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Pitcairnia singularis (Pitcairnioideae, Bromeliaceae), a new species from Jalisco, Mexico

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Abstract

Pitcairnia singularis, known only from the municipality of Puerto Vallarta in the state of Jalisco, Mexico, is here described and illustrated. The new species is characterized by very narrow, epetiolate, deciduous normal leaves, a simple inflorescence with 14–20 pedicellate, secund, white flowers, and petals 1.5–1.7 cm long, without appendages. An identification key has been included for all the species of the genus present in the state of Jalisco, Mexico.

Key words: Jalisco, *Pitcairnia* subgenus *Pitcairnia*, Sierra del Cuale

Resumen

Se describe e ilustra *Pitcairnia singularis*, conocida únicamente del municipio de Puerto Vallarta, en el estado de Jalisco, México. El nuevo taxón se caracteriza por la presencia de hojas normales no pecioladas y caducas, inflorescencia simple con 14–20 flores pediceladas, secundas, blancas, con los pétalos de 1.5–1.7 cm de largo, sin apéndices. Se incluye una clave de identificación de las especies del género presentes en el estado de Jalisco.

Palabras clave: Jalisco, *Pitcairnia* subgénero *Pitcairnia*, Sierra del Cuale

Introduction

The genus *Pitcairnia* comprises ca. 406 species worldwide (Gouda *et al.*, cont. updated). In Mexico there are ca. 50, 80 % (40) of them endemic to the country (Espejo Serna, 2012). In 2013, during field explorations in Sierra del Cuale, in the municipality of Puerto Vallarta, Jalisco, as part of the alternative touristic project “AMEYALCO”, we collected, among other species, a bromeliad in the genus *Pitcairnia* with a set of characteristics that distinguishes it from any other Mexican species in the genus and undoubtedly represents a novelty. For descriptive terminology of the new species, Scharf & Gouda (2008) has been used.

Taxonomy

Pitcairnia singularis Flores-Argüelles, Espejo & López-Ferr., *spec. nov.* (Figs. 1–3)

The new species is characterized by the following: deciduous normal leaves without distinct petioles; inflorescence simple, with 14–20 pedicellate, secund, white flowers; petals 1.5–1.7 cm long, without basal appendages.

Type:—MEXICO. Jalisco: municipio de Puerto Vallarta, Ojo de Agua, 20° 31' 20.22" N, 105° 11' 37.27" W, 1195 m, bosque de *Quercus*, 22 August 2013 (fl), A. Flores-Argüelles & A.R. Romero-Guzmán 776 (holotype: UAMIZ, isotype: IBUG).

