

THE GENUS *PEPEROMIA* IN NORTHEASTERN SOUTH AMERICA.*

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I. Introduction.

In 1775, nineteen years before Ruiz and Pavon established the genus *Peperomia*, Aublet reported fourteen species of *Piper* from Cayenne. Later, eight of these were transferred to the genus *Peperomia*. Richard Schomburgk published a flora of British Guiana in 1848, and included in this were fourteen *Peperomias*. Fifty-eight years afterward, in 1906, Pulle enumerated fourteen species of this genus as known from Surinam. The *Peperomias* of the Guianas were also included by Miquel in his monographic study of the Piperaceae and by Casimir de Candolle in the Candollean Prodrômus and post-humously in volume one of Candollea. In 1900 Dahlstedt published a comprehensive study of the genus in which most of the species occurring in the Guianas were reported. Other authors dealing with this group of plants are indicated by the references in connection with the synonyms of each species.

There are twenty species included in the present study and these account for all the *Peperomias* reported for the Guianas in the above-mentioned works. In addition to the twenty, *Peperomia piperea*, reported by Casimer de Candolle in Seemann's Journal of Botany on a Parker specimen at Kew, requires mention. However, the type specimen does not represent a *Peperomia* but consists of foliage apparently of some aroid and an isolated spike of some *Piper*.

Of the twenty known species from the Guianas two are reported as common to the three countries, five from Cayenne and Surinam, three from Cayenne and British Guiana, two from Cayenne, three from Surinam, and five from British Guiana.

The Guianas have low alluvial coast-lands which average about twenty miles in width. These are only a few feet

*The substance of a Thesis in candidacy for the Master's degree at the University of Illinois, in 1926.

above high-water level and back of them is the old marine beach which averages about 100 feet in height. This gradually rises toward the mountain ranges and elevated plateaux where large expanses of open savannas are found. Almost the entire seaward slope is covered with dense primeval forests as would be expected in a country where heat and moisture prevail throughout the year. The mean temperature is about 80 F. and the mean annual rainfall in the coast-lands exceeds 100 inches.

The *Peperomias* are for the most part endemic to the Guianas due to the fact that these countries are more or less isolated by geographic barriers. They are bounded on the West by the Orinoco River valley, on the south by the Amazon valley, and on the north by the Atlantic Ocean. The Tumuchumac Mountain Range, which lies between the Guianas on the south and the Amazon valley, has an arid region on the Brazilian slope which forms an effective ecological barrier. A few *Peperomias* are quite wide spread, appearing as weeds in many countries. It is entirely possible that these have crept in along the valleys of the tributaries to the Orinoco and Amazon Rivers.

This study was made from dried herbarium specimens and from drawings and notes of plants in European herbaria made by Dr. William Trelease, to whom the author wishes to acknowledge her great indebtedness not only for the use of his manuscripts but also for the suggestion of the problem and for aid and criticism while the work was being done.

All published references to collections of *Peperomias* from the Guianas and all specimens which Dr. Trelease or the author have seen are included in the account.

As furnishing the simplest method of determining the species they have been keyed out on the vegetative characters. Following this is a key based on the more fundamentally important fruit characters. The species are arranged under the subgeneric names employed by Dahlstedt.

II. Key Based on Vegetative Characters.

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|-----------------------------------|------------------------------|
| 1. Leaves opposite or whorled. | 2. |
| Leaves alternate. | 5. |
| 2. Leaves whorled. | |
| Leaves opposite. | 3. |
| 3. Stem 4-angled: plant glabrous. | |
| | 19. <i>P. Schomburgkii</i> . |
| | 18. <i>P. angulata</i> . |

