

# *Hechtia caulescens* (Bromeliaceae), a New Species from Central Mexico

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**ABSTRACT.** *Hechtia caulescens* López-Ferrari, Espejo & Martínez-Correa (Bromeliaceae), known from the states of Morelos, Puebla, and Oaxaca in Mexico, is described and illustrated. The new species is compared with *H. stenopetala* Klotzsch, from which it differs by its larger flowers and floral bracts, and by its twice-branched inflorescences.

**RESUMEN.** Se describe e ilustra *Hechtia caulescens* López-Ferrari, Espejo & Martínez-Correa (Bromeliaceae), conocida de los estados de Morelos, Puebla y Oaxaca, México. La nueva especie se compara con *H. stenopetala* Klotzsch, de la cual difiere por sus flores y brácteas florales más grandes y por sus inflorescencias más ramificadas.

**Key words:** Bromeliaceae, *Hechtia*, IUCN Red List, Mexico, Puebla.

Of the 18 genera of Bromeliaceae present in Mexico, *Hechtia* Klotzsch is particularly interesting due to its significant specific representation and its high level of endemism. With ca. 55 accepted species (Burt-Utley & Utley, 1987; Espejo et al., 2004, 2007a, 2008; Luther, 2006) and at least eight more species to be described (Espejo et al., 2007b), *Hechtia* is an almost entirely Mexican genus, with 50 species (90.9%) endemic to the country.

As part of our ongoing fieldwork for a monograph on Mexican Bromeliaceae, we collected plant material of an undescribed taxa of *Hechtia* and propose it here as new.

***Hechtia caulescens*** López-Ferrari, Espejo & Martínez-Correa, sp. nov. TYPE: Mexico. Puebla: Mun. Izúcar de Matamoros, 2 km adelante de El Tepenene, carr. Izúcar-Acatlán, 18°28'42"N, 98°23'20"W, 1235 m, selva baja caducifolia, 20 jul. 2006 (♀), N. Martínez C., A. Espejo, A. R. López-Ferrari & J. García-Cruz 58 (holotype, UAMIZ; isotypes, IEB, MEXU). Figure 1.

Haec species quoad flores albos parvos ac habitum caulescentem *Hechtiae stenopetae* Klotzsch similis, sed ab ea floribus et bracteis floralibus majoribus atque inflorescentia bis ramosa distinguitur.

*Herbs* dioecious, terrestrial or saxicolous, caespitose, rosette-forming and long caulescent, forming large colonies, flowering 0.86–1.87 m high, the rosettes extended, actinomorphic, ca. 40 cm diam.; *stems* cylindrical, prostrate or decumbent at the apex, 22–30 × 3–3.7 cm diam. *Leaves* numerous, fleshy; sheaths amplexicaulous, light brown, lustrous, depressed-ovate, 3.2–4.7 × 4.9–6 cm, basally lustrous on both surfaces, apically white lepidote on both surfaces; blades erect to slightly curved at the apex, green to dark green, linear, 29–40 × 1.8–3 cm, densely white lepidote on both surfaces, long acuminate and apiculate, the margin loosely spiny with brown curved ascendant spines, 1.9–4 mm long, 1.5–1.9 cm apart. *Inflorescence* terminal, erect, paniculate, with numerous, densely packed flowers. *Staminate inflorescence* 0.86–1.6 m high, twice branched, scape cylindric, 30–56 cm × 4–12 mm diam., green, glabrous; *scape bracts* light brown, foliaceous, glabrous, entire; sheaths ovate to triangular, 1–1.4 × 1.1–1.2 cm; reduced blades linear, 4.2–7 cm × 3–4 mm, acuminate and apiculate, shorter than the internodes, reducing their length gradually to the apex; *primary branches* 1 per node, ascendant to erect, with the basal sterile portion flattened, 10–22 cm, each with 3 to 15 secondary branches; *primary bracts* light brown, ovate to triangular, 7–11 × 5–7 mm, slightly erose, acuminate; *secondary branches* 1 per node, ascendant, cylindric, 4.5–7 cm × 5–7 mm diam.; *floral bracts* light brown, triangular, acuminate, 2.2–2.5 × 1.3–1.7 mm, entire; *staminate flowers* ascendant to divaricate, sessile to subsessile; *sepals* light brown to brown basally, ovate-triangular, 2.1–2.2 × 1.6–1.8 mm, obtuse, entire; *petals* white, elliptic, 3.5–4 × 2–2.5 mm, rounded; *stamens* subequal, longer than the petals, filaments white, laminar, 2.8–3 mm, anthers white to whitish yellow, oblong, ca. 1 mm; *ovary* vestigial. *Pistillate inflorescence* to 87 cm high, twice branched, scape cylindric to 1 m × ca. 1.5 cm diam., green, glabrous; *scape bracts* light brown, foliaceous, glabrous, entire; sheaths ovate to triangular, 1–1.4 × 1.1–1.2 cm; reduced blades linear, 4.2–7 cm × 3–4 mm, acuminate and apiculate at the apex, shorter than the internodes, reducing their

