

A RECONSIDERATION OF *TRICHOSALPINX MINUTIPETALA* (AMES & C.SCHWEINF.) LUER (ORCHIDACEAE: PLEUROTHALLIDINAE)

Melania Fernández Campos*

Abstract: *Trichosalpinx minutipetala*, considered a synonym of *T. memor* since 1997, is recognized as a distinct species. Descriptions and illustrations of both species are provided, and a comparative table of morphological characters is included. *T. minutipetala* is compared morphologically to *T. memor*, from which it can be readily distinguished by the much larger habit, the densely hispid margins of the ramicaul sheaths, the dorsal sepal white suffused with purple along the veins, the quadrate petals and the oblong lip abruptly descending in the middle.

Key words: Orchidaceae, Pleruothallidinae, *Trichosalpinx*, *T. minutipetala*, *T. memor*, Costa Rica.

Trichosalpinx is a Neotropical genus of subtribe Pleurothallidinae with approximately 120 species, some of them forming morphologically large complexes. One of these species-complex is that of *Trichosalpinx memor* (Rchb.f.) Luer, a species described by Heinrich Gustav Reichenbach (Reichenbach 1856) and distinguishable by the stout ramicaul, the ciliate margins of sepals and lip, and the lip basal callus forked near the middle. Specimens of *T. memor* can be frequently found all along its distribution range, from Mexico to the Andes and the Antilles. As one might expect when treating species-complexes with ample distribution, *T. memor* presents high morphological interpopulation variability (Luer 1997), which has promoted the proliferation of names later considered as its synonyms (= *Pleurothallis brevis* Schltr., *P. gnomonifera* Ames, *P. minutipetala* Ames & C.Schweinf., *Trichosalpinx greenwoodiana* Soto Arenas and *T. nageliana* Soto Arenas), as well as persistent confusion, both in literature and herbaria, when trying

* Jardín Botánico Lankester, Universidad de Costa Rica. melania.fernandez@ucr.ac.cr

to distinguish *T. memor* from other species [e.g. *T. ciliaris* (Lindl.) Luer and *T. blaisdellii* (S.Watson) Luer] (Luer 1997).

Described in 1930 by Oakes Ames and Charles Schweinfurth from a plant collected in Alajuela, Costa Rica, by Alberto M. Brenes (Fig. 1), *Pleurothallis minutipetala* Ames & C.Schweinf. was first recognized by Luer (1983) as a member of *Trichosalpinx*. Later, in his treatment of genus *Trichosalpinx*, Luer (1997) discusses *T. minutipetala* as a particularly large form of *T. memor*, with narrower leaves and shorter petals, thus placing this species in the large list of synonyms of *T. memor*.

Preliminary studies aimed toward a revision of *Trichosalpinx* in Costa Rica (Fernández, in prep.), the access to nomenclatural types and alpha-literature, and field work conducted in several protected areas of the country allowed me to critically evaluate populations of *Trichosalpinx*, including 12 populations of *T. memor* and seven populations of *T. minutipetala* in Costa Rica. On that basis, I consider *T. minutipetala* as a distinct species in *Trichosalpinx*.

***TRICHOSALPINX MINUTIPETALA* (AMES & C. SCHWEINF.) LUER, *Phytologia* 54(5): 396. 1983.**

≡ *Pleurothallis minutipetala* AMES & C. SCHWEINF., *Schedulae Orchidiana*e 10 (32-33). 1930.

Type: Costa Rica: Alajuela. Bosque de C. Laguna, alt. 1190 m, Nov 1922, A.M. Brenes (102) 432 (holotype, AMES-31111; isotype, CR-26170) (Fig. 1).