- Stem not 4-angled: plant sparsely puberulent. 4.
4. Leaves orbicular. 21. *P. circinata*.*
Leaves obovate or elliptic-rhomboid. 10. *P. blanda*.
5. Leaves pinnately nerved. 6.
- Leaves palmately nerved. 13.
6. Leaves peltate. 1. *P. variegata*.
Leaves not peltate. 7.
7. Plants at least slightly pubescent. 8.
Plants glabrous. 9.
8. Leaves ovate-lanceolate, pellucid dotted. 4. *P. surinamensis*.
Leaves lance-elliptic, not pellucid dotted. 8. *P. longemucronata*.
9. Leaves more than 10 cm. long. 10.
Leaves 10 cm. or less long. 11.
10. Leaves ovate- or elliptic-oblong: blade decurrent on petiole. 2. *P. Parkeriana*.
Leaves oblanceolate: blade not decurrent on petiole. 3. *P. longifolia*.
11. Leaves usually with dendritic exudate or pellucid. 5. *P. macros-
tachya*.
Leaves without dendritic exudate or pellucidness. 12.
12. Leaves obovate-oblong or obovate-elliptic: 5-6 cm. wide. 7. *P. magnoliaefolia* vr. *grandifolia*.
Leaves obovate-oblong or oblong-spatulate: 2. 5-3. 5 cm. wide.
6. *P. obtusifolia* var. *macropoda*.
13. Plants glabrous. 14.
Plants pubescent. 15.
14. Leaves with cordate base. 17. *P. pellucida*.
Leaves with acute base: blade decurrent on petiole. 11. *P. acuminata*.
15. Leaves 1.5 cm. or more long. 16.
Leaves less than 1.5 cm. long. 18.
16. Leaves round-ovate. 14. *P. roraimana*.
Leaves lanceolate or elliptic. 17.
17. Apex of leaves acuminate or acute: leaves 2-6 cm. long. 12. *P. melanostigma*.
Apex of leaves bluntish: leaves about 2.8 cm. long. 16. *P. purpurinervis*.
18. Leaves dark-punctulate. 13. *P. rotundifolia*.
Leaves not dark-punctulate. 19.
19. Leaves elliptic. 15. *P. Bartletti*.
Leaves reinform or rounded. 9. *P. repens*.

III. Key Based on Fruit Characters.

1. Berries without a pseudocupule. 2.
Berries with a distinct pseudocupule. 18. (Subgenus *Micropiper*).
2. Stigma at base of an oblique beak. 3.
Stigma terminal on a conic appendage. (Subgenus *Ogmocarpi-
dium*) 17. *P. pellucida*.
3. Berries cylindric-ovoid: beak mostly elongated. 4. (Subgenus *Rhyncophorum*).
Berries subglobose: obliquely short beaked. 12. (Subgenus *Sphaerocarpidium*)
4. Leaves peltate. 1. *P. variegata*.
Leaves not peltate. 5.
5. Blade decurrent on the petiole. 6.
Blade not decurrent on the petiole. 7.
6. Spikes opposite the leaves: leaves about 11 cm. long. 2. *P. Parkeriana*.

*Not known from the Guianas.

- Spikes in terminal panicle: leaves about 20 cm. long. 3. *P. longifolia*.
7. Leaves usually with dendritic exudate or pellucid. 8. Leaves without dendritic exudate and not pellucid. 9.
8. Leaves pellucid: petiole ciliolate: berries 1 cm. long. 4. *P. surinamensis*.
Leaves often with dendritic exudate: petiole glabrous: berry 2 cm. long. 5. *P. macrostachya*.
9. Leaves pubescent. 10. Leaves glabrous. 11.
10. Leaves small (5-14 mm. long). 9. *P. repens*.
Leaves moderate (about 7.5 cm. long). 8. *P. longemucronata*.
11. Leaves 2.5-3.5 cm. wide: berries ellipsoid. 6. *P. obtusifolia* var. *macropoda*.
Leaves 5-6 cm. wide: berries ovate-globose. 7. *P. magnoliaefolia* var. *grandifolia*.
12. Leaves opposite. 10. *P. blanda*.
Leaves alternate. 13.
13. Leaves at least sparsely black-punctulate or black-granular. 14. Leaves not black-punctulate. 17.
14. Blade decurrent on petiole. 11. *P. acuminata*.
Blade not decurrent on petiole. 15.
15. Leaves round, round-ovate, or obovate-elliptic. 16. Leaves lanceolate or elliptic. 12. *P. melanostigma*.
16. Leaves very small (5-10 mm. long). 13. *P. rotundifolia*.
Leaves a little larger (15-25 mm. long). 14. *P. roraimana*.
17. Leaves less than 15 mm. long. 15. *P. Bartlettii*.*
Leaves more than 20 mm. long. 16. *P. purpurinervis*.*
18. Spikes axillary. 18. *P. angulata*.
Spikes terminal. 19.
19. Leaves opposite. 21. *P. circinata*.†
Leaves whorled. 19. *P. Schomburgkii*.

