowered to uniflowered; pedicels paired at nodes. Bracts striated, in three series below pedicels. Bracteoles paired at base of calyx, persistent, striated, usually appressed to calyx. CHASMOGAMOUS FLOWERS resupinate, papilionaceous, showy. Calyx infundibular, persistent in fruit, 5-lobed, upper two lobes subconnate, lowermost narrower, often longer, Vexillum complicate, emarginate, clawed, spurless, veins dark-pigmented, converging in throat. Wings extending beyond the keel, both clawed. Staminal sheath enclosing gynoeceum, abruptly incurved apically; free filaments short, vexillary filament subconnate basally. Gynoeceum stipitate; ovary pubescent; style apically geniculate, longitudinally bearded. CLEISTOGAMOUS FLOWERS uncommon, inconspicuous unless with fruit, petals usually lacking. Calyx infundibular, small, persistent in fruit, bracteolate, 5-lobed. Gynoeceum similar to chasmogamous flowers, but with style abruptly bent back towards base and in contact with anthers. LEGUME stipitate, linear, straight to subfalcate; valves flat or convex, thickened at sutures, weak to strongly depressed between seeds, ecostate or costate, spirally twisting upon dehiscence. Seeds dark brown to black, smooth or viscid.

Members of *Clitoria* often are misidentified and assigned to the genus *Centrosema* DC. These genera often are segregated based upon the pubescence of the style, a character easily misinterpreted. Members of *Centrosema* can be distinguished easily by their campanulate calyx, spurred to gibbous vexillum, broad U-shaped style and staminal sheath, auricled wings and fruits bearing two costa per valve, one near each suture. Costate fruits of *Clitoria* bear only one medial rib per valve.

Cleistogamy occurs only in members of sub. *Neurocarpum*. Petals in cleistogamous flowers are lacking or they are remnants are ca 1 mm long and hidden inside the calyx. Collections of fruiting specimens in the Antilles exhibit fruits usually borne from cleistogamous flowers.

## Key to Taxa of Clitoria

1. Suffrutescent herbs or vines; calyx 10-veined; petiolules 1-3 mm long; inflorescences 1-6 flowered; staminal sheaths 1-2.3 cm long; fruits 3.5-7 cm long, 0.7-1.1 cm wide; stipe 0.1-1.4 cm long; common.
  2. Leaves 5-7-foliolate; inflorescence 0.5-1.5 cm long; fruit subsessile, flat, ecostate; seeds smooth; cleistogamy absent (subg. CLITORIA) vine, cult. or naturalized in the Caribbean ..... *C. ternatea*
  2. Leaflets 3-foliolate; inflorescence 2-15 cm long; fruit stipitate, convex around seeds, costate or rarely costa incomplete to lacking; seeds viscid; cleistogamy present ..... subg. NEUROCARPUM
    3. Vines, leaves petiolate; flowers white fading dull yellow; staminal sheath 2-3 cm long; lobes of cleistogamous calyx 4-7 mm long ..... *C. falcata*
    3. Suffrutescent, erect herb to subshrub; flowers lilac to pale purplish; staminal sheath 3-3.5 cm long; lobes of cleistogamous calyx 2-4 mm long.
      4. Calyx tube 11-16 mm long, lobes 6-9 mm long; bracteoles 6-9 mm long; flowers 4-5.5 cm long; wings extend beyond keel 5-8 mm; style 19-23 mm; leaves pubescent below; stipe 9-11 mm long ..... *C. laurifolia*
      4. Calyx tube 16-22 mm long, lobes 9-15 mm long; bracteoles 8-14 mm long; flowers 5.5-7 cm long; wings extend beyond keel 7-12 mm; style 24-30 mm long; leaves glabrate below; stipe 11-14 mm long ..... *C. guianensis*
1. Trees or lianas; calyx striate; petiolules 5-10 mm long; inflorescences multiflowered; staminal sheaths 2.5-4 cm long; fruits 15-28 cm long, 1.5-3.3 cm wide; stipe 1.5-3.5 cm long; rare (cult)..... subg. BRACTEARIA
  5. Flowers 3-4 mm long; bracteoles 1.5-3 mm long; calyx tube 7-11 mm long, lobes 2-3 mm long; staminal sheath 16-22 mm long tree ..... *C. dendrin*
  5. Flowers 4-8 mm long; bracteoles 4-23 mm long; calyx tube 11-24 mm long, lobes 4-8 mm long; staminal sheath 25-49 mm long.
    6. Tree; bracteoles hiding calyx, 17-23 mm long, 7-11 mm wide ..... *C. fairchildiana*
    6. Liana; bracteoles not hiding calyx, 4-15 mm long, 2-3 mm wide.
      7. Flowers 4-6 cm long; bracteoles 10-15 mm long; calyx tube 12-17 mm long; staminal sheath 28-35 mm long; stipe 14-20 mm long..... *C. arborescens*
      7. Flowers 6-8 cm long; bracteoles 4-6 mm long; calyx tube 17-24 mm long; staminal sheath 34-49 mm long; stipe 24-37 mm long..... *C. javitensis*

CLITORIA ARBORESCENS R. Brown, in Ait. Hort. Kew., ed. 2. 4:302. 1814; *C. arborescens* Ait, l. c.; *Ternatea arborescens* (Ait.) Kuntze, Rev. Gen. Pl. 1:210. 1891. LECTOTYPE: Cult. from Trinidad, 1804, *Vere s.n.* (BM!).

*Clitoria poiteai* DC., Prod. 2:234. 1825; *C. poiteau* of auth., not DC.; *Clitoria poiteai* Benth., Ann. Wein. Mus. Natur. 2:155. 1837; *Clitoria poiteai* Dec., Steudel, Nom. Bot. ed.2, 1:386. 1841. LECTOTYPE Guyana. Cayenne, Jul 1824, *Poiteau s.n.*, Hb. Gay (K!). ISOLECTOTYPE: GH!

*Clitoria amoena* Miq., Nat. Verh. Holl. Mat. Wet. Haarl. 7:24. 1851. LECTOTYPE [SURI-NAM] ad fl. Marowynne infer, Jul 1846, *Kappler 1933* (U 37642A!). ISOLECTOTYPES: G! M 14681! S! W 88619!

Scandent scrub, typically tall climbing liana. Leaves 3-foliolate, tomentose below, leaflets elliptic to obovate to suborbicular, 8-15 cm long, 3-9 cm wide. Petioles 4-15 cm. Inflores-

cences axillary or cauliflorous, multiflowered, to 20 cm long. Bracts 5-9 mm. Bracteoles 10-15 mm long, nearly subequal calyx tube length, 2-3 mm wide. Flowers 4-5.5 cm, bluish to violet. Calyx tube 12-17 mm long, lobes 5-8 mm. Wings extend beyond keel 5-8 mm. Staminal sheath 28-35 mm. Style 16-19 mm long, geniculate 5-7 mm apically. Legume flat, ecostate, uncinately pubescent with scattered hairs, valves 16-23 cm long, 1.8-2.6 cm wide; stipe 14-20 mm. Seeds smooth, lenticular, 7-11 per pod, ca 10-13 mm diam.

