



## *Tillandsia religiosa*, a new species from the state of Morelos, México

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### Abstract

*Tillandsia religiosa* Hern.-Cárdenas, González-Rocha, Espejo, López-Ferr., Cerros & Ehlers, a new species from Morelos, Mexico is described and illustrated. The new species is compared to taxa with similar characteristics, *T. taxcoensis* Ehlers, *T. thyrSIGERA* E. Morren ex Baker and *T. superinsignis* Matuda. Images and a distribution map of the new taxon are included.

### Resumen

Se describe e ilustra *Tillandsia religiosa* Hern.-Cárdenas, González-Rocha, Espejo, López-Ferr., Cerros & Ehlers con material procedente del estado de Morelos, México. La nueva especie se compara con *T. taxcoensis* Ehlers, *T. thyrSIGERA* E. Morren ex Baker y *T. superinsignis* Matuda, las cuales presentan características similares. Se incluyen imágenes y un mapa de distribución del nuevo taxon propuesto.

### Introduction

In the course of the projects “Vascular plants of the barranca Tepecapa, Tlayacapan, Morelos,” and “Bromeliad Flora of Morelos,” we found plants of a huge and beautiful saxicolous *Tillandsia*. After a detailed revision of bibliographic and herbarium material we concluded that this material belongs to a new taxon of the genus, which we propose as:

*Tillandsia religiosa* Hern.-Cárdenas, González-Rocha, Espejo, López-Ferr., Cerros & Ehlers, *sp. nov.* Fig. 1 A–F.

*Tillandsia religiosa* is similar to *T. taxcoensis* Ehlers from which it differs by having oblong-elliptic vs. ovate leaf-sheaths, its shorter spike stipes, flowers 9–16 vs. 5–6 per spike, and its glabrous and pruinose vs. densely cinereous-lepidote flower bracts.

Type:—MEXICO, Morelos, municipio de Tlayacapan: 920 m al SW de San José de los Laureles (en línea recta), rumbo a la barranca Tepecapa, taludes en bosque tropical caducifolio y bosque de *Quercus*, 1800 m, 18°58'29" N, 99°00'25" W, 23 January 2011, A. Espejo, R. A. Hernández-Cárdenas, R. Cerros T., J. Espejo, A. Flores-Morales, L. J. Hernández Barón y J. Mora 7419 (holotype UAMIZ(x4)!, isotypes IEB(x3)!).