IV. Classified Enumeration, With Descriptions.

SUBGENUS RHYNOPHORUM

1. PEPEROMIA VARIEGATA. R. & P.

Peperomia variegata R. & P. Fl. Peruv. 1:33, 1798.—C.
DC. in Cand. 1:375, 1923.

Peperomia maculosa Auct. as to Cayenne.

A short, glabrous herb; stem stout (5-7 mm.), smoky- or violet-spotted; leaves alternate, broadly ovate-elliptic, short acuminate, peltate scarcely 2 cm. above the round or sub-cordate base, very large (8.5-10×10-15 cm.), multiple nerved; petiole very long (8-10 cm.); spikes terminal, one or two on a common peduncle (about 2 cm. long), thick and very long (.5×15-18 cm.); individual peduncles long (1.5-2 cm.); bracts round-peltate; ovary ovoid, obliquely long-beaked; stigma nearly in center of beak.

Type locality: Pillao at Chacabuossi, Peru.

Collections: *Cayenne* (fide Aublet, Hist. p. 22).

2. PEPEROMIA PARKERIANA MIQ.

Peperomia Parkeriana Miq. in Hook. Lond. Journ. Bot.

*Placed in *Sphaerocarpidium* although the stigma is described as apical.

†Not known from the Guianas.

4:427, 1845.—C. DC. in DC. Prod. 16':425, 1869.—C. DC. in Cand. 1:370, 1923.

A terete, glabrous herb; leaves alternate, ovate or elliptic-oblong, acuminate, decurrent on petiole, very large (5×11 cm.), pinnately nerved from below the middle, the nerves 3-4×2; petiole moderate (1.5 cm.); spikes filiform, opposite the leaves, closely flowered; peduncle moderate (1.5 cm.); ovary beaked; stigma in middle of beak.

Type locality: Lower Surinam River, near Geyersvlyt, Surinam.

Collections: *Surinam* (Kegel 1005 at Göttingen) Miquel. *British Guiana* (Parker at Kew) C. DC.

3. PEPEROMIA LONGIFOLIA C. DC.

Peperomia longifolia C. DC. in DC. Prod. 16':405, 1869.—C. DC. in Cand. 1:289, 1923.

A shortly caulescent, erect, glabrous herb; leaves alternate, oblanceolate, acuminate, mucronulate, decurrent on petiole, very large (4.5×20 cm.), pinnately nerved; petiole long (4 cm.); spikes short (10-15 mm.), in terminal panicle, closely flowered; peduncle short (4 mm.); bracts round-peltate, glandular; ovary compressed, ovoid; berries cylindric-ovoid, obliquely short beaked.

Type locality: *Cayenne* (apparently near the city Cayenne)

Collections: *Cayenne* (Richard at Paris) Trelease; (Le Prieur at Paris) Trelease.

Also reported from Costa Rica presumably on a different species.

4. PEPEROMIA SURINAMENSIS C. DC.

Peperomia surinamensis C. DC. in DC. Prod. 16':408, 1869.—C. DC. in Cand. 1:353, 1923.

A suffruticose, scandent plant, rooting at the nodes; stem ciliolate near the end; leaves alternate, ovate-lanceolate, acuminate, ciliolate near the end, membranaceous, pellucid, large (2.5×6-9 cm.), (Kappler specimen 2-2.5×4.5-6 cm.), pinnately 7-nerved from below the middle; petiole moderate (1.5 cm.), ciliolate above; spikes longer than the leaf, (Kappler specimen shorter than leaf, 3.5 cm.), solitary at the end of stem, closely flowered; peduncle long (3 cm.); bracts round-peltate; ovary half-immersed; berries cylindric-ovoid, 1 mm. long, black, obliquely subacute.

Type locality: Paramaribo, Surinam.

Collections: *Surinam* (Kappler 1577 in Hb. DC. at Geneva) Trelease. *Cayenne* (Sagot 538 in Hb. Lenormand at Caen) C. DC. *British Guiana* (de la Cruz 1304 at N.Y. B. G.) Bailey; (de la Cruz 1365 at N.Y.B.G.) Bailey; (de la Cruz 1520 at N.Y.B.G.) Bailey.

5. *PEPEROMIA MACROSTACHYA* (VAHL) DIETR.

Peperomia macrostachya (Vahl) Dietr. Sp. 1:149, 1831.—
C. DC. in DC. Prod. 16':439, 1869.—Dahlst. Stud. 88,
1900.