Flowering commonly July to December. Open forested areas and river forests at 65-420 m in northern South America from French Guiana to eastern Venezuela. The name was used historically for any liana species, but it is not found in Panama and Central America as reported in literature (Fantz 1981). Not in Puerto Rico as reported by Stahl (1936), a misidentification for *C. laurifolia* Poir. Known in Antilles only from cultivation.

WINDWARD ISLANDS. ST. VINCENT: 1818, *Caley s.n.* (CGE, NY, W).

CLITORIA DENDRINA Pitt., Contr. Nat. Herb. 20(3):126. 1918. HOLOTYPE: Venezuela.

Aragua: La Trinidad de Maracay, 440 m, Jan-Feb 1913, Pittier 5773 (US 601479!); ISOTYPES: G! NY! US 601480! VEN!

Tree. Leaves 3-foliolate, leaflet broad ovate to rhomboid-ovate to orbicular, obtuse to abruptly short-acuminate, velutinous below thinning with age, 10-20 cm long, 8-20 cm wide. Petioles 8-16 cm long. Inflorescence 1-3 cm, cauliflorous from denuded nodes. Bracts 2-3 mm. Bracteoles minute, ovate to suborbicular, 1.5-3 mm long. Flowers 3-4 cm, dull purple. Calyx tube 7-11 mm long, lobes 2-3 mm long. Wings extend beyond carina 4-6 mm. Staminal sheath 16-22 mm. Style 10-16 mm, geniculate 5-6 mm apically. Legume flat, 16-20 cm long, 1.7-2.4 cm wide, rufo-short-velutinous; stipe 24-34 mm long. Seeds lenticular, smooth, 6-8 per pod, 8-11 mm diam.

Flowering occurs from late November to March. Dry forests of Venezuela and Colombia at 50-900 m. Known in the Antilles only from cultivation.

WEST INDIES. cult., 1786-91, *Rohr 62* (BM).

CLITORIA FAIRCHILDIANA Howard, *Baileya* 15:16. 1967; *Neurocarpum racemosum*

Pohl, *nom. in sched.*; *Clitoria racemosa* Pohl ex Benth., Ann. Wein. Mus. Natur. 2:115. 1837, *non* G. Don (1832), *nec* Sesse & Mocino (1889). LECTOTYPE: Brazil, Natividade. Pohl 2375 (W-Photo at MO! US!); ISOLECTOTYPES: F! K-photo at S! M! NY!

Tree; branches arching virgate, drooping to touch ground. Leaves 3-foliolate, leaflets lance-elliptic to oblong-elliptic, acuminate, minute appressed-pubescent below, 6-20 cm long, 3-7 cm wide. Petioles 3-7 cm. Inflorescence axillary or terminal, multiflowered, to 42 cm long. Bracts 6-10 mm, becoming reflexed. Bracteoles oblong, subequal and enclosing calyx, 17-23 mm long, 7-11 mm wide. Flowers 4-6 cm, violaceous to rose. Calyx hidden, tube 11-16 mm long, lobes 4-6 mm. Wings extend beyond carina 5-7 mm. Staminal sheath 25-32 mm long. Style 12-16 mm, geniculate 5-8 mm apically. Legume flat, glabrate, 15-28 cm long, 2.2-3.3 cm wide; stipe 13-22 mm long. Seeds lenticular, smooth, 5-12 per pod, 11-17 mm diam.

Commonly cultivated for the pendulous, terminal inflorescences with many large, showy flowers that bloom from August to February. Endemic to the delta area of NE Brazil (Amapa, Para), cultivated elsewhere, especially in the vicinity of Rio de Janeiro. Fruits are

not vouchered outside of the endemic area.

DOMINICAN REPUBLIC. cult., Estancia Nueva, Moca, *Jimenez 5834* (NY, US).

CLITORIA FALCATA Lam., Encyc. Meth. Bot. 2:51. 1786. *Neurocarpum falcatum* (Lam.) DC., Prod. 2:236. 1825. TYPE: dans les bois, Saint-Domingue (P-Hb. Juss.).

*Clitoria rubiginosa* Vent. ex Pers., Syn Pl. 2:303. 1807; *Clitoria rubiginosa* Juss. ex Pers., l.c.; *Ternatea rubiginosa* (Juss. ex Pers.) Kuntze, Rev. Gen. Pl. 1:210. 1891. TYPE: ad St. Domingo (P-Hb. Juss.)

*Martia physodes* Leandr.-Sac., Denkschr. Akad. Muench. 7:238, t. 12 1821; *Martusia physalodes* Schult., Mant. 1:226. 1822. LECTOTYPE: Brasil prope Rio de Janeiro, *Leandro de Sacramento s.n.* (M 12429!).

*Clitoria glycinoides* DC., Prod. 2:234. 1825. TYPE: Guiana Gallica, Feb. 1824, *Poiteau s.n.* (G-Hb. Deless.). ISOTYPE: K!-photos at S! US!

*Clitoria tetragona* Poir. ex DC., l.c. 2:236; pro syn. SYNTYPES: St. Domingue, 1822, *Poiteau s. n.* (P!) and 1823 (BM!).

Herbaceous vine, aerial stems annually from subterranean xylopodium, apex densely pilose-hirsute, trichomes rufus, becomin thinned to glabrate and less reddish to grayish with age. Leaves 3-foliolate, leaflets oblong to ovate-oblong to elliptic-oblong to ovate to elliptic, broadly acute to obtuse, retuse, densely pubescent below to glabrescent. Petioles 2-6 cm, shorter than inflorescence. Inflorescences axillary, 2-6-flowered, to 20 cm long. Bracts 3-5 mm. Bracteoles 7-12 mm. Chasmogamous flowers 3.5-5.5 cm, white fading dull yellow, venation reddish-purple. Calyx tube 10-20 mm, lobes 9-15 mm, long-acuminate. Wings extend beyond keel 5-8 mm. Staminal sheath 20-30 mm. Style 14-19 mm, geniculate 5-8 mm apically. Cleistogamous flowers with bracteoles 4-7 mm; calyx tube 5-7 mm, lobes 4-7 mm; style 3-4 mm. Legume convex, linear to subfalcate, costate or rarely ecostate, 3.5-6 cm long, 0.7-1.1 cm wide; stipe 7-11 mm. Seeds globose, viscid, 4-9 per pod, 4-5 mm diam.

Chasmogamous flowers have been collected in nearly every month, but are commonly vouchered from August to December with fruits borne from the cleistogamous flowers all year. Pine-oak forests, savannas and grasslands at 0-1200 m, México to Peru to Brazil, West Indies, introduced & naturalized in West Africa.