Herb epiphytic, caespitose, erect, up to 23 cm tall. **Roots** slender, flexuous, to 2 mm in diameter. **Ramicauls** erect, terete, 1.5—20 cm long, enclosed by 5-11 tubular, adpressed at the base, ribbed, densely hispid, brown lepanthiform sheaths, 1.5—3.0 cm long, with broadly dilated, ciliate ostia, the apical 2.8—3.6 cm long, adnate to the petiole and peduncles. **Leaves** erect, coriaceous, elliptic-lanceolate, acute, apiculate, 1.8—8.1 x 0.8—1.9 cm, the cuneate base narrowing into a petiole up to 0.8 cm long. **Inflorescence** a dense, distichous, 7—8 successively flowered raceme, 2.8—4.0 cm long including the peduncle 1.0—1.5 cm long, produced at the base of the leaf. **Floral bracts** cuneiform, conduplicate, 2 x 2 mm. **Pedicels** 1 mm long, persistent. **Ovary** cylindrical, 1 mm long. **Flowers** with the dorsal sepals white, suffused with pink along the 3 veins and towards the apex, the synsepal purple, white at the base, the petals translucent white, the lip dark purple, the column and anther white. **Sepals** papillate externally, densely ciliate along the margins. **Dorsal sepal** flexuous, widely ovate, triangulate, acute, 3.8—4.5 x 2.1—2.6 mm, 3-veined. **Lateral sepals** fleshy, connate into a broadly ovate, retuse, entire, strongly concave synsepal, 4.8—5.5 x 4.3—5 mm, 3-veined. **Petals** quadrate, obtuse, ciliate-fimbriate, 0.8—1 x 0.8—1 mm. **Lip**

oblong, rounded, fimbriate in the first half, ciliate in the apex, sharply reflexed in the middle, 2—2.7 x 0.8—1.3 mm; the disc with a high central carina running from the base to the middle, where it divides into two low carina; with two short basal lobes. **Column** short, semiterete, straight, deeply fimbriate at the apex, 2.3-2.7 mm long, the clinandrium subapical, the stigma ventral. **Anther cap** incumbent, ovate, emarginate. **Pollinia** 2, pyriform, on an cellular, oval viscidium (Figs. 2 & 3).

Etimology: from the Latin *minutipetalus*, “with a small petal”, in reference to the size of the petals.

Distribution (studied material): Costa Rica. **Alajuela:** Valverde Vega, Bajos del Toro, Hacienda Río Toro, Reserva Biológica Privada Bosque de Paz, sobre los potreros frente a la entrada principal de la reserva, 1500-2000m, bosque húmedo tropical montano bajo, transición a montano. 10°13'07" N - 84°17'53" W, 19 de agosto de 2007, A.P. Karremans 2098 & M. Muñoz (JBL) —Valverde Vega, Bajos del Toro, Hacienda Río Toro, Reserva Biológica Privada Bosque de Paz, al lado de la calle principal, árboles solitarios en potrero, bosque húmedo tropical montano bajo, transición a montano, 10°12'35" N - 84°18'44" W, 1500 m, 27 de noviembre 2010, A.P. Karremans 3077 (JBL) — San Carlos, Quesada, about 5 km east of Sucre, western limit of Juan Castro Blanco National Park, slopes of Cerro Platanar, 10°17'00.3"N 84°23'05.1"W, 1600 m, lower montane rain forest, epiphytic on scattered trees in pastures, 30 January 2009, F. Pupulin 7581 & D. Bogarín (JBL) — F. Pupulin 7582 & D. Bogarín (JBL) — **Cartago:** Turrialba, Santa Cruz, finca de los Santiago, camino a las Virtudes, bosque nuboso montano, en árboles de potrero y dentro del bosque, 9°59'40" N 83°44'10" W, 2000m, 30 de octubre del 2010, A. P. Karremans 3017 (JBL) — Turrialba, La Suiza, Llanos del Quetzal, ca. 1 km sobre el camino detrás de la Escuela de Kabébata (Alto Quetzal), 9°46'43.6"N 83°24'41.6"W, 1449 m, epífitas en bosque primario y secundario, bosque muy húmedo premontano “supra arbores in nemoribus Llanos del Quetzal ad Turrialba in Cartago”, 17 junio 2011, D. Bogarín 8874, M. Fernández & A. Karremans (JBL) — Alvarado, Capellades, Santa Teresa, al lado del río del parque de aventuras, en árboles de potreros, bosque muy húmedo montano, 09°56'25.2"N 83°47'18.14"W, 1874 m, 1 mayo 2011, A. P. Karremans 4071 (JBL) — **Guanacaste:** Monteverde, Tilarán, Tronadora, Area de Conservación Arenal, Sierra de Tilarán, 10°21' N -84°48' W, 1500 a 1600, William Haber 8824 (INB) — **Heredia:** Heredia, Vara Blanca, en los potreros y partes de bosque secundario pertenecientes al Poas Volcano Lodge cerca del centro de Vara Blanca. 10°10'00" N - 84°10'06" W Altura alrededor de 1700 y 1900m, 3 y 4 de agosto del 2006, A. Karremans 1333 & D. Karremans (JBL, USJ) — **Puntarenas:** Coto Brus, Sabalito, Zona Protectora Las Tablas, 13 km al noreste de Lucha, Sitio Coto Brus, entre Río Surá y Quebrada Sutú, Finca de Miguel Sandí, 8°56'46.1" N 82°44'30.9" W, 1778 m, bosque pluvial montano bajo, epífitas en potreros ar-