Piper macrostachyon Vahl Enum. 1:341, 1804.

Piper myosuroides Rudge Pl. Guian. Rar. pl. 5, London,
1805.

Peperomia myosuroides (Rudge) Dietr. Sp. 1:157, 1831.—
C. DC. in DC. Prod. 16':407, 1869.—C. DC. in Cand.
1:365, 1923.—Miq. Syst. Pip. 184, 1843.

Peperomia rupestris HBK. in Nov. Gen. 1:62, 1815 as to
collections of Seeman (608) and Kegel (1037) from
Surinam.

Peperomia myriocarpa Auct. as to Cayenne.

Peperomia distachya as to collections of Poiteau, Focke,
and Miquel from the Guianas.

Peperomia nematostachya Auct. as to the Guianas.

A trailing, essentially glabrous herb; leaves alternate, subovate-elliptic, acuminate, base rounded, moderate (1.5-3.5×6-9 cm.), lepidote above with dendritic exudate*, pinnately nerved; petiole short to moderate (3-20 mm.); spikes filiform (10-30 cm.), subpanicled on bracted branches opposite the leaves or apical, closely flowered; peduncle short to long (5-20 mm.); bracts round-subquadrangular, peltate, fringed; berries cylindric, 2 mm. long, scutulate; stigma subapical.

Type locality: Cayenne.

Collections: *Cayenne* (Rich. at Paris) Trelease; (Sagot 538 at Kew) C. DC.; (Martin in Hb. Rudge in Brit. Mus. at London) C. DC.; (Poiteau in Hb. Delessert at Geneva) Trelease; (Sagot at Stockholm) Dahlst. *Surinam* (Humb. in Hb. Willdenow at Berlin) Dahlst; (Near Kangaruma, Potaro R., Bartlett 8741 at N.Y.B.G.) Bailey; (Seemann 608 at Kew) C. DC. *British Guiana* (de la Cruz 3615 at N.Y.B.G.) Trelease; (Macbride 6001 in Hb. U. of Ill. at Urbana) Bailey; (Kabakaburi, Pomeroun District, de la Cruz 3240 at N.Y.B.G.) Bailey; (Dense upland forest, Rockstone, Gleason 564 at N.Y.B.G.) Bailey; (dry sandhills, east of Rockstone, Gleason 810 at N. Y. B. G.) Bailey.

Also reported from Brazil.

*The original description of *Piper myosuroides* by Rudge included mention of stellate scurfiness which is frequently seen but consists of dendritically divided exudate from the leaf rather than pubescence.

6. *PEPEROMIA OBTUSIFOLIA* (L.) A. DIETR.VAR. *MACROPODA* (MIQ.) DAHLST.*Peperomia obtusifolia* (L.) A. Dietr. var. *macropoda* (Miq.) Dahlst. Stud. 65, 1900.*Peperomia macropoda* Miq. in Linn. 20:128, 1844.—C. DC. in DC. Prod. 16':428, 1869.

A creeping, glabrous herb; stem thick, rooting at the nodes, apex and branches ascending; leaves alternate, obovate-oblong, or oblong-spatulate, base attenuate or cuneate, large (2.5-3.5×6-9 cm.), pinnately nerved; petiole usually long (1-7 cm.); spikes long (11-14 cm.), terminal or axillary, closely flowered; peduncle long (7 cm.); bracts round-peltate; berries ellipsoid with beak (about 2 mm. long); stigma anterior on the beak.

Type locality: Brazil.

Collections: *Surinam* (Kegel 1252a and b at Göttingen) Dahlst. *Cayenne* (Richard at Paris) Trelease; (Le Prieur at Paris) Trelease.

Also reported from St. Vincent, St. Domingo, Porto Rico, Mexico, and Nicaragua presumably on different species.

7. *PEPEROMIA MAGNOLIAEFOLIA* (JACQ.) A. DIETR.VAR. *GRANDIFOLIA* MIQ.*Peperomia obtusifolia* Miq. Syst. Pip. 194, 1843 (in part).*Peperomia obtusifolia* Dietr. var. *grandifolia* Miq. Syst. Pip. 196, 1843.*Peperomia magnoliaefolia* (Jacq.) A. Dietr. var. *Sinteniana* Dahlst. Stud. 59, 1900, as to Surinam.