#### Varieties and Forms of *C. falcata*

1. Calyx conspicuously pilose-hirsute and inconspicuously uncinatate legume costate (rarely with imperfectly formed costa); leaflets densely pubescent below; juvenile portion of stem rufo-pubescent.....*var. falcata*  
     . Legume with prominently raised costa extending the length of the valves; common.....*f. falcata*
2. Legume with medial costa imperfectly formed, extending one-third to two-thirds the length of the valve, or ecostate; infrequent.....*f. heteromorpha*
- . Calyx glabrate with inconspicuous uncinatate-pubescent; legume ecostate; leaflets glabrescent to glabrous below; juvenile portion of stem glabrescent to glabrate; rare.....*var. glabrescens*

*var. falcata f. falcata*

Stem with upper portion conspicuously pubescent, trichomess dense, erect, rufus. Leaves conspicuously pubescent below. Calyx moderately to densely pilose. Legume with

medial costa prominently raised, extending nearly the entire length of the valve. Common in Antilles in savannas, waste areas and open areas of forest at 0-1100 m.

CUBA. vic Madruga, *Britton et al.* 627 (NY); Couselaciou del Sur, *Hermann s.n.* (US); *Linden* 2072 (BM, CGE, NY, W); *Poeppig s.n.* (W); Sumidero, 1823, *Poeppig s.n.* (BM, NY, W); *Wright* 234 (S); San Juan de Buenbouk, *Wright* 2330 (BM, G, GH). ISLA DE PINOS: Nueva Gerona, Jan 1904, *Curtiss s.n.* (NY) and May 1904, *Curtiss* 487 (BM, E, F, G, GH, M, MO, NY, PR); between Mal Pais & La Ceiba, *Ekman* 11902 (G, S); Respiro Springs, Río Santa Fe, *Killip* 45022 (US); Nueva Gerona, *Killip* 45043 (US); between Santa Barbara & Mina de Oro, *Killip* 45376 (US); nr Managua, *Palmer & Riley* 1087 (US). MATANZAS: Lacret, *Alain* 4112 (GH); E of Mantanzas, *Britton* 434 (NY). ORIENTE: nr Río Piedra, Sierra de Nipe, *Ekman* 1826 (S) and 9824 (S); Sabana Miranda nr Bayate, *Ekman* 1936 (S) and 2807 (S); Veguita, Baracoa, *Leon* 17410 (GH); Tabajo, El Yunque, *Shafer* 7719 (GH, NY, U). PINAR DEL RIO: Tres Marias, Rangel, 1946, *Alain* 557 (GH); vic. Herradura, 1910, *Britton et al.* 6359 (NY); vic. San Diego de los Banos, 1914, *Leon* 4652 (NY). SANTA CLARA: Laguna, *Britton & Wilson* 290 (NY); Cieneguita, *Combs* 103 (F, GH, MO, NY, US); Trinidad Mts, San Blas, 1941, *Howard* 5267 (GH); San Blas, *Jack* 8026 (A, S, US); nr Mordazo, *Leon & Cazauas* 5978 (NY); Blanco Mts, Gavilauquito, *Leon & Roca* 8051 (NY). DOMINICAN REPUBLIC. SANTO DOMINGO: Sabana de Santa Rosa, Duarte Hwy Km 28 toward Haina R., *Allard* 16008 (US) and 16019 (US); Cordillera Central nr La Cumbre, *Ekman* H11434 (S); Llano Costero, Cuenca, La Ceiba, *Ekman* H13343 (G, GH, NY, S); St. Dominique, 1822, *Poiteau s.n.* (P) and 1823, s.n. (BM); S. Dom., *Richard s.n.* (P). EL SEYBO: Guarabo, SE Jovero, *Abbott* 2774 (G, GH, US) and 2819 (US). LA VEGA: Hotel Montaña, *Ariza Julia & Jimenez* 3144 (US). HAITI. Massif de la Selle between Decayette & Dufrene, *Ekman* H2048 (S); Marmelade, *Nash* 717 (NY). JAMAICA. nr Port Antonio, *Fredholm* 3200 (NY, US); rd to Dolphin Peak, *Harris* 9261 (BM, NY); *Wright s.n.* (BM). CLARENDON: Kellits, *Harris* 11153 (BM, NY); between Rockford & Brae Head, *Proctor* 33473 (F). OXFORD. Bauks, *Britton* 688 (NY); nr Troy, *Harris* 9429 (F, NY). ST. DAVID: *Long & Norstog s.n.* (USF). ST. THOMAS: Guys Hill, *McNab s.n.* (E) and 1844 (E, S) PUERTO RICO: Colonia, San Miguel, *Britton & Shafer* 1621 (NY, US); Dorado, *Britton et al.* 6662 (F, NY); vic Martín Peña, *Britton & Britton* 7115 (NY); Los Lameyes, *Eggers* 1351 (US); Monacillo, *Goll* 299 (US); Caguas, *Goll* 373 (NY, US); ca 2 km<sup>1</sup> NE Manati, *Hansen et al* 9025 (MO); Río Piedras, *Johnston* 31 (NY); Luquillo Mts, *Liogier* 10284 (DUKE, F, NY, S, US, VEN); Hato Tejas, *Liogier* 10689 (GH, NY, US); Mayagüez, *Sintenis* 74 (G, GH, M, S, US); Aguada, *Sintenis* 5737 (US); Río Piedras, *Stevenson* 249 (MIN) and 463 (US); Naguabo Playa, *Wagner* 1077 (A, BM, DUKE, MO, U, WIS); Ceiba, *Wagner* 1777 (A, DUKE, U). GUADELOUPE: *Forsstrom s.n.* (S); *Questel* 5086 (P). MARTINIQUE: nr Macomba, *Duss* 1075 (NY); *Richard s.n.* (P).

var. *falcata* f. *heteromorpha* (Griseb.) Fantz, *comb. nov.*

*Clitoria glycinoides* DC f. *heteromorpha* Griesb., Cat. Pl. Cuba 74.1866. LECTOTYPE:

Cuba. 1860-64, *Wright* 2331 (G!), ISOLECTOTYPES: BM! GH! S! W!

*Clitoria glycinoides* DC. var. *ecostata* Urb., in *Duss*, Fl. Ph. Ant. Fr. 208. 1897; *nom nud.*

*Clitoria rubiginosa* Juss. ex Pers. var. *ecostata* (Urb.) Stehle, Bull. Agr. Mart. 4(3-4): 259. 1937; *nom. nud.*

*Clitoria rubiginosa* Juss ex Pers. var. *ecostata* (Urb.) Stehle, in Stehle, Stehle & Quentin,

Fl. Guad. & Dep. 107. 1948; *nom. nud.*

Stem with upper portion conspicuously pubescent, trichomes dense, erect, rufus. Leaves conspicuously pubescent below. Calyx moderately to densely pilose. Legume with imperfectly formed medial costa extending about one-third to two-thirds the length of the valve, rarely ecostate, rarely extending nearly the length of the valve with costa weakly raised apically. Infrequent, known from Antilles and one collection each in Guatemala, Honduras and Venezuela.

