



Pitcairnia anarosae (Bromeliaceae; Pitcairnioideae) a new species from the state of Oaxaca, México

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Abstract

Pitcairnia anarosae, known until now from the municipality of San Juan Colorado, Oaxaca, Mexico, is described and illustrated. The new species is compared with *P. singularis*, from which differs by the plant height (19–40 vs 15–25 cm) the number of leaves (5–8 vs 3–4), and the morphology, color (red vs white) and length of flowers.

Keywords: Jamiltepec, Región Costa, San Juan Colorado

Resumen

Se describe e ilustra *Pitcairnia anarosae*, conocida únicamente del municipio de San Juan Colorado, Oaxaca, México. La nueva especie se compara con *P. singularis*, de la cual difiere en el tamaño de las plantas (19–40 vs 15–25 cm), número de hojas (5–8 vs 3–4), color (rojo vs blanco) y largo de las flores (2.0–2.1 vs 1.6–1.7 cm).

Palabra clave: Jamiltepec, Región Costa, San Juan Colorado

Introduction

Over the past decade there have been few investigations about the diversity of *Pitcairnia* L'Héritier (1789: 5; 1790: t. 11) species in Mexico (Espejo-Serna & López-Ferrari 2010, 2015; Flores-Argüelles *et al.* 2017; González-Rocha *et al.* 2018). These studies have revealed several new species as well as new distributional records for known species, and clearly indicate that there could be more undescribed species in some unexplored regions of the country.

Oaxaca is known for its high diversity of species, occupying the first place in Mexico as well as its richness of Bromeliaceae (Salas Morales *et al.* 2003; Espejo-Serna *et al.* 2007; Flores-Cruz & Granados Mendoza 2011; Espejo-Serna & López-Ferrari 2018).

In October 2016, during a botanical survey for the project “Riqueza y distribución de las monocotiledóneas nativas del municipio de San Juan Colorado, Oaxaca, México” (Mejía-Marín *et al.* 2016), we collected a bromeliad with fruits of the genus *Pitcairnia*. By its vegetative characteristics, these plants were identified in the first instance, as *Pitcairnia singularis* Flores-Argüelles *et al.* (2017: 275), and some plants were kept in cultivation to obtain flowers. In July 2019, these plants bloomed, and a detailed examination of the specimens and its comparison with similar previously recorded species from the Mexican Pacific Coast (McVaugh 1989; Salas-Morales *et al.* 2003; Pulido-Esparza *et al.* 2004; Espejo-Serna *et al.* 2007; Flores-Cruz & Granados Mendoza 2011; Mejía-Marín *et al.* 2016; Flores-Argüelles *et al.* 2017); provided the convincing evidence that it is indeed a new species that we propose here. For descriptive terminology of the new species, Scharf & Gouda (2008) has been used.

