

The Genus *Psidium* (Myrtaceae) in the Greater Antilles

Leslie R. Landrum

Natural History Collections, School of Life Sciences
Arizona State University, Tempe, Arizona 85287-4108, U.S.A.

<https://orcid.org/0000-0002-3809-9865>

Zenia Acosta Ramos

Centro de Investigaciones y Servicios Ambientales ECOVIDA
Agencia de Medio Ambiente CITMA
Luis Lazo, Km 2 ½ Carretera a, Pinar del Río, Cuba.
<https://orcid.org/0000-0003-1733-8537>

Francisco Jiménez-Rodríguez

Jardín Botánico Nacional, Avenida República de Colombia
A.P. 21-9, Santo Domingo, Dominican Republic

Keron C. St. E. Campbell

Botany Department, Natural History Museum of Jamaica,
Institute of Jamaica, 10–16 East St., Kingston, Jamaica
<https://orcid.org/0000-0002-1504-9013>

Abstract: The genus *Psidium* in the Greater Antilles is revised and a key to the species is provided. Each of the 16 recognized species is described, illustrated, a map of known occurrences in the Greater Antilles is provided, and representative specimens are cited. Specimens from the Caribbean region are sometimes included in the maps for wide-ranging species. For each species distinguishing features, phenology, habitat, and distribution are discussed. No new taxa or combinations are proposed, and no lectotypes are chosen. For each species a list of synonyms from the Caribbean region and sometimes beyond is provided with the citation of publications and type specimens. The relationship with *Mosiera* Small is discussed. A group of morphologically similar species nearly confined to the Caribbean region, the *Psidium amplexicaule* complex, is circumscribed and discussed. Lists of specimens examined, synonyms of accepted species, and excluded species (with type specimens and bibliographic citation) are included.

Resumen: Se revisa el género *Psidium* en las Antillas Mayores y se proporciona una clave para las especies. Se describe e ilustra cada una de las 16 especies reconocidas, se proporciona un mapa de ocurrencias conocidas en las Antillas Mayores y se citan especímenes representativos. A veces se incluyen especímenes de la región del Caribe en los mapas para especies de amplia distribución. Para cada especie se discuten las características distintivas, la fenología, el hábitat y la distribución. No se proponen nuevos taxones ni combinaciones, ni se eligen lectotipos. Para cada especie se proporciona una lista de sinónimos de la región del Caribe y, a veces de otras regiones, con la cita de publicaciones y especímenes tipo. Se discute la relación con *Mosiera* Small. Se circscribe y analiza el complejo *Psidium amplexicaule*, un grupo de especies morfológicamente similares casi confinadas a la región del Caribe. Se incluyen listas de especímenes examinados, sinónimos de especies aceptadas y especies excluidas (incluyendo citas de especímenes tipo y bibliográfica).

INTRODUCTION

This is the fourth in a series of regional treatments of *Psidium*. Prior treatments have been for the state of Bahia, Brazil (Landrum 2017), Bolivia and Paraguay (Landrum 2022), and Colombia (Parra-O. and Landrum 2023). An introduction to the genus, including a discussion of morphology, is given in the first of these papers and is not repeated here. A generic description and list of synonymy is also found there and not repeated here. The citation of types also follows that of Landrum (2017); types seen by Landrum, or occasionally only by one of

the other authors is cited with an exclamation point (!), but types seen only as images do not have an exclamation point. When the portion of the protologue of a name dealing with locality included misspellings, they have usually been corrected in this paper. Many specimens can be viewed online at the CoTram portal (<https://cotram.org/>) and specimens from the Arizona State University may be searched by the collector and number, or accession number (e.g., ASU0004813). Many excellent specimen images from the New York Botanical Garden herbarium (NY) can be found at the same website and may be searched using collector and number. Several historical specimens have been posted at the Jamaican Virtual Herbarium (<http://www.jamaicavirtualherbarium.com/>).

Psidium is a genus of at least 60 species and perhaps as many as 100 (McVaugh 1968; Govaerts et al. 2008), ranging from Mexico and the Caribbean to Argentina and Uruguay. The distinguishing characters of *Psidium* are discussed in Landrum (2003) and in Landrum and Sharp (1989) and are: flowers (4–)5(–6)-merous (occasional flowers rarely with more petals) with multi-ovulate locules; placenta often peltate; seed coat rough or dull, covered with a pulpy layer when wet (rarely lustrous in immature seeds); hard portion of seed coat (5–)8–30 cells thick at the narrowest point, with the cells thick-walled, elongate, and overlapping; and embryo conforming to the C-shaped cavity of the seed coat, with cotyledons much shorter than the hypocotyl. Proen  a et al. (2022) provide an extensive discussion of important taxonomic characteristics of *Psidium* and descriptions of the four sections they recognize. Traditionally *Psidium* has been recognized as belonging to the subtribe Myrtinae, which has been shown to be a paraphyletic group through molecular phylogenetic studies (Vasconcelos et al. 2017). Lucas et al. (2019) divide traditional Myrtinae into six subtribes, considered by them to be monophyletic, based primarily on molecular data. In their classification *Psidium* belongs to the subtribe Pimentinae.

The Caribbean region underwent extensive exploration in the 19th and early 20th centuries by collectors such as C. Wright, E. L. Ekman, W. H. Harris, and N. L. Britton and collaborators. In the latter half of the 20th century J. Bis  e and his collaborators made extensive collections in Cuba, as did G. Proctor in Jamaica, A. Liogier in Cuba, Hispaniola, Puerto Rico, and T. Zanoni and collaborators in Hispaniola. These collections and the groundbreaking family treatments of Jamaica (Proctor 1972), Cuba (Alain 1953), Hispaniola (Liogier 1989), Puerto Rico (Liogier 1994), have been the foundation of the present treatment.

Proen  a et al. (2022) have recently published a molecular phylogenetic study and classification of *Psidium* based on a sample of thirty species using two chloroplast genes and two nuclear regions. Based on this phylogeny they subdivide *Psidium* into four sections: *Psidium* (type, *P. guajava* L.); *Obversifolia* O. Berg (type, *P. cattleyanum* Sabine); *Mitranthes* (O. Berg) Tuler & Proen  a (type, *P. brownianum* DC.); and *Apertiflora* O. Berg (type, *P. myrtoides* O. Berg). Species of all these sections are found in the Greater Antilles. Two Caribbean species, *P. acranthum* Urb. and *P. amplexicaule* Pers., are included in the study of Proen  a et al. and appeared as sister taxa in the section *Mitranthes*.

In a phylogenetic survey of Myrtaceae of the Greater Antilles, Flickinger et al. (2020) include the same two species as Proen  a et al. (*Psidium amplexicaule* under the names *Calyptrogenia biflora* Alain, and *P. sessilifolium* Alain) plus three additional species of Caribbean *Psidium* (*P. harrisanum* Urb., *P. parvifolium* Griseb., and *P. rotundatum* Griseb.). These five species form a cluster, sometimes with the inclusion of *P. salutare* (Kunth) O. Berg from Cuba, appearing as sister to *P. rotundatum*. *Psidium salutare* is a widespread species, and the sample of Flickinger et al. is from Cuba. They hypothesize that *P. salutare* of Cuba may be

a product of past hybridization, which would explain why it clusters with Caribbean species and appears as sister to *P. rotundatum*.

Based on studies using morphology we propose that there is a subgroup of section *Mitranthes*, that we call the *Psidium amplexicaule* complex that includes all the above mentioned five species plus *P. albescens* Urb., *P. nannophyllum* Alain, *P. nummularia* (C. Wright ex Griseb.) C. Wright, *P. minutifolium* Krug & Urb., and the recently described *P. urquiolanum* Landrum & Z. Acosta. Species of the complex are restricted to the Greater Antilles, except for *P. amplexicaule*, which reaches coastal Bahia, Brazil. An estimate of ten species in this group is perhaps conservative as we have united as synonyms several species recognized by prior workers. Further studies may result in some of these being accepted as distinct. Species of the *P. amplexicaule* complex often have distributions restricted to only a portion of one island, so further exploration may reveal more.

Description of *Psidium amplexicaule* complex. Plants usually glabrous except for young growth and inner surface of calyx, the hairs about 0.1 mm long or less, appressed or erect. Leaves usually suborbicular or orbicular (Figs. 3A,5A), less often obovate, ovate, elliptic, oblanceolate, oblong-ovate, 0.5–8.7 cm long, 0.4–7.5 cm wide, 0.7–2.3 times as long as wide; apex generally rounded, sometimes emarginate, less often obtuse, acute, or abruptly acuminate; base mainly rounded, cordate or cuneate; venation often obscure, brochidodromous, the lateral veins 3–6 pairs, the marginal vein closely following the margin; tertiary veins when visible dendritic. Flower buds 3.5–7(–12) mm long; calyx closed or nearly closed in bud (Figs. 3B&C, 5C), often with a small apical pore through which minute hairs protrude, the inner surface of calyx moderately to densely covered with minute hairs, these usually reddish brown; petals 4 or 5; stamens 25–200(–270); anthers usually about 0.5 mm long when dry, with a terminal gland and 2 to several smaller glands below (Fig. 1C&D); style 2–7(–12) mm long; ovary 2–4-locular, the ovules borne on a peltate placenta, 4–30(–44) per locule (Figs. 1A&B,5G). Fruit subglobose, 5–20 mm long; seeds less than 20, 3–5(–7) mm long, with rounded and flat surfaces (Figs. 5H,9B).

Species of *Psidium* found in the Greater Antilles, but not belonging to the *P. amplexicaule* complex are usually widespread (*P. guajava*, *P. guineense*, *P. cattleyanum*, *P. oligospermum* [=*P. sartorianum*], *P. salutare*). Only *P. montanum*, endemic to Jamaica, is not found naturally outside of the Caribbean. As mentioned above, *P. salutare* may have hybridized with an endemic species, because in the study of Flickinger et al. (2020) the Cuban specimen appears as sister to *P. rotundatum*. There is some morphological evidence for this as the calyx tube is somewhat longer than in other areas and the tears between lobes are longer (Landrum 2003). Hybridization with a species with a closed calyx, typical of the *P. amplexicaule* complex, may have produced this morphology. Salywon (2003) found that *P. sintenisii* (which we consider a synonym of *P. oligospermum*) also appeared in his molecular studies closest to *P. amplexicaule* (Salywon 2003) and not *P. oligospermum* (using the name *P. sartorianum*). These two cases of molecular and morphological evidence not agreeing should be investigated more. It is perhaps significant that these are found on islands, where a species might arrive as a single plant. Hybridization might offer the best possibility for reproduction and/or the maintenance of genetic diversity.

Psidium of the Caribbean region is frequently confused with *Mosiera*, an apparently close relative. Landrum and Acosta (2023) have provided a key distinguishing these genera that we reproduce here with some modifications.

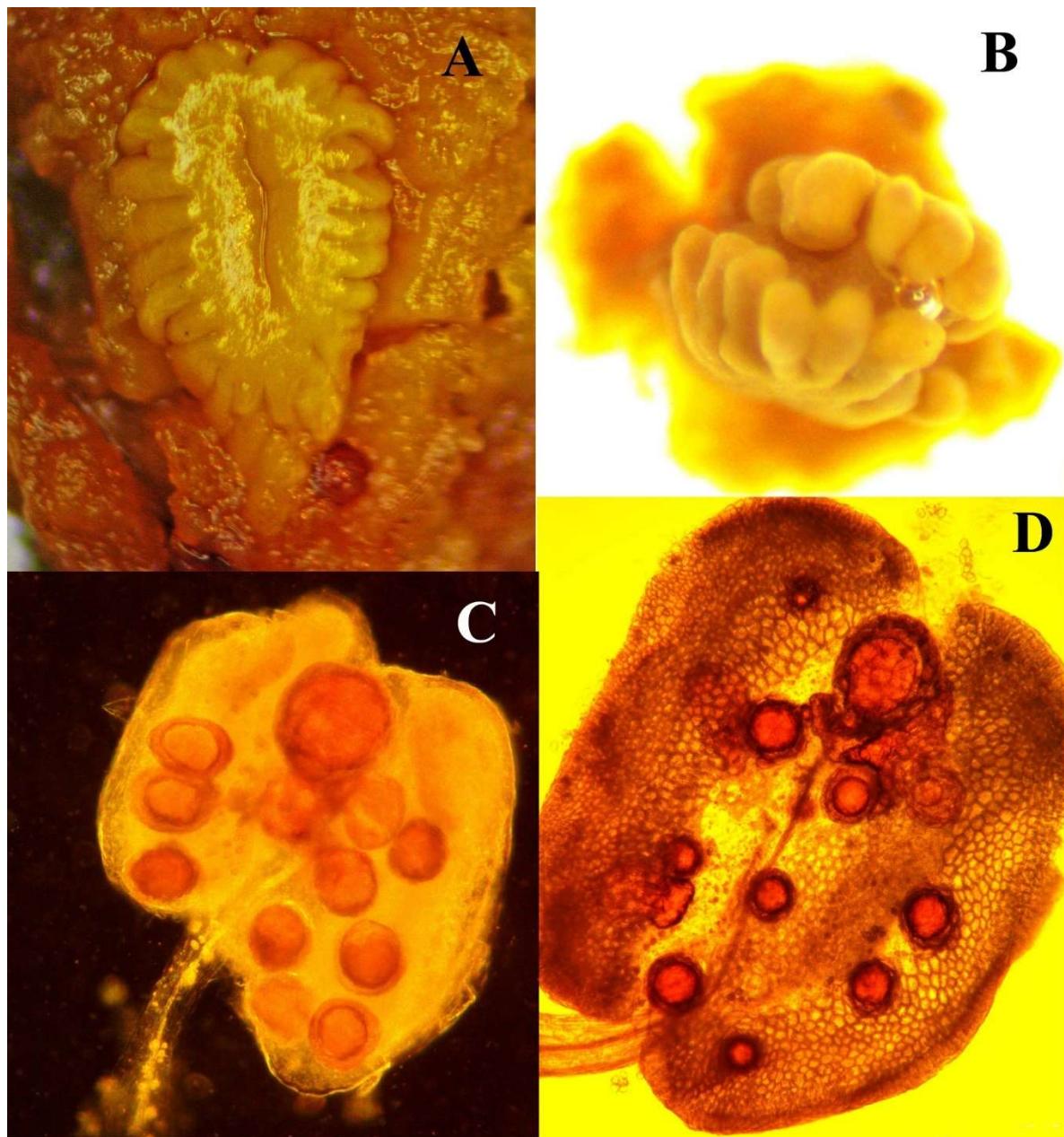


Figure 1. Placentas, ovules, and anthers of *Psidium parvifolium* (A & D) and *P. rotundatum* (B & C). **A.** Peltate placenta and ovules. **B.** Placentas of two locules with ovules viewed from base. **C. & D.** Anther showing terminal gland and smaller glands below. (A from Acuña 12614, US; B & C from Bisce & Rojas 1980, JE; D from Bisce 16764, JE).

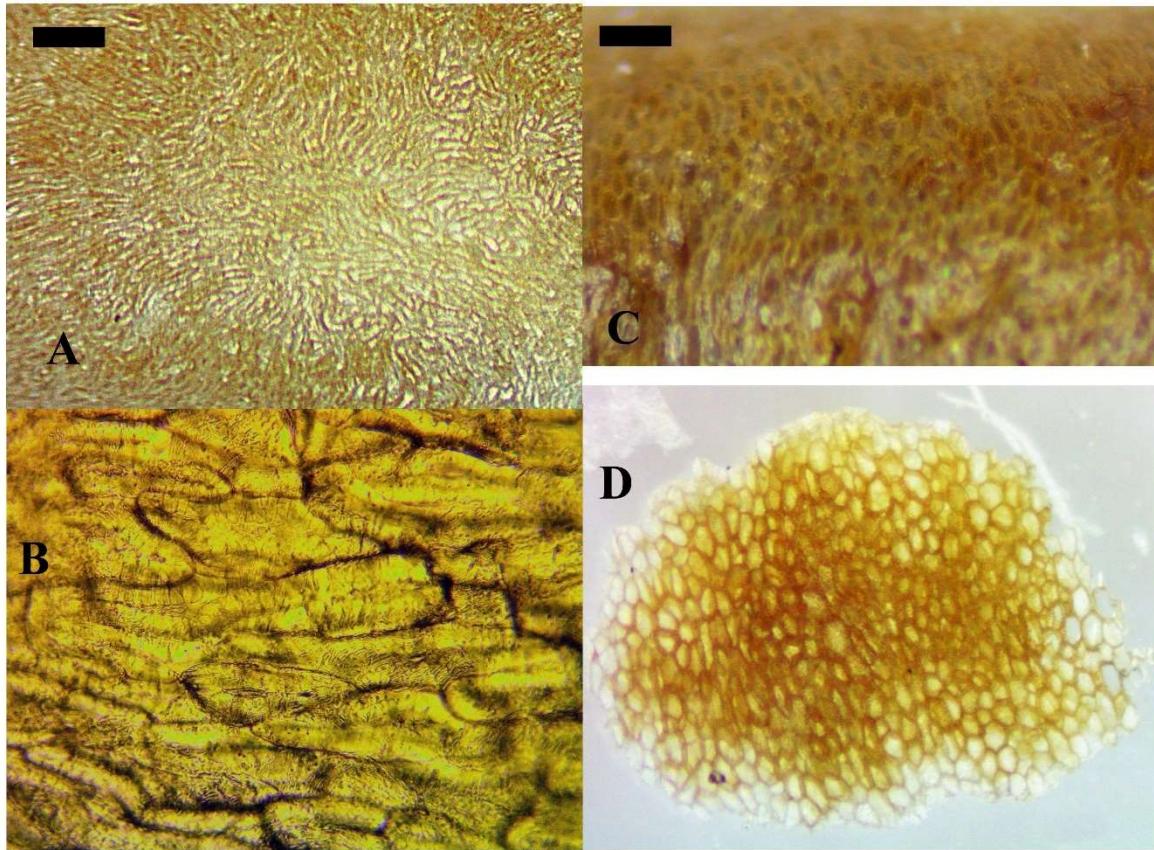


Figure 2. Seedcoats of *Psidium guineense* (A & B) and *Mosiera gracilipes* (C & D). A. Cleaned surface showing narrow, irregular cells. B. Tangential section of seedcoat showing thick-walled overlapping cells. C. Cell surface showing cells not overlapping, approximately round. D. Tangential section of seed coat showing round thin-walled cells. Bars in A and C ca. 0.1 mm long. (A & B from Landrum 12046, ASU; C & D from Loigier 17138, JBSD).

Key distinguishing *Psidium* and *Mosiera*

1. Flowers pentamerous or tetramerous, the calyx closed in the bud or if open with 5 more or less distinct lobes; seed surface dull to rough, not lustrous, covered with a thin layer of pulpy tissue (apparently endocarp) when wet or a glaze or crusty layer when dry, the cleaned surface with cells narrow, overlapping, not forming a mosaic pattern (Fig. 2A&B), the seed coat (5–) 8–30 cells thick at narrowest point; anthers with a terminal gland and usually with a few to several glands in the connective below; peduncles uniflorous or sometimes bearing a 3-flowered dichasium, or sometimes borne on bracteate shoots (racemes), but not normally appearing as pairs on very short axillary shoots; tertiary veins between lateral veins when visible forming a ladder-like (e.g., *P. guajava*, Fig. 7A) or dendritic pattern (e.g., *P. salutare*, Fig. 14A)....***Psidium***

1' Flowers tetramerous, the calyx with 4 distinct lobes; seed coat smooth, lustrous with surface cells forming a mosaic pattern (Fig. 2C&D), or leathery-verrucose, 1–6(–10) cells thick; anthers usually with a single terminal gland in the connective; peduncles uniflorous, solitary or borne in pairs at a node on a very short axillary shoot; tertiary veins between lateral veins if visible usually forming a reticulate, web-like pattern.***Mosiera***

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See Landrum (2022) for generic description and list of synonyms.

The following key is for the species of *Psidium* growing naturally (outside of cultivation) in the Greater Antilles. Cultivated species included in the key, because they have dispersed and thrive in uncultivated areas, are *P. cattleyanum* and *P. guajava*. *Psidium montanum*, native in Jamaica may also be cultivated. *Psidium friedrichsthalianum* (O. Berg) Nied. of continental Mesoamerica and South America is cultivated in Cuba. A closely related continental species, *P. acidum* (DC.) Landrum has also been reported in Cuba (Trujillo Sánchez et al. 2018), but we suspect that the plant in that paper is *P. friedrichsthalianum*, which the authors have misidentified. These two species are directly compared in a key in Landrum (2016).

Key to the species of *Psidium* growing naturally in the Greater Antilles

1. Calyx open before anthesis, with 5 distinguishable lobes in flower bud and after anthesis, the closed corolla clearly visible before the bud opens; leaves mainly elliptic to lanceolate, mainly 2–5 cm long, 1.5–3 times as long as wide; lateral veins 5–13; usually a low subshrub *P. salutare*
 1' Calyx closed or with a small apical pore in flower bud, the lobes if any scarcely distinguishable in flower bud, the corolla usually hidden in the closed flower bud; calyx after anthesis often with only 4 distinguishable lobes; leaves various, often longer than 5 cm and/or less than 1.5 times as long as wide; lateral veins various, often less than 5; shrubs to trees.
 2. Flower buds 3–9 mm long just before anthesis; style 2–7 mm long; leaves 1–8(–10) cm long; leaves often less than 1.5 times as long as wide.
 3. Leaves mainly 0.5–2 cm long, 0.4–1.5 cm wide; lateral veins often obscure (except sometimes in *P. acranthum*, which appears again below).
 4. Leaves elliptic to obovate, 1–2 times as long as wide, the apex acute to obtuse; peduncles 1–1.8 cm long, about as long or longer than the leaves; eastern Cuba *P. minutifolium*
 - 4' Leaves orbicular to ovate, 0.7–1.4 times as long as wide, the apex rounded to abruptly acuminate; peduncles generally shorter than the leaves; western Cuba and Hispaniola.
 5. Leaves usually less than 1 cm long and wide, nearly sessile and appearing crowded on twigs; leaf apex often abruptly acuminate; stamens up to ca. 30; Hispaniola *P. nannophyllum*
 - 5' Leaves often more than 1 cm long and wide, sessile to petiolate, usually not appearing crowded on twigs; leaf apex usually acute to rounded, rarely abruptly acuminate; stamens usually more than 80; Cuba and Hispaniola.
 6. Leaves often lustrous above, the lateral veins often clearly visible; young twigs usually square in cross section or with 4 weak wings; stamens usually over 100; ovules per locule usually over 20; Hispaniola *P. acranthum*
 - 6' Leaves usually dull above, the lateral veins indistinct or faint; young twigs terete to compressed, without 4 wings; stamens usually under 100; ovules per locules less than 20; Cuba *P. nummularia*
 - 3' Leaves mainly 1–8 cm long, 1.5–7 mm wide; lateral veins clearly visible (except in *P. urquiolanum*).
 7. Lateral veins 3–4 pairs, mostly departing from midvein below mid-leaf, the distal laterals nearly equaling the midvein, the midvein sometimes appearing to terminate in two lateral veins; Jamaica.....
..... *P. albescens*
 - 7' Lateral 4–10 pairs, departing from midvein above and below mid-leaf, the distal laterals weaker than the midvein.
 8. Leaves lanceolate to elliptic, usually widest at mid-leaf or below, mostly 2–4 times as long as wide; apex obtuse, acute, to acuminate; base acute to acuminate; petiole mostly 3–4 mm long.
..... *P. oligospermum*
 - 8' Leaves suborbicular, obovate, oblanceolate, or elliptic, usually widest at mid-leaf or above, mostly less than 2 times as long as wide; apex mostly rounded to obtuse; base various, often rounded to cordate; petiole often 0–2 mm long (up to 14 mm long in *P. cattleyanum*).

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9. Lateral veins 8–13 pairs; petiole often over 4 mm long; apex usually acute to acuminate, less often broadly rounded; inner surface of calyx glabrous to puberulent, the hairs not reddish brown..... *P. cattleyanum*
- 9' Lateral veins often obscure, when visible 4–6(–8) pairs; petiole 0–4 mm long; apex usually rounded to obtuse; inner surface of calyx usually covered with minute reddish brown hairs.
10. Leaves mainly obovate to oblanceolate, 1–2.2 times as long as wide, the base acute, acuminate, or cuneate; peduncle 6–32 mm long; Cuba..... *P. parvifolium*
- 10' Leaves mainly orbicular to ovate (sometimes obovate to oblanceolate in *P. urquiolanum*), 0.9–1.8 times as long as wide, the base rounded, cordate, truncate (sometimes broadly cuneate in *P. amplexicaule* of Hispaniola); peduncle frequently less than 6 mm long and rarely over 20 mm long.
11. Flower buds 6–12 mm long; peduncle 1–1.5 mm wide; style 6–12 mm long; stamens 150–270; anthers about 0.8–1 mm long; widespread in islands of Caribbean to the coast of northern Brazil..... *P. amplexicaule*
- 11' Flower buds 3–7 mm long; peduncle 0.3–1 mm wide; style 2–7 mm long; stamens 35–150(–170); anthers 0.5–0.8 mm long.
12. Leaves elliptic, oblong, obovate, oblanceolate, mainly 1.5–2.3 times as long as wide; petiole 2–4 mm long; eastern Cuba..... *P. urquiolanum*
- 12' Leaves orbicular broadly elliptic, to ovate, mainly 0.7–1.5 times as long as wide; petiole 0–2 mm long; western and central Cuba, Jamaica, Hispaniola.
13. Leaves mainly less than 3 cm long and wide; stamens 120–170, the anthers ca. 0.8 mm long; ovules per locule 22–29; Hispaniola..... *P. acranthum*
- 13' Leaves mostly over 5 cm long and wide; stamens 35–125, the anthers ca. 0.5 mm long; ovules per locule 4–19; Jamaica and Cuba.
14. Flower bud 3.5–4 mm long; style 2–3 mm long; stamens 35–47; leaves 2–8 cm long; peduncle 1-flowered, 3–8 mm long; Jamaica...
..... *P. harrisanum*
- 14' Flower bud 4–6 mm long; style 5–6 mm long; stamens 85–125; leaves 1.7–5.5 cm long; peduncle 1–3-flowered, 4–18 mm long; Cuba..... *P. rotundatum*
- 2' Flower buds generally over 10 mm long just before anthesis; style often over 10 mm long; leaves 4–14 cm long, mostly 1.5–3 times as long as wide.
15. Twigs and flower buds pubescent; lateral veins 5–22 pairs; tertiary veins usually ladder-like between laterals.
16. Lateral veins usually 9–22 pairs; young twigs quadrangular, more or less winged; hairs of lower leaf surface appressed, whitish, yellowish, or silvery; calyx usually tearing into 2 or 3 parts; anthers 0.7–1 mm long, usually with fewer than 10 glands..... *P. guajava*
- 16' Lateral veins 5–10(–12) pairs; young twigs more or less terete or compressed (some vigorous shoots sometimes 4-winged); hairs of lower leaf surface more or less erect, reddish brown, or appressed, whitish or grayish; calyx usually tearing into 4 or 5 parts; anthers 1–3 mm long, often with more than 10 glands.
..... *P. guineense*
- 15' Twigs and flower buds glabrous or minutely and obscurely puberulent/hirtellus; lateral veins 3–12 pairs; tertiary veins dendritic.
17. Leaves elliptic to lanceolate, mostly 2–3.3 times as long as wide; young twigs frequently 4-ridged or winged in cross section; flower bud usually with an acuminate tip; Jamaica..... *P. montanum*
- 17' Leaves obovate, oblanceolate to orbicular (less often elliptic), 0.9–2(–2.6) times as long as wide; twigs more or less terete in cross section; flower bud with a rounded to acute tip; widespread.
18. Leaves obovate, oblanceolate, less often elliptic, the petiole 2–14 mm long; lateral veins 8–13 pairs; petals 3–6 mm long; frequently cultivated, sometimes naturalized *P. cattleyanum*
- 18' Leaves suborbicular to obovate, sessile, or nearly so, the petiole up to ca. 2 mm long; lateral veins 3–8 pairs; petals up to 15 mm long; native.
19. Leaves mainly orbicular to suborbicular (sometimes obovate in Hispaniola), sessile or subsessile, the petiole 0–2 mm long; base rounded to cordate (sometimes broadly cuneate in

Hispaniola); lateral veins leaving midvein at 60–90 degree angle; stamens 150–270, ca. 1 mm long; style 6–12 mm long; widespread *P. amplexicaule*
 19' Leaves mainly obovate to suborbicular, petiolate, the petiole 1–6 mm long; base acute to acuminate; lateral veins leaving midvein at 20–60(–90) degree angle; stamens probably less than 150, ca. 0.5 mm long; style 5–6 mm long; Jamaica *P. albescens*

1. ***Psidium acranthum*** Urb., Repert. Spec. Nov. Regni Veg. 18: 367. 1922. TYPE. DOMINICAN REPUBLIC. **EI Seibo**: San Lorenzo Bay and vicinity, (19.01°N, 69.16°W), south coast of Samana Bay, 5 m, 5–10 April 1921 (fl), Abbott 1247 (HOLOTYPE: B, lost; ISOTYPES: F-65685, GH-71234, MO!, NY-1365099!, US-117653!).

Psidium trilobum Urb. & Ekman, Ark. Bot. 22A(10): 20. 1929. TYPE. HAITI. **Nord**: Massif du Morne, Gros-Morne, ad Morne Bonpère, (19.5°N, 72.25°W), 500–600 m, 23 June 1927 (fl), *Ekman H8521* (HOLOTYPE: B, lost; ISOTYPES: MICH!, S-R-9432 [“typus”], S-12-20646, US-117679!, US!), same locality, 30 Sep 1925 (st), *Ekman H4963* (PARATYPE: B, lost; ISOPARATYPES: K-565281, MICH!, NY!, US!).