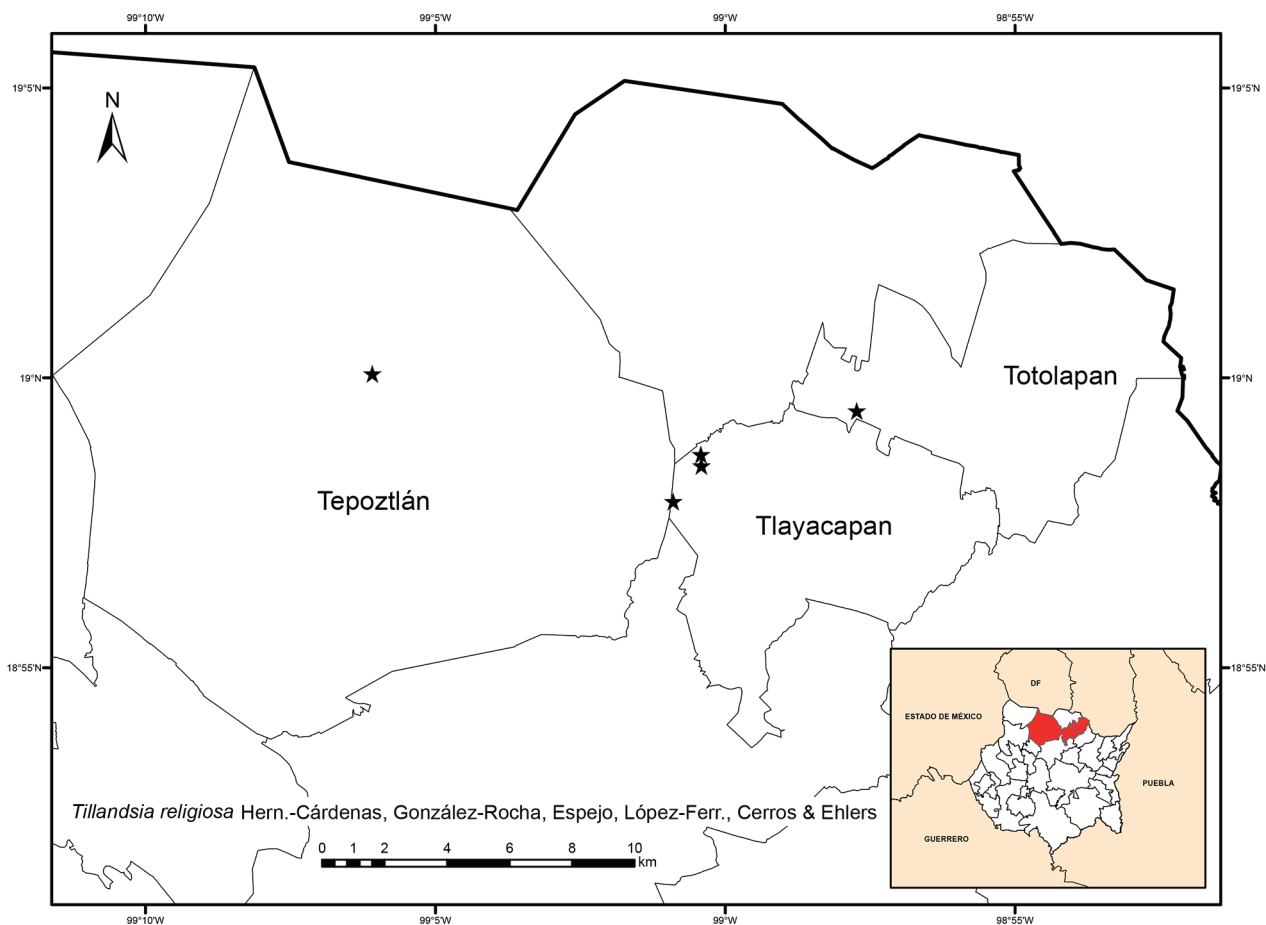
*Plant* saxicolous, stemless, solitary, flowering 0.8–1.5 m tall; rosette of the tank type, 35–50 cm high, 25–30 cm in diameter in the broadest part. *Leaves* numerous, rosulate; *sheaths* pale brown abaxially, dark brown adaxially, oblong-elliptic, densely punctulate-lepidote on both surfaces, glabrous towards the base, 16.5–23 cm long, 7.8–11.2 cm wide, entire; *blades* green, narrowly triangular, densely punctulate-lepidote abaxially and sparsely punctulate-lepidote adaxially, 50–64 cm long, 3.8–7 cm wide, long attenuate, entire. *Inflorescence* terminal, erect, once branched of 15–



**FIGURE 1.** *Tillandsia religiosa* A. Inflorescence. B. Spike with primary bract. C. Flower with floral bract. D. Flower. E. Petals dissected. F. Androecium and gynoecium. Photos. A. Espejo

23 suberect to ascending spikes; *peduncle* green, terete, erect, glabrous, 25–55 cm long, 0.8–1.9 cm diameter, fully covered by the sheaths of the bracts; *peduncle bracts* green, densely lepidote, longer than the internodes, gradually decreasing in size toward the apical portion of the peduncle, 26–61 cm long, imbricate, the lower ones foliaceous, the apical ones with the sheaths ovate, 4.5–5 cm long, 3.5–5.5 cm wide, the blades narrowly triangular, 21–22 cm long, 1.2–2 cm wide; *primary bracts* green to rose, gradually decreasing in size towards the apical portion of the inflorescence, shorter than the spikes, sparsely punctulate-lepidote adaxially, glabrous at the base and densely lepidote in the apical portion abaxially, 4–21 cm long; the apical ones rose, vaginiform, ovate-elliptic, 4–5.5 cm long, 1.7–1.9 cm wide, the basal ones green, foliaceous, similar in shape and size as the apical peduncle bracts, with the sheaths ovate, 5.3–4.5 cm long, 3.3–4.7 cm wide, the blades reflexed, narrowly triangular, 11.5–16 cm long, 1–1.5 cm wide; *spikes* long stipitate, somewhat flattened, linear, (18–)20–26 cm long, 2–2.4 cm wide; *stipes* bracteate, (7–)14–28 **cm long**; *floral bracts* rose, greenish toward the basal margins, ovate when flattened, glabrous and pruinose, sparsely lepidote towards the apical margins abaxially, densely lepidote adaxially, imbricate, slightly carinate towards the apex, conspicuously veined towards the apical portion, 3.7–4.3 cm long, 1.5–1.7 cm wide, acute, longer than internodes and sepals; *flowers* distichous, appressed to the rachis, 9–16 per spike, actinomorphic, tubiform; *sepals* free, light green, narrowly ovate, glabrous, entire, 2.9–3.4 cm long, 1–1.4 cm wide, acute, the 2 adaxial ones slightly carinate; *petals* green in apical portion, white in basal portion, narrowly oblong-elliptic, glabrous, 4.7–5.6 cm long, 7.8–8.7 mm wide, acute and with reflexed margin at the apex; *stamens* subequal, longer than petals, filaments free, green in apical portion, white in basal portion, filiform and twisted in the basal portion, 4.4–6.5 cm long; *anthers* yellow, narrowly oblong, 3.6–6 mm long, 1–1.6 mm wide; *ovary* green, ovoid, 6.5–8.8 mm long, 2–4 mm diameter; *style* green at the apex, white in the basal portion, filiform, 5–6.7 cm long, longer than petals and stamens; *stigma* green, conduplicate-spiral (Brown & Gilmartin, 1984), ca. 2 mm long. *Fruit* and *seeds* unknown.

