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ICONES PLEUROTHALLIDINARUM
V

SYSTEMATICS
OF
DRESSLERELLA
AND
SCAPHOSEPALUM

ADDENDA TO PORROGLOSSUM

(ORCHIDACEAE)



Missouri Botanical Garden

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CARLYLE A. LUER



Missouri Botanical Garden

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Dresslerella hirsutissima (C. Schweinf.) Luer
Province of Morona-Santiago, Ecuador, Río Calagrás, alt. 1500 meters above sea level,
30 March 1985, photo by Alexander C. Hirtz.

SYSTEMATICS OF THE GENUS
DRESSLERELLA (ORCHIDACEAE)

ABSTRACT

A history of *Dresslerella* Luer is given and the genus is described. A key to the subgenera and species is given. Each species is described and illustrated with a black and white drawing, and a distribution map is included for each.

New Taxa:

Dresslerella subgen. *Dresslerella*

Dresslerella subgen. *Pilositas* Luer

The first species of *Dresslerella* to be described was the Costa Rican *Pleurothallis pilosissima* by Rudolf Schlechter in 1923 from a discovery by his friend Guillermo Acosta. No mention was made of the pollinia. Schlechter suspected that his unusual species would belong in an undescribed genus separate from *Pleurothallis*, remarking that he hoped one day to return to the question with more material. Schlechter died in 1925 at the age of 53. Species of his anticipated genus were to reside in *Cryptophoranthus* Barb. Rodr., *Pleurothallis* R. Br., *Restrepia* H.B.K., and *Restrepiella* Garay & Dunsterville before finally coming to rest in *Dresslerella*.

In 1925, Ames described *Cryptophoranthus powellii* from Panama, the second species of *Dresslerella* to come to the attention of an orchid taxonomist. Again, no mention was made of the pollinia. In 1937, Ames and Schweinfurth transferred *P. pilosissima* to *Restrepia* because of the clavate dorsal sepal and petals, not because of the four pollinia. In 1940, L. O. Williams described *P. hispida* from Panama, not realizing that it was extremely closely allied to *C. powellii*. Again, no mention was made of the pollinia. In 1951, Schweinfurth next described *P. hirsutissima* from Peru, comparing it to the very closely allied *P. pilosissima* from Costa Rica, and choosing not to describe it in *Restrepia*. Again, no mention was made of the pollinia.

In 1970, Dressler described *P. pertusa* from Panama, and pointed out the slight differences between *P. hispida* and *C. powellii* (*P. deceptor*). The latter required a change of the epithet in *Pleurothallis*. Dressler looked at the pollinia, but saw only the larger pair.

The genus *Dresslerella* was proposed in 1976 for the three Panamanian species plus a fourth new one. The genus was increased to eight in 1979 when *D. hirsutissima* and *D. pilosissima* were transferred from *Restrepiella* and two new species from the Andes were added. All have similar habits and floral structures, and all have a pair of "normal-sized" pollinia flanked on each side by a much smaller pollinium for a total of four.

The eight species of *Dresslerella* apparently form local, isolated populations in moist, tropical forests from Nicaragua into Peru. Most are relatively uncommon except for *D. powellii* which is locally abundant in Panama.

KEY TO THE SPECIES OF *DRESSLERELLA*

- 1 Leaves short-pubescent or ciliate; dorsal sepal deeply connate to the synsepal, not clavate; petals not clavate 2
 1' Leaves long-pubescent; dorsal sepal free and clavate; petals clavate 7

Subgenus *Dresslerella*

- 2 Leaves covered with trichomes on both surfaces; lip pandurate with the anterior lobe dentate *D. caesariata*
 2' Leaves with trichomes only along the margins; lip not pandurate with the anterior lobe dentate 3
 3 Sepals with the trichomes stellate *D. stellaris*
 3' Sepals with the trichomes simple 4
 4 Claw of the lip with the callus erect, acute 5
 4' Claw of the lip with the callus hippocrepiform, obtuse 6
 5 Apex of the dorsal sepal protruding beyond the synsepal; petals linear, not with marginal angles above the middle *D. elvallisensis*
 5' Apex of the dorsal sepal not protruding beyond the synsepal; petals with obtuse, marginal angles above the middle *D. pertusa*
 6 Apex of the synsepal with markedly involute margins, inflated; petals elliptical *D. powellii*
 6' Apex of the synsepal without markedly involute margins, deeply cymbiform; petals scimitar-shaped *D. hispida*

Subgenus *Pilositas*

- 7 Dorsal sepal and petals striped; anterior lobe of the lip rounded, the basal callus flat *D. pilosissima*
 7' Dorsal sepal and petals spotted; anterior lobe of the lip abruptly apiculate, the basal callus erect, acute *D. hirsutissima*

LIST OF ILLUSTRATIONS

<i>Dresslerella caesariata</i> Luer	Plate 1.
<i>Dresslerella elvallisensis</i> Luer	Plate 2.
<i>Dresslerella hirsutissima</i> (C. Schweinf.) Luer	Plate 3.
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<i>Dresslerella pilosissima</i> (Schltr.) Luer	Plate 6.
<i>Dresslerella powellii</i> (Ames) Luer	Plate 7.
<i>Dresslerella stellaris</i> Luer & Escobar	Plate 8.

Dresslerella Luer, *Selbyana* 3: 1, 1976.

Type: *Pleurothallis pertusa* Dressler, *Orquideología* 5: 76, 1970.

Ety.: Named in honor of Dr. Robert L. Dressler, renowned author and investigator of the Orchidaceae.

Plants perennial, small to medium in size, epiphytic, caespitose, sometimes forming prostrate rosettes, the rhizome very short between ramicauls; roots slender, coarse, sometimes branching. Ramicauls horizontal to pendent, ascending to erect, slender to stout, non-pseudobulbous, shorter than to as long as the leaf, unifoliate, partially or completely enclosed by 3-4 thin, more or less ciliate or pubescent, often spotted, often fugacious, imbricating sheaths, the inflorescence emerging apically with the base of the leaf, without an annulus. Leaf erect in relationship to the ramicaul, often horizontal, prostrate or pendent, thickly coriaceous or fleshy, minutely to coarsely pubescent, sometimes ciliate, often suffused with purple, elliptical to ovate, or narrowly elliptical to ovate, the apex acute, subacute, or obtuse, entire, the base cuneate, or subcordate, sessile. Inflorescence a succession of single flowers, borne on top of the leaf by a short, slender to stout peduncle, at the base of the leaf, enclosed at least at the base by a loose sheath; floral bract thin, tubular, sometimes pubescent, pedicels slender, usually pubescent, with a minute filament (vestigial bud of another flower); ovary short- to long-pubescent, trivalvate; sepals fleshy, usually dark purple, or spotted or striped with purple, covered externally by short or long trichomes, simple to stellate, the dorsal sepal more or less triangular, essentially free to connate to above the middle to the lateral sepals, the apex subacute to acute, to acuminate, sometimes clavate, the lateral sepals connate to or near the apex into a deeply concave synsepal, often inflated; petals more or less membranous, elliptical to linear to ovate, acute to acuminate, sometimes clavate; lip more or less unguiculate and 3-lobed, sagittate to subpandurate, the lateral lobes thick and obtuse to thin and uncinatate, the apex obtuse to apiculate, denticulate to entire, the disc more or less bicarinate, the claw with a callus, acute to hippocrepiform, the base truncate with minute marginal lobules, hinged to the column-foot; column slender, semiterete, more or less winged above the middle, sometimes denticulate at the apex, the anther hooded, ventral, the rostellum retrorse, the pollinia 4, 2 large, 2 small, ovate with caudicles, individual, or lightly adherent to a common viscidium, the stigma ventral, the base of the column developed into a thick, pedestal-like column-foot with the apex of the ovary.

Two subgenera are defined. Subgenus *Dresslerella* contains the six species with more or less tubular flowers with an apical aperture, the dorsal sepal deeply connate to the concave, more or less inflated synsepal. The two other closely allied species with long-pubescent leaves and a free, erect, clavate dorsal sepal are segregated into subgenus *Pilositas*.

Dresslerella subgen. **Dresslerella**

Type: *Pleurothallis pertusa* Dressler

This subgenus is characterized by shortly pubescent to ciliate leaves, and a non-clavate dorsal sepal deeply connate to a concave, or more or less scrotiform synsepal. The petals also are not clavate. Six species are included.

Dresslerella subgen. **Pilositas** Luer, subgen. nov.

Type: *Pleurothallis pilosissima* Schltr., *Repert. Spec. Nov. Regni Veg. Beih.* 19:289, 1923.
Ety.: From the Latin *pilositas*, "a long hair-covering," referring to the leaves and sepals.

Folia dense longipilosa. Sepalum dorsale liberum clavatum. Petala clavata.

This subgenus is characterized by densely long-pubescent leaves, and a clavate dorsal sepal essentially free from a cymbiform synsepal. The petals are also clavate. Two closely allied species, one from Costa Rica, the other from Ecuador and Peru, are included.

***Dresslerella caesariata* Luer, Selbyana 2: 185, 1979.**

Ety.: From the Latin *caesarius*, "covered with hair," in reference to the dense mat of hairs covering the parts of the plant.

Plant medium in size, epiphytic, caespitose, the rhizome very short; roots coarse. Ramicauls horizontal to suberect, stout, 4-8 cm long, enclosed by 3-4 fugacious, pubescent, imbricating sheaths. **Leaf** more or less horizontal, erect to suberect in relationship to the ramicaul, thickly coriaceous, dark green, covered on both sides by white trichomes, elliptical, subacute, 4-7 cm long, 2-2.5 cm wide, the base cuneate, sessile. **Inflorescence** a succession of single flowers, borne by a stout peduncle, 3 mm long, enclosed by a sheath at the base of the leaf; floral bract inflated, obtuse, densely long-pubescent, enclosing the pedicel, ovary and the basal portions of the sepals, 6 mm long, 5 mm wide expanded; pedicel pubescent, 2 mm long; ovary densely long-pubescent, 2.5 mm long; **sepals** rose, mottled with dark purple, fleshy, covered externally by a dense, white pubescence, the dorsal sepal narrowly triangular, acute, acuminate, 17 mm long, 5 mm wide, connate 10 mm to the lateral sepals to form a pyriform flower, the lateral sepals connate to the apex into a deeply concave, scrotiform synsepal with involute margins, 16 mm long, 8 mm wide unexpanded; **petals** rose, spotted with purple, elliptical, acute, acuminate, 10 mm long, 3 mm wide; **lip** white, marked with purple, pandurate, 7.5 mm long, the apical lobe sagittate with dentate margins, obtuse 3 mm wide, the lateral lobes erect, oblique, obtuse, 4 mm wide expanded, the disc with an erect pair of rounded lamellae, the claw with with an erect, obtuse callus, the base truncate with minute marginal lobules, hinged to the column-foot; **column** slender, semiterete, 6 mm long, more or less winged above the middle, denticulate at the apex, the base developed into a thick, pedestal-like foot with the apex of the ovary.

ECUADOR: Prov. of Morona-Santiago: epiphytic in cloud forest east of Paute, alt. ca. 1800 m, 10 July 1977, flowered in cultivation 1 March 1978, C. Luer, J. Luer, G. Luer & A. Andreetta 2780 (Holotype: SEL). Prov. of Zamora-Chinchi: epiphytic in cloud forest between Loja and Zamora, alt. ca. 1700 m, flowered in cultivation at MO, 1 Apr. 1971, C. H. Dodson 390 (MO, SEL).

This species is apparently rare and local in the wet forests of the eastern slopes of the Andes of southern Ecuador where it has been seen on a very few occasions. It has features of both subgenera. Although the pubescent leaves and the pandurate shape of the lip indicate an affinity to subgenus *Pilositas*, the closed, pyriform flower without a clavate dorsal sepal and petals indicates a stronger relationship to subgenus *Dresslerella*.