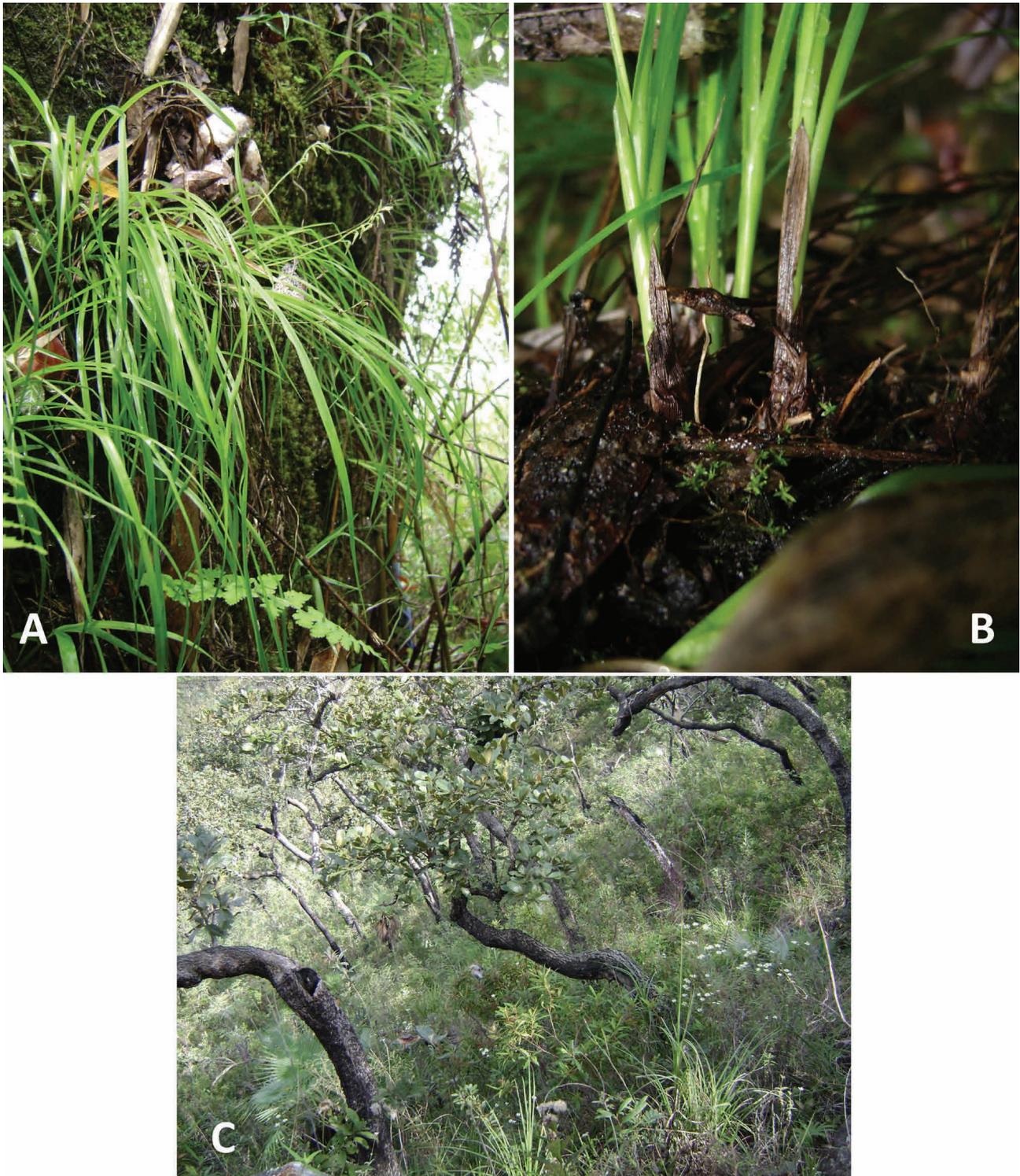


FIGURE 1. A. Plants in flower at type locality. B. Detail of the basal portion of *Pitcairnia singularis*, showing the reduced sheath like and the normal leaves. C. Oak forest habitat of *P. singularis* Flores-Argüelles, Espejo & López-Ferr.

Plant saxicolous, perennial, acaulescent, cespitose, 15–25 cm tall in flower, slightly bulbous. *Roots* fibrous. *Leaves* 2–6, dimorphic, epetiolate, margins entire; outer reduced leaves sheath like, dark brown, membranous, oblong, 1.3–4.2 cm long, 2.2–3.7 mm wide at widest point, glabrous on both surfaces, conspicuously nerved, apically attenuate; inner normal leaves with *sheaths* triangular to ovate, 11.3–16.5 mm long, 5.8–8.7 mm wide at the base, dark brown, *leaf-blades* deciduous, green, linear, 10.8–36 cm long, 1.6–4.3 mm wide at widest point, conspicuously nerved, glabrous on both surfaces, present when flowering. *Inflorescence* terminal, simple, erect, racemose; *peduncle* green, erect, terete in cross section, 13–17 cm long, ca. 1 mm in diameter when dry, glabrous; *peduncle bracts* membranous,

green, erect, narrowly triangular, 1.7–5.2 cm long, 0.37–0.74 mm wide at base; *raceme* 5.5–7 cm long, glabrous, 14–20 polystichously flowered; *rachis* wholly visible; *floral bracts* white-greenish, straw colored in dried specimens, narrowly triangular, long attenuate, membranous, 4–7(–10) mm long, ca. 0.7 mm wide, erect, the apex acute, glabrous; *flowers* secund at anthesis, slightly zygomorphic, pedicellate; *pedicels* linear, 1.5–6.9 mm long, flattened, glabrous except lepidote apically; *sepals* free, white, narrowly triangular, 9.5–11 mm long, 1.4–1.6 mm wide at the base, the two adaxial ones carinate, glabrous, acute; *petals* white, oblanceolate-spatulate, 1.5–1.7 cm long, 3.7–4 mm wide at widest point, without basal appendages, acute; *stamens* all equal in length; *filaments* white, strap shaped, linear, 11–12 mm long; *anthers* yellow, linear, 3.4–3.7 mm long, sagittate; *ovary* ovoid, 3–4 mm long, ca. 1.6 mm in diameter; *style* linear, 14–15 mm long; *stigma* white, conduplicate-spiral. *Capsules* red-brownish, ovoid, trigonous, 7.5–8 mm long, 2.5–3 mm in diameter at its widest part, apex rostrate, septicide; *seeds* light brown, fusiform, 1.8–2 mm long, long bicaudate.



