

***HOMALOPETALUM LEOCHILUS* (RCHB.F.) SOTO ARENAS (ORCHIDACEAE): COMPLETE DESCRIPTION AND FIRST ILLUSTRATION**

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ABSTRACT

One of the smallest species of Laeliinae, *Homalopetalum leochilus* is native to Cuba and Hispaniola. This is a curious orchid species with a unique morphology in Laeliinae. This species provides difficulties for its systematic placement and remains without an analytical illustration. This article presents a detailed description and for the first time an illustration of the species. A table comparing the floral morphology of *H. leochilus* to other species of the genus is presented.

The genus *Homalopetalum* Rolfe includes seven small species of subtribe Laeliinae, distributed in Mexico, Central America, Tropical Andes of South America, Venezuela, Cuba, Brazil, Hispaniola and Jamaica (Soto Arenas 2005). *Homalopetalum leochilus* (Rchb.f.) Soto Arenas is a small epiphytic orchid found on the Caribbean islands of Cuba and Hispaniola (Trejo-Torres & Ackerman 2001). Initially it was collected by Charles Wright under the number 3346 (G 168864, HUH 70504, P 493149, YU 29229) in Cuba. John Lindley (1861) referred to it in his catalog of the collections of Wright in Cuba under two names: *Pleurothallis trigonifolia* (nomen nudum) and *P. tuberculata* C.Wright (nomen nudum). It was later described as *Epidendrum leochilus* Rchb.f. (1865). At the time Reichenbach made a brief description of its morphology, but did not present any illustration. Grisebach (1866) recognized *P. tuberculata* as a synonym of *E. leochilus*.

Bentham & Hooker (1883) transferred the species to *Hormidium* Lindl. They mentioned that it was a species with small flowers for the genus. Cogniaux (1909–1910) provided a detailed description with floral

information and measurements. Nir (2000) made a large description with complementary information, but again without any illustration of the species.

Garay & Sweet (1972) transferred the species to the genus *Pinelia* Lindl., while stating that a recent collection from the Dominican Republic (HB – Pabst archives, NY 13210) justified the transfer without further information.

Dressler (1960) suggested the fusion of two strictly related genera: *Pinelia* and *Homalopetalum*; *Pinelia* had the priority. Dressler noted, however, that *Pinelia* constituted a homophony with genus *Pinellia* Ten. (Araceae); whereupon Rauschert (1983) created the genus *Pinelianthe* Rauschert. Finally, Soto Arenas et al. (2007) transferred all *Pinelianthe* species to *Homalopetalum*.

Homalopetalum leochilus presents uncertain systematic position. According to Withner (1993) — despite the synonyms themselves — it shows how far botanists will go in their search for a correct affiliation to this species. Dod (1996) analyzed the species but could not clearly analyze the material. He sent the material to the Brazilian specialist Guido Pabst who

was also unable to suggest a genus into which it would fit. Until now, this species remains without an analytical illustration and a comparative morphological analysis in the genus *Homalopetalum*.

Specimens were examined at the Herbarium Bradeanum (HB - Pabst archives) as well as digital collections from the following herbaria: Conservatoire et Jardin botaniques de la Ville de Genève (G) (Conservatoire et Jardin Botaniques Ville de Genève 2011), Muséum National d'Histoire Naturelle (P) (Muséum National D'Histoire Naturelle 2011), New York Botanical Garden (NY) (New York Botanical Garden 2011), Yale University (YU) (Yale Peabody Museum of Natural History 2014), and Harvard University (HUH) (Harvard University Herbaria 2011) (acronyms according to Thiers 2011). The description follows the terminology as per Dressler (1993) and Stern (2004). A table (Table 1) and a figure (Figure 2) is provided in order to compare the morphology of *H. leochilus* to other species in *Homalopetalum*, based on the descriptions and/or the illustrations from Ames (1941), Ames & Correll (1985), Barros (2004), Dunsterville & Garay (1965), Fawcett & Rendle (1910), García-Cruz et al. (2003), Withner (1993).