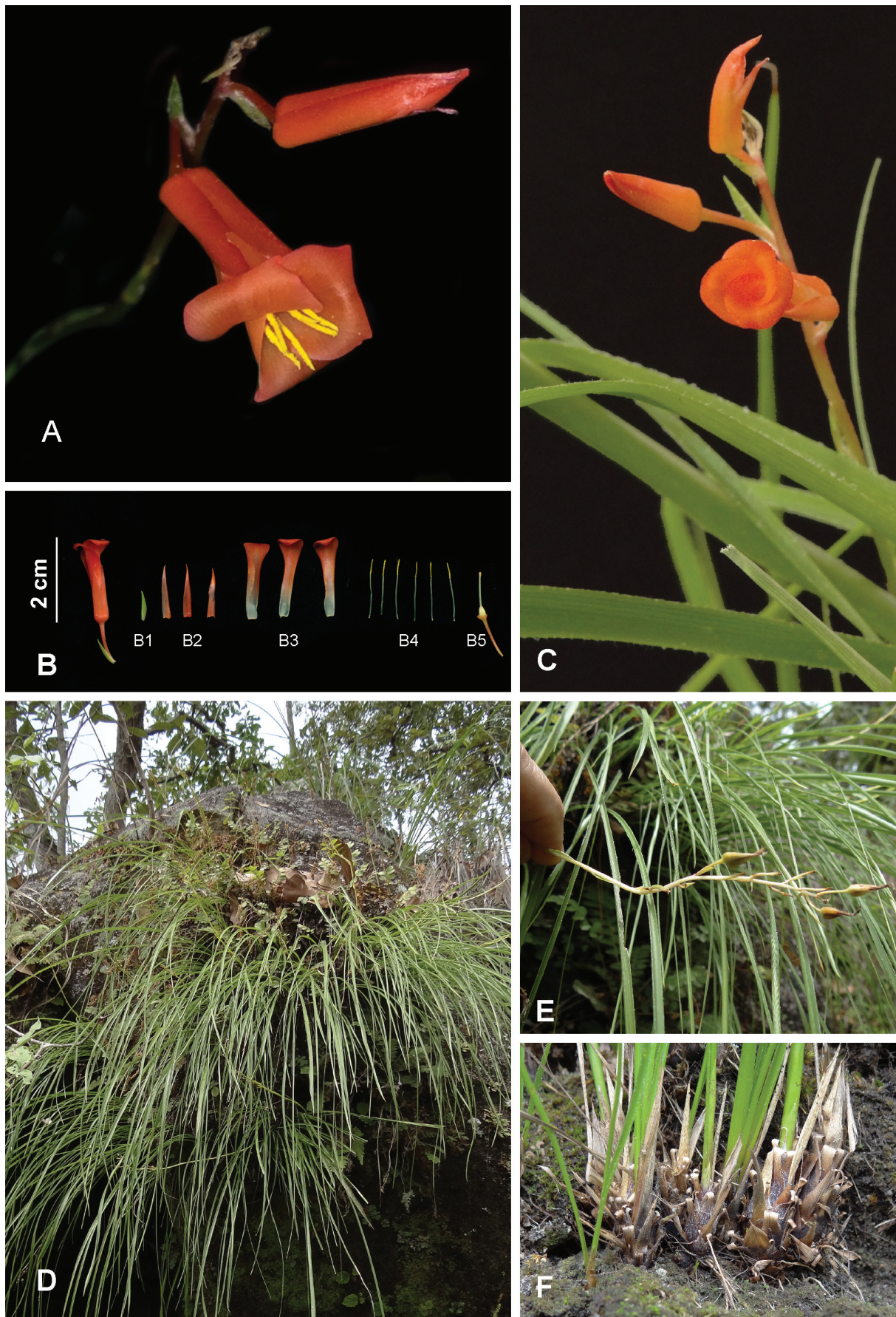


FIGURE 1. *Pitcairnia anarosae*. A. flowers; B. dissected flower (B1. floral bract; B2. sepals; B3. petals; B4. stamens; B5. Pistil); C. inflorescence; D. habitat; E. fruits; F. detail of the basal portion of the plant, showing the reduced sheath like leaves, and the normal leaves. Photographs: A. L. Jimena Hernández-Barón; B. Edith González-Rocha; C-F. Adolfo Espejo-Serna.

