

# Two New Species of Sudamerlycaste (Orchidaceae: Maxillarinae) from Southwestern Ecuador

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**ABSTRACT** Two new species are described based on material collected under the research permit “Rescate, conservación, reproducción y manejo ex situ de la flora del Ecuador,” authorization No. 027-19 IC-FLO-FAU-DNB/MA, Ministerio del Ambiente in accordance to the Acuerdo Interministerial SENESCYT-MAE No. 001 2019, issued to Ecuagenera Cia. Ltda. *Sudamerlycaste alexportillae* and *Sudamerlycaste ecuadorensis* from the provinces of Morona-Santiago and Zamora-Chinchipec, Ecuador, are described, illustrated and compared to *Sudamerlycaste fulvescens* (Hook). Archila. and *Sudamerlycaste lata* (Rolfe). Archila., respectively.

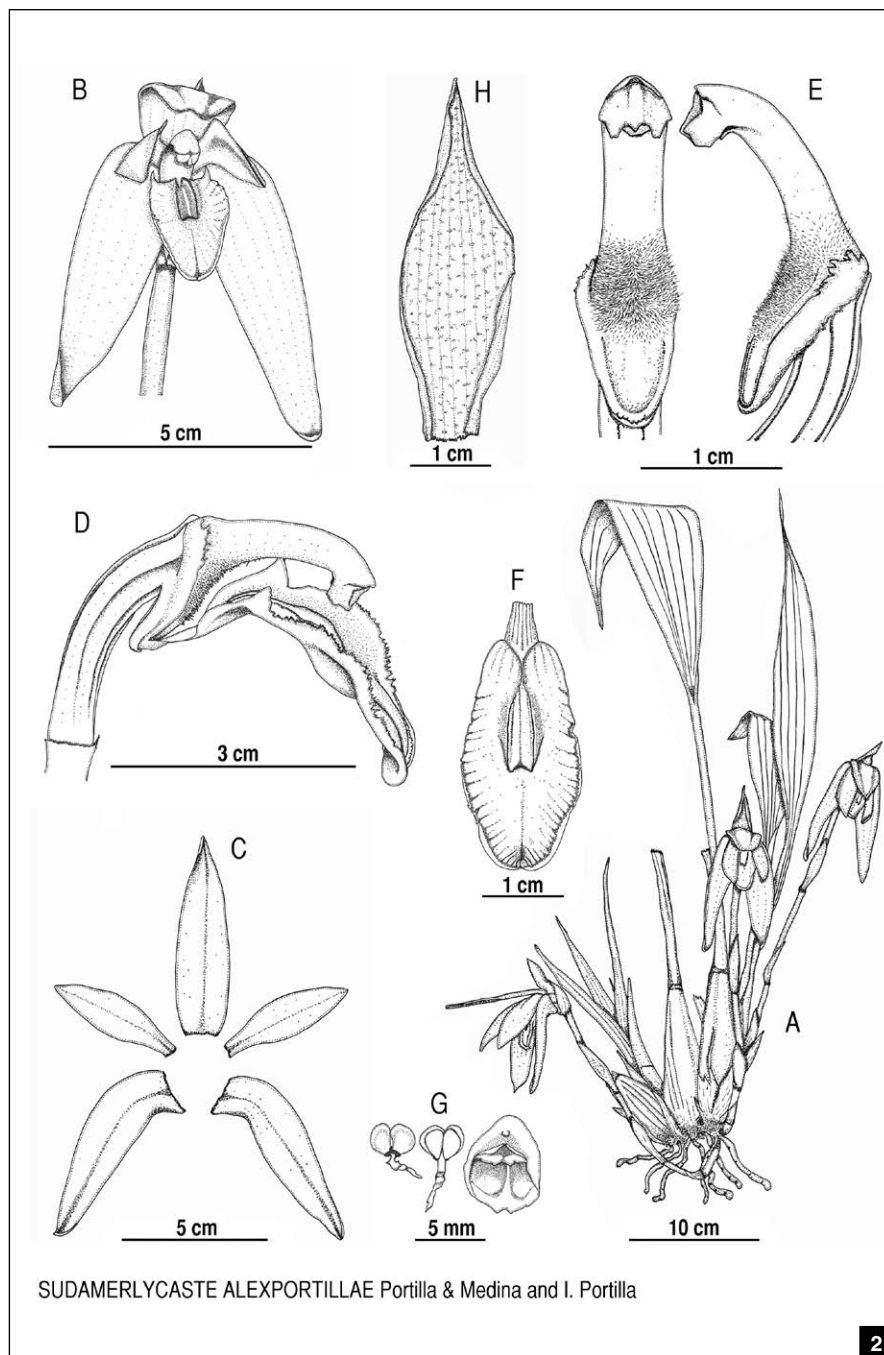
**KEYWORDS** Ecuador, Maxillariinae, New Species, *Sudamerlycaste alexportillae*, *Sudamerlycaste ecuadorensis*.