Homalopetalum leochilus (Rchb.f.) Soto Arenas, *Neodiversity* 2: 8 (2007). (Figure 1). *Epidendrum leochilus* Rchb.f., *Flora* 48: 277 (1865). *Hormidium leochilus* (Rchb.f.) Benth. & Hook.f., *Gen. Plant.* 3: 524 (1883). *Pinelia leochilus* (Rchb.f.) Garay & H.R.Sweet, *J. Arnold Arbor.* 53: 394 (1972). *Pinelianthe leochilus* (Rchb.f.) Rauschert, *Feddes Repert.* 94: 465 (1983).

Pleurothallis tuberculata C.Wright ex Griseb., *Cat. Pl. Cub.*: 262 (1866), *nom. nud.*

Pleurothallis tuberculata C.Wright, *Fl. Cub.* (Sauvalle): 228 (1872), *nom. nud.*

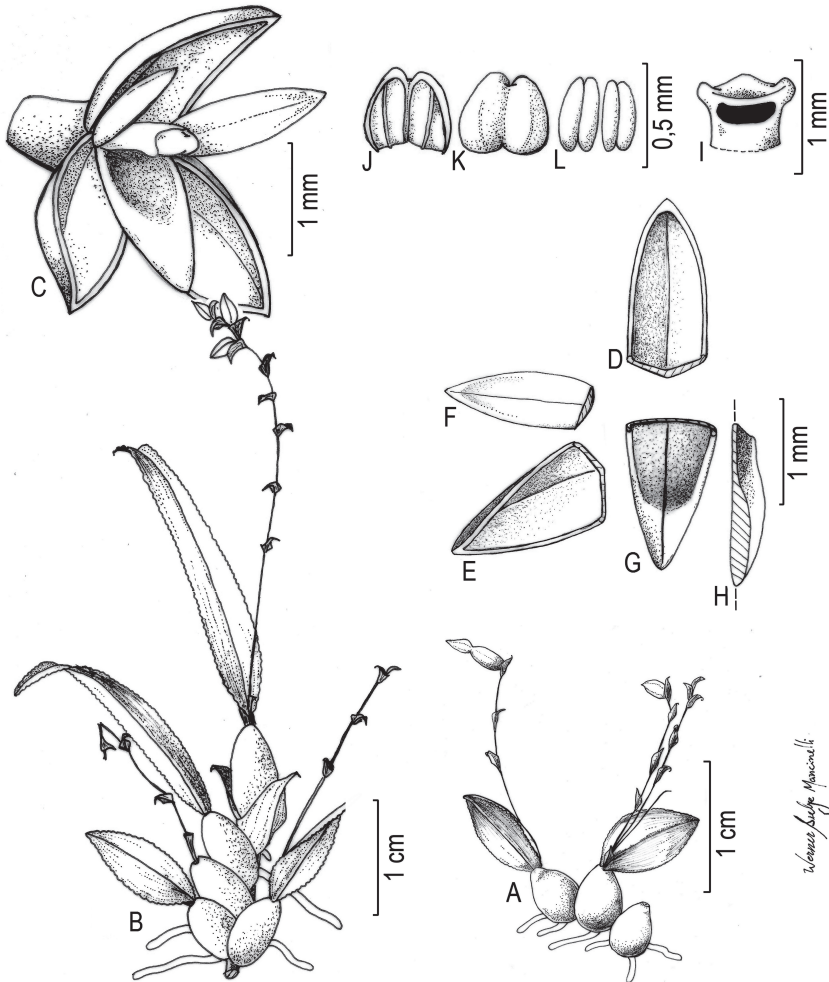
Type: CUBA: Eastern Cuba, Monte Verde,

1860–1864, *C. Wright 3346* (G, HUH). Isotype: CUBA: Eastern Cuba, Monte Verde, 1860–1864, *C. Wright 3346* (P, YU).