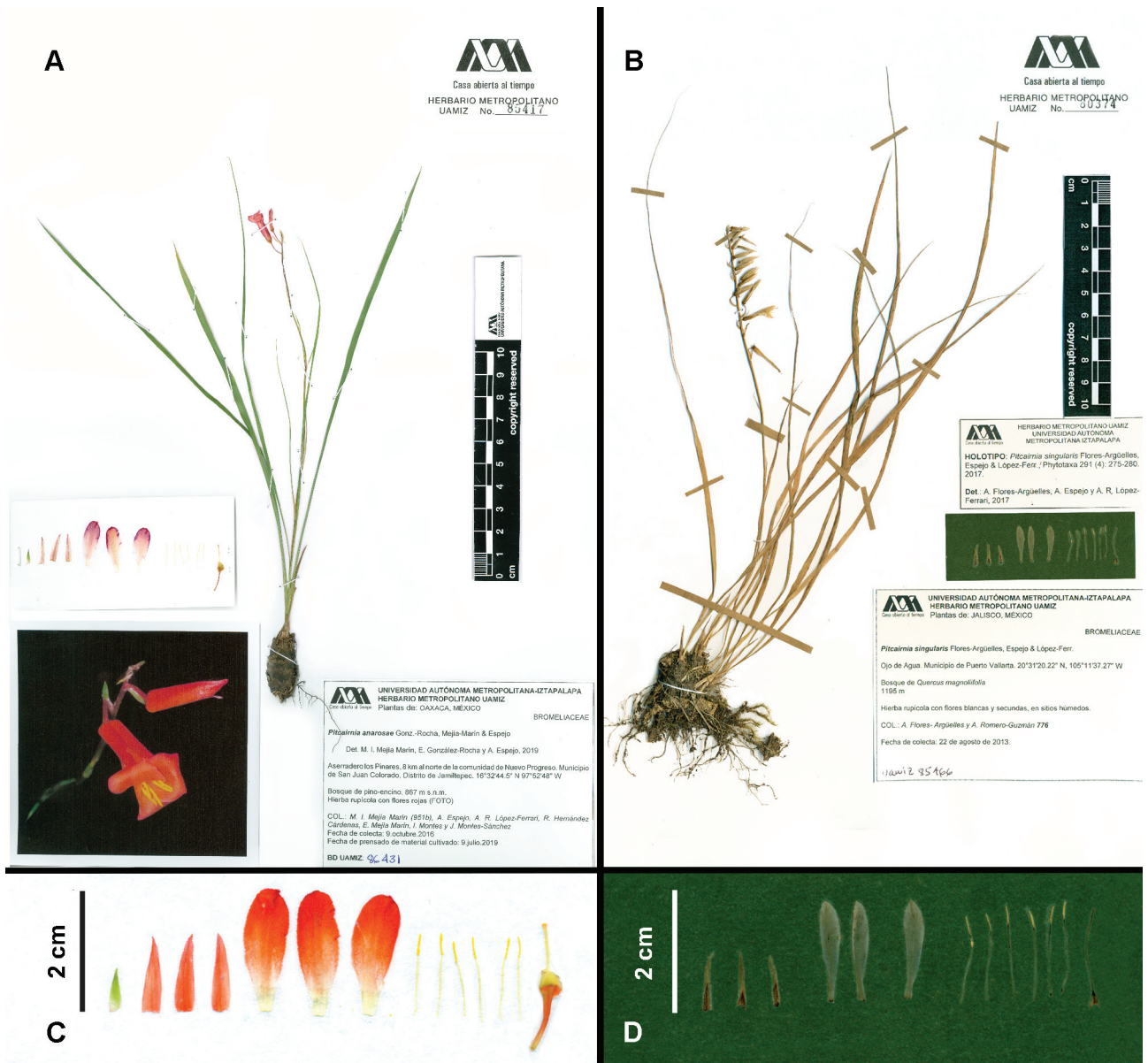


FIGURE 2. Herbarium specimens and dissected flowers: A & C. *Pitcairnia anarosae* (M. I. Mejía Marín *et al.* 951b, UAMIZ); B & D. *P. singularis* (A. Flores-Argüelles y A. Romero-Guzmán 776 UAMIZ).

Taxonomy

Pitcairnia anarosae Gonz.-Rocha, Mejía-Marín & Espejo, *spec. nov.* (Figs. 1, 2 A, C, 3)

Diagnosis:—*Pitcairnia anarosae* is morphological similar to *Pitcairnia singularis* from which it differs by the number of photosynthetic leaves per rosette (5–8 vs. 3–4), the petal morphology (obovate-spathulate with rounded apex vs. oblanceolate-spathulate with acute apex) as well as its length (2.0–2.1 vs. 1.6–1.7 cm), the sepals ecarinate vs. carinate, the style length (7.5–8 vs. 12–14 mm), and the flower colour (red vs. white).

Type:—MEXICO, Oaxaca, municipio de San Juan Colorado, aserradero los Pinares, 8 km al norte de la comunidad Nuevo Progreso, 16° 32' 44.5" N, 97° 52' 48" W, 867 m, bosque de pino-encino, 9 julio 2019 (flowers), *M. I. Mejía-Marín 951 b*, *A. Espejo-Serna*, *A. R. López-Ferrari*, *R. Hernández-Cárdenas*, *E. Mejía-Marín*, *I. Montes*, *J. Montes-Sánchez*. (holotype UAMIZ 85417!).