**INTRODUCTION**

The genus *Lycaste* s.s. is mainly restricted to Central America with just a few species occurring in South America (ABO). The species of *Lycaste* found in Ecuador are part of the *macrophylla* group including: *Lycaste macrophylla* subsp. *litensis* Poepp. and Endl., reported from northwestern Ecuador, *Lycaste macrophylla* subsp. *macrophylla* Poepp has been reported in southeast Ecuador, *L. xytriophora* Linden and Rchb. f., reported from west-central Ecuador, *Lycaste fuscina* Oakeley, described from the collection of the late Father Angel Andreetta and *Lycaste occulta* Oakeley, reported from east-central Ecuador. The new species described here were found in the southeast of Ecuador, and easily recognized as belonging to *Sudamerlycaste* based on the morphological characteristics.

The genus *Sudamerlycaste* Archila has a complicated nomenclatural history. It was originally attributed to *Lycaste* Lindl. and segregated by Archila (2002) based on a phylogenetic analysis in order to accommodate species of *Lycaste* distributed throughout the Caribbean and South America formerly attributed to the *nomen nudum* *Lycaste* sect. *Fimbriatae* Fowlie. A year later, Oakeley and Ryan (2003) published the superfluous *Ida* based on morphological characteristics. However, *Sudamerlycaste*, published a year earlier takes priority.

Vegetatively, the plants are quite distinctive from *Lycaste*. The plants of some species of *Sudamerlycaste* are fire adapted and can regenerate quickly after the pseudobulbs have been burnt, (Oakeley and Ryan 2008) and the inflorescences of some species such as



SUDAMERLYCASTE ALEXPORTILLAE Portilla & Medina and I. Portilla

*Sudamerlycaste costata* can measure up to a meter in length like The pseudobulbs are also distinctive in lacking spines and retaining the leaves for up to three years (Oakeley 2003).

**TAXONOMY**

***Sudamerlycaste alexportillae*** J.Portilla, H.Medina and I.Portilla *sp. nov.*

**TYPE** ECUADOR. Morona-Santiago: Comunidad La Chontilla, in front of the Daniel Palacios Dam, 2°35'36.03"S 78°33'02.08"O, 2700 m, flowered in cultivation at Ecuagenera, Gualaceo, October 2019, *J.Portilla 0280* (holotype: HA).

