



Stenotylis panhasteriana

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Stenotyla lankesteriana

Text by Franco Pupulin/Watercolor by Sylvia Strigari

Tribe Cymbidieae
Sutribe Zygopetalinae
Genus *Stenotyla* Dressler

Stenotyla lankesteriana (Pupulin) Dressler, *Lankesteriana* 5:96 (2005). Basionym: *Chondrorhyncha lankesteriana* Pupulin, *Lindleyana* 15:21 (2000). Type: Costa Rica. Without definite locality, a confiscated plant flowered in cultivation at Lankester Botanic Garden at Paraiso de Cartago, 1,400 m, 19 May 1999, *F. Pupulin 1467* (holotype USJ; isotype SEL-spirit!).

An epiphytic, caespitose, fan-shaped herb to about 20 cm tall. *Pseudobulb* vestigial, ovoid, complanate, ca. 10 x 4-5 mm, completely hidden by the leaf sheaths, apically provided with a rudimentary leaf and enclosed by 5–9 distichous sheaths, the upper ones foliaceous. *Leaves* subcoriaceous, oblanceolate to linear-lanceolate, acute, with slightly undulate margins, 7–20 x 1–1.3 cm, contracted at the base into a conduplicate petiole to 2.8 cm long. *Inflorescences* 1–2 per shoot, erect to gently arched, single-flowered, lateral, produced from the base of the stem and arising from the axil of basal cataphylls; peduncle terete, stout, 3.2–4.2 cm long, provided with a funnel-shaped, broadly ovate, acute bract 7 mm long. *Floral bract* conspicuous, funnel-shaped, acute to acuminate, 7 mm long. *Pedicellate ovary* clavate, arcuate, with low, undulate wings, 1.2 cm long including the pedicel. *Flowers* spreading, white, the lip blotched adaxially with dark purple at the base, this slightly visible without. *Dorsal sepal* narrowly elliptic to lanceolate, acute, concave, dorsally carinate, 24 x 8 mm. *Lateral sepals* linear-elliptic, subfalcate, acute, connate with the base of the column foot, strongly concave, subgeniculate at the middle, the basal margins convolute, apically strongly divergent, 26 x 8 mm. *Petals* elliptic-lanceolate, acute to obscurely apiculate, with revolute apex, 22 x 9 mm. *Lip* entire, tubular, elliptic when spread, truncate, with a short apicule, obscurely cordate at the base, the apical margins slightly undulate/crisped, the basal lobes erect, clasping the column, 27 x 18 mm; the base of the disc with a low, deltoid, truncate, laminar callus 4-toothed at apex. *Column* straight, semiterete, widening toward the stigma, with a short foot, 12 mm long.

Anther cap cucullate, obovate-complanate, 4-celled. *Pollinia* 4, narrowly obovate, in two pairs of different size, on a short, obdeltoid stipe scarcely distinct from the hyaline, shield-shaped viscidium.

Bob Dressler proposed the genus *Stenotyla* in 2005 for a small group of species previously assigned to *Chondrorhyncha* and *Warczewiczella* with small, somewhat vestigial pseudobulbs almost completely concealed in the leafy sheaths (Whitten et al. 2005). The so-called *Chondrorhyncha* complex is a derived group within the Zygopetalinae, and one of its characteristics is the loss of the pseudobulb, which represents the ancestral condition in the subtribe. The species of the more basal groups, both those with plicate leaves close to *Warrea*, and those with conduplicate leaves close to *Zygopetalum*, are truly pseudobulbous. Nevertheless, it should not be surprising that this ancestral state of the stem (in the subtribe) may reappear, though not frequently, in the form of small, and probably nonfunctional, pseudobulbs, in the derivative group of species of the *Huntleya* clade. I have personally observed vestigial pseudobulbs not only in *Stenotyla*, but occasionally also in *Chaubardiella* and *Warczewiczella*, and recently Uribe-Velez and Saulea (2018) have recorded the presence of a reduced pseudobulb, barely 5 mm long, in another species of the group, that the authors newly described as *Chondrorhyncha chocoensis*. *Stenotyla* is uncommon in the *Chondrorhyncha* complex due to the consistent presence of pseudobulbs in all its species. The species of the genus can be distinguished among other Zygopetalinae of the *Huntleya* clade by the narrow, laminar callus at the base of the lip (not in the middle) and the short chin at the base of the lip. Bob Dressler first noted the distinctiveness of the “*Chondrorhyncha*” species allied to *Chondrorhyncha lendyana*, and he keyed out the group on the basis of the column without wings and the narrow, toothed callus (Dressler 2000). The phylogenetic analyses based on DNA sequences by Whitten and collaborators (2005) placed the species of *Stenotyla* in a clade with strong bootstrap support, which has moderate support as sister to *Cochleanthes*.

