ISSN 2262-9017
Jardin Botanique de Guyane
RICHARDIANA
nouvelle série
Volume 6
http://richardiana.jardinbotaniquedeguyane.com

Guatemala, diversification center of the genera *Lycaste* and *Selbyana* (Orchidaceae), with a new nothospecies

Fredy Archila Morales[1, 2] & Guy Chiron[3]

[1] Estación Experimental de Orquídeas de la Familia Archila – archilae@gmail.com
[2] Herbario BIGU, Universidad de San Carlos de Guatemala
[3] Herbiers, Université de Lyon 1, F-69622 Villeurbanne Cedex (France)
* Corresponding author: g.r.chiron@wanadoo.fr

Abstract
During recent botanical explorations in dry areas in Alta Verapaz, the first author found a plant belonging to the subtribe Lycastinae with impressive greenish white flowers. Studying its distinguishing features we came to the conclusion that it was an hitherto unknown hybrid between a *Lycaste* and a *Selbyana*. The new nothotaxon is here described and illustrated.

Résumé
Au cours de récentes explorations botaniques dans les zones sèches de l'Alta Verapaz, le premier auteur a découvert une plante appartenant à la sous-tribu Lycastinae avec d'impressionnantes fleurs blanc verdâtre. En étudiant ses traits distinctifs, nous sommes arrivés à la conclusion qu'il s'agissait d'un hybride jusqu'alors inconnu entre un *Lycaste* et un *Selbyana*. Le nouveau nothotaxon est ici décrit et illustré.

Resumen
Durante exploraciones botánicas recientes en áreas secas de Alta Verapaz, el primer autor encontró una planta perteneciente a la subtribu Lycastinae con impresionantes flores de color blanco verdoso. Estudiando sus características distintivas llegamos a la conclusión de que se trataba de un híbrido hasta ahora desconocido entre una *Lycaste* y una *Selbyana*. El nuevo taxón notho se describe e ilustra aquí.

Manuscrit reçu le 20/05/2022 Article mis en ligne le 14/06/2022 – pp. 36-40

Key-words: Lycastinae, *Lycobyana*, nothotaxon, taxonomy.
Mots clés: Lycastinae, *Lycobyana*, nothotaxon, taxinomie.
Palabras clave: Lycastinae, *Lycobyana*, nothotaxon, taxonomía.

Introduction

Among the botanical studies carried out in Guatemala in the last decades, the genus *Lycaste* (Lindley, 1843: 14) has held a particular attention from the researchers: several books and many articles dealing with this genus have been published, describing various species and making clearer the genus taxonomy, based on population studies, resulting in the proposal of an infrageneric classification of the genus (Archila & Chiron, 2015). As for the evolution process of the subtribe Lycastinae we can note that this clade is composed of genera at different evolution stages: on one extreme we have primitive genera such as *Sudamerlycaste* Archila (2002: 77) with green flowers pollinated by nocturnal butterflies and a chromosome number larger than in the other genera (Archila, 2010a); then *Neomoorea* Rolfe (1904: 30) with flowers arranged in a raceme and open – i.e. not presenting the structure where the lip and/or the petals form a canal or a tube provided for pollination – then *Selbyana* Archila (2010: 66) with thorny deciduous pseudobulbs, yellow flowers and a lip forming a saccate mentum (Archila, 2010b); and finally the two most evolved genera. One, *Anguloa* Ruiz & Pavòn (1794: 118), diversified in the North; it shows yellow flowers in the less advanced species and flowers with anthocyanins in the most advanced species, presents thorns and produces a very complicated and moving lip as well as a straight ovary. The other one, *Lycaste*, the most abundant genus, diversified in the South; it also shows yellow flowers in the less advanced species such as *L. macrobulbon* (Hooker, 1846: 72, t. 4228) Lindley (1851: 126) and *L. campbellii* C. Schweinfurth (1949: 103) – this colour considered as a symplesiomorphy – and flowers with pigments varying from coffee to pink or red in the most advanced species such as *L. virginalis* (Scheidweiler, 1842: 25) Linden (1888: 22) with its numerous varieties (Archila & Chiron, 2011; 2022) and *L. guatemalensis* Archila (1999: 15).