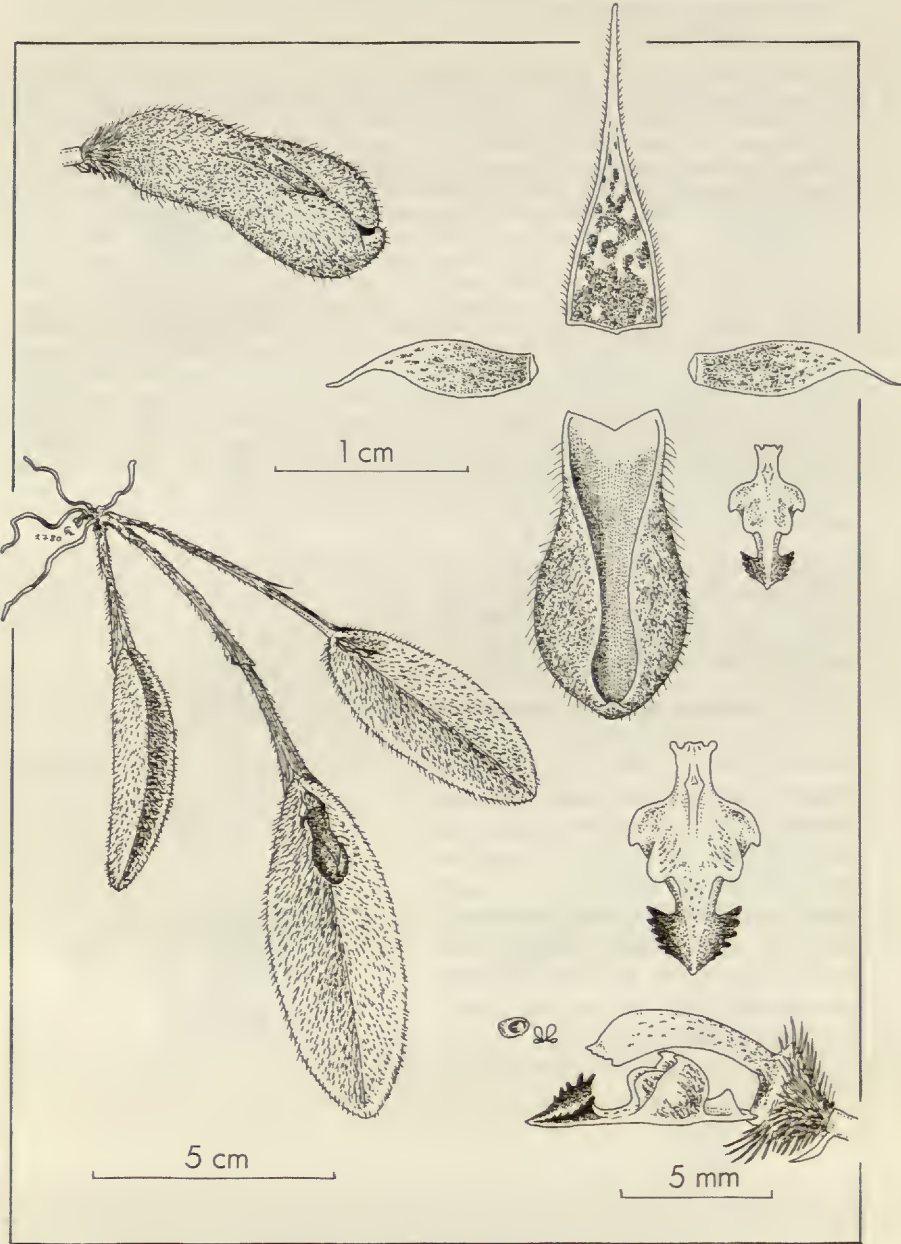


Plate 1. *Dresslerella caesariata* Luer

***Dresslerella elvallensis* Luer, Selbyana 3: 2, 1976.**

Ety.: Named for the community of El Valle de Antón in the province of Coclé near which the species occurs.

Plant medium in size, epiphytic, caespitose, forming a prostrate rosette, the rhizome very short; roots slender, coarse. Ramicauls horizontal to pendent with the weight of the leaves, slender to stout, 2-3 cm long, enclosed by 3-4 often shed, thin, pubescent, imbricating sheaths. **Leaf** erect in relationship to the ramicaul, horizontal, prostrate or pendent, thickly coriaceous, dark green, suffused with purple, especially beneath, elliptical to oblong, subacute, 3-7 cm long, 1-2.5 cm wide, the margins minutely ciliate, the base cuneate, subcordate, sessile. **Inflorescence** a succession of single flowers, borne by a stout peduncle, 3-5 mm long, enclosed by a loose sheath at the base of the leaf; floral bract thin, tubular, densely pubescent, 4-5 mm long; pedicel red, pubescent, 4-5 mm long; ovary densely short-pubescent, 2.5 mm long; **sepals** dull yellow-green, suffused and spotted with dark purple-brown, fleshy, covered externally by a short, dense pubescence, the dorsal sepal narrowly triangular, narrowly obtuse, 9 mm long, 3 mm wide, connate 4 mm to and protruding beyond the lateral sepals to form a tubular flower, the lateral sepals connate to the apex into a deeply concave, cymbiform synsepal, 7 mm long, 5 mm wide unexpanded; **petals** translucent yellow, narrowly linear, acute, 6 mm long, 0.4 mm wide; **lip** dull orange, dotted with purple-brown, sagittate, 3-lobed, unguiculate, 5 mm long, 3 mm wide expanded, the lateral lobes erect, obtuse, the apex obtuse, entire, the disc with a pair of low, converging carinae, the claw with with an erect, acute callus, the base truncate with minute marginal lobules, hinged to the column-foot; **column** slender, semiterete, 5 mm long, more or less winged above the middle, denticulate at the apex, the base developed into a thick, pedestal-like foot with the apex of the ovary.

PANAMA: Prov. of Coclé: epiphytic in cloud forest above El Valle, alt. ca. 1000 m, 6 March 1976, C. Luer, J. Luer, R. L. Dressler & P. Taylor 1079 (Holotype: SEL); same area, 3 Sept. 1976, C. Luer & H. Butcher 1154 (SEL).

This species is apparently endemic in the forests of the province of Coclé in central Panama. Similar to the other Panamanian species, the ramicauls form a rosette of heavy, prostrate leaves that more or less lie upon the substrate. *Dresslerella elvallensis* is most closely related to *D. pertusa* from central Panama. It is distinguished from the latter by the dorsal sepal protruding beyond the synsepal, and the narrowly linear, non-dilated petals.



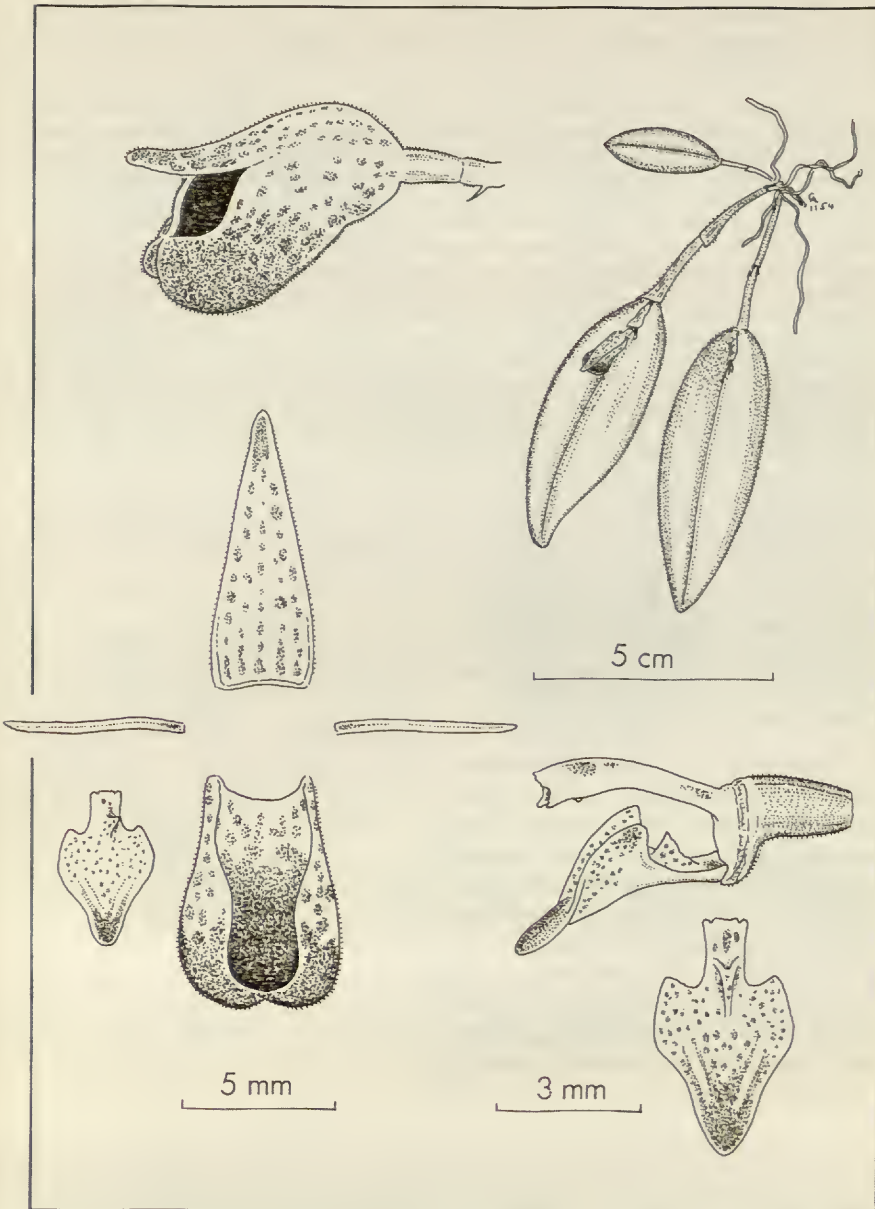


Plate 2. *Dresslerella elvallensis* Luer

Dresslerella hirsutissima (C. Schweinf.) Luer, Selbyana 2: 185, 1979.

Bas.: *Pleurothallis hirsutissima* C.Schweinf., Bot. Mus. Leaf. 15: 94, 1951.

Ety.: From the Latin *hirsutissimus*, "very hairy," in reference to the abundance of trichomes.

Syn.: *Restrepiella hirsutissima* (C.Schweinf.) Garay & Dunsterv., Venez. Orchids III. 4: 266, 1966.

Plant small, epiphytic, caespitose, more or less forming a rosette, the rhizome very short; roots slender, coarse. Ramicauls horizontal to suberect, stout, 1-3 cm long, enclosed by 3 fugacious, pilose, imbricating sheaths. **Leaf** light green, suffused with purple beneath, suberect to horizontal, erect to suberect in relationship to the ramicaul, fleshy, verruculose, covered on both sides by long, white trichomes, elliptical, obtuse, 2-3.5 cm long, 1.5-2 cm wide, the base broadly cuneate, sessile. **Inflorescence** a succession of single flowers, borne by a slender, suberect peduncle 12-14 mm long, with a basal sheath 5 mm long at the base of the leaf; floral bract tubular, long-pubescent, 9-10 mm long; pedicel pubescent, 6-7 mm long; ovary densely long-pubescent, 2.5 mm long; **sepals** translucent yellow-green, diffusely spotted with purple, covered externally by a long, white pubescence, the dorsal sepal ovate-triangular, acute, acuminate, clavellate, 14 mm long, 4.5 mm wide, essentially free from the lateral sepals, the lateral sepals connate to the apex into a deeply concave, obtuse, scaphoid synsepal, 13 mm long, 7 mm wide unexpanded; **petals** translucent with purple spots, minutely pubescent, obovate below the middle, oblique, 11.5 mm long, 3.5 mm wide, the apex acute, long-acuminate, the clavate tip yellow-orange; **lip** light green, dotted with purple, pandurate, 6 mm long, the apical lobe ovate, minutely pubescent, 2 mm wide, the rounded apex apiculate, obovate below the narrow isthmus, the lateral lobes thin, uncinata, 0.5 mm long, the disc with a low pair of converging carinae, the claw with an acute, erect callus, the base truncate with minute marginal lobules, hinged to the column-foot; **column** slender, semiterete, 4 mm long, winged at the bidentate apex, the base developed into a thick, pedestal-like foot with the apex of the ovary.

PERU: Prov. of Tarma: Agua Dulce, alt. 1800 m, 15 Mar. 1948, *F. Woytkowski* 35475 (Holotype: AMES; Isotype: JEPS).

ECUADOR: Prov. of Morona-Santiago: alt. 1500 m, collected by M. Portilla, flowered in cultivation 6 Apr. 1979, *C. Luer* 4054 (SEL).

This species is apparently uncommon and locally distributed in the Oriente of Ecuador and Peru. The lip of the specimen from Ecuador is only minutely pubescent-verruculose, while the illustration of the lip from the specimen from Peru is coarsely verrucose.

