**Monstera florescanoana** (Araceae), a new species from central Veracruz, Mexico

**Monstera florescanoana** (Araceae), una especie nueva de la región central de Veracruz, México

Thomas B. Croat¹, Thorsten Krömer²* and Amparo Acebey²

¹Missouri Botanical Garden, St. Louis, Missouri, USA.
²Centro de Investigaciones Tropicales, Universidad Veracruzana, Interior de la Ex-hacienda Lucas Martín, Privada de Aracuarias s/n, Col. 21 de Marzo, 91019 Xalapa, Veracruz, México.
*Correspondent: tkromer@uv.mx

**Abstract.** *Monstera florescanoana* (Araceae), a new species in section *Monstera*, endemic to central Veracruz, Mexico, is described and illustrated. This species appears to be most closely related to *Monstera siltepecana* Matuda and *Monstera dubia* (Kunth) Engl. et K. Krause.

**Key words:** Araceae, aroids, humid montane forest, Mexico, *Monstera*, Veracruz.


**Palabras clave:** Araceae, aráceas, bosque húmedo montano, México, *Monstera*, Veracruz.

**Introduction**

The family of plants Araceae is mainly tropical with its highest diversity of species in Asia and tropical America (Croat, 1998). In Mexico 109 species and 13 genera have been recorded, with *Anthurium*, *Philodendron* and *Monstera* being the most speciose genera (Croat and Carlsen, 2003). The majority of the species are concentrated in the tropical zones of the states of Chiapas, Oaxaca and Veracruz, the latter harboring about 50% of the total Mexican species, of which about 65% occur in the southeastern region of Los Tuxtlas (Sosa and Gómez-Pompa, 1994; Acebey and Krömer, 2008). Veracruz still presents several botanically little explored areas, especially at the southern border with the states of Oaxaca and Chiapas, and therefore it was expected that its number of aroid species will increase.

*Monstera* is a genus of about 40 species of climbing hemiepiphytes ranging from Mexico to Brazil and Bolivia, where these occur in tropical moist and humid forest, as well as in cloud forest (Mayo et al., 1997). Leaf development is heteroblastic with markedly different leaf forms, depending on the stage of development. The genus is divided into four sections: *Tornelia* and *Echinospadix*, each with a single species; and *Monstera* and *Marcgraviopsis*, the former having juvenile leaves free and exerted, and tightly appressed in the latter (Madison, 1977, Mayo et al., 1997). The Latin word *monstrum* (monster) refers to the peculiar perforations (fenestrae) of the leaves of many species.

During field work for a project involving investigation and education on endemic and notable plants of Veracruz, T. Krömer and collaborators from the Centro de Investigaciones Tropicales (CITRO), Universidad Veracruzana in Xalapa, state of Veracruz, Mexico made a collection of *Monstera* in a cloud forest fragment in the Atzalan municipio, located in the central region of Veracruz. This material could not be assigned to any known species.

**Description**


**Planta hemiepiphytica; internodia 1.8–3(6) cm longa, (4)5–10 mm diametro in sicco, laevia; petiolus 17–24...**

Recibido: 03 abril 2009; aceptado: 30 octubre 2009
Figure 1. Monstera florescanoana. A, habit, showing the disposition of leaf blades and a single inflorescence; B, leaf blade showing the distribution of the fenestrae; C, close-up of a portion of stem showing a single spadix in post-anthesis condition. Drawn by S. E. Ramos-Castro from T. Krömer et al. 3334.

cm longus, subteres; lamina 14.3–34 cm longa, 5.2–20.5 cm lata, infra glauca; utroque costae latere 3-6 nervis primariis, 2–4(6) fenestris in serie unica, raro biseriatis in laminis adultis majoribus; pedunculus 2–5.7 cm longus; spadix sessilis vel stipitata ad 10 mm, 6.7–9.5 cm longa, ad 6.2 cm diametro, 2.3–3 cm lata in sicco.

