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New Hawaiian Species of Peperomia
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PIPERACEAE

Peperomia dextrolaeva, sp. nov. (fig. 1).

Planta epiphytica, caulibus pluribus adscendentibus glabris 4-13 cm. longis, internodijs 2-12 mm. longis, foliis alternis 20-58 mm. longis 8-24 mm. latis ovato-lanceolatis vel lanceo-ellipticis ad basim rotundatis apice subacuta, laminijs 5-7-nervosis, petiolis 2-3 mm. longis, spicis axillaribus, pedunculis 5-8 mm. longis glabris, bracteis 0.4 mm. diametro suborbicularibus ovalibusve, antheris 0.24 mm. longis late oblongis, ovarijs suborbicularibus apice obliqua, stigmatibus duobus subapicalibus, fructibus 0.5 mm. longis obovoideis.

Plants epiphytic on mossy tree trunks; base stout; stems several 4-13 cm. long, 3-5 mm. in diameter at base when fresh, 2-3 mm. when dry, glabrous, unbranched, conspicuously zigzag, ascending, green or yellowish green or sometimes tinged with red; internodes 2-12 mm. long.

Leaves all alternate, 20-58 mm. long, 8-24 mm. wide, ovate-lanceolate or lance-elliptic, olive green above, whitish green beneath, rounded at base, the subacute tip reflexed, the blades 5- or even 7-nerved, the first pair diverging from the midrib at the base of the blade (or 3-plinerved); petiole 2-3 mm. long, stout glabrous; leaf-scar narrowly or broadly lunate; bundle scars 3.

Spikes axillary single or occasionally clustered; peduncles 5-8 mm. long, when fresh 1.2-1.8 mm. in diameter (when dried 0.5-0.7 mm.), glabrous; spikes 3-9 cm. long, 2 mm. in diameter when fresh (0.9-1.2 mm. when dried), glabrous, ascending, purplish, densely flowered; bracts suborbicular or oval, 0.4 mm. in diameter, peltate, yellowish; anthers 0.24 mm. long, broadly oblong, pale yellowish, much exceeding the tapering filament; ovary obovoid to suborbicular, covered with prominent, cylindric, pale, glandular hairs, apex oblique, slightly cleft between the two minute, tufted, subapical stigmas; fruit 0.5 mm. long, obovoid, viscid from the glutinous contents of the glandular hairs which are mostly broken down; short pseudopedicels present.

¹This is the tenth of a series of papers designed to present descriptions, revisions, and records of Hawaiian plants. The preceding papers have been published as B. P. Bishop Mus. Occ. Papers 10(4), 1933; 10(12), 1934; 11(14), 1935; 12(8), 1936; 14(8), 1938; 15(1), 1939; 15(2), 1939; 15(22), 1940; 15(28), 1940.