**DIAGNOSIS** *Species novae similis*

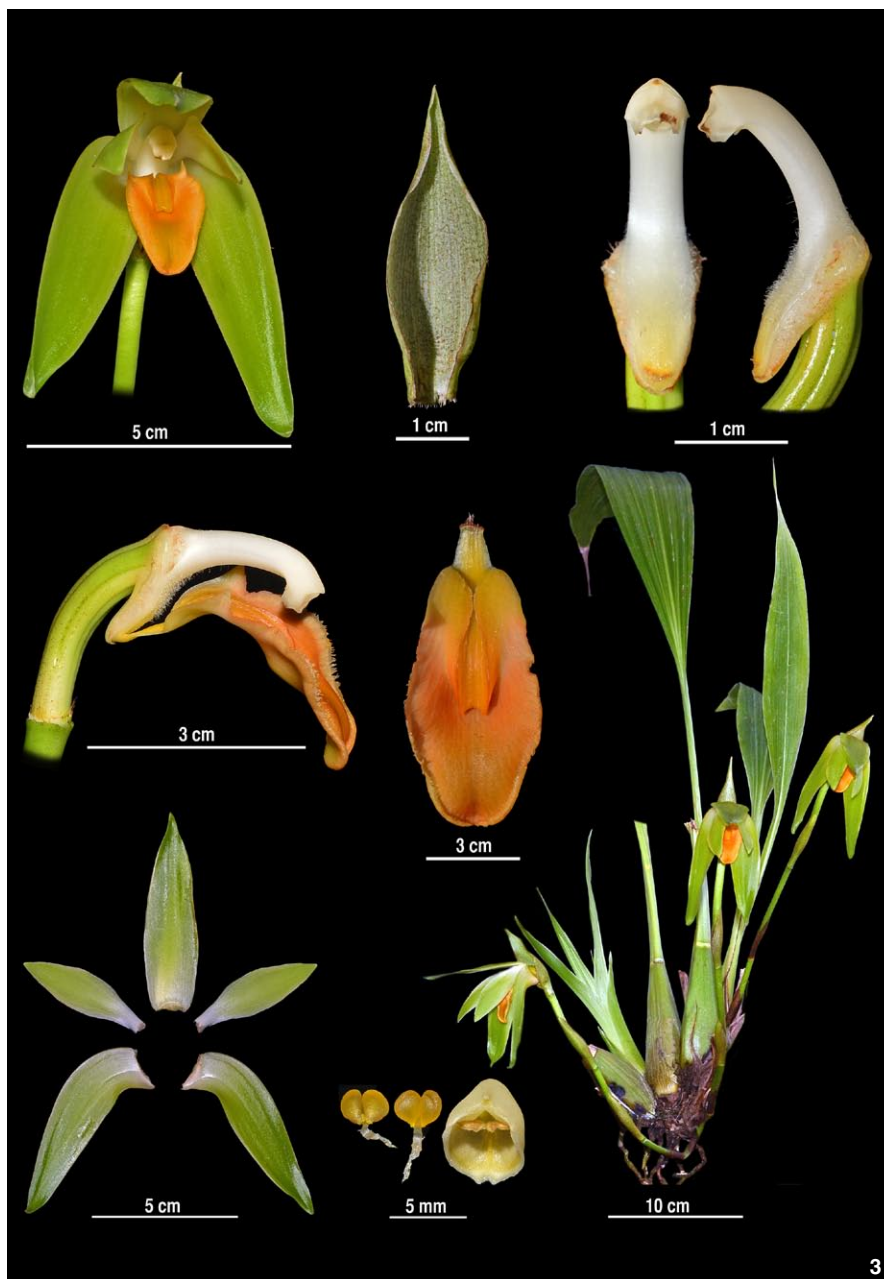
[1] *Sudamerlycaste alexportillae* photographed from the front clearly illustrating the lip side lobes and crest and from the side illustrating the relative size of the floral bract and ovary. Photographes by Hugo Medina.

[2] *Sudamerlycaste alexportillae* J.Portilla et al. A. Habit. B. Flower. C. Perianth dissected. D. Column and lip side view. E. Column lateral and front view, F. view lip. G. Layer of the anther and polinaria (two views), H. Bract covering the ovary, front view. Illustration of the plant that served as holotype, by Hugo Medina.

est *Sudamerlycaste fulvescens* (Hook.) Archila., non differat, sed maxime in ellipticis labrum. Denique cum notorie lobis anguste committitur callum basi leviter fimbriated vs. labro lobis lanceolatis magna margine late patentibus dense callum fimbriado astricta basi. Columna plus minus elongatis angustis leviter ventriculo facial; petalis rectam nobis leviter concava foliis margine deflexus concavus leviter retrorsum; bractee late in covering ovarium excedit magnitudine, vs. inflorescentiae magnitudinem ovarium.