CUBA. HABANA: La Jata, Guanabacoa, *Leon 4562* (GH). ISLA DE PINOS: San Pedro, *Britton & Wilson 14557* (NY); rd to San Francisco de las Piedras, *Killip 44588* (US) and *44885* (US), between Mckinley & Santa Barbara, *Killip 45781* (US). PINAR DEL RIO: nr Cajabana, *Alain 1180* (GH). DOMINICAN REPUBLIC. Nigua, *Farris 597* (GH, US). PUERTO RICO. Santurce, vic San Juan, *Britton & Cowell 1468* (F, NY, US); Hato Tejas, *Liogier 10689* (GH, NY, US). WINDWARD ISLANDS. MARTINIQUE: entre Balthagen et Harne Cauvin, *Stehle & Stehle 5076* (US).

var. *glabrescens* (Verdc.) Fantz, *comb. nov.*

*Clitoria rubiginosa* Juss. ex Pers. var. *glabrescens* Verdc., *Kew Bull.* 24(2): 253. 1970.

HOLOTYPE: Tobago. In coconut plantations, Bacolet, 13 Oct 1937, *Sandwith 1753* (K!).

Stem with upper portion glabrescent, trichomes scattered, erect, whitish. Leaves glabrescent, thinly pubescent below. Calyx tube uncinatate pubescent with sparse, scattered, spreading trichomes. Legumes ecostate. Variety of West Africa introduced into Zanzibar, Tanzania, and collected rarely in the neotropics, probably introduced into Antilles.

GUADELOUPE. Lamentin, 1893, *Duss 3233* (NY). MARTINIQUE. Richard s.n. (P); Morne Balata, *Stehle & Stehle 4824* (US).

CLITORIA GUIANENSIS (Aubl.) Benth., *Journ. Linn. Soc.* 2:40. 1858; *Crotalaria guianensis* Aubl., *Hist. Pl. Fr. Guian.* 761, t. 305. 1775; *Clitoria guyanensis* Benth., In *Mart. & Eichler Flor. Bras.* 15(1):121.1862; *Tematea guianensis* (Aubl.) Kuntze. *Rev. Gen. Pl.* 1:210. 1891. TYPE: French Guyana. Pratis Courour [= Kouron Savanna], *Aublet s.n.* (P). Isotype: BM!

Suffrutescent perennial herb to subshrub, 10-60 m tall; stems erect to ascending, unbranched. Leaves 3-foliolate, subsessile, leaflets elongate, oblong-lanceolate to oblong-linear, glaucescent below. Petioles to 1 cm long. Inflorescence axillary, to 8 cm long, typically biflowered. Bracts 4-9 mm. Bracteoles 8-14 mm long. Chasmogamous flowers bluish to lavender with purplish-pink veins, 5.5-7 cm long. Calyx tube 16-22 mm long, lobes 9-15 mm long. Wings extend beyond carina 7-12 mm. Staminal sheath 31-40 mm long. Style 24-30 mm. geniculate 6-9 mm apically. Cleistogamous flowers with bracteoles 3-7 mm long, calyx tube 4-8 mm, lobes 3-4 mm, style 5-6 mm. Legumes 3.5-5.5 cm long. valves convex, costate or rarely ecostate; stipe 11-14 mm. Seeds subglobose, viscid, 5-10 per pod, 3-5 mm diam.

Savannas and grasslands at 100-1200 m, Mexico to Colombia to Brazil, and western Cuba. Only members of the typical variety are found outside of Brazil. Flowering from October to June, vouchered fruits from cleistogamous flowers. Common in western Cuba (n.v. papo de la reina). Reported collections of *C. guianensis* elsewhere in the Antilles usually are confused with *C. laurifolia*.

Forms of *C. guianensis*

1. Legumes costate, costa prominently raised, extending the entire length of the valve; common.....f. *guianensis*  
 1. Legumes ecostate or with costa imperfectly formed, weakly raised, extending one-quarter to three-quarters of the length of the valve; infrequent.....f. *imperfecta*

var *guianensis* f. *guianensis*

Legumes 3.5-5.5 cm long, costate, medial rib prominently raised and extending the entire length of the valve.

CUBA: 1860-64, *Wright 2328* (MO, not G, GH). ISLA DE PINOS: *Blain 29* (F); San Pedro, *Britton et al. 14306* (F, GH, MO, NY); *Curtiss 488* (BM, E, F, G, GH, M, MO, NY, PR); Nueva Gerona, *Ekman 11665* (S); nr McKinley, *Jennings 298* (BM, GH, NY, USF, US); hwy from Nueva Gerona to Santa Fe, *Killip 41297* (US); Los Indios, *Killip 42822* (US); Howard Estate, Río Callejon, *Killip 43818* (US); between Santa Barbara & Mina de Oro, *Killip 43865* (US); Santa Rosalia, *Killip 45689* (US); Santa Isabel, *Leon & Vactorin 18889* (US); nr Nueva Gerona, *Palmer & Riley 873* (US); nr Managua, *Palmer & Riley 1090* (US); Managua, *Palmer & Riley 1097* (US); between Nueva Gerona & McKinley; *Victorin & Victorin 18779* (GH). PINAR DEL RIO: *Britton et al. 7099* (NY); Río Guao, *Britton et al 10120* (NY); Arroyo Montua Damuji, *Ekman 11056* (NY, S); *Palmer & Riley 455* (US); Laguna Jovero, *Shafer 10716* (F, NY); W of Guane, *Shafer 10429* (F, MO, NY, US).

var. *guianensis* f. *imperfecta* Fantz, f. nov.

*Forma nova* Clitoria guianensis var. guianensis optimo distinguitur a legumine cum costato imperfecto vel legumine ecostato. HOLOTYPE: Venezuela. Anzoategui: Santome, 250 m, *Pittier 14589a* (VEN!).

Legumes 2.5-5.3 cm long, costate, medial rib weakly raised, imperfectly formed, extending from one-quarter to three-quarters of the length of the valve, or occasionally ecostate.

CUBA: 1860-64, *Wright 2328* (G, GH; non MO). ISLA DE PINOS: nr Nueva Gerona, *Curtiss 448* (MIN); *Taylor 125* (NY, S). PINAR DEL RIO: Libio del Infierno, *Ekman 16720* (S).

CLITORIA JAVITENSIS (H. B. K.) Benth., Journ. Linn. Soc. 2:42. 1858; *Neurocarpum javitense* H. B. K., Nov. Gen. Sp. 6:409. 1823; *Ternatea javitensis* (H. B. K.) Kuntze, Rev. Gen. Pl. 1:210. 1891; *Clitoria javitensis* emend. Fantz, Sida 9:162. 1981. LECTOTYPE: Venezuela.AMAZONAS: crescit in ripa fluminis Tuamini, prope Javitam [= Yavita], Misiones del Rio Negro, *Humbolt & Bonpland s. n.* (P).

var. *portobellensis* (Beurl.) Fantz, Ann. Missouri Bot. Gard. 67:589.1980; *Clitoria portobellensis* Beurl., Kingl. Vetenskaps. Acad. Handl. p. 119. 1854. LECTOTYPE: Panama. In silvis montium, Porto-Bello, Apr.1826, *Billberg s.n.* (S-hb. Regnell!)

f. *pilosa* Fantz, Sida 9:169. 1981. HOLOTYPE: Panama. CANAL ZONE: vic. Gamboa, 20 Dec. 1946, *Allen 3931* (G-Hb. Delessert! ISOTYPE: MO 1572352!)

