
New naturalized record of *Paullinia fuscescens* on O‘ahu (Sapindaceae)

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Paullinia fuscescens was accidentally discovered as naturalized on O‘ahu when it naturally dispersed and germinated in the garden of the first author. The likely source population was found naturalized in Mau‘umae Nature Park nearby, indicating that this species is established on O‘ahu. All material cited below is stored at the Herbarium Pacificum (BISH) and was identified by both authors.

Sapindaceae

Paullinia fuscescens Kunth

New state record

In 2021 an unusual liana germinated on the property of the first author in Kaimukī, Honolulu, and was watered and cared for until it flowered and fruited. It reached a height of over 2.5 m, growing on a *Euphorbia tirucalli*. It was later discovered that two small colonies of this liana, covering approximately 5 m² each, are naturalized at Mau‘umae Nature Park, also in Kaimukī. The Mau‘umae population is likely the source population for the seed that germinated in the author’s yard. These were identified as *Paullinia fuscescens* using the key in the *Flora of the Guianas* (Acevedo-Rodríguez 2012).

Paullinia fuscescens is an ornamental liana native to Mexico through Central America and northern South America (Acevedo-Rodríguez 2012). It is very likely that this was introduced as an ornamental, but it is not mentioned in Staples & Herbst (2005), nor are there any specimens of this in cultivation at BISH. One observation has been posted to iNaturalist, where it was cultivated in Wai‘anae (<https://www.inaturalist.org/observations/147276054>). *Paullinia fuscescens* has dark green, tomentose to tomentulose, biternate leaves with a narrowly winged rachis. The leaflets are chartaceous with serrate margins, the adaxial surface shiny with a sparsely pubescent midvein, and the abaxial surface dull with prominent venation. It is presently cultivated for its bright red, 3-winged capsular fruit that contains one black, persistent seed per locule, measuring ca. 6 mm in length (Figure 1). On O‘ahu, *P. fuscescens* has so far been found in elevations ranging from 150–360 ft (45–110 m) above sea level. Plants also grew in various soil types, including vertisols, ultisols, and entisols (Deenik 2014).

Historically, the plant stems were used as a lashing to bind framework in housing, fencing, and huts (Beck 1990). The plant also contains saponin and is used ethnobotanically by indigenous peoples to stun fish (Williams 1981). The flowers produce a faint, musky-sweet smell, giving these lianas the common name “moldy bread and cheese.” The oblong black, arillate seeds (Chery *et al.* 2019) are dispersed by unspecialized frugivores, including birds (Snow 1981), although other vectors, such as rodents, may play an important role (Weckerle & Rutishauser 2005).



Figure 1. *Paullinia fuscescens*. **A**, leaves, tendrils, and immature inflorescences. **B**, fruit partially dehiscent, showing the black seed with a white sarcotesta. **C**, flower.

Paullinia fuscescens is morphologically most similar to *Cardiospermum grandiflorum* (Sapindaceae), which is widely naturalized across O‘ahu, as they have similar leaves. They can be differentiated easily, as *C. grandiflorum* has inflated, papery fruits and long-hispid stems, whereas *P. fuscescens* has dehiscent, fleshy fruits and minutely tomentose stems (Figure 1).

The following description is from Acevedo-Rodríguez (2012:74):

“Woody vine 3–7 m long. Stems cylindrical, tomentose or tomentulose, to 5 mm in diameter, producing scanty watery latex; cross section with a single vascular cylinder. Stipules triangular, ca. 1 mm long. Leaves biternate; petioles unwinged, 7–12 mm long; rachis narrowly winged, 1–1.6 cm long; leaflets chartaceous, with serrate, revolute margins, adaxial surface shiny, sparsely pubescent on the midvein, abaxial surface dull, with glandular papillae, the venation prominent and puberulent, with a tuft of hairs in the secondary vein axils; distal leaflet lanceolate, 4–6 × 1.5–2.5 cm, the apex acuminate, the acumen obtuse, the base long-attenuate; lateral leaflets almost elliptical, 1–2 × 0.7–1 cm, the apex obtuse, the base acute or obtuse. Thyrses axillary, racemiform, solitary, with tomentose axis; flowers sessile, in lateral cincinni. Calyx whitish green, with 5 sepals, 2–2.5 mm long; petals white, oblancoolate, cuneate at the base, 2–3 mm long; appendages slightly shorter than the petals, fleshy and yellow at the crest; disc of two obtuse-triangular lobes; stamens with unequal puberulent filaments; ovary trilocular. Capsule three-winged, red, 1–1.5 cm long. Seeds one per locule, black, obovoid, slightly laterally compressed, ca. 6 mm long, with a white and emarginate sarcotesta on lower half.”

Material examined. O'AHU: Honolulu, Mau'umae Nature Park, trail though upper portion of park, dry, sunny, scrubby area along trail, climbing vine via tendrils, 2 large patches seen in park, no flowers could be found, 120 m, 21.288244, -157.789014, 14 May 2022, *K. Faccenda 2362*; Kaimukī, residence along Sierra Dr, liana with tendrils, climbing up to 3 m tall, this was not planted and appeared in the garden around 2021 and was left to grow, 21 Apr 2023, *B. Najarian s.n.*

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