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# New Species of *Trichocentrum* (Orchidaceae) from the Andes with a Realignment of the *Trichocentrum pulchrum* Group

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**ABSTRACT.** Two new species of *Trichocentrum*, *T. obcordilabium* Pupulin and *T. viridulum* Pupulin, are described from the northwestern South American Andes. *Trichocentrum brandtiae* Kraenzlin and *T. verruciferum* Schlechter are reduced to synonymy of *T. longicalcaratum* Rolfe, and a new key to the *Trichocentrum pulchrum* group is provided.

*Trichocentrum* Poeppig & Endlicher is a neotropical genus of about 24 epiphytic species distributed from southern Mexico to Brazil, Bolivia, and Peru. Cladistic analysis based on variation in chloroplast DNA (Chase & Palmer, 1992) suggests close relationships within the *Lophiaris* clade, including *Oncidium* sect. *Cebolletae* Lindley and *O.* sect. *Plurituberculata* Lindley, where *Trichocentrum* occupies a derived position.

In a revision of the genus, Pupulin (1995) gathered three Andean species of *Trichocentrum* in an informally proposed “*Trichocentrum pulchrum* group” on the basis of their triquetrous ovaries and the thickened keels from the base of the disk. Recently flowered *Trichocentrum* specimens from Colombia and Ecuador shared the characters of this group, but they proved to be different and hitherto undescribed taxa. Two new *Trichocentrum* species are therefore proposed herein, together with a general realignment of the taxa close to *Trichocentrum pulchrum* Poeppig & Endlicher.

***Trichocentrum obcordilabium*** Pupulin, sp. nov.

TYPE: Ecuador. Morona-Santiago: San Juan Bosco (1600 m), Feb. 1993, collected by J. Portilla, flowered in cultivation, 6 July 1996, *F. Pupulin* 285 (holotype, SEL; isotypes, MO, QCNE, Herb. Pupulin). Figure 1.

Species *Trichocentrum pulchro* Poeppig & Endlicher similis, sed floribus campanulatis, labello obcordato carinis quatuor in basi differt.

Plant epiphytic, caespitose, pendent, with a short rhizome. Roots flexuous, filiform, produced on the rhizome under the attachment of the pseudobulb. Pseudobulbs nearly obsolescent, ovate, to 6 mm

long, about 4.5 mm wide, covered by 2–3 papyraceous sheaths, monophyllous. Leaf fleshy, green, elliptic to elliptic-oblong, sessile, to 8.5 cm long, 3.2 cm wide, retuse. Inflorescence a raceme shorter than leaves, 1- to 2-flowered; peduncle terete, to 2.4 cm long. Floral bracts ovate, acute, to 10.5 mm long, 9 mm wide. Ovary linear-clavate, triquetrous, to about 4 cm long including the pedicel. Flowers campanulate; sepals and petals white, lip yellow with a gold yellow blotch and minute brown spots on the callus. Dorsal sepal widely obovate-elliptic, concave, dorsally carinate, obtuse, obscurely apiculate, 1.25 cm long, 0.9 cm wide. Lateral sepals obliquely elliptic, concave toward the apex, dorsally carinate, obtuse to acute, apiculate, 1.35 cm long, 0.75 cm wide. Petals suborbicular, somewhat concave, rounded, 1.25 cm long, 1 cm wide. Lip adnate to the base of the column, obcordate, deeply emarginate at apex, with slightly undulate margins, 2 cm long, 2.6 cm wide, produced at the base into a slender, flexuous spur, about 3 cm long; callus formed by 4 diverging, flattened, finely pubescent keels, the lateral shorter than the central ones. Column short, stout, about 7 mm long, provided with a pair of short, cuneate, lacerate wings. Anther cap hemiglobose-oblong, densely papillose-hirsute in the apical half. Pollinia 2, pyriform, complanate, on a triangular stipe; viscidium elliptic, brown.

**Etymology.** From the Latin *obcordatus*, “reversed cordate,” referring to the two equal rounded lobes and a deep sinus remote from the attachment, and *labium*, lip, in reference to the reversed heart-shaped labellum.

**Distribution.** Endemic to Ecuador.

**Ecology.** Epiphytic in submontane rainforests. The eastern basin of the Río Zamora is one of the rainiest areas in Ecuador, with a generally temperate climate (the average temperature is about 21°C) and very high and constant moisture levels (Teran, 1990). Flowering occurs from late July through September.