Psidium hotteanum Urb. & Ekman, Ark. Bot. 22A(10): 21. 1929. TYPE. HAITI. **Gran'Anse**: Massif de la Hotte....prope Petit-Goave ad viam ad Morne Calumette, (18.4°N, 74°W), ca. 1100 m, 26 Nov 1926 (buds), *Ekman H7308*, (HOLOTYPE: B, lost; ISOTYPES: G-227701!, GH-71243, K-565283, NY!, S-R-8906, S-12-20581, US-117664!).

Psidium haitiense Alain, Brittonia 20: 159. 1968. TYPE. HAITI. **Sud-Est**: Boucan Chat, Morne des Commissaires, (18.33°N, 71.77°W), 9 Nov 1944, Holdridge 1958 (HOLOTYPE: NY-1288053!; ISOTYPES: GH-71242, MO!, US-117662!, US!).

Psidium brevifolium Alain, Moscosoa 1: 33. 1976. TYPE. DOMINICAN REPUBLIC. La Cueva, La Horma Arriba, San José de Ocoa (18.650°N, 70.540°W), 1400 m, 3 Jan 1974, Liogier 20940 (HOLOTYPE: JBSD [“SDM”]; ISOTYPE: NY-1288036!).

Shrub or small tree 1.5–6 m high, essentially glabrous or minutely hispid on young growth; *hairs* mainly less than 0.1 mm long, reddish brown; *young twigs* reddish brown, glabrous to minutely hispid, square to terete in cross section, the bark of older twigs becoming gray, smooth to longitudinally cracked, with triangular to ovate bud scales sometimes persisting, these ca. 1 mm long at proximal nodes of twigs. LEAVES orbicular, suborbicular, to obovate or ovate, (0.7–)1–3(–3.6) cm long, 1–2.7(–3.4) mm wide, 0.7–1.4 times as long as wide; *apex* rounded, emarginate, to abruptly acuminate; *base* rounded, acuminate, subcordate, or cordate; *petiole* essentially none to ca. 2 mm long, ca. 1 mm wide; *venation* brochidodromous, obscure or with 4–6 lateral veins visible, leaving the midvein at an angle of 45 to nearly 90 degrees, a marginal vein if visible arching between the laterals, running about 1–2 mm from the margin, with dendritic tertiary veins sometimes visible between the laterals, appearing to arise from the marginal vein; *blades* coriaceous to subcoriaceous, strongly glandular, dull to lustrous above, dull below, the margin slightly to strongly revolute. FLOWER BUDS pyriform to pyriform-cylindric, 3–6 mm long; *hypanthium* obconic to cylindric, 1–2.5 mm long; *indumentum pattern of buds* with all external surfaces glabrous to minutely hispid, the inner surface of calyx and staminal ring minutely hispid; *peduncles* flattened, 2–9 mm long, 0.5–1 mm wide; *bracteoles* narrowly triangular, 0.5–1.5 mm long. CALYX closed or with a terminal pore in bud, tearing irregularly, usually in 3 or 4 parts, persisting until fruit matures, the tears sometimes cutting the staminal ring; *petals* 5, 5–8 mm long; *disk* within staminal ring, 2–3 mm across; *stamens* 120–170, 4–5 mm long; *anthers* ca. 0.8 mm long, with a terminal gland and 2–6 smaller glands below; *style* 4–7 mm long, glabrous or with scattered hairs; *ovary* 2–3-locular; *ovules* (15–)22–29 per locule, borne on the edge of a peltate placenta, reflexed, 1–2-seriate along the edge of the lamellae of the placenta. FRUIT subglobose, 1–2 cm long, the fruit wall 1–4 mm thick; *seeds* up to ca. 5, 4–6 mm long, globose to subreniform, with rounded and flat sides. (Fig. 3.)

Representative specimens. DOMINICAN REPUBLIC. El Seibo: entre La Cueva de Arena y la Boca del Infierno, orilla del sur de la Bahía de Samaná (19.08°N, 69.45°W), 0 m, 25 Apr 1985 (fl), Zanoni 34385 (ASU0004813, NY). Monte Plata: Los Haitises, Pilancón, Bayaguana (18.89°N, 69.64°W), 200 m, 25 Apr 1973 (st), Liogier 18963 (JBSD, NY, US). Independencia: Sierra de Bahoruco, 12 km al S de Duvergé, en el lugar llamado Monte Palma (18.26°N, 71.5°W), 860 m, 24 Mar 1993 (fl), García 4447 (ASU0069454); Jimani, (18.49°N, 71.85°W), 25 Jul 1985 (fl), Grifo 204 (ASU0004812); Charco de la Paloma, 37.4 km al sur de Puerto Escondido (18.2°N, 71.5°W), 1810 m, 19 Mar 1985 (fr), Zanoni 33920 (JBSD). Samaná: Peninsula de Samaná, slope of Pan de Azucar (19.260°N, 69.300°W), 4 May 1930 (st), Ekman 14658 (MICH).

Phenology—Flowering in March to July, and November; fruiting in January and March.

Habitat and distribution—Endemic to Hispaniola; forest to open areas, from sea level to 2000 m, often on limestone.

Distinguishing features—Leaves orbicular, suborbicular, to obovate or ovate, mainly 1–3 cm long; young twigs 4-angled to weakly 4-winged; Hispaniola.

As understood here, *Psidium acranthum* is a somewhat variable species from a wide range of elevations and habitats. Some populations seem to be known from single specimens, and these specimens are often the types of taxa here considered synonyms. As with any species of the *P. amplexicaule* complex, new collections, with more information on, for example, habitat, phenology, and fruit characteristics, may change the taxonomic views in the future.

2. *Psidium albescens* Urb., Symb. Antill. (Urban). 5(3): 441. 1908. TYPE. Jamaica. “in latere australi Long Mountain” [ca. 17°59'N, 76°44'W], 300 m, 21 Jun 1907 (fl), Harris 9583 (HOLOTYPE: B, lost; ISOTYPES: A-71235, BM-796866 [lower part of sheet], K-565288, NY-1365100!).

Shrub or small tree 2–5 m high, glabrous except for minutely strigose to puberulent inner surface of calyx and staminal ring, the trunk pale, smooth; hairs reddish brown to whitish, less than 0.1 mm long; young twigs light reddish brown, the bark becoming whitish to gray, remaining smooth, or exfoliating in thin flakes. LEAVES obovate, suborbicular, or less often ovate, 1.8–6 cm long, 1.4–4 cm wide, 1.3–1.7 times as wide as long; apex rounded; base acuminate to acute, gradually intergrading into petiole; petiole 1–6 mm long, 0.8–2 mm wide; venation prominent to obscure, more visible above than below, raised slightly above and below, brochidodromous, with 3–4 pairs of laterals, leaving the midvein at an angle of 30–45 degrees (or less), mostly departing from midvein below mid-leaf, the distal laterals nearly equaling the midvein, the midvein sometimes appearing to terminate in two lateral veins, the marginal veins arching between the lateral, mostly within 1–3 mm of the margin, the tertiary veins dendritic, appearing to arise from the marginal vein; blades lustrous or not above, dull below, drying yellowish or greenish brown, the margin slightly revolute. FLOWER BUDS pyriform, 10 mm long when mature, densely glandular; hypanthium obconic to narrowly campanulate, ca. 3 mm long; indumentum pattern of buds with all surfaces glabrous except for strigose to puberulent inner surface of calyx and staminal ring; peduncles 4–12 mm long (to ca. 30 mm long in fruit), 0.8–1 mm wide, terete; bracteoles narrowly triangular, ca. 1 mm long, deciduous before anthesis. CALYX closed or with a minute apical pore through which hairs protrude in flower bud, tearing irregularly in 2 or 3 parts; petals ca. 7 mm long, glabrous, strongly glandular; disk within staminal ring, probably 1–2 mm across; stamens ca. 115, ca. 4 mm long; anthers globose, ca. 0.5 mm long, with a terminal gland and 0–4 smaller glands below; style 5–6 mm long; ovary 3-locular; ovules 22–28, borne on the edges of a somewhat peltate placenta, 1–2-seriate on each lamella. FRUIT subglobose to pyriform, ca 1 cm long and wide; seeds suborbicular, flattened, with rounded and flat sides, ca. 4 mm across. (Fig. 4).

Representative specimens. **JAMAICA.** **Manchester:** Somerset Woods, ca. 5 miles NW of Mandeville, (18.07°N, 77.55°W), 24 Feb 1957 (fl), *Proctor 16177* (IJ). **Portland:** East slope of John Crow Mountains, 1.5–2.5 mi SW of Ecclesdown, (18.03°N, 76.36°W), 17 Jun 1959 (fl), *Proctor 19727* (IJ, MICH). **St. Andrew:** Long Mountain, rd. to Wareika ['Wareka'], (17.98°N, 76.75°W), 183 m, 19 Nov 1907 (fl), *Harris 9998* (BM, NY).

Phenology—Flowering in June and November; fruiting in September.

Habitat and distribution—Endemic to Jamaica, known from only three localities, one of which is from near the city of Kingston, the collections being made in 1907. This species is in critical need of a conservation assessment.

Distinguishing features—*Psidium albescens* could be confused with Jamaican populations of *P. amplexicale* or *P. harrisanum*, both of which have nearly orbicular, nearly sessile leaves, often over 6 cm long. In *P. albescens* the leaves are usually obovate, usually less than 6 cm long, with a petiole 1–6 mm long. Furthermore *P. albescens* differs in having the leaf base acute to acuminate and the lateral veins often leaving midvein at an angle of less than 45 degrees (45–90 degrees in *P. amplexicaule* and *P. harrisanum*).

3. *Psidium amplexicaule* Persoon, Syn. 2: 27. 1806. TYPE. [St. John's], "Antillis." *Richard s.n.* (HOLOTYPE: P [Jussieu herbarium], =MICH neg. 1965, =ASU photo; ISOTYPES: F-76377!, P-258489!, P-258490!) Other possible original material at P, P-258491! [perhaps from Tortola], P-258492! from Guadeloupe (ca. 16.24°N, 61.5°W).

Psidium cordatum Sims, Bot. Mag. 43: t. 1779. 1815. TYPE. "Communicated by A. B. Lambert, Esq. from his collection at Boyton, who raised it from seeds received from late James Tobin, Esq. the produce of a tree in the Island of St. Nevis (ca. 17.35°N, 62.8°W), in the West-Indies." (HOLOTYPE: K-170084).

Psidium dictyophyllum Urb. & Ekman, Ark. Bot. 21A(5): 19. 1927. TYPE. Haiti, "Ile la Tortue, rough limestone west of Mouillage Anglais", 22 May 1925, *Ekman H4098* (SYNTYPES: S-R-9438, S-12-20560).

Guajava amplexicaulis (Persoon) Kuntze, Rev. Gen. 1: 240. 1891.

Psidium dumetorum Proctor, Bull. Inst. Jam. Sci. Ser. no. 16: 37. 1967. TYPE. Jamaica, Clarendon, Mason River Savanna, 2.75–3 mi due NW of Kellits P. O., 2300 ft, 16 Apr 1959 (fl), *Proctor 19650* (HOLOTYPE: IJ!, =photo at ASU; ISOTYPE: TEX-II00372190!, MO!).

Psidium sessilifolium Alain, Phytologia 25(5): 270. 1973. TYPE. Dominican Republic, "Arroyo Frances, Puerto Plata, 50–100 m," 28–29 Oct 1969, *Liogier 16557* (HOLOTYPE: NY-1288089!; ISOTYPES: MICH!, US!). PARATYPES. *Liogier 15877* (PARATYPE: NY!; ISOPARATYPES: MICH!, US!); *Liogier 16145* (PARATYPE: NY!; ISOPARATYPES: BM!, MICH!, US!); *Liogier 16473* (PARATYPE: NY!; ISOPARATYPE: MICH!, US!).

Calyptrogenia biflora Alain, Moscosoa 1(1): 28. 1976. TYPE. Dominican Republic, Sierra Prieta, Villa Mella, 150 m, *Liogier & Liogier 21467* (SYNTYPES: ["SDM"] JBSD, NY-84484; ISOSYNTYPE: GH-68944).

Marlierea leal-costae G. M. Barroso & Peixoto, Revista Brasil. Bot. 18(1): 105. 1995. TYPE. Brazil, Bahia, Salvador, Dunas de Itapoá, entre o aeroporto e Stella Maris, 20 Oct 1974, *Leal Costa & Santana s.n.* (HOLOTYPE: ALCB 03038, not seen online). Paratype from type locality [marked as "Holotype" and including diagnostic illustrations], 30 Nov 1969, *Leal Costa 37* viewed as an online image SpeciesLink; photo at ASU.

Shrub 1–2 m high, glabrous except for puberulent disk and calyx within, strongly glandular on young growth; *hairs* minute (less than 0.1 mm long), reddish brown to white; *young twigs* reddish to gray, smooth or longitudinally striate. LEAVES suborbicular, oblong, elliptic, ovate, or obovate, 2.4–7.5 cm long, 2–7.5 cm wide, 0.9–1.8 times as long as wide, glabrous; *apex* rounded, or obtuse, often emarginate; *base* rounded, cordate, or broadly cuneate; *petiole* essentially none, or 1–2 mm long, glabrous; *venation* brochidodromous, the midvein flat above, prominent below, the lateral veins 5–8 pairs, leaving the midvein at an angle of 60° to nearly 90°, moderately prominent to obscure, straight or somewhat recurved, the marginal vein broadly arching between the laterals, within 1–7 mm of the margin, the tertiary veins dendritic, usually

appearing to arise from the marginals, alternating with the laterals; *blades* coriaceous, drying gray-green to dark reddish brown, slightly lighter below than above, lustrous above. **FLOWER BUDS** pyriform, 6–12 mm long, glabrous, the hypanthium obconic, cylindrical or campanulate, 3–5 mm long, the distal portion of bud subglobose to obovoid, 4–9 mm long; *indumentum pattern of buds* with all surfaces glabrous or the disk and/or calyx within minutely (usually appressed) puberulent; *peduncles* 1–3-flowered, solitary, borne in the axils of leaves, 5–25 mm long, terete, subterete, or sometimes flattened distally, 1–1.5 mm wide, glabrous; *bracteoles* linear to narrowly triangular, ca. 0.5–1.2 mm long. **CALYX** closed entirely, sometimes with an apiculate apex, or enclosing the corolla except for an apical pore, tearing irregularly at anthesis, puberulent within, the tears cutting deeply into the staminal ring; *petals* 5, suborbicular to elliptic, (3–)9–15 mm long, sometime unequal in size; *stamens* 150–270, 8–10 mm long; *anthers* 0.8–1 mm long, with a large terminal gland and 2–22 smaller glands below; *style* 6–12 mm long, glabrous; *ovary* 2–4-locular; *ovules* 15–44 per locule, 1–2 seriate on edge of a peltate placenta. **FRUIT** subglobose, 1–2 cm in diam.; *seeds* (1–)6–16, 4–7 mm long, with some flat surfaces, sometimes lustrous; fruit wall 1.5–2 mm thick. (Fig. 5).

Representative specimens. **BRAZIL. Bahia:** Salvador, ca. 30 km a N do centro da cidade, estrada para o aeroporto, arredores de Itapua, (12.97°S, 38.51°W), 23 May 1981 (fl), *de Carvalho* 707 (CEPEC, NY); Camaçari, após a Tibrás, (12.80°S, 38.20°W), 12 Sep 1992 (fl), *Guedes* (ALCB, ASU0005189, CEPEC); Salvador, 3 km de la ciudad de Salvador, al oeste del aeropuerto, (12.97°S, 38.51°W), 12 Nov 1983 (fl), *Callejas Posada* 1733 (CEPEC, NY). **Sergipe:** Pirambu, (10.68°S, 36.87°W), 14 Sep 1995 (fr), *Landim* 607 (ASU0005190).

DOMINICAN REPUBLIC. Dajabón: Partido, along Maguaca River, (19.48°N, 71.55°W), 28 Aug 1971 (fr), [paratype of *Psidium sessilifolium*] *Liogier* 17385 (NY). **Distrito Nacional:** Sierra Prieta, Villa Mella, (18.65°N, 69.97°W), 80 m, 16 Apr 1996 (yfr), *Veloz* 814 (ASU0069447). **Espaiat:** Gaspar Hernández, La Hermita, road 5, 6 km from Gaspar Hernández to San Juan, (19.63°N, 70.23°W), 70 m, 1 Jun 2000 (fl), *Araujo 1800* (ASU0060535). **Puerto Plata:** Paraje la Isla, en la carretera a Guzmancito el Albinal, (19.87°N, 70.81°W), 2 m, 4 Aug 2002 (fr), *Salywon* 1322 (ASU0069449). **Santiago Rodríguez:** Monción, Cordillera Central, 3.6 km al sureste de Jicomé, camino a Los Ramones, (19.32°N, 71.17°W), 16 Jul 1985 (fr), *Mejía* 1430 (ASU0004805).

HAITI. Nord-Ouest: Ile la Tortue, Rivière la Vallée, Morne Barranca, (20.06°N, 72.80°W), 300 m, 24 May 1925 (fl), *Ekman H4112* [similar to the type of *Psidium dictyophyllum*] (JBSD, MICH, US); vicinity of Port-de-Paix, bluff west of rifle range, (19.93°N, 72.84°W), 25 Jan 1929 (fl), *Leonard* 12354 (NY, US). **Ouest:** Valle Artibonte, Dept. Artibonte, 9.3km al NO de La Chapelle, (18.80°N, 72.37°W), 12 Jun 1986 (st), *Zanoni* 35199 (ASU0004807). Nord-Ouest: 5.5 km al nordeste de Mole St. Nicolas en la carretera costera Jean-Rabel, (19.83°N, 73.35°W), 3 Feb 1985 (fl & fr), *Zanoni* 33501 (ASU0004815).

JAMAICA. Clarendon: Mason River Savanna, 2–3 mi due NW of Kellits P. O., 2300 ft, 20 Nov 1958 (fl), *Proctor 18402* (IJ).

PUERTO RICO. Utuado, Barrio Ángeles, El Cemí on summit, (18.27°N, 66.70°W), 400 m, 4 Aug 1981, *Liogier* 32103 (NY); Florida, Barrio Florida Adentro, km 50.75, Rte 140, (18.34°N, 66.59°W), 150 m, 10 Aug 2001 (fr), *Salywon* 1210 (ASU0004804).

VIRGIN ISLANDS (UK). Tortola, Sage Mountain National Park, (18.40°N, 64.66°W), 488 m, 15 Mar 1972 (fr), *Little 26062* (NY, US); Virgin Gorda Peak, Virgin Gorda N. P., (18.49°N, 64.40°W), 305 m, 17 Mar 1972 (fl), *Little 26120* (NY, US).

VIRGIN ISLANDS (USA). Saint John, Coral Bay Quarter, Bordeaux Mountains Road, (18.35°N, 64.71°W), 8 Aug 1985 (yfr), *Acevedo* 273 (ASU0004809).

Phenology—Flowering from January to June; fruiting mainly in August.

Habitat and Distribution—Apparently widespread in the Caribbean islands and disjunct along the coast of Bahia, Sergipe and perhaps others states of Brazil. In Brazil apparently found only in “restinga” (sandy coastal habitats) near sea level. In the Caribbean often growing well away from coast along streams and other humid habitats and on hills, on limestone, serpentine, or laterite soils, at elevations near sea level to 450 m.

Distinguishing Features—An essentially glabrous shrub 1–2 m high; leaves 2.4–7.5 cm long, suborbicular to oblong, 0.9–1.8 times as long as wide, sessile, or subsessile, the base rounded to cordate; lateral veins leaving the midvein at an angle of 60° to nearly 90°; flower buds pyriform, 6–12 mm long anthers with a terminal gland and smaller glands below; seeds 4–7 mm long.

4. *Psidium cattleyanum* Sabine, Trans. Roy. Hort. Soc. 4: 315. pl. 11. 1821. TYPE. Raised in England by William Cattley from seed from China. *Illustration: Trans. Roy. Hort. Soc. 4: 315. pl. 11. 1821.* (LECTOTYPE: Illustration of Sabine, plate 11, designated by Snow & Veldcamp 2010 and again by Tuler et al. 2018).

See extensive synonymy in Landrum 2022.

Shrub or tree to 1–12 m high, glabrous or the young growth puberulent to strigose on some floral structures; *hairs* whitish, most less than 0.1 mm long; *young twigs* flattened, becoming subterete, light reddish brown to light gray, the older twigs remaining more or less smooth, usually gray. LEAVES obovate, oblanceolate, elliptic, 3–10.5 cm long, 1.5–6.5 cm wide, 1.5–2.6 times as long as wide; *apex* acute, acuminate, to broadly rounded; *base* acuminate to cuneate, or rarely rounded; *petiole* channeled, 2–14 mm long, 1–2 mm wide; *venation* brochidodromous, the midvein prominent below, nearly flat to shallowly impressed above, the lateral veins 6–13 pairs, leaving the midvein at an angle of 45–60°, prominent to weak, flat or impressed above, the marginal vein arching between the laterals 1–5 mm from the margin, somewhat weaker than laterals, the tertiary veins dendritic, arising near the margin and extending towards the midvein; *blades* coriaceous (rubbery when fresh), drying light or dark reddish brown to gray-green, nearly concolorous, the upper surface after drying often mottled with whitish blotches, the margin slightly revolute. FLOWER BUD subpyriform, 5–14 mm long, the hypanthium obconic to funnel-form, 2–5 mm long, the distal portion of bud subglobose, 3–10 mm long; *indumentum pattern of buds* with all surfaces glabrous or with peduncles, bracteoles, and calyx within sometimes puberulent; *peduncles* 2–8(–13) mm long, ca. 1 mm wide, uniflorous, borne in the axils of leaves, at leafless nodes, or in the axils of leafy to reduced bracts; *bracteoles* ovate, lanceolate, or oblong, 1–2.3 mm long, caducous at anthesis. CALYX fused 3–7 mm beyond the ovary summit, terminating in a sinuate edged terminal pore or in 5 broadly rounded lobes (rarely closed and falling as a calyptra above staminal ring), tearing irregularly or between the lobes at anthesis, the tears cutting through the staminal ring; *petals* suborbicular, obovate to elliptic, 3–8 mm long; *disk* within the staminal ring ca. 4–6 mm across; *stamens* 200–400, 3–8 mm long; *anthers* 0.6–1 mm long, with 1 terminal gland; *style* 4–8 mm long, the stigma 1–1.5 mm wide; *ovary* 3–5-locular, sometimes with a few hairs on inside of locules; *ovules* 10–28 per locule, uniseriate or biserrate on each lamella, the placenta peltate, at least slightly so. FRUIT red or yellow, pyriform to subglobose, 1.5–3 cm long; *seeds* 12–64, 2–6 mm long, smooth, with rounded edges. $2n$ commonly equal to 44, 66, 88 and higher. (Fig. 6).

Representative specimen. **JAMAICA. Clarendon:** Mason River Field Station, ca. 3 mi NW of Kellits (ca. 18°10'N, 77°14'W), ca. 650 m, 5 Jun 1983 (fl), *Landrum 4763* (NY). **Manchester:** Marshalls Pen, 2.25 mi due NW of Mandeville, (18.06°N, 77.53°W), 701 m, 4 Oct 1964 (fr), *Proctor 25580* (IJ). **St. Ann,** road to Holly Mount, (18.21°N, 77.12°W), 21 Sep 1962 (fr), *Adams 11677* (MO).

Phenology—Probably flowering in rainy season (summer months of May to August).

Habitat and Distribution— Frequently cultivated in tropical and subtropical regions around the world; likely cultivated on all the Greater Antilles; often invasive, especially in disturbed habitats. Growing uncultivated in at least Jamaica.

Distinguishing Features—Plants nearly glabrous, the leaves rubbery coriaceous, usually obovate to oblanceolate; calyx usually with a terminal pore, tearing irregularly on opening (rarely closed and calyptrate above the staminal ring), the tears cutting into the staminal ring.

Psidium cattleyanum is a variable species with respect to leaf and fruit size, fruit color, and ploidy level. Chromosome numbers of $2n=44$ and 88 have previously been reported. Machado (2016) reports polyploidy levels as low as $2n=3x=33$ and as high as $2n=12x=132$ with little correlation to geography or fruit color, except that higher ploidy levels may be associated with more adverse habitats. Machado also reports that individuals with red fruits tend to grow at higher elevations than those with yellow fruits. The species can be an aggressive invader in some areas such as Hawaii and Madagascar but is also valued for its edible fruits and its use in landscaping.

5. *Psidium guajava* L., Sp. Pl. 470. 1753. TYPE. “Habitat in India,” cultivated plant from Hort. Cliff. (LECTOTYPE: BM-628598 [designated by McVaugh, 1989]).

See extensive synonymy in Landrum 2022.

Shrub or tree up to ca. 12 m high, subglabrous to densely appressed pubescent on young growth and lower leaf surfaces, the trunk smooth, light brown to light gray-green, with large flaky scales; *hairs* whitish, yellowish, or silvery, up to ca. 0.7 mm long, erect or appressed; *young twigs* quadrangular, slightly to strongly winged, often sulcate (at least when dry), densely to moderately appressed-pubescent, the older twigs at first scaly with longitudinal striations or fibers, eventually smooth with irregular scales falling as patches. LEAVES elliptic, oblong, elliptic-oblanceolate, elliptic-obovate, or lanceolate, 4.5–14 cm long, 2.4–7.5 cm wide, 1.6–4 times as long as wide, densely to sparsely appressed pubescent below, subglabrous except for puberulent midvein above, the immature leaves covering the twig apex in 2 decussate pairs; *apex* acute, acuminate, to rounded; *base* rounded to slightly cordate; *petiole* 2–5 mm long, 1–2 mm thick, channeled, densely pubescent to subglabrous; *venation* brochidodromous distally to eucamptodromous proximally, the midvein impressed above, prominent below, the lateral veins 9–22 prominent pairs, ascending at angle of ca. 45° , nearly straight, curving toward apex near the margin and connecting with the next lateral, the marginal vein not clearly present or arching between the laterals, the tertiary veins connecting the laterals in a ladder-like to reticulate pattern; *blades* coriaceous to submembranous, drying yellow-green, gray-green, to dark reddish brown. FLOWER BUDS subfusiform to pyriform, 9–14 mm long, sometimes strongly constricted near the midpoint, the hypanthium narrowly campanulate, barrel shaped or fusiform 4–6 mm long, the distal portion of bud more or less ovoid, sometimes strongly so with a conical apex, 4.5–9.5 mm long; *indumentum pattern of buds* with peduncles, hypanthium, and bracteoles sparsely to moderately appressed pubescent, the calyx without glabrous to sparsely pubescent (usually less densely covered than that hypanthium), the calyx glabrous or densely pubescent within, the petals, disk, and style glabrous; *peduncles* 1–3-flowered, 1–3.5 cm long, 1–1.5 mm thick, terete; *bracteoles* linear to narrowly triangular, 2–5 mm long. CALYX closed, tearing irregularly as the bud opens, persisting or falling in ca. 3 parts; *petals* obovate to elliptic, 13–22 mm long; *disk* 4–6 mm across; *stamens* 280–720, 7–15 mm long; *anthers* 0.7–1 mm long, with 1–7(–10) glands; *style* 10–15 mm long; *ovary* 3–6-locular; *ovules* 90–180 per locule, multiseriate. FRUIT globose to pyriform, 2–6(–8) cm long, green to yellow without, with pink,

yellow, or white flesh, aromatic; *seeds* 100–400, perhaps more in large fruits, subreniform to subtriangular, 2–4 mm long, more or less smooth, the seed coat 0.2–0.25 mm thick at narrowest point. $2n = 22, 44$. (Fig. 7).

Representative specimens. CUBA. **Camagüey:** La Gloria, (21.73°N, 77.64°W), 28 Jan 1909 (fr), *Shasfer* 91 (NY). **Isla de la Juventud:** (21.69°N, 82.86°W), 25 Jun 1901 (fl), *Taylor* 148 (NY). **La Habana:** in Campo Florida inter urbem et Loma Coca, (23.09°N, 82.12°W), 27 May 1923 (yfr), *Ekman* 16419 (NY). **Santiago de Cuba:** Segundo Frente, Mayarí Arriba, Sierra de Nipe, cerca de Seboruco, (20.32°N, 75.59°W), 1 Nov 1977 (fl), *Álvarez, et al.* 35937 (JE). **Villa Clara:** Cieneguita, District of Cienfuegos, (22.27°N, 80.61°W), 3 May 1895 (fl, fr), *Combs* 1 (NY).

DOMINICAN REPUBLIC. **Barahona:** Sierra de Bahoruco, 10 km de La Cienaga en camino a Aguita Blanca y El Platón, (18.05°N, 71.16°W), 22 May 1984 (fr), *Zanoni* 30134 (ASU0004820). **La Vega:** 5 km S of Constanza (18°52'N, 70°43'W), 1400 m, 24 Jul 1980 (fl), *Mejía & Zanoni* 7668 (MO). **San Cristóbal:** Arroyo Juan Gomito, 3 km NW of La Estancia on road to Hato Viejo, a feeder stream and woodland of Río Guanuma, (18.68°N, 70.05°W), 13 Aug 1980 (fr), *Mejía* 7917 (ASU0004876). **San Pedro:** S of Boca de Soco, at SW bank of Río Soco, small village along river and seacoast (18°28'N, 69°17'W), 5 m, 15 Oct 1980 (fr), *Mejía & Zanoni* 8574 (MO). **Santiago Rodríguez:** about 4 km SW of Cañada Grande (of Monción) on road to La Meseta and La Leonor, (19.40°N, 71.19°W), 18 Aug 1989 (fr), *Jones* 132 (ASU0004816). **Valverde:** Cordillera Septentrional, Valverde-Santiago limits, sobre loma (Pico) El Murazo, (19.68°N, 70.97°W), 18 Dec 1984 (fr), *Zanoni* 32897 (ASU0004829).

HAITI. **Du Nord:** Ducroix, near Cap Hatien, (19.78°N, 72.22°W), 3 May 1988 (fl), *Chandler* 30 (USF).

