Habenaria yookuaaensis (Orchidaceae: Orchidioideae), a new species from Oaxaca, Mexico

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Abstract

Habenaria yookuaaensis, a new species from the state of Oaxaca, is described and illustrated. The new taxon is part of the H. brevilabiata, H. virens, H. odontopetala, H. strictissima, and H. acalcarata complex, species with which the new entity is compared.

Key words: Jamiltepec, Monocots, San Juan Colorado, terrestrial orchid

Introduction

Orchidaceae is one of the better known monocot families in Mexico, with 1263–1315 species registered for the country (Espejo-Serna 2012; Soto-Arenas et al. 2007) of which 585 are endemic. Habenaria Willdenow (1805: 5, 44) is a genus represented by 75 species, 51 of them restricted to the Mexican territory (Espejo-Serna 2012).

Oaxaca is one of the richest Mexican states in biodiversity, with 952 taxa of Orchidaceae, 193 of which are endemic to the state. Salazar (2011) mentioned the presence of 23 species of Habenaria in Oaxaca, three of them endemic. As a result of the exploration and recollection in the municipality of San Juan Colorado, district of Jamiltepec, with the aim to complete the catalog of the native angiosperms, we collected some specimens of Habenaria that we could not assign to any of the previously described species of the genus, so we propose a new species.

Taxonomy

Habenaria yookuaaensis Mejía-Marín, Espejo, López-Ferr. & R. Jiménez, sp. nov. (Figs. 1, 2)

Similar to Habenaria brevilabiata Richard & Galeotti (1845: 29), but habit terrestrial, with flowers white-greenish, petals oblong-falcate, and lip acuminate, with two triangular divaricate basal auricles.

Type:—MEXICO. Oaxaca: distrito de Jamiltepec, municipio de San Juan Colorado, Santa María Nutío, en la ribera del río Poza del Cuate, 16° 29' 23.4" N, 97° 54' 19.5" W, bosque de galería, 291 m, 11 September 2012, M. I. Mejía-Marín 95, A. Espejo, A. R. López-Ferrari, M. I. Verona-Trejo, I. N. Gómez-Escamilla y E. Mejía-Marín (holotype UAMIZ!, isotype AMO!).
Plants 35–42 cm tall including the inflorescence, terrestrial, erect, glabrous. Roots thin, ca. 2 mm diameter. Tuberoid not seen. Leaves 8–11, polystichous, sheathing, the larger ones in the middle of the stem, the lower ones reduced to sheaths, 0.5–10 cm long, 1.5–2 cm wide, with the blades 0.5–10 cm long, 1.5–2 cm wide, elliptic to narrowly elliptic, membranous, acute to acuminate, attenuate at the base, entire, glabrous, 3 veined. Inflorescence 8–15 cm long, terminal, racemose, cylindrical, rachis slightly keeled, green; floral bracts 1–2 cm long, 0.2–0.5 cm wide, lanceolate, acuminate, attenuate at the base, entire, those of the basal flowers slightly larger than the ovary, and those of the upper
flowers shorter than the ovary, 3–5 veined. *Flowers* 2–3 cm long, ca. 1.2 cm wide, ascendant, white-greenish, 12–18 per inflorescence; *ovary* 1.5–1.6 cm long, 1.7–1.9 mm diameter, pedicellate, erect, arcuate, terete, slightly verrucose, 6-ribbed; *dorsal sepal* 5–7 mm long, 4.5–5 mm wide, green, widely ovoid to orbicular, erect, concave, forming a helmet over the column, obtuse to rounded at the apex, margin minutely papillose; *lateral sepals* 3–5 mm long, 1.5–3 mm wide, entire, obtuse, 2 veined (the upper vein bifurcate near the base); *lip* 7–7.5 mm long, 1–1.7 mm wide, white with the apex light green, linear-oblong, acute to acuminate, with two basal, short, triangular, divericate auricles ca. 1 mm long, ca. 0.5 mm wide; *spur* 20–22 mm long, 1–1.5 mm wide, white, longer than ovary, pendulous to reflexed, slightly dilated and flattened at the apical portion; *column* 1.5–2.7 mm long, 1–1.7 mm wide, white-greenish, oblong to rectangular, slightly arcuate in lateral view, truncate to emarginate at the apex; *stellidia* ca. 1 mm long, ca. 1 mm wide, short, subquadrate, verrucose; *rostellum* ca. 1 mm high, thick, deltoid; *stigmatic processes* 0.7–1.5 mm long, 0.7–1 mm wide, green, short, subquadrate, thick; *anther cells* parallel, oblique, each one extending in a divaricate straight channel, ca. 5.4 mm long; *pollinia* ca. 2 mm long, reddish, elliptic, oblique; *viscidia* brown, hemispherical, in the apex of the anther channel. *Fruit and seeds* not seen.