**DESCRIPTION** Plants epiphytic or terrestrial, up to 94 cm tall; roots grayish in color, up to 30.0 cm long, 0.2 cm in diameter; pseudobulbs cylindrical, elliptical, obtuse-truncate at the base, lightly corrugated, 6.0–10.0 cm long, 2.7–4.5 cm in diameter, enveloped by six, imbricating sheaths, 7.5–10.5 cm long, 2.4–4.8 cm wide; leaves two, olive green, glabrous, apical, plicate, acuminate apex, coriaceous, attenuate-cuneate base, 72.0–80.0 cm long, 5.9–7.0 cm wide; inflorescence basal, erect, solitary flower produced by mature pseudobulbs; peduncle terete, 18.0–22.0 cm long, 0.5 cm in diameter, enveloped by four, lanceolate, acuminate bracts with a truncate base at each node, 4.2 cm long, 2.4 cm wide; the flower resupinate, semi-open, without a detectable fragrance, the sepals and petals green becoming whitish towards their base, the lip orange, subtended by a dark green and lanceolate bract covering the ovary, 3.8–8.5 cm in diameter; ovary dark green, terete, six-sulcate, arcuate, 2.5 cm long, 0.5 cm wide, dorsal sepal elliptic-acuminate, becoming concave towards the acute apex, arcuate, glabrous, 6.8 cm long, 1.8 cm wide; lateral sepals elliptical-falcate, concave and acuminate apex, 6.5 cm long, 1.9 cm wide; petals elliptical-spatulate, acute, slightly arcuate, 4.7 cm long, 1.4 cm wide; lip sulcate, elliptical, obtuse, deflexed, unguiculate, minutely fimbriate, the disc with a bidentate callus above two keels merging into two retrorse lobes near the base, 1.6 cm long, 0.5 cm wide, the foot 0.5 cm long, 0.2 cm wide; column arcuate, white, glabrous at the apex, 1.8 cm long, 0.4 cm wide, column-foot pubescent, 1.3 cm long, 0.8 cm wide, stigma an oval cavity, 1.0 cm wide, anther cap cucullate and divided into two cells, pollinia yellow, four in two pairs each united by a stipe, 0.2 cm long, 0.1 cm wide. Fruit unknown.

**EPONYMY** Named to honor Alexander Alex Portilla of Ecuador



who participated in the collection of this species. Alex is the nephew of José Portilla, founder and President of Ecuagenera Cía. Ltda.

**DISTRIBUTION** *Sudamerlycaste alexportillae* is distributed in eastern Ecuador on the border with the Andean region in the province of Morona-Santiago, La Chontilla community, 2,700 m., January 2017, J. Portilla 0280 (HA).

**PHENOLOGY** Plants flower sporadically between March and October.

**HABITAT AND ECOLOGY** Plants grow as epiphytes in primary cloud forests, and occasionally as terrestrials in exposed areas around 2,700 m.

**DISCUSSION:** The new species is similar to *Sudamerlycaste fulvescens*

[3] *Sudamerlycaste alexportillae*, prepared sheet of the plant that served as holotype, by Hugo Medina.

[4] *Sudamerlycaste ecuadorensis*, photographed by Hugo Medina.