JAMAICA. **Clarendon/St. Ann:** 2 mi NW of Mason River Field Station, ca. 5 mi NW of Kellits, (18.21°N, 77.29°W), 655 m, 30 Dec 1979 (fl), *Pruski* 1554 (IJ). **Portland:** Saint Margarets Bay, Hope Bay, (18.19°N, 76.53°W), 26 Feb 1906 (fl), *Wight* 140 (NY). **St. Andrew:** in thicket, near Richards reservoir, Mona, (18.00°N, 76.76°W), 168 m, 13 Dec 1957 (fl), *Yuncker* 17751 (NY). **St. Elizabeth:** Pit 101, Kaiser mine area S of Gutters, (18.01°N, 77.61°W), 16 Sep 1954 (st), *Howard* 13861 (IJ). **St. Mary:** 1 mi E of Río Nuevo, (18.40°N, 77.00°W), 3 Nov 1968 (fl), *Proctor* 29291 (IJ). **St. Thomas:** Port Morant Light House, (17.92°N, 76.19°W), 6 May 2000, (fl, yfr), *Parker* 2847 (IJ). **Trelawny:** Ramgoat Cave, (18.31°N, 77.56°W), 545 m, 12 Mar 2013 (st), *Campbell* s.n. (IJ).

PUERTO RICO. Barrio Maricao Afuera, Maricao Forest Reserve, Rt. 120, km 16.9, ca. 30 m before km marker on north side of rd, (18.16°S, 67.00°W), 723 m, 15 Aug 2001, *Salywon* 1281 (ASU); 1.2 mi on Rte 675 from junction with Rte 676, then 3 mi S on side rd (18°24'N, 66°22'W), 31 Dec 1980 (fl, yfr), *Solomon* 5725 (MO).

Phenology—Flowering and fruiting throughout the year but probably mainly flowering in May to July and fruiting in August.

Habitat and Distribution—Found in forests and charrascles, but usually in disturbed areas such as roadsides and pastures from near sea level to 1000 m. Cultivated in tropical and subtropical regions around the world and frequently escaping and weedy. Native to the Americas; perhaps first cultivated in South America (Arévalo et al. 2021; Landrum 2021).

Common names—Guayaba (Spanish), guava (English), gwayav (Haitian Creole).

Distinguishing Features—Calyx closed in flower bud or open only as a terminal pore, tearing irregularly as the bud opens, usually in 2 or 3 parts; lateral veins usually more than 10 pairs; hairs on lower leaf surface appressed, whitish, or silvery.

6. ***Psidium guineense*** Sw., Prodr. 77. 1788. TYPE. “*Insula principis Africes, in Domingo culta.*” On type specimens: “*Culta in Hispaniola,*” “*ex Africa*”. Presumably, *Swartz* s.n. (HOLOTYPE: S-R-5302; ISOTYPES: BM-616940, SBT-12641).

See extensive synonym in Landrum 2022.

Shrub or small tree up to about 6 m high, typically densely covered with velvety to subtomentose indumentum on the inflorescence and young growth but sometimes nearly glabrous, the trunk smooth to scaly; *hairs* simple, spreading (loosely appressed) to erect, often tangled together, grayish to reddish brown, ca. 0.3–0.5 mm long; *young twigs* densely to moderately velutinous, or less often glabrous, compressed to terete in section, losing indumentum in about 1 year, usually not angled but sometimes grooved when young, vigorous shoots sometimes weakly angled, the older bark usually remaining more or less smooth, less often somewhat flaky or stringy. *LEAVES* elliptic, elliptic-oblong, obovate, 4–11.5 cm long, 2–8 cm wide, 1.3–2.4 times as long as wide, usually densely to moderately velutinous below, glabrous to covered with hairs along the midvein above, the margin entire; *apex* obtuse, rounded, or acute; *base* rounded to acute; *petiole* 4–12 mm long, 1.5–2 mm thick, channeled, densely to sparsely pubescent, rarely glabrous; *venation* brochidodromous to eucamptodromous distally, the midvein impressed or nearly flat above, prominent below, the lateral veins 5–10 pairs, ascending at an angle of ca. 45°, diminishing and looping near the margin to connect with the next lateral, a clear marginal vein not formed, the tertiary veins, connecting the laterals in a ladder-like to reticulate pattern; *blades* coriaceous, drying yellowish brown to reddish brown, concolorous to somewhat darker above, when dry often mottled and/or lustrous above. *FLOWER BUDS* pyriform, 8–15(–17) mm long, the hypanthium ellipsoid to obconic, 3.5–7 mm long, the distal portion of bud ellipsoid, subglobose, or ovoid, 4.5–10 mm long; *indumentum pattern of buds* with all external surfaces moderately to densely pubescent (rarely subglabrous), the calyx pubescent without, but less densely so than hypanthium, distally pubescent within, the petals pubescent without, the disk sparsely pubescent (less often glabrous), the style glabrous; *peduncles* terete to compressed, 9–25(–30) mm long, 1–2 mm wide, uniflorous or triflorous, the branches of the dichasium when present 2–12 mm long; *bracteoles* narrowly triangular, ca. 2–3 mm long, caducous at about anthesis. *CALYX* closed completely, or with a terminal, pore-like opening at the apex, tearing longitudinally to the staminal ring, usually in 5 parts, these sometimes persisting until the fruit matures, the margin of calyx pore if present sinuate or with 5 small lobes; *petals* elliptic to obovate, concave, 7–15 mm long, 7–10 mm wide, sometimes more than 5; *disk* 4–5 mm across; *stamens* 180–300, 7–10 mm long; *anthers* 1–3 mm long, more or less introrsely dehiscent, the glands in the connective 1 to over 50; *style* 8–12 mm long; *ovary* 3–5-locular; *ovules* 50–100 per locule, ca. 8-seriate. *FRUIT* subglobose to ellipsoidal, 1–3 cm long; *seeds* 19–250 per fruit, 2.5–5 mm long, the seed coat 0.2–0.3 mm thick at narrowest point. $2n = 44$. (Fig. 8).

Representative specimens. **CUBA. Guantánamo:** Yateras, Sierra de Frijol, en el camino del Riito a Cayo Fortuna, (20.39°N, 74.92°W), 700 m, 12 May 1983 (fl), Arias et al. 49321 (JE); subida hacia la zona de Monte Líbano, (20.28°N, 75.15°W), 300 m, without date (fl), Bisse & Kohler 7928 (HAC, JE); La Prenda, (20.34°N, 75.04°W), 11 Jul 1919, Bro. Hioram 2501 (NY); montanas de Guantánamo, (20.15°N, 74.87°W), 16 May 1983 (ofl), Urquiola 685 (ASU0004977). **Holguín:** Pinares de Mayarí, Pinar Redondo, en el camino de La Chivera a Río Piloto, (20.40°N, 75.78°W), 400 m, 25 May 1983 (yfr), Arias et al. 50203 (JE); Cuchilos de Toa, Cayo Fortuna, trillo de Riito a Piloto Arriba, (20.52°N, 74.88°W), 31 Mar 1972 (fl), Bisse & Berazain 22249 (HAC, JE); Sierra de Nipe in pinetis, (20.46°N, 75.83°W), 20 Oct 1919, Ekman 9776 (NY).

HAITI. Grand'Anse: Massif de la Hotte, western group, Corail, on the road to Dutreuil, hillside, (18.40°N, 74°W), 100 m, 29 Sep 1928 (st), Ekman H10766 (NY). **Nord-Est:** Massif du Norde, Vallière, slope of Morne Salnave, (19.44°N, 71.88°W), 800 m, 1 May 1928, Ekman H9931 (US).

JAMAICA. St. Andrew: vicinity of Irish Town, (18.05°N, 76.72°W), 783 m, 6 Mar 1960 (fr), Proctor 20669 (IJ, MICH); Coakley district, along junction road, (18.16°N, 76.83°W), 10 Apr 1960 (fl, fr), Proctor 20770 (IJ).

Phenology—Flowering throughout the year but probably mainly from March to May; fruiting throughout the year but probably mainly from June to August.

Habitat and Distribution—Mainly disturbed areas from 100 to 700 m. *Psidium guineense* is a widespread species of disturbed habitats, ranging from northern Argentina to Mexico and the Caribbean. It has been widely introduced in subtropical and tropical areas around the world.

Distinguishing Features—Calyx closed or with a small terminal pore in bud, usually tearing into 5 parts; lateral veins 5–10 pairs, usually with a ladder-like pattern of tertiary veins; indumentum of lower leaf surface more or less erect, reddish brown (sometimes more or less appressed whitish or gray in continental America); anthers 1–3 mm long, often with more than 10 glands.

7. ***Psidium harrisianum*** Urb., Symb. Ant. (Urban). 7: 294. 1912. TYPE. Jamaica, "supra Clarendon in sylvis Peckham dictis, 800 m. alt.," *Harris 11000* (HOLOTYPE: B, lost; ISOTYPE: NY-1288054!).

Shrub or small tree 1.5–10 m high, glabrous except for inner surface of calyx and staminal ring, densely glandular on young growth; *hairs* less than 0.1 mm long, reddish brown to whitish; *young twigs* whitish, spotted with reddish brown glands (less often dry dark brown with glands of the same color), the first bark falling as thin flakes, the older twigs reddish gray. LEAVES suborbicular, sessile or nearly so, 2–8 cm long, 1.8–7 cm wide, 0.9–1.1(–1.5) times as long as wide; *apex* rounded to truncate, sometimes emarginate to indented; *base* cordate to truncate; *petiole* 0–1 mm long, 0.5–3 mm wide; *venation* brochidodromous, the midvein prominent below, about flat above, the lateral veins 4–6 pairs, leaving the midvein at angle of 45 to nearly 90 degrees, the marginal vein arching deeply between laterals, running from about 1–10 mm from the margin, the tertiary veins weak, dendritic; *blades* subcoriaceous, somewhat lustrous above and below, drying dark reddish brown to gray green, lighter below. FLOWER BUDS pyriform, 3.5–4 mm long, usually constricted between calyx and hypanthium, "dull red" when fresh (ex *Franck 3796*); *hypanthium* obconic, campanulate, ca. 2 mm long; *indumentum pattern of buds* with all external surfaces glabrous, the inner surface of calyx and staminal ring strigose-puberulent; *peduncles* 3–8 mm long, 0.3–0.8 mm wide; *bracteoles* narrowly triangular, 0.3–0.5 mm long, usually deciduous before anthesis. CALYX closed or with a terminal small pore, tearing irregularly in 2–4 [persistent?] parts; *petals* not seen extended, glabrous, densely glandular; *disk* within staminal ring, ca. 1.5 mm across; *stamens* 35–47, probably ca 3 mm long; *anthers* subglobose, ca. 0.5 mm long, with a terminal gland and 4–7 smaller glands below; *style* ca. 2.5 mm long; *ovary* 2-locular; *ovules* borne on the edge of a peltate placenta, 8–19 per locule, mainly 1-seriate on each lamella. FRUIT subglobose, 1–1.5 cm wide; *seeds* 17 in one fruit, 4–5 mm long. (Fig. 9).

Representative specimens. JAMAICA. Clarendon: Peckham Woods, (18.20°N, 77.39°W), 770 m, 4 May 2015, *Franck 3796* (USF); Peckham Woods, (18.17°N, 77.41°W), 762 m, 15 Aug 1954 (fl), *Webster & Proctor 5420* (IJ, MICH). St. Ann: Douglas Castle district, (18.20°N, 77.27°W), 701 m, 8 Oct 1977 (fr), *Proctor 37325* (FTG, IJ, MO). St. Catherine: Forest Reserve area east of Crofts Mountain, (18.13°N, 77.18°W), 503 m, 6 Sep 1962 (fl), *Proctor 22738* (IJ, MICH). Trelawny: Cockpit Country, Lichfield-Barret Hut, 'Little Kilimanjaro Hill', (18.25°N, 77.50°W), 600 m, 17 Mar 2011 (fl, fr), *Abdo & Campbell 2610* (FTG); Burnt Hill, (18.31°N, 77.56°W), 549 m, 3 Sep 1965 (fr), *Proctor 26691* (IJ, MICH).

Phenology—Flowering or with flower buds from March to November; fruiting in September, October, and March.

Habitat and distribution—Wooded limestone hills at 500 to 800 m; a rare endemic and perhaps endangered species of the central Jamaican highlands.

Distinguishing features—Large suborbicular leaves up to 8 cm long with lateral veins leaving

the midvein at an angle of 45 to 90 degrees; flower buds 3.5–4 mm long.

- 8. *Psidium minutifolium*** Krug & Urb., Bot. Jahrb. Syst. 19: 569. 1894. TYPE. Cuba. “in Cuba orientali prope Baracoa, in summo monte Yunque,” Wright s.n. (HOLOTYPE: B, lost; ISOTYPE: GOET-8269; probable isotype, Wright 2464 MO!, NY-fragment!).

Psidium jakucsianum Borhidi, Bot. Kozlem 64(3): 214. 1977. TYPE. Cuba. “Oriente, Charrascos de la Ermita, al Este del Yunque de Baracoa,” Alain et al. 7568 (HOLOTYPE: HAC!; ISOTYPES: BP, HAC!).

Shrub or subshrub (probably less than 30 cm high), nearly glabrous except for inner surface of calyx and sometimes minutely puberulent young growth; hairs reddish brown to whitish, appressed or erect; young twigs 4-winged, reddish brown, the wings 0.1–0.3 mm wide, appearing to point in the direction of the leaf above, expanding somewhat at base of petiole into stipule-like lobes, the older bark becoming gray, falling in strips, with portions of wings falling in units, eventually scaly. LEAVES elliptic to obovate, 5–15(–20) mm long, 4–15 mm wide, 1–2 times as long as wide; apex obtuse to acute; base cuneate; petiole 1–2 mm long, 0.5–1 mm wide; venation mainly obscure, the midvein somewhat prominent below, impressed proximally above, 4–6 lateral veins rarely scarcely visible, leaving the midvein at an angle of 45–60°; coriaceous, strongly glandular, somewhat lustrous above, dull below, the margin revolute. FLOWER BUDS pyriform, 5–6 mm long; hypanthium campanulate, constricted below calyx tube, 2–2.5 mm long, the distal portion of bud subglobose, 3–3.5 mm long; indumentum pattern of buds with all external surfaces glabrous except for strigose petals; peduncles 11–18 mm long, 0.3–1 mm wide, 1-flowered, glabrous, glandular, borne in the axils of leaves or small bracts; bracteoles narrowly triangular, 0.5–1 mm long. CALYX closed in the bud, tearing in 4 nearly equal lobes, the tears not cutting the staminal ring, the inner calyx surface puberulent; petals 4, glandular, externally sparsely strigose; disk including staminal ring ca. 3 mm across, within staminal ring, ca. 1 mm across, the staminal ring puberulent; stamens ca. 60, probably 3–4 mm long; anthers ca. 0.5 mm long, with a terminal gland and 2–9 smaller glands below; style ca. 3–4 mm long, glabrous; ovary 2–3-locular; ovules 10–14, borne on a peltate placenta. FRUIT globose, ca. 6–10 mm long. (Fig. 10).

Representative specimens. CUBA. **Guantánamo:** Baracoa, Quibiján, Sierra Azul, (20.35°N, 74.63°W), 400 m, 31 Jan 1968 (st), Bisce & Kohler 5492 (JE); Baracoa, subida a la Mina Iberia [Parque Nacional Alejandro Humboldt], (20.46°N, 74.73°W), 300 m, 29 Feb 1968 (st), Bisce & Kohler 6158 (JE); Baracoa, en la cima del Yunque de Baracoa, (20.34°N, 74.55°W), 500 m, 31 Mar 1970 (bud), Bisce 17121 (JE). **Guantánamo:** Baracoa, orillas del Río Báez, cerca del campamento ‘Los Naranjos’, (20.44°N, 74.60°W), 1 Aug 1975 (old fl), Bisce et al. 26901 (JE); Baracoa, Yunque de Baracoa, falda sureste, (20.34°N, 74.55°W), 28 Feb 1979 (st), Bisce et al. 40109 (HAJB, JE). **Holguín:** Oriente, Moa, Cayo Chico, (20.64°N, 74.94°W), 19 Nov 1945, Acuña 13261 (NY); Moa, La Melba, altiplano sur de la Sierra de Moa, (20.45°N, 74.82°W), 25 Feb 1979 (yfr), Bisce et al. 39950 (JE); Moa, Cayo Guan Mine, (20.61°N, 74.85°W), 18 Jul 1947 (fl), León & Clemente 23146 (NY). **Santiago de Cuba:** Mayarí, Pinares de Mayarí, mogotes y barranco de Río Piloto en su curso medio, (20.40°N, 75.78°W), 400 m, 1 Jun 1983 (st), Arias et al. 50671 (JE).

Phenology—Flowering February to April and July to August; fruiting August to November.

Habitat and distribution—Endemic to eastern Cuba; known from 200–700 m, in charrascal vegetation and humid forest, on limestone and ultrabasic rock.

Distinguishing features—Leaves mostly less than 2 cm long, elliptic to obovate; peduncles sometimes longer than the leaves.

Psidium minutifolium and *P. parvifolium* have similar distributions, mainly in eastern Cuba. Usually, they are easily distinguished by the size of their leaves and other characters included

in the key below. Both are variable and occasionally problematic specimens are difficult to assign to either species. We think at least three specimens may be hybrids: *Arias et al.* 50300 (HAJB, JE); *Bisse & Rojas* 3528 (HAJB, JE); and *Bisse & Rojas* 3957 (HAJB, JE). Images may be viewed on CoTram. Field observations on these two species are encouraged to establish if they have habitat preferences and habit or phenological characteristics that may help to distinguish them.

1. Leaf 0.5–1.5(–2) cm long, usually elliptic, less often obovate; midvein usually impressed, at least proximally above; young twigs 4-winged; flower bud 5–6 mm long; stamens ca. 60; style 3–4 mm long; ovules per locule 10–12; fruit 6–10 mm long; peduncles 11–18 mm long, 1-flowered..... *P. minutifolium*
- 1' Leaf (1.5–)2–4(–5) cm long, usually obovate to oblanceolate; midvein nearly flat to raised above; young twigs smooth, compressed to terete; flower bud 6–9 mm long; stamens 80–255; style 6–8 mm long; ovules per locule 14–30; fruit 7–20 mm long; peduncle 6–32 mm long, 1–3-flowered. *P. parvifolium*

9. *Psidium montanum* Sw., Prodr. 77. 1788. TYPE. Jamaica. *Swartz s.n.* (HOLOTYPE: S-R-9480, =ASU photo; ISOTYPES: B-W09476-01, MEL-2396530, SBT-12638).

Psidium wrightii Lamb. ex W. Wright, Memoir W. Wright 278. 1828. TYPE. In Wright's herbarium from Jamaica, not found; description and common name of Mountain Guava leave little doubt about identity.

Guajava montana (Sw.) Kuntze Rev. Gen. 1: 240. 1891.

Tree up to 16 m high, essentially glabrous except for inner surface of calyx and sometimes other floral surfaces and young twigs, the trunk smooth or scaly, the bark reddish or mottled; hairs whitish, up to ca. 0.5 mm long, mainly antrorsely appressed; young twigs glabrous or puberulent, quadrangular with four wings, gray to reddish brown, becoming terete in about 1 year, the older bark smooth or scaly. LEAVES lanceolate, ovate, or elliptic 5–12 cm long, 2–5 cm wide, 1.8–3.3 times as long as wide; apex acute to acuminate, often turned downward and flattened to one side when pressed, the tip often blunt; base broadly rounded to acute, often oblique; petiole channeled to nearly flat above, (2–)3–10 mm long, 0.8–2 mm thick; midvein impressed above, prominent below; venation brochidodromous, the lateral veins 7–12 pairs, raised slightly below, sometimes impressed above, nearly straight, leaving midvein at an angle of 45–60°, alternating with weaker dendritic veins that seem to arise either from the marginal or midvein; marginal vein arching slightly between the laterals; blades coriaceous to subcoriaceous at maturity, drying dark olive green to reddish brown. FLOWER BUDS pyriform to subrhomboidal, 8–15 mm long, the tip abruptly acuminate to rounded, the base obconic to tapering; peduncles 5–16 mm long, up to ca. 1.5 mm thick, subterete of 4-angled, 1–3-flowered; bracteoles narrowly triangular, 1–4 mm long, deciduous at about anthesis; calyx closed in bud, sometimes with a minute pore at the tip, more often with an apiculate closed tip, glabrous to pubescent without, pubescent within, tearing irregularly, usually persisting, the remnants 0.3–0.5 mm thick when dry; petals suborbicular to obovate, ca. 1 cm long, often pubescent within and without; hypanthium glabrous to pubescent, continuous with closed calyx; disk 8–10 mm across, pubescent; stamens 0.8–1 cm long, 150–360; anthers ca. 1 mm long, with 3–10 glands in the connective; style probably about as long as stamens, the stigma peltate; ovary 3–4-locular, or locules poorly developed; ovules 10–20, or apparently none (abortive?). FRUIT globose, up to 3.5 cm in diameter; seeds ca. 30, ca. 5 mm long. (Fig. 11).

Representative specimens examined. JAMAICA. Manchester: Vicinity of Walderton, (18.13°N, 77.49°W), 9 Jan 1963 (fr), *Proctor* 23127 (IJ, MICH); Green Vale, 1.5 mi W of Mandeville, (18.02°N, 77.51°W), 701 m, 27 May 1965 (fl), *Proctor* 26438 (IJ, MICH); Marshalls Pen, 2.25 miles due NW of Mandeville, (18.05°N, 77.53°W), 640 m, 16 Aug 1965 (st), *Proctor* 26606 (IJ). Portland: Muriel's Rock, along road between Section and

Hardwar Gap, (18.08°N, 76.74°W), 1036 m, 24 Nov 1971 (fl), *Proctor* 32738 (IJ, NY). **St Andrew:** near Cinchona, (18.07°N, 76.66°W), 610 m, 25 Apr 1894 (st), *Harris* 5156 (UWI). **St. Elizabeth:** Retirement district near Malvern, (17.98°N, 77.71°W), 12 Sep 1954, *Howard & Proctor* 13680 (BM, NY). **Trelawny:** Tyre, near Troy, (18.25°N, 77.60°W), 610 m, 25 Feb 1906 (fl), *Harris* 9406 (NY, UWI).

Phenology—Flowering mainly from February to August; fruiting mainly September to December.

Habitat and distribution—Endemic to Jamaica; woods and pastures on limestone hills, sometimes on bauxite soil at elevations of 550–1200 m.

Distinguishing features—Tree up to 16 m high; leaves lanceolate, ovate, or elliptic 5–12 cm long; flower buds mainly 1–1.5 cm long; fruit globose, up to 3.5 cm in diameter; seeds ca. 30, ca. 5 mm long.

Common name—Mountain guava.

According to Proctor (1972) the fruits taste like mangos. In only 1 of 5 specimens examined (1 bud each) were there well developed ovules. Perhaps the abortive ovules are cause by a disease. The fruits are often attacked by insect larvae.

Psidium berteroanum O. Berg, was apparently described from a specimen collected by Bertero in Puerto Rico. De Candolle saw the specimen of Bertero and considered it *P. montanum* of Jamaica. He quoted Bertero with the following: “spirant ut flores odorem amygdalarum amararum unde dicitur *almadron*”, which we translate as “flowers breathe the scent of bitter almonds, hence the name *almadron*”. No type has been found and *P. montanum* is not known to grow in Puerto Rico.

10. *Psidium nannophyllum* Alain, Phytologia 25: 270. 1973. TYPE. Dominican Republic. Bonao, Loma Peguera, 300–400 m, 8 Aug 1970 (fl, fr), *Liogier* 17378 (HOLOTYPE: NY-1288064!; ISOTYPES: F-76378f!, JBSD!, MICH-1210409!, MO!, US!).

Shrub 1–1.5 m high, with spreading branches, glabrous or minutely puberulent on some young growth; hairs reddish brown, less than 0.1 mm long, somewhat curled; young twigs more or less 4-winged, reddish brown, the older twigs becoming gray, eventually becoming terete. LEAVES ovate to suborbicular, 5–10 mm long, 4–9 mm wide, 0.7–1.2 times as long as wide, frequently overlapping, the internodes 1–4 mm long, shorter than the leaves; apex rounded, acute, acuminate, or abruptly acuminate; base rounded to subcordate; petiole 0.5–1.5 mm long, 0.5–1 mm wide; venation obscure except for midvein, rarely with a few lateral veins scarcely visible, these leaving the midvein at an angle of less than 45 degrees; blades coriaceous, more or less flat, or folding upward (at least when drying), densely glandular. FLOWER BUDS pyriform, 3.5–4 mm long; hypanthium obconic, ca. 1.5 mm long; indumentum pattern of buds with all external surfaces glabrous, the inner surface of calyx and staminal ring puberulent; peduncles uniflorous, 2.5–5 mm long, ca. 0.5 mm wide, compressed at anthesis, subterete at fruiting; bracteoles narrowly triangular, ca. 0.5–1.5 mm long. CALYX closed in bud, tearing irregularly in 2–3 parts, persisting or falling by time fruit is mature; petals elliptic, 3–4 mm long, strongly glandular, minutely strigose externally; disk within staminal ring, glabrous, 1.5–2 mm across; stamens 25–30, 3–4 mm long; anthers subglobose, 0.3–0.5 mm long, with a terminal gland and 2–6 smaller glands below; style glabrous, ca. 2.5–3.5 mm long; ovary 2-locular; ovules 10–12, reflexed, borne on the edge of a peltate placenta, mainly uniseriate on each lamella. FRUIT subglobose, 7–10 mm long; fruit wall mostly 0.8–1 mm thick; seeds ca. 8, 3–3.5 mm long, with rounded and flat sides. (Fig. 12).

Additional specimens examined. DOMINICAN REPUBLIC. Monseñor Nouel, Sierra de Yamasá, Loma La Peguera (18°55'N, 70°19'W), 530 m, 20 Jun 2008 (fl), *Veloz* 4211 (JBSD); Monseñor Nouel, Loma la Peguera area (18°54'N, 70°20'W), 1700 m, 23 Apr 1981 (fl), *Zanoni* 12917 (ASU0316587-photos, JBSD).

Phenology—Poorly known, flowering April to August; fruiting in August.

Habitat and distribution—Hills and canyons; endemic to Dominican Republic, known from three collections in an area of mining; in great need of an environmental assessment.

Distinguishing features—Small shrub with wand-like branches, with the leaves overlapping on the stems; leaves ovate to suborbicular, 5–10 mm long; *apex* rounded, acute, acuminate, or abruptly acuminate; *base* rounded to subcordate.

11. *Psidium nummularia* (C.Wright ex Griseb.) C.Wright, Anales Acad. Ci. Med. Habana 5: 433. 1869.

Eugenia nummularia C. Wright ex Griseb., Cat. Pl. Cub. 86. 1866. TYPE. Cuba. “Guajarpa,” [Guaijabon], (ca. 22.79°N, 83.36°W), *Wright* 2458 (HOLOTYPE: GOET-8270; ISOTYPES: BM-616947, G-227832!, GH-69309, K-276441, MO-313488, NY-1288065!, US-118076!, YU-1606).

Psidium cestroides Urb., Symb. Ant. 9: 463. 1928. TYPE. Cuba. “Prov. Santa Clara in montibus Siguanea-Trinidad in valli Hanabanilla ad Finca Playitas in collibus calcareis 600 m,” *Ekman* 18471 (HOLOTYPE: B, lost; ISOTYPES: A-71237, NY-1288038!, S-R-9443 [annotated as lectotype by Urquiola but perhaps never published]).

Psidium scopulorum Ekman & Urb., Symb. Ant. 9: 465. 1928. TYPE. Cuba. “Prov. Pinar del Rio....Sierra de Vinales,” (ca. 22.59°N, 83.72°W), 6 Jun 1923 (fl bud), *Ekman* 16564 (SYNTYPE; B, lost; ISOSYNTYPES: F-76380f, G-227667!, NY-1288090!, S-R-8380 [annotated as lectotype by Urquiola, 1997, but perhaps never published], “in Sierra de Guacamayas in cacumine Mogote de la Baliz,” (ca. 22.71°N, 83.59°W), *Ekman* 17980 (SYNTYPE: B, lost; ISOSYNTYPE: NY!), and “prope Sumidero pro omnibus formationibus mogote dictus,” (ca. 22.74°N, 83.30°W), *Ekman* 18219 (SYNTYPE: B, lost; ISOSYNTYPE: NY!).

Psidium tomasianum Urb. & Ekman, Symb. Antill. (Urban). 9(4): 465. 1928. TYPE. Cuba. Prov. Pinar del Río, prope Viñales in cacumine Sierra del Sitio Santo Tomás, *Ekman* 18025 (HOLOTYPE: B, lost; ISOTYPE: NY-1288094!).

Psidium acunae Borhidi, Acta Bot. Acad. Sci. Hung. 17:17. “1971” 1972. TYPE. Cuba. Prov. Pinar del Río, Sierra de los Órganos, Pan de Guajaibón, [Type locality of *Eugenia nummularia*], 750 m, 2 May 1959 (fl, fr), *Alain* 6782 (HAC!, =ASU photo).

Shrub or small tree glabrous, or minutely hirsute or puberulent on young twigs, calyx within, and staminal ring; *hairs* reddish brown to whitish, less than 0.1 mm long; *young twigs* reddish brown, becoming whitish with age, often bifurcating, the bark of older twigs falling as thin flakes. LEAVES suborbicular to oblong ovate, 7–17 mm long, 8–13 mm wide, 0.9–1.2 times as long as wide; *apex* rounded to barely emarginate; *base* subcordate, rounded, broadly cuneate, or abruptly acuminate; *petiole* 0.5–1 mm long and wide; *venation* obscure, or ca. 4 pairs of lateral veins faintly visible, these leaving the midvein at 60° or more, the marginal veins arching broadly between the laterals, 1–2 mm from margin; *blades* coriaceous, the margin somewhat revolute, densely glandular, drying dark gray-green. FLOWER BUDS narrowly pyriform, ca. 5 mm long, the apex sometimes apiculate; *hypanthium* narrowly campanulate; *indumentum pattern of buds* glabrous without, the inner surface of calyx and staminal ring puberulent; *peduncles* 4–10 mm long, 0.4–0.8 mm wide; *bracteoles* narrowly triangular, ca. 0.5 mm long. CALYX closed or with 4 minute lobes, tearing in 3 or 4 parts, puberulent-strigose within, persisting until fruit matures; *petals* not seen; *disk* within staminal ring, ca. 2 mm wide in fruit; *stamens* ca. 86, 2–3.5 mm long; *anthers* ca. 0.5 mm long, with a terminal gland and 2–4 smaller glands below; *style* 3–4 mm long; *ovary* 2–3-locular; *ovules* per locule 7–26. FRUIT subglobose, 5–7 mm long; *seeds* ca. 3, 3–4 mm long, with

flat and rounded sides. (Fig. 13).