Epiphytic herb. Rhizome caespitose. Pseudobulb 0.5–0.9 × 0.2–0.4 cm, ovate to elliptic, transversely cylindrical, unifoliate, rarely bi-trifoliate. Leaf 1.1–2.4 × 0.3–0.6 cm, constricted at base, apex acute to obtuse, lanceolate to linear, conduplicate, coriaceous, with a crenate margin (dry voucher specimen). Inflorescence 1.5–3.4 cm high, terminal, erect, re-branch, 2–4 flowered, anthesis successive; scape filiform, bracts of the scape deltoid, amplexicaule, sparse, spirally arranged; rachis erect, bracts of the rachis deltoid, amplexicaul, distichous, imbricate. Flower resupinate, translucent yellow to green. Sepals 1.1–1.7 × 0.5–0.8 mm, ovate, navicular, glabrous, symmetric, free, 1-ribbed, apex acute, margin smooth. Petals 1–1.5 × 0.25–0.3 mm, elliptic, flat, glabrous, symmetric, free, 1-nerved, apex acute, margin smooth. Lip 1.3–2 × 0.5–0.8 mm, entire, deltoid, flat, glabrous, fleshy, with a depression in the basal portion, callus absent, 1-nerved, apex acute, margin smooth. Column: 0.5–0.75 mm long, free; column wings reduced, not surpass the anther; incumbent anther; pollinia 4, in linear disposition; ovary 1 mm long, terete, smooth, glabrous. Fruit 0.5–0.6 × 0.15–0.2 mm, ellipsoid to cylindrical, glabrous.

EXAMINED MATERIAL. DOMINICAN REPUBLIC: Mao River, El Aguacate, La Leonor, Oct, 22nd –23rd -1968, L.H. Liogier 13210 (NY, HB!). CUBA: Eastern Cuba, Monte Verde, 1860–1864, *C. Wright 3346* (G online, HUH online, P online, YU).

COMMENTS. The specific epithet *leochilus* (from the greek leo + chilus) means “smooth lip”. *Homalopetalum leochilus* represents a peculiar species of the genus, it has one (rarely two or three) leaves (based on Dod 1996) and the isotype P493149 with