Dresslerella hirsutissima is very closely allied to *D. pilosissima* from Costa Rica, a remarkable distance without closely allied species known to occur in between.



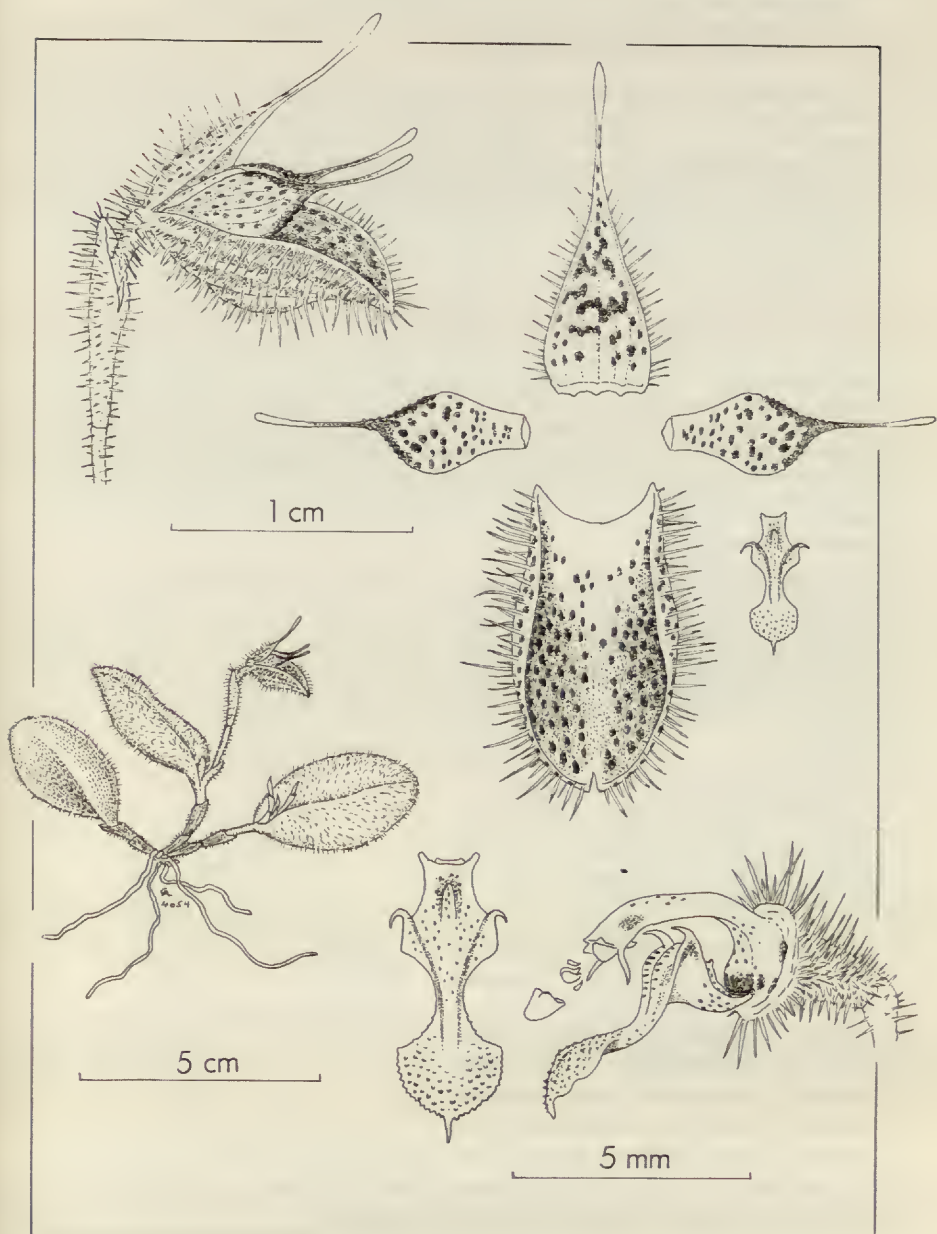


Plate 3. *Dresslerella hirsutissima* (C. Schweinf.) Luer

Dresslerella hispida (L. O. Wms.) Luer, Selbyana 3: 4, 1976.

Bas.: *Pleurothallis hispida* L. O. Wms., Ann. Missouri Bot. Gard. 27: 277, 1940.

Ety.: From the Latin *hispidus*, "covered with erect, coarse hairs," in reference to the margins of the leaves and the sepals.

Plant small to medium in size, epiphytic, caespitose, forming a prostrate rosette, the rhizome very short; roots slender, coarse. Ramicauls horizontal, slender to stout, 1-4 cm long, enclosed by 3-4 fugacious, loose, pubescent, purple-spotted, imbricating sheaths. Leaf erect in relationship to the ramicaul, horizontal, prostrate, thickly coriaceous, dark green, suffused with purple, especially beneath, elliptical to oblong, subacute to obtuse, 1.5-6.5 cm long, 1-2.5 cm wide, the margins minutely ciliate, the base cuneate to rounded, subcordate, sessile. **Inflorescence** a succession of single flowers, borne by a stout peduncle, 2-5 mm long, enclosed by a loose sheath at the base of the leaf; floral bract thin, tubular, densely pubescent, 2-4 mm long; pedicel red, pubescent, 2-4 mm long; ovary densely short-pubescent, 1 mm long; sepals dark red-purple, fleshy, covered externally by a white, short, dense pubescence, the dorsal sepal narrowly ovate, narrowly obtuse, 5-10 mm long, 2-3 mm wide, connate 2-3 mm to the lateral sepals to form a tubular flower, the lateral sepals connate to the apex into a deeply concave, cymbiform synsepal, 6-11 mm long, 4-6 mm wide unexpanded; petals red-purple, obovate, obtusely angled on the labellar margin above the middle, acute, 4-7 mm long, 1-2 mm wide; lip red-purple, sagittate, 3-lobed, unguiculate, 2.5-4 mm long, 1.5-2 mm wide expanded, the lateral lobes erect, obtuse, the apex obtuse, entire, the disc with a pair of converging carinae, minutely rugose between, the claw with a horseshoe-shaped callus, the base truncate with minute marginal lobules, hinged to the column-foot; column slender, semiterete, 2.5-3.5 mm long, more or less winged above the middle, denticulate at the apex, the base developed into a thick, pedestal-like foot with the apex of the ovary.

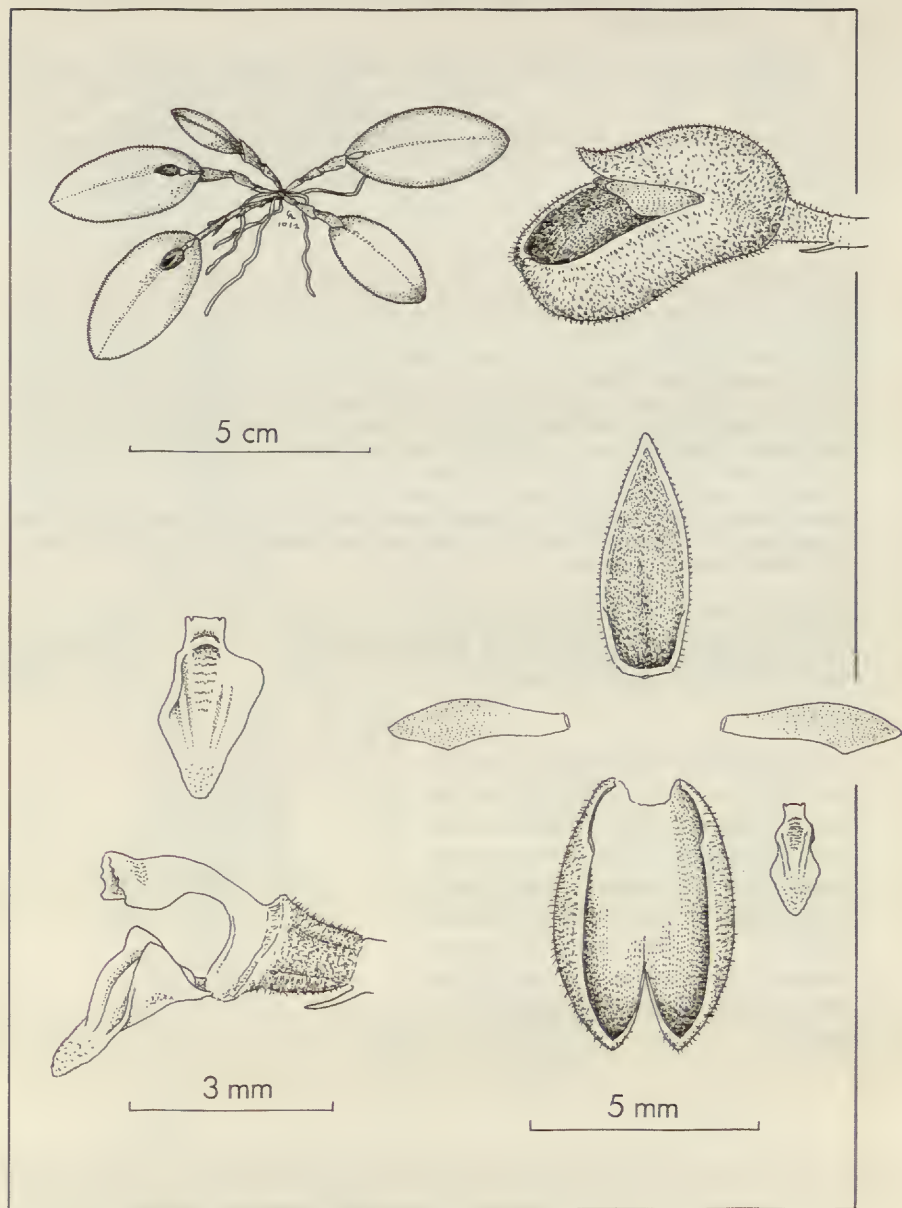
PANAMA: Prov. of Coclé: vicinity of El Valle, alt. 800-1000 m, 5 Sept. 1939, P. Allen 782 (Holotype: AMES). Prov. of Panama: epiphytic on Cerro Azul, alt. ca. 1000 m, 14 July 1964, R. L. Dressler 2919 (SEL); epiphytic on Cerro Jefe, alt. ca. 1000 m, 2 Mar. 1976, C. Luer, J. Luer, R. L. Dressler & P. Taylor 1012 (SEL).

NICARAGUA: Prov. of Chontales, east of Babilonia Mine, alt. 650 m, A. Heller 6513 (SEL).

COLOMBIA: Dept. of Chocó: Bahía Solano, "Mutata arriba," alt. 300 m, Apr. 1977, collected by G. Misas, R. Estrada & L. C. Vieira, flowered in cultivation at SEL, 14 Dec. 1977, C. Luer 2262 (SEL).



This species is variable in size in its wide distribution from Nicaragua into the Chocó of Colombia, where it reaches its greatest proportions. Similar to *D. powellii* with the ramicauls forming a rosette of heavy, prostrate leaves, *D. hispida* is distinguished by a scaphoid synsepal without markedly recurved margins inflated at the apex, and the presence of scimitar-shaped petals. These differences are slight, *D. hispida* being little more than a variation of *D. powellii*.

Plate 4. *Dresslerella hispida* (L. O. Wms.) Luer

Dresslerella pertusa (Dressler) Luer, Selbyana 3: 6, 1976.

Bas.: *Pleurothallis pertusa* Dressler, Orquideología 5: 76, 1970.

Ety.: From the Latin *perтусus*, "having a hole," in reference to the small aperture at the apex of the flower.

Plant medium in size, epiphytic, caespitose, forming a prostrate rosette, the rhizome very short; roots slender, coarse. Ramicauls horizontal to pendent with the weight of the leaves, slender to stout, 2-4 cm long, enclosed by 3-4 often shed, thin, pubescent, imbricating sheaths. **Leaf** erect in relationship to the ramicaul, horizontal, prostrate or pendent, thickly coriaceous, dark green, suffused with purple, especially beneath, elliptical to oblong, subacute, 4-10 cm long, 2-3.5 cm wide, the margins minutely ciliate, the base cuneate, subcordate, sessile. **Inflorescence** a succession of single flowers, borne by a stout peduncle, 3-5 mm long, enclosed by a loose sheath at the base of the leaf; floral bract thin, tubular, densely pubescent, 3-5 mm long; pedicel pubescent, 4 mm long; ovary densely short-pubescent, 3 mm long; **sepals** dull yellow below the middle and spotted with dark purple, blackish purple above the middle, fleshy, covered externally by a short, dense, white pubescence, the dorsal sepal narrowly oblong-triangular, narrowly obtuse, 10-14 mm long, 3.5-5 mm wide, connate 8-10 mm to the lateral sepals to form a tubular, pear-shaped flower with a small, rounded aperture, the lateral sepals connate to the apex into a deeply concave, scrotiform synsepal with involute margins, inflated at the apex, 10-14 mm long, 5-7 mm wide unexpanded; **petals** translucent yellow, marked with purple, narrowly linear, acute, the margins obtusely angled above the middle, 6-7 mm long, 0.5-1 mm wide; **lip** yellow, spotted with purple, sagittate, 3-lobed, unguiculate, 5-7 mm long, 3-4 mm wide expanded, the lateral lobes erect, obtuse, the apex obtuse, entire, the disc with a pair of low, converging carinae, the claw with with an erect, acute callus, the base truncate with minute marginal lobules, hinged to the column-foot; **column** slender, semiterete, 5 mm long, more or less winged above the middle, bidentate at the apex, the base developed into a thick, pedestal-like foot with the apex of the ovary.

PANAMA: Prov. of Panamá: epiphytic in cloud forest on Cerro Jefe, alt. ca. 1000 m, 12 Nov. 1967, R. L. Dressler 3152 (Holotype: US; Isotypes: MO, PMA); same area, 2 Mar. 1976, C. Luer J. Luer, R. L. Dressler & P. Taylor 981 (SEL).

This species is apparently endemic in the forests of the province of Panama east of Panama City. Related to the other Panamanian species with the ramicauls forming a rosette of heavy, prostrate leaves, *D. pertusa* is the largest-flowered. The dark, fleshy sepals are connate into a saccate, pyriform flower with a small, rounded opening at the apex.



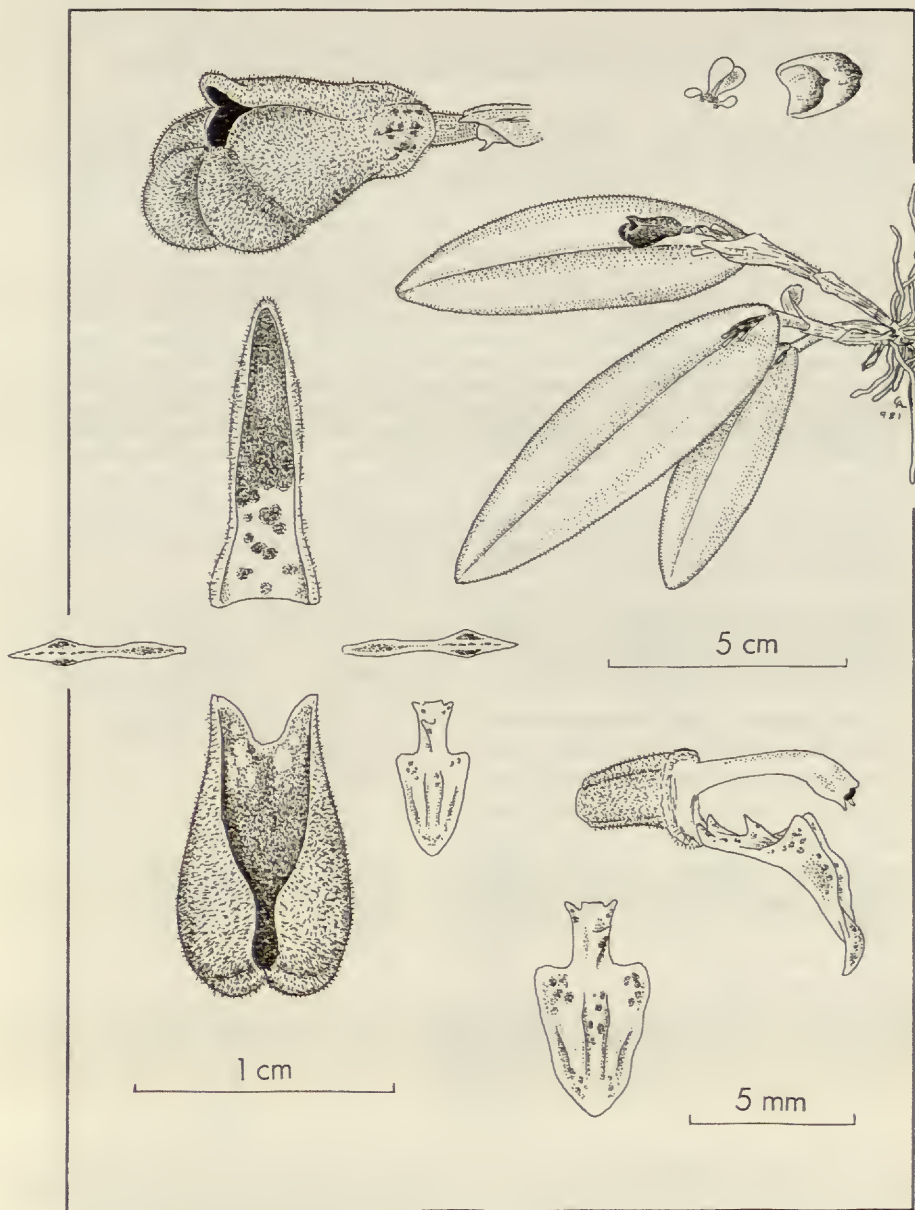


Plate 5. *Dresslerella pertusa* (Dressler) Luer

Dresslerella pilosissima (Schltr.) Luer, Selbyana 2: 185, 1979.

Bas.: *Pleurothallis pilosissima* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 289, 1923.

Ety.: From the Latin *pilosissimus*, "very hairy," in reference to the abundance of trichomes.

Syn.: *Restrepia pilosissima* (Schltr.) Ames & Schweinf., Bot. Mus. Leaflet 4: 100, 1937.

Syn.: *Restrepiella pilosissima* (Schltr.) Garay & Dunsterv., Venez. Orchids III. 4: 266, 1966.

Plant small, epiphytic, caespitose, more or less forming a rosette, the rhizome very short; roots slender, coarse. Ramicauls horizontal to suberect, slender, 1-3 cm long, enclosed by 3 fugacious, pilose, imbricating sheaths. Leaf light green, more or less horizontal, erect to suberect in relationship to the ramicaul, fleshy, verruculose, covered on both sides by long, white trichomes, elliptical, acute, 2.5-4 cm long, 1.2-1.6 cm wide, the base cuneate, sessile. Inflorescence a succession of single flowers, borne by a slender, suberect peduncle 5-8 mm long, with a basal sheath 3 mm long at the base of the leaf; floral bract tubular, pubescent, 3-4 mm long; pedicel pubescent, 5 mm long; ovary densely long-pubescent, 2.5 mm long; sepals covered externally by a long, white pubescence, the dorsal sepal translucent greenish white with longitudinal, purple stripes, ovate-triangular, acute, acuminate, clavellate, 11 mm long, 3.5 mm wide, essentially free from the lateral sepals, the lateral sepals translucent greenish white with purple spots; connate to the apex into a deeply concave, obtuse, scaphoid synsepal, 10 mm long, 6 mm wide unexpanded, 12 mm wide expanded; petals translucent with 3 longitudinal, purple stripes, ciliate, elliptical below the middle, oblique, 9 mm long, 1.75 mm wide, the apex acute, long-acuminate, clavellate; lip greenish white, dotted with purple, pandurate, 6 mm long, the apical lobe subquadrate, subtruncate, shortly pubescent, 2.5 mm wide, subquadrate below the narrow isthmus, the lateral lobes thin, uncinatate, 1 mm long, the disc with a low pair of converging carinae, the claw thickened, the base truncate with minute marginal lobules, hinged to the column-foot; column slender, semiterete, 4 mm long, winged toward the apex, the apex bidentate, the base developed into a thick, pedestal-like foot with the apex of the ovary.

COSTA RICA: Prov. of Alajuela: San Ramón, 1921, *G. Acosta s.n.* (Holotype: B?); same area, collected by L. Glicenstein, flowered in cultivation 5 Dec. 1979, *C. Luer 4821* (SEL).

This species is apparently uncommon in one area of central Costa Rica where it has been found on a few occasions. The leaves are more or less succulent and soft, covered by a mat of long, white hairs. When dry, the leaves shrivel to a small fraction of their natural size.



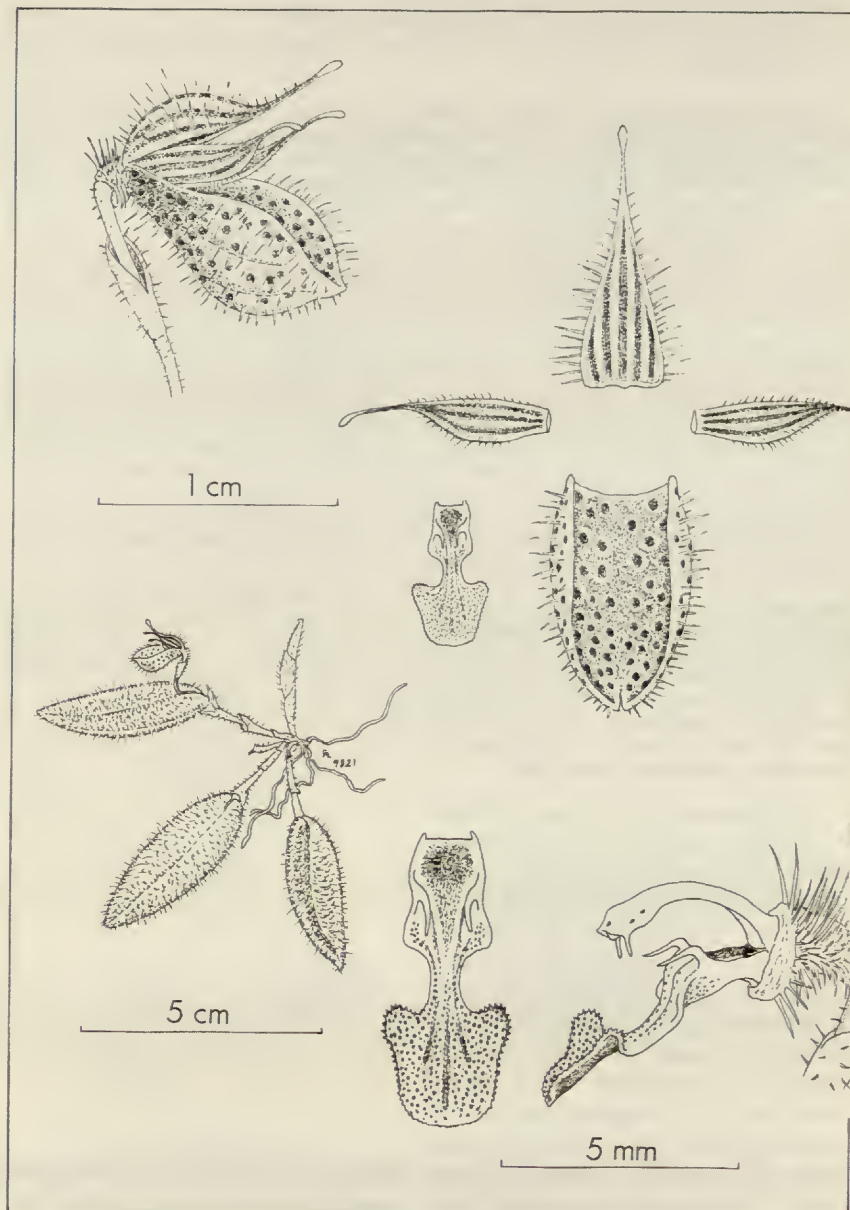


Plate 6. *Dresslerella pilosissima* (Schltr.) Luer

Dresslerella powellii (Ames) Luer, Selbyana 3: 8, 1976.

Bas.: *Cryptophoranthus powellii* Ames, Sched. Orchidaceae 4: 8, 1925.

Ety.: Named in honor of C. W. Powell who first collected this species.

Syn.: *Pleurothallis deceptrix* Dressler, Orquideología 5: 78, 1970.

Ety.: From the Latin *deceptrix*, "one who deceives," referring to the morphology of the flower.