Representative specimens examined. CUBA. Pinar del Río: Sierra de Quemado, El Moncada, Viñales, (22.52°N, 83.86°W), 20 May 1988 (fl), Luis 4571 (ASU0069452); Sierra de la Guira, Los Palacios, (22.71°N, 83.37°W), 2 Jul 1988 (fl, yfr), Luis 4693 (ASU); cultivated in Jardín Botánico del Pinar del Río, procedente de Mogotes, Viñales, 19 May 2018 (fl), Oviedo (FTG); Sierra de Mesa (Mogotes), Sumidero, Minas de Matahambre, (22.42°N, 84°W), 14 Jul 1990 (st), Urquiola 6477 (ASU0069453).

Phenology—Flowering in May and June; probably fruiting soon after flowering.

Habitat and distribution—Endemic to Cuba; found in vegetation associated with “mogotes” [isolated steep hills of calcareous rocks], sometimes on the walls of the mogotes.

Distinguishing features—Leaves suborbicular to oblong ovate, 7–17 mm long; apex rounded to barely emarginate; base subcordate, rounded, broadly cuneate, or abruptly acuminate; young twigs not winged, more or terete; western Cuba.

This species might be confused with *Psidium rotundatum*. It is compared with that species in the key below.

1. Leaves 0.7–1.7 cm long, 0.8–1.3 cm wide; lateral veins not visible or scarcely so; seeds ca. 3 mm long; style 3–4 mm long; peduncles 1-flowered *P. nummularia*
- 1' Leaves 1.7–5.5 cm long, 1.5–4.5 cm wide; lateral veins normally easily visible; seeds ca. 4–5 mm long; style 5–6 mm long; peduncles 1–3-flowered *P. rotundatum*

12. *Psidium oligospermum* DC., Prodr. 3: 236. 1828. TYPE. Brazil. “prov. Bahiensis,” *Martius* [2203]. (HOLOTYPE: M-146868! [specimen annotated by de Candolle with description by Martius]; ISOTYPE: M-146867).

See extensive synonymy in Landrum 2022.

Psidium galapagaeum Hook. f., Trans. Linn. Soc. 20: 224. 1847. TYPE. Ecuador. Galapagos, “James Island” [=Isla Santiago], Scouler s.n. (LECTOTYPE: K-565485 [designated by Porter, 1969]).

Mitranthes sartoriana O. Berg, Linnaea 29: 248. 1858. TYPE. Mexico, Veracruz, “prope Mirador,” *Sartorius* s.n. (HOLOTYPE: location not stated, B?; ISOTYPE: G-227668!).

Calycorectes protractus Griseb., Cat. Pl. Cub. 284. 1866. TYPE. Cuba. “Cuba Occ., pr. Hanabana,” *Wright* [3557]. (HOLOTYPE: GOET, n.v.; ISOTYPES: GH-68862, K-170083, NY-1434704, US-118238!).

Calyptropsidium sintenisii Kierans., Bot. Tidsskr. 17: 280, fig. 10. 1890. TYPE. Puerto Rico. Sierra de Luquillo, Mt. Yunque, 13 Jul 1885 (fr), *Sintenis* 1347 (HOLOTYPE: C?, not found. ISOTYPES: BM-796900, K-331064, K-565282, LD-1805089, LD-1818114, NY!).

Psidium sartorianum (O. Berg) Niedenzu, Nat. Pflanzen. Fam. 3(7): 69. 1893.

Psidium claraense Urb., Symb. Ant. 9: 466. 1928. TYPE. Cuba. Prov. Santa Clara prope Casilda, [21.78 °N,

80°W], “in fruticetis litoralibus solor arenoso salsuginoso”, 28 Mar 1924 (bud), *Ekman* 18887 (HOLOTYPE:

B, lost; ISOTYPES: A-71238, G-227690!, NY-1288040!, S-R-8385 [annotated as lectotype by Urquiola, 1997 but apparently never published]).

Psidium microphyllum Britton, Botany of Puerto Rico and the Virgin Islands, 555. 1930. TYPE. Puerto Rico. Mayagüez Experiment Station, July 1930, *McClelland* s.n. (HOLOTYPE: NY-1365088!).

Mitropsidium sartorianum (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 487. 1941.

Mitropsidium sintenisii (Kierans.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 489. 194.

Psidium yucatanense Lundell, Contr. Univ. Michigan Herb. 7: 35. 1942. TYPE. Belize. Belize Dist., Belize-Sibun Road. Gentle 9 (HOLOTYPE: MICH-1210419!; ISOTYPES: F-65684, K-565289, NY-1365092!, US-117680!).

Psidium sintenisii (Kierans.) Alain, Mem. New York Bot. Gard. 21(2): 138. 1971.

Psidium calypranthoides Alain, Phytologia 54: 109. 1983. TYPE. Puerto Rico, Monte del Estado Forest, Maricao, 2800 ft, 8 Jul 1970 (fl), *Woodbury* 20506 (HOLOTYPE: UPR; ISOTYPES: MICH!, NY!).

Tree up to ca. 30 m high, glabrous or sparsely to moderately pubescent on young growth; hairs simple, whitish, yellowish or reddish brown, minute or up to ca. 0.2(–0.4) mm long, curly,

suberect or antorse; *young twigs* reddish brown to light yellow-green, glabrous to moderately pubescent, in age becoming glabrescent, gray, smooth, or slightly striate. LEAVES lanceolate to elliptic, 1.6–7.5(–8.3) cm long, 0.4–3.3 cm wide, 1.7–4(–5) times as long as wide, glabrous, or often sparsely pubescent along the margin and midvein above, the margin entire; *apex* sharply or obtusely acuminate, acute, or less often obtuse; *base* rounded, cuneate, acuminate; *petiole* channeled or not, 1–6 mm long, 0.3–1 mm wide, glabrous or pubescent; venation brochidodromous, the midvein about flat or less often slightly impressed proximally above, prominent below, the lateral veins weak, 4–10 pairs, leaving the midvein at an angle of ca. 45°, united near the margin by a broadly arching marginal vein; tertiary veins usually obscure, dendritic, appearing to arise mainly from the marginal vein; *blades* coriaceous to subcoriaceous, drying dark olive-green, reddish brown, or nearly black, often mottled with lighter spots above when dry, or sometimes the whole upper surface grayish. FLOWER BUD pyriform to subfusiform, 3–9 mm long, the hypanthium obconic to campanulate, 1–4 mm long, the distal portion of bud ovoid to subglobose, 2.5–6 mm long; *indumentum pattern of buds* with all external surfaces glabrous to sparsely puberulent or pubescent (rarely moderately so), the hypanthium and calyx often with less indumentum than peduncle, the calyx glabrous to puberulent within, often with an apical tuft of hairs, the petals glabrous or ciliate, or sometimes pubescent if exposed in the bud; disk within the staminal ring usually glabrous, the staminal ring sparsely puberulent, the style glabrous or sparsely puberulent proximally; *peduncles* 6–25 mm long, 0.5–1 mm wide, solitary, uniflorous, or less often triflorous, the branches of the dichasium up to ca. 7 mm long; *bracteoles* narrowly triangular to linear, 1–5 mm long, caducous before anthesis. CALYX completely closed, sometimes with an apiculate apex, or scarcely open with a sinuate margin, or with 4 or 5 short verrucose protuberances at the apical tip, thus appearing puckered at the apex, circumscissile above the staminal disk or tearing in 5 lobes or irregularly at anthesis, persisting briefly as a disk-shaped or conical calyptra or calyx pieces, the remains of the calyx usually falling before the fruit matures, the staminal disk borne on inner surface of the bowl-like calyx tube, the tube tearing as the fruit matures, the calyx (including tube with stamens) sometimes evident only as a circular scar in mature fruits; *petals* suborbicular, 2.5–6 mm long (perhaps sometimes falling with the calyptra); *disk* 1–5 mm across; *stamens* 4–12 mm long, 80–220; *anthers* 0.3–0.5 mm long, with a terminal gland and up to 4 smaller glands below; *style* 4–5 mm long; *ovary* 2–3-locular; *ovules* (4–)10–34 per locule, uniseriate or biseriate on each lamella, the placenta slightly peltate. FRUIT subglobose to pyriform, 5–25 mm long; *seeds* 1–13 per fruit, 3–7 mm long, sublenticular to hemispheric, usually with somewhat angular edges and at least one nearly flat surface. (Figs. 14, 15, & 16).

Representative specimens examined. CUBA. Isla de la Juventud: afluente del Río Los Indios (21.71°N, 82.95°W), 19 Oct 1991 (fr), Urquiola 7498 (ASU0062227). Matanzas: Jagüey Grande (22.53°S, 81.13°W), 2 Aug 1923 (fr), Ekman 16957 (ASU0005047-photos). Pinar del Río: San Juan y Martínez, Sabanalamar (22.15°S, 83.98°W), 25 Sep 1999 (st), Urquiola 528 (FR).

PUERTO RICO. El Yunque, Los Picachos (18.310°N, 65.790°W), Sep 1959 (fr), Woodbury s.n., R. (NY); Maricao Afuera, Maricao Forest Reserve, Rt. 120, ca. 0.1 km before entrance to Monte del Estado, km 15.2. (18.14°N, 66.97°W), 810 m, 15 Aug 2001 (yfr), Salywon 1276 (ASU0010481).

Phenology—Flowering mainly from April to June but as late as August; fruiting mainly from August to October.

Habitat and distribution—Forests to open areas on sandy and clay soils; a widely distributed species ranging from the Caribbean and Mexico to Argentina.

Distinguishing features—Tree up to ca. 30 m high; leaves often over 4 cm long lanceolate to elliptic, mostly 2–4 times as long as wide; apex obtuse, acute, to acuminate; base acute to

acuminate; petiole mostly 3–4 mm long; seeds 1–13 per fruit, 3–7 mm long.

Psidium oligospermum is a widespread and variable species; it is found on some isolated oceanic islands (e.g., Galapagos, Saint Lucia) and so has probably reached the Greater Antilles by long distance dispersal. The name *P. sintenisii* has been used for Puerto Rican populations and molecular evidence (Salywon 2003) indicates that it may have hybridized with a species of the *P. amplexicaule* group there.

13. *Psidium parvifolium* Griseb., Cat. Pl. Cub. 91. 1866. TYPE. Cuba. Mayarí Abajo, *Wright* 2438 (probable SYNTYPE: GOET-8371; ISOSYNTYPES: G-227724!, GH-71247, K-170082, S-R-9444 [lower portion of mixed sheet], P-258513!) and “Cuba or[oriente],” *Wright* 2463 (SYNTYPE: GOET-8273 [annotated as lectotype by A. J. Urquiola, 1997, but perhaps never published], GOET-8272; ISOSYNTYPES: BM-616948, G-227723!, GH-71249, HAC!, K-565285, P-258514!).

Psidium nitidum C. Wright, Anales Acad. Ci. Med. Habana 5: 433. 1869. TYPE. Cuba. “En los pinares de la loma de” Cajálbana [Mun. La Palma, Pinar del Río] “y en” San Marcos [Mun. Bahía Honda, Artemisa], *Wright* 743 [NY specimen has 743 and 3556 on one label of “Plantae Cubenses Wrightianae”], (HOLOTYPE: ?; ISOTYPES: GH-71246, K-262640, NY-1288073!, NY-1288074!, US-117669!).

Psidium parvifolium var. *planifolium* Krug et Urb., Bot. Jahrb. Syst. 19(4): 569. 1894. TYPE: Cuba. *Wright* 3556 (HOLOTYPE: B, lost; ISOTYPES: GH-71246, K-262640, NY-1288073!, NY-1288074!, P-258516!, S-R-9444 [upper portion of mixed sheet], US-117669!).

Psidium paucinerve Urb., Symb. Ant. 9: 82. 1923. TYPE. Cuba. “prov. Oriente: prope Río Piloto in Sierra de Nipa [Nipe],” *Ekman* 2505 (HOLOTYPE: B, lost; ISOTYPES: G-227722!, NY-1288076!, S-R-9441 [annotated as lectotype by Urquiola but perhaps never published]).

Psidium tenuirame Urb., Symb. Ant. 9: 83. 1923. TYPE. Cuba. “Prov. Oriente prope Papayo in collibus Mandinga dictis,” *Ekman* 9296 (HOLOTYPE: B, lost; ISOTYPES: HAC!, NY-1288091!, S-R-8387 [annotated as lectotype by Urquiola, 1997, but perhaps never published]).

Psidium balium Urb., Symb. Ant. 9: 84. 1923. TYPE. Cuba. “Prov. Oriente in Sierra Maestra non procul ad Río Yara in Collibus siccis cr. 600 m alt.” *Ekman* 5612 (HOLOTYPE: B, lost; ISOTYPES: G-227824!, NY-1288034!, S-R-8386 [annotated as lectotype by Urquiola, perhaps never published]).

Psidium leonis Urb., Symb. Ant. 9: 464. 1928. TYPE. Cuba. “Prov. Oriente....Baracoa....prope Yauco [Jauco] in Mesa de Prada, 400-500 m alt.” *León* 12028 (HOLOTYPE: B, lost; ISOTYPES: GH-71244; NY-1288058!).

Tree or shrub up to ca. 4 m high, glabrous except for some floral structures, or in one population minutely hispid on young twigs and peduncles, the hairs minute (less than 0.1 mm long), whitish to reddish brown; young twigs gray, smooth, compressed, with age becoming terete, remaining smooth or becoming cracked and rougher, the bark becoming light reddish brown to light gray. LEAVES obovate, less often elliptic to oblanceolate, (1.5–)2–4(–5) cm long, 0.7–2.5 cm wide, 1.1–2.2 times as long as wide; apex rounded, obtuse, or emarginate; base cuneate to acuminate; petiole 1–3 mm long, 0.8–1.2 mm thick, slightly channeled above; venation brochidodromous, often obscure, the midvein nearly flat to raised above, prominent below; lateral veins more visible above than below, 4–6 pairs, usually leaving the midvein at an angle of 30–45 degrees; marginal vein when visible arching slightly between the laterals, usually within 2 mm the margin, closely following the margin, the weaker tertiary veins between the laterals dendritic, appearing to arise from the marginal vein; blades coriaceous, drying dark brown or gray, lustrous or not above, densely glandular on both surfaces, the margin somewhat revolute. FLOWER BUDS pyriform, restricted at junction of calyx and hypanthium, 6–9 mm long, the hypanthium obconic to infundibular, 2.5–4 mm long, the distal portion of bud ovoid to subglobose, 4–5 mm long; indumentum pattern of buds with all external and internal surfaces glabrous except for strigose inner surface of calyx, outer surface of petals, and staminal

ring of disk, the peduncle sometimes minutely hispid; peduncles 6–32 mm long, ca. 1 mm wide, uniflorous, or less often bearing dichasia, borne in the axils of leaves or at leafless nodes, slightly compressed at anthesis, terete at fruiting, the arms of the dichasia 5–20 mm long; bracteoles narrowly triangular, ca. 0.8 mm long, caducous before anthesis. CALYX closed or open by a small apical pore through which reddish brown hairs protrude, sometimes with weak longitudinal grooves along which calyx will tear in 2–4(–5?) parts at anthesis, the tears sometimes cutting the staminal ring, the calyx parts persisting after anthesis but mainly deciduous before fruiting; petals 4–5, suborbicular, ca. 7 mm long, densely covered with minute hairs without, the margin ciliate; disk with staminal ring 4–5 mm across, glabrous; stamens borne on inner surface of calyx tube, 80–255, ca. 5 mm long; anthers subglobose, ca. 0.5 mm long, with a terminal gland and 2–13 smaller glands below; style 6–8 mm long, sometimes with scattered hairs; ovary 2–4-locular, the walls sometime not completely sealed, the placenta peltate; ovules per locule 14–30, 1–2-seriate along edge of lamellae. FRUIT ovoid to subglobose, 7–20 mm long and wide, the fruit wall 1–5 mm thick; seeds to 4–34, 4–5 mm long, ovaloid to reniform, with rounded and flat sides. (Fig. 17).

Representative specimens examined. **CUBA.** **Granma:** Bartolomé Masó, Santo Domingo, Parque Nacional Turquino, Cima Pico Mella, Alto del Naranjo, (20.02°N, 76.90°W), 985 m, 7 Aug 2016 (st), *Flickinger* 25 (ASU0322688). **Guantánamo:** Baracoa, valle del Río Maraví, (20.42°N, 74.58°W), 31 Mar 1970 (st), *Bisse* 16987 (HAJB, JE); Yateras, Felicidad de Yateras, zona de Monte Cristi, (20.39°N, 74.92°W), 500 m, 23 Aug 1971 (fr), *Bisse* 20212 (JE). **Holguín:** Palenque, Cuchillos de Toa, Cayo Fortuna, Río Toa, (20.52°N, 74.88°W), 31 Mar 1970 (fl), *Bisse* 16764 (HAJB, JE); Moa, Playa de la Vaca, (20.69°N, 74.98°W), 12 Aug 1970 (fr), *Bisse & Lippold* 17691 (HAJB, JE); Sierra del Cristal, entre Los Milos y La Corea, (20.55°N, 75.52°W), 640 m, 27 Aug 1909, *Figueiras* 230 (HAJB, US); Sierra de Nipe, Loma la Mensura, (20.48°N, 75.81°W), 22 Apr 1940 *Carabia* 3750 (NY); Mayarí, La Cueva, Sierra de Nipe, (20.51°N, 75.70°W), 392 m, 9 Aug 2016 (fr), *Flickinger et al.* 35 (FTG); Mayarí, Loma de Bandera, Sierra de Nipe, (20.60°N, 75.72°W), 348 m, 11 Aug 2016 (st), *Flickinger et al.* 50 (FTG); Moa, near Punta Gorda, (20.63°N, 74.86°W), 14 Jul 1947 (ofl), *León & Clemente* 23020 (NY); Plancha Trail, Mensura to Woodfred, (20.55°N, 75.74°W), 4 Feb 1910 (fr), *Shafer* 3878 (NY, US); Moa region, near port of Moa, (20.62°N, 74.95°W), 19 Jul 1951 (fr), *Webster* 3827 (MICH). **Las Tunas:** Arroyo Corojo, Nagua, (20.84°N, 77.27°W), 20 Aug 1922 (fr), *Ekman* 14909 (NY). **Pinar del Río:** Cajálbana, cuabales en la ladera sur, por el sendero del cuabal., (22.78°N, 83.45°W), 1 Jul 2000 (fl), *Urquiola* 9180 (ASU0069456). **Santa Clara:** Manajanabo, Sierra Alta de Agabama, (22.30°N, 79.90°W), 26 Mar 1924 (fl), *Ekman* 18861 (NY); 10 Km of Santa Clara, (22.31°N, 79.96°W), 30 Jun 1950 (yfr), *Howard* 94 (MICH). **Santiago de Cuba:** Pinares de Mícara, Mayarí, (20.41°N, 75.54°W), 27 Dec 1955 *Alain & López Figueiras* 4631 (HAJB, US); Sierra Maestra, Cobre range, Loma del Gato vicinity, (20.12°N, 75.68°W), 900 m, 30 Nov 1920 (ofl), *León, Clemente, & M. Roca* 10211 (NY); Sierra de Nipe, Charrascles de Arroyo Potrero, Cayo Rey, (20.45°N, 75.92°W), 2 Oct 1956, *López* 2825 (HAJB, US).

Phenology—Flowering mainly in April and May; fruiting mainly in July and August.

Habitat and distribution—Endemic to Cuba. Growing in charrascal, pine woodlands, savannas, and rainforests, on serpentine, ultrabasic, laterite, limestone rocks and soils, from near sea level to 900 m.

Distinguishing features—Leaves oblanceolate to obovate, generally over 2 cm long, 1–2.2 times as long as wide, the base acute, acuminate, or cuneate; peduncle 6–32 mm long; fruit ovoid to subglobose, 7–20 mm long and wide; seeds 4–5 mm long.

Psidium parvifolium may hybridize with, and may be confused with, *P. minutifolium*. See discussion under that species.

14. *Psidium rotundatum* Griseb., Cat. Pl. Cub. 92. 1866. TYPE. Cuba. “occ., in sylvis depressis pr. Toscano, Manglares,” Wright 2457 (HOLOTYPE: GOET-8275; ISOTYPES: BM-616946, BRU-72806, G-227661!, K-565284, MICH-1210408!, MO!, NY-1365083!, P-25812!, US-731228!, W-61640!).

Psidium rotundatum var. *triflorum* Griseb., Cat. Pl. Cub. 92. 1866. TYPE. Cuba. "Bahia Honda," (22.9°N, 83.1°W), 1 Jan 1970 (fl), Wright 2456 (HOLOTYPE: GOET; ISOTYPES: G-227659!, MO!, P-258511!, YU-66208).

Psidium cymosum Urb., Symb. Ant. 9(4): 464. 1928. TYPE. Cuba. "Prov. Pinar del Río in Pinar de Cajálbana," Ekman 17342 (HOLOTYPE: B, lost; ISOTYPES: A-71239, F-65686f, G-223329!, NY-1288043!, S-R-8390 [annotated as lectotype by Urquiola, but perhaps never published]).

Shrub or small tree up to 3 m high, most surfaces glabrous, minutely hispid on young growth, inner surface of calyx, outer surface of petals, and staminal ring, the leaves and flowers densely glandular; hairs reddish brown to whitish, mainly erect, less than 0.1 mm long; young twigs at first hispid, the hairs persisting or not until the first bark falls, the first bark becoming whitish, the older twigs usually whitish, the bark with inconspicuous cracks. LEAVES broadly elliptic to orbicular, 1.7–5.5 cm long, 1.5–4.5 cm wide, 0.8–1.4(–2) times as long as wide; apex rounded, emarginate, or less often acute; base rounded to cordate; petiole 1–2 mm long, 1–1.5 mm wide; venation brochidodromous, sometimes obscure, the midvein somewhat impressed to about flat to slightly impress or raised above, prominent below; lateral veins 4–6(–8), leaving the midvein at an angle of nearly 90 degrees near leaf base and about 45 degrees near apex, sometimes slightly raised above; marginal vein broadly arching between laterals, mostly within 1–5 mm of the margin; weaker dendritic tertiary veins alternating with laterals and appearing to arise from the marginal vein; blades subcoriaceous to coriaceous, lustrous to dull above, densely glandular, drying gray-green to dark brown above, often mottled with light gray areas above, lighter brown below, the margin often revolute. FLOWER BUDS pyriform, sometimes with an acuminate tip, restricted at the junction of the calyx and hypanthium, 4–6 mm long, the hypanthium obconic to infundibular, 1–2 mm long, the distal portion of bud ovoid to subglobose, 3–4 mm long; indumentum pattern of buds with all external and internal surfaces glabrous except for inner surface of calyx, outer surface of petals, and staminal ring of disk; peduncles 4–18 mm long, 0.5–0.8 mm wide, uniflorous, or bearing a 3-flowered dichasium, borne in the axils of leaves or bracts, or at leafless nodes, the arms of the dichasia ca. 0.5 cm long, the bracts triangular, ca. 1.5 mm long; bracteoles narrowly triangular, ca. 0.8–1.6 mm long. CALYX closed, or closed except for a minute apical pore through which reddish brown hairs protrude, tearing irregularly, usually in 2–4 persistent parts, the tears usually not cutting the staminal ring; petals 4 in buds seen, obovate, ca. 5 mm long, densely glandular, strigose without; disk within staminal ring, ca. 1.5 mm wide, glabrous; stamens 85–125, 4–5 mm long, borne on inner surface of staminal tube; anthers subglobose, ca. 0.5 mm long, with ca. 4 subequal glands; style 5–6 mm long, glandular; ovary 2-locular; ovules 4–10 per locule, uniseriate along the edge of the peltate placenta. FRUIT subglobose, to ellipsoid, 0.8–1.2(–1.5) cm long, yellow, sweet, the wall 1–2 mm thick; seeds 2–9, 4–5 mm long, with flat and rounded sides. (Fig. 18).

CUBA. *Artemisa*: 'Pinar del Río', prope Morrillo in pascuis, (22.94°N, 83.31°W), 2 Sep 1923 (fr), Ekman 17395 (G, NY, US); Cayabajos, Pelada de Buenavista, (22.86°N, 82.85°W), 650 m, 23 Mar 1929 León 13863 (NY). **Pinar del Río**: Cajálbana, La Palma, (22.75°N, 83.55°W), 15 Jul 1950 (fl), Alain & Clemente 1448 (US); Cajálbana, (22.79°N, 83.45°W), 16 May 1953, Alain 3021 (US); Loma de Cajálbana, La Palma, (22.75°N, 83.55°W), 200 m, 1 Nov 1975, Arces et al. 29060 (FR); Sierra de Órganos, grupo de Rosario, valley of Río Santa Cruz, (22.4°N, 84°W), 31 Mar 1923, Ekman 16395 (MO, US); on Pan de Cajálbana, (22.79°N, 83.45°W), 6 Apr 1915, León & Charles 4941 (NY); La Palma, Camino Reduan, próximo al Charco Burundanga, APRM Mil Cumbres, (22.80°N, 83.41°W), 94 m, 11 Jan 2016 (fl buds), Oviedo, R. s.n. (FTG); Sandino, San Ubaldo, Reserva Natural, (22.07°N, 84.02°W), 22 Sep 1999 (fr), Urquiola 381 (FR). **Villa Clara**: Rangel, near Loma Pelada, (22.5°N, 79.9°W), 24 Oct 1925, León 12532 (NY); Rosario Range, Rangel, Loma Zambumbia, (22.19°N, 79.98°W), 31 Mar 1937, León 16822 (GH, NY).

Phenology—Flowering and fruiting throughout year but mainly flowering from May to July; fruiting mainly in August and September.

Habitat and distribution—Endemic to western Cuba. Growing in forests, savannas, pine woodlands, at edges of manglares, along streams, and gallery forest; in rocky areas often on serpentine soils; at 100–650 m.

Distinguishing features—Leaves broadly elliptic to orbicular, 1.7–5.5 cm long; lateral veins usually easily visible; dichasial inflorescences frequently present; flower buds pyriform, 4–6 mm long.

This species might be confused with *Psidium nummularia*. See discussion under that species.

15. *Psidium salutare* (Kunth) O. Berg, Linnaea 27: 356. 1856.

Myrtus salutaris Kunth, Nov. Gen. Sp. [H. B. K.] 6: 132. 1823. TYPE. Venezuela. “Carichanam, ad ripam Orinoci”, Humboldt and Bonpland s.n. (HOLOTYPE: P-679449; ISOTYPE: B [=B1263/11 photo at MICH]).

Subshrub or shrub up to ca. 1.5 m high (often less than 0.5 m high), with new shoots arising from a woody subterranean base or rhizome, with shoots often short lived, or in *Psidium salutare* var. *pohlianum* sometimes reaching tree size (up to 10 m high), glabrous, glabrous except for disk and calyx lobes within, or sparsely to moderately pubescent on young growth, or silvery lanate in one variety; *hairs* when present whitish, 0.3–1 mm long; *young twigs* glabrous to densely pubescent, reddish brown, becoming grayish, the older bark gray to reddish brown, becoming flaky. LEAVES opposite or alternate on some shoots (rarely ternate), ovate, lanceolate, elliptic, narrowly elliptic, obovate, oblanceolate, (1–)2–9 cm long, 0.6–5.5 cm wide, 1.4–5 times as long as wide, drying gray-green to reddish brown, the margin entire to somewhat revolute; *apex* obtuse, acute to acuminate, abruptly acuminate, sometimes apiculate; *base* cuneate, obtuse, or rounded; *petiole* 0–2(–3) mm long, 1–1.5(–2) mm wide; *venation* brochidodromous, the midvein normally flat or slightly raised above, prominent below, the lateral veins 5–12 pairs, prominent to scarcely visible, leaving the midvein at an angle of ca. 45 degrees or less, nearly straight, the marginal veins arching shallowly between laterals, equaling laterals in prominence, running 0.2–2 mm from the margin, the tertiary veins forming a dendritic pattern between the laterals, sometimes appearing to arise from the marginal vein or the midvein; *blades* stiffly coriaceous at maturity, drying reddish brown to gray-green, dull or lustrous above. FLOWER BUDS pyriform, 4–7 mm long, the hypanthium obconic to campanulate, 1–3 mm long, the distal portion subglobose, wider than long, 2.5–4.5 mm long; *indumentum pattern of buds* with all surfaces glabrous, glabrous except for disk and calyx lobes within, or sparsely to moderately pubescent or silvery lanate except for glabrous petals, disk, and style; *peduncles* axillary, uniflorous or triflorous, 0.4–3.5 cm long, 0.5–0.8 mm wide; *bracteoles* linear to lanceolate, deciduous or persisting, 2–9 mm long, 0.5–2 mm wide. CALYX open, bowl-like, tearing ca. 1 mm between the lobes at anthesis, the lobes broadly rounded to ovate-triangular, 0.5–5(–6) mm long, 2–3(–4) mm wide; *petals* obovate to suborbicular, 5–11 mm long; *disk* 3–4(–5) mm across; *stamens* 100–200, 5–12 mm long; *anthers* subglobose to oblong, 0.3–0.8 mm long, with 1–3 glands; *style* 5–8 mm long; *ovary* 2–3-locular; *ovules* 9–48 per locule, uniseriate or biseriate along edge of the placenta, this strongly to scarcely peltate. FRUIT globose to subglobose, 8–10 mm in diam.; *seeds* 4–20, 4–8 mm long, subovoid.

Landrum (2003) recognized four varieties of *Psidium salutare* in addition to var. *salutare*; all four of these are restricted to South America.

Psidium salutare var. *salutare*

Psidium salutare (Kunth) O. Berg, Linnaea 27:356, as to type. 1856.

Psidium guayabita A. Rich., Ess. Fl. Cub. 581. 1846. TYPE. Cuba. "Vuelta de Abajo," Valenzuela s.n. (LECTOTYPE: P-87092! [designated by Landrum, 2003], =ASU photo!; ISOLECTOTYPE: P-258510!).

Myrtus sagraea O. Berg, Linnaea 30:710. 1860. TYPE. Cuba. without locality, *De la Sagra* s.n. (HOLOTYPE: P-258327!, =ASU photo!).

Psidium guayabita var. *oblongatum* Griseb., Cat. Pl. Cub. 91. 1866. TYPE. Cuba. without locality, Wright 2436 (HOLOTYPE: GOET; ISOTYPES: GH-71241, MICH!, MO!, NY-1365086!, NY-1365087!, =ASU photo!, P-258509!).

Psidium guayabita var. *angustifolium* Griseb., Cat. Pl. Cub. 91. 1866. TYPE. Cuba. without locality, Wright 2436a (HOLOTYPE: GOET; ISOTYPE: GH-71240).

See Landrum 2022 for more complete synonymy.

Usually a subshrub less than 0.5 m high; leaves elliptic, lanceolate, oblanceolate, ovate, or obovate, 3–7 cm long, 1–3.3 cm wide, 1.6–3.2 times as long as wide, glabrous to moderately pubescent; venation obscure to moderately pronounced, the marginal vein usually about 1 mm from margin; apex usually without an apiculum; peduncle 1–5 cm long, uniflorous or triflorous; calyx-lobes shorter or longer than the calyx tube, acute to rounded. (Fig. 19).

Representative specimens examined. CUBA. Isla de la Juventud: Isla de Pinos, Nueva Gerona, Sierra la Cañada, (21.76°N, 82.92°W), 300 m, 26 Dec 1966 (st), Bisce 765 (HAJB, JE); Nueva Gerona, (21.88°N, 82.81°W), without date (fl), Jennings 29 (NY); Pines, San Juan, (21.73°N, 82.61°W), 25 Feb 1939 (fl), León & Victorin 18893 (NY). Pinar del Río: Minas de Matahambre, pinares al oeste del pueblo en el camino viejo a Macurije, (22.58°N, 83.96°W), 100 m, 30 Mar 1982 (fl), Bisce et al. 46641 (HAJB, JE); Viñales, Alturas de Pizarras de Sur, Torre del Control del Incendios Forestales, (22.61°N, 83.71°W), 19 Sep 1999 (fr), Urquiola 270 (FR); San Juan y Martínez, (22.41°N, 83.85°W), 7 May 1988 (fl), Urquiola et al. 4522 (ASU0005042); Mantua, (22.29°N, 84.29°W), 8 Nov 1990 (fr), Urquiola et al. 6678 (ASU0005041).

DOMINICAN REPUBLIC. Sánchez Ramírez, Cotuí, (19.05°N, 70.15°W), 6 Sep 1952 (fr), Jiménez 2433 (MICH, US); Puerto Plata, Campamento Los Pinos, Maimón, (19.80°N, 70.77°W), 250m. 31 May 1977 (fl), Liogier 26657 (JBSD, NY).

Phenology—Flowering mainly from February to May; fruiting mainly from June to September.

Habitat and distribution—Pine woodlands and open areas, on sandy or rocky soils, sometimes acidic soils. *Psidium salutare* is a variable and widely distributed species ranging from Mexico, Cuba, and Hispaniola to temperate South America; *P. salutare* var. *salutare* has a similar range reaching as far south as Paraguay and Paraná, Brazil, while the other varieties recognized by Landrum (2003) are found from about Bahia, Brazil south to Uruguay and Argentina.

Distinguishing features—Usually a subshrub, sprouting from ground level after a fire or disturbance; calyx open in bud, with 5 distinguishable lobes, the globe of the closed corolla visible before the flower bud opens.

16. *Psidium urquiolanum* Landrum & Z. Acosta, Phytotaxa 618(2): 196. 2023. TYPE. CUBA. Guantánamo: Baracoa, al sur de la loma del Yunque, (20.34°N, 74.57°W), 9 Feb 1972 (fl), Bisce 21450 (HOLOTYPE: HAJB-G-001291; ISOTYPES: HAJB-G-001292, JE!).

Shrub or small tree perhaps, mainly glabrous but with minute hairs on some young growth and inner surface of calyx, the leaves and external surfaces of flowers densely glandular; *hairs* reddish brown, up to ca. 0.2 mm long; *young twigs* compressed to subterete, unwinged, glabrous to densely puberulent. LEAVES elliptic, oblong, obovate, or oblanceolate, (2.5–)3–8.7 cm long, (1.5–)2–4.2 cm wide, 1.3–2.3 times as long as wide; *apex* rounded to obtuse, sometimes emarginate; *base* rounded, cuneate, or broadly cuneate; *petiole* 2–4 mm long, 1.5–2 mm thick; *venation* brochidodromous, obscure to faintly visible, the midvein impressed or nearly flat above, prominent below, the lateral veins 4–6 pairs, leaving the midvein at an angle of 45–60 degrees, the marginal vein following the margin, arching slightly between laterals, mainly running between 1 and 4 mm from margin, the tertiary veins rarely clear, dendritic, appearing to arise from the marginal vein; *blades* coriaceous, drying dark reddish-brown, densely glandular above and below, dull to slightly lustrous above and below, the margin revolute. FLOWER BUDS pyriform, 5–7 mm long, glabrous, densely and conspicuously glandular, the hypanthium ovoid to subcylindrical, 3–4 mm long, the distal portion of bud subglobose, 2–3 mm long; *indumentum pattern of buds* with all external surfaces glabrous, the inner surface of calyx and staminal ring minutely puberulent, the hairs mainly appressed; *peduncles* 1-flowered, (2–)4–20 mm long, 0.8–1 mm wide, flattened or subterete, borne in the axils of leaves, or small bracts, often grouped together in short bracteate shoots, these usually at the tips of branches, but sometimes at the base of a young leafy shoot, the buds often of various sizes and stages of maturity in a single inflorescence, the bracts ovate to triangular, ca. 1–1.5 mm long; *bracteoles* narrowly triangular, ca. 1 mm long. CALYX closed in bud, with a terminal pore through which minute reddish brown hairs emerge, usually tearing in 4 nearly equal, subtriangular lobes, these 3–5 mm long, ca. 3 mm wide, the tears between lobes not cutting deeply into the staminal ring; *petals* 5, suborbicular, not persisting; *disk* 3–4 mm across, the staminal ring densely puberulent, 1–2 mm wide, the disk within staminal ring, sparsely pubescent to glabrous; *stamens* ca. 100; *anthers* ca. 0.5 mm long, with a terminal gland and a few smaller glands below; *style* 3–5 mm long, glabrous, glandular; *ovary* 2–4-locular; *ovules* 16–20 per locule, mainly unisexual, the placenta peltate. FRUIT globose, ca. 1 cm wide; *seeds* ca. 7, lenticular to reniform, somewhat flattened, ca. 4 mm long, the seed coat several cells thick at narrowest point, the embryo ca. 2 mm long in curved state. (Fig. 20).

Representative specimens examined. CUBA. Guantánamo: Baracoa, alto entre Loma del Mirador y Loma de Buena Vista (al oeste de Camarones), (20.44°N, 74.60°W), 500 m, 6 Aug 1975 (fl), Álvarez et al. 27136a (HAJB, JE), (fr), Álvarez, A. et al. 27137 (HAJB, JE); cabezada del Río Naranjo, (20.44°N, 74.69°W), 27 Feb 1975, Álvarez et al. 27136b (HAJB); Baracoa, camino de Los Naranjos a la Loma de Buenavista, (20.45°N, 74.65°W), 200 m, 21 Jan 1977 (fl), Álvarez et al. 33784 (HAJB, JE); camino a Vega de la Palma, orillas de Arroyo Blanco, (20.33°N, 74.63°W), 27 Feb 1979, Areces et al. 40095 (HAJB); Baracoa, valle al noroeste del Yunque de Baracoa, (20.34°N, 74.55°W), 31 Jan 1968 (bud), Bisce & Kohler 5291 (JE); Baracoa, altiplano de la Mina Iberia, (20.46°N, 74.73°W), 600 m, 29 Feb 1968 (fr), Bisce 6818 (JE); Baracoa, valle del Río Maraví, (20.42°N, 74.58°W), 31 Mar 1970 (st), Bisce 16967 (HAJB, JE); Baracoa, al sur de la Loma del Yunque, (20.34°N, 74.55°W), 300 m, 31 Mar 1970 (ofl), Bisce 17073 (JE); Baracoa, orillas del Río Báez, cerca del campamento ‘Los Naranjos’, (20.45°N, 74.58°W), 1 Aug 1975 (fl), Bisce 27000 (HAJB, JE). Holguín: Moa, Cuchillas de Moa, alrededores del aserrío La Melba, (20.45°N, 74.82°W), 28 Apr 1980 (fl), Álvarez et al. 42244 (HAJB, JE); Moa, orillas del Río Jiguani, cerca del segundo aserrío de La Melba, (20.45°N, 74.82°W), 31 Mar 1968 (bud), Bisce & Kohler, E. 6774 (HAJB, JE); Moa, La Melba, (20.45°N, 74.82°W), 27 Dec 1968 (bud, fl), Bisce & Lippold 11888 (HAJB, JE); charrascal de Cayo Guam, Moa, al W del campismo, (20.58°N, 74.86°W), 30 Jun 1991 (yfr), Urquiola 7108 (ASU0060189).

Phenology—Phenology is not well known; flowering in January, April, August and December; fruiting in March and August.

THE GENUS *PSIDIUM* (MYRTACEAE) IN THE GREATER ANTILLES

Habitat and distribution—Endemic to eastern Cuba; charrascal, rain forest, and cloud forest at 200 to 700 m.

Distinguishing features—Leaves mostly elliptic, obovate, or oblanceolate, (2.5–)3–8.7 cm long; flower buds 5–7 mm long, with the calyx closed except for a small terminal pore.

ACCEPTED SPECIES NAMES (IN BOLD) AND SYNONYMS

Calycorectes protractus Griseb. =***Psidium oligospermum***

Calyptrogenia biflora Alain =***Psidium amplexicaule***

Calyptropsidium sintenisii Kjaerskou =***Psidium oligospermum***

Eugenia nummularia Wright ex Griseb. =***Psidium nummularia***

Guajava amplexicaulis (Persoon) Kuntze =***Psidium amplexicaule***

Guajava montana (Sw.) Kuntze Rev. Gen. 1: 240. 1891. =***Psidium montanum*** Sw.

Marlierea marlierea leal-costae G. M. Barroso & Peixoto =***Psidium amplexicaule***

Mitranthes sartoriana O. Berg =***Psidium oligospermum***

Mitropsidium sartorianum (Berg) Burret =***Psidium oligospermum***

Mitropsidium sintenisii (Kjaerskou) Burret =***Psidium oligospermum***

Myrtus sagraea Berg =***Psidium salutare*** var. *salutare*

Myrtus salutaris Kunth =***Psidium salutare*** var. *salutare*

Psidium acranthum Urb.

Psidium acunae Borhidi =***Psidium nummularia***

Psidium albescens Urb.

Psidium amplexicaule Persoon

Psidium balium Urb. =***Psidium parvifolium***

Psidium brevifolium Alain =***Psidium acranthum***

Psidium calyptanthoides Alain =***Psidium oligospermum***

Psidium cattleyanum Sabine

Psidium celastroides Urb. =***Psidium nummularia***

Psidium claraense Urb. =***Psidium oligospermum***

Psidium cordatum Sims =***Psidium amplexicaule***

Psidium cymosum Urb. =***Psidium rotundatum***

Psidium dictyophyllum Urb. & Ekman =***Psidium amplexicaule***

Psidium dumetorum Proctor =***Psidium amplexicaule***

Psidium galapagaeum Hook. f. =***Psidium oligospermum***

Psidium guajava L.

Psidium guayabita Richard =***Psidium salutare*** var. *salutare*

Psidium guayabita var. *angustifolia* Griseb. =***Psidium salutare*** var. *salutare*

Psidium guayabita var. *oblongata* Griseb. =***Psidium salutare*** var. *salutare*

Psidium guineense Sw.

Psidium haitiense Alain =***Psidium acranthum***

Psidium harrisanum Urb.

Psidium hotteanum Urb. & Ekman =***Psidium acranthum***

Psidium jakucsianum Borhidi =***Psidium minutifolium***

Psidium leonis Urb. =***Psidium parvifolium***

Psidium microphyllum Britton =***Psidium oligospermum***

Psidium minutifolium Krug & Urb.

Psidium montanum Sw.

Psidium nannophyllum Alain

Psidium nitidum Wright =***Psidium parvifolium***

Psidium nummularia (Wright ex Griseb.) Wright

Psidium oligospermum DC.

Psidium parvifolium Griseb.

Psidium parvifolium var. *planifolium* Krug & Urb. =***Psidium parvifolium***

Psidium paucinerve Urb. =***Psidium parvifolium***

Psidium rotundatum Griseb.

Psidium rotundatum var. *triflorum* Griseb. =***Psidium rotundatum***

Psidium salutare (H. B. K.) Berg var. *salutare*

Psidium sartorianum (O. Berg) Niedenzu =***Psidium oligospermum***

Psidium scopulorum Ekman & Urb. =***Psidium nummularia***

Psidium sessilifolium Alain =***Psidium amplexicaule***

Psidium sintenisii (Kiaersk.) Alain =***Psidium oligospermum***

Psidium tenuirame Urb. =***Psidium parvifolium***

Psidium tomasianum Urb. & Ekman =***Psidium nummularia***

Psidium trilobum Urb. & Ekman =***Psidium acranthum***

Psidium wrightii D. Don ex Wright =***Psidium montanum***

Psidium urquiolanum Landrum & Z. Acosta

Psidium yucatanense Lundell =***Psidium oligospermum***

THE GENUS *PSIDIUM* (MYRTACEAE) IN THE GREATER ANTILLES

EXCLUDED OR DOUBTFUL SPECIES

- Calyptropsidium ekmanii* Urb., Ark. Bot. 24A(4): 17. 1931. TYPE. Haiti. "Massif de la Hotte in parte occidentali prope Les Anglais in Morne l'Etang", 21 Jul 1928 (fl), *Ekman H10360* (LECTOTYPE: S-10-6265, designated by Flickinger [Flickinger et al. 2020]). \equiv *Eugenia burretii* Flickinger, Taxon 69(3): 469. 2020.
- Psidium araneosum* Urb., Repert. Spec. Nov. Regni Veg. 19: 304. 1924. TYPE. Cuba. "Prov. Oriente prope Baracoa ad Maraví", *Ekman 4027* (HOLOTYPE: B, lost; ISOTYPE: NY-1288032!-fragment). \equiv *Mosiera araneosa* (Urb.) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.
- Psidium bahorucanum* Alain & R. García, Moscosoa 9: 12–17. 1997. TYPE. Dominican Republic. Prov. Independencia: Sierra de Bahoruco, approx. 12 km al S de Duvergé, Monte Palma, 800 m, 24 Mar 1993 (fr), *R. García, G. Caminero, D. Höner 4478* (HOLOTYPE: BRIT-23964; ISOTYPES: ASU-0019296!, MO-313593, NY-76858, S-R-10929). $=Eugenia$.
- Psidium berteroanum* O. Berg, Linnæa 27(2–3): 374. 1856. TYPE. Puerto Rico. *Bertero 206*. Sterile specimen in Herbarium of Sprengel. Not found. Compared to *Psidium montanum* by Berg but considered distinct by him.
- Psidium bullatum* Britton & P. Wilson, Mem. Torrey Bot. Club 16: 85. 1920. TYPE. Cuba. Camagüey, Santa Clara, *Britton & Cowell 13328* (HOLOTYPE: NY-3376846, viewed at NY website; ISOTYPES: GH-37521!, US-117655!) \equiv *Mosiera bullata* (Britton & P. Wilson) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.
- Psidium cacuminis* Britton & P. Wilson, Bull. Torrey Bot. Club 50: 43. 1923. TYPE. Cuba. Pico Turquino, *Ekman 10749* (HOLOTYPE: NY-1288037!) $=Eugenia maestrensis$ Urb., Symb. Antill. (Urban). 9(1): 107. 1923, according to Govaerts et al. (2008).
- Psidium calycolpoides* Griseb., Pl. Wright. (Griseb.) 1: 183. 1860. TYPE. Cuba. *Wright 1195 & 1196* (SYNTYPES: GOET-13807!, GOET-13811!) \equiv *Mosiera calycolpoides* (Griseb.) Borhidi, Acta Bot. Hung. 37(1–4): 78. 1992.
- Psidium confertum* R. A. Howard, J. Arnold Arbor. 28: 123. 1947. Type. Cuba. "near airfield at Moa", *Howard 5901* (HOLOTYPE: A-00069288) $=Mosiaria ophiticola$ (Britton) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.
- Psidium cordatum* var. *parvifolium* Griseb., Cat. Pl. Cub. 91. 1866. TYPE. Cuba. *Wright 2455* (HOLOTYPE: GOET) \equiv *Psidium wrightii* Krug & Urb., Bot. Jahrb. Syst. 19(4): 570. 1894, nom. illeg. (non *Psidium wrightii* Lamb. ex W. Wright, Memoir W. Wright 278. 1828.) \equiv *Psidium parvifolium* (Griseb.) Mabb., Taxon 30(1): 12. 1981, nom. illeg. (non *Psidium parvifolium* Griseb., Cat. Pl. Cub. 91, 285. 1866.) \equiv *Mosiera wrightii* Borhidi, Acta Bot. Hung. 37(1–4): 79. 1992.
- Psidium crenulatum* Urb. & Ekman, Symb. Antill. (Urban). 9(4): 460. 1928. TYPE. Cuba. "Prov. Santa Clara prope Casilda", *Ekman 18889* (HOLOTYPE: B, lost; ISOTYPE: NY-1288042!) $=Mosiaria bullata$ (Britton & P. Wilson) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.
- Psidium crispulum* Urb., Ark. Bot. 17(7): 44. 1921. TYPE. Haiti. "Morne de la Hotte in declivibus australibus montium occidentalium ad Ma Blanche". TYPE. *Ekman H598* (HOLOTYPE: B, lost; LECTOTYPE: S-05-3128, designated by Flickinger [Flickinger et al. 2020]) \equiv *Eugenia crispula* (Urb.) Flickinger, Taxon 69(3): 469. 2020.
- Psidium cuspidatum* Alain, Brittonia 20: 159. 1968, (non *Psidium cuspidatum* (O. Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 483. 1941.) TYPE. Dominican Republic. "Boca de Infierno, Los Haitises, Samana Prov.", 24 Jun 1930 (fr), *Ekman H15427* (HOLOTYPE: US-117657) \equiv *Mosiera cuspidata* Salywon, J. Bot. Res. Inst. Texas 1(2): 899. 2007.
- Psidium fragrans* Macfad.?, Fl. Jamaica 2: 108. 1850. Jamaica. "Salt Hill, Port Royal Mountains," *Macfadyen s.n.* (no specimen found). Might be *P. montanum* or some other species of *Psidium*.
- Psidium gracilipes* Alain, Phytologia 25: 269. 1973. TYPE. Dominican Republic. "Loma Redonda, Ciénaga de la Culata, Constanza", 1700-2000 m, 30 Nov 1969, *Liogier 17138* (HOLOTYPE: NY; ISOTYPES: JBSD!, US-1920027) \equiv *Mosiera gracilipes* (Alain) Salywon, J. Bot. Res. Inst. Texas 1(2): 899. 2007.
- Psidium havanense* Urb., Symb. Antill. (Urban). 9(4): 461. 1928. TYPE. Cuba. "Prov. Habana in Loma Coca solo serpentino", 18 Jun 1922 (bud), *Ekman 14061* (HOLOTYPE: B, lost; ISOTYPES: A-69290!, BM-616930, G-222533) \equiv *Mosiera havanensis* (Urb.) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 4. 1985.
- Psidium insulanum* Alain, Phytologia 47: 187. 1980. TYPE. Puerto Rico, Vieques Island, East Point, 24 May 1978 (yfr), *Woodbury s.n.* (HOLOTYPE: UPR; ISOTYPES: NY-1795717, US-1050093) $=Mosiaria longipes$ Small, Man. S. E. Fl. [Small]: 937. 1933).

- Psidium jackii* Urb., Symb. Antill. (Urban). 9(4): 467. 1928. TYPE. Cuba. "Prov. Oriente in Sierra Maestra....ad Arroyo del Cristo in Río Yara", *Ekman 14751* (HOLOTYPE: B, lost; ISOTYPE: S-R-8389! [seen at S site]) =*Mosiera calycolpoidea* (Griseb.) Borhidi, Acta Bot. Hung. 37(1–4): 78. 1992.
- Psidium leiophloeum* (Urb.) Urb., Symb. Antill. (Urban). 9(4): 459. 1928. ≡ *Eugenia leiophloea* Urb., Symb. Antill. (Urban). 9(1): 108. 1923. (TYPE. Cuba. "Prov. Oriente in Sierra de Nipe ad Río Piedra in charrascales 200 m alta et supra", *Ekman 10012* (HOLOTYPE: B lost; ISOTYPE: S-R-8366! [at S site]) =*Mosiera bullata* (Britton & P. Wilson) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.
- Psidium longipes* (O. Berg) McVaugh, J. Arnold Arbor. 54: 312. 1973. ≡ *Eugenia longipes* O. Berg, Linnaea 27(2): 150. 1856. ≡ *Mosiera longipes* Small, Man. S. E. Fl. [Small] 937. 1933. TYPE. United States. Florida. *Leitner* [ex Salywon 2003] "Cabanis" s.n. (HOLOTYPE: B, lost).
- Psidium longipes* var. *orbiculare* (O. Berg) McVaugh, J. Arnold Arbor. 54: 314. 1973. ≡ *Eugenia orbicularis* O. Berg, Linnaea 30: 678. 1861. TYPE. "in insula Barbados....in herb Rich.", *L. Cl. Rich. s.n.* (HOLOTYPE: P-258322).
- Psidium loustalotii* Britton & P. Wilson, Bull. Torrey Bot. Club 48: 342. 1922. TYPE. "Sabana de Motembo, Santa Clara, Cuba." *León & Loustalot 9394* (HOLOTYPE: NY, not found). = *Ottoschmidia microphylla* (Griseb.) Urb. (Rubiaceae) Ark. Bot. 21A(5): 85. 1927. ≡ *Stenostomum microphyllum* Griseb. Cat. Pl. Cub. 133. 1866. TYPE. Cuba. Prov. Pinar del Rio, San Marcos, *Wright 3184* (HOLOTYPE: GOET, ISOTYPES: GH, HAC!, US-138403)
- Psidium moense* (Britton & P. Wilson) McVaugh, J. Arnold Arbor. 54: 313. 1973. ≡ *Eugenia moensis* Britton & P. Wilson, Mem. Torrey Bot. Club 16: 88. 1920. ≡ *Mosiera moensis* (Britton & P. Wilson) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 4. 1985. TYPE. Cuba. "Camp La Gloria, south of Sierra Moa, Oriente", December 24-30, 1910 (yfr), *J. A. Shafer 8100* (HOLOTYPE: NY-84753; ISOTYPE: US-118065).
- Psidium munizianum* Borhidi, Acta Bot. Acad. Sci. Hung. 21: 225. 1975. TYPE. Cuba. "Prov. Habana; in fruticetis litoralis La Rotila pr. pag. Santa Cruz del Norte", 10 Oct 1959, *Alain 6805* (HOLOTYPE: HAC!). Compared by Borhidi to *P. crenulatum*, which equals *Mosiera bullata*. =*Mosiera bullata*?
- Psidium navasense* Britton & P. Wilson, Mem. Torrey Bot. Club 16: 85. 1920. TYPE. Cuba. "Between Navas and Camp Buena Vista, Oriente, 650 m", 23 Mar 1910, *J. A. Shafer 4444* (HOLOTYPE: NY-1288063!). =*Eugenia*?
- Psidium nummularioides* Britton & P. Wilson, Mem. Torrey Bot. Club 16: 85. 1920. ≡ *Mosiera nummularioides* (Britton & P. Wilson) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1986. TYPE. Cuba. "Guantanamo Bay, Oriente", *Britton 2046* (HOLOTYPE: NY; ISOTYPE: US-731223).
- Psidium ophiticola* Britton & P. Wilson, Mem. Torrey Bot. Club 16(2): 86. 1920. ≡ *Mosiera ophiticola* (Britton & P. Wilson) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985. TYPE. Cuba. "near mouth of the Río Yamanigüey, Oriente", *J. A. Shafer 4278* (HOLOTYPE: NY-4205531-seen at NY virtual herbarium).
- Psidium orbifolium* Urb., Symb. Ant. 9: 462. 1928. TYPE. Cuba. "Prov. Oriente in Sierra Maestra in sylvis ad rivulum Corojo prope Nagua," *Ekman 14922* (HOLOTYPE: B, lost; ISOTYPES: G-227728!, HAC!, NY-1288068!, NY-1288069!, S-R-8383 [annotated as lectotype by Urquiola, 1997, but perhaps never published]). [Compared to *P. rotundatum* by Urban, but probably not that species, type sterile]. Could be another genus.
- Psidium pulverulentum* Krug & Urb., Bot. Jahrb. Syst. 19(4): 567. 1894. =*Guapira obtusata* (Jacq.) Little Phytologia 17: 368. 1968 (Nyctaginaceae) according to Acevedo & Strong (2012).
- Psidium reversum* Urb., Symb. Antill. (Urban). 9(1): 84. 1923. ≡ *Calycolpus reversus* (Urb.) Bisce, Revista Jard. Bot. Nac. Univ. Habana 4(1): 6. 1983. . ≡ *Eugenia reversa* (Urb.) Z. Acosta & García-Beltrán, Phytotaxa 644(4): 295. 2024. TYPE. Cuba. "Prov. Oriente prope Baracoa in Lomas de Cuaba", *Ekman 4295* (HOLOTYPE: B: lost; LECTOTYPE: NY-1288080!, designated by Landrum [2010]).
- Psidium saxicola* Britton & P. Wilson, Mem. Torrey Bot. Club 16: 86. 1920. TYPE. Cuba. Santiago Bay, Oriente...El Morro, *Britton and Cowell 12544* (HOLOTYPE: NY-3376848; ISOTYPES: F-361158, GH-375222, US-117678). =*Myrtus elliptica* C. Wright, Anales Real Acad. Ci. Méd. Fís. Nat. Habana Revista Ci. 5: 410. 1868. ≡ *Mosiera elliptica* (C. Wright) Bisce, Revista Jard. Bot. Nac. Univ. Habana 6(3): 5. 1985.
- Psidium versicolor* Urb., Symb. Antill. (Urban). 9(1): 85. 1923. TYPE. Cuba. "Prov. Oriente in Sierra de Nipe ad Río Piedra", *Ekman 4811* (HOLOTYPE: B, lost; ISOTYPE: S-R-8381, marked "Lectotype" by Urquiola but probably not yet published). =*Mosiera calycolpoidea* (Griseb.) Borhidi, Acta Bot. Hung. 37(1–4): 78. 1992.
- Psidium vicentinum* Urb., Symb. Antill. (Urban). 9(4): 463. 1928. TYPE. Cuba. "Prov. Pinar del Río in Sierra de San Vicente (de Viña) in declibus umbrosis prope dorsum montis", *Ekman 18692* (HOLOTYPE: B, lost; ISOTYPE: S-R-8379) =*Eugenia cristata* C. Wright, Fl. Cub. (Sauvalle) 41. 1869. [ex Urquiola annotation of isotype.]

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Psidium wrightii Krug & Urb., (non *Psidium wrightii* Lamb. ex W.Wright, Memoir W. Wright 278. 1828. ≡ *Mosiera wrightii* Borhidi, Acta Bot. Hung. 37(1–4): 79. 1992. See *Psidium cordatum* var. *parvifolium* Griseb. above.

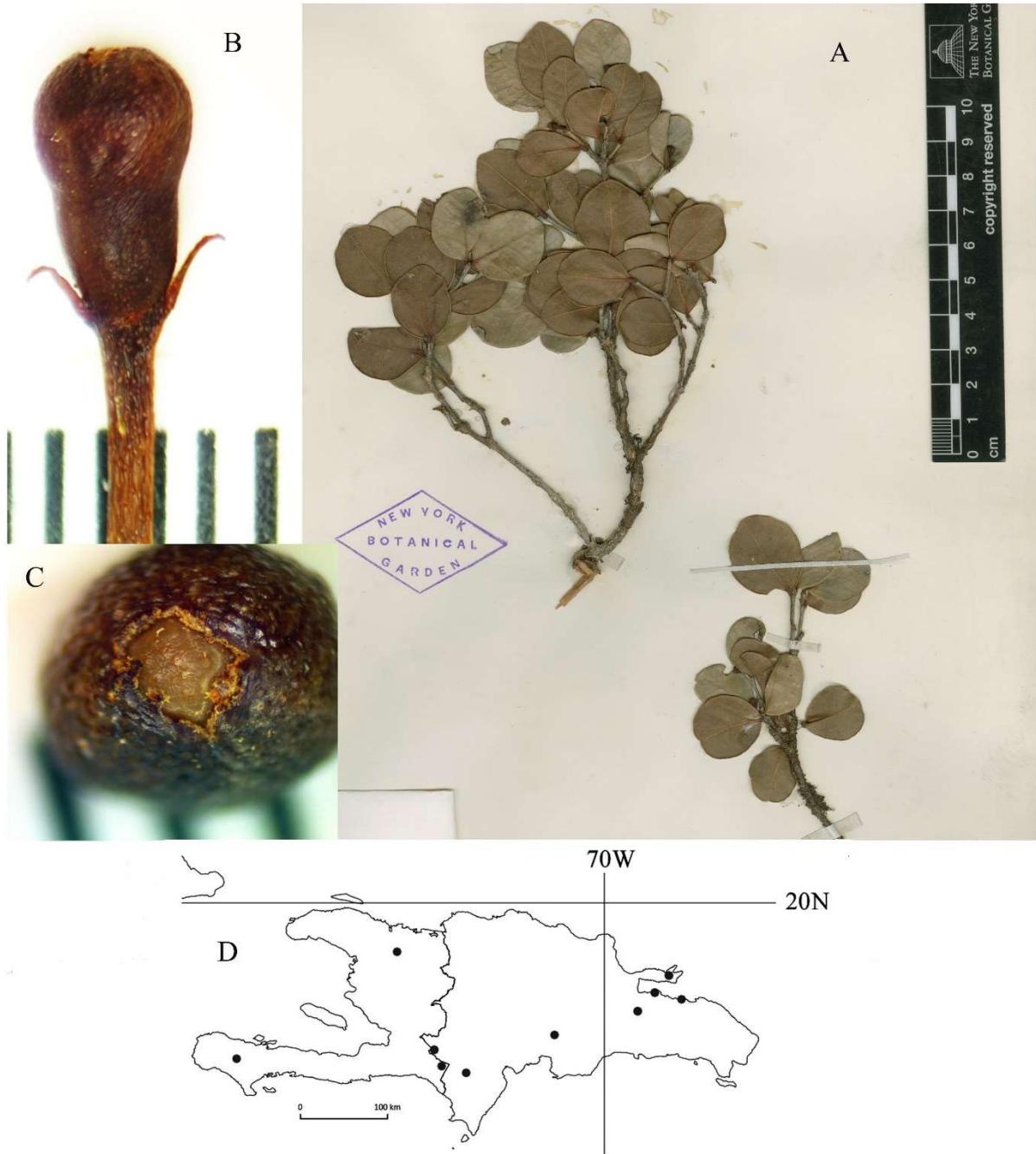


Figure 3. *Psidium acranthum*: A. Herbarium sheet, isotype. B. Side view of closed flower bud. C. Apical view of closed flower bud. D. Map of distribution. (A from Abbott 1247, NY; B & C from Garcia et al. 4447, ASU).

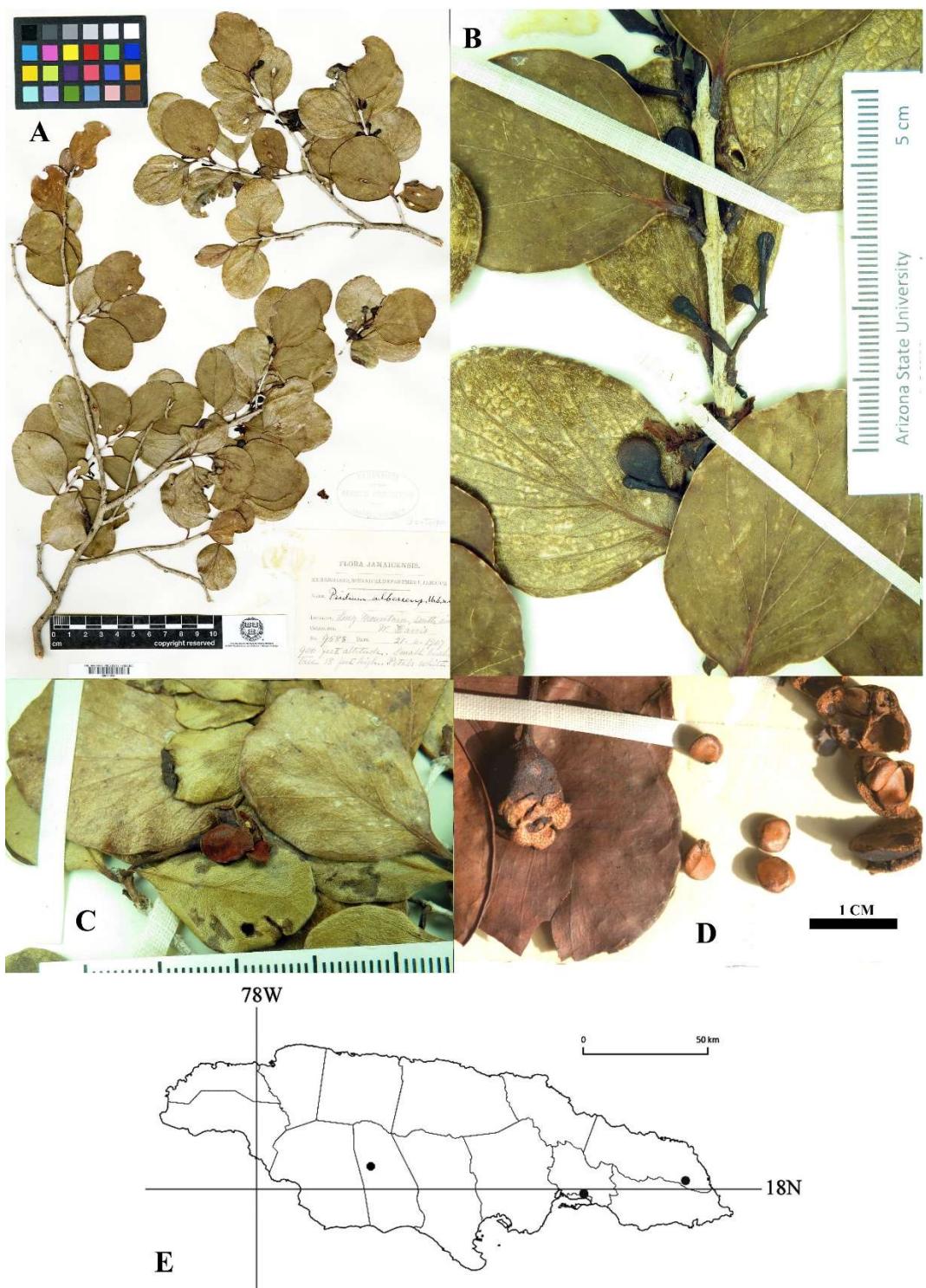


Figure 4. *Psidium albescens*: **A.** Herbarium sheet, isotype (Harris 9583). **B.** Twig with leaves and flower buds. **C.** Leaves with flower past anthesis showing reddish brown indumentum on inner surface of calyx. **D.** Fruits opened and closed; seeds from open fruit. **E.** Map of distribution. (A from isotype, A; B,C from isotype, NY; D from Proctor 14836 at IJ, photo by K. Campbell).

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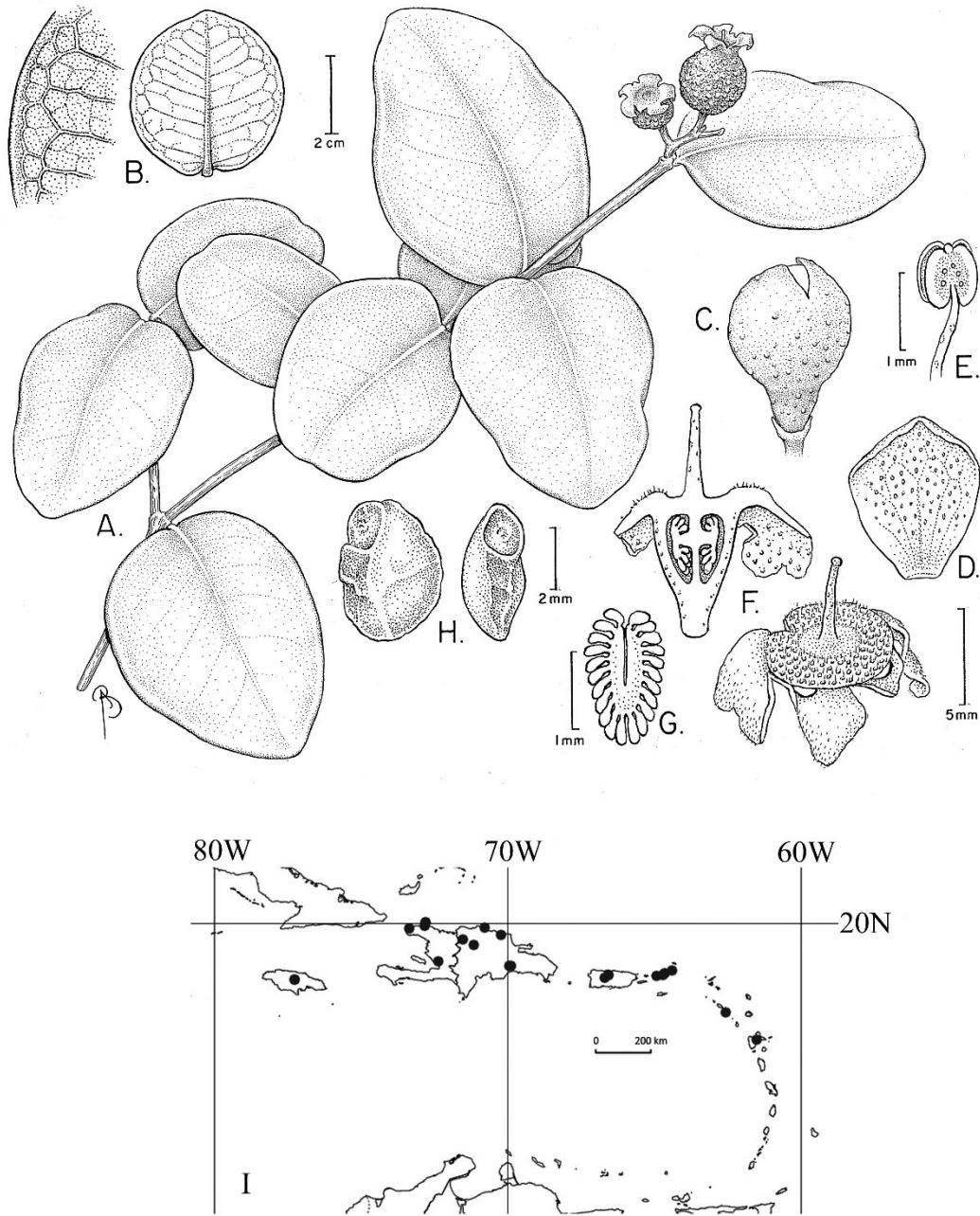


Figure 5. *Psidium amplexicaule*: **A.** Fruiting twig. **B.** Leaf with close-up of venation. **C.** Opening flower bud. **D.** Petal. **E.** Anther with terminal gland and smaller glands below. **F.** Distal view of flower after anthesis and longitudinal section of the same showing peltate placenta from side. **G.** View of peltate placenta and ovules. **H.** Two views of a seed. **I.** Map of distribution in Caribbean. (A, from Acevedo-Rodríguez 2673, NY; B, H, from Mejía and Zanoni 7878, ASU; C, from Acevedo-Rodríguez 2862, NY; D–G, from Peguero et al. 1370, ASU). Illustration by Bobbi Angell, modified from Acevedo-Rodríguez 1996, Fig. 154.

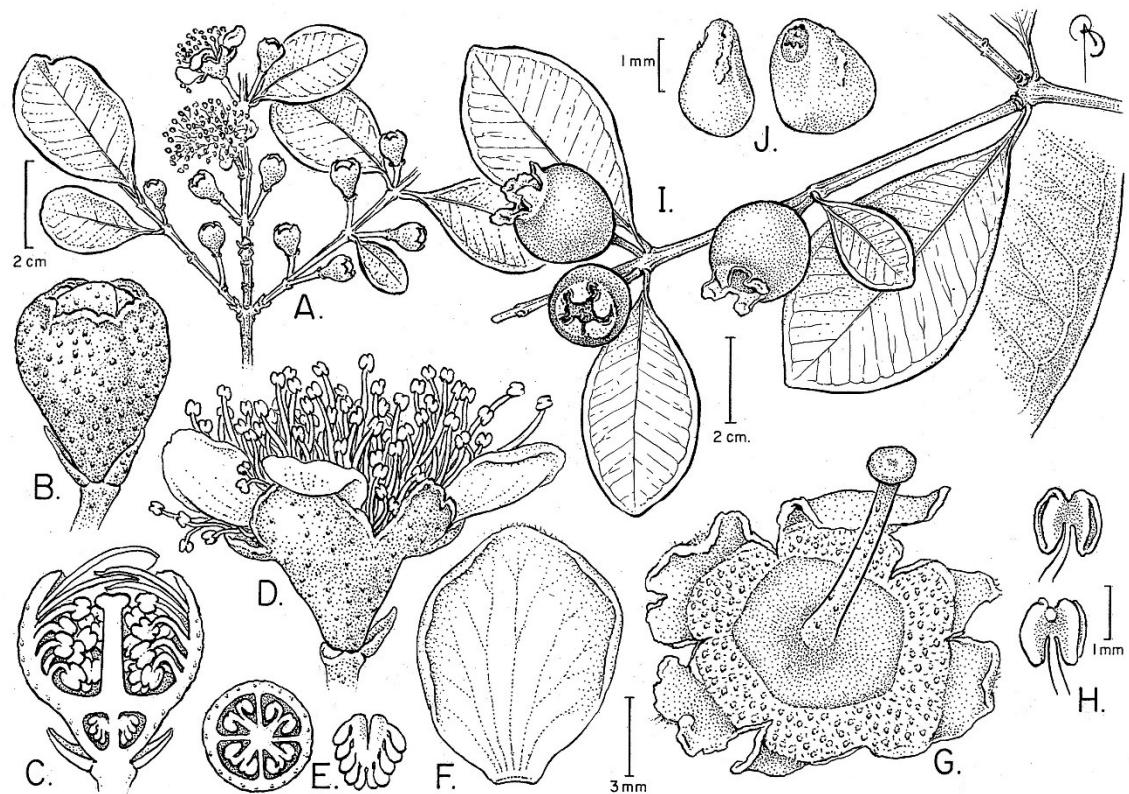


Figure 6. *Psidium cattleyanum*: **A.** Twig at beginning of anthesis. **B.** Flower bud. **C.** Longitudinal section of flower bud. **D.** Opening flower. **E.** Cross section of ovary and extracted placenta with ovules. **F.** Petal. **G.** Apical view of flower after anthesis showing tears in calyx cutting into staminal ring. **H.** Two views of stamen and anther with single terminal gland. **I.** Fruiting twig. **J.** Seeds. **K.** Map of distribution in Jamaica. Likely to be found in additional localities and on other islands. (A–C from Rossato *et al.* 4855, ASU0006118; D from photograph of live specimen; E–H from Folli 4925, ASU0006103; I from Baitello 414, ASU0006091; J from Carvalho *et al.* 6859, ASU0006121). Illustration by Bobbi Angell.

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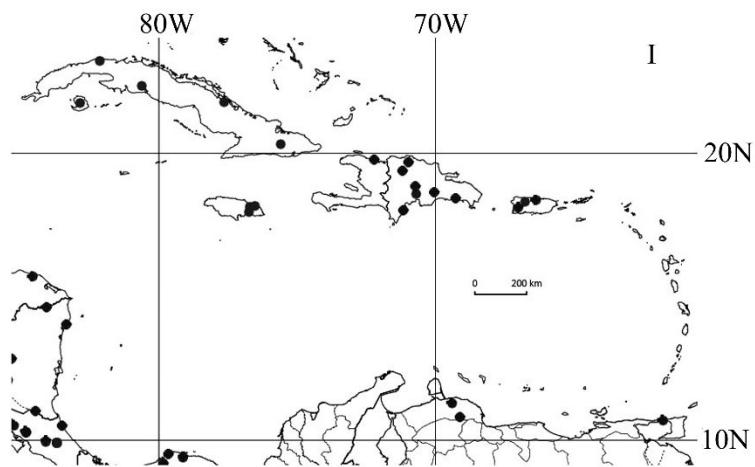
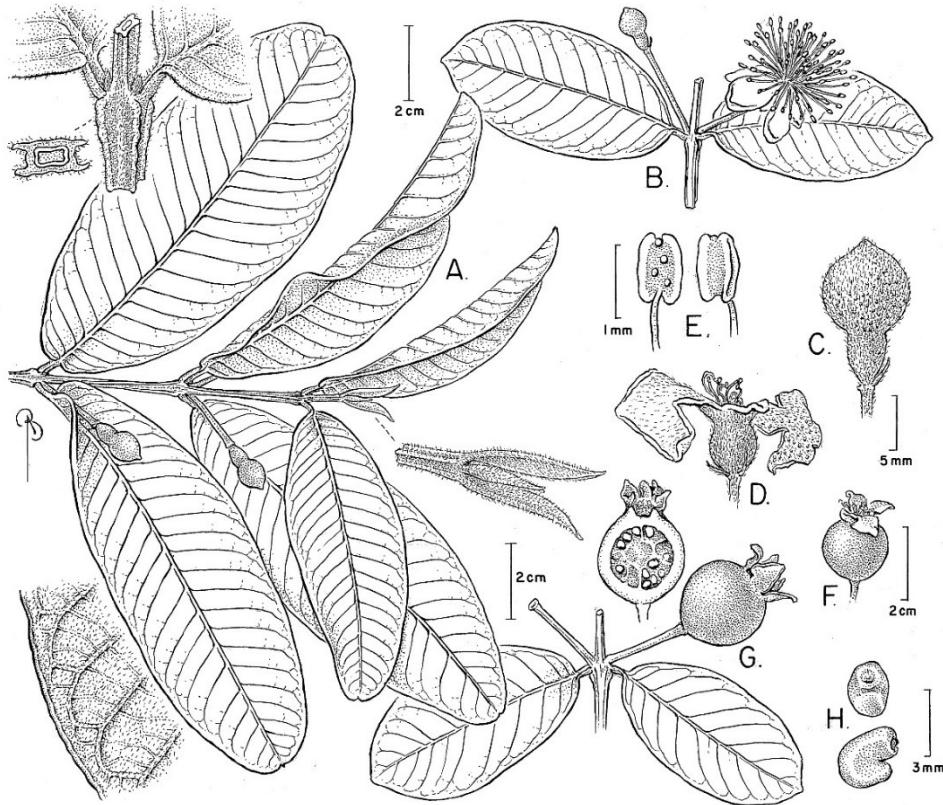


Figure 7. *Psidium guajava*: **A.** Branch with flower buds, including close-ups of node showing wings on twigs (upper left) and growing tip with two decussate pairs of immature leaves (right). **B.** Node with open flower and closed bud. **C.** Closed bud with one persistent bracteole. **D.** Flower after anthesis with irregularly torn calyx. **E.** Two views of anther with multiple glands. **F.** Fruit. **G.** Node with fruit attached and longitudinal-section of fruit showing seeds. **H.** Two views of a seed. **I.** Map of distribution in Caribbean region. (A from fresh material from Tempe, Arizona, unknown origin; B, E from Sanders 8615, ASU0004830; C, D & F from Landrum 6301, ASU0004836; G, H from Landrum 6343, ASU0004869). Illustration by Bobbi Angell.

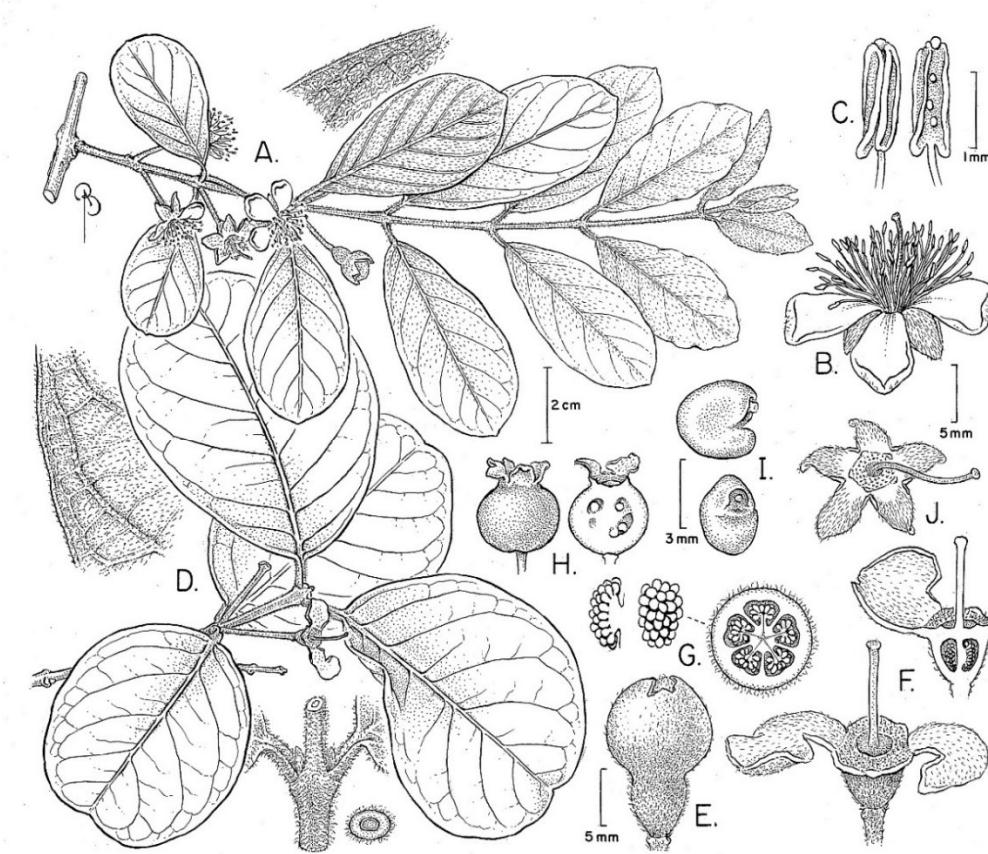


Figure 8. *Psidium guineense*: **A.** Branch with flowers and flower bud; detail of lower leaf surface (non-typical form with appressed hairs on lower leaf surface). **B.** Open flower. **C.** Anthers with glands. **D.** Branch with old flower; detail of lower leaf surface (typical form with erect spreading hairs). **E.** Closed bud just beginning to open. **F.** Flowers after anthesis with irregularly opening calyx. **G.** Cross section of ovary showing 5 locules; detail of placentation and ovules. **H.** Fruit and fruit in longitudinal section. **I.** Two views of seed. **J.** Flower after anthesis showing calyx tearing in 5 nearly equal lobes. **K.** Map of distribution in Caribbean region. (A, B from Landrum 8804, ASU0008042); C from Landrum 5676, ASU0004988; D–I from fresh material grown from seeds from Chiapas, Mexico; J from Nee 39697, ASU0007532). Illustration by Bobbi Angell.

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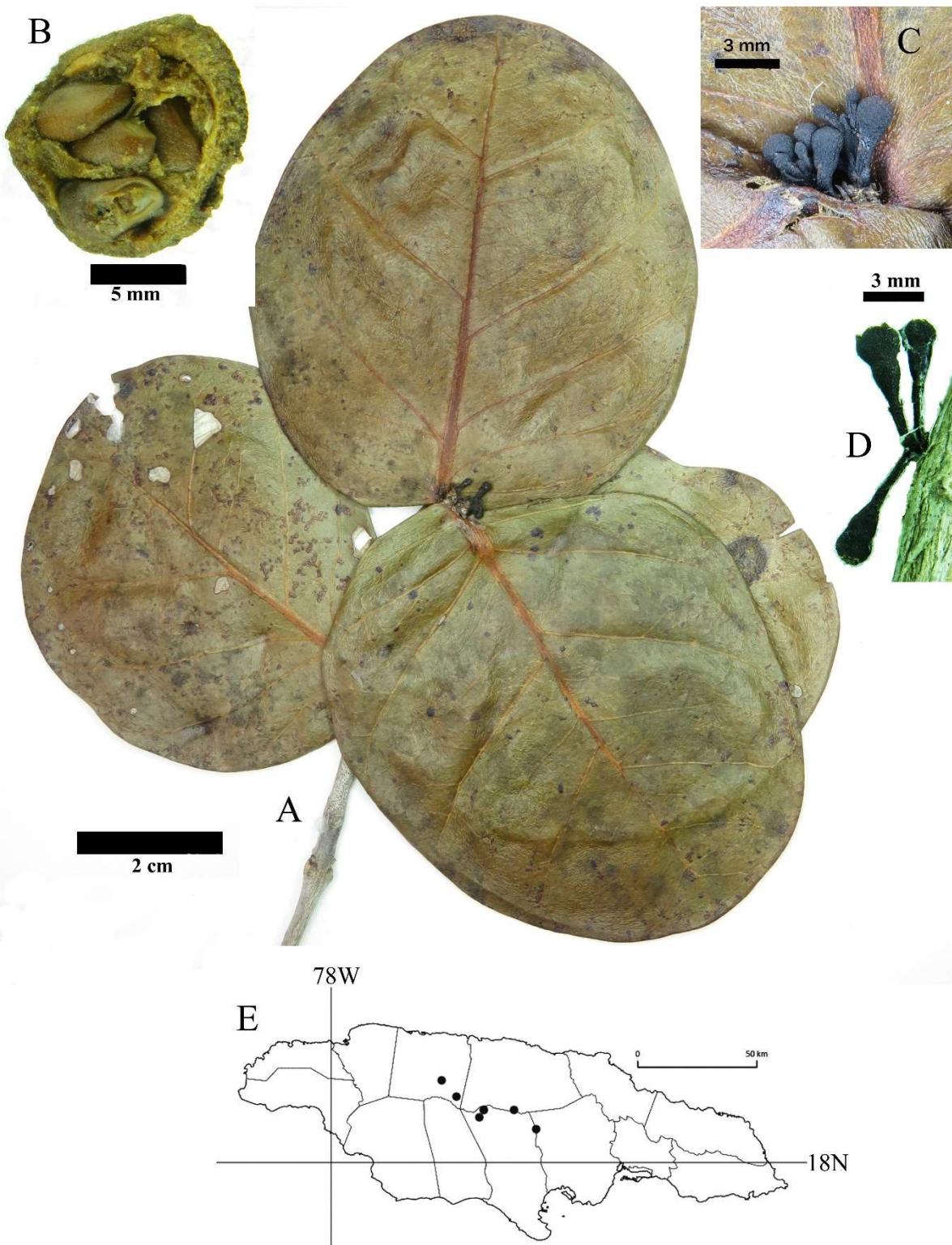


Figure 9. *Psidium harrisianum*: A. Branch with leaves and flower buds. B. Open fruit showing seeds. C. flower buds in cluster near shoot apex. D. flower buds at leafless node. E. Map of distribution. (A & C from Franck et al. 3796, USF; B, from Proctor 37325, MO; D, from Proctor 24902, NY).

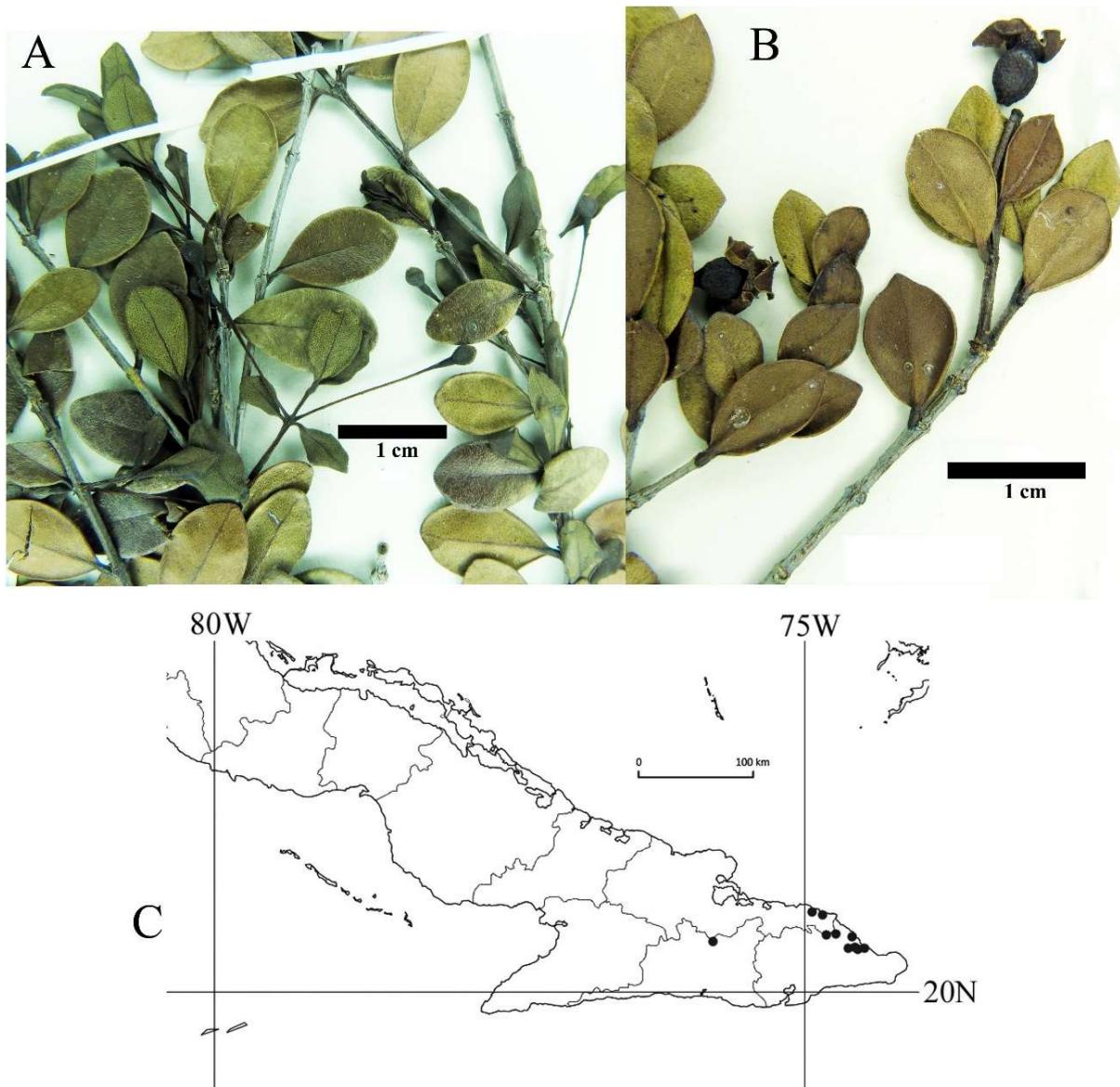


Figure 10. *Psidium minutifolium*: A. Twigs, leaves, and flower buds. B. Twigs, leaves, and young fruits. C. Map of distribution. (A from Álvarez de Zayas et al. 42690, JE; B from Wright 2464, MO).