*Trichocentrum obcordilabium* is easily distinguished from its close relatives, namely *T. pulchrum*

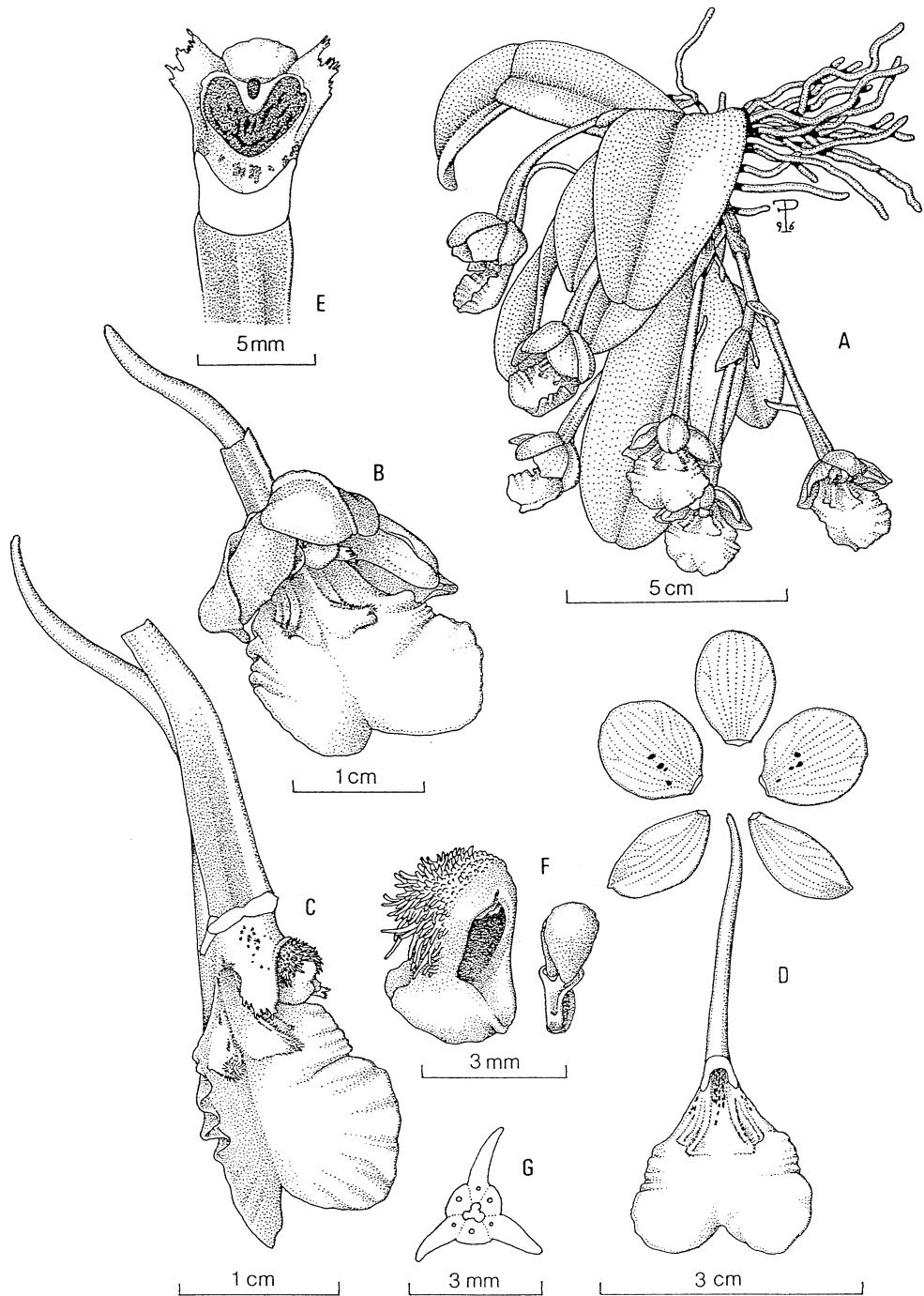


Figure 1. *Trichocentrum obcordilabium* Pupulin (F. Pupulin 285 ). —A. Habit. —B. Flower. —C. Column and lip, with pedicel partially removed. —D. Perianth, flattened. —E. Column, ventral view. —F. Operculum and pollinarium. —G. Ovary, transverse section.

and *T. viridulum*, by the campanulate shape of the flowers, whose segments do not spread out completely, the obcordate lamina of the lip, and the presence of four keels on the disk, a unique character for this group of species.

*Paratype.* ECUADOR. **Zamora-Chinchipe:** near Zamora, C. H. Dodson 17828 (RPSC).

***Trichocentrum viridulum* Pupulin, sp. nov.**

**TYPE:** Colombia. Santander: Charalá, Virolín (1900 m), Mar. 1990, collected by E. Valencia, flowered in cultivation at Colomborquídeas, El Retiro, 24 Aug. 1996, *F. Pupulin* 388 (holotype, SEL; isotype, MO). Figure 2.

Species *Trichocentro pulchro* Poeppig & Endlicher similis, sed floribus minoribus omnino inodoribus, concoloribus viridulis, carinis in basi glabris vel obscure puberulis differt.