Plant small, epiphytic, caespitose, forming a prostrate rosette, the rhizome very short; roots slender, coarse. Ramicauls horizontal, slender to stout, 0.5-1.5 cm long, enclosed by 3-4 fugacious, loose, pubescent, purple-spotted, imbricating sheaths. **Leaf** erect in relationship to the ramicaul, horizontal, prostrate, thickly coriaceous, dark green, suffused with purple, especially beneath, elliptical to oblong, subacute to obtuse, 1.5-3.5 cm long, 0.8-1.4 cm wide, the margins minutely ciliate, the base cuneate to rounded, subcordate, sessile. **Inflorescence** a succession of single flowers, borne by a stout peduncle, 1-2 mm long, enclosed by a loose sheath at the base of the leaf; floral bract thin, tubular, densely pubescent, 2-3 mm long; pedicel pubescent, 1.5 mm long; ovary densely short-pubescent, 1 mm long; **sepals** dark red-purple, fleshy, covered externally by a white, short, dense pubescence, the dorsal sepal narrowly ovate, narrowly obtuse, 6-8 mm long, 2-3 mm wide, connate 2 mm to the lateral sepals to form a tubular flower, the lateral sepals connate to the apex into a deeply concave, scrotiform synsepal with the margins involute, especially at the inflated apex, 6-9 mm long, 5-7 mm wide unexpanded; **petals** red-purple, elliptical-obovate, slightly oblique, acute, 4.5-5.5 mm long, 1.5-2 mm wide; **lip** red-purple, sagittate, 3-lobed, unguiculate, 3-3.5 mm long, 1.5-2 mm wide expanded, the lateral lobes erect, obtuse, the apex obtuse, with minutely irregular margins, the disc with a pair of converging carinae, the claw with with a horseshoe-shaped callus, the base truncate with minute marginal lobules, hinged to the column-foot; **column** slender, semiterete, 3 mm long, more or less winged above the middle, denticulate at the apex, the base developed into a thick, pedestal-like foot with the apex of the ovary.

PANAMA: Prov. of Panamá: foothills east of Panama City, sea level, C. W. Powell 278 (Holotype: AMES); epiphytic along the Llano-Carti road, alt. 300 m, 3 Mar. 1976, C. Luer, J. Luer, R. L. Dressler & P. Taylor 993 (SEL).
Prov. of Colón: epiphytic on Santa Rita Ridge, near sea level, flowered in cultivation 26 Nov. 1974, F. L. Stevenson 112674-4 (SEL).



This species occurs at low altitudes in the rain forests of eastern Panama where it is apparently endemic. However, it could be considered to be merely a variation of the much more widely distributed *D. hispida*. *Dresslerella powellii* was the first of the group of Panamanian species with the ramicauls forming a rosette of heavy, prostrate leaves to be described. It is related most closely to *D. hispida* from which it is distinguished by a scrotiform synsepal with markedly recurved margins inflated at the apex, and elliptical petals. The deeply connate sepals into a small, pubescent, tubular flower led Ames to describe this species in *Cryptophoranthus*.

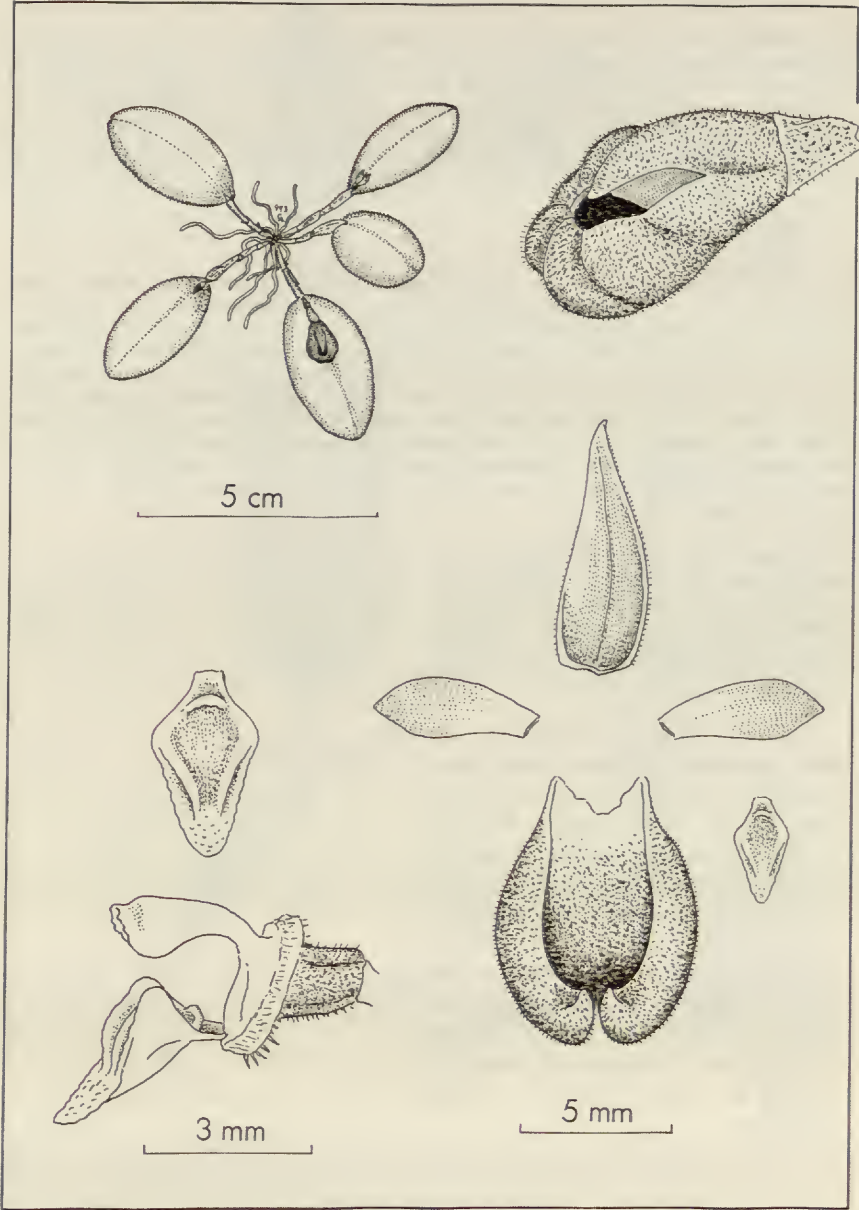


Plate 7. *Dresslerella powellii* (Ames) Luer

***Dresslerella stellaris* Luer & Escobar, Selbyana 2: 188, 1979.**

Ety.: From the Latin *stellaris*, "stellate," in reference to the stellate trichomes that cover the sepals.

Plant large for the genus, epiphytic, caespitose, the rhizome very short; roots coarse. Ramicauls horizontal to suberect, stout, 5-10 cm long, enclosed by 3-5 loose, fugacious, brown-spotted, imbricating sheaths. **Leaf** more or less horizontal, erect to suberect in relationship to the ramicaul, thickly coriaceous, rigid, dark green, narrowly ovate, acute, longitudinally veined, 8-12 cm long, 3-4 cm wide, the margins minutely ciliate, the base cuneate, subcordate, sessile. **Inflorescence** a succession of single flowers, borne by a stout peduncle, 10 mm long, enclosed by a loose, spotted sheath at the base of the leaf; floral bract cucullate, spotted with brown, minutely ciliate, enclosing the pedicel, ovary and the basal portions of the sepals, 15 mm long; pedicel shortly pubescent, 5 mm long, with the filament well-developed; ovary 4 mm long, covered by villous hairs; **sepals** dark red-purple, fleshy, covered externally by stellate trichomes, the dorsal sepal elliptical, concave with involute margins, subacute, 24-27 mm long, 6-10 mm wide unexpanded, connate to the lateral sepals for 15 mm to form a ovoid flower, the lateral sepals connate to the apex into a deeply concave, oblong synsepal with involute margins, 25-30 mm long, 12-15 mm wide unexpanded, papillose within and long-pubescent near the margins; **petals** purple, minutely pubescent, very narrowly ovate, acute, attenuate, 20 mm long, 2 mm wide; **lip** white, suffused with rose, ovate, sagittate if spread, 8 mm long, 3 mm wide, the apex subacute, the lateral lobes erect, obtuse, the disc with a low pair of converging, serrulate carinae, the claw with with a tall, erect, transverse callus, the base truncate with minute marginal lobules, hinged to the column-foot; **column** slender, semiterete, 8 mm long, more or less winged above the middle, denticulate at the apex, the base developed into a thick, pedestal-like foot with the apex of the ovary.

COLOMBIA: Dept. of Antioquia: Munic. of Yaru-mal, "El Oro," alt. 2050 m, 3 Jan. 1974, collected by R. Escobar, O. J. Arango & W. Teague, flowered in cultivation 14 Dec. 1977, *C. Luer* 2261 (Holotype: JAUM; Isotype: SEL). COSTA RICA: illustrated by R. L. Rodríguez, without known collector or locality.

This species is apparently rare and local in the wet forests of the Central Cordillera of Colombia where it has been seen on very few occasions. It also is known to occur in Costa Rica, documented by a beautiful water color painting by the late Dr. Rafael Lucas Rodríguez. *Dresslerella stellaris*, the largest species known in the genus, is most closely related to the Panamanian species of subgenus *Dresslerella*. Besides its huge size, the flower is most distinctive in being covered by stellate trichomes.



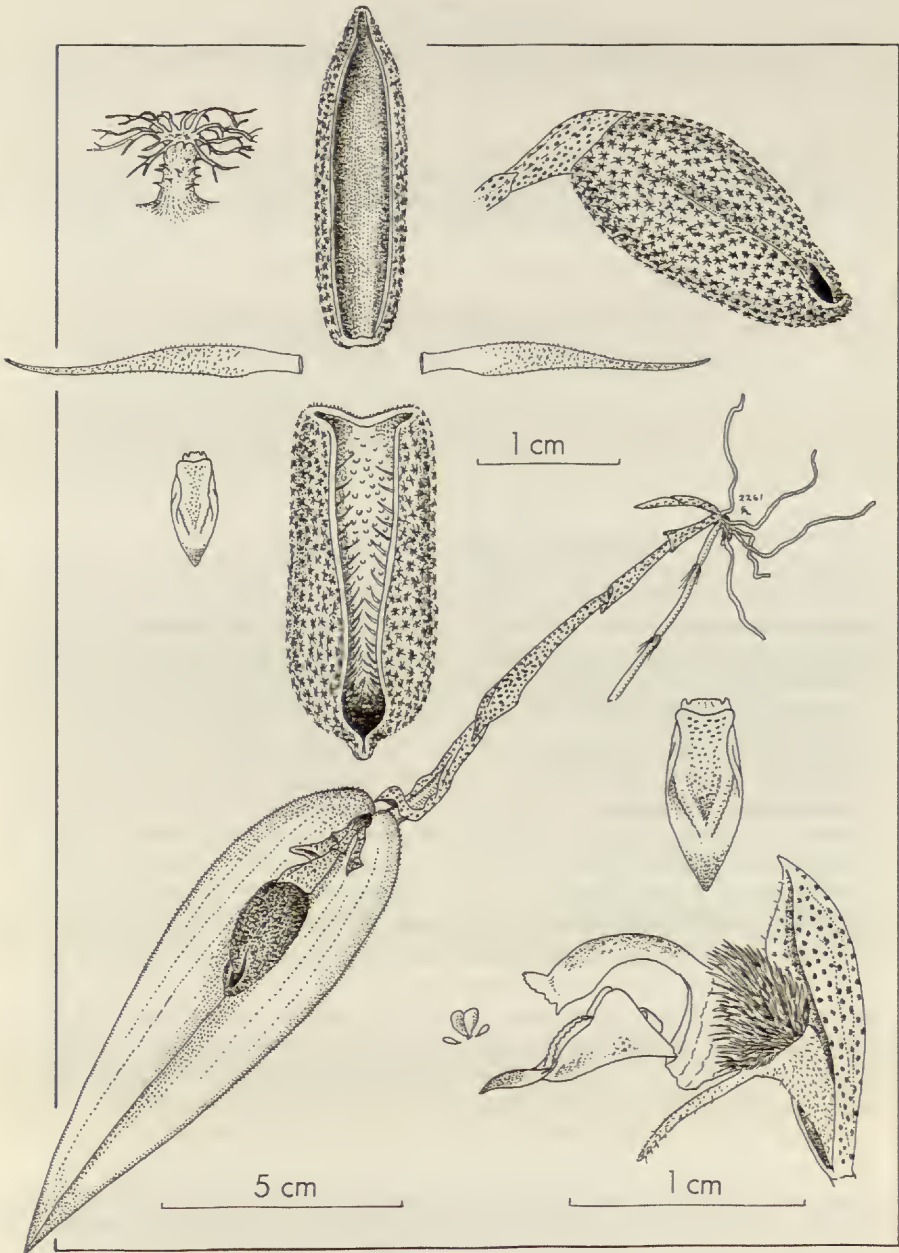


Plate 8. *Dresslerella stellaris* Luer & Escobar

ACKNOWLEDGMENT

I am grateful to Robert L. Dressler for his criticisms and suggestions.