bolados, 6 junio 2010, A. P. Karremans 2836 & D. Bogarín — A. Karremans 2841 & D. Bogarín (JBL) — D. Bogarín 7708 & A. Karremans (JBL)— D. Bogarín 7729 & A. Karremans (JBL) — Coto Brus, Sabalito, Zona Protectora Las Tablas, 13 km al noreste de Lucha, Sitio Coto Brus, entre Río Surá y Quebrada Sutú, Finca de Miguel Sandí, 8°56'46.1" N 82°44'30.9" W, 1778 m, bosque pluvial montano bajo, epífitas en potreros arbolados, 6 octubre 2010, M. Fernández 408, D. Bogarín, R.L. Dressler & F. Pupulin (JBL) — F. Pupulin 7901, D. Bogarín, R.L. Dressler & M. Fernández (Fig. 5).

Distribution and habitat: plants of this species have been found epiphytically in scattered trees in pastures and in secondary lower montane rain forests, very humid premontane, montane and lower montane forests, and tropical humid low montane forest, according to Holdridge Life Zones (Holdridge 1967, Holdridge 1987).

Flowering time: the species flowers throughout the year, under greenhouse conditions.

***TRICHOSALPINX MEMOR* (RCHB.F.) LUER, *Phytologia* 54(5): 396. 1983.**

≡ *Pleurothallis memor* RCHB.F., Bonplandia 4(20-21): 330. 1856.

Type: Colombia. Without collection data, flowered in cultivation in Hamburg Botanical Garden by Hofgartner, *H. Forkel s.n.* (holotype, W-R).

≡ *Humboldtia memor* (RCHB.F.) KUNTZE, Revis. Gen. Pl. 2: 668. 1891.

Herb epiphytic, caespitose, erect, up to 12 cm tall. **Roots** slender, flexuous, 1 mm in diameter. **Ramicauls** slender, erect, terete, 1.0—9.0 cm long, enclosed by 3-6 tubular, adpressed at the base, ribbed, ciliate, lepanthiform sheaths, 1.5—3.0 cm long, with dilated, ciliate ostia. **Leaves** suffused with purple beneath, fleshy, elliptic to ovate, obtuse, apiculate, 1.2—3.5 x 0.9—2.3 cm, the cuneate base narrowing into a petiole up to 0.4 cm long. **Inflorescence** a dense, distichous, 2—6 simultaneously flowered raceme, 1.0—2.5 cm long including the peduncle 0.4—0.8 cm long, produced at the base of the leaf from a lanceolate, acute, conduplicate spathe. **Floral bracts** cuneiform, conduplicate, 1 x 1 mm. **Pedicels** 1 mm long, persistent. **Ovary** cylindrical, 1 mm long. **Flowers** with the dorsal sepals white, the synsepal white at the base and purple or greenish-purple toward the apex, the petals translucent white, the lip dark purple, sometimes suffused with yellow toward the apex, the column and anther white. **Sepals** papillate externally, ciliate along the margins. **Dorsal sepal** flexuous, oblong, acute, 3.3—3.7 x 1.7—2.1 mm, 3-veined. **Lateral sepals** fleshy, connate into a broadly