Liana, tall climbing. Leaves 3-foliolate, pilose below, leaflets elliptic-oblong to lanceolate-elliptic, 7-18 cm long, 3-9 cm wide. Petioles 4-17 cm long. Inflorescences axillary or cauliflorous, 1-5 cm long. several-flowered. Bracts 4-6 mm. Bracteoles 4-7 mm. Flowers 6-8 cm, pink hues. Calyx tube 17-24 mm long, lobes 4-8 mm. Wings extend beyond keel by



7-10 mm. Staminal sheath 38-49 mm. Style 16-25 mm long, geniculate 6-9 mm apically. Legume flat, ecostate, densely rufo-pubescent, valves 18-24 cm long, 1.8-2.5 cm wide; stipe 24-37 mm. Seeds smooth, lenticular, 7-11 per pod, ca 9-12 mm diam.

Commonly with flowers from November to February and fruits from late December to May. A liana of tropical humid forests, infrequently in thickets or scrub, usually associated with sandy soils, at elevations to 800 m, in the western Amazon Basin with an extension into Central America. Var. *portobellensis* is common in Panama and adjacent northwest Colombia with infrequent collections from Costa Rica and northern Venezuela. Leaves are commonly glabrate below with appressed trichomes. Known in Antilles only from cultivation with only the pilose form of var. *portobellensis* represented.

MARTINIQUE: cult., Tarnasse, *Duss 1074* (NY); cult. Jard. Bot., Fort de France, *Stehle 3533* (NY).

CLITORIA LAURIFOLIA Poir., in Lam. Encyc. Supp. 2:301. 1811; *Neurocarpon laurifolium* (Poir.) Desv., in Ham. Prod. Pl. Ind. Occ. 51. 1825; *Martusia laurifolia* (Poir.) Britton. Sc. Surv. Porto Rico 412. 1924; *Ternatea laurifolia* (Poir.) Kuntze. Rev. Gen. Pl. 1:210. 1891. LECTOTYPE: Puerto Rico. Savanne, *Ledru 71* (P-Hb. Poir.!) ISOLECTOTYPE: G-DC! frag.).

*Neurocarpum janensis* Desv., Journ. Bot. 1:1814. LECTOTYPE: hab. in gujanae, Hb. Desvauz (P!).

*Neurocarpum cajanifolium* Presl., Symbol. Bot. 17, illus.t. 9. 1832; *Clitoria cajanifolia* (Presl.) Benth in Mart. Fl. Bras. 15(1): 121. 1862. TYPE: locis siccis Americae meridionalis, *Hb. Presl* (PR?).

Subshrub to suffrutescent perennial, to 1 m tall; stems erect, sparsely branched, lateral branches short. Leaves 3-foliolate, subsessile, canescent below, leaflets oblong to elliptic-oblong. Petioles shorter than rachis, 0.2-0.4 cm long. Inflorescences axillary, 1-2 (3) per node, to 7-10 cm long, 1-3 flowered. Bracts 2-4 mm. Chasmogamous flowers 4-5.5 cm, white to pale lilac to pale violet. Bracteoles 6-9 mm. Calyx canescent, tube 11-16 mm long, lobes 6-9 mm long. Wings extend beyond keel 5-8 mm. Staminal sheath 28-34 mm long. Style 19-23 mm long, geniculate 6-8 mm apically. Cleistogamous flowers typically borne at lower nodes with bracteoles 4-5 mm, calyx tube 5-7 mm, lobes 2-4 mm, staminal tube 0.5-1.5 mm, style 3-4 mm. Legumes straight, often borne obliquely on stipe, 3.5-6. cm long, valves convex, costate or infrequently weakly costate to ecostate; stipe 9-11 mm long. Seeds globular, viscid, 4-5 mm diam.

Coastal species, meadows or grasslands behind dunes, occasionally in inland savannas and pine forests, 0-800 m, eastern Venezuela to southern Brazil, West Indies, and introduced into the paleotropics as an ornamental shrub or hedge plant or for green manure (Burkill 1935; Holland & Joachim 1933; Uphof 1968), now naturalized in portions of Africa, Sri Lanka, Southeast Asia (India to East Indies), and some Pacific islands. Collected in Antilles in most months, primarily in cleistogamous state.

#### Forms of *C. laurifolia*

1. Legume costate, midrib prominently raised extending 80-95% of the length of the valve.....f. *laurifolia*

1. Legume ecostate or costate, midrib weakly raised, extending 20-60 of the length of the valve.....f. *glabrior*

f. LAURIFOLIA

Legume with prominent medial costa raised on valves and extending nearly the entire length of the valve, occasionally extending only about four-fifths of the length.

HAITI. Massif du Nord, NE Organise, nr R. Terre-Neuve, *Ekman H 6213* (S). PUERTO RICO. Vega Baja, *Britton et al. 6758* (NY); nr Santurce, Heller & Heller 28 (F, NY); Manati, Stevens 5270 (NY). WINDWARD ISLANDS. MARTINIQUE: cult., Debeaux 42 (US).

f. *glabrior* (Benth.) Fantz., comb. nov.

*Clitoria cajanifolia* (Pres!) Benth. f. *glabrior* Benth., in Mart. Fl. Bras. 15(1):121. 1862.

LECTOTYPE: Brazil. PERNAMBUCO: Nov 1837, *Gardner 969* (S!); ISOLECTOTYPES: M! CGE! E! G! NY! S! W!

Legume ecostate or with a weakly raised midrib on each valve extending ca one-fifth to one-half of the length of the valve, rarely to three-fifths of the length of the valve.

DOMINICAN REPUBLIC. Monción, La Mesa, *Ekman H 13023* (S); Cordilla Septentrional, Matanzas, Sabana Carrasca, *Ekman H 15889* (S); La Vega, *Jimenez 4948* (NY). PUERTO RICO. Dorado, *Britton et al. 6652* (F, NY); *Desvaux s.n.* (P); *Grairces 124* (P); *Heller & Heller 1319* (F, NY); nr Laguna Tortuguero, *Howard & Nevling 17030* (A, U); *Sargent 579* (US); Dorado, *Sintenis 6848* (BM, F, G, GH, M, MO, NY, US, W); Algarroba, *Stevenson 2122* (NY, US); from Manati to Vega Baja, *Underwood & Griggs 958* (NY, US); *Ventenat s. n.* (G); nr Laguna Tortuguero, *Wagner 287* (U) and 592 (BM, S, U). ISLA VERDE: San Juan, *Mackee 10583* (P).

CLITORIA TERNATEA L., Sp. Pl. ed. 1. 2:753. 1753. LECTOTYPE: India, Suratt, *sine coll. s.n.* (LINN 902.1-microfiche!).