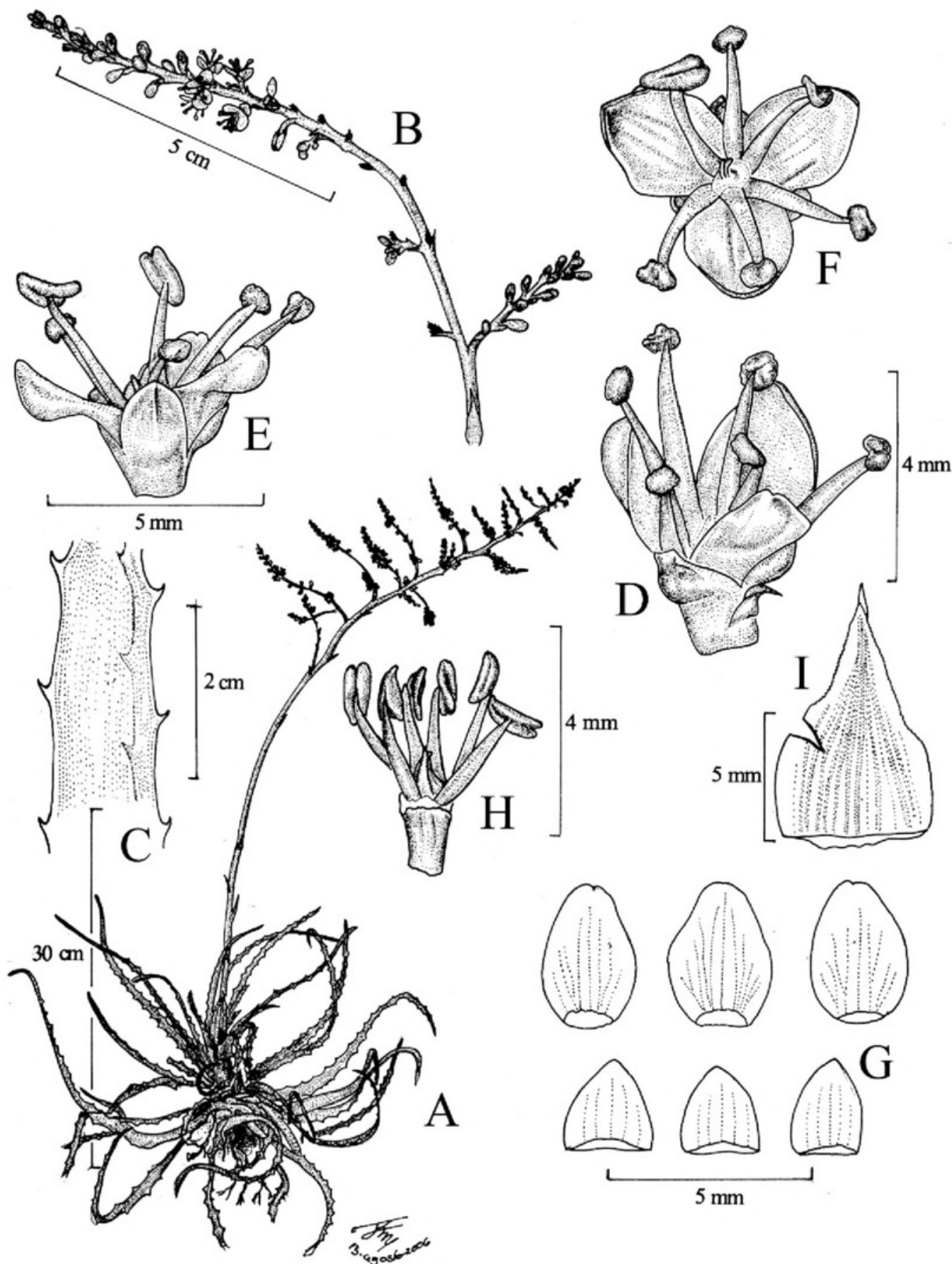


Figure 1. *Hechtia caulescens* López-Ferrari, Espejo & Martínez-Correa. —A. Habit. —B. Primary branch of inflorescence. —C. Margin of leaf. —D, E. Staminate flowers, side view. —F. Staminate flower, front view. —G. Dissected tepals, staminate flower. —H. Androecium. —I. Primary bract, staminate inflorescence. Drawn from Martínez C. et al. 68 (UAMIZ).

length gradually to the apex; *primary branches* 1 per node, ascendant, with the basal sterile portion flattened, (2–)6–24 cm long, each with (2)6 to 18 secondary branches; *primary bracts* light brown,

triangular to widely triangular, 12–15 × 4.5–6 mm, entire, glabrous, narrowly acuminate; *secondary branches* 1 per node, ascendant, cylindric, 2.5–9 cm × 5–7 mm diam.; *floral bracts* light brown, triangular,

Table 1. Morphological differences between *Hechtia caulescens* and the affined *H. stenopetala*. The *H. stenopetala* data were based on the revision of 34 specimens examined by the authors from CICY, ENCB, MEXU, MO, and XAL.

	<i>H. caulescens</i>	<i>H. stenopetala</i>
Inflorescence	twice branched, with 3 to 15 (♂) or 6 to 18 (♀) well-developed secondary branches	once branched or basally twice branched, with 2 barely developed secondary branches
Pistillate flowers	sepals triangular, 2.7–3.7 × 1.3–1.7 mm; petals 3.4–3.8 × 1.1–1.4 mm; ovary ovoid to long-ovoid, 3.3–3.9 × 1.2–1.5 mm	sepals triangular to ovate, 1.4–2.3 × 1–2 mm; petals 2.5–3 × 1.3–1.6 mm; ovary ellipsoid, 3–4 × ca. 2 mm