Plants saxicolous, acaulescent, cespitose, in flower 19–40 cm high, slightly bulbous. *Bulbs* ovoid to narrowly ovoid, 1.1–2.1 cm long, 0.5–1.2 cm in diameter. *Roots* fibrous. *Leaves* dimorphic; the outer 1 or 2 *reduced ones*, sheath like, not photosynthetic, dark brown, chartaceous, oblong to broadly oblong, 2.5–5.6 cm long, 3.4–6.7 mm wide at

the widest point, glabrous on both surfaces, conspicuously nerved, entire, acuminate; the inner *normal ones* 5 to 8 in number, when flowering; *leaf sheaths* dark brown abaxially, light brown to straw colored adaxially, widely ovate, 6.7–11 m long, 7.7–10.5 mm wide at the base; *leaf blades* deciduous, green, linear, 15–58 cm long, 2.3–4.3 mm wide, conspicuously nerved, glabrous on both surfaces, margins lepidote and spinose-serrate only below the abscission line, attenuate; the most inner leaf filiform, 0.3–0.5 mm wide. *Inflorescence* terminal, simple, racemose; *peduncle* green, terete, 16–29 cm long, ca. 1.5 mm in diameter, glabrous; *peduncle bracts* green, membranaceous, filiform, gradually decreasing in length distally, 1–16 cm long, 0.6–0.8 mm wide at the base, erect, reducing in length gradually distally; *raceme* 1.9–9.5 cm long, glabrous, with 3–25 flowers; *rachis* wholly visible, glabrous; *floral bracts* green, narrowly triangular, membranaceous, 5.3–11.4 mm long, 1.4–1.7 mm wide, acuminate, glabrous. *Flowers* secund at anthesis, actinomorphic to slightly zygomorphic, pedicellate; *pedicels* linear, 7.4–14 mm long, glabrous; *sepals* free, red, narrowly triangular, 12.6–13 mm long, 3–3.6 mm wide at the base, ecarinate, glabrous, acuminate, the central vein conspicuous; *petals* red, white at the base, obovate-spathulate, 2–2.1 cm long, 7–8 mm wide, margins sinuate, without basal appendages, apex rounded, revolute. *Stamens* all equal in length; *filaments* white, filiform, 9.8–10.7 mm long; *anthers* yellow, linear, 3.8–3.9 mm long, basifixed. *Pistil* shorter than the stamens; *ovary* ovoid, ca. 3 mm long, ca. 2.6 mm in diameter; *style* linear, ca. 7.5–8 mm long; *stigma* red, conduplicate-spiral. *Capsules* light to dark brown, ovoid, trigonous, 6–8 mm long, 2.4–3.5 mm in diameter, apex rostrate; *seeds* light brown, fusiform, ca. 1 mm long, bicaudate.

