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New Fijian Peperomias

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In 1936, I published a revision of the species of *Peperomia* then known to occur in Fiji (in A. C. Smith, *Fijian Plant Studies*, B. P. Bishop Mus., Bull. 141:25-47). It included 13 species and seven varieties.

The following list, which is a report on the species recently collected in Fiji by Otto Degener together with one collected by William Greenwood, includes descriptions of three species believed to be new to science together with one additional species new to the islands. Mr. Degener visited Fiji with the Anne Archbold Expedition on the *Cheng Ho*.

All specimens cited, including the types, are deposited in Gray Herbarium.

Peperomia pellucida (Linnaeus) Humboldt, Bonpland, and Kunth, *Nov. Gen. Sp. Pl.* 1:64, 1815.

Viti Levu: Rewa, Suva, roadside weed, Nov. 20 to Dec. 31, 1941, O. Degener and E. Ordonez 13670; Namosi, Navua River region, near sea level on damp ground in shady places near houses, under trees and in bush houses, May 1943, Wm. Greenwood 562A. These represent the first reports of *P. pellucida* for Fiji, but it is widely distributed and its presence there was to be expected. (Used as a poultice.)

Peperomia orbiculimba Yuncker, B. P. Bishop Mus., Bull. 141:27, fig. 8, 1936.

Viti Levu: Tholo North, vicinity of Nandarivatu, epiphytic in forest, alt. 750-900 m., Feb. 4 to Mar. 26, 1941, O. Degener 14534. This is the second specimen seen of this small and inconspicuous species. The type was collected by Horne on Ovalau near Levuka.

Peperomia nandarivatensis, new species (fig. 1).

Caules simplex aut complures, erecti aut ascendentes, usque ad $15 \pm$ cm. alti, ramosi, dense puberulenti, pilis erectis aut sub-appressis, usque ad 1 mm. longis, internodis 1-3 cm. longis. Folia alterna, supra glabra, subter puberulenta, ciliata, usque ad 3.5 cm. longa et 2 cm. lata, ovala aut plerumque obovata, palmatim 3-nervia, apice obtuso, rotundo aut subattenuato, basi acuto, petiolo 6-8 mm. longo, puberulento. Spicae plerumque terminales, usque ad 7 cm. longae, pedunculo 12 mm. longo, puberulento, ovario globoso-ovoideo, apice obliquo, stigmate sub apice. Fructus circum 1 mm. longus, globoso-ovoideus.

Plants single or more or less tufted, stems erect or ascending, up to about 15 cm. high and 3 mm. thick when dry, branching above, densely puberulent with suberect to appressed, brownish hairs up to about 1 mm. long, internodes mostly from 1 cm. in length above to 3 cm. long near base. Leaves alternate, darker green and glabrous above, lighter green and puberulent beneath, margins densely ciliated to base, oval or mostly obovate, up to 3.5 cm. long and 2 cm. wide, but mostly somewhat smaller, apex rounded or somewhat attenuate, obtuse, base acute, palmately 3-nerved, petioles mostly 6-8 mm. long, densely puberulent. Spikes single, terminal or less frequently axillary, up to about 7 cm. long, moderately flowered, rachis glabrous, peduncle about 12 mm. long, densely puberulent, bracts orbicular, about 0.5 mm. wide, peltate, punctate with yellow dots, filaments somewhat longer than ellipsoidal anthers, ovary globose-ovoid, apex oblique, stigma subapical, smooth or pilose, fruit about 1 mm. long, globose-ovoid, verrucose, viscid.