Staminate flowers	sepals ovate-triangular, 2.1–2.2 × 1.6–1.8 mm; petals elliptic, 3.5–4 × 2–2.5 mm, rounded; stamens 2.8–3 mm; anthers white to whitish yellow, ca. 1 mm	sepals elliptic to widely triangular, 1.8–2.1 × 1.2–1.7 mm; petals widely elliptic to widely oblong, 2.5–3 × 1.8–2 mm, rounded; stamens 2–3 mm; anthers green, 1.1–1.3 mm
Pistillate floral bracts	triangular, ca. 2 mm, acuminate	oblong to triangular, 0.9–1.1 mm, rounded
Staminate floral bracts	triangular, 2.2–2.5 mm, acuminate	oblong to elliptic, 0.7–1.2 mm, acute
Leaf sheaths	depressed-ovate, 3.2–4.7 × 4.9–6 cm	ovate to widely ovate or oblong, 3.5–6 × 4.2–6 cm
Distribution	Morelos, Puebla, and Oaxaca	Veracruz

acuminate, ca. 2 × 1.8 mm, slightly erose; *pistillate flowers* ascendant to adpressed, shortly pedicellate, pedicels 1.3–1.7 mm; *sepals* greenish brown, triangular, acute, 2.7–3.7 × 1.3–1.7 mm, entire; *petals* white, narrowly triangular, acute, 3.4–3.8 × 1.1–1.4 mm, entire; *ovary* green, ovoid to long-ovoid, 3.3–3.9 × 1.2–1.5 mm diam., glabrous, stigma branches 1–1.5 mm; staminodes 6, laminar, 1.6–1.8 mm, white, lacking anthers. *Capsule* narrowly ovoid to narrowly conical, pale brown, 8.5–10 × 3.2–4.3 mm diam.; *seeds* ellipsoid to oblong, 2.8–4 × ca. 1 mm diam., winged around seed circumference, the wing more conspicuous distally.