Usually, hybridization between different genera either are not possible or lead to sterile organisms. However it is not the case in a few families, such as Orchidaceae, in which hybridization is frequent. It seems that it represents an advantage in the speciation process as some authors have laid it (e.g. Grant, 1989).

Although the largest plant diversity in Guatemala is found in cloud forests, the dry forests and the thorn bushes may present some endemism when they are isolated in valleys formed in high mountains. During recent botanical explorations in dry areas in Alta Verapaz, the first author found a Lycastinae plant with impressive greenish white flowers. Studying its distinguishing features we came to the conclusion that it was an hitherto unknown hybrid between a *Lycaste* and a *Selbyana*. That is a member of the nothogenus ×*Lycobyana* Archila & Chiron (2010: 54). The new taxon is here described and illustrated.

Taxonomic treatment

Lycobyana* ×*cayalae Archila & Chiron, ***nothospecies nova***

Type: Guatemala, Alta Verapaz, Municipio de San Cristóbal Verapaz, 700 m. s.n.m. February 1999. Fredy Archila *FA-5002* (BIGU).

Etymology: named in reference to the "CAYALA eco" initiative, an example of socio-environmental action.

Haec herba Lycobyana ×victorianum Archila & Chiron similis est sed plantis minoribus (45 cm altis vs. 90 cm altis), inflorescencia longiore (22 cm longa vs. 9 cm longa), floribus albis et pallide chlorinis (vs. flavis), sepalo superiore oblongo (vs. elliptico), sepalis lateralibus oblique elliptico-oblongis (vs. oblique oblongis) apice acuto-acuminatis (vs. retusis), petalis longe oblongis (vs. oblique oblanceolatis) apice obtusis (vs. acutis), labello longiore (4.2 cm longo vs. 3.4 cm), labelli lobis lateralibus oblique oblongis (vs. oblique ellipticis) apice retusis (vs. obtusis), gynostemio longiore (2.3 cm longo vs. 1.8 cm), differt.

Description (Fig. 1): Plant large, 45 cm high on average. Pseudobulbs elliptic, 6-9 cm long, 4-5 cm wide and 2.5-3 cm deep, fleshy, with 2 keels on each side, apically thorny, thorns very small. Leaves petiolate, petiole 8.5 cm long, blade elliptic, 33.5 cm long and 9.2 cm wide, acuminate. Inflorescence 1-flowered, 22 cm long, peduncle furnished with 4 bracts, with one more bract covering 80% of the ovary, 3.5 cm long and 1.8 cm wide flattened. Sepals greenish, petals and lip whitish. Dorsal sepal oblong,

acute, 6.9 cm long and 1.8 cm wide. Lateral sepals oblique elliptic-oblong, acute-acuminate, 7.3 cm long and 2.1 cm wide. Petals oblong to ligulate, obtuse, 4.5 cm long and 1.7 cm wide. Lip trilobed, 4.2 cm long and 2 cm wide; lateral lobes oblique oblong, retuse, 0.9 cm long and 0.6 cm wide; midlobe obovate, acute, 1.8 cm long and 1.1 cm wide, with ondulate margins; disc with a callus similar to the callus observed in *Selbyana*, short and isolated, at the base of the midlobe; in its natural position the lip looks as spathulate. Ovary straight, 4.1 cm long. Gynostemium 2.3 cm long and 0.6 cm wide, linear, slightly pubescent on the ventral part, column-foot similar to the one in *Selbyana*, not parallel to ovary, 0.8 cm long.

The new taxon resembles *Lycobyana* ×*victorianum*. However it can be easily distinguished as the plants are twice smaller, the inflorescence is over twice longer, the flower colour is different, the dorsal sepal oblong, not elliptic, the lateral sepals acute -acuminate, not retuse, the petals obtuse, not acute, the lip is larger and the column longer.