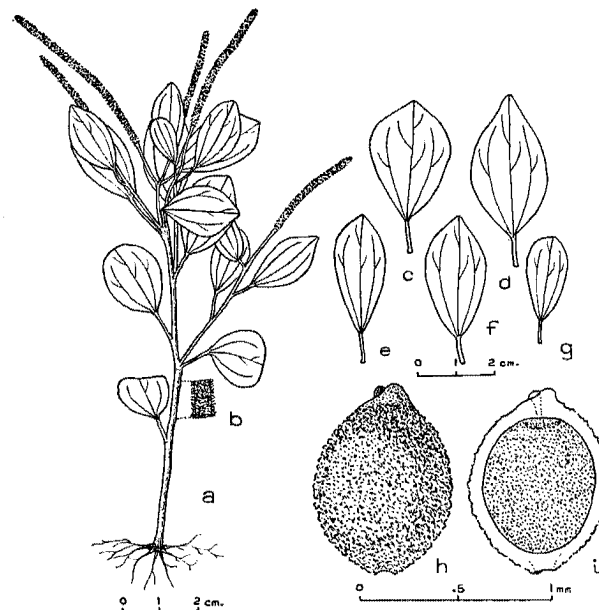


FIGURE 1.—*Peperomia nandarivatensis*: a, plant; b, section of stem, enlarged; c-g, leaves, showing variation in size and shape; h, fruit; i, section of fruit.

Viti Levu: Tholo North, on rock ledges in dense wet forest, west of fish hatchery, Nandala, vicinity of Nandarivatu, alt. 750 m., March 16, 1941, *O. Degener 14838* (type).

This species is to be distinguished by its alternate, commonly obovate, 3-nerved leaves, and dense puberulence.

***Peperomia nandalana*, new species (fig. 2).**

Herbae usque ad 45 cm. altae, ramosae, dense hirtellae, pilis circum 0.25 mm. longis, erectis, internodis circ. 1 cm. longis supra usque ad 5 cm. longis ad basem. Folia alterna, disticha supra, inferna opposita aut verticillata, dense hirtella, ciliata, elliptica et plus minusve falcata, plerumque 2-4 cm. longa et 1-1.5 cm. lata, apice et basi acuta, palmatim 5-nervia, petiolo 2-3 mm. longo, dense hirtella. Inflorescentiae ramosae axillaresque, spicae usque ad 2 cm. longae, graciles, pedunculo usque ad 2 mm. longo, dense hirtello, ovario obovold-turbinate, stigmatibus apicali, solitario aut raro diviso. Fructus circ. 0.75 mm. longus, obovoideus.

Stems erect, up to 45 cm. or more high and 6 cm. thick near base when dry, freely branching above with long, slender, somewhat zigzag, spreading branches, densely hirtellous, hairs erect, about 0.25 mm. long, internodes from about 1 cm. long above to 5 cm. long near base. Leaves alternate and distichous above, opposite or whorled near base, densely hirtellous on both surfaces, margins densely ciliated, drying firm, dark green above, lighter green beneath, finely dark punctate, upper branch leaves elliptic and more or less falcate, or occasional leaves lanceolate, mostly 3-4.5 cm. long, 7-15 mm. wide, apex and base acute, lower stem leaves mostly obovate or rarely nearly round, mostly 2-3 cm. long, 1-1.5 cm. wide, apex obtuse, base acutish or obtuse, palmately 5-nerved, petioles mostly 2-3 mm. long, densely hirtellous. Spikes slender, axillary, solitary or mostly several in branching inflorescences, mostly 12-20 mm. long, moderately to densely flowered, rachis glabrous, peduncle about 2 mm. long, densely hirtellous, bracts orbicular, about 0.3 mm. wide, peltate, punctate with yellowish dots, filaments about as long as oval anthers, ovary obovoid-turbinate, stigma essentially apical, single or infrequently divided, fruit obovoid, about 0.75 mm. long, verrucose and viscid except an area at apex and also toward base, borne on pseudopedicels.

Viti Levu: Tholo North, on rock ledges in dark wet forest, west of fish hatchery, Nandala, vicinity of Nandarivatu, alt. 750 m., March 16, 1941, *O. Degener 14837* (type); Mount Matomba, Nandala, vicinity of Nandarivatu, ("has appearance of a coarse *Chamaesyce* in its branch and leaf arrangement"), alt. 780 m., Feb. 18, 1941, *O. Degener 14460*.

This species resembles *P. vitiana* C. DeCandolle superficially. It differs from it, however, in the shape of the distichous leaves, erect rather than appressed hairs, shorter petioles, shape of the fruit, and the apical stigmas.

Peperomia lasiostigma C. DeCandolle, Linn. Soc., Jour. **39**: 165, 1909.

Viti Levu: Tholo North, Nandarivatu, on rocks in dark rain forest, alt. 800-900 m., Nov. 20-22, 1940, *O. Degener and E. Ordonez*

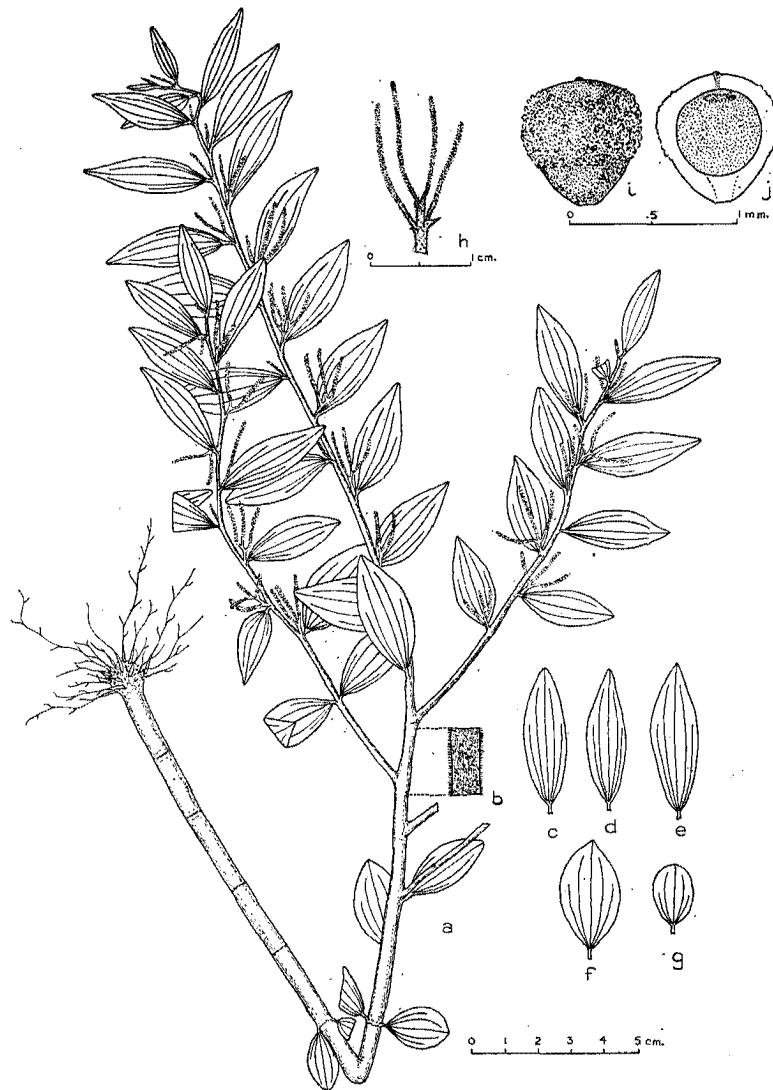


FIGURE 2.—*Peperomia nandalana*: a, plant; b, section of stem, enlarged; c-g, leaves, showing variation in size and shape; h, inflorescence; i, fruit; j, section of fruit.

13681; on mossy rocks, vicinity of Nandarivatu, alt. 750-900 m., Feb. 4 to March 26, 1941, *O. Degener 14930*; in forest, *O. Degener 14932*; epiphytic in forest, *O. Degener 14534*; epiphytic in dense forest, *O. Degener 14357*.

Vanua Levu: Thakaundrove: Savu Savu Bay region, on tree trunk in dense forest, Vatunivuamonde Mt., Dec. 26, 1940 to Jan. 10, 1941, *O. Degener and E. Ordonez 14012*.

Peperomia lasiostigma C. DeCandolle (?) variety **carnosa** (C. DeCandolle) Yuncker, B. P. Bishop Mus., Bull. 141: 36, fig. 14, *i*, 1936.

Viti Levu: Tholo North, vicinity of Nandarivatu, epiphytic in forest, alt. 750-900 m., Feb. 4 to March 26, 1941, *O. Degener 14931*.

Peperomia leptostachya Hooker and Arnott, Bot. Beechey, 96, 1832.