**Distribution and habitat.** *Hechtia caulescens* is known from the states of Morelos, Puebla, and Oaxaca, where it grows in arid scrub and tropical deciduous forest on rocky talus, slopes, and valleys, at altitudes of about 1200–1600 m.s.m., forming extensive colonies.

**IUCN Red List category.** The known populations of the *Hechtia caulescens* are widespread and usually form extensive colonies. Apparently, the plants are not used by the inhabitants of the region, thus we believe that the populations of *H. caulescens* are not subject to anthropogenic pressure. However, because of the absence of detailed information about the species distribution and precise population data we suggest the new species be considered Data Deficient (DD) according to IUCN Red List criteria (IUCN, 2001).

**Phenology.** *Hechtia caulescens* has been collected in flower during July and August, and the fruits have been found in August.

**Etymology.** The specific epithet refers to the conspicuous, long, and prostrate to decumbent stems that characterize the new species.

**Discussion.** By its small white flowers and caulescent habit, *Hechtia caulescens* is phenetically similar to *H. stenopetala* Klotzsch, from which it differs by its larger flowers and floral bracts, its twice-branched inflorescence, and its distribution and habitat (Table 1). *Hechtia stenopetala* is endemic to the state of Veracruz, where it grows in oak forests and tropical (semi-)deciduous forests between 100 and 850 m.s.m. (Espejo et al., 2005).

**Paratypes.** MEXICO. **Morelos:** Mun. Jantetelco, Peñón de Chalcatzingo, ca. la zona arqueológica, 18°40'42"N, 98°46'19"W, 21 Aug. 1999, ♀, A. Espejo, A. R. López-Ferrari, J. García-Cruz & R. Jiménez M. 5890 (UAMIZ [3]). **Oaxaca:** Distr. Huajuapán, Mun. Huajuapán de León, 5 km después de Huajuapán, rumbo a Juxtlahuaca, 17°45'32"N, 97°47'47"W, 21 jul. 2006, ♀, N. Martínez C., A. Espejo, A. R. López-Ferrari & J. García-Cruz 65 (UAMIZ), ♂, N. Martínez C., A. Espejo, A. R. López-Ferrari & J. García-Cruz 66 (UAMIZ); Mun. San Marcos Arteaga, 2 km adelante de San Marcos Arteaga, rumbo a Juxtlahuaca, 17°43'5"N, 97°52'21"W, 21 jul. 2006, ♂, N. Martínez C., A. Espejo, A. R. López-Ferrari & J. García-Cruz 67 (UAMIZ [photos]), ♂, N. Martínez C., A. Espejo, A. R. López-Ferrari & J. García-Cruz 68 (UAMIZ [illustration voucher]); Mun. Santiago Cacaloxtotec, 15.5 km después de Huajuapán de León, rumbo a Tamazulapán, 17°44'33"N, 97°42'34"W, 8 nov. 2004, ♀, A. R. López-Ferrari, A. Espejo, J. Ceja & A. Mendoza R. 3131 (UAMIZ). **Puebla:** Mun. Acatlán, 15 km S of Acatlán, ♀, Boutin & Hunt 3934 [seed cultivated at Huntington Botanical Garden 34230] (US); Mun. Guadalupe, paraje Río Grande (Río Mixteco) 3 km al SW de Chiltepec, 22 Aug. 1988, ♀, A. Castañeda 223 (CHAP, MEXU, UAMIZ); Mun. Izúcar de Matamoros, 2 km adelante de El Tepenene, carr. Izúcar–Acatlán, 18°28'42"N, 98°23'20"W, 1235 m, selva baja caducifolia, 20 jul. 2006, ♂, N. Martínez C., A. Espejo, A. R. López-Ferrari & J. García-Cruz 57 (UAMIZ).

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