Plant epiphytic, caespitose, pendent, with a short rhizome. Roots flexuous, filiform. Pseudobulbs small, linear-elliptic, 4.5 mm long, about 3 mm wide, covered at the base by 3 papyraceous sheaths, monophyllous. Leaf fleshy, green, elliptic-ovate to oblong, sessile, 4.8–9.1 cm long, 1.3–2.4 cm wide, obtuse to minutely retuse. Inflorescence a raceme shorter than leaves, bearing a single flower, rarely 2-flowered; peduncle terete, to 2.5 cm long, concealed with a papyraceous, acute bract 9–11 mm long, 5 mm wide. Floral bracts ovate, acute, 9 mm long, 4 mm wide. Ovary linear-clavate, triquetrous, 3 cm long including the pedicel. Flowers spreading; sepals and petals greenish white, lip greenish white with a yellow blotch on the disk toward the entrance of the spur. Dorsal sepal elliptic-ovate, concave, dorsally carinate, obtuse, minutely apiculate, 1.8 cm long, 0.9 cm wide. Lateral sepals obliquely elliptic-oblong, concave, dorsally carinate, acute, 1.9–2 cm long, 0.8 cm wide. Petals obovate-elliptic, acute, 1.6 cm long, 1 cm wide. Lip adnate to the base of the column, widely obovate, emarginate at apex, with slightly undulate margins, 2 cm long, 1.4 cm wide, produced at the base into a slender, flexuous spur, 3.7–4 cm long; callus formed by 2 parallel, flattened, glabrous to obscurely puberulent keels, slightly diverging at apex. Column short, stout, 6 mm long, with a pair of short, dolabriform-subquadrate, erose wings. Anther cap hemiglobose-oblong, carinate, densely papillose-hirsute. Pollinia 2, pyriform, complanate, on a triangular stipe; viscidium peltate, brown.

*Etymology.* From the Latin *viridulus*, “greenish,” alluding to the color of the flower.

*Distribution.* Endemic to Colombia.

*Ecology.* *Trichocentrum viridulum* inhabits subandine mesothermic forests along the flanks of the Cordillera Oriental in Colombia. Average temperatures vary from 23° to 16°C, and rainfall may reach 5000 mm a year (Pinto-Escobar, 1993). Flowering occurs in August and September.

*Paratypes.* COLOMBIA. **Santander:** Charalá, Virolín (1900 m), Mar. 1990, collected by E. Valencia, flowered at Colomborquídeas, El Retiro, 24 Aug. 1996, *F. Pupulin* 389 (JAUM) *F. Pupulin* 390 (Herb. Pupulin); near Virolín, without further collection data, flowered at Orquifollajes, Medellín, 29 Aug. 1996, *F. Pupulin* 392 (photo, Herb. Pupulin).

*Trichocentrum viridulum* may be distinguished from *T. pulchrum* by the absence of any scent, the smaller size of the flowers, the uniform greenish color of the tepals, and the glabrous keels on the lip. In August 1996 several specimens of this species flowered at Colomborquídeas and Orquifollajes, near Medellín, on which exsiccatae were prepared, and photographs and diagnostic drawings were done. They were later compared with type material of *T. longicalcaratum* at Kew, a species described by R. A. Rolfe in 1896 with a very synthetic protologue. This comparison gave the author the opportunity to revise his concept of *T. longicalcaratum* Rolfe.

In the original description, Rolfe (1896) referred to a specimen flowering in the collection of Sir Trevor Lawrence, and reported the new species as recently named at Kew. At Kew a single flower from “Lehmann, through Mr. J.B. Brien” is annotated by Rolfe himself as “*Trichocentrum longicalcaratum*, n. sp.” Besides the very constricted base of the lip, the flower has an unusually small brownish blotch on the disk. Though the type label does not provide a collection locality, another specimen by Lehmann referable to the same taxon (n. 8379, AMES) was collected in Colombia at Los Robles, near Anserma Nueva. A second flower annotated by Rolfe as “*Trichocentrum longicalcaratum*” is kept at Kew. It pertains to the same plant Rolfe had seen in 1896 in the collection of Sir Trevor Lawrence, but it must be undoubtedly referred to the species later described by Kraenzlin as *T. brandtiae*.

Garay (1965) reduced *Trichocentrum brandtiae* Kraenzlin to a synonym of *T. pulchrum*, but later (Garay, 1970) recognized this taxon as a distinct and valid species. This interpretation was followed by Ortiz V. (1991, 1995) and Pupulin (1995). However, Kraenzlin’s description was published in 1897, and thus his *T. brandtiae* must be relegated to synonymy of *T. longicalcaratum*. The following taxonomy for the taxon is therefore proposed: