



## *Pitcairnia queroana* (Pitcairnioideae, Bromeliaceae), a striking new species from Chiapas state, Mexico

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### Abstract

*Pitcairnia queroana*, known only from the state of Chiapas, Mexico, is here described and illustrated. The new taxon superficially resembles *P. sulphurea* but differs from it by the presence of long petioles, longer inflorescence with more than 60 flowers, purple calyx, and the conspicuous and dense white-lanate-tomentose indument that covers all the inflorescence. An identification key for the taxa of the genus present in this state is also included.

**Key words:** Chiapas, IUCN Red List, El Triunfo Reserve, *Pitcairnia* subgenus *Pitcairnia*

### Resumen

Se describe e ilustra *Pitcairnia queroana*, conocida únicamente del estado de Chiapas, México. El nuevo taxón presenta semejanzas con *P. sulphurea*, pero difiere de la misma por sus largos pecíolos, sus inflorescencias más largas, con más de 60 flores, su cáliz púrpura y el indumento conspicuo y densamente blanco-lanado-tomentoso que cubre toda la inflorescencia. Se incluye también una clave para la identificación de las especies del género presentes en Chiapas.

**Palabras clave:** Chiapas, Lista Roja IUCN, *Pitcairnia* subgenus *Pitcairnia*, reserva El Triunfo

### Introduction

In 2004, during a working stay in the herbarium of the Missouri Botanical Garden (MO), we had the opportunity to review material from one species of *Pitcairnia* L'Héritier (1789–1790: 5, t. 11), which we could not identify and tentatively had determined as *P. cf. breedlovei* Smith (1966: 455). Recently, when we have been identifying specimens of the family Bromeliaceae collected in Chiapas by the staff of the herbarium Eizi Matuda (HEM), of the Universidad de Ciencias y Artes de Chiapas, we have found additional material of this species. After a detailed examination of the specimens, we have not been able to assign it to any of the previously described species of the genus, so we propose it here as new to science.

*Pitcairnia* with ca. 342 spp. (Luther, 2012) is the second most important genus in Bromeliaceae and is mainly distributed in South America but has an important center of diversification in Mexico. The only species of the family that grows out of America, *P. feliciana* (Chevalier, 1937: 503) Harms & Mildbraed (1938: 118), belongs to this genus. Of the 19 genera of Bromeliaceae present in Mexico (Espejo-Serna *et al.* 2004, Espejo Serna, 2012), *Pitcairnia* occupies the third place in number of taxa, with 46 species (Espejo Serna, 2012). In addition, the genus is notable for the number of endemic taxa present in the country, which reaches 39 species (84.78 %). For the state of Chiapas we had so far reported 15 species (Espejo-Serna *et al.*, 2004) and with this new finding that number increased to 16. Of these, *P. breedlovei*, *P. matudae* Smith (1962: 220), *P. mirandae* Uteley & Burt-Uteley (1998: 304), *P. ocotensis* Beutelspacher & López Velázquez (2008: 30), *P. secundiflora* Smith (1936: 7) and *P. queroana* restrict its distribution to Chiapas (Espejo Serna, 2012). We include an identification key for the taxa of the genus present in this state.

## Taxonomy

### *Pitcairnia queroana* Espejo & López-Ferr., *spec. nov.* (Fig. 1)

This new species is characterized by the following set of characters: monomorphic petiolate persistent leaves; simple, densely lanate-tomentose inflorescence, with 60–100 pedicellate flowers; floral bracts not imbricate but divaricate at anthesis; pedicels slender; purplish-green sepals, and yellow petals with a basal appendage.

**Type**.—MEXICO. Chiapas: municipio de Ángel Albino Corzo (Jaltenango), reserva de la biosfera El Triunfo, aproximadamente 1 km antes del campamento El Triunfo, 15° 40' 11.5" N, 92° 47' 47" W, 1850 m, bosque tropical subperennifolio, 30 March 2007, *J. Martínez Meléndez 1818* (holotype: MEXU 1398883!, isotype: HEM 21837(×3)!).