Perennial suffrutescent vine, aerial stems from subterranean xylopodium climbing or trailing and intertwining to form tangled mats. Leaves 5-7 foliate, leaflets ovate to elliptic to obovate-elliptic, 1-5 cm long, 1-3 cm wide. Petioles 1-4 cm long, shorter than rachis. Inflorescence axillary, 0.3-1.5 cm long, reduced to short peduncle bearing one flower laterally at apex. Bracts 2-4 mm long. Bracteoles broadly ovate to suborbicular, 6-11 mm diam., shorter than calyx to subequal calyx and hiding it. Flowers 3.5-5.5 cm, azure blue or white, papilionaceous or actinomorphic. Calyx tube 8-14 mm long, 6-9 mm wide at throat, lobes 7-12 mm long, shrivelling and shrinking with age as fruit develops. Staminal sheath 16-20 mm long. Style 14-17 mm long. Actinomorphic (double) flowers showy, azure to dark blue, 5-merous, all petals similar, banner-like. Stamens ten, all free or with some free and others fused in two to three fascicles. Legume sessile, flat, ecostate, 7-11 cm long, 0.8-1.1 cm wide; stipe 1-2 mm, enclosed with legume base within calyx. Seeds smooth, subreniform, 7-10 per pod, 4-5 mm x 5-6 mm.

Vernacular names: bejuco de conchitas (Puerto Rico), bluebell (Cayman Islands), blue pea (Bahamas, Bermuda, Jamaica), conchita azul (Cuba), conchita blanca (Cuba), frijolito (Cuba), lentille sauvage (Guadeloupe), manto de vieja (Cuba), papito (Puerto Rico), pois hallier (Martinique), pois marron (Guadeloupe), pois-pois (Guadeloupe), pois sauvage

(Guadeloupe), pois savane (Guadeloupe), and pois tonnelle (Guadeloupe). Native of Eastern Africa, presently an anthrogenic pantropic species, cultivated and naturalized.

Varieties and forms of *C. ternatea*

1. Flowers papilionaceous, one standard petal; stamens diadelphous.....var. *ternatea*
2. Flowers azure, standard yellow to white medially and basally.
  3. Peduncle solitary per axil, 0.5-1 (1.5 cm) long.....f. *ternatea*
  3. Peduncles 1-4 per axil, 1-4 cm long.....f. *fasciculata*
2. Flowers white, standard greenish to greenish-white medially and basally .....
  - .....f. *albiflora*
1. Flowers "double", actinomorphic, (4) 5 standard petals; stamens ten, free .....
  - .....var. *pleniflora*

var. TERNATEA f. TERNATEA

Flowers azure to dark blue, papilionaceous, solitary, rarely biflowered. Peduncles one per axil. Commonly cultivated and naturalized in grasslands, roadsides, river banks, beaches, hedges and scrub, sandy soil and limestone, 0-300 m. Collected in reproductive state in every month.

WEST INDIES: 1885, *Eggers 191* (MICH), 1874, *Kuntze s.n.* (F); Jan 1817, *Sarrdey s.n.* (W); *Schomburgk s.n.* (HAL); *Swartz s.n.* (S). CAYMAN ISLANDS: CAYMAN BRAC: Spot Bay, *Kings 63* (BM, MO). GRAND CAYMAN: Georgetown, *Brunt 1727* (BM); Newlands-Barcadere Rd, *Brunt 1645* (BM); Georgetown, *Chevalier 154* (USF); Jan 1821, *Hitchcock s.n.* (MO); Jackson Point SE of Georgetown, *Kings 186* (BM, MO) and 227 (BM, MO); Georgetown, *Lewis 43* (BM, MO); Bodden Bay Rd. *Millspaugh 1318* (F); *Millspaugh 1383* (F, PH); between Old Isaacs & Winterland, *Proctor 15182* (BM). CUBA: *Auber s.n.* (PH); *Read s.n.* (PH); hb. *Short s.n.* (MO). HAVANA: vic. Santiago de las Vegas, *Baker & Hermann 1926* (F); Vedado, *Ekman 20* (S); cult. Santiago de las Vegas, *Hermann 910* (BM, F, NY); Havana, *Leon s.n.* (US); Lc., *Meredith s.n.* (PENN, PH); l.c., *Schatela s.n.* (F); l.c., *Schott 114* (F-2 sh.); l.c., *Terre s.n.* (P); Vento, *Wilson 604* (F). ORIENTE: Santiago de la Cuba, *Ekman 7950* (S); l.c., *Hamilton 5* (NY); vic. San Luis, *Pollard & Palmer 301* (F, GH, MO, NY, PH, UC); Sevilla Estate near Santiago, *Taylor 360* (PH-mixed); 1856-7, *Wright s.n.* (GH); *Wright 1592* (G, GH, MO, NY, PH). SANTA CLARA: Laguna de Aura, *Manigua, Fernando 632* (GH-mixed); Rd between Soledad & San Antonio, *Smith & Hodgdon 3165* (A, F). DOMINICAN REPUBLIC: Najayo, *Augusto 449* (NY); Haina, *Faris 81* (US); *Johnston s.n.* (E). BARAHONA: "Duverge, Fluss", *Fuertes 375* (E, G, GH, NY, U); prope Barahona, *Fuertes 375* (W). SANTIAGO: Quinigua near Santiago, *Howard & Howard 9695* (GH, MICH, NY, S); Santiago, *Jimenez 1720* (US); Hato del Yaque, 10 km rd to Las Matas, *Liogier 14534* (NY). SANTO DOMINGO: vic Ciudad Trujillo, *Allard 13922* (US); Azua, *Rose et al. 4052* (S). HAITI: Massif de la Selle, Port-au-Prince, *Ekman H 9102* (S); vic Fond Parisien, Etang Saumatre, *Leonard 4208* (US); Port de Paix, *Leonard & Leonard 11786* (GH, UC-mixed); Damien, *Pride s.n.* (WIS); Pont Blutet, *Pride s.n.* (WIS); cult., Jeremie, *Seibert 1800* (MO); nr Artibonite River, *Sweet s.n.* (NY) and 58 (US). ILE DE LA TORTUE: vic of La Vallee, *Leonard & Leonard 11591* (MO); Basse Terre, *Leonard & Leonard 13983* (MICH, NY). JAMAICA: Apr 1818, *Carley s.n.* (BM); *Smith s.n.* (PH); *Swartz s.n.* (S). PORTLAND: Port Antonio, *Wight 63* (F, NY). ST. ANN: Llandoverly to Runaway Bay, *Harris*

