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Discovery of *Raycadenco ecuadorensis* Dodson and Addition of the Genus *Raycadenco* Dodson to the Flora of Colombia.

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Abstract

Raycadenco ecuadorensis Dodson was discovered in Antioquia, Colombia, adding a new genus to the flora of Colombia.

The genus *Raycadenco* was first described in 1989 by C. H. Dodson (Icon. Pl. Trop., ser 2, 6: t. 577. 1989) based on *Raycadenco ecuadorensis*. It was collected in Ecuador at Zamora-Chinchipec, up the canyon of the Rio San Francisco at Km 25, on the road from Loja to Zamora at 2200 m, by C. H. Dodson, R. McCullough, C. L. Withner, D'Alessandro and C. Head. Holotype at RPSC.

Chase and Whitten (2011) transferred all *Pachyphyllum* and *Raycadenco* species to *Fernandezia* based on molecular studies. The outcome from the genetic research is questionable since the phylogenetic tree presented by Chase (2009) includes only two *Fernandezia* species, one *Pachyphyllum* species and the *Raycadenco* species.

The tree presented by Neubig et al. (2012) contains 17 taxa of *Pachyphyllinae*. In Neubig et al. (2012) *Raycadenco* is in sister position to all the other *Pachyphyllinae* taxa. Clearly indicating that it is a separate genus. According to the authors, the floral structure of *Pachyphyllum*, *Fernandezia* and *Raycadenco*, “outside of the gross modifications for different pollinators, is otherwise similar; they all have a pair of column wings and/or a dorsal hood”. Chase and Whitten (2011) stated that *Raycadenco* could be maintained as a separate genus due to its sister position to the rest of the clade, but given the fact that its habit and floral morphology agrees with that of *Fernandezia* and *Pachyphyllum* in technical detail, they decided to include it in *Fernandezia*. In addition, Chase and Whitten (2011) argued that *Fernandezia* and *Pachyphyllum* are interdigitated, and explain that shifts from larger, brightly colored (orange to red) flowers to smaller whitish to greenish flowers occurred a number of times.

However, according to Kolanowska and Szlachetko (2014) this is in conflict with their observations. Kolanowska and Szlachetko (2014) make the observation that all of these genera clearly differ from one another in the floral characters and their only common, but actually not unique feature is a monopodial type of growth. The genetic distinctiveness of each based on the genetic research and morphology is clearly indicated.

The recognition of *Raycadenco* as a distinct genus was also made by Senghas (1995). Senghas (1995) not only considered *Raycadenco* a separate genus but a separate subtribe establishing the monotypic subtribe *Raycadencoinae*. The gynostemium of *Raycadenco*, which is slightly sigmoid, slender, delicate, with the wing-like clinandrium, the short rostellum, the small, oval viscidium and the bifid tegula, do not correspond in structure to *Pachyphyllinae*.

For these reasons we maintain *Raycadenco* as a distinct genus and add it to the flora of Colombia based on plants of *Raycadenco ecuadorensis* Dodson (Icon. Pl. Trop., ser 2, 6: t. 577. 1989) discovered by the senior author at Antioquia, near the municipality of Sonsón, at 2600 m, (specimen at HPUJ-28041, deposited on November 19, 2015).

There are subtle differences between the plants from Ecuador and the plants from Colombia. When live material from each country is studied there are differences in the calosity on the labellum and the termination of the sepals and petals. However, these differences are not evident when the material from Colombia is compared to the type illustration. The Colombian material demonstrates more similarity to the type illustration than the live material we have seen from Ecuador.



Raycadenco ecuadorensis Dodson from Antioquia, Colombia.



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Literature Cited

Chase, M. W. (2009). Subtribe Oncidiinae. In: Pridgeon, A. M., Chase, M. W., Cribb, P. J., Rasmussen, F. N. (eds) *Genera Orchidacearum*, Vol. 5. Epidendroideae (part two). Oxford University Press, Oxford, pp 211–394.

Chase, M. W., Whitten, W. M. (2011). Further taxonomic transfers in Oncidiinae (Orchidaceae). *Phytotaxa* 20: 26–32.

Kolanowska, M. & Szlachetko, D. L. (2014). Notes on Pachyphyllinae (Vandoideae, Orchidaceae) with a description of a new genus. *Plant Syst Evol* (2015) 301:95–111. Published online 22 April 2014.

Neubig, K. M., Whitten, W. M., Williams, N. H., Blanco, M. A., Endara, L., Burleigh, J. G., Silvera, K., Cushman, J. C., Chase, M. W. (2012). Generic recircumscriptions of Oncidiinae (Orchidaceae: Cymbidieae) based on maximum likelihood analysis of combined DNA datasets. *Bot. J. Linn. Soc.* 168: 117–146.

Senghas, K. (1995). 749. *Chytroglossa*-770. *Sutrina*. *Orchideen (Schlechter)* (ed 3), Vol. 1B, Lieferung 31: 1905–1976.