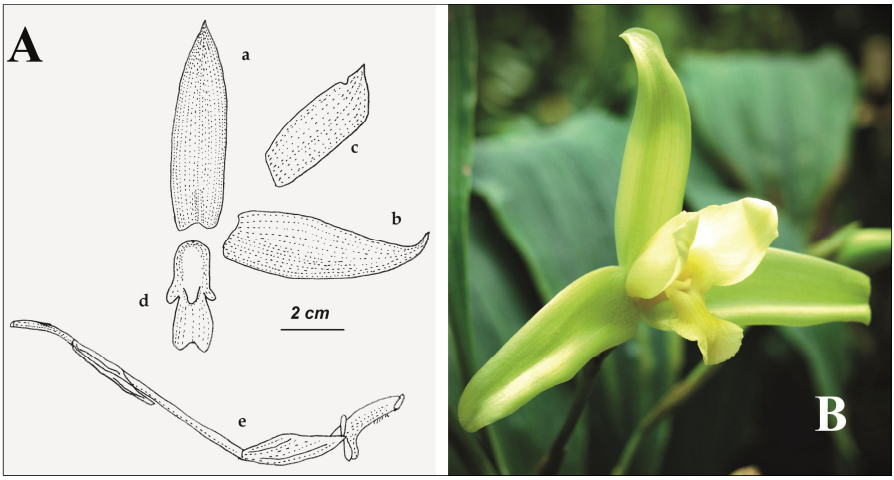

Fig. 1: *Lycobyana* ×*cayalae* Archila & Chiron
a: dorsal sepal; b: lateral sepal; c: petal; d: lip; e: apical part of the peduncle and its basal bract, last bract hidding the ovary, column. [A: drawing Fredy Archila – B: ph. Javier Archila]

References

Archila, F., 1999. *Lycaste guatemalensis* Archila, una nueva especie vegetal guatemalteca. *Revista Guatemalensis*, suplemento especial. 21 pp.

Archila, F., 2002. Addenda et corrigenda para *Sudamerlycaste* Archila; *Revista Guatemalensis* 5(3): 77.

Archila, F., 2010a. *Sudamerlycaste* Archila, el verdadero nombre de la *Lycaste* de los sudamericanos. *Boletín peruano*: 6-42. Club peruano de orquídeas.

Archila F., 2010b. *Selbyana* Archila. Un nuevo género en la Lycastinae Schltr. *Revista Guatemalensis* 13(1): 61-129.

Archila, F. & G. Chiron, 2010. ×*Lycobyana* y ×*Sudacaste* (Orchidaceae, Lycastinae) nuevos nothogéneros latinoamericanos. *Revista Guatemalensis* 13(2): 53-58.

Archila, F. & G. Chiron, 2011. *Lycaste virginalis* (Orchidaceae), reine des *Lycaste*. *Richardiana* 11(3): 105-121.

Archila, F. & G. Chiron, 2015. Il genere *Lycaste*, parte 1. *Caesiana* 18 n.s. (42): 10-22.

Archila, F. & G. Chiron, 2022. Taxonomic note on *Lycaste virginalis* forma *alba* (Orchidaceae). *Richardiana* 6: 6-7.

Grant, V., 1989. *Especiación vegetal*. Liumusa. Mexico 587 pp.

Hooker, W.J., 1846. Maxillaria macrobulbon. *Botanical Magazine* 72: t. 4228.

Linden, J.J., 1888. Lycaste skinneri Lindl. var. alba. *Lindenia* 4: 22.

Lindley, J., 1843. *Edwards's Botanical Register* 29(Misc. B): 14.

Lindley, J., 1851. L. macrobulbon. *Paxton's Flower Garden* i: 126.

Rolfe, R.A., 1904. Neomoorea irrorata. *The Orchid Review* 12: 30.

Ruiz, L.H. & J.A. Pavon, 1794. *Florae Peruvianae, et Chilensis Prodromus, sive novorum generum plantrum peruvianum, et chilensium descriptiones et icones*. Madrid: 118.

Scheidweiler, M.J., 1842. Notice sur quelques nouveaux genres et espèces de plantes. *Bulletins de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles* 9: 25.

Schweinfurth, C., 1949. In I.M. Johnston, The botany of San Jose Island. *Sargentia* 8:103.