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 ----- 1978. Additions to the genus *Dresslerella*. Selbyana 2: 185-189.
 ----- 1986. Icones Pleurothallidarum I. Systematics of the Pleurothallidinae. Monogr. Syst. Bot. Missouri Bot. Gard. 15: 57.

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SYSTEMATICS OF THE GENUS
SCAPHOSEPALUM (ORCHIDACEAE)

ABSTRACT

The genus *Scaphosepalum* Pfitz. is described and a key to the sections and species is given. Each species is described and illustrated with a black and white drawing, and a distribution map is included for each. The specimens cited in the distributions are only a selected few of the more frequent species from various localities.

New taxa:

- Scaphosepalum* sect. *Distichium* Luer, sect. nov.
Scaphosepalum sect. *Leiocaulium* Luer, sect. nov.
Scaphosepalum sect. *Scaphosepalum*
Scaphosepalum cimex Luer & Hirtz, sp. nov.
Scaphosepalum fimbriatum Luer & Hirtz, sp. nov.
Scaphosepalum swertiifolium subsp. *exiguum* Luer & Escobar, subsp. nov.
Scaphosepalum triceratops Luer & Andreetta, sp. nov.
Scaphosepalum xystra Luer, sp. nov.

Few genera of orchids have been fraught with as many ambiguities, contradictions, and misidentifications as has the genus *Scaphosepalum*. Professor Reichenbach described the first species of the genus in 1849 when he published as *Masdevallia verrucosa* a collection by Funk and Schlim (*Schlim 1439*) from near the gold mining community of La Baja high in the mountains of the old province of Ocaña in the Eastern Cordillera of what is Colombia today.

The habit with short ramicauls, and flowers with sepaline tails borne on an elongated peduncle arising near the base of the ramicaul were sufficient at that time to indicate the genus *Masdevallia*. The pair of sepaline calli were not noted, but the verrucose peduncle was mirrored in the name. Later Reichenbach seemed not to be satisfied with his choice of genus, for he transferred his *M. verrucosa* to *Pleurothallis* in 1854, and indicated a subgeneric division (*Racemosae*).

The second epithet in the future genus *Scaphosepalum* was published in 1855 by Reichenbach as *M. ochthodes* for a collection of the same species by Wagener, also from the old old province of Ocaña where this species is known to be widely distributed and abundant. Reichenbach now changed his opinion about the genus, bringing *P. verrucosa* back into *Masdevallia* with *M. ochthodes*. The lateral sepals were now described simply as "tumid."

The specimens of *Schlim 1439* are largely past the peak of flowering and in fruit. The flowers, borne on erect, verrucose peduncles, are small with very short sepaline tails. The specimens lay in the herbaria of Geneva and Paris without an annotation, but in Reichenbach's herbarium *Schlim 1439*, the type-specimen of *M. verrucosa*, acquired the annotation of *M. ochthodes*, while a collection of a different species (the future *Scaphosepalum breve*) collected by Wagener near Caracas, Venezuela, acquired the identification of *M. verrucosa*. Nevertheless, *Schlim's* specimen *1439* is the published type of *M. verrucosa*, even though it has subsequently become widely known as *S. ochthodes*. Therefore, the first species known in the future genus *Scaphosepalum* was known already by two names.

Reichenbach's third epithet attributable to *Scaphosepalum* was *M. macrodactyla*, applied in 1872 to a plant imported from "New Grenada" and cultivated by Messrs. Veitch at the Royal Exotic Nursery, Chelsea. Reichenbach states that it is the "third species" with a verrucose peduncle, but the peduncle of the type-specimen at W (Wien) is smooth. In the description he mentions the pair of fleshy calli of the lateral sepals. Although Reichenbach will state in a later article that *M. macrodactyla* is "well known," it is known today only by the type-specimen. Could Reichenbach possibly have been referring to another species when he described *M. macrodactyla*?

Reichenbach added the fourth epithet with the Colombian *M. gibberosa* in 1876, at which time he proposed the section *Verrucosae* in *Masdevallia* for the species with verrucose peduncles. He does not mention the sepaline calli so prominent in this species.

When Reichenbach published the next species of *Scaphosepalum* in 1880, he was so impressed with the sepaline calli that he named the species for them: *M. pulvinaris* (from the Latin *pulvinus*, "a cushion"). Later that year he published *M. swertiifolia*, the first species with a smooth peduncle, if the herbarium specimen of *S. macrodactylum* is excluded.

Before his death in 1889, Reichenbach had added two more epithets (*brevis* and *anchorifera*) for a total of eight encompassing seven species. In 1888, Pfitzer proposed the genus *Scaphosepalum* for *M. verrucosa* and *M. ochthodes*. He acknowledged a total of five species, but he failed to indicate the others. Rolfe transferred the remaining species to *Scaphosepalum* in 1890.

Vegetatively the species of *Scaphosepalum* are not greatly unlike those of *Dracula* or *Masdevallia*: short ramicauls that bear a more or less elliptical leaf at the apex and an inflorescence usually produced from near the base. The inflorescence is a successively flowered raceme borne by an erect or descending peduncle. The peduncle is either smooth or warty like a fine rasp.

The hallmark of the genus *Scaphosepalum* is the pair of "cushions" of the lateral sepals, uppermost in the non-resupinate flowers. The distal or outer portion of each lateral sepal "above the middle" possesses a more or less well-defined, ovoid, triangular or crescent-shaped, fleshy callus. These so-called cushions may be small and indistinct as in some clones of the small-flowered *S. microdactylum*, or they may be much larger than the blade of the sepal itself as in *S. hirtzii*. Like the clavate dorsal sepal and petals of some species of *Dresslerella* and *Masdevallia*, and all species of *Restrepia*, these cellular cushions function as osmophores (Vogel 1962; Pridgeon & Stern 1985).

Today, 30 species are known to inhabit the cool, moist cloud forests from southern Mexico, where only one species is known (*S. microdactylum*), to central Bolivia, where also only one species is known (*S. breve*). The pleomorphic *S. breve* is also the only species of the genus known from eastern Venezuela and the Guianas. Four species are known from Central America (Mexico to Panama), 16 are known from Colombia, and 18 are presently known from Ecuador. Schweinfurth included none in his work on the orchids of Peru, but *S. antenniferum* has recently been discovered there, and without doubt *S. breve* also occurs there. The latter is known from both Ecuador and Bolivia. No species of *Scaphosepalum* has yet been reported from Brazil.

EPITHETS ATTRIBUTED TO *SCAPHOSEPALUM*

- Scaphosepalum amethystinum* (Rchb. f.) Schltr. = **Porroglossum amethystinum**
Scaphosepalum anchoriferum (Rchb. f.) Rolfe
Scaphosepalum andreetae Luer
Scaphosepalum antenniferum Rolfe
Scaphosepalum antioquiense Krzl. = **Porroglossum mordax**
Scaphosepalum beluosum Luer
Scaphosepalum bicolor Luer & Escobar
Scaphosepalum breve (Rchb. f.) Rolfe
Scaphosepalum carpophorum (Krzl.) Garay = **Pleurothallis tripterantha**
Scaphosepalum cimex Luer & Hirtz
Scaphosepalum clavellatum Luer
Scaphosepalum dalstroemii Luer
Scaphosepalum decorum Luer & Escobar
Scaphosepalum dodsonii Luer
Scaphosepalum echidna (Rchb. f.) Schltr. = **Porroglossum echidna**
Scaphosepalum elasmotopus Schltr. = **Scaphosepalum microdactylum**
Scaphosepalum endresianum Krzl. = **Scaphosepalum anchoriferum**
Scaphosepalum erinaceum (Rchb. f.) Schltr. = **Masdevallia erinacea**
Scaphosepalum escobarianum Garay = **Scaphosepalum grande**
Scaphosepalum fimbriatum Luer & Hirtz
Scaphosepalum gibberosum (Rchb. f.) Rolfe
Scaphosepalum grande Krzl.
Scaphosepalum hirtzii Luer
Scaphosepalum lima (Lehm. & Krzl.) Schltr.
Scaphosepalum longirepens Ames = **Scaphosepalum microdactylum**
Scaphosepalum macrodactylum (Rchb. f.) Rolfe
Scaphosepalum microdactylum Rolfe
Scaphosepalum naviculare Krzl. = **Scaphosepalum anchoriferum**
Scaphosepalum nutans Krzl. = **Scaphosepalum breve**
Scaphosepalum ochthodes (Rchb. f.) Pfitz. = **Scaphosepalum verrucosum**
Scaphosepalum odontochilum Krzl.
Scaphosepalum ophidion Luer
Scaphosepalum ovulare Luer
Scaphosepalum panamense Schltr. = **Masdevallia livingstoneana**
Scaphosepalum pittieri Schltr. = **Scaphosepalum microdactylum**
Scaphosepalum platypetalum Schltr. = **Scaphosepalum swertiifolium**
Scaphosepalum pulvinare (Rchb. f.) Rolfe
Scaphosepalum punctatum (Rolfe) Rolfe = **Scaphosepalum anchoriferum**
Scaphosepalum rapax Luer
Scaphosepalum reversum Krzl. = **Scaphosepalum antenniferum**
Scaphosepalum rolfeanum Krzl. = **Scaphosepalum pulvinare**
Scaphosepalum sneidernii Garay = **Scaphosepalum odontochilum**
Scaphosepalum standleyi Ames = **Scaphosepalum microdactylum**
Scaphosepalum swertiifolium subsp. **exiguum** Luer & Escobar
Scaphosepalum swertiifolium (Rchb. f.) Rolfe subsp. **swertiifolium**
Scaphosepalum tiaratum Luer

Scaphosepalum trachypus Schltr. = *Scaphosepalum breve*
Scaphosepalum triceratops Luer & Andreetta
Scaphosepalum ursinum Luer
Scaphosepalum verrucosum (Rchb. f.) Pfitz.
Scaphosepalum viviparum Luer
Scaphosepalum xipheres (Rchb. f.) Schltr. = *Porroglossum muscosum*
Scaphosepalum xystra Luer

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<i>Scaphosepalum anchoriferum</i> (Rchb. f.) Rolfe	Plate 1., 2., 3.
<i>Scaphosepalum andreettae</i> Luer	Plate 4.
<i>Scaphosepalum antenniferum</i> Rolfe	Plate 5.
<i>Scaphosepalum beluosum</i> Luer	Plate 6.
<i>Scaphosepalum bicolor</i> Luer & Escobar	Plate 7.
<i>Scaphosepalum breve</i> (Rchb. f.) Rolfe	Plate 8., 9., 10.
<i>Scaphosepalum cimex</i> Luer & Hirtz	Plate 11.
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<i>Scaphosepalum fimbriatum</i> Luer & Hirtz	Plate 17.
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<i>Scaphosepalum grande</i> Krzl.	Plate 20.
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<i>Scaphosepalum lima</i> (Lehm. & Krzl.) Schltr.	Plate 22.
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<i>Scaphosepalum swertiifolium</i> subsp. <i>exiguum</i> Luer & Escobar	Plate 37., 38.
<i>Scaphosepalum tiaratum</i> Luer	Plate 39.
<i>Scaphosepalum triceratops</i> Luer & Andreetta	Plate 40.
<i>Scaphosepalum ursinum</i> Luer	Plate 41.
<i>Scaphosepalum verrucosum</i> (Rchb. f.) Pfitz.	Plate 42.
<i>Scaphosepalum viviparum</i> Luer	Plate 43.
<i>Scaphosepalum xystra</i> Luer	Plate 44.

Scaphosepalum Pfitz., Nat. Pflanzenfam. 2(6): 139, 1888.