An erect or ascending, branched, glabrous herb, often rooting at the nodes; leaves alternate, obovate-oblong, or obovate-elliptic, apex rounded or obtuse, fleshy with thin margins, large (5-6×9-10 cm.), pinnately nerved, middle nerve thick below; petiole long (2-4 cm.); spikes very long (19-20 cm.), terminal or terminating lateral branches, closely flowered; peduncle very long (5-10 cm.); bracts round-peltate; berries ovate-globose.

Type locality: Caracas, Venezuela.

Collections: *Surinam* (Hostmann 260 in Hb. Delessert at Paris) Trelease; (Hostmann 260 at Berlin) C. DC.; (Kegel 806 at Göttingen) Dahlst.; (Kegel 619 at Göttingen) Dahlst.; (Wulfschaegel 480 at Munich and in Hb. Grisebach at Göttingen) Dahlst.; (R. F. Hohenacker 401a at Stockholm) Dahlst.

Also reported from Brazil, Porto Rico, and Grenada.

8. *PEPEROMIA LONGEMUCRONATA* C. DC.

Peperomia longemucronata C. DC. in Notizbl. Berlin 7:497, 1917.—C. DC. in Cand. 1:364, 1923.

A slightly pubescent herb; leaves alternate, lance-elliptic, acute at both ends, moderate (4×7.5 cm.), pinnately nerved, pubescent on nerves on upper face, paler beneath; petiole moderate (2 cm.); spikes long (10 cm.), paired, terminal, loosely flowered; peduncle long (1.5 cm.); peduncle-bearing branches 5.5 cm. long; bracts large ($\frac{1}{4}$ mm.), round-peltate; berries thick-ellipsoid; scutulem acuminate; stigma median, sessile.

Type locality: Roraima, British Guiana.

Collections: *British Guiana* (Ule 8594 in Hb. DC. at Geneva) Trelease.

9. *PEPEROMIA REPENS* HBK.

Peperomia repens HBK. in Nov. Gen. 1:65, 1815.—Dahlst. Stud. 79, 1900 (in part).

Peperomia scandens Auct. as to the Guianas.

A small creeping, somewhat crisply pubescent herb, rooting from the nodes; leaves alternate, reniform or rounded, apex sometimes subacute, small (.5-1.5×.7-1.4 cm.), palmately 3- or obscurely 5-nerved; petiole moderate (3-10 mm.); spikes short (10-15 mm.), terminal; peduncle long (2 cm.), commonly bracted in the middle; berries cylindric, beaked; stigma anterior at base of beak.

Type locality: near Cumanacoa, Venezuela.

Collections: *Surinam* (Focke in his personal herbarium) Miq.; (Hostmann and Kappler 117 at Munich) Dahlst.; (Hostmann 629 at Stockholm) Dahlst.; (Wullschaege in Hb. Grisebach at Göttingen) Dahlst. *Cayenne* (Le Prieur in Hb. Delessert at Geneva) C. DC.; (Martin in Hb. British Museum at London) C. DC.

Also reported from Brazil.

SUBGENUS *SPHAEROCARPIDIUM*10. *PEPEROMIA BLANDA*

Peperomia blanda HBK. in Nov. Gen. 1:67, 1815.—Miq. Syst. Pip. 115, 1847.—C. DC. in DC. Prod. 16':458, 1869.—Dahlst. Stud. 131, 1900.

Peperomia Langsdorffii Miq. Syst. Pip. 116, 1843.—Miq. in Linn. 20:124, 1847.—C. DC. in DC. Prod. 16':443, 1869.

Micropiper Langsdorffii Miq. in Comm. Phyt. 2:52, 1840.

Peperomia polystachya Auct. as to the Guianas.

A branched, erect, slightly suffruticose, pubescent herb, scarcely a foot high; leaves opposite or whorled, upper ones alternate, obovate- or elliptic-rhomboid, apex acute, base cuneate, pubescent on both

faces, moderate (1.5-3×2.5-8 cm.), upper ones smaller, palmately 3-nerved; petiole moderate (.5-1.5 cm.); spikes long (8-12 cm. long), terminal in twos, threes, or more, or in axils of terminal leaves; peduncle moderate (1-1.5 cm.); bracts oblong, truncate, peltate; ovary emersed-impressed; berries obliquely ovoid, short-beaked.

Type locality: Venezuela.