10370 (BM, F, NY); Albion, *Orcutt 1391* (UC); Runaway Bay, *Powell 969* (MICH, U); Palisados, *West & Arnold 432* (FLAS). ST. ANDREW: Univ. of West Indies, *Crosby et al. 346* (DUKE, F, GH, MICH, MO, NY, UC); Kingston, *Clute 148* (US); l. c., *Hitchcock s.n.* (MO-mixed); l. c., *Killip 74* (W); RR between Kingston & Gregory Park, *Maxon & Killip 301* (F, GH, NY); Seven-Mile Beach, *Sauer 1904* (WIS); nr Univ. W. I. *Vagner 58* (USF). ST. MARYS: Gray's Inn, *Orcutt 4294* (UC); Rio Nuevo ca 10 km E of Ocho Rios, *Sauer 1876* (WIS). ST. THOMAS: mile 13.5 on Windward Rd, *Adams 5489* (M); Yallahs, *Araque-Molina & Barkley 22J449* (DUKE, MICH). LEEWARD ISLANDS. ANTIGUA: Gunthorpes, *Box 1044* (BM, F, MICH); St Johns, *Shafer 11* (NY); *Wheeler 23* (BM); *Wullschlaegel 126* (M). BARBUDA: Codrington Village, *Fairchild 3824* (UC). GUADELOUPE: 1839, *Beaupertuis s.n.* (A); *Duchassning s.n.* (NY, W); *Duss 3232* (NY); pres du Prestoytere, *Quentin 626* (A); *Read s.n.* (PH); Ponite Noire, *Stehle 31* (US). MONTERRAT: nr Bethal, *Shafer 503* (F, NY). ST. BARTHELEMY: *Forstrom s.n.* (S); *Von Goes s.n.* (S). ST. EUSTATIUS: *Van Goes s.n.* (U). ST. KITTS: Cauada Estate, *Britton & Cowell 232* (NY). ST. MARTIN: Bergbrant, *Hummel s.n.* (S). PUERTO RICO. Montalva, *Britton et al. 4875* (NY); Lechera, *Goll 47* (US); Sabana Grande, *Sargent 272* (US); Joanna-dior pres de Jerrano, *hb. Tuezkievicz s.n.* (MPU); Rd to El Conquistador Hotel *Wagner 222* (U). BAYAMON: Santurce, *Otero 456* (A, F, MO). FAJARDO: ad Fajardo versus Mares, *Sinteniz 1639* (G, GH, M, S, US). GUANICA: *Millspaugh 728* (F, NY); Santa Rita, *Stevenson 2244* (F). GUAYAMA: Jabas Rd, *Cook & Collins 502* (US); *hb. Kuntze* (NY). MAYAGÜEZ: ad Mayagüez versus Guanajilo, *Sinteniz 825* (M, PH). PONCE: RR 2 mi W of Ponce, *Heller 6224* (E, F, G, GH, MO, NY, PH). RIO PIEDRAS: Fuica, Buen Consejo, *Hioram* (F, NY). SALINAS: Paso Seco, *Britton & Britton 9933* (NY). VIEQUES: Isabel Segunda to Campo Cielo, *Shafer 2358* (NY). VIRGIN ISLANDS. ST. CROIX: *Browne s.n.* (PH-frag.); Gauge, 1800, *Hausen s.n.* (S); *Hunnewell 20115* (GH); *Read s.n.* (PH); Bassin, *Ricksecker 7* (E, F, MO); *Ricksecker 152* (F, GH, MO, NY, UC); Frederiksted, *Rose et al. 3216* (NY); River Gut, *Thompson 688* (GH); Armas Hope, *Thompson 826* (PH) and *859* (S). ST. THOMAS: *Blauner 60* (G); Nov 1880, *Eggers s.n.* (NY); 1885, *Eggers s.n.* (NY); Jan 1887, *Eggers s.n.* (F); ad Sugar Estate, *Eggers 52* (M, MICH-mixed, S); *Eggers 87* (GH) *Eggers 123* (GH); Nisky (or Nistry), *Eggers 221* (G, M, MPU, UC, W); *Ehrenberg s.n.* (HAL); *Ehrenberg Jr. 150* (HAL); *hb. Endl. s.n.* (W); *Gutthnick 60* (BM); *Harinarson s.n.* (S); Placide Duchaisamy, *Holton s.n.* (NY); *Kuntze 200* (NY-mixed); Charlotte Amalie, *Millspaugh 373* (F), *397* (F), *409* (F) and *411* (F); *Raunkaier s.n.* (U); *Schomburgk s.n.* (NY); pr. Mt. Joubert, *Wydler 79* (G). TORTOLA: St. Bernard, *hb. Lindley, Anonymous 587* (CGE); Fish Bay to Road Tower, *Britton & Schafer 920* (NY); Lower Estates, *D'Arcy 299* (A), *722b* (A) and *722c* (FLAS); Copses Experiment Station, *Fischlock 195* (GH, PH). VIRGIN GORDA: *Fischlock 50* NY. BARBADOS: Dodds, St. Phillip, *Anonymous s.n.* (F, NY); St. George, *Goodwis 106* (BM); Speightstown, *Florschutz & Florschutz 67* (U). BEQUIA: *Joseph B253* (BM). MARTINIQUE: *Brongniart 17* (S); Trinite Trois, *Duss 1073* (US); St. Anne, *Egler 39-48* (NY); *Flee 677* (A); Case-Pilote, *Hahn 234* (BM-mixed, G, M, P, NY, W); Schoelcher, *Rodriguez 3699* (P); *Sieber 38* (W); *Stehle & Stehle 3484* (NY); La Vauchin, *Stehle & Stehle 3520* (NY-mixed); Le Marvin, *Stehle & Stehle 4436* (US); Le Marigot de Zeynal, *Stehle & Stehle 4930* (US). ST. VINCENT: nr Argyle, *Morton 4776* (US); *Smith & Smith 823* (GH, NY).

var. *ternatea* f. *albiflora* (Voigt) Fantz, **comb. nov.**

*Clitoria ternatea* L. var. *albiflora* Voigt, Hort. Calcuttensis 213. 1845. NEOTYPE: India. Bengal, *Capt. Jenkins s.n.* (E-Hb John Ball!).

*Clitoria ternatea* L. var. *bracteata* (Poir.) DC., Prod. 2:234. 1825; *Clitoria bracteata* Poir., in Lam. Encyc. Bot. Suppl. 2:301. 1811.

*Clitoria ternatea* L. var. *alba* Berhaut, Fl. Senegal 47. 1954; *nom. inval.*

Flowers solitary or rarely biflowered, papilionaceous, white with greenish to greenish-white medial strip on standard basally and purplish veins. Peduncles one per axil, 0.5-1.5 cm long. Common in Africa and Asia, infrequent in neotropics.

WEST INDIES: *Boldingh 6330* (U); cult, *Boldingh 5213* (U). CAYMAN ISLANDS: CAYMAN BRAC: Tibbett's Turn, *Proctor 29353* (BM). CUBA. La Lagra, *sine coll.* 155 (W). HAVANA: Havana, *Meredith s.n.* (PH-mixed); l.c., 1862, *Schatela s.n.* (F); Vedado, 1910, *Leon s.n.* (NY). JAMAICA: 1850, *Alexander s.n.* (NY). ST. ANDREW: Malines, *Hb. McNab s.n.* (E-mixed, GH). ST. CATHERINE: Spanish Town, *Sine Coll. s.n.* (E).

var. *ternatea* f. *fasciculata* Fantz, **forma nov.**

*Forma nova* *Clitoria ternatea* var. *ternatea* *optimo distinguitur peduncula axillara longiore fasciculata*. HOLOTYPE: Jamaica. ST. ANDREW: Thicket along Mona Road, 550 ft, 8 Nov 1957, *Yuncker 17313* (MO 1717333). ISOTYPES: F 1478717, G, MICH, S.