Lectotype: *Masdevallia ochthodes* Rehb. f., Bonplandia 3: 70, 1855. (Garay, Orquideología 9: 124, 1974.) = *Masdevallia verrucosa* Rehb. f.

Ety.: From the Greek *scaphosepalos*, "with boatlike sepals," referring to the shape of the lateral sepals.

Plants perennial, very small to very large, weak to robust, epiphytic, lithophytic to terrestrial, the rhizome very short to elongate between ramicauls; roots few to many, slender to coarse or fleshy. Ramicauls ascending to erect, slender to stout, non-pseudobulbous, shorter than the leaf, unifoliate, partially or completely enclosed by 2-3 imbricating sheaths, the inflorescence emerging laterally with an annulus from near the base of the ramicaul, a considerable distance below the apex (the leaf-stem abscission layer), or rarely near the apex. Leaf erect in relation to the ramicaul, thinly to thickly coriaceous, smooth, green or dark green, rarely purplish, elliptical to narrowly elliptical or obovate to narrowly obovate, the apex acute to obtuse, shallowly notched with a mucro in the sinus, the base cuneate or narrowly cuneate into a channeled petiole. Inflorescence a successively flowered, loose to congested, few- to many-flowered raceme, secund or distichous to sharply flexuous, sometimes several flowers produced simultaneously, longer or shorter than the leaf, the flowers non-resupinate, the peduncle erect to descending, slender to stout, smooth to coarsely verrucose, short or long, with 1 to several bracts, floral bracts thin and tubular to broad, fleshy and conduplicate, long-acuminate to obtuse; pedicel slender to stout, sometimes verrucose, longer or shorter than the floral bract; ovary smooth, verrucose to papillose, trivalvate with the ribs smooth, carinate or undulate; sepals more or less fleshy, variously colored, smooth to verrucose, spiculate or pubescent, the middle sepal connate to the lateral sepals or essentially free, tricostate, concave basally, the apical half often thickened, or with revolute margins, the lateral sepals connate into a concave lamina, with a pair of more or less distinct, fleshy, flattened, elliptical, lunate, crescent-shaped, or triangular calli occupying the distal portion of the sepaline lamina within, the apices of the sepals contracted into tails, vestigial to markedly elongate, slender to thickened and verrucose; petals inconspicuous, about as long as the column, smooth, more or less translucent, ovate, often ventricose, acute to obtuse, sometimes apiculate; lip very small, usually reflexed near the middle, oblong, ovate, or often pandurate, sometimes with small lateral lobes near the middle, the epichile acute, obtuse to rounded, smooth to verrucose and denticulate, the disc with a small pair of usually crested lamellae near the middle, the hypochile more or less quadrate and concave, the base truncate, usually minutely bilobulate, delicately hinged to the apex of the column-foot; column semiterete, broadly winged above the middle, the anther ventral, hooded, the apical margins entire to toothed, the rostellum retrorse, the pollinia yellow, pyriform, with elastic, more or less granular caudicles, the stigma ventral, the base of the column developed into a thick column-foot with the apex of the ovary, often extending beyond the ovary.

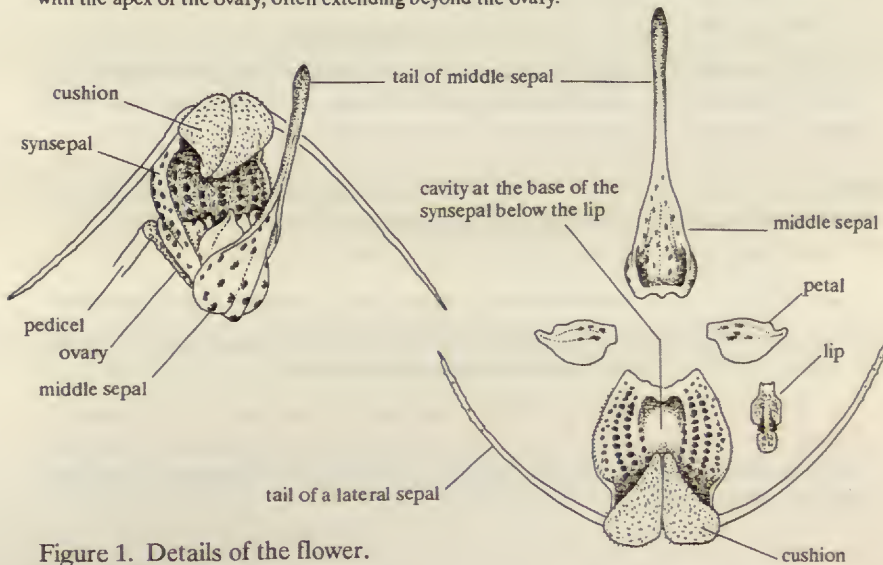


Figure 1. Details of the flower.

The species of the genus are too closely allied to divide at the subgeneric level. Three sections, however, are easily recognized: one with rough or verrucose peduncles, and of the two with essentially smooth peduncles, one with more or less congested, distichous racemes with broad, conspicuous floral bracts, and the other with loose to congested racemes without broad, conspicuous floral bracts.

Scaphosepalum sect. Scaphosepalum

Type: *Scaphosepalum ochthodes* (Rchb. f.) Pfitz. = *S. verrucosum* (Rchb. f.) Pfitz. = *Masdevallia verrucosa* Rchb. f.

Syn.: *Pleurothallis* sect. *Racemosae* Rchb. f., *Bonplandia* 2: 24, 1854.

Type: *Masdevallia verrucosa* Rchb. f., *Linnaea* 22: 819, 1849.

Ety.: From the Latin *racemosus*, "racemose," referring to the inflorescence.

Syn.: *Masdevallia* sect. *Verrucosae* Rchb. f., *Gard. Chron.* 1: 8, 1876.

Type: *Masdevallia verrucosa* Rchb. f., *Linnaea* 22: 819, 1849.

Ety.: From the Latin *verrucosus*, "verrucose," referring to the peduncle.

This section is readily identified by the more or less rigid, verrucose or roughened peduncles. The flowers of some species (e.g. *S. breve*) are extremely similar to those of some species with smooth peduncles (e.g. *S. anchoriferum* or *S. dalstroemii*). Nine species are included. (See key)

Scaphosepalum sect. Distichium Luer, sect. nov.

Type: *Scaphosepalum grande* Krzl., *Notizbl. Bot. Gart. Berlin* 8: 135, 1922.

Ety.: From the Latin *distichus*, "arranged in two opposite ranks," referring to the conspicuously distichous racemes with large floral bracts.

Pedunculi glabri. Floralium bractae conspicuae latae et distichae.

This section is recognized by smooth peduncles bearing more or less congested, distichous racemes with comparatively large, broad, conspicuous floral bracts. Two pairs of related species are referred here.

Scaphosepalum sect. Leiocaulium Luer, sect. nov.

Type: *Scaphosepalum swertiifolium* (Rchb. f.) Rolfe, *J. Bot.* 28: 137, 1890.

(*Masdevallia swertiifolia* Rchb. f.)

Ety.: From the Greek *leiocaulos*, "with a smooth stem," referring to the non-verrucose peduncles.

Pedunculi glabri. Floralium bractae graciles vel non conspicuae.

This section, consisting of the remaining 18 species of the genus, is distinguished by the slender, ascending or descending, non-verrucose peduncles, loose to congested, occasionally distichous racemes with slender or non-conspicuous floral bracts.

KEY TO THE SPECIES OF *SCAPHOSEPALUM*

- 1 Peduncle coarsely verrucose 2
 1' Peduncle smooth or faintly verrucose 10

Section *Scaphosepalum*

- 2 Peduncle and rachis stout, strict, erect 3
 2' Peduncle and rachis slender, flexible, ascending to descending 7
- 3 Tails of the lateral sepals decurved, diverging 4
 3' Tails of the lateral sepals strict, approximate or slightly diverging 6
- 4 Sepals verrucose *S. tiaratum*
 4' Sepals not verrucose 5
- 5 Sepals more than 10 mm long, the tails slender *S. antenniferum*
 5' Sepals less than 10 mm long, the tails thickened *S. xystra*
- 6 Tails of the lateral sepals in apposition, shorter than the blades *S. pulvinare*
 6' Tails of the lateral sepals slightly diverging, longer than the blades *S. triceratops*
- 7 Tails of the lateral sepals longer than the cushions 8
 7' Tails of the lateral sepals shorter than the cushions 9
- 8 Tails of the lateral sepals decurved, about as long as the blades *S. breve*
 8' Tails of the lateral sepals more or less transverse, much longer than the blades *S. gibberosum*
- 9 Cushions lunate, transverse, pubescent *S. lima*
 9' Cushions ovate, longitudinal, essentially glabrous *S. verrucosum*

* * *

- 10 Inflorescence conspicuously distichous with broad floral bracts 11
 10' Inflorescence not with broad, conspicuous floral bracts 14

Section *Distichium*

- 11 Habit robust; inflorescence erect; floral bracts 7-12 mm long 12
 11' Habit not robust; inflorescence slender, transverse
 to ascending; floral bracts 2-3 mm long 13
 12 Peduncle produced low on the ramicaul; tails of the
 lateral sepals about as long as the cushions *S. grande*
 12' Peduncle produced high on the ramicaul; tails
 of the lateral sepals longer than the blades *S. decorum*
 13 Middle sepal thick, about as long as the lateral sepals *S. microdactylum*
 13' Middle sepal clavate, much longer than the lateral sepals *S. clavellatum*

Section *Leiocaulium*

- 14 Middle sepal connate to above the middle to the synsepal
 to form a tubular or ovoid sepaline tube 15
 14' Middle sepal connate basally to the synsepal
 to form a gaping flower 17
 15 Cushions larger than the blade, everted, obstructing the
 opening of the flower, the tails slender, decurved *hirtzii*
 15' Cushions smaller than the blade, the tails of the lateral
 sepals absent or reduced to an apiculum 16
 16 Mature leaves less than 4 cm long; lip serrate with broad,
 oblong, lateral lobes *S. ovulare*
 16' Mature leaves more than 6 cm long; lip fimbriate, ovate,
 without lateral lobes *S. odontochilum*
 17 Tails of the lateral sepals slender, as long as or
 longer than the blades 18
 17' Tails of the lateral sepals shorter than the blades 23
 18 Tails of the lateral sepals much longer than the blades;
 lip with a pair of small, rounded, lateral lobes *S. swertiifolium*
 18' Tails of the lateral sepals about as long as the blades;
 lip with or without lateral lobes 19
 19 Tail of the dorsal sepal slender, terete 20
 19' Tail of the dorsal sepal thickened or laterally compressed 22
 20 Cushions of the lateral sepals long and narrow *S. cimex*
 20' Cushions of the lateral sepals triangular-ovate 21

- 21 Mature leaves less than 4 cm long; lip without
a pair of small, rounded, lateral lobes *S. dodsonii*
- 21' Mature leaves more than 6 cm long; lip with
a pair of small, rounded, lateral lobes *S. swertii*folium
subsp. *exiguum*
- 22 Leaves fleshy, more than 20 cm long; sepals
and tails ciliate-pubescent *S. ursinum*
- 22' Leaves not fleshy, less than 15 cm long; sepals
glabrous, the tails lightly verrucose *S. dalstroemii*
- 23 Sepals carinate-spiculate or carinate-ciliate 24
- 23' Sepals carinate, but neither spiculate nor ciliate 28
- 24 Mature leaves long-petiolate, more than 15 cm long 25
- 24' Mature leaves less than 11 cm long 26
- 25 Leaves thin, broadly spatulate; tail of the
dorsal sepal narrowly terete *S. beluosum*
- 25' Leaves fleshy, narrowly obovate; tail of the
dorsal sepal laterally compressed *S. ursinum*
- 26 Mature leaves less than 4 cm long, less than 1 cm wide;
inflorescence up to 4 cm long *S. rapax*
- 26' Mature leaves 4-11 cm long, 1.5-2.5 cm wide;
inflorescence up to 16 cm long 27
- 27 Inflorescence more or less branching; tails of the
lateral sepals shortly spiculate *S. viviparum*
- 27' Inflorescence not branching; tails of the lateral
sepals long-fimbriate *S. fimbriatum*
- 28 Tails of the lateral sepals as long as or longer than the cushions 29
- 28' Tails of the lateral sepals shorter than the cushions 30
- 29 Mature leaves less than 8 cm long; cushions small,
ovoid, not filling the apex of the lateral sepals *S. andreettae*
- 29' Mature leaves more than 10 cm long; cushions
triangular, filling the apex of the lateral sepals *S. ophidion*
- 30 Cushions small, not extending beyond the margins
of the lateral sepals; column abruptly winged *S. macrodactylum*
- 30' Cushions large, usually extending beyond the margins
of the lateral sepals; column obtusely winged 31
- 31 Sepals and cushions spotted; petals shortly acuminate *S. anchoriferum*
- 31' Sepals purple, the cushions orange; petals broadly obtuse *S. bicolor*

Scaphosepalum anchoriferum (Rchb. f.) Rolfe, J. Bot. 28: 136, 1890.Bas.: *Masdevallia anchorifera* Rchb. f., Gard. Chron. 1: 577, 1884.Ety.: From the Latin *ancora*, "an anchor," and *-fer*, "-bearing," referring to the appearance of "the recurved tails of the connate sepals."Syn.: *Masdevallia punctata* Rolfe, Gard. Chron. 2: 323, 1888.Ety.: From the Latin *punctatus*, "spotted," referring to the flowers.Syn.: *Scaphosepalum punctatum* (Rolfe) Rolfe ex Ind. Kew. Suppl. 1: 266, 1906.Syn.: *Scaphosepalum endresianum* Krzl., Repert. Spec. Nov. Regni Veg. 17: 435, 1921.