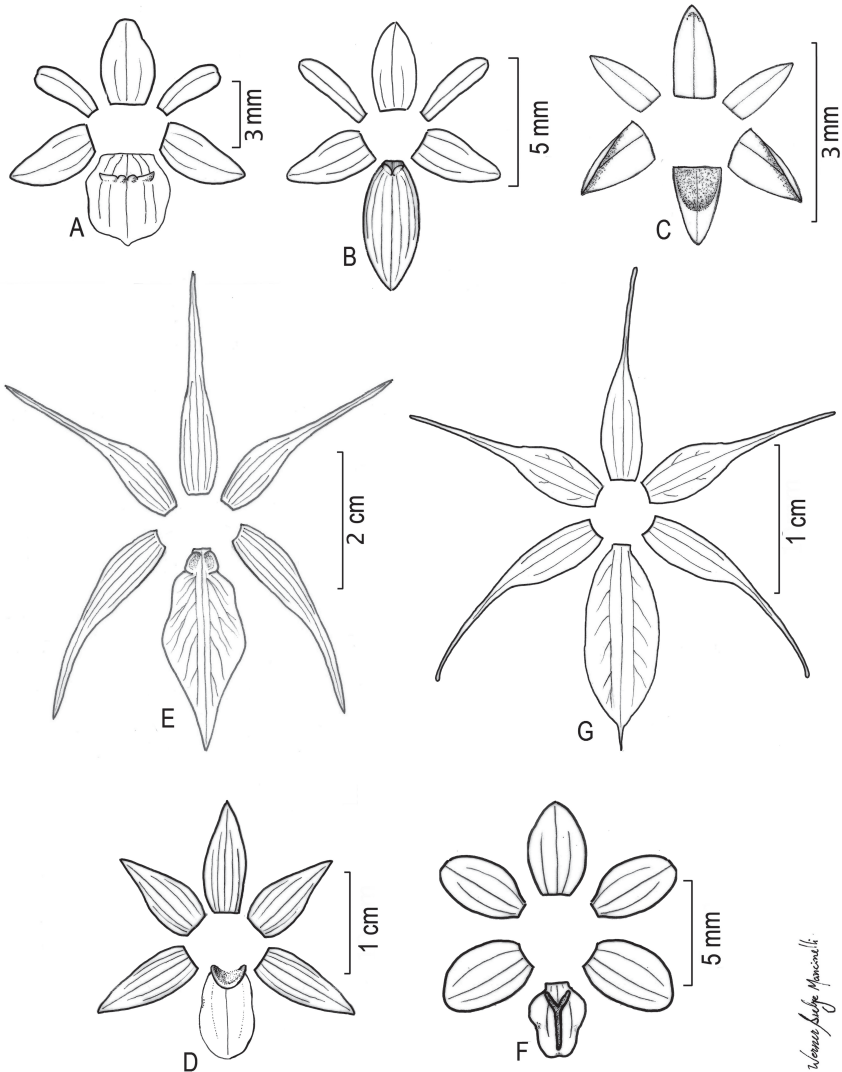


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Figure 1. *Homalopetalum leochilus* (Rchb.f.) Soto Arenas. A. Habit of Cuban specimen. B. Habit of Hispaniola specimen. C. Flower. D. Dorsal sepal. E. Lateral sepal. F. Petal. G. Lip. H. Lip in longitudinal section. I. Column. J. Anther in ventral view. K. Anther in dorsal view. L. Pollinia (A = based on C. Wright 3346; B–L = based on L.H. Liogier 13210).

Table 1. Comparative floral morphology between *Homalopetalum* species.

Features	<i>H. alticolum</i>	<i>H. hypoleptum</i>	<i>H. leochilus</i>	<i>H. pachyphyllum</i>	<i>H. pumilio</i>	<i>H. pumilum</i>	<i>H. vomeriforme</i>
Flowers per inflorescence	1	1	2-4	1	1	1	1
Rebranched inflorescence	no	no	yes	no	no	no	no
Sepal shape	ovate, flat	ovate, flat	ovate, navicular	lanceolate, flat	linear-lanceolate, flat	ovate, flat	linear-lanceolate, flat
N° of sepal nervures	3	3	1	5	5	3	3
Sepal margin	smooth	smooth	smooth	smooth	smooth	smooth	smooth
Petal shape	oblancoolate, flat	oblancoolate, flat	elliptic, flat	lanceolate, flat	linear-lanceolate, flat	oblong, flat	linear-lanceolate, flat
N° of petal nervures	1	1	1	5	5	3	3
Petal margin	smooth	smooth	smooth	smooth	smooth	slightly denticulate	smooth
Lip shape	suborbicular, flat	elliptic, flat	deltoid, flat	oblong, flat	elliptic, flat	unguiculate, flat	elliptic, flat
N° of lip nervures	5	7	1	3	3	3	3
Lip margin	slightly erose	smooth	smooth	smooth	slightly denticulate	smooth	smooth
Lip callus	present	present	absent	present	present	present	absent
Column foot	present	present	absent	present	present	present	present
Connection of wings	columnate with column foot	connate with column foot	free	free	free	free	free
Column wing length	apex of anther	apex of anther	1/4 of anther	half of anther	half of anther	half of anther	half of anther
Number of pollinia	4	4	4	8	8	8	8



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Figure 2. Comparative floral parts of genus *Homalopetalum* Rolfe. A. *H. alticolum* (Garay & Dunst.) Soto Arenas. B. *H. hypoleptum* (Lindl.) Soto Arenas. C. *H. leochilus* (Rchb.f.) Soto Arenas. D. *H. pachyphyllum* (L.O.Williams) Dressler. E. *H. pumilio* (Rchb.f.) Schltr. F. *H. pumilum* (Ames) Dressler. G. *H. vomeriforme* (Sw.) Fawc. & Rendle.

crenate margin (in dried voucher specimen), a fact mentioned by Reichenbach (1865) and Cogniaux (1909–1910); the leaf margin features of living plants is unknown.

The morphological comparison of *H. leochilus* to all other species of the genus (Table 1, Figure 2) suggests that it does not belong to *Homalopetalum*, reinforcing the view of Withner (1993) and Dod (1996). In this case probably only after obtaining fresh material of the species for a phylogenetic analysis the systematic placement of this species can be elucidated.

The inflorescence is 2–4 flowered, and rebranch; the flowers are reduced; sepals navicular; lip with concavity; column short and footless; column wings reduced and free. No other genus in Laeliinae presents a representative sharing of these combined features. Based on its morphology is impossible to make a correct generic placement. Furthermore, the rarity of the species illustrates the difficulty of acquiring samples for a molecular phylogenetic analysis.

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