Collections: Reported by Schomburgk from *British Guiana* as *Peperomia polystachya* A. Dietr.

Also reported from Colombia, Educador, Brazil, and Bolivia. Also from the West Indies presumably on a different species.

11. PEPEROMIA ACUMINATA (L.) DAHLST.

Peperomia acuminata (L.) Dahlst. Stud. 123, 1900.

Piper acuminatum L. Sp. Plant. ed. 2:42, 1762.

Peperomia acuminata (L.) Dietr. Sp. 1:148, 1831 (in part).—Miq. Syst. Pip. 95, 1843 (in part).

Peperomia nemorosa (Vahl) C. DC. in DC. Prod. 16':415, 1869 (in part).

Peperomia obliqua Auct. as to British Guiana.

An erect, glabrous herb; leaves alternate, lower ones often obovate-elliptic, upper ovate-elliptic, apex acuminate, base acute, decurrent on petiole, moderate (3.5×7 cm.), membranaceous, pellucid-punctate, sparsely black-punctulate below, palmately 3-5-nerved; petiole moderate (12 mm.); spikes almost twice surpassing the leaves, axillary and terminal; bracts round-peltate; ovary half-immersed; berries subrotund-acute, apex with small beak.

Type locality: Based on Plumier's plate 71 from West Indies.

Collections: *Cayenne* (fide Aublet, Hist. p. 21) *British Guiana* (fide Schomburgk, Fauna und Flora p. 18).

Also reported from Jamaica, Porto Rico, St. Bartholomew, St. John, Antigua, Dominica, Martinique, and St. Vincent.

12. PEPEROMIA MELANOSTIGMA MIQ.

Peperomia melanostigma Miq. Syst. Pip. 90, 1843.—C. DC. in DC. Prod. 16':408, 1869 and varieties.

Peperomia velloziana polystica Miq. in Linn. 18:226, 1844.—C. DC. in DC. Prod. 16':408, 1869.

Peperomia glabella melanostigma C. DC. in Cand. 1:326, 1923.

A suffruticose, branched, puberulent herb, rooting at the nodes; leaves alternate, petioled, lanceolate or elliptic, acuminate or acute, black punctulate, moderate (1.2×2-6 cm.), obscurely palmately 3-5-nerved; petiole moderate (.5-1 cm.); spikes 7-20 cm. long, axillary or

terminal, loosely flowered; peduncle long (1.5-2 cm.); berries ovate, beaked.

Type locality: near Paramaribo, Surinam.

Collections: *Surinam* (Hostmann 437 at Berlin) Miq.; (Focke in his own personal herbarium) Miq.; (Hostmann 437 at Paris) Trelease; (Hostmann-Hohenack 799a at Paris) Trelease; (Kegel 437 at Paris) Trelease. *Cayenne* (Melinon 171 at Paris) Trelease; (Le Prieur at Paris) Trelease.

13. PEPEROMIA ROTUNDIFOLIA (L.) HBK.

Peperomia rotundifolia (L.) HBK. in Nov. Gen. 1:65, 1815.

Peperomia rotundifolia (L.) Dahlst. Stud. 99, 1900 and varieties.

Piper rotundifolium L. Sp. Plant. 30, 1753.

Piper nummularifolium Sw. Prod. 16, 1788.

Peperomia nummularifolia HBK. in Pl. Aeq. 1:66, 1808.—

HBK in Nov. Gen. 1:66, 1815.—C. DC. in DC. Prod. 16':420, 1869.

Acrocarpidium nummularifolium Miq. Syst. Pip. 52, 1843.

Peperomia metapalcoensis Auct. as to the Guianas.

A small, delicate, slightly pubescent herb, rooting at the nodes; leaves alternate, round to obovate-elliptic, small (5-6×5-10 mm.), obscurely palmately 3-nerved, more or less hairy on both sides or glabrous, somewhat dark-punctulate; petiole short (1-3 mm.); spikes short (10-20 mm.), terminal, subverticillately and remotely flowered; peduncle short (2-5 mm.); bracts round-peltate; berries round-ellipsoid; stigma slightly anterior.

Type locality: Martinique.