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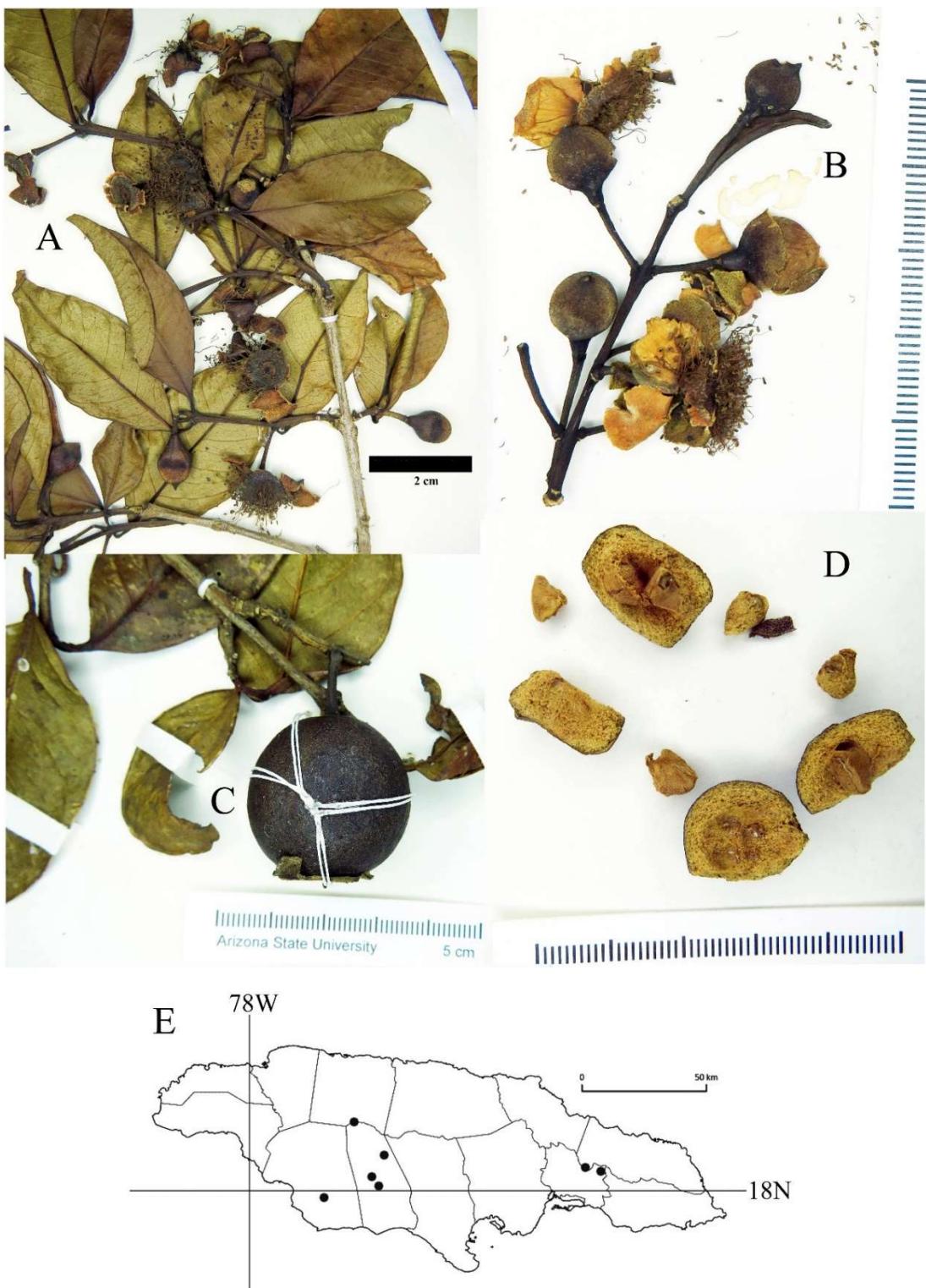


Figure 11. *Psidium montanum*: **A.** Twigs, leaves, flowers, flower buds. **B.** Inflorescence with buds and flowers. **C.** Fruit on twig with leaves. **D.** Parts of open fruit and seeds. **E.** Map of distribution. (A, from Proctor 26438, MICH; from Harris 8769, NY; C from Proctor 24762, MICH; D, from Proctor 24762, MICH).

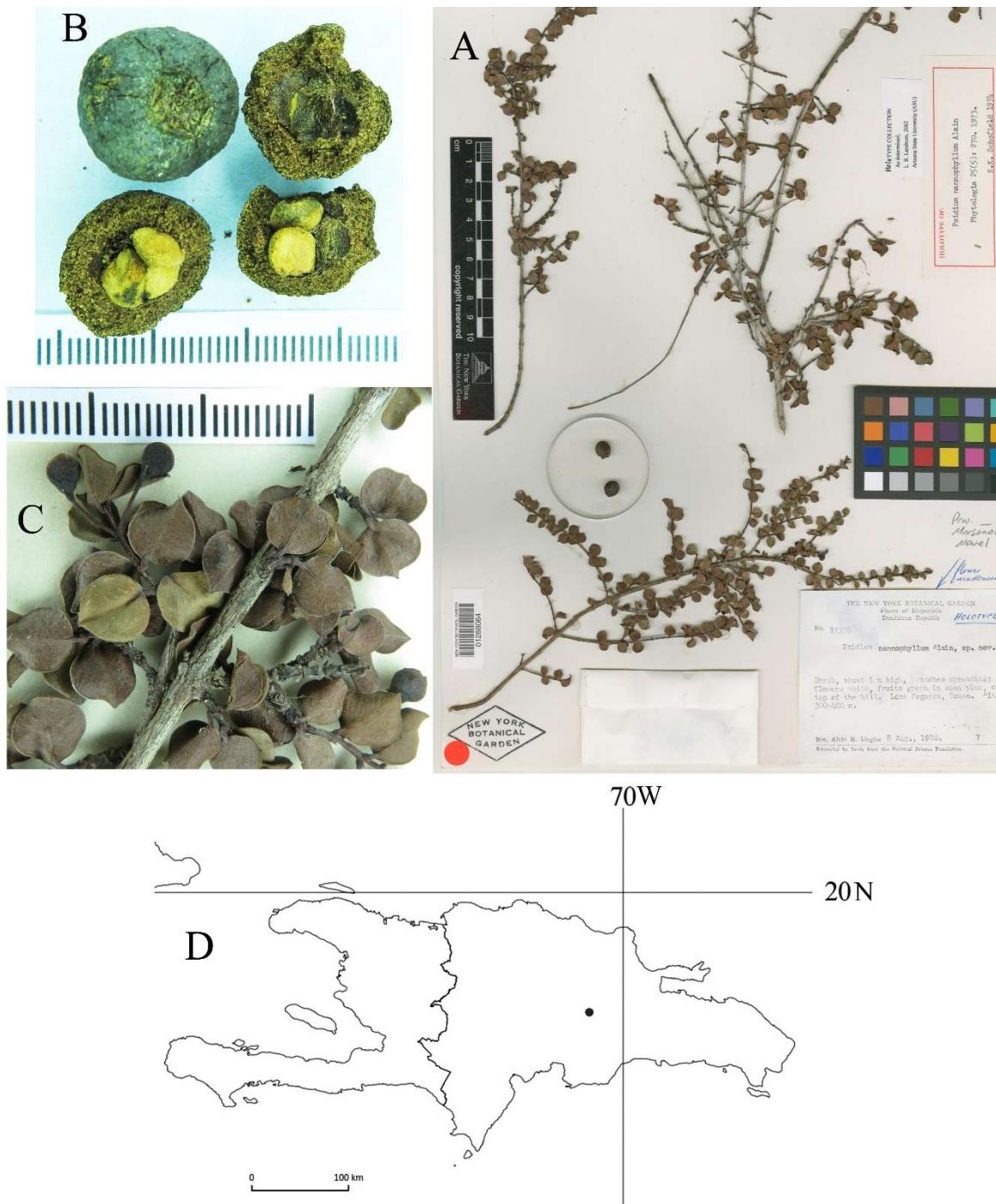


Figure 12. *Psidium nannophyllum*: **A.** Holotype sheet, NY. **B.** Closed and open fruit showing seeds. **C.** Close up of twigs, leaves, and flower buds. **D.** Map of distribution. (A, from Liogier 17378, Holotype, NY; B, from Liogier 17378, US; C, from Zanoni 12917, JBSD).

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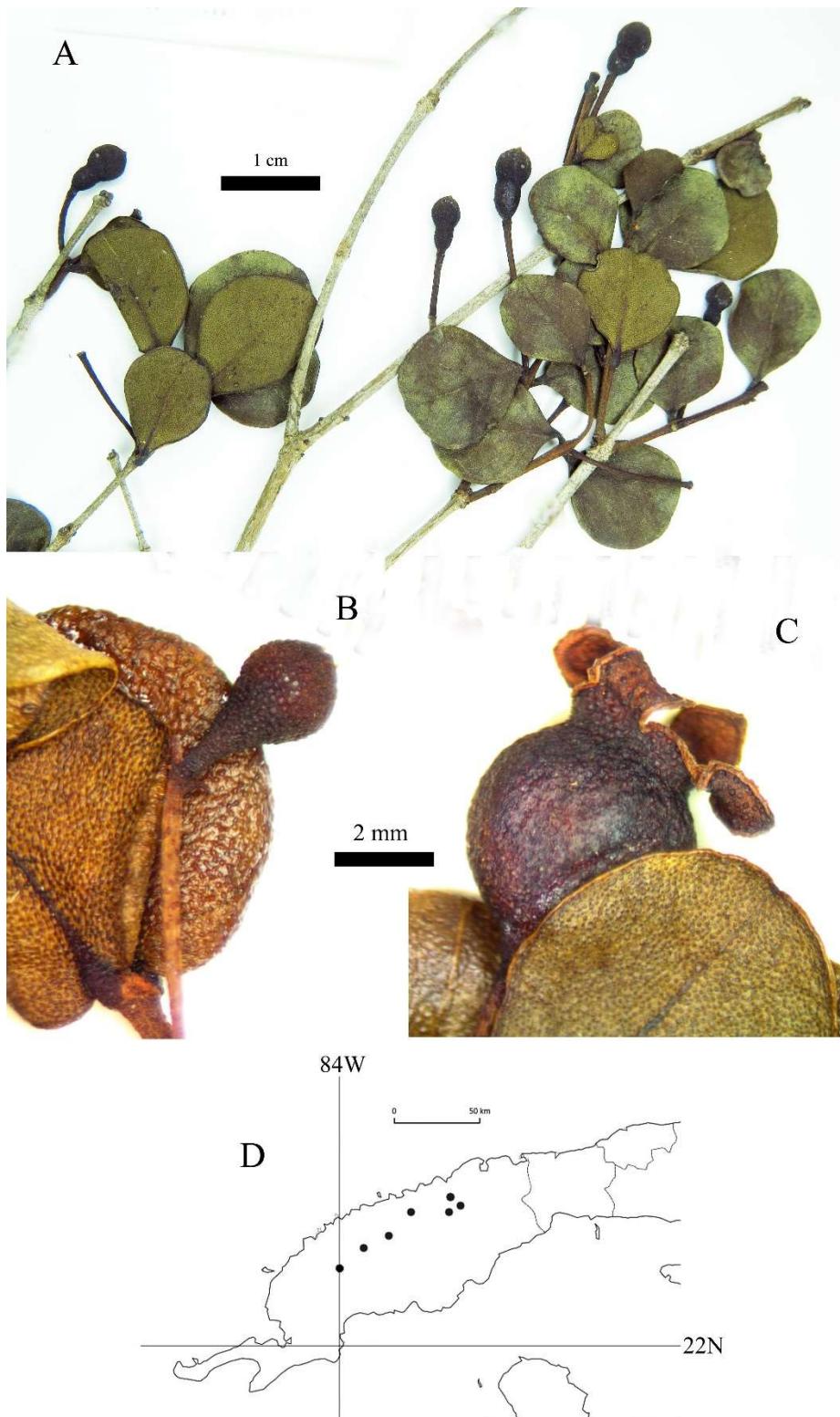


Figure 13. *Psidium nummularia*: **A.** Twigs, leaves and unopened flower buds. **B.** Unopened flower bud. **C.** Young fruit. **D.** Map of distribution in western Cuba. (A from Luis et al 4571, ASU; B & C from Luis et al. 4693, ASU).

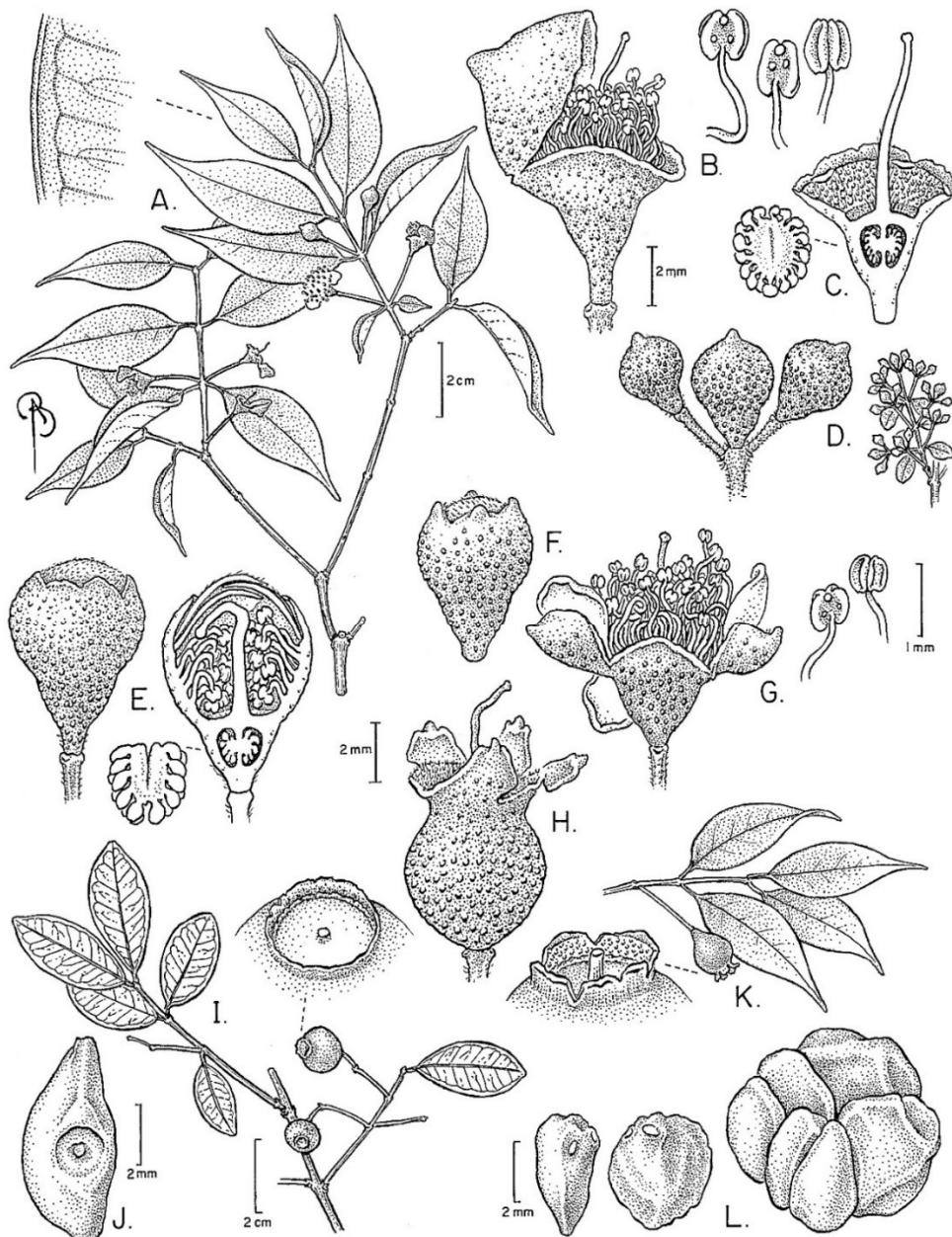


Figure 14. *Psidium oligospermum*: **A.** Flowering branch with detail of venation. **B.** Opening flower with calyptra; anthers with terminal gland and two smaller glands below. **C.** Longitudinal section of flower with peltate placenta extracted. **D.** Three-flowered dichasium and cluster of dichasias. **E.** Flower bud, placenta with ovules extracted and longitudinal section of bud. **F.** Flower bud from side; calyx with apical protuberances, these evident in G and H also. **G.** Opening flower from side; two views of an anther, one showing terminal gland and two smaller glands below. **H.** Young fruit from side. **I.** Twig with fruits; apical view of fruit with calyx and staminal ring having fallen. **J.** Seed. **K.** Twig with leaves and fruit; view of fruit apex with calyx having fallen and staminal ring persisting. **L.** Cluster of seeds from a fruit and two individual seeds showing flat and rounded sides. (A-C from Pirani & Kallunki 2664, ASU0014404; D from Nuñez 8602, ASU0014407; E from Smith 9729, ASU0014343; F-G from Landrum 6524, ASU0005024; H from Landrum 6518, ASU0005010; I-J from Guillen & Lazo 4340, ASU0015601; K-L from Landim 561, ASU0014337). Illustration by Bobbi Angell.

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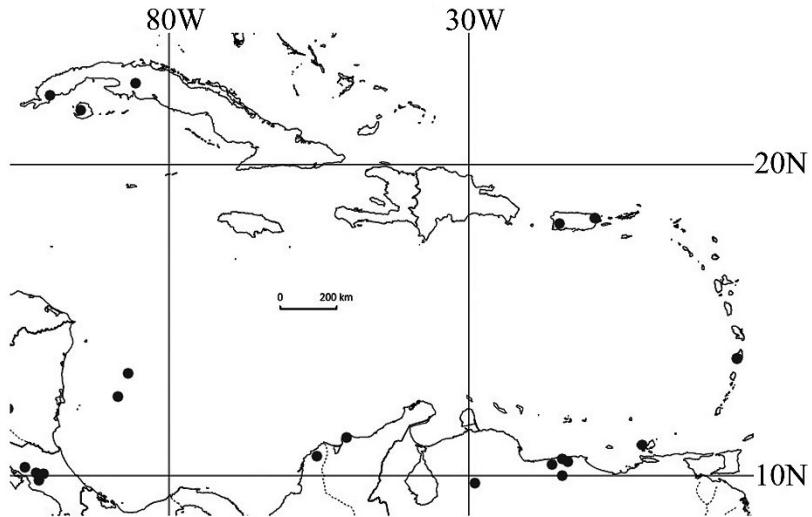


Figure 15. Map of distribution of *Psidium oligospermum* in Caribbean region.

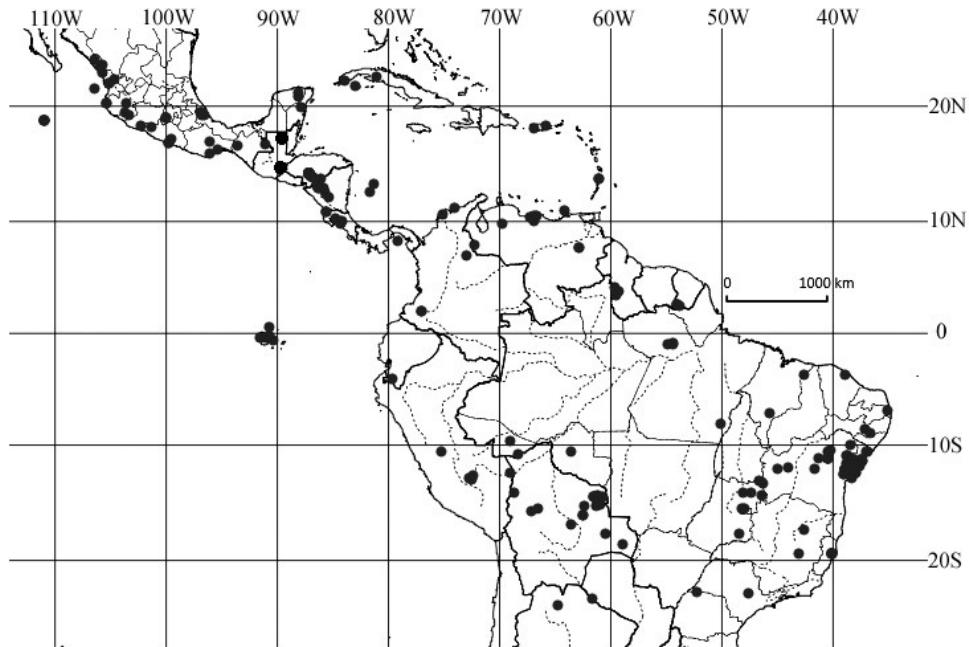


Figure 16. Map of distribution of *Psidium oligospermum* throughout its natural range. This species is one of the most widespread of the genus and is a good example of the natural range of *Psidium*. Scale bar is most accurate near the equator.

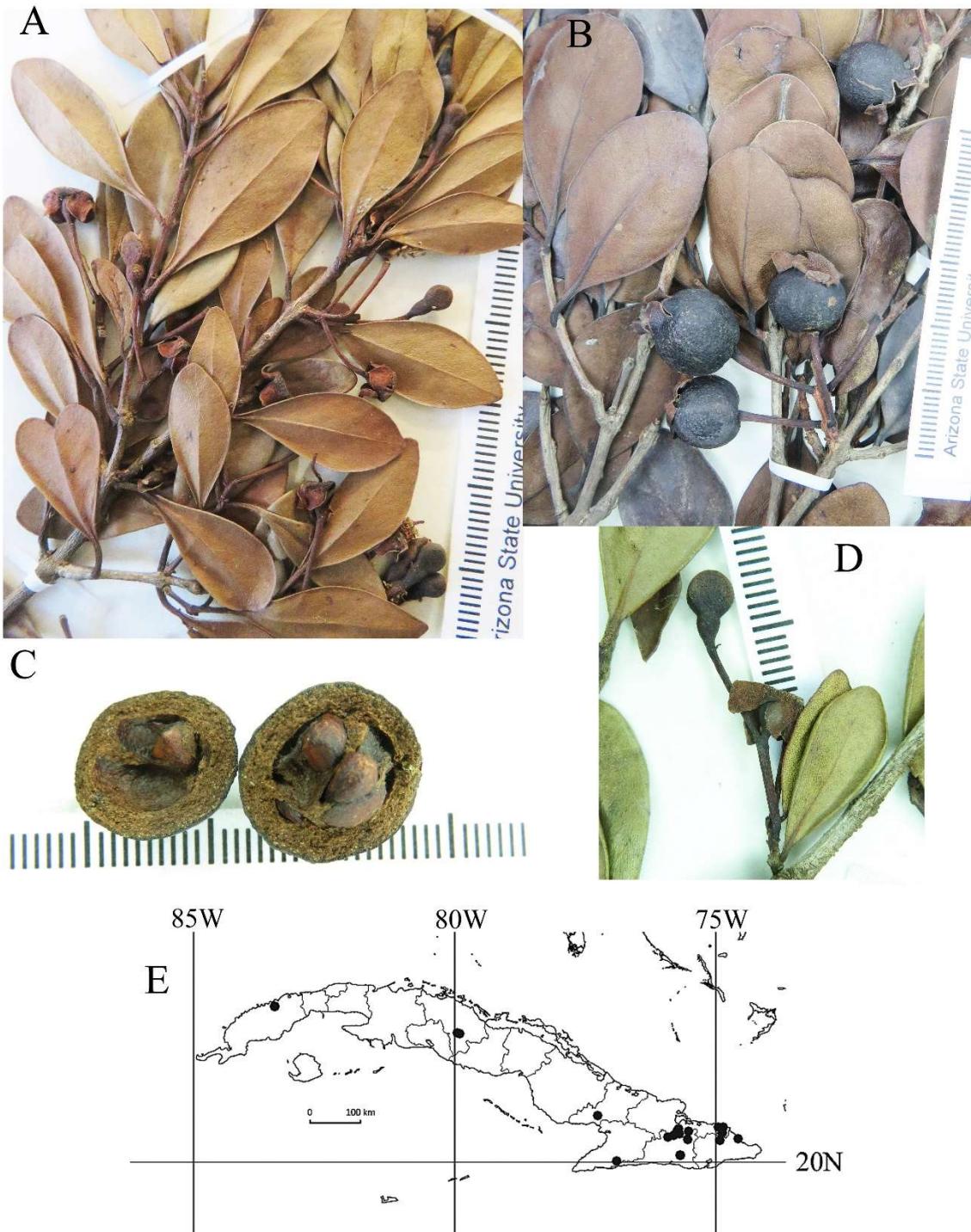


Figure 17. *Psidium parvifolium*: **A.** Twigs with leaves, leaves, buds, and flowers past anthesis. **B.** Twigs with leaves and fruits. **C.** Open fruit showing seeds. **D.** Part of a 3-flowered dichasial inflorescence, the central flower passed anthesis, the left flower in bud. **E.** Map of distribution. (A from Bisce 44046, JE; B from Bisce & Lippold 18109, JE; C from Alain & Clemente 978, US; D from Acuña 12614, US).

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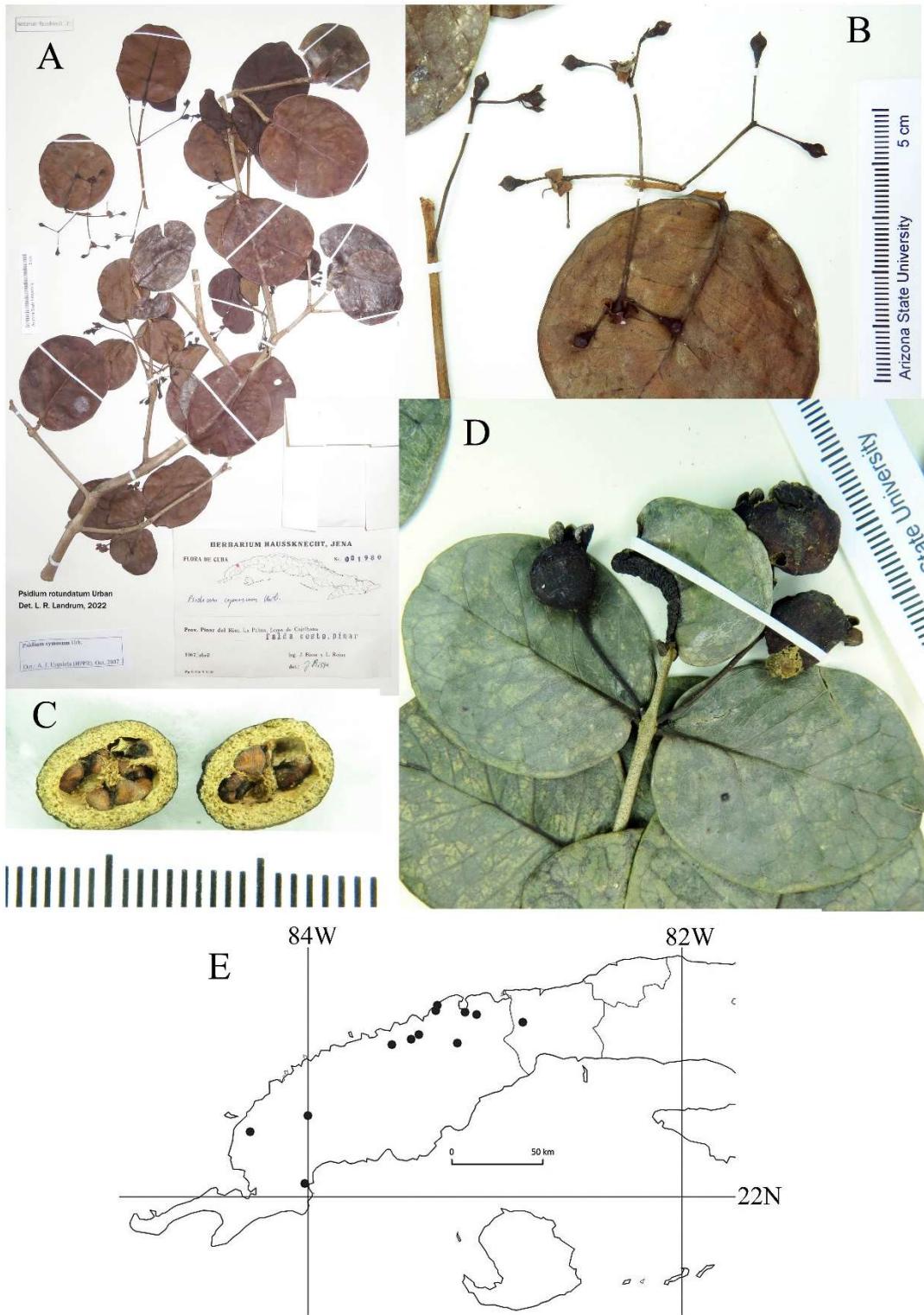


Figure 18. *P. rotundatum*: **A**. Herbarium sheet. **B**. Dichasial inflorescences. **C**. Open fruit with seeds. **D**. Twig, leaves, and fruits. **E**. Map of distribution in western Cuba. (A & B from Bissee 1980, JE; C from Ekman 17395, NY; D from Bissee & Rojas 4578, JE).

