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Echinorhyncha litensis

Text by Franco Pupulin/Watercolor by Sylvia Strigari

Tribe CYMBIDIEAE

Subtribe ZYGOPETALINAE

Genus ECHINORHYNCHA Dressler

Echinorhyncha litensis (Dodson) Dressler, *Lankesteriana* 5(2): 94 (2005).
Basionym: *Chondrorhyncha litensis* Dodson, *Icon. Pl. Trop.* s. 2: sub. t. 417 (1989). Type: “Ecuador: Esmeraldas: km 12, Lita to Alto Tambo, 850 m, 7 Jul 1988”, C.H. Dodson & A. Gentry 17570 (holotype, QCNE; isotype, RPSC).

Plant epiphytic, erect, up to 30 cm tall. *Roots* flexuous, 3 mm in diameter. *Stem* short, concealed by imbricating, distichous leaf sheaths 3.0–4.3 cm long. *Leaves* linear to narrow oblanceolate, thin-textured, grass-green, acute to subacuminate, narrowed at the base into a conduplicate petiole, 5.6–24.0 × 1.6–3.5 cm. *Inflorescence* from the axils of the basal leaf sheaths, 1–2 per shoot, one-flowered, to 10 cm long, with 2 tubular, imbricating bracts. *Floral bracts* in pair, the external one ovate, acute, 12 × 8 mm; the inner bractlet lanceolate, acute, 10 mm long. *Flowers* showy, with sepals and petals yellowish white, the lip white blotched with dark red or pale purple. *Dorsal sepal* lanceolate, acute, recurved at apex, 3–4 × 0.9–1.2 cm. *Lateral sepals* lanceolate, acute, reflexed, strongly conduplicate, 3.2–6.0 × 1.1–2.3 cm. *Petals* narrowly elliptic, subacute, recurved at apex, 3.0–4.5 × 0.9–1.1 cm. *Lip* obovate, emarginate, 3.5–5.0 × 3.0–3.7 cm, the basal lobe erect to encircle the column, the blade spreading, the disc with a broad, raised, seven-toothed callus, provided with a central keel, higher at the base. *Column* subterete, provided with small infrastigmatic, pubescent wings, and two piliferous glands on the lower rim of the stigma, 2.7 cm long including the foot 5 mm long. *Anther cap* hemispherical, flattened, two-celled. *Pollinia* 4, in two pairs subequal in size, on a pandurate stipe; the viscidium ventral elliptic, scarcely distinct for the stipe.

Echinorhyncha litensis belongs to a small group of species, strictly Andean in distribution, all originally described

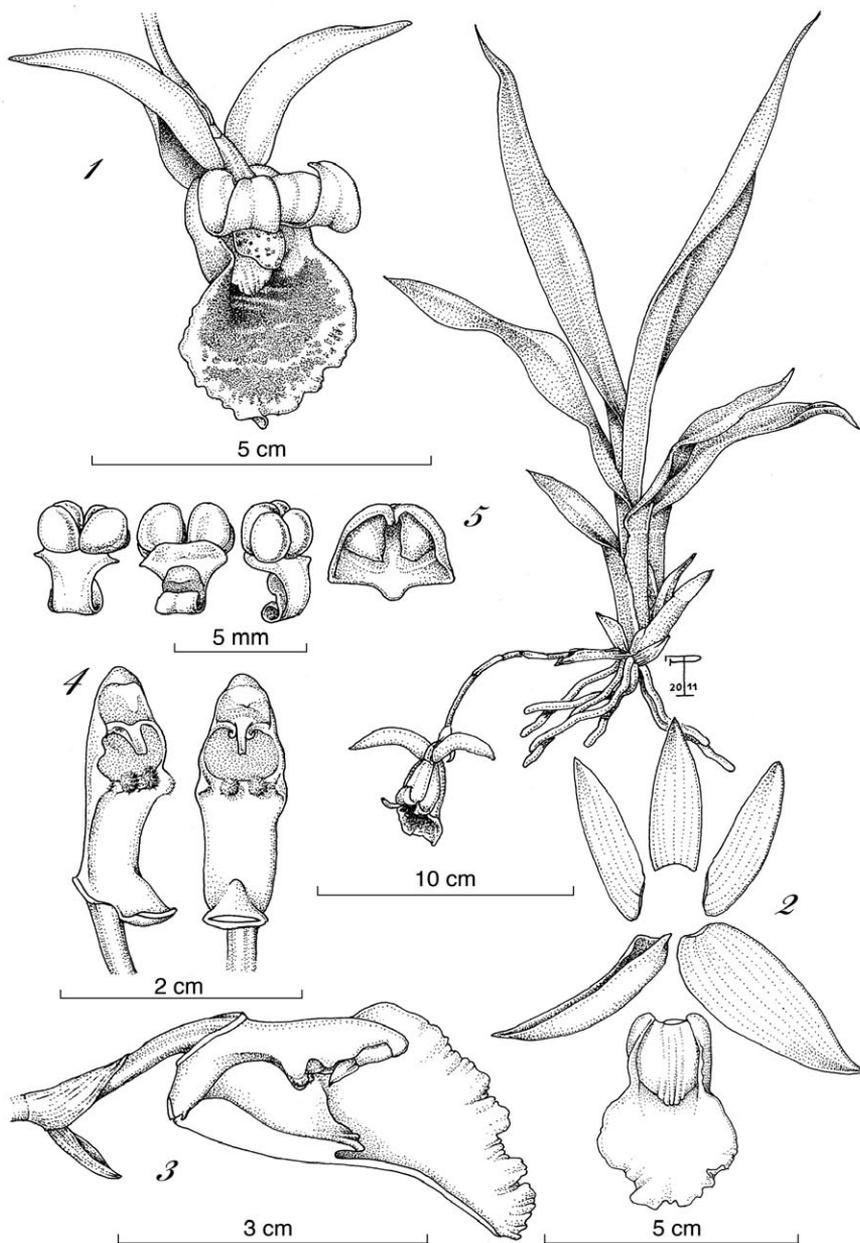
under *Chondrorhyncha* Lindl. The gullet flowers of many species in the so-called *Chondrorhyncha* complex, with their reflexed lateral sepals strongly enrolled at the base to mimic nectaries, exhibit a common nectar-deceit pollination syndrome for long-tongued visitors, probably nectar-foraging euglossine bees (Ackerman, 1983). For a long time these homoplasious floral morphologies (derived traits that were acquired in parallel in unrelated organisms) fooled taxonomists about the true relationships among the species of the *Chondrorhyncha* complex. However, in describing *Chondrorhyncha antonii* (= *Echinorhyncha*), Father Pedro Ortiz Valdivieso (1994) noted its affinities with *Chondrorhyncha vollesii* Gerlach, *Chondrorhyncha ecuadorensis* Dodson, and *C. litensis*, all of which have pubescent-tomentose, tufted protuberances on the underside of the column, close to the large (for *Chondrorhyncha*) stigmatic cavity. It is from these bristly structures that the genus derives its name, mixing the Greek words “echinos” (sea urchin or hedgehog) and “rhynchos” (beak). Although the actual pollinators of the species of *Echinorhyncha* are unknown, Ortiz Valdivieso (1994) suggested that the piliferous glands on the underside of the column probably have a role in attracting pollinators. Additionally, all the species of this group have a pandurate stipe, rarely narrowed basally, with the four pollinia almost equal in size (Pupulin, 2009).