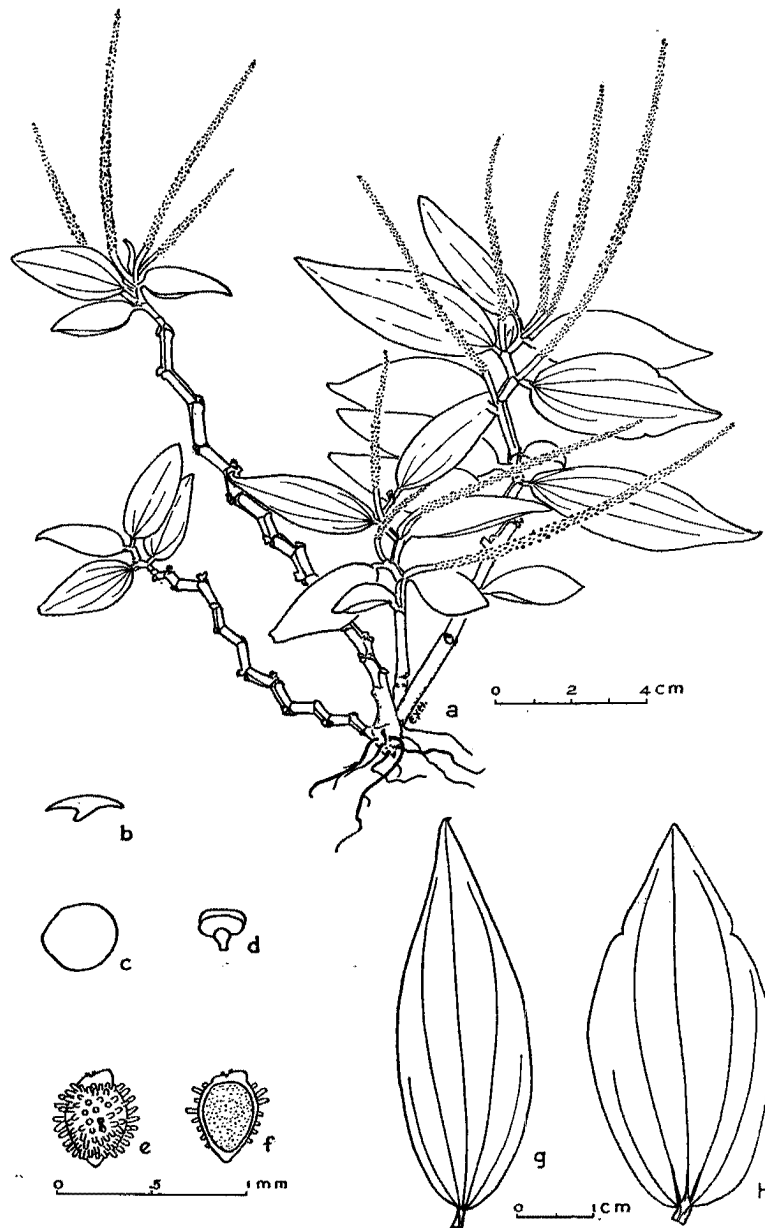


FIGURE 1.—*Peperomia dextrolaeva*: a, habit; b, profile of bract; c, top of bract; d, stamen; e, fruit; f, longitudinal section of fruit; g, h, leaves.

Hawaiian islands: Oahu, Waiahole Ditch trail, stream no. 10, head of Kahana Valley, Hauula Forest Reserve, on mossy trunk, open woods, 800 feet altitude, Dec. 10, 1933, *H. St. John 13416* (type in Bishop Mus.).

P. dextrolaeva is the fourth endemic species with alternate leaves to be discovered in the Hawaiian islands. It is allocated in the subgenus *Sphaerocarpidium* and the section *Alternifoliae*. The closest relative is *P. oahuensis* C.DC., which has internodes 2-6 cm. long; blades mostly elliptic-lanceolate, cuneate at base, 2.8-12 cm. long; petiole 3-10 mm. long; filaments about as long as the ellipsoid anthers; fruit 0.7-0.8 mm. long, heavy-walled. *P. dextrolaeva* has as diagnostic characters the internodes 2-12 mm. long; blades mostly ovate-lanceolate, rounded at base, 2-5.8 cm. long; petiole 2-3 mm. long; filaments one third as long as the oblong anthers; fruit 0.5 mm. long, thin-walled.

The illustration (fig. 1) is designed to show the same parts and to be comparable with those in Yuncker's monograph. Figure 1, *e, f* shows mature fruits magnified 25 times. The body of the fruit is covered with conspicuous, stout, cylindrical glandular hairs. Their viscid secretions adhere to passing objects or animals and aid in the dispersal of the seed. When dried these hairs shrivel and almost disappear. The fact that Yuncker's figures of fruits are all from dried specimens explains their apparent smooth surfaces. They, too, all had glandular hairs when fresh.