ovate, retuse, entire, concave synsepal, 3.1—3.7 x 3.3—3.7 mm, 4-veined. **Petals** oblong, obtuse, fimbriate, 1.1—1.3 x 0.6—0.7 mm. **Lip** narrowly oblong to ligulate, rounded, ciliate along the margins, 2.1—2.3 x 0.5—0.6 mm, the disc with a central carina from the base, decreasing in height in the first third, where it divides into two low, longitudinal carina, disappearing toward the apex, the basal lobes short, erect. **Column** short, semiterete, fimbriate at the apex, 1.5-1.9 mm long, the clinandrium subapical, the stigma ventral. **Anther cap** incumbent, ovate, emarginate. **Pollinia** 2, pyriform, on an cellular, oval viscidium (Fig. 5).

Etymology: from the Latin *memor*, “mindful”, in reference to its affinity to *T. ciliaris*.

According to the subgeneric classification by Luer (1997), *Trichosalpinx minutipetala* belongs to subgenus *Trichosalpinx*, along with large species complexes present in Costa Rica as *T. blaisdellii* and *T. memor*. This subgenus is distinguished by the non-prolific, caespitose habit, racemes shorter than the leaf, petals ciliate or fimbriate, and the oblong lip with a central callus and basal lobules (Luer 1997). Morphologically, *Trichosalpinx minutipetala* is most similar to *T. memor* (Table, Fig. 4) and has been considered a synonym of the latter mainly because of the purple ciliate flowers and the lip with a forked central callus. Nevertheless, *T. minutipetala* can be distinguished by the much longer ramicauls, hispid margins and ribs of the ramicaul sheaths, the narrowly lanceolate leaves, the quadrate petals and the shorter lip sharply reflexed near the middle. Even though *Trichosalpinx minutipetala* is morphologically similar to *T. memor*, its features are consistent among all the specimens collected in Costa Rica.

Table. Comparison of morphological characters of *Trichosalpinx minutipetala* and *T. memor* from Costa Rica.

Character	<i>T. minutipetala</i>	<i>T. memor</i>
Ramicaul	Straight, up to 20 cm long.	Straight, up to 13 cm long.
Ramicaul sheaths	Densely hispid at the margins of the ostia and along the ribs, 5-11 sheaths per ramicaul.	Ciliate at the margins of the ostia and along the ribs, 3-6 sheaths per ramicaul.
Leaves	Narrowly lanceolate, 1.8—8.1 x 0.8—1.9 cm.	Oblong-ovate, purple beneath, 1.2—3.5 x 0.9—2.3 cm.
Inflorescence	7—8 successively flowered raceme.	2—6 simultaneously flowered raceme.

Dorsal sepal	White and suffused with pink along the veins.	White, occasionally purple toward the apex.
Synsepal	4.8—5.5 x 4.3—5 mm.	3.5—5.0 x 4—5 mm.
Petals	Quadrangle, ciliate-fimbriate, 0.8—1 x 0.8—1 mm.	Oblong, ciliate, 1.0—1.9 x 0.6—1.0 mm.
Lip	Oblong, sharply reflexed in the middle, 2—2.7 x 0.8—1.3 mm.	Narrowly oblong to ligulate, 1.7—2.1 x 0.5—1 mm.

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