Uribe-Velez and Saulea (2018) have recently argued that the phylogenetic

analyses of the Zygopetalinae, which made use of data from the chloroplast only, “cannot resolve the taxonomy” of the group, and I agree that the use of a wider genetic basis could probably better resolve some of the uncertainties of the evolutionary tree. Phylogenetically, however, the sampled species of *Chondrorhyncha* form a strongly supported clade, sister to rest of the *Huntleya* clade, excluding *Chaubardia* and *Huntleya* (Whitten et al. 2005). Nevertheless, the “groups” recovered by the analysis carried out by Whitten and colleagues (2005) are not only based on a genetic rationale, but also present quite a strong consistency from both morphological and a phylogeographic points of view. While it is true that “*Chondrorhyncha rosea* also has a narrow callus” (Uribe-Velez & Saulea 2018), this is placed at the center of the lip, and not at the base as in the species of *Stenotyla*. Furthermore, the lip of *Chondrorhyncha* does not have a basal mentum (chin), which is a consistent feature in the species of *Stenotyla* (Pupulin 2009a, 2009b, 2009c). As treated by Dressler and Dalström (2004), *Chondrorhyncha* is a group of probably five to six species exclusively Andean in distribution, while the five species of *Stenotyla* are strictly central American, being restricted in distribution to the north of the Panamanian isthmus (Pupulin 2009b). I hope that the phylogenomics of the so-called “next generation” (but really an actual generation today...) would better resolve the relationships among the groups of Zygopetalinae, but meanwhile the framework recovered by the studies of Whitten and collaborators offers a consistent way to interpret the evolutive patterns in the subtribe and an acceptable model of morphologically diagnosable nomenclature.

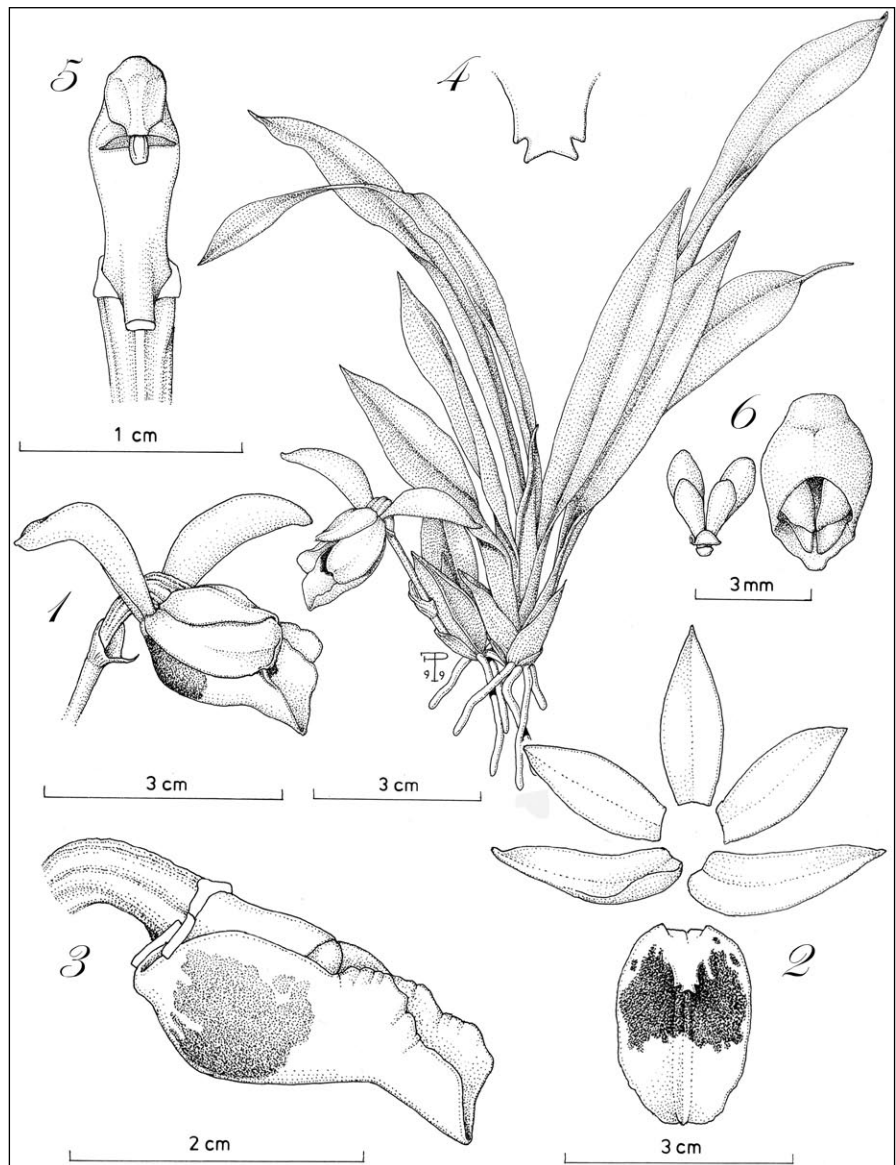
Stenotyla is typified with the former *Chdrh. lendyana*, a species described by Reichenbach in 1886 from a cultivated plant with no geographic data, which we know today is limited in distribution to the northern part of the Central American isthmus. Dressler derived the generic name from the greek words *stenos*, narrow, and *tylo*, callus, alluding to the very narrow, 2-4-toothed callus in most species of the group. Even though it is very “stenotyloous” in any other aspect, and the analysis of chloroplast DNA recovered it as a member