**Distribution and habitat:**—*Tillandsia religiosa* is known from the northern region of the state of Morelos (Map 1) where it grows on rocky cliffs or vertical walls (Figure 2A) in tropical deciduous forest, coniferous forest, oak forest, and cloud forest in the municipalities of Tepoztlán, Totolapan, and Tlayacapan. The plants occur between 1,800 and 2,100 m elevation. *Tillandsia religiosa* blooms from December to March (Figure 2D).



MAP 1. Geographical distribution of *Tillandsia religiosa*



**FIGURE 2.** A–B, D. *Tillandsia religiosa* A. Habit (type collection). B. Plants used as ornaments in “nacimiento” at Tlayacapan. D. Detail of a spike with a flower. C. *Tillandsia taxcoensis*, detail of some spikes with flowers.

**Etymology:**—Specific epithet refers to the religious-ornamental use of these plants by the people of the villages of the Sierra de Tepoztlán, like Tlayacapan, Tepoztlán and San José de los Laureles. The entire plants or the inflorescences are used in altar scenes (“nacimientos”) during Christmas celebrations (Figure 2B).

**Comments:**—Because of its saxicolous habit, rosette and inflorescence morphology, *Tillandsia religiosa* could be confused, particularly in herbarium material, with *T. superinsignis* Matuda (1973: 189), and with *T. thyrsigera* E Morren ex Baker (1889: 185). However, these two last species have violet corollas, while the new taxon has green petals. *Tillandsia religiosa* is also similar to *T. taxcoensis* Ehlers (1996: 26) (Figure 2C, D), as both species have similar type of inflorescences and green petals, but there are clear differences between the two taxa that are shown in table 1 and figure 2C, D.

**TABLE 1.** Comparative characters of *Tillandsia religiosa* Hern.-Cardénas, González-Rocha, Espejo, López-Ferr., Cerros & Ehlers and *T. taxcoensis* Ehlers.

	<i>Tillandsia religiosa</i>	<i>Tillandsia taxcoensis</i>
Leaf sheaths	oblong-elliptic, 7.8–11.2 cm wide	widely ovate, 11.8–12.5 cm wide
Floral bracts	pruinose, for most part glabrous, only abaxially sparsely lepidote at the apical margin	densely cinereous-lepidote abaxially
Flowers per spike	9 to 16	5 to 6
Stipe length	(7–)14–28 cm	11.5–18.5 cm
Petal length	4.8–5.6 cm	5.5–6 cm
Distribution	Morelos, in the Sierra de Tepoztlán	Guerrero, vicinity of Taxco

**Additional specimens examined (paratypes):**—MEXICO, Morelos, municipio de Tepoztlán: at St. Catarina on steep walls, 1700 m, 4 March 1990, K. & R. Ehlers EM900401, (MEXU, WU); sendero a la zona arqueológica del Tepozteco, 2100 m, 19°00'04.38" N, 99°06'05.18" W, March 2013, E. González-Rocha 235 (UAMIZ); municipio de Tlayacapan, barranca Tepecapa, 1950 m 18°57'52.42" N, 99°00'53.72" W, 23 January 2011, R. A. Hernández-Cárdenas, R. Cerros-Tlatilpa, A. Flores-Morales & L. J. Hernández-Barón 624 (IEB, IZTA, UAMIZ); barranca Tepecapa, 1814 m, 18°58'40.71" N, 99°00'25.35" W, 23 January 2011, R. A. Hernández-Cárdenas, R. Cerros Tlatilpa, A. Flores-Morales & L. J. Hernández-Barón 637 (IEB, MEXU, UAMIZ), 638 (HUMO, IEB, MEXU, UAMIZ); municipio de Totolapan, 600 m al E de San Sebastián la Cañada (en línea recta), ladera E del cerro, 1920 m, 18°59'26" N, 98°57'44" W, 15 December 2013, E. González-Rocha, R. Cerros Tlatilpa, A. Espejo, A. R. López-Ferrari & L. J. Hernández-Barón 302 (photo UAMIZ).

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