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Habenaria yookuaaensis (Orchidaceae: Orchidoideae), 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.

Resumen

Se describe e ilustra *Habenaria yookuaaensis*, una nueva especie del estado de Oaxaca. El nuevo taxón pertenece al complejo formado por *H. brevilabiata*, *H. virens*, *H. odontopetala*, *H. strictissima* y *H. acalcarata*, especies con las cuales se compara.

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!).



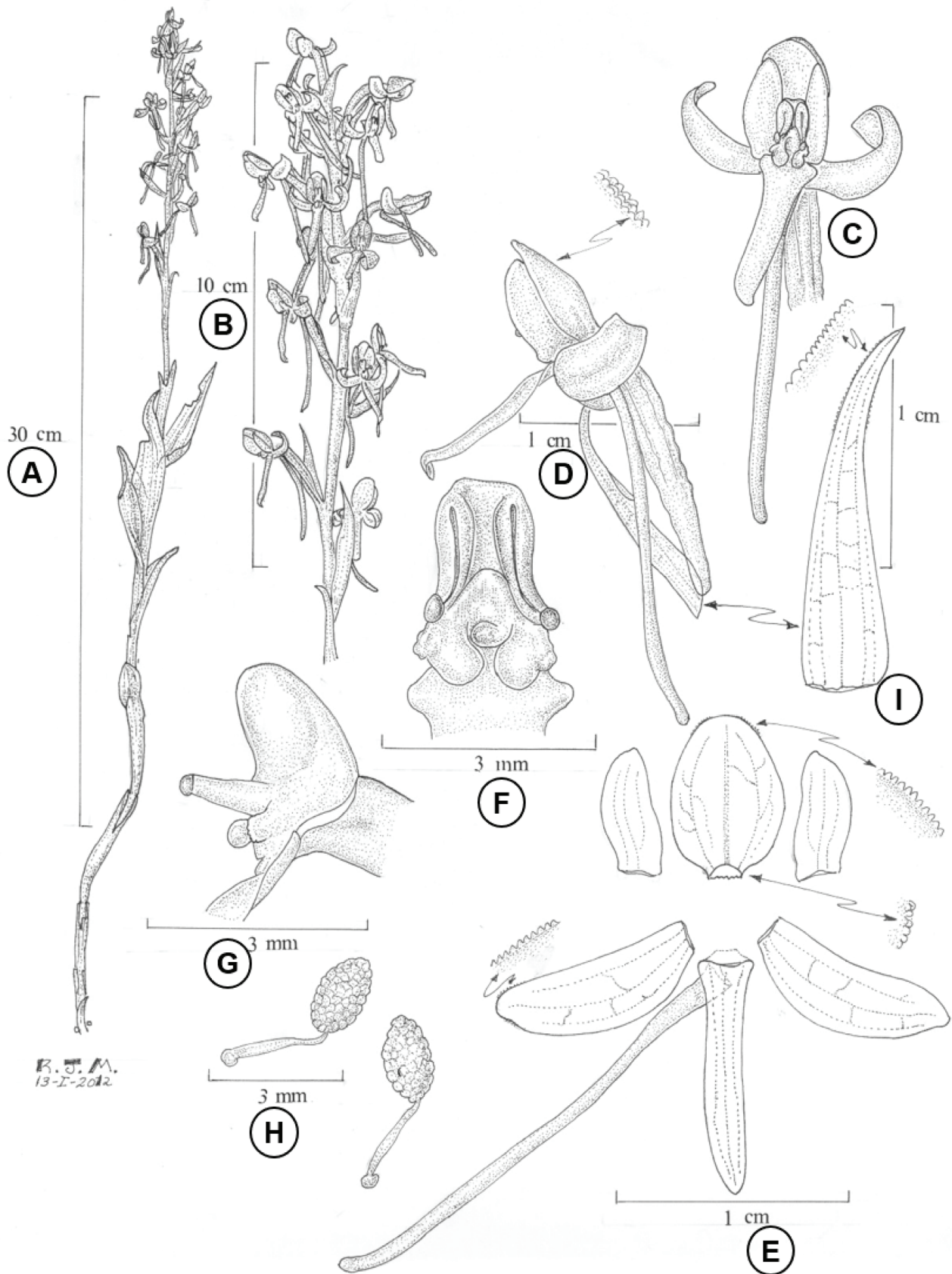
FIGURE 1. *Habenaria yookuaensis* Mejía-Marín, Espejo, López-Ferr., & R. Jiménez. A. Habit. B. Inflorescence. C. Flowers

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* 5–9 mm long, 3–4 mm wide, green, obliquely elliptic-lanceolate, acute to rounded, 3 veined; *petals* white with the margin light green, oblong-falcate, 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, divaricate 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; *stelia* 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 bilocular, the *anther cells* parallel, oblique, elliptic, 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*

Character	<i>H. yookuaensis</i>	<i>H. acalcarata</i>	<i>H. brevilabiata</i>	<i>H. odontopetala</i>	<i>H. strictissima</i>	<i>H. virens</i>
Habit	terrestrial	terrestrial	epiphyte	terrestrial	terrestrial	terrestrial
Flowers per inflorescence	12–18	ca. 80	15–19	21–35	30–42	10–40
Flower color	greenish-white	green	yellowish-green	yellowish-green or bluish-green	green	yellowish-green
Dorsal sepal apex	obtuse to rounded	mucronate	obtuse	obtuse	obtuse	rounded to emarginate
Petals	oblong-falcate, obtuse	trapezoid, truncate with a small central lobe	lanceolate-falcate, obtuse	rectangular, apex 1–3 dentate	subquadrate, obtuse	oblong, widened at the apex, obtuse
Lip	acuminate, with two triangular, divaricate, basal auricles	trilobate, with two triangular, divaricate, basal lobes	obtuse, without basal auricles or lobes	retuse, with two triangular, divaricate, basal auricles	obtuse, with two triangular, basal auricles	trilobate, with two triangular, divaricate, basal lobes
Spur	present	absent	present	present	present	present
Distribution	OAX	CHIS, VER	GRO, JAL, MICH, NAY, OAX, SIN	CHIS, HGO, OAX, PUE, QRO, Q. Roo, TAM, VER	CHIS, DF, MEX, GTO, GRO, HGO, JAL, MEX, MICH, NAY, OAX, PUE, QRO, SIN, VER	JAL, MEX, MICH, MOR, OAX
Bloom season	September	late November to January	middle of August to October	September to February	Septembre to October	September to October
Vegetation type	riparian forest	tropical evergreen forest	humid pine-oak forest	Humid forest and scrup	arid tropical scrub	pine-oak forest
Elevation m	300–1850	850–920	1500–1950	0–1900	500–2540	1400–2200



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FIGURE 2. *Habenaria yookuaensis* Mejía-Marín, Espejo, López-Ferr., & R. Jiménez. A. Habit. B. Inflorescence. C. Flower, frontal view. D. Flower, lateral view. E. Dissected flower. F. Column, frontal view. G. Column, lateral view. H. Pollinia. I. Floral bract. Figure elaborated by Rolando Jiménez Machorro based in the specimen *Greenwood & Suárez 285*.

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 “kuua’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.

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