*Plant* saxicolous, acaulescent, with underground erect rhizomes, flowering 75–120 cm tall, rosettes slightly bulbous at the base. *Roots* fibrous, thin. *Leaves* few, rosulate, monomorphic, petiolate, margins in all parts entire; *sheaths* narrowly triangular to ovate, 4.5–9 cm long, 2.5–3 cm wide at the base, light brown to straw-colored, conspicuously veined, densely white-lanate-tomentose abaxially; *petiole* 20–30 cm long, 2–3 mm width, involute; *blades* green, abaxially with a very distinct paler central thickened vein, linear, 90–125 cm long, 2–5 cm wide at its widest part, glabrous on both surfaces, attenuate towards the apical portion. *Inflorescence* terminal, simple, erect, racemose, polystichous, densely white-lanate-tomentose, including the sepals; *peduncle* erect, terete, 70–77 cm long, 0.8–1 cm in diam. at the base; *peduncle bracts* green to light brown, papyraceous, erect, appressed, triangular-lanceolate, 6.5–30 cm long, 1.5–2 cm wide at the base, entire, acuminate, densely white-lanate-tomentose abaxially, becoming progressively reduced distally; *raceme* terete, 30–40 cm long, 5–7 cm in diam., rachis wholly visible; *floral bracts* chartaceous, light brown to straw-colored, divaricate, narrowly triangular to lanceolate, 23–30 mm long, 5–8 mm wide, longer than the pedicels, acuminate, densely white-lanate-tomentose abaxially. *Flowers* 60–100 per inflorescence, densely disposed, not secund, zygomorphic, pedicellate; *pedicel* slender, 15–17 mm long, ca. 1 mm diam.; *sepals* free, narrowly triangular, ecarinate, purple at the base, green at the apex, apiculate, 17–18 mm long, 5–5.5 mm wide; *petals* free, yellow, oblong-spatulate, 40–46 mm long, 9–11 mm wide, rounded, with a basal, oblong, ca. 6 mm long, ca. 3 mm wide, erose appendage almost wholly adnate to the petal; *stamens* all equal in length, shorter than petals, *filaments* white, filiform, 30–33 mm long; *anthers* yellow, linear, 7–8 mm long, basifixed; *ovary* half superior, ovoid, green, trigonous, ca. 6 mm long, ca. 5 mm in diam.; *style* linear, ca. 35 mm long; *stigma* yellow, conduplicate-spiral (type II sensu Brown & Gilmartin, 1984). *Capsules* dark brown, ovoid, trigonous, 8–11 mm long, 5–6 mm in diam. at the base; *seeds* reddish to light-brown, fusiform, long bicaudate, ca. 5 mm long.

**Etymology**.—The specific epithet honors Dr. Hermilo Jorge Quero Rico (1941–2015), teacher, colleague and friend who dedicated his life to the study of Mexican palms.

**Distribution and Habitat**.—*Pitcairnia queroana* is known until now only from the state of Chiapas, in the municipality of Ángel Albino Corzo. It grows in the biosphere reserve El Triunfo, near the main camp of the reserve, on rocks in cloud forests at an elevation interval from 1500–1850 m a.s.l.

**Additional specimens examined (paratypes)**.—MEXICO. Chiapas: municipio de Ángel Albino Corzo, reserva de la biosfera El Triunfo, mirador Santa Rita, sendero Prusia, 15°40'5"N, 92°47'43.8" W, 1771 m, bosque de coníferas, 30 april 2007, *H. Gómez-Domínguez 1778* (HEM 23074(×2)!); municipio de Ángel Albino Corzo [Jaltenango], El Triunfo Reserve, trail from El Triunfo Camp to Finca Prusia, c. halfway between camp and reserve, 15°41'N, 92°48'W, 1500 m, cloud forest, *R. J. Hampshire, P. J. Stafford, A. Reyes García, M. Heath & A. Long 809* (MA 540348!, MO 3999785!).

**Comments**.—The new taxon belongs to the subgenus *Pitcairnia* (Smith & Downs, 1974) because the seeds are long bicaudate. *P. queroana* has a set of features that clearly distinguish it from any other Mexican and Central American species of the genus. The only known population of *P. queroana* grows in Polygon I of the Biosphere Reserve El Triunfo. This reserve is located in the mountains of the Sierra Madre de Chiapas, just with the northern limits of the Soconusco region. Five core areas or “polygons” totaling 30 000 hectares have been identified for key protection, with the intention that the forests remain intact and free from human disturbance. Polygon I, the most accessible and large of the five polygons, has an extension of 10 000 hectares. Only the I, III, and V core areas have been studied floristically (Long & Heath, 1991; Martínez-Meléndez *et al.*, 2008; Pérez-Farrera *et al.*, 2012). The species of *Pitcairnia* cited for these areas are *P. heterophylla* (Lindley 1840: t. 71) Beer (1857: 68), *P. imbricata* (Brongniart 1841: 369) Regel (1868: 135, t. 579), *P. wendlandii* Baker (1881: 306) and *P. saxicola* Smith (1937: 29). The last one listed as *Pitcairnia* sp. CAPB70 (in Martínez-Meléndez *et al.*, 2008).



FIGURE 1. Holotype of *Pitcairnia queroana* Espejo & López-Ferr.

As far as we know, the plants of *P. queroana* are not used by the inhabitants of the region, so we think that the species has not immediate human pressure, however, and due to the lack of detailed information about the precise distribution of the species we suggest to include it in the Data Deficient (DD) category of the UICN (2003).

*Pitcairnia queroana* superficially resembles *P. sulphurea* Andrews (1802: t. 249) but differs from it by the presence of long petioles, 20–30 cm long (vs. absent or the blade shortly contracted toward the base in *P. sulphurea*), its longer inflorescence with more than 60 flowers (vs. < 50), the purple calyx (vs. green to yellow-green), and the conspicuous and dense white-lanate-tomentose indument (vs. glabrous to sparsely floccose), that covers all the inflorescence. Moreover, *P. sulphurea* is endemic from St. Vincent in the Windward Islands, Lesser Antilles.

In the Flora Neotropica (Smith & Downs, 1974) and Flora Mesoamericana (Utley & Burt-Utley, 1994), *P. queroana* keys out into the group of *P. recurvata* (Scheidweiler 1842: 275) Koch (1858: app. 4) and *P. brachysperma* André (1888: 13), but the new taxon differs from these two species by the characters showed in table 1.

**TABLE 1.** Comparative characters of *Pitcairnia queroana* with *P. sulphurea*, *P. brachysperma*, and *P. recurvata*.

	<i>P. queroana</i>	<i>P. sulphurea</i>	<i>P. brachysperma</i>	<i>P. recurvata</i>
Floral Bracts	narrowly triangular to lanceolate, divaricate 2.3–3 × 0.5–0.8 cm	narrowly triangular, erect 3–5.5 × 0.4–0.5 cm	ovate, erect 1.5–2.3 × 0.5–0.7 cm	ovate-triangular, erect 3–4.5 × 1.5–2 cm
Pedicels length	15–17 mm	7–11 mm	8 mm	2–9 mm
Flowers	straight to slightly arcuate	straight to slightly arcuate	straight to slightly arcuate	strongly arcuate
Inflorescence indument	white-lanate-tomentose	glabrous to sparsely floccose	sparsely floccose	glabrous to sparsely lepidote
Flowers per inflorescence	60–100	30–40	15–20	40–60
Petal color	yellow	yellow	red or purple	white to yellowish-white
Distribution	Mexico (Chiapas)	Lesser Antilles (St. Vincent)	Colombia	Mexico (Chiapas, Oaxaca, Tabasco, Veracruz), Belice, and Guatemala

### Key to the species of *Pitcairnia* present in Chiapas

1. Leaf-blades deciduous along a basal transverse dehiscence line, not petiolate .....2
- Leaf-blades persistent, without a conspicuous basal transverse dehiscence line, often petiolate .....4
2. Peduncle very short or absent; petals with internal basal appendages ..... *P. heterophylla*
- Peduncle elongate, conspicuous; petals without internal basal appendages .....3
3. Sepals 4–4.5 cm long..... *P. saxicola*
- Sepals 2–3 cm long..... *P. calderonii*
4. Petioles absent or if present less than 10 cm long.....5
- Petioles present, over 10 cm long.....8
5. Petals red; leaves arranged in a rosette appressed to the substrate; inflorescence dense, strobiliform, the rachis not visible.....
- ..... *P. tabuliformis*
- Petals white, yellowish-green or rose; leaves arranged in erect, never appressed rosettes; inflorescence lax, the rachis conspicuous.....6
6. Flowers conspicuously secund; corolla white ..... *P. secundiflora*
- Flowers not secund; corolla yellow to yellowish-green or rose .....7
7. Petals yellowish-green, 4–4.5 cm long; the keel of the adaxial sepals undulate, ca. 2 mm wide at its widest part ..... *P. breedlovei*
- Petals rose, 3.5–4.1 cm long; the keel of the adaxial sepals straight, ca. 1 mm wide at its widest part..... *P. mirandae*
8. Floral bracts imbricate, erect, appressed; rachis completely covered by the floral bracts .....9
- Floral bracts not imbricate, divaricate to ascendent; rachis visible, not covered by the floral bracts .....12
9. Leaf margins entire .....10
- Leaf margins serrate, at least on the base of the blade or the petiole .....11
10. Petals white; sepals ca. 4 cm long ..... *P. carioana*
- Petals yellow to yellowish-green; sepals 2–3 cm long..... *P. wendlandii*

11. Inflorescence, including peduncle, 35–60 cm long; floral bracts 5–7 cm long, chartaceous, with the apex erect, appressed..... *P. imbricata*  
 - Inflorescence, including peduncle, 13–15 cm long; floral bracts ca. 4.5 cm long, membranaceous, with the apex divaricate to ascendant..... *P. matudae*
12. Floral bracts less than 2 cm long..... 13  
 - Floral bracts over 2 cm long..... 15
13. Leaf-blades 10–15 cm wide; petals red, 3.5–5.5 cm long..... *P. undulata*  
 - Leaf-blades 6–7 cm wide; petals yellow, 4–7 cm long..... 14
14. Sepals red, 2.5–2.8 cm long; petals ca. 7 cm long..... *P. ocotensis*  
 - Sepals yellow, 1.7–2 cm long; petals 4–5 cm long..... *P. chiapensis*
15. Petals without internal basal appendage(s)..... *P. carioana*  
 - Petals with internal basal appendage(s)..... 16
16. Corolla white to yellowish-white; pedicels stout; floral bracts erect, 3–4.5 × 1.5–2 cm; petals 10–11 cm long; inflorescence glabrous to sparsely floccose..... *P. recurvata*  
 - Corolla yellow; pedicels slender; floral bracts divaricate, 2.3–3 × 0.5–0.8 cm; petals 4–4.6 cm long; inflorescence densely white-lanate-tomentose..... *P. queroana*

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