FIGURE 2. Holotype of *Pitcairnia singularis* Flores-Argüelles, Espejo & López-Ferr.

Etymology:—The specific epithet refers to the singular characteristics of the new species that distinguish it from any other member of the genus.

Distribution, habitat and phenology:—*Pitcairnia singularis* is known only from the Pacific slopes of Sierra del Cuale, in the municipality of Puerto Vallarta, Jalisco (Fig. 3). It grows in oak and open pine-oak forests (Fig. 1C) with *Quercus magnoliifolia* Née (1801: 268), *Brahea sarukhanii* Quero (2000: 110), *Bejaria mexicana* Benth (1839: 15), and *Pinus maximinoi* Moore (1966: 8). This saxicolous bromeliad grows between 1195 and 1213 m elevation near water streams among shaded, moist boulders (Figs. 1B–C), with other saxicolous plants like *Pitcairnia imbricata* (Brongniart 1841: 369) Regel (1868: 135), *Sobralia decora* Bateman (1841: t. 26), and *Anthurium halmoorei* Croat (1983: 301). It flowers and fruits from August to December.

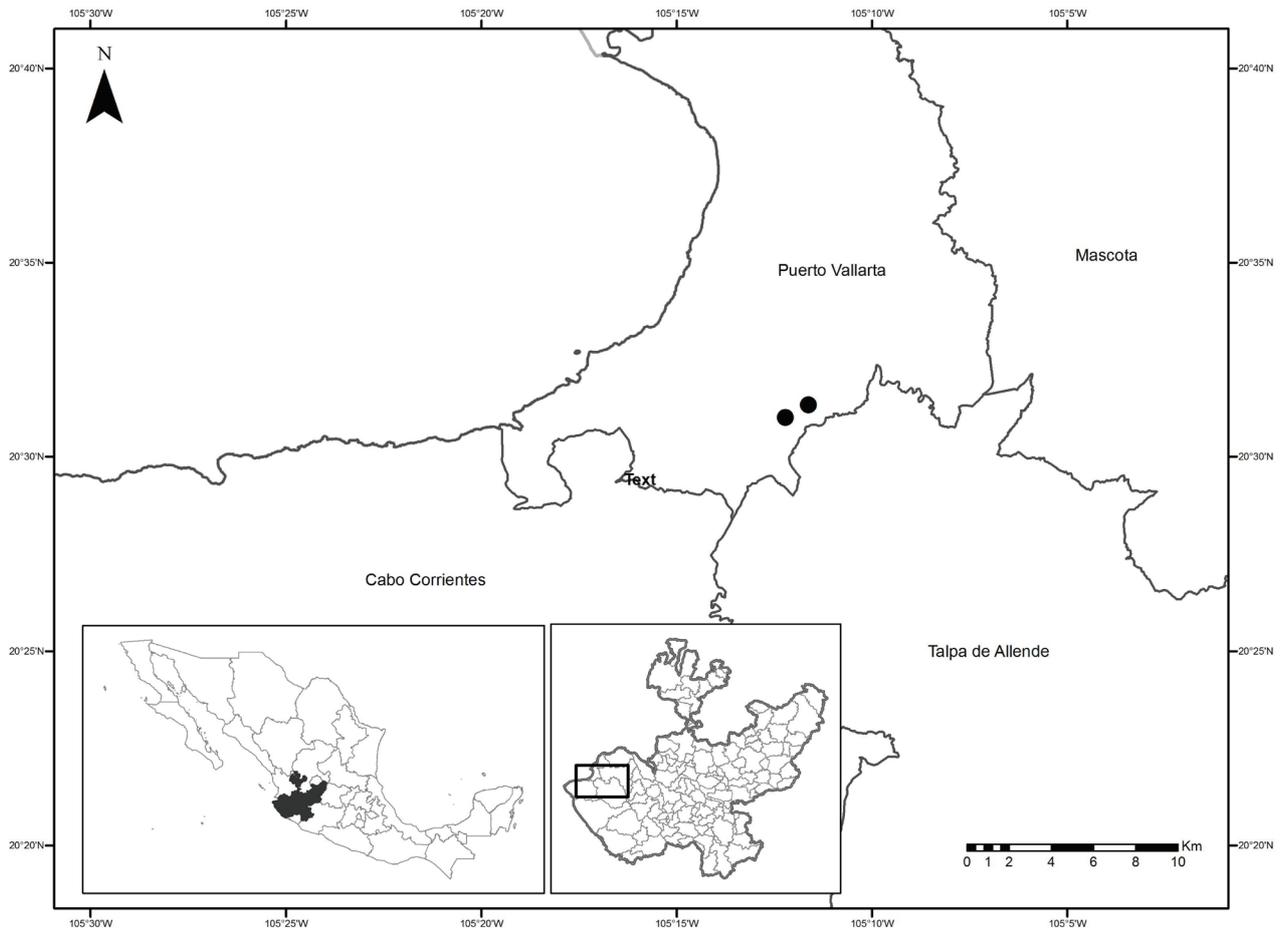


FIGURE 3. Known distribution of *Pitcairnia singularis* Flores-Argüelles, Espejo & López-Ferr.