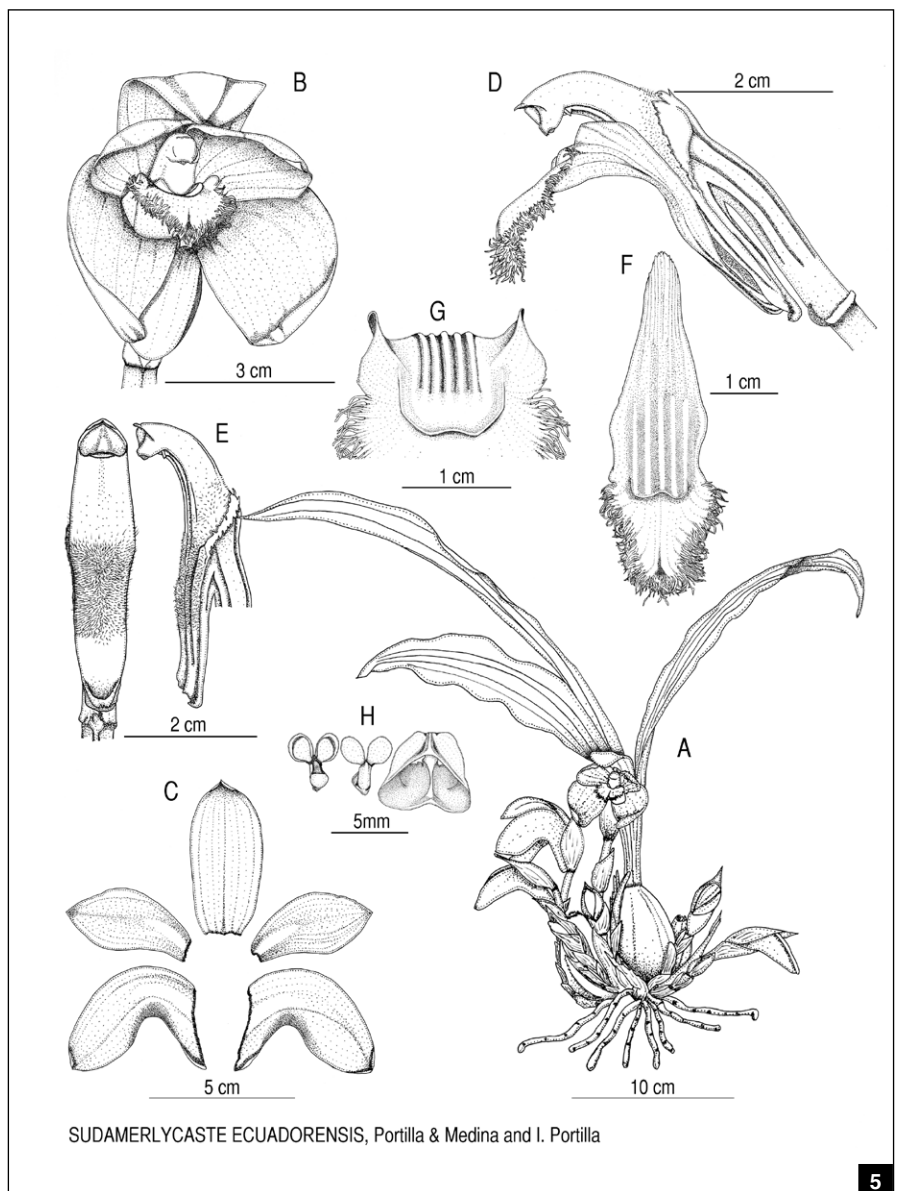
[5] *Sudamerlycaste ecuadorensis* J. Portilla et al. A. Habit. B. Flower. C. Perianth dissected. D. Column and lip side view. E. Column lateral and front view, F. view lip. G. Lip callus approach, H. Layer of the anther and polinaria (two views). Illustration of the plant that served as holotype, by Hugo Medina.

(Hook.) Archila., but can be distinguished by the elliptic lip with shorter lobes, slightly fimbriate margin, a long callus that meets at the base vs. lanceolate lip with large lobes, long fimbriate margin, with an open callus that does not meet at the base. The column is shortly pubescent and short and narrow vs. longer pubescence and broader. The petals are slightly concave with a straight margin vs. slightly concave with a deflexed margin. The bract that covers the ovary is much larger than the ovary vs. the same size as the ovary.

***Sudamerlycaste ecuadorensis***, J.Portilla, H.Medina and I.Portilla sp. nov. Type: ECUADOR. Zamora-Chinchi: Cantón El Panguí, J. Portilla 0280 (holotype: HA).

DIAGNOSIS *Species novae similis est Sudamerlycaste lata* (Rolfe). *Archila.*, non differat, sed viridis cum flores et alia cocta tetrum odorem spirant vs. *floribus albis foliis viridibus labium olet; lobis elongatis conspicue labium maior villi cavum vs. labro lobis brevioribus dense pilosum paulo brevioribus; tam brevibus albidis longa tegitur vs. magnitudine excedit eum viridis tegit ovarium bractea; plant sphaerae igitur ellipticis lanceolatis acuminatis vs. plant ovovados pseudobulbos longa linearibus.*