Flowers papilionaceous, azure, solitary or rarely biflowered. Peduncles 1-4 per axil, fascicled, (0.5) 1-4 cm long, base rigid, apically lax and slender. Rare, known only from few scattered localities (India, Fiji) outside of type locality.

var. *pleniflora* Fantz, **var. nov.**

*Phaseolus indicus glycyrrhizae foliis, flore amplo, caeruleo, plena* Comm., Hort. Med. Amstel. 1:47. t. 24. 1697.

*Varietae nova* *Clitoria ternatea* *optimo distinguitur flores plena actinomorpha*. HOLOTYPE: Dominican Republic. waste ground S. Avenida Bolivar, vic. Ciudad Trujillo, 0-25 m, 29 Dec 1945, *Allard 14400* (S). ISOTYPES: GH, NY.

Flowers "double", actinomorphic, (4-) 5-merous. Petals blue, all similar to standard of papilionaceous flowers. Stamens ten, filaments free or some free with others connate below in 2-3 fascicles. Peduncles solitary, rarely paired, usually bearing two flowers at the apex. "Double-flowered" specimens of *C. ternatea* have been reported in literature since Commelin (1697). All validly published names are pre-Linnean, hence illegitimate. The name was selected from the diagnostic words *flore plena* in Commelin's description. Common in cultivation, but will naturalize, scattered in neotropics, Southeast Asia and Indonesia. All Antilles collections examined have free filaments.

CUBA. SANTA CLARA: Lomos de Banao, *Luna 562* (NY). DOMINICAN REPUBLIC. SANTO DOMINGO (DESIGNATED PARATYPES): Ciudad Trujillo, *Allard 13206* (G, U), *13544* (F, US) and *13757* (G, MO). HAITI. Massif de la Selle Petionville, *Ekman H 9364* (S); 0.5 mi from Miragoane on rd to Aquin, *Eyerdam 542* (GH, NY). LEEWARD ISLANDS. GUADELOUPE: Ste. Rose, *Stehle 2770* (US). ST. KITT: cult. *Gustavia*, *Qwestral 329* (NY); ST. MARTIN. cult. Philipsburg. *Arnoldo 3424* (U). PUERTO RICO. BARCELONETA: Montebello, *Boubee s.n.* (P); l.c., *Stehle 269* (NY). MAYAGÜEZ: ad Guanajibo, *Sintenis 825* (US). RIO PIEDRAS: *Stevenson 1835* (US). MARTINIQUE. Trinite Trois, *Duss 1073* (NY, US-

mixed). ST. VINCENT: cult. Bot. Gard. Kingston, *Howard 17836* (DUKE).

#### Excluded Taxa

- Clitoria berteriana* DC., Prod. 2:235. 1825. = *Periandra berteriana* (DC.) Benth.  
*Clitoria berteriana* Vogel, Linnaea 10:598. 1836. = *Centrosema pubescens* Benth.  
*Clitoria glomerata* Griseb., Cat. Pl. Cuba 74. 1866 = *Galactia jussiaeana* Kunth.  
*Clitoria multiflora* Swartz, Nov. Gen. & Pl. Ind. Occ. 106. 1788. = *Vilmorinia multiflora* DC.  
*Clitoria plumieri* Turp. in Pers. Syn. 2:3112. 1807. = *Centrosema plumieri* (Turp. ex Pers.) Benth.  
*Clitoria polyphylla* Poir. in Lam. Encyc. Suppl. 2:300. 1811. = *Barbieria polyphylla* (Pers.) Baill.  
*Clitoria guadalupensis* Scop., Delic. Insub. 2:4 t. II. 1786. *C. guadalupensis* Scop. (Orthogr. err.). Non *Clitoria*, *Centrosema*, *Barbieria*: affinities unknown.  
*Clitoria virginiana* L., Sp. Pl. Ed 1. 753. = *Centrosema virginianum* (L.) Benth.

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#### Literature cited

- Adams, C. 1972. Flowering plants of Jamaica. West Indian University Press: Mona, Jamaica.  
 Barker, H. and W. Dardeau. 1930. Flore d'Haiti. Service Technique du Department de l'Agriculture: Port-Au-Prince, Haiti.  
 Britton, N. and P. Wilsn 1924. Scientific survey of Porto Rico and the Virgin Islands. Vol 5. New York Academy of Science: New York.  
 Commelijn, J. 1697. Horti medici amstelodamensis. P. & J. Blaeu: Amsterdam.  
 D'Arcy, W. 1967. Annotated checklist of the dicotyledons of Tortola, Virgin Islands. Rho-dora 69:412.  
 Duss, R. 1897. Flore phanerogamique des Antilles Francais. Protat freres: Macon, France.  
 Fantz, P. 1979. Taxonomic notes and new sections of *Clitoria* subgenus *Bractearia* (Legu-minosae). Sida 8(1):90-94.  
 \_\_\_\_\_. 1981. Taxonomic notes on new taxa of *Clitoria javitensis* (Leguminosae) and the ex-clusion of var. *glabra*. Sida (2):159-171.  
 \_\_\_\_\_. 1988. A new section of *Clitoria* subgenus *Neurocarpum* (Leguminosae). Madrono 35(1):23-31.

- Fawcett, W. and A. Rendle. 1920. Flora of Jamaica. Vol. 4. Longmans, Greene & Co.: London.
- Gooding, E., A. Loveless and G. Proctor. 196. Flora of Barbados. Her Majesty's Stationary Office: London.
- Grisebach, A. 1864. Flora of the British West Indian Islands. Lovell Reeve and Co.: London
- \_\_\_\_\_. 1866. Catalogus plantarum Cubensium. Englemann: Leipzig. Germany.
- Leon, H. 1951. Flora de Cuba. Vol. 2
- Lindley, J. 1838. Flora medica. Longman, Orme, Brown, Greene and Longmans: London.
- Liogier, A. 1965. Nomenclatural changes and additions to Britton & Wilson's "Flora of Porto Rico and the Virgin Islands". *Rhodora* 67(772):334.
- Moscoso, R. 1943. Catalogus florae Domingensis. Vol. 1. L. & S. Printing Co: New York.
- Morton, J. 1981. Atlas of medicinal plants of middle America. Charles Thomas, Publ.: Springfield Illinois.
- Stahl, A. 1936. Flora de Puerto Rico. Vol. 1. Federal Emergency Relief Administration: San Juan.
- Stehle, H. 1937. Colonisations vegetables sur laves recent. *Bull. Agric. Martinique* 6(3-4): 256-260.
- Stehle, H., M. Stehle and L. Quentin. 1948. Flore de la Guadeloupe et dependances. Vol. 2
- Uphof, J. C. T. 1968. Dictionary of economic plants. 2nd ed. Stechert-Hafner Service Agency: New York.