The studies by W. Mark Whitten and collaborators (2005) on the phylogenetic relationships of the Zygopetalinae, based on analyses of nuclear and plastid DNA, confirmed the close affinity between the species of *Chondrorhyncha* that have bristly appendages under the column. In their cladistic analysis, all these species form a distinct clade, weakly supported as sister to a clade including *Kefersteinia*, *Euryblema*, *Benzingia*, *Stenia*, and *Daiotyta*.

Robert L. Dressler made the necessary nomenclatural rearrangements to reflect the phylogenetic relationships among the species of the *Chondrorhyncha* complex, creating the genus *Echinorhyncha* (in

Whitten et al. 2005) for those taxa provided with piliferous, hooked stigmatic appendages on the ventral surface of the column. The species of the genus have quite long and narrow, thinly textured leaves, similar in width to the basal cataphylls (the leaves that grow at the apex of the basal sheaths). The solitary, large flowers have a broad callus plate provided with one or more central keels that protrude apically in short teeth. Superficially, the flowers of *Echinorhyncha* resemble those of *Euryblema*, but differ in the structure of the column.

Echinorhyncha litensis, presented here, was selected by Dressler as the type species for the genus. It had been originally described as a species of *Chondrorhyncha* by Cal Dodson, who compared it with *Chondrorhyncha hirtzii* (a true *Chondrorhyncha*), and in the same publication named the second species of this group, *C. (Echinorhyncha) ecuadorensis* (Dodson and Dodson 1989). That same year, Günter Gerlach, Tillmann Neudecker and Hans Gerhardt Seeger described *C. (Echinorhyncha) vollesii* from a plant originally collected in Colombia (1989). Unaware of Dodson and Dodson’s (1989) contemporary descriptions, Gerlach and colleagues (1989) considered *C. vollesii* unique for the unusual structures found on the column. Since then, and before being recognized as belonging to the same genus, another species of *Echinorhyncha* was described by Ortiz Valdivieso as *C. antonii* in 1994. In the comments to the protologue, Ortiz Valdivieso (1994) was the first botanist to address the strong similarities among the species of *Chondrorhyncha* with piliferous glands under the column, explicitly referring to the taxa previously described by Dodson and Dodson (1989) and Gerlach et al. (1989). In 2009, Patricia Harding and David Manzur eventually transferred to *Echinorhyncha* the fifth and last species of the genus, *Chondrorhyncha manzurii*, another *Chondrorhyncha* with tufts of hairs on the inside of the column wings, which was originally described by Ortiz Valdivieso from Colombia in 2000 (in Harding, 2009).



Echinorhyncha litensis. The plant; 1, three quarters view of the flower; 2, perianth parts; 3, column and lip, lateral view (the lip sectioned); 4, column, three quarters and ventral views; 5, pollinarium (three views) and anther. Drawing by Franco Pupulin.

The five species of *Echinorhyncha* known today are all native (and apparently rare) from the premontane and montane wet forest of the Andes in Colombia and Ecuador, where they are found at elevations of 800–1800 m. *Echinorhyncha litensis* has been recorded from both southern Colombia and northern Ecuador, at 850–1400 meters (Dodson and Dodson 1989). Apparently, the distribution of this rare species is limited to the Pacific (western) slopes of the Andes, close to the border between the Ecuadorean department of Esmeraldas and the Colombian region of Nariño. The medium-sized epiphytic plants grow in warm to temperate climate, and in their natural habitat they apparently flower at any time of the year. Under cultivation

at Lankester Botanical Garden, *E. litensis* mostly flowers toward the end of the rainy season, in October and November.

The plants of *E. litensis* are best grown in shade, under intermediate temperatures with high levels of humidity and frequent watering throughout the year. The relatively large plants are best suited for pot cultivation, with coarse compost that allows ample aeration around the thick roots. At Lankester, they also thrive well when grown in pure sphagnum moss, if the compost is changed frequently.

References

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