Hemiepiphyte to 3-5 m. Juvenile plants: terrestrial creeper,
leaves free and exserted, lamina ovate to ovate-lanceolate, cordate at the base, without or with few fenestrae. Adult plants: internodes 1.8–3(6) cm long, drying (4)5–10 mm in diameter dark brownish black, matte, appearing smooth to the naked eye, finely and closely ridged on magnification; petioles smooth, 17–24 cm long, subterete, drying sharply and narrowly sulcate throughout, especially toward apex, sheathed to 2/3 or sometimes to within less than 1 cm from blade, the sheath inconspicuous, inrolled and persistent intact; geniculum 1.5 cm long, slightly darker than the remainder of the petiole; blades ovate 14.3–34 cm long, 5.2–20.5 cm wide, averaging 27.7 x 16 cm, 1.2–1.5 times longer than wide, inequilateral, one side 0.7–2 cm wider, gradually long-acuminate on larger leaves, abruptly acuminate on smaller, more rounded blades at apex, rounded to weakly subcordate at base, dark green and subcoriaceous, weakly bicolorous, semiglossy on both surfaces, drying thinly coriaceous, grayish black, matte above, matte to weakly glossy, glaucous below in living plants, sometimes semiglossy on younger blades; sinus arcuate, 0.5–1 cm deep; midrib obtusely sunken and concordous above, narrowly rounded and concordorous to slightly darker on drying below; primary lateral veins 3–6 pairs, arising at a steep angle then spreading at 45–55° angle; fenestrate usually on both sides, sometimes lacking fenestrae on one side mostly on young or preadult leaves, the fenestrae to within 0.5–1.1 mm from the midrib, usually with 2–4 in 1 series per side, rarely on the largest adult leaves in 2 series per side, (0)2–4 on the narrow side, 2–4(6) on the broader side, 1.5–9.5 cm long, 0.7–4.8 cm wide, ellipsoid to ovate; reticulate veins moderately obscure but moderately interconnected near the margins.

Inflorescence: peduncle 2–5.7 cm long; spadix sessile or stipitate to 10 mm (stipe drying 3 mm in diameter), 6.7–9.5 cm long; 2.3–3 cm wide, stigma dark brown, matte, deeply sunken medially on drying, drying black with a medium brown margin.

Remarks

The species is a member of section Monstera because its juvenile leaves are free and exserted (Fig. 2A), and thus similar to the juveniles of Monstera egregia Schott, a known species in section Monstera. The species is closely related to Monstera siltipeca Matuda, from which it differs in having smaller petioles and geniculum, and blades that are glaucous below on living plants, fewer perforations that are only in 1 (rarely 2) series of each side and fewer primary lateral veins, a frequently persistent petiole sheath and a smaller inflorescence (peduncle and spadix) but shares with M. siltipeca the same drying color and texture, even the same venation (Table 1).

Monstera florescanoana may also be confused with Monstera dubia (Kunth) Engl. et K. Krause, and would key to that species in Madison’s revision of Monstera (Madison, 1977). That species ranges from Mexico (Chiapas) to the Amazon basin in South America (Table 1). Monstera dubia differs from M. florescanoana in having typically thicker stems which are usually densely tuberculate, leaf blades thicker with more conspicuous tertiary venation, larger petioles, geniculum and leaves, as well as a larger inflorescence, and furthermore, it belongs to section Marcgraviopsis.
Table 1. Comparison of morphology and distribution of Monstera florescanoana with similar species M. siltepecana and M. dubia. Data taken from Madison (1977) and Tropicos.org (2009)