***Peperomia haupeensis*, sp. nov. (fig. 2).**

Planta terrestris, caulibus pluribus 9-20 cm. longis hirtellis deinde glabris, internodis 5-30 mm. longis, foliis alternis ad basim et in venis sparse hirtellis caeterum glabris, laminis principalibus 8-12.5 cm. longis 2-4.3 cm. latis late fusiformibus-ellipticibus 3-plinervatis integris, petiolis 5-23 mm. longis hirtellis deinde glabris, spicis axillaribus glabris immaturis 7-11 mm. longis, bracteis suborbicularibus 0.2 mm. diametro peltatis.

Plants terrestrial on mossy logs; stems 9-20 cm. long, several, branched above, green or reddened at base, when dried 1.5-3 mm. in diameter at base, glabrate at base, but above densely hirtellous with pale hairs about 0.3 mm. long; internodes 5-30 mm. long.

Leaves all alternate, glabrous above except at summit of petiole, sparsely hirtellous below, the hairs persisting on the veins; well developed middle and upper blades broadly fusiform-elliptic, 8-12.5 cm. long, 2-4.3 cm. wide; apex subacute; base cuneate; strongly 3-pleined, the inner pair forking from the midrib 0.5-1.5 cm. above the base, with or without another weak subbasal pair of lateral nerves; texture fleshy, firm, margin entire, upper surface dark green, lower surface pale green; lower blades and occasional late apical ones on smaller lateral branches broadly oval 25-38 mm. long, 18-25 mm. wide; petiole 5-23 mm.



FIGURE 2.—*Peperomia haupeensis*: a, habit; b, top of bract; c, profile of bract; d, stem, enlarged.

long, at first densely hirtellous, finally glabrate, at least towards the base; leaf-scar cordate.

Spikes axillary, usually 2 from the upper axils; peduncles (immature) 4-7 mm. long, 0.5-1 mm. in diameter when dried, finely hirtellous; spikes (quite young) 7-11 mm. long, 1 mm. in diameter when dried, glabrous, ascending, densely flowered; bracts suborbicular, 0.2 mm. in diameter, peltate, yellowish; stamens and ovaries very immature.

Hawaiian islands: Kauai, Haupu (Hoary Head Mts.), Kipu, altitude 1,100 feet, steep wooded slope, on prostrate log, Dec. 25, 1933, *H. St. John and F. R. Fosberg 13668* (type in Bishop Mus.).

This new species is the fifth Hawaiian one to be discovered that bears only alternate leaves. Though it has only immature inflorescences, it is obviously a member of the subgenus *Sphaerocarpidium* and the section *Alternifoliae*. To some degree, it resembles *P. latifolia* Miq. in its alternate lower leaves and in the breadth of its blades, but *P. latifolia* has blades 1.5-7 cm. long, ovate or oval to suborbicular, palmately 5-7-nerved, whereas *P. haupuensis* has blades 2.5-12.5 cm. long, the well-developed upper ones broadly fusiform-elliptic, 3-pinnate. It seems definite that the closest relative is *P. oahuensis* C.DC., which is completely glabrous and has blades 1.5-3 cm. wide, 6-12 cm. long, narrowly elliptic lanceolate or rarely suboblanceolate, subrhombic, or subfalcate. *P. haupuensis* has blades 1.8-4.3 cm. wide, 2.5-12.5 cm. long, the median and well-developed upper ones broadly fusiform elliptic.

The specific name is coined from that of the mountain on which it grows. Haupu is the highest peak of an isolated range, jutting out to form abrupt headlands on the southeast corner of the island.

***Peperomia oahuensis* C.DC.**

Hawaiian islands: Kauai, Haupu (Hoary Head Range), Kipu, steep wooded slope, altitude 1,100 feet, on prostrate log, Dec. 25, 1933, *H. St. John and F. R. Fosberg 13662*.

The first record from Kauai of this species. Previously known only from the Koolau Range of Oahu.

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