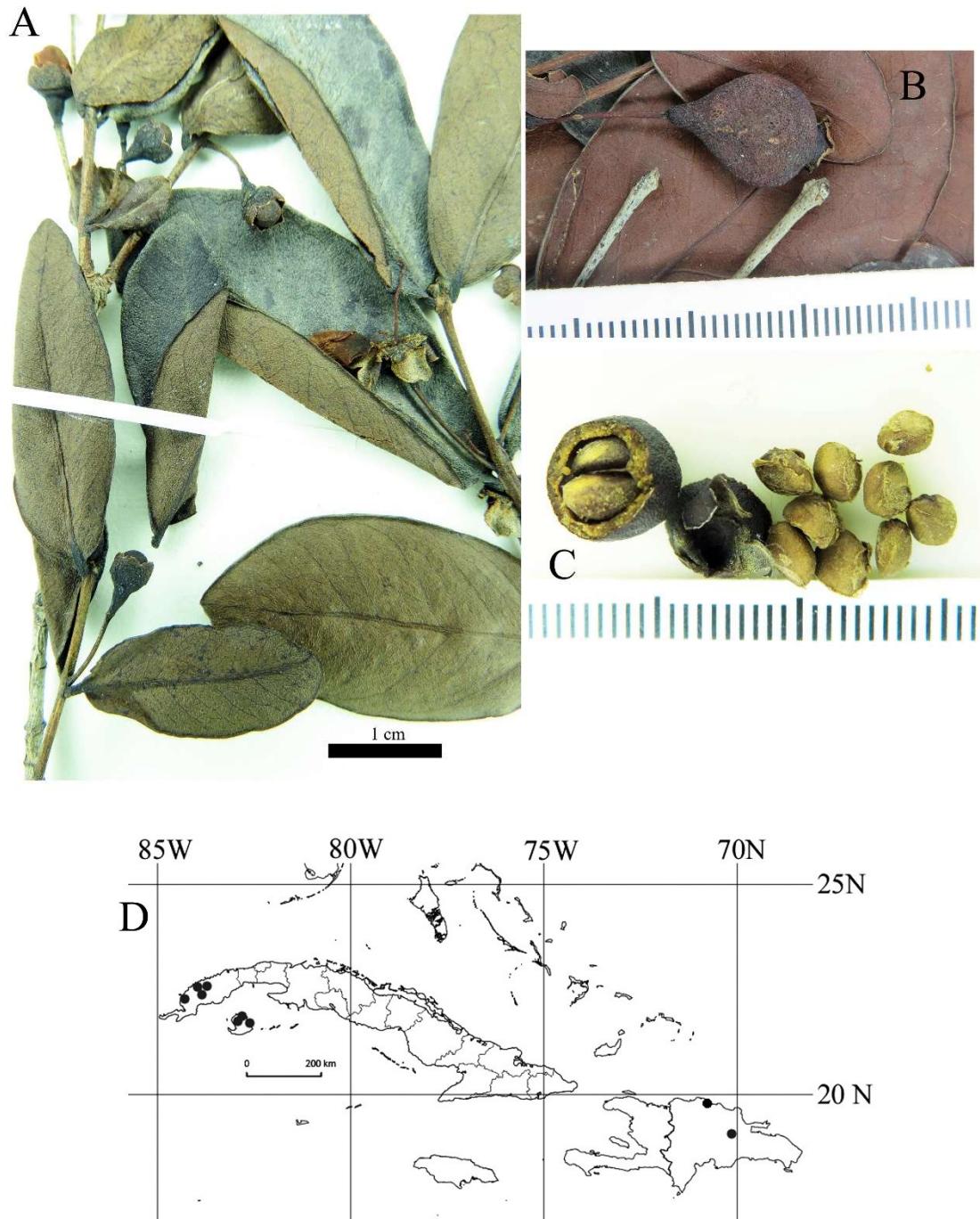


Figure 19. *Psidium salutare*: **A.** Twigs, leaves, flower buds, and flowers past anthesis. **B.** Closed fruit. **C.** Open fruit and seeds. **D.** Map of distribution in Greater Antilles. (A from Bisce 31123, JE; B from Bisce & Rojas 4454, JE; C from Bisce 9518, JE).

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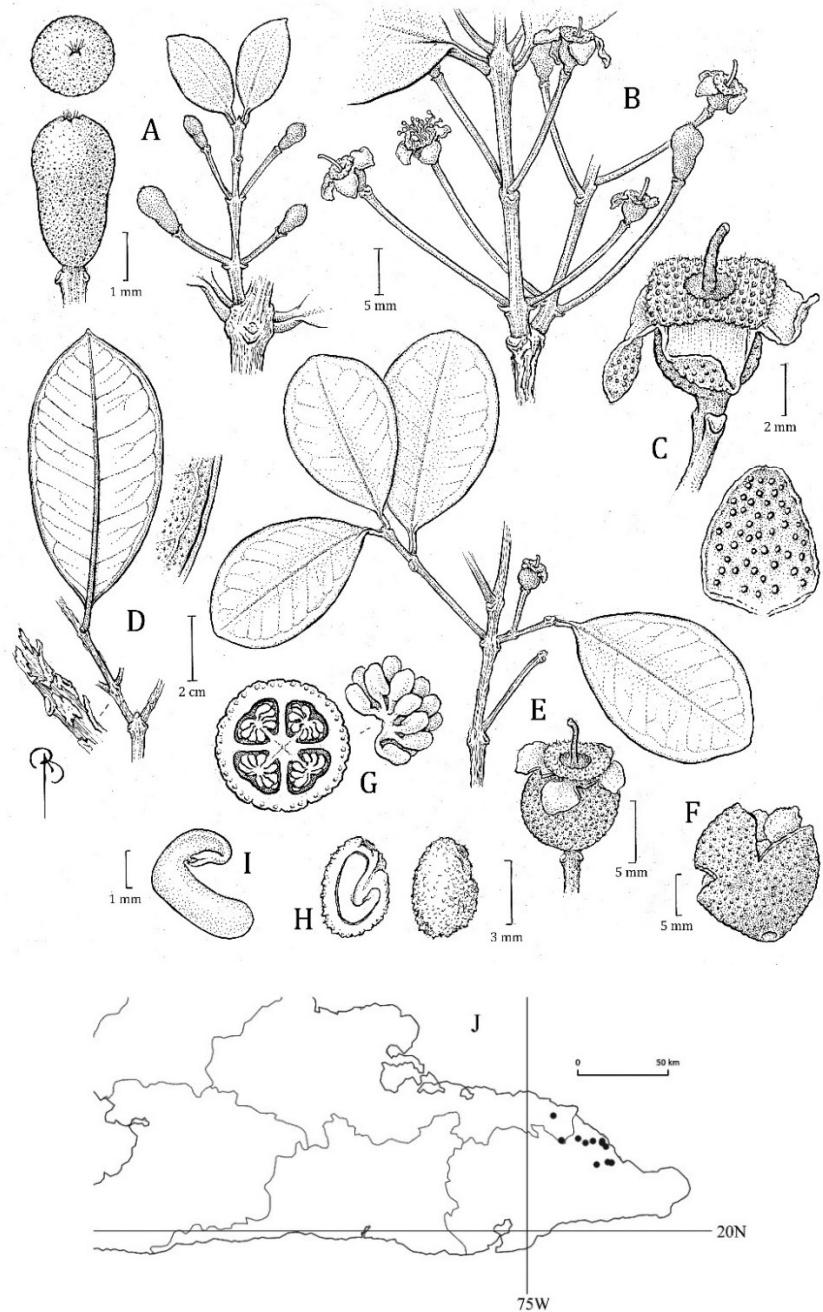


Figure 20. *Psidium urquiolanum*: A. Closed flower bud from side and above, showing apical pore in closed calyx with small hairs protruding; young leafy shoot with flower buds at first two nodes. B. Two older shoots with one closed bud and flowers at first two nodes. C. Flower after anthesis, with enlarged calyx remnant showing external glandular surface. D. Twig and leaf, with enlarged part of margin and twig; venation more evident than usual. E. Developing fruit on branchlet with leaves attached. F. flattened mature fruit, with seeds emerging. G. Cross section of ovary showing 4 locules with peltate placentas with ovules; one placenta extracted with ovules. H. Seed in section showing C-shaped inner cavity with embryo in place. I. Extracted embryo with reflexed cotyledons. J. Map of distribution in eastern Cuba. (A, B, C, & G from Bisce 21450, JE; D& E from Urquiola 7108, ASU; F from Alvarez et al. 27137, JE; H, I from Bisce 6818, JE). Illustration by Bobbi Angell.

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This collaborative project was facilitated through rapid communication between our countries made possible through the internet and the excellent digital images now available and easily shared. Long term loans of specimens to ASU were essential to this study. We especially thank curators and staff at F, JE, JBSD, MO, NY, and US for allowing LRL to keep specimens for many years. The late Armando Urquiola kindly sent gifts of specimens from Cuba to ASU and Jonathan Flickinger shared his collections of DNA vouchers with us. Pedro Acevedo-Rodríguez, Thomas Zanoni, and Carlos Parra-O. have provided valuable and meticulous reviews that have improved our work. Numerous herbaria have been consulted including A, ALCB, ASU, BM, BR, CAS, F, FR, FTG, G, GH, GOET, HAC, HAJB, HAJU, IJ, JBSD, JE, K, LE, M, MICH, MO, NY, P, S, US, USF, and UWI. Bobbi Angell provided the excellent illustrations and Daryl Lafferty developed the mapping program that we have used for constructing maps. The Global Plants Initiative project, funded by the Mellon Foundation, the International Plant Name Index (IPNI), and the Biodiversity Heritage Library, have together made the work of a plant taxonomist easier and more efficient, for which we are very grateful. LRL has been able to access these essential resources thanks to the Arizona State University library. ZAR thanks the Cuban Project “PN223LH010-019 Estudios taxonómicos de la Flora y Funga cubana, una necesidad imprescindible y permanente.”

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LIST OF SPECIMENS EXAMINED

Holotypes, isotypes and syntypes are in bold. Each collection is followed by the accepted name. A collection in bold may be the type of an accepted name or one of its synonyms.

Abbott 1247	P. acranthum	Arias et al. 50246	P. parvifolium
Abdo & Campbell, K. 2610	P. harrisanum	Arias et al. 50300	P.
Abdo & Campbell, K. 2614	P. harrisanum	Arias et al. 50304	P. parvifolium
Acuna & Alain 17274	P. rotundatum	Arias et al. 50454	P. parvifolium
Acuna 12613	P. parvifolium	Arias et al. 50556	P. parvifolium
Acuna 12614	P. parvifolium	Arias et al. 50671	P. minutifolium
Acuna 12618	P. parvifolium	Arias et al. 52593	P. parvifolium
Acuna 13261	P. minutifolium	Arias et al. 52887	P. parvifolium
Adams 11677	P. cattleianum	Arias et al. 53224	P. parvifolium
Alain 498	P. rotundatum	Arias et al. 53366	P. parvifolium
Alain 625	P. rotundatum	Bassler et al. 47827	P. parvifolium
Alain 1194	P. rotundatum	Bassler et al. 48235	P. rotundatum
Alain 2575	P. rotundatum	Berazáin et al. 43459	P. rotundatum
Alain 3021	P. rotundatum	Bisse 284	P. guajava
Alain 3610	P. parvifolium	Bisse 765	P. salutare
Alain 3656	P. parvifolium	Bisse 919	P. guajava
Alain 3843	P. parvifolium	Bisse 6818	P. urquiolanum
Alain 4232	P. rotundatum	Bisse 9518	P. salutare
Alain 6101	P. rotundatum	Bisse 15740	P. parvifolium
Alain 6143	P. rotundatum	Bisse 15772	P. parvifolium
Alain 6782	P. nummularia	Bisse 15854	P. parvifolium
Alain & Acuna 1392	P. rotundatum	Bisse 15911	P. parvifolium
Alain & Clemente 948	P. parvifolium	Bisse 16722	P. parvifolium
Alain & Clemente 1448	P. rotundatum	Bisse 16753	P. parvifolium
Alain & Clemente 1486	P. rotundatum	Bisse 16764	P. parvifolium
Alain & Lopez Figueiras 4631	P. parvifolium	Bisse 16967	P. urquiolanum
Alain & Lopez Figueiras 4633	P. parvifolium	Bisse 16987	P. parvifolium
Alain et al. 7568	P. minutifolium	Bisse 17073	P. urquiolanum
Álvarez de Zayas et al. 42690	P. minutifolium	Bisse 17082	P. parvifolium
Álvarez et al. 27136	P. urquiolanum	Bisse 17121	P. minutifolium
Álvarez et al. 27137	P. urquiolanum	Bisse 20212	P. parvifolium
Álvarez et al. 32614	P. rotundatum	Bisse 20247	P. parvifolium
Álvarez et al. 33784	P. urquiolanum	Bisse 21450	P. urquiolanum
Álvarez et al. 35676	P. parvifolium	Bisse 23405	P. rotundatum
Álvarez et al. 35937	P. guajava	Bisse 27000	P. urquiolanum
Álvarez et al. 42244	P. urquiolanum	Bisse 31027	P. rotundatum
Álvarez et al. 43559	P. rotundatum	Bisse 44882	P. parvifolium
Álvarez et al. 51175	P. rotundatum	Bisse & Berasain 21979	P. parvifolium
Álvarez et al. 54302	P. salutare	Bisse & Berasain 22249	P. guineense
Álvarez et al. 54334	P. rotundatum	Bisse & Berazaiu 22208	P. parvifolium
Álvarez et al. 54505	P. oligospermum	Bisse & Berazaiu 22627	P. parvifolium
Álvarez et al. 56316	P. parvifolium	Bisse & Kohler 5291	P. urquiolanum
Álvarez et al. 56596	P. parvifolium	Bisse & Kohler 5492	P. minutifolium
Álvarez et al. 56626	P. parvifolium	Bisse & Kohler 5618	P. parvifolium
Álvarez et al. 56661	P. parvifolium	Bisse & Kohler 6158	P. minutifolium
Álvarez et al. 56770	P. parvifolium	Bisse & Kohler 6661	P. parvifolium
Álvarez et al. 57042	P. parvifolium	Bisse & Kohler 6774	P. urquiolanum
Álvarez et al. 57638	P. parvifolium	Bisse & Kohler 6909	P. parvifolium
Araujo et al. 1800	P. amplexicaule	Bisse & Kohler 7219	P. parvifolium
Areces et al. 25764	P. urquiolanum	Bisse & Kohler 7314	P. parvifolium
Areces et al. 29060	P. rotundatum	Bisse & Kohler 7387	P. parvifolium
Areces et al. 29060	P. rotundatum	Bisse & Kohler 7394	P. parvifolium
Areces et al. 29101	P. salutare	Bisse & Kohler 7459	P. parvifolium
Areces et al. 30467	P. parvifolium	Bisse & Kohler 7474	P. parvifolium
Areces et al. 30602	P. parvifolium	Bisse & Kohler 7475	P. parvifolium
Areces et al. 30732	P. parvifolium	Bisse & Kohler 7609	P. parvifolium
Areces et al. 35962	P. parvifolium	Bisse & Kohler 7928	P. guineense
Areces et al. 40095	P. urquiolanum	Bisse & Kohler 7987	P. parvifolium
Arias 53739	P. cf. rotundatum	Bisse & Kohler 8754	P. parvifolium
Arias et al. 49144	P. parvifolium	Bisse & Kohler 8761	P. parvifolium
Arias et al. 49256	P. parvifolium	Bisse & Kohler 9298	P. parvifolium
Arias et al. 49321	P. guineense	Bisse & Lippold 10465	P. cf. parvifolium
Arias et al. 50001	P. guineense	Bisse & Lippold 11345	P. minutifolium
Arias et al. 50203	P. guineense	Bisse & Lippold 11590	P. minutifolium

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Bisse & Lippold 11596	P. minutifolium	
Bisse & Lippold 11817	P. parvifolium	
Bisse & Lippold 11888	P. urquiolanum	
Bisse & Lippold 12000	P. parvifolium	
Bisse & Lippold 17691	P. parvifolium	
Bisse & Lippold 17982	P. parvifolium	
Bisse & Lippold 18038	P. parvifolium	
Bisse & Lippold 18072	P. parvifolium	
Bisse & Lippold 18109	P. parvifolium	
Bisse & Lippold 18283	P. rotundatum	
Bisse & Lippold 18677	P. rotundatum	
Bisse & Rojas 1980	P. rotundatum	
Bisse & Rojas 2746	P. parvifolium	
Bisse & Rojas 3016	P. guajava	
Bisse & Rojas 3186	P. parvifolium	
Bisse & Rojas 3527	P. parvifolium	
Bisse & Rojas 3528	P. parvifoliumXminutifolium?	
Bisse & Rojas 3957	P. parvifoliumXminutifolium?	
Bisse & Rojas 4028	P. parvifolium	
Bisse & Rojas 4162	P. parvifolium	
Bisse & Rojas 4176	P. parvifolium	
Bisse & Rojas 4247	P. parvifolium	
Bisse & Rojas 4289	P. parvifolium	
Bisse & Rojas 4454	P. salutare	
Bisse & Rojas 4470	P. parviflorum	
Bisse & Rojas 4578	P. rotundatum	
Bisse & Rojas 4923	P. rotundatum	
Bisse et al. 26901	P. minutifolium	
Bisse et al. 31123	P. salutare	
Bisse et al. 39439	P. parvifolium	
Bisse et al. 39927	P. minutifolium	
Bisse et al. 39950	P. minutifolium	
Bisse et al. 40109	P. minutifolium	
Bisse et al. 41418	P. salutare	
Bisse et al. 41520	P. oligospermum	
Bisse et al. 44046	P. parvifolium	
Bisse et al. 44059	P. parvifolium	
Bisse et al. 44537	P. parvifolium	
Bisse et al. 44808	P. parvifolium	
Bisse et al. 46641	P. salutare	
Bisse et al. 48988	P. rotundatum	
Britton 1096	P. montanum	
Britton 7309	P. salutare var. salutare	
Britton 10093	P. salutare var. salutare	
Britton 15160	P. salutare var. salutare	
Britton & Britton 7548	P. salutare var. salutare	
Britton & Hess 2824	P. oligospermum	
Britton et al. 6450	P. salutare var. salutare	
Britton et al. 14401	P. salutare var. salutare	
Britton & Britton 7220	P. oligospermum	
Carabia 3749	P. parvifolium	
Carabia 3750	P. parvifolium	
Chandler 30	P. guajava	
Chrysagone 5154	P. parvifolium	
Clase, T. 6915	P. acranthum	
Clase et al. 1179	P. amplexicaule	
Clement 1848	P. guajava	
Clemente 4330	P. parvifolium	
Cubalo 6104	P. rotundatum	
Cubalo 6240	P. rotundatum	
Curtiss 350	P. salutare var. salutare	
Duke 7325	P. guajava	
Duke 7389	P. guajava	
Duke 7641	P. guajava	
Duke 7349	P. oligospermum	
Ekman 2041	P. guineense	
Ekman 2505	P. parvifolium	
Ekman H 4098	P. amplexicaule	
Ekman H 4112	P. amplexicaule	
Ekman 4405	P. minutifolium	
	Ekman 4513	P. parvifolium
	Ekman H 4578	P. amplexicaule
	Ekman H 4963	P. acranthum
	Ekman 5612	P. parvifolium
	Ekman H 7308	P. acranthum
	Ekman H 8521	P. acranthum
	Ekman 9296	P. parvifolium
	Ekman 9999	P. parvifolium
	Ekman 9776	P. guineense
	Ekman 9931	P. guineense
	Ekman 9932	P. guineense
	Ekman 10766	P. guineense
	Ekman 13772	P. rotundatum
	Ekman 14558	P. amplexicaule
	Ekman 14658	P. acranthum
	Ekman 14858	P. acranthum
	Ekman 14909	P. parvifolium
	Ekman 15097	P. acranthum
	Ekman 16395	P. rotundatum
	Ekman 16395	P. rotundatum
	Ekman 16419	P. guajava
	Ekman 16564	P. nummularia
	Ekman 16787	P. salutare var. salutare
	Ekman 16957	P. oligospermum
	Ekman 17295	P. rotundatum
	Ekman 17342	P. rotundatum
	Ekman 17395	P. rotundatum
	Ekman 17980	P. nummularia
	Ekman 18025	P. nummularia
	Ekman 18219	P. nummularia
	Ekman 18471	P. nummularia
	Ekman 18861	P. parvifolium
	Ekman 18887	P. oligospermum
	Figueiras, 230	P. parvifolium
	Flickinger et al. 03	P. harrisanum
	Flickinger et al. 09	P. harrisanum
	Flickinger et al. 25	P. parvifolium
	Flickinger et al. 35	P. parvifolium
	Flickinger et al. 43	P. parvifolium
	Flickinger et al. 45	P. parvifolium
	Flickinger et al. 47	P. parvifolium
	Flickinger et al. 50	P. parvifolium
	Flickinger et al. 64	P. rotundatum
	Franck 3796	P. harrisanum
	Franck 3842	P. harrisanum
	Franck et al. 3796	P. harrisanum
	Garcia et al. 4447	P. acranthum
	Garcia et al. 2711	P. amplexicaule
	Gentry & Zanoni 50637	P. amplexicaule
	Grifo & Matuszak 204	P. acranthum
	Grifo & Matuszak 218	P. acranthum
	Grifo & Matuszak 86	P. oligospermum
	Harris 5156	P. montanum
	Harris 5333	P. montanum
	Harris 5408	P. montanum
	Harris 8769	P. montanum
	Harris 9406	P. montanum
	Harris 9583	P. albescens
	Harris 9998	P. albescens
	Harris 10016	P. montanum
	Harris 11000	P. harrisanum
	Harris 12036	P. montanum
	Hartley 13378	P. guajava
	Holridge 7	P. amplexicaule
	Holridge 1958	P. acranthum
	Howard 94	P. parvifolium
	Howard 13861	P. guajava
	Howard & Proctor 13680	P. montanum
	Howard & Proctor 14373	P. harrisanum
	Howard et al. 288	P. oligospermum

Jennings 29	P. salutare var. salutare	Mejia & Zanoni 8574	P. guajava
Jennings 217	P. salutare var. salutare	Mejia, Pimentel & Garcia 1430	P. amplexicaule
Jimenez 2433	P. salutare var. salutare	Mejia & Zanoni 7668	P. guajava
Jimenez 4930	P. guajava	Mejia & Zanoni 7878	P. amplexicaule
Jones 99	P. amplexicaule	Mejia & Zanoni 7917	P. guajava
Jones & Zanoni 132	P. guajava	Mejia & Zanoni 8368	P. guajava
Killip 13563	P. salutare var. salutare	Miller 1309	P. montanum
Leon 11948	P. parvifolium	Morton 9822	P. rotundatum
Leon 12028	P. parvifolium	Morton & Acuna 2965	P. parvifolium
Leon 12532	P. rotundatum	Otero 243	P. guajava
Leon 12547	P. rotundatum	Palmer & Riley 212	P. salutare var. salutare
Leon 12603	P. rotundatum	Palmer & Riley 931	P. salutare var. salutare
Leon 12653	P. rotundatum	Parker 2847	P. guajava
Leon 12692	P. rotundatum	Peguero et al. 1366	P. amplexicaule
Leon 13543	P. rotundatum	Peguero et al. 1370	P. amplexicaule
Leon 13806	P. rotundatum	Proctor 9744	P. harrisanum
Leon 13810	P. rotundatum	Proctor 11396	P. harrisanum
Leon 13836	P. rotundatum	Proctor 19650	P. amplexicaule
Leon 13863	P. rotundatum	Proctor 19650	P. amplexicaule
Leon 14336	P. salutare var. salutare	Proctor 19707	P. cattleianum
Leon 16822	P. rotundatum	Proctor 19727	P. albescens
Leon & Charles 4941	P. rotundatum	Proctor 20669	P. guineense
Leon & Clemente 23020	P. parvifolium	Proctor 22738	P. harrisanum
Leon & Clemente 23164	P. minutifolium	Proctor 23127	P. montanum
Leon & Clemente 23264	P. parvifolium	Proctor 24762	P. montanum
Leon & Clemente 23276	P. parvifolium	Proctor 24902	P. harrisanum
Leon & Clemente 23291	P. parvifolium	Proctor 25580	P. cattleianum
Leon & Roig 13543	P. rotundatum	Proctor 26438	P. montanum
Leon & Roig 15973	P. rotundatum	Proctor 26442	P. cattleianum
Leon & Victorin 18893	P. salutare var. salutare	Proctor 26507	P. harrisanum
Leon, Clemente, & Roca 10211	P. parvifolium	Proctor 26691	P. harrisanum
Leon, Clemente, Alain 22477	P. parvifolium	Proctor 27645	P. montanum
Leon, Clemente, Howard 20110	P. parvifolium	Proctor 28876	P. montanum
Leon, Victorin, & Clemente 20689	P. parvifolium	Proctor 29291	P. guajava
Leonard 12354	P. amplexicaule	Proctor 32738	P. montanum
Lewis 903	P. harrisanum	Proctor 34373	P. harrisanum
Liogier 15877	P. amplexicaule	Proctor 37088	P. montanum
Liogier 16145	P. amplexicaule	Proctor 37325	P. harrisanum
Liogier 16473	P. amplexicaule	Proctor 37347	P. montanum
Liogier 16557	P. amplexicaule	Pruski 1554	P. guajava
Liogier 17378	P. nannophyllum	Roig 41	P. parvifolium
Liogier 17385	P. amplexicaule	Roig 1054	P. salutare var. salutare
Liogier 17895	P. amplexicaule	Roig 1547	P. parvifolium
Liogier 18880	P. acranthum	Roig & Cremata	P. oligospermum
Liogier 18963	P. acranthum	Rugel 264	P. guajava
Liogier 18974	P. acranthum	Rugel 353	P. guajava
Liogier 19342	P. amplexicaule	Rugel 353	P. guajava
Liogier 19785	P. acranthum	Rugel 648	P. guajava
Liogier 20001	P. amplexicaule	Salywon 1276	P. oligospermum
Liogier 20940	P. acranthum	Salywon et al. 808	P. guajava
Liogier 21278	P. amplexicaule	Salywon et al. 1276	P. sintenisii
Liogier 21467	P. amplexicaule	Salywon et al. 1281	P. guajava
Liogier 24466	P. amplexicaule	Salywon et al. 1210	P. amplexicaule
Liogier 24517	P. amplexicaule	Salywon et al. 1322	P. amplexicaule
Liogier 26323	P. acranthum	Salywon et al. 1348	P. amplexicaule
Liogier 26358	P. amplexicaule	Shafer 8623	P. guineense
Liogier 26657	P. salutare	Shafer 10922	P. salutare var. salutare
Liogier 30729	P. oligospermum	Shafer & Br. Leon 13570	P. salutare var. salutare
Liogier 32103	P. amplexicaule	Shafer & Br. Leon 13680	P. salutare var. salutare
Liogier 35533	P. oligospermum	Shafer & Leon 13672	P. salutare var. salutare
Liogier 35533	P. oligospermum	Shafer, J. A. 3878	P. parvifolium
Lippold 17358	P. salutare	Sintenis 272	P. guajava
Little 21705	P. oligospermum	Sintenis 1347	P. oligospermum
Little 21705	P. sintenisii	Skean, 1314	P. guajava
Little 25729	P. sintenisii	Skean 1559	P. guajava
Lopez 2825	P. parvifolium	Skog 1518	P. guajava
Lopez 2578	P. parvifolium	Sintenis 1347	P. oligospermum
Luis 4693	P. nummularium	Solomon 5725	P. guajava
Marie-Victorin & Clemente 21810	P. parvifolium	Stenzel & Polo Márquez 1318	P. rotundatum
		Stenzel & Polo Márquez 1319	P. rotundatum

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- Urquiola et al. 7498 P. oligospermum
Urquiola et al. 6887 P. oligospermum
Urquiola 270 P. salutare
Urquiola 381 P. rotundatum
Urquiola 528 P. oligospermum
Urquiola 685 P. guineense
Urquiola 1133 P. rotundatum
Urquiola 1134 P. rotundatum
Urquiola et al. 749-B P. oligospermum
Urquiola et al. 4522 P. salutare var. salutare
Urquiola et al. 6678 P. salutare var. salutare
Urquiola et al. 6887 P. oligospermum
Urquiola et al. 7498 P. oligospermum
Urquiola et al. 7934 P. rotundatum
Urquiola et al. 9180 P. parvifolium
Urquiola et al. 7798 P. rotundatum
Urquiola et al. 7108 P. urquiolanum
Valeur 626 P. guajava
Vasconcelos 578 P. acranthum
Veloz 814 P. amplexicaule
Veloz 4211 P. nannophyllum
Veloz & Peguero 480 P. amplexicaule
Webster et al. 8158 P. cattleianum
Webster 3827 P. parvifolium
Webster & Proctor 5420 P. harrisanum
Woodbury 20506 P. oligospermum
Wright 743 See Wright 3556
Wright 2436 P. salutare var. salutare
Wright 2436a P. salutare var. salutare
Wright 2438 P. parvifolium
Wright 2456 P. rotundatum
Wright 2457 P. rotundatum
Wright 2458 P. nummularia
Wright 2463 P. parvifolium
Wright 2464 P. minutifolium
Wright 2466 P. guajava
Wright 3556 P. parvifolium
Wright 3557 P. oligospermum
Zanagoritia 5303 P. salutare var. salutare
Zanoni 12917 P. nannophyllum
Zanoni 22998 P. amplexicaule
Zanoni 24734 P. acranthum
Zanoni 33920 P. acranthum
Zanoni 34385 P. acranthum
Zanoni & Jones 43105 P. amplexicaule
Zanoni et al. 30134 P. guajava
Zanoni et al. 33501 P. amplexicaule
Zanoni et al. 32897 P. guajava
Zanoni et al. 34385 P. acranthum
Zanoni et al. 35199 P. amplexicaule
Zarragatia 5303 P. salutare var. salutare