<table>
<thead>
<tr>
<th></th>
<th>M. florescanoana Croat, T. Krömer et A. Acebey</th>
<th>M. siltepecana Matuda</th>
<th>M. dubia (Kunth) Engl. et K. Krause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section</td>
<td>Monstera</td>
<td>Monstera</td>
<td>Marcgravioiopsis</td>
</tr>
<tr>
<td>Petioles</td>
<td>17-24 cm long</td>
<td>30-45 cm long</td>
<td>20-55 cm long</td>
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<tr>
<td>Geniculum</td>
<td>1.5 cm long</td>
<td>3-4.5 cm long</td>
<td>4-7 cm long</td>
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<tr>
<td>Juvenile leaves</td>
<td>free and exerted</td>
<td>free and exerted</td>
<td>tightly appressed</td>
</tr>
<tr>
<td>Blades</td>
<td>14.3-34 cm long; 5.2-20.5 cm wide; 1.2-1.5 times longer than wide; glaucous below on living plants</td>
<td>30-60 cm long; 20-35 cm wide; 1.3-2.4 times longer than wide; dark green, not glaucous below</td>
<td>20-100 cm long; 13-50 cm wide; 1.5-2 times longer than wide; pale green, not glaucous below</td>
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<tr>
<td>Primary lateral veins</td>
<td>3-6 pairs</td>
<td>8-12 pairs</td>
<td>9-18 pairs</td>
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<tr>
<td>Perforations</td>
<td>usually few; in 1(-2) series on each side of midvein, sometimes lacking</td>
<td>mostly numerous; in 2-4 series on each side of midvein</td>
<td>absent or numerous; in 1-3 series on each side of midvein or pinnatifid</td>
</tr>
<tr>
<td>Peduncle</td>
<td>2-5.7 cm long</td>
<td>5-12 cm long</td>
<td>5-9 cm long</td>
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<tr>
<td>Spadix</td>
<td>6.7-9.5 cm long</td>
<td>12-17 cm long</td>
<td>7-14 cm long</td>
</tr>
<tr>
<td>Distribution</td>
<td>Mexico (Veracruz)</td>
<td>Mexico (Chiapas, Hidalgo, Oaxaca, Quintana Roo, Veracruz) to Colombia</td>
<td>Mexico (Chiapas) to the Amazon basin</td>
</tr>
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</table>
| Etymology. The species is named in honor of the distinguished Mexican historian Dr. Enrique Florescano-Mayet for his determined and enthusiastic support for the research and education project on endemic, rare and notable plant species of Veracruz in the light of the celebration to honor Mexico’s 100-year anniversary of the revolution and 200 years of independence. This project has promoted a major plant exploration effort in the State of Veracruz in search for endemic and rare taxa in the few sites known to have vegetation patches with little disturbance and high plant diversity.

Distribution and habitat. Monstera florescanoana is endemic to Mexico, known only from the humid montane forests (bosque mesófilo de montaña, sensu Rzedowski, 1978) of the central region of Veracruz, a biogeographic area that harbors several locally endemic species, as e.g. Begonia multistaminea Burt-Utley (Begoniaceae), Pitcairnia densiflora Brongn. ex Lem. and Pitcairnia schiedeana Baker (Bromeliaceae). These forests, however, due to the ongoing conversion to plantations, pastures and secondary vegetation are one of the most threatened habitats in Mexico. In spite of their reduced surface area, these areas are extremely rich in plant species and represent ca. 10% of the flora of Mexico, making it the most diverse vegetation type by area unit (Rzedowski, 1991). At Atzalan municipio the humid montane forests are dominated by canopy trees of Matudaea trinervia Lundell (Hamamelidaceae), as well as Clethra mexicana DC. (Clethraceae), Quercus corrugata Hook. (Fagaceae) and Liquidambar styaciflua L. (Hamamelidaceae).

The new species is a locally common hemiepiphytic herb in the shady understory of the humid montane forests of the Atzalan municipio between 990 and 1430 m, where it co-occurs with other aroids, such as Anthurium scandens (Aubl.) Engl., Monstera egregia Schott, Philodendron sagittifolium Liebm., and Syngonium neglectum Schott. In this area, the natural forest vegetation in general is mostly fragmented and highly threatened by the transformation into pastures and plantations; thus, we believe that the populations of Monstera florescanoana do suffer severe anthropogenic pressures. However, the new species is probably not in danger of extinction, as we have observed some individuals growing in secondary vegetation close to a bridge along a roadside. In any case, the discovery of this new species demonstrates that more floristic inventories in remote and inaccessible areas are badly needed to complete our knowledge of the flora of Veracruz and along to take the necessary conservation measures for the remaining areas of high diversity and endemism.

Acknowledgements

We thank the Government of Veracruz state for funding CITRO’s research and education project on endemic, rare and notable plant species of Veracruz. José Viccon-Esquivel, Nancy Martínez-Correa, José Ramón Fernández-Contreras, and David Jimeno-Sevilla...
for fieldwork assistance, Sergio E. Ramos-Castro for preparing the line drawing, Lilia Ruiz-Ruiz for preparing the photo plate, and Arturo Gómez-Pompa, Fernando Chiang-Cabrera, Miguel Ángel Pérez-Farrera, and an anonymous reviewer for comments on the manuscript. This study was partly supported by a PROMEP grant to TK (PROMEP/103.5/07/2753), and a PROMEP scholarship to JVE.

Literature cited