Vanua Levu: Thakaundrove, Savu Savu Bay region, in forest on Uluinabathi Mt., Dec. 26, 1940 to Jan. 10, 1941, *O. Degener and E. Ordonez 13942*.

Viti Levu: Tholo North, on rocky ledges, Korovou, east of Tavua, alt. 30 to 150 m., April 1, 2, 1941, *O. Degener 14946*.

Peperomia nodosa, new species (fig. 3).

Caulis complures, ascendentes aut suberecti, usque ad 20 cm. alti, ramosi, glabri, internodis 10-18 mm. longis, nodis carnosus. Folia opposita, glabra, non ciliata, obovata, usque ad 3 cm. longa et 12 mm. lata, palmatim 3- vel 5-nervia, apice acuta, basi acuta, petiolo plerumque 2 mm. longo. Spicae terminales axillaresque usque ad 3 cm. longae, pedunculo circum 6 mm. longo, glabro.

Plants tufted, stems ascending or suberect, up to about 20 cm. tall and 3 mm. thick near base when dry, branching above, glabrous, internodes 10-18 mm. long. Leaves "fleshy", becoming more or less coriaceous when dry, opposite, glabrous, not ciliated, obovate, up to nearly 3 cm. long and 12 mm. wide but mostly somewhat smaller, punctate with numerous yellow glandular dots, apex and base acute, palmately 3-5-nerved, petioles about 2 mm. long, flattened and with upper surface trough-like, attached above an enlarged nodal, padlike structure which in the dry specimen is conspicuous, leaf scars comparatively narrow, with 3 or 5 bundle traces. Spikes "thin and red", axillary and terminal, up to about 3 cm. long, moderately to densely flowered, rachis glabrous, the peduncle about 6 mm. long, glabrous, bracts orbicular, about 1 mm. wide, punctate with yellow dots, ovary obovoid. Fruit not developed.

Viti Levu: Lautoka, Mt. Evans, alt. about 1,190 m., Oct. 25, 1942, *Wm. Greenwood 950* (type).

The specimen on which this description is based is fragmentary and too young to show matured fruit. The ovaries are too young to show with certainty whether the stigma is apical or subapical. Both

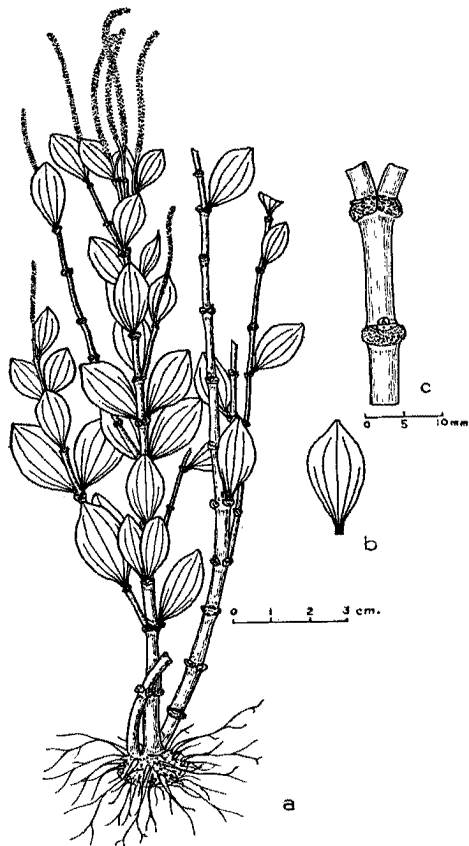


FIGURE 3.—*Peperomia nodosa*: a, plant; b, leaf; c, section of stem, enlarged.

stigmatic positions are exhibited by Fijian species. The most distinctive feature is the presence of thickened, nodal, padlike enlargements immediately beneath the leaf scars. A few species of Polynesian *Peperomia* have more or less enlarged nodes because of the clasping petiolar bases. In this species, however, the enlargement is not produced by the base of the petiole which does not clasp the stem. The fleshy, consistently opposite, and entirely glabrous leaves on short, flattened and more or less dorsally grooved petioles also distinguish it from other Fijian species.

The author is responsible for all statements in this paper.