**TABLE 1.** Comparative characters of *Habenaria acalcarata*, *H. brevilabiata*, *H. odontopetala*, *H. strictissima*, and *H. virens*

<table>
<thead>
<tr>
<th>Character</th>
<th><em>H. yookuaensis</em></th>
<th><em>H. acalcarata</em></th>
<th><em>H. brevilabiata</em></th>
<th><em>H. odontopetala</em></th>
<th><em>H. strictissima</em></th>
<th><em>H. virens</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Habit</td>
<td>terrestrial</td>
<td>terrestrial</td>
<td>epiphyte</td>
<td>terrestrial</td>
<td>terrestrial</td>
<td>terrestrial</td>
</tr>
<tr>
<td>Flowers per inflorescence</td>
<td>12–18</td>
<td>ca. 80</td>
<td>15–19</td>
<td>21–35</td>
<td>30–42</td>
<td>10–40</td>
</tr>
<tr>
<td>Flower color</td>
<td>greenish-white</td>
<td>green</td>
<td>yellowish-green</td>
<td>yellowish-green</td>
<td>green</td>
<td>yellowish-green</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>or bluish-green</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dorsal sepal apex</td>
<td>obtuse to rounded</td>
<td>mucronate</td>
<td>obtuse</td>
<td>obtuse</td>
<td>obtuse</td>
<td>rounded to emarginate</td>
</tr>
<tr>
<td>Petals</td>
<td>oblong-falcate,</td>
<td>trapezoid,</td>
<td>lanceolate-</td>
<td>subquadrate,</td>
<td>oblong,</td>
<td>trilobate,</td>
</tr>
<tr>
<td></td>
<td>obtuse</td>
<td>truncate with</td>
<td>falcate, obtuse</td>
<td>obtuse</td>
<td>widened at the apex, obtuse</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a small central lobe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lip</td>
<td>acuminate, with</td>
<td>trilobate,</td>
<td>obtuse, without</td>
<td>obtuse, with</td>
<td>obtuse, with</td>
<td>trilobate,</td>
</tr>
<tr>
<td></td>
<td>two triangular,</td>
<td>with two</td>
<td>basal auricles</td>
<td>two triangular,</td>
<td>two triangular,</td>
<td>with two</td>
</tr>
<tr>
<td></td>
<td>divericate, basal</td>
<td>triangular,</td>
<td>or lobes</td>
<td>divericate, basal</td>
<td>auricles</td>
<td>triangular,</td>
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<tr>
<td></td>
<td>auricles</td>
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<td>auricles</td>
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<td>divericate,</td>
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<tr>
<td></td>
<td></td>
<td>basal lobes</td>
<td></td>
<td></td>
<td></td>
<td>basal lobes</td>
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<tr>
<td>Spur</td>
<td>present</td>
<td>present</td>
<td>present</td>
<td>present</td>
<td>present</td>
<td>present</td>
</tr>
<tr>
<td>Distribution</td>
<td>OAX</td>
<td>CHIS, VER</td>
<td>GRO, JAL, MICH, NAY, OAX, SIN</td>
<td>CHIS, HGO, OAX, PUE, QRO, Q. Roo, TAM, VER</td>
<td>CHIS, DF, MEX, GTO, GRO, HGO, JAL, MEX, MICH, NAY, OAX, PUE, QRO, QRO, SIN, TAM, VER</td>
<td></td>
</tr>
<tr>
<td>Bloom season</td>
<td>September</td>
<td>late November to January</td>
<td>middle of August to October</td>
<td>September to February</td>
<td>September to October</td>
<td>September to October</td>
</tr>
<tr>
<td>Vegetation type</td>
<td>riparian forest</td>
<td>tropical</td>
<td>humid pine-oak forest</td>
<td>Humid forest and scrub</td>
<td>arid tropical scrub</td>
<td>pine-oak forest</td>
</tr>
<tr>
<td>Elevation m</td>
<td>300–1850</td>
<td>850–920</td>
<td>1500–1950</td>
<td>0–1900</td>
<td>500–2540</td>
<td>1400–2200</td>
</tr>
</tbody>
</table>
**Etymology**—The specific epithet refers to the name of San Juan Colorado, place where was found the new taxon, and derives from the Mixtec word “yo’o kua’a” formed by the terms “yo’o” (bejucos, lianas) and “kuaa’a” (rojo, colorado), and means “lugar de tierra colorada” (place of red soil).

**Distribution and Habitat**—*Habenaria yookuaaensis* is known until now from two localities in the state of Oaxaca. The plants are very scarce and grow between rocks, on moist soils rich in organic matter, under the shade of the trees on the riverbanks. It flowers in September.

**Additional specimens examined (paratypes)**—MEXICO. Oaxaca: municipality of La Compañía, km 14.6 Río de la Y road, 1850 m, in shade on limestone, 26 August 1986, pressed 01 September 1986, Greenwood & Suárez 285 (AMO).

**Comments**—The new taxon belongs to the complex of *Habenaria brevilabiata* Richard & Galeotti (1845: 29), *H. virens* Richard & Galeotti (1845: 29), *H. odontopetala* Reichenbach (1844: 7), *H. strictissima* Reichenbach (1844: 7), and *H. acalcarata* Espejo-Serna & López-Ferrari (1993: 249), characterized by the presence of a widened lip, with basal triangular, divaricate auricles or lobes, and entire petals. However, *H. yookuaaensis* is distinguished by its flowers white-greenish with the petals oblong-falcate. The most similar species, *H. brevilabiata*, is an epiphyte (vs. terrestrial), 20–30 cm tall (vs. 35–42 cm) and has flowers yellowish-green (vs. greenish-white). The plants of *H. virens* are larger (more than 50 cm vs. 35–42 cm tall), with numerous flowers (20–30 vs. 12–18), and a reflexed lip with two divergent triangular lobes and the spur curved and directed upwards. In the case of *H. odontopetala* the plants are higher (50–60 vs. 35–42 cm), and the petals are tridentate (vs. obtuse). *H. strictissima* has more than 30 flowers densely disposed (vs. 12–18 laxly disposed), the lip triangular-oblong (vs. linear-oblong) and the petals subquadrate (vs. oblong-falcate). Finally, in *H. acalcarata* the flowers, 40–80 per inflorescence (vs. 12–18), are smaller (8–9 vs. 15–16 mm), and without spur. A detailed comparison between these taxa is presented in Table 1.

**Aknowledgements**

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**References**