DESCRIPTION Plants epiphytic or terrestrial, up to 46 cm tall; roots whitish in color, pubescent, up to 25.0 cm long, 0.2–0.3 cm in diameter; pseudobulbs cylindrical, shiny, 6.5 cm long, 5 cm in diameter, enveloped by four, imbricating sheaths, 4.8 cm long, 1.4 cm wide; leaves up to three, green, glabrous, apical, lanceolate, plicate, acuminate apex, keeled with four well defined nerves on the abaxial surface, 27.0–41.2 cm long, 6.9–9.0 cm wide; inflorescence a solitary flower, basal, erect, generally appearing on mature pseudobulbs, 9.5 cm long, 0.4 cm in diameter with four nodes and enveloped by a lanceolate, acuminate bracts with a truncate base, 2.5–5.2 cm long, 1.2–2.8 cm wide; the flower resupinate, semi-open, with an unpleasant odor, the sepals and petals green, the lip green becoming whitish towards the base, subtended by a dark green and lanceolate bract covering the ovary, 4.0 cm wide; ovary dark green, terete, six-sulcate, arcuate, 3.5 cm long, 0.6 cm wide, covered by an inflated bract; dorsal sepal oblong-elliptic, green, semiconcave, truncate at the base, arcuate, glabrous, 6 cm long, 2.4 cm wide; sepals falcate, concave, acuminate at the apex, truncate at the base, 5.4 cm long, 2.5 cm wide; petals green,



elliptic, acuminate at the apex, truncate at the base, glabrous, 4.2 cm long, 2.3 cm wide; lip arcuate, angled, fimbriate, with a minute nectar spur at the point of connection to the column foot, from the disc 5.2 cm long, 1.7 cm wide, from the disc to the apex forming a heart with a fimbriate margin, emarginate and folded back at the apex with glabrous lobes, 0.3 cm diameter, with a prominent callus at the apex, 0.1 cm long, 0.8 cm wide, with three smooth keels; column arcuate, white, glabrous at the apex, 5.4 cm long, 0.8 cm wide, column-foot minutely pubescent, stigma an oval cavity, 0.4–0.6 cm wide, anther white, 0.5–0.6 cm, anther cap cucullate with a protuberance that presumably separates the pollinia, pollinia yellow, four, 0.1–0.2 cm wide, in two pairs each united by a rhomboid, transparent stipe, 0.15 cm wide. Fruit unknown.

**ETYMOLOGY** Named to honor Ecuador, the country where it was discovered.

**DISTRIBUTION** *Sudamerlycaste ecuadorensis* is distributed in a south eastern Ecuador in Zamora-Chinchipec, Cantón El Pangui, road to San Antonio, 3°35'16.40"S 78°37'23.66"O, 1360 m., 2019, *J. Portilla 0161* (HA).

**CONSERVATION STATUS** The species was pollinated and reproduced artificially by Ecuagenera supporting its ex situ conservation.