of this group, *Stenotyla picta* has a partly ridged callus that is somewhat atypical in the genus (Pupulin 2009b).

Stenotyla lankesteriana has been around quite a long time in the living collection of the Lankester Botanical Garden before we decided to formally describe it. A single plant, originally confiscated from a poacher by officers of the Ministry of the Environment, flowered year after year, and together with Bob Dressler we discussed several times its lack of a proper name and about the convenience to baptize this species without a precise idea about its provenance. As the plant had been confiscated together with other orchids native to Costa Rica, we were at that time reasonably sure that the plants had been collected somewhere in the country, but we still lacked solid evidence. Finally, in 2000, we made our move and described this beautiful species in honor of our botanical garden, with the name of *Chdrh. lankesteriana* (Pupulin 2000). We were confident that, as it often happens, once our species would have a name, new plants—hopefully with locality data—would begin appearing among the collections of the numerous aficionados of Costa Rica, or maybe at one of the several exhibitions held yearly in the country. We proved right, and in October 2001, Esteban Viquez, a grower in Cartago, presented us a specimen collected at Orosi, a little more than 30 minutes by car from the Lankester Botanical Garden. This plant was illustrated, still with the name *Chdrh. lankesteriana*, in the first volume of *Vanishing beauty - Native Costa Rican orchids* (Pupulin 2005). Nevertheless, *Sty. lankesteriana* remains an exceedingly rare and quite enigmatic species, with only a handful of geographically documented records, all from the region of Orosi, Purisil, and Tapantí, at the northernmost end of the Cordillera de Talamanca.

Based on our records, *Sty. lankesteriana* inhabits the premontane wet to cloud forests of central Costa Rica, where it is apparently restricted to the Caribbean watershed of the Talamanca mountain chain, ranging south to the region of Bocas del Toro in Panama (RL Dressler, pers. comm.). Populations have mostly been observed near water courses, at 1,100–1,400 m of elevation. Plants of *Sty. lankesteriana* flower at the end of the dry season, from March to May.

Stenotyla lankesteriana is closely related to *Stenotyla helleri* and *Stenotyla lendyana*, with which it shares a similar low, laminar callus, but in *Sty. lankesteriana* the tubular lip is not spread apically, it has a large, red-purple blotch at the base and a 4-toothed callus.



References

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Stenotyla lankesteriana. The plant.

1. Flower.
2. Dissected perianth.
3. Column, and lip, lateral view.
4. Callus of the lip.
5. Column, ventral view.
6. Pollinarium and anther cap.

All drawn from Pupulin 1467 (USJ) by Franco Pupulin.

Whitten, W. M., N. H. Williams, R. L. Dressler, G. Gerlach & F. Pupulin. 2005. Generic relationships of Zygopetalinae (Orchidaceae: Cymbidieae): combined molecular evidence. *Lankesteriana* 5: 87–107.