Additional specimens examined (paratypes):—MEXICO. Jalisco: municipio de Puerto Vallarta, Ojo de Agua, 20°31'0.96" N, 105°12'12.71" W, 1213 m, bosque abierto de *Pinus-Quercus*, 1 December 2013 (fr), A. Flores-Argüelles & A.R. Romero-Guzmán 896 (IBUG); municipio de Puerto Vallarta, Ojo de Agua, 20°31'20.22" N, 105°11'37.27" W, 1195 m, bosque de *Quercus*, 1 August 2014 (fl), A. Flores-Argüelles & A.R. Romero-Guzmán 930 (MEXU, UAMIZ).

Comments:—*Pitcairnia singularis* grows in an area of high diversity and endemism. Several species have recently been described from the Sierra del Cuale, such as *Hyptis cualensis* González & Castro (2014: 154), *Salvia cualensis* González (2012: 50), and *S. cualensis* var. *perezii* González (2012: 53), all members of the Lamiaceae.

In his treatment of *Pitcairnia* for Flora Novo Galiciana, McVaugh (1989) included eight species in Jalisco (*P. compostelae* McVaugh (1989: 25), *P. cylindrostachya* Smith (1937: 25), *P. heterophylla* (Lindey 1840: t.71) Beer (1857: 68), *P. imbricata*, *P. karwinskyana* (s. l.) Schultes & Schultes (1830: 1239), *P. micheliana* André (1901: 576), *P. oaxacana* Smith (1937: 25), and *P. palmeri* (Watson 1887: 456). Espejo-Serna *et al.* (2004) reported nine species (additional: *P. loki-schmidtii* Rauh & Barthlott (1987: 18), *P. roseana* Smith (1937: 27)), and *P. jaliscana* Watson (1887: 456), considered by McVaugh as synonym of *P. karwinskyana*; excluding: *P. compostelae*, restricted to Nayarit). Seven of these species have red petals, and only two (*P. loki-schmidtii* and *P. imbricata*) have white to greenish white or yellow petals. However, all of the species have much longer petals (40–80 mm) than those of the new species proposed

here (15–17 mm). A key for the identification of all species of *Pitcairnia* present in the state of Jalisco, Mexico, is given below.

1. Inflorescence capitate, sessile, peduncle very short or absent, rachis inconspicuous
P. heterophylla
 - Inflorescence racemose, long pedunculate, rachis conspicuous.....2
2. Sepals 9–11 mm long; petals 15–17 mm long, white.....*P. singularis*
 - Sepals 20–30 mm long; petals 40–80 mm long, red, yellow or white to greenish-white3
3. Normal leaf-blades 3–5 cm wide, petiolate, not deciduous along a straight transverse line.....4
 - Normal leaf-blades 0.5–2 cm wide, never petiolate, deciduous along a straight transverse line.....5
4. Floral bract shorter than the pedicel, exposing most or all of the flower; petals red; plants in flower to 60 cm high.....*P. oaxacana*
 - Floral bract covering most or all of the flower; petals yellow or white; plants in flower to 100 cm high.....*P. imbricata*
5. Petals white to greenish white, elliptic, ca. 2.5 cm wide, appendaged, corolla campanulate, actinomorphic*P. loki-schmidtii*
 - Petals red, oblong to oblong-spathulate, 1–1.5 cm wide, not appendaged, corolla tubular, zygomorphic6
6. Pedicels not over 2 mm long7
 - Pedicels 4–30 mm long8
7. Sepals and rachis of inflorescence densely and persistently lepidote*P. roseana*
 - Sepals and rachis of inflorescence glabrous or almost glabrous at anthesis9
8. Flowers clearly secund; floral bracts shorter than some of the pedicels*P. palmeri*
 - Flowers not at all secund; floral bracts equaling or exceeding the pedicels*P. jaliscana*
9. Peduncle bracts lance-triangular, exposing much of the peduncle*P. micheliana*
 - Peduncle bracts broadly ovate, ample, concealing the peduncle.....*P. cylindrostachya*

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