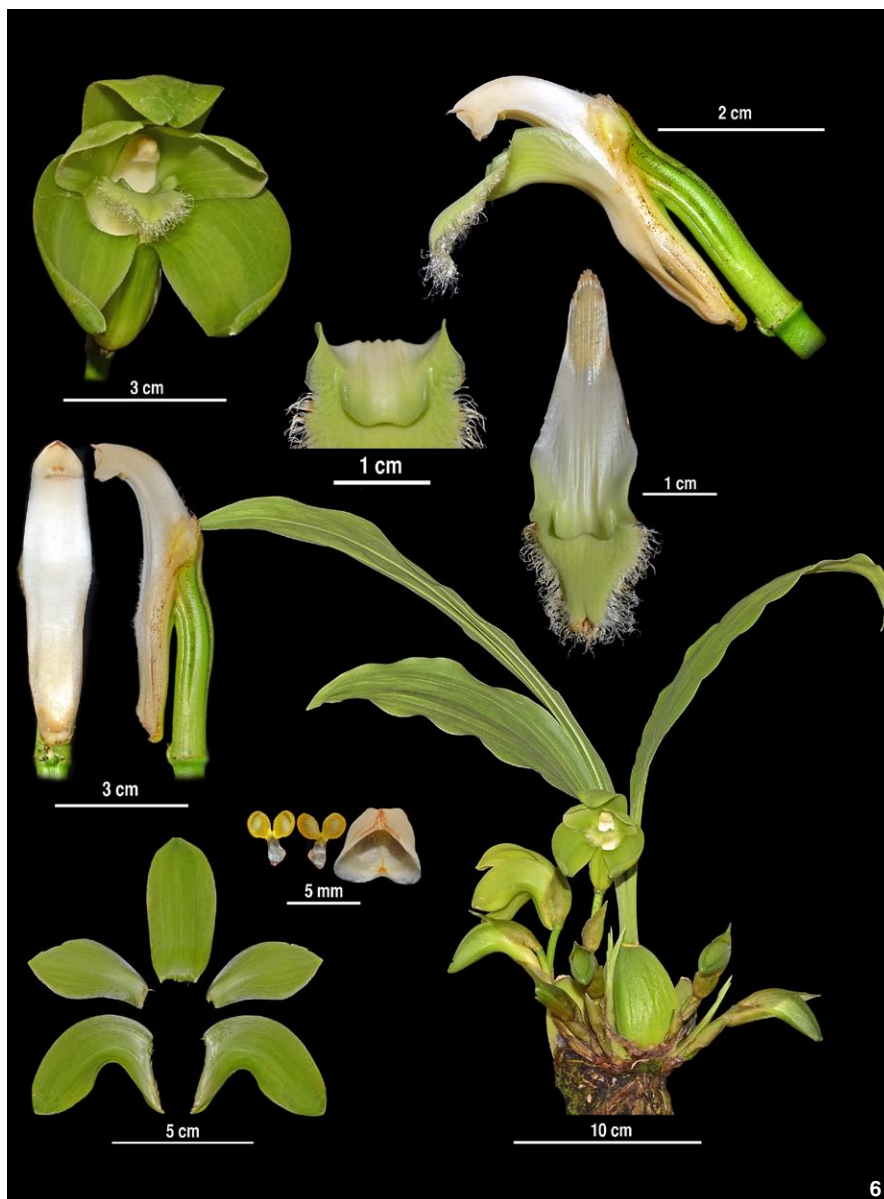
**PHENOLOGY** Plants flower sporadically between March and October.

**HABITAT AND ECOLOGY** The new species grows as an epiphyte in primary cloud forests. Occasionally on exposed sites and also as a terrestrial on slopes among short vegetation around 1,360 m.

**DISCUSSION** The new species is most similar to the *Sudamerlycaste lata* (Rolfe). Archila, but has green flowers and an unpleasant smell rather than greenish white flowers with a white lip lacking a detectable odor. *Sudamerlycaste lata* can further be distinguished by the lip with shorter lobes and shorter, denser hair, and the whitish ovary covered by a shorter bract. Vegetatively, *Sud. lata* can be distinguished by the lanceolate pseudobulbs and elliptic-acuminate leaves vs. oval pseudobulbs and lanceolate-acuminate leaves.

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Ministerio del Ambiente (MAE). 2019. No. 027-19 IC-FLO-FAU-DNB/MA del Ministerio del Ambiente en uso de las atribuciones que le confiere el Acuerdo Interministerial SENESCYT-MAE No. 001, Para el Rescate, conservación, reproducción y manejo Ex Situ de la Flora del Ecuador. Documento Oficial. Sin Publicación. Quito – Ecuador.

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— José (Pepe) Portilla is the CEO, founder and President of Ecuagenera CIA Ltda. and the current president of the Azuay Orchid Society. Pepe, as most people know him, has dedicated his life to research and conservation of Ecuador's natural richness. Ecuagenera, a family-owned company in business more than 27 years, leads South America in research, conservation and propagation of species

[6] *Sudamerlycaste ecuadorensis*, prepared sheet of the plant that served as holotype, by Hugo Medina.

and new hybrids that are exported worldwide (email: pepe@ecuagenera.com). Iván Portilla, Pepe's brother, is Vice-President of Ecuagenera and in charge of orchid shows worldwide (email: ivan@ecuagenera.com) and Hugo Medina is a research assistant and has described numerous new Ecuadorian orchid species (email: producciongye@ecuagenera.com).