Collections: *Surinam* (Weigalt at Berlin and Munich) Dahlst.; (Hb. Krug and Urban at Berlin) Dahlst.; (Weigalt in Hb. DC. at Geneva) Trelease; (Hostmann 117 at Berlin and Stockholm) Dahlst.; (Wulschlaegel 485 in Hb. Grisebach at Göttingen and Hb. Krug and Urban at Berlin) Dahlst.; (Kappler 672 at Stockholm) Dahlst. *Cayenne* (fide Aublet, Hist. p. 21.); (Sagot 903 at Berlin) Dahlst.; (Le Prieur in Hb. Franqueville at Paris) C. DC.

Also reported on various scarcely separable forms from Paraguay, Brazil, Venezuela, Ecuador, Colombia, Costa Rica, Guatemala, Mexico, Cuba, Jamaica, St. Domingo, Porto Rico, St. Bartholomew, Antigua, Guadeloupe, Dominica, Martinique, St. Lucia, Grenada, and Trinidad.

14. *PEPEROMIA RORAIMANA* C. DC.

Peperomia roraimana C. DC. in Notizbl. Berlin 7:493, 1917*.—C. DC. in Cand. 1:328, 1923.

A branched, erect, crisply pubescent herb; leaves alternate, round-ovate, obtuse or acutish, round-based, sparsely pubescent on both faces, black-granular, small (1.5-2×1.5-2.5 cm.), palmately 3-5-nerved; petiole short (.5 cm.), crisply pubescent; young spikes short (1.5 cm.), terminal and axillary; young peduncle short (3 mm.) glabrate; berries sessile, stigma oblique.

Type locality: Roraima, British Guiana.

Collections: *British Guiana* (Ule 8593 at Berlin) C. DC.; (Ule 8593 in Hb. DC. at Geneva) Trelease.

15. *PEPEROMIA BARTLETTI* C. DC.

Peperomia Bartlettii C. DC. in Notizbl. Berlin 7:470, 1917*.—C. DC. in Cand. 1:334, 1923.

A small, delicate, arboricolous, sparsely hairy herb; leaves alternate, elliptic, rounded above, acute based, small (7×13 mm.), palmately 3-nerved, pubescent above, ciliate; petiole short (2 mm.); spikes (2 cm.), solitary, terminal, filiform; peduncle moderate (5 mm.); stigma not lobed, sessile, apical.

Type locality: Conanaruk river, British Guiana.

Collections: Conanaruk river, *British Guiana* (H. H. Bartlett 8233, from Berlin, in Hb. DC. at Geneva) Trelease.

16. *PEPEROMIA PURPURINERVIA* C. DC.

Peperomia purpurinervia C. DC. in Notizbl. Berlin 7:496, 1917*.—C. DC. in Cand. 1:345, 1923.

An epiphytic herb with stem minutely puberulous upwards; leaves alternate, elliptic, bluntish, acute-based, minutely ciliate upwards, small (1.7×2.8 cm.), palmately 3-nerved; petiole short (5 mm.), purplish; spikes short (5.5 cm.), terminal, closely flowered; peduncle moderate (1.5 cm.); stigma apical, sessile.

Type locality: Roraima, British Guiana.

Collections: *British Guiana* (Ule 8592 at Berlin) C. DC.

SUBGENUS OGMOCARPIDIUM.

17. *PEPEROMIA PELLUCIDA* (L.) HBK.

Peperomia pellucida HBK in Nov. Gen. 1:64, 1815.—Miq. Syst. Pip. 79, 1843.—C. DC. in DC. Prod. 16:402, 1869.—Dahlst. Stud. 16, 1900.

Piper pellucidum L. Sp. Plant. 21, 1753.

An erect, glabrous herb; leaves alternate, deltoid-cordate to ovate-cordate, apex acuminate, pellucid-punctate, leaves small (1.5-

*The volume number 7 of Notizbl. as given in Clavis is correct although the number of Notizbl. containing the article and separates of the article made from it were erroneously marked as of distributed volume 6.

2.5×1.5-2.5 cm.), palmately nerved; petiole moderate (1.5 cm.); spikes moderate (2-5 cm.), opposite the leaves (Miquel gives them as axillary or terminal), loosely flowered; bracts round-peltate, shortly pedicelled; ovary oblong-cylindrical; berries ovoid; stigma on a conic appendage.

Type locality: Based on Plumier's plate 72 from Martinique.