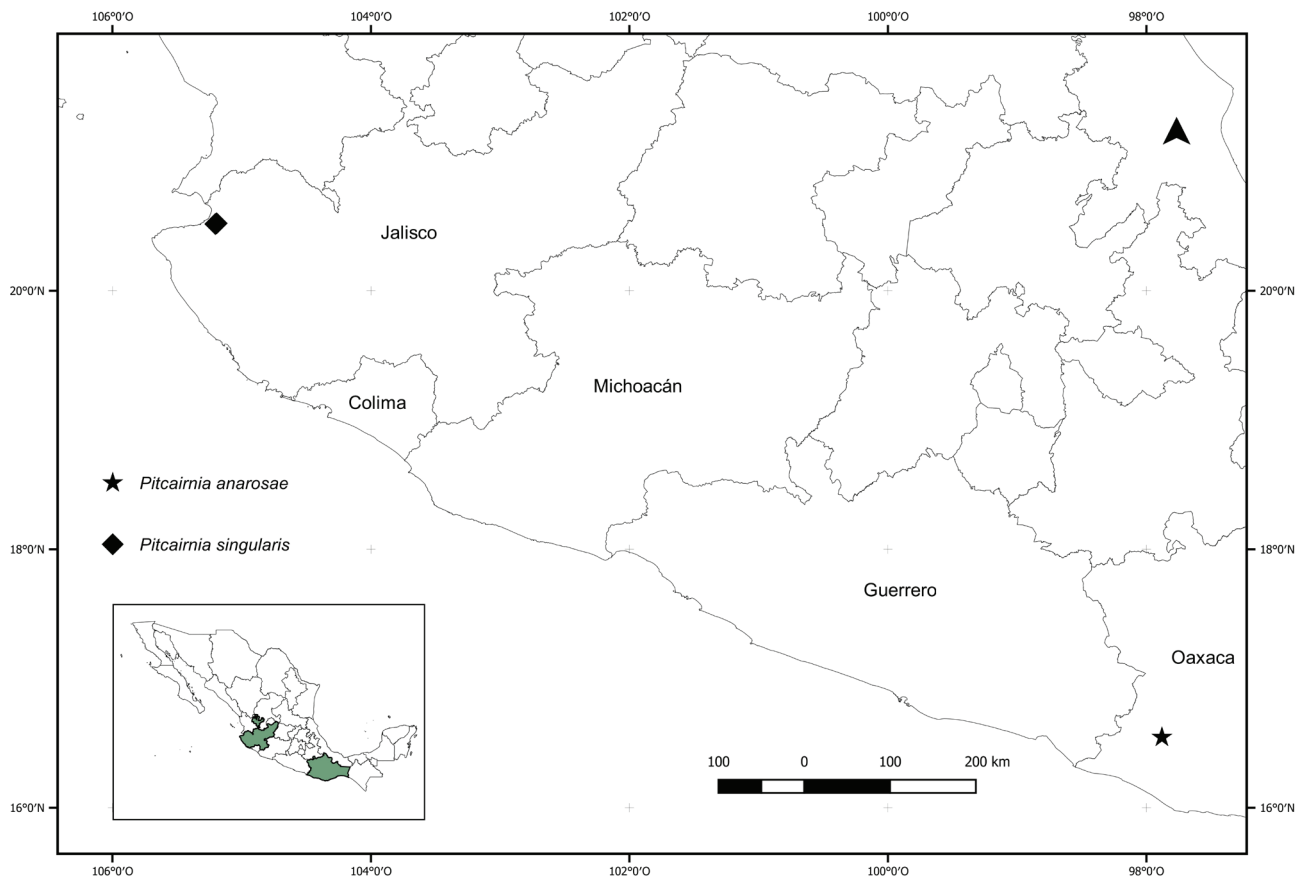


FIGURE 3. Known distributions of *Pitcairnia anarosae* and *P. singularis*.

Paratypes:—Oaxaca, municipio de San Juan Colorado, aserradero los Pinares, 8 km al norte de la comunidad Nuevo Progreso, 16° 32' 44.5" N, 97° 52' 48" W, 867 m, bosque de pino-encino, 9 octubre 2016 (fruits), *M. I. Mejía-Marín 951 a*, *A. Espejo-Serna*, *A. R. López-Ferrari*, *R. Hernández-Cárdenas*, *E. Mejía-Marín*, *I. Montes*, *J. Montes-Sánchez* (UAMIZ!, IBUG!, MEXU!).

Phenology:—*Pitcairnia anarosae* blooms in July and fructifies from September to October

Distribution and habitat:—The new taxon is only known from the state of Oaxaca, in the municipality of San Juan Colorado (Fig. 3), where it grows on cliffs or rocky slopes in pine-oak forests, between 850–900 m a.s.l. elevation.

Etymology:—The specific epithet honors Ana Rosa López-Ferrari, Mexican botanist who has made significant contributions to the knowledge of the monocot flora of Mexico and a beloved professor of the first two authors.

Comments:—The new taxon belongs to the subgenus *Pitcairnia* because the seeds are bicaudate. *Pitcairnia anarosae* has a set of features that clearly distinguish it from any other Mexican and Central American species of the genus. Due to the lack of detailed information about the precise distribution of the species in this region, we suggest to include it in the Data Deficient (DD) category of the IUCN (2019).

Pitcairnia anarosae is morphological similar to *P. singularis* because both species have linear leaves, small secund flowers up to 2 cm long at anthesis, without basal appendages on the petals. However, *P. anarosae* is clearly distinguishable by the longer peduncle (16–29 cm vs. 13–17 cm), the shape of peduncle bracts (filiform vs. narrowly triangular), the colour of flowers (red vs. white), the presence/absence of a carina on the sepals (ecarinate vs. carinate), and the morphology (obovate-spathulate with rounded apex vs. oblanceolate-spathulate with acute apex) and length (2.0–2.1 vs. 1.6–1.7 cm) of the petals (Table 1, Fig. 2).

TABLE 1. Comparative characters of *Pitcairnia anarosae* and *P. singularis*.

	<i>P. anarosae</i>	<i>P. singularis</i>
plant flowering height	19–40 cm	15–25 cm
number of inner leaves	5–8	3–4
peduncle length	16–29 cm	13–17 cm
peduncle bract shape	filiform	narrowly triangular
flower color	red	white
sepals	ecarinate	carinate
petal morphology and length	obovate-spathulate with rounded apex, 2–2.1 cm	oblanceolate-spathulate with acute apex, 1.6–1.7 cm
style length	7.5–8 mm	12–14 mm
distribution and elevation (m a.s.l.)	Oaxaca 850-900	Jalisco ca. 1200

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