Collections: *Surinam* (Hostmann 65 in Hb. Boissier at Geneva) C. DC.; (Hostmann and Kappler 65 at Stockholm and Hb. Grisebach) Dahlst.; (Kegel 476) fide Miq. in Linn. 22:76, 1849. *Cayenne* (Sagot in Hb. Franqueville at Paris) C. DC.; Sagot 523 at Stockholm) Dahlst. *British Guiana* (Schomburgk 939 at Kew) C. DC.; (Schomburgk 939 at Berlin) Dahlst.

Also reported from Jamaica, Hispaniola, St. Croix, St. Thomas, Guadeloupe, St. Vincent, Barbados, Grenada, Tobago, Colombia to Peru, Venezuela to Brazil, and Africa.

SUBGENUS MICROPIPER.

18. PEPEROMIA ANGULATA (R. & S.) HBK.

Peperomia angulata (R. & S.) HBK. in Nov. Gen. 1:66, 1815.—Miq. Syst. Pip. 180, 1843.—C. DC. in DC. Prod. 16':446, 1869.—C. DC. in Cand. 1:317, 1923.—Dahlst. Stud. 156, 1900 and variety.

Piper angulatum R. & S. Mant. 1:332, 1822.

Peperomia trifolia Auct. as to Cayenne.

A repent, glabrous herb; stem 4-angled; leaves opposite, obovate, obtuse, base cuneate, small (15×25 mm.), palmately 3-nerved, the nerves prominent beneath; petiole short (3 mm.); spikes short (about 30 mm.) axillary, closely flowered, filiform; peduncle very long (30 mm.), scaly; bracts round-peltate, glandular-punctate; ovary immersed, oblong; stigma apical.

Type locality: Cumana, Venezuela.

Collections: *Surinam* (Hostmann 784 in Hb. Boissier at Geneva) Trelease; (Wulfschlaegel in Hb. Grisebach at Göttingen) Dahlst. *Cayenne* (fide Aublet, Hist. p. 22.)

Also reported from Brazil.

19. PEPEROMIA SCHOMBURGKII C. DC.

Peperomia Schomburgkii C. DC. in DC. Prod. 16':395, 1869.—Dahlst. Stud. 182, 1900.—C. DC. in Cand. 1:294, 1923.

Peperomia quadrifolia Aublet, Hist. 1:21, 1775.

A branched, creeping, nearly glabrous herb; leaves in whorls of four, sub-orbicular, ciliolate, emarginate, drying thick and dull, small

(10×12 mm.), obscurely 3-nerved; petiole short (6 mm.), slightly velvety; spikes much surpassing the leaves, terminal, closely flowered; peduncle moderate (15 mm.); bracts round-peltate, short-stalked; ovary ovoid, short-styled.

Type locality: British Guiana.

Collections: *British Guiana* (Schomburgk 406 at Berlin) C. DC.; (Schomburgk in Hb. D. C. at Geneva) Trelease. *Cayenne* (fide Aublet, Hist. p. 21.)

EXCLUDED FROM THE GUIANA FLORA.

20. PEPEROMIA PIPEREA C. DC.

Peperomia piperia C. DC. in Seem. Journ. 4:143, 1866.

Spike of a Piper and leaf of an aroid.

21. PEPEROMIA CIRCINATA LINK.

Peperomia circinata Link in Spreng., Schrader and Link, Jahrb. 1. 3:64, 1820.—C. DC. in DC. Prod. 16:444, 1869.

This species is reported by C. D.C. from Surinam on a Pohl specimen (number 1217 at Vienna). However it was collected at Parnahyba, Brazil (the label on the specimen which reads Paranahyba was probably misread as Paramaribo).

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VI.—Index to Species.

- | | |
|----------------------------|--------------------------|
| P. acuminata. No. 11 | poda. No. 6 |
| P. angulata. No. 18 | P. Parkeriana. No. 2 |
| P. Bartletti. No. 15 | P. pellucida. No. 17 |
| P. blanda. No. 10 | P. piperea. No. 21 |
| P. circinata. No. 19 | P. purpurinervis. No. 16 |
| P. longemucronata. No. 8 | P. repens. No. 9 |
| P. longifolia. No. 3 | P. roraimana. No. 14 |
| P. macrostachya. No. 5 | P. rotundifolia. No. 13 |
| P. magnoliaefolia var. | P. Schomburgkii. No. 20 |
| grandifolia. No. 7 | P. surinamensis. No. 4 |
| P. melanostigma. No. 12 | P. variegata. No. 1 |
| P. obtusifolia var. macro- | |