Ety.: Named in honor of its discoverer, A. R. Endres of Costa Rica.

Syn.: *Scaphosepalum naviculare* Krzl., Repert. Spec. Nov. Regni Veg. 17: 436, 1921.Ety.: From the Latin *navicularis*, "boat-shaped," referring to the synsepal.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect to suberect, slender, 1-3 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, thinly coriaceous, 8-20 cm long including the 3-7 cm long petiole, the blade elliptical, acute, 1.5-2.5 cm wide, gradually narrowed below into the slender, channeled petiole. **Inflorescence** a congested, successively several-flowered raceme up to 5 cm long, borne by a slender, smooth, ascending to horizontal or descending peduncle up to 15 cm long, from low on the ramicaul; floral bracts thin, 2-5 mm long; pedicels 3-15 mm long; ovary ribbed, 4 mm long; sepals yellow-green, suffused and spotted with purple, the middle sepal tricarinate, ovate, acute and concave below the middle, dark purple and narrowed with revolute margins above the middle, 10-15 mm long, 4-6 mm wide expanded, the lateral sepals spotted with purple, connate 5-8 mm into a concave, elliptical lamina 9-12 mm long, 9-12 mm wide expanded, the apical half of each lateral sepal occupied by a thick, well-developed, triangular, microscopically densely pubescent cushion 5-7 mm long, 5-6 mm wide, yellowish or orangish, lightly spotted with red-purple, the obtuse, diverging apices contracted into slender, decurved tails 2-5 mm long; petals yellow, marked with purple, ovate, acute, more or less dilated on the labellar margin, 4.5-5 mm long, 2.25-2.75 mm wide; lip yellow or orange, suffused or spotted with red or purple, oblong-subpandurate, reflexed near the middle, 3.5-5 mm long, 2-2.25 mm wide, dilated in the middle third with a pair of denticulate lamellae, the epichile orbicular, serrulate, the hypochile more or less oblong, truncate, minutely bilobulate; column green, suffused with red, semiterete, slender, 5 mm long, broadly winged above the middle, with a thick foot 2 mm long.

COSTA RICA: without locality, *Hübsch s.n.* (Holotype: W); without locality, *Endres s.n.* (type of *S. endresianum*: W; type of *S. naviculare*: W); without locality or collector, received in 1889 from Messrs. Backhouse & Sons (type of *S. punctatum*: K). Prov. of Alajuela: above San Ramón, alt. 1100 m, 12 Sept. 1979, *D. Stevens s.n.* (SEL), *C. Luer* illustr. 4140. Prov. of Guanacaste: collected by John Hall, alt. 4000 ft., flowered in cultivation July 1976, *C. Luer 1076* (SEL). Prov. of San José: near San Cristobal, alt. 1900 m, 22 Sept. 1979, *C. Luer, J. Luer & K. Walter 4253* (SEL); above San Cristobal, collected by R. Escobar in 1984, flowered in cultivation at Colomborquídeas, Colombia, 6 Apr. 1988, *C. Luer 13021* (MO).

PANAMA: Prov. of Chiriquí: Fortuna dam site, collected by R. L. Dressler, flowered in cultivation 20 Nov. 1976, *C. Luer 2260* (SEL).

This species is frequent and variable in its range through Costa Rica and Panama. Plants were first discovered by Hübsch in Costa Rica, while employed by F. Sander to collect orchids for the trade. Dried flowers were described by Reichenbach in 1884. It was also col-



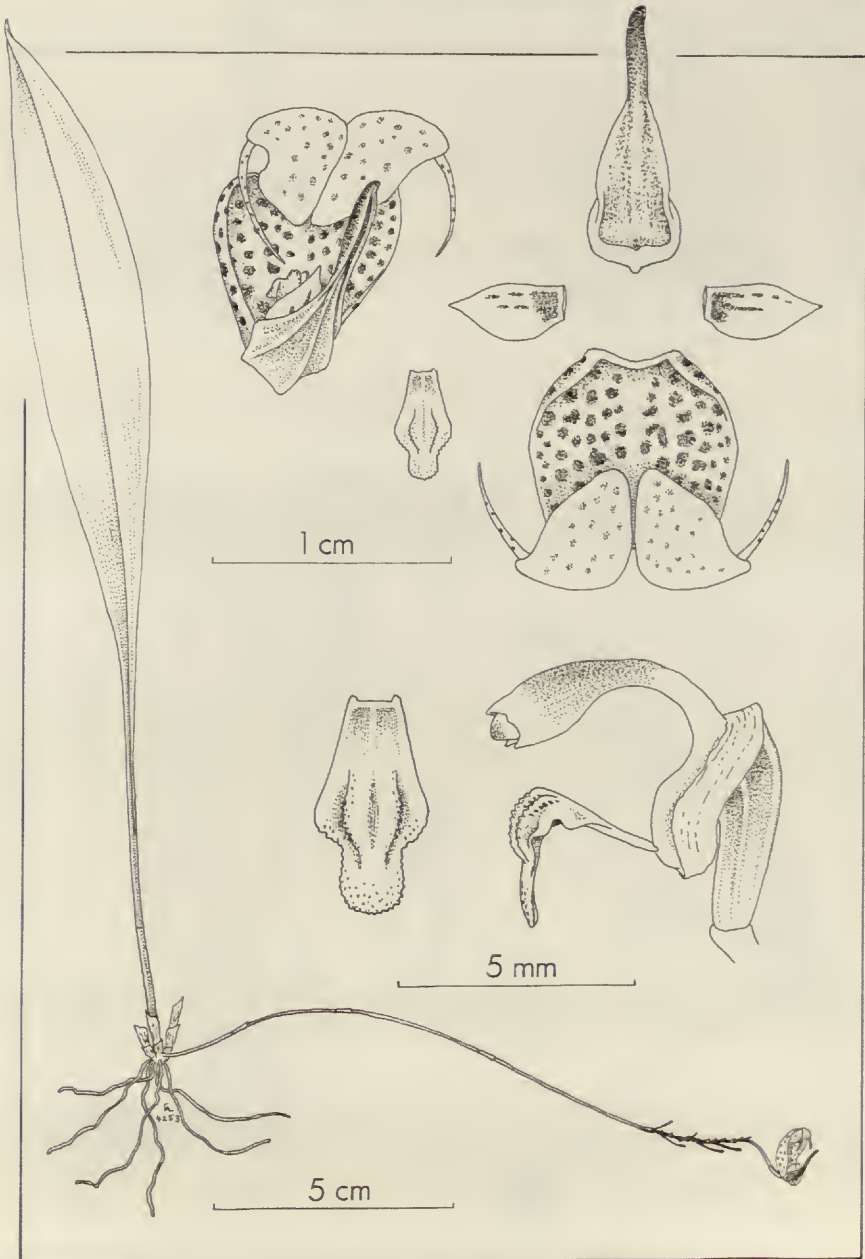


Plate 1. *Scaphosepalum anchoriferum* (Rchb. f.) Rolfe

lected by Endres, two of his collections being described as two new species by Kränzlin. Rolfe also described it from a plant cultivated with unknown origin

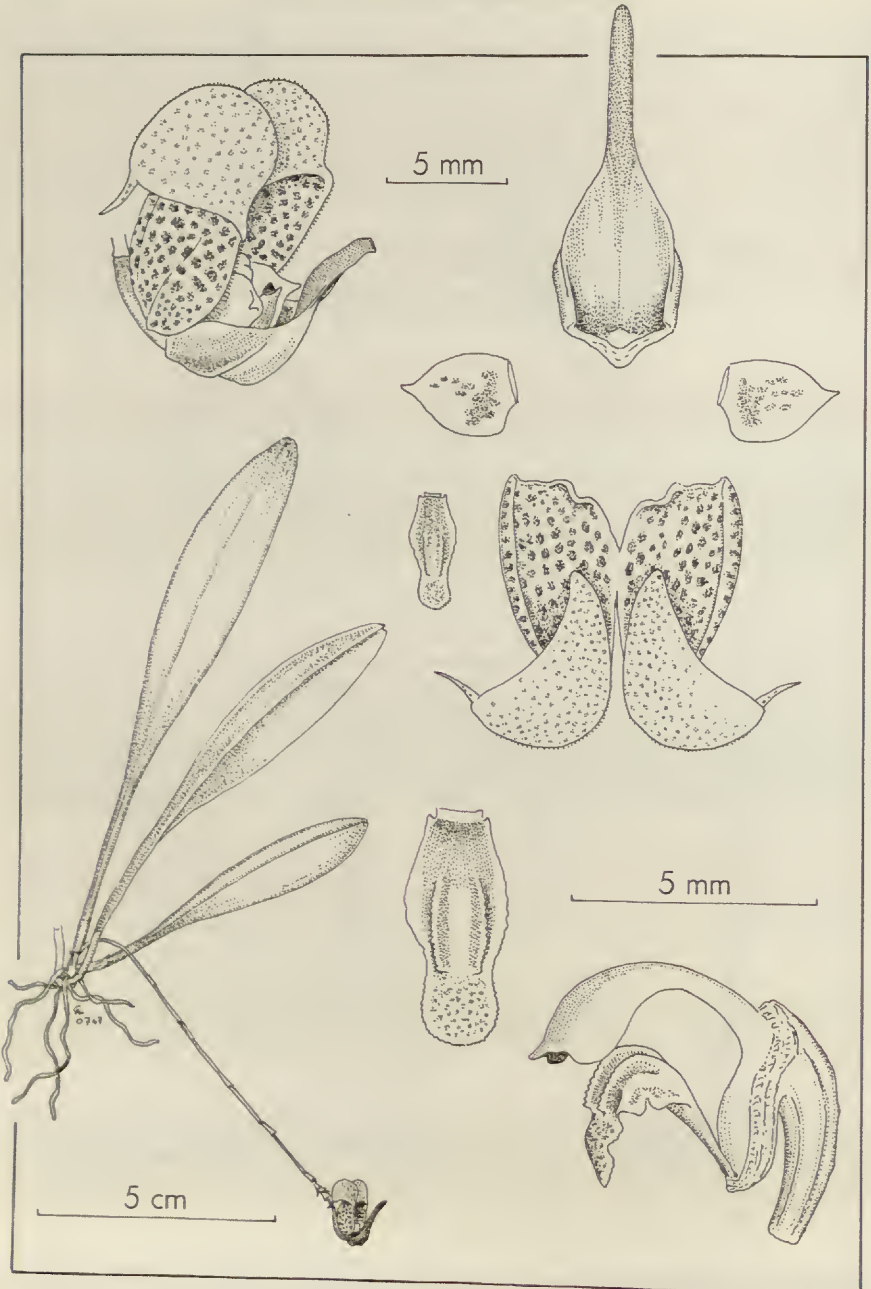


Plate 2. *Scaphosepalum anchoriferum* (Rchb. f.) Rolfe

at Kew. It was illustrated in Curtis' *Botanical Magazine*, plate 7165 in 1890. An unusual form with more or less revolute cushions is seen in Panama (Plate 2.). Other less striking forms exist.

Scaphosepalum anchoriferum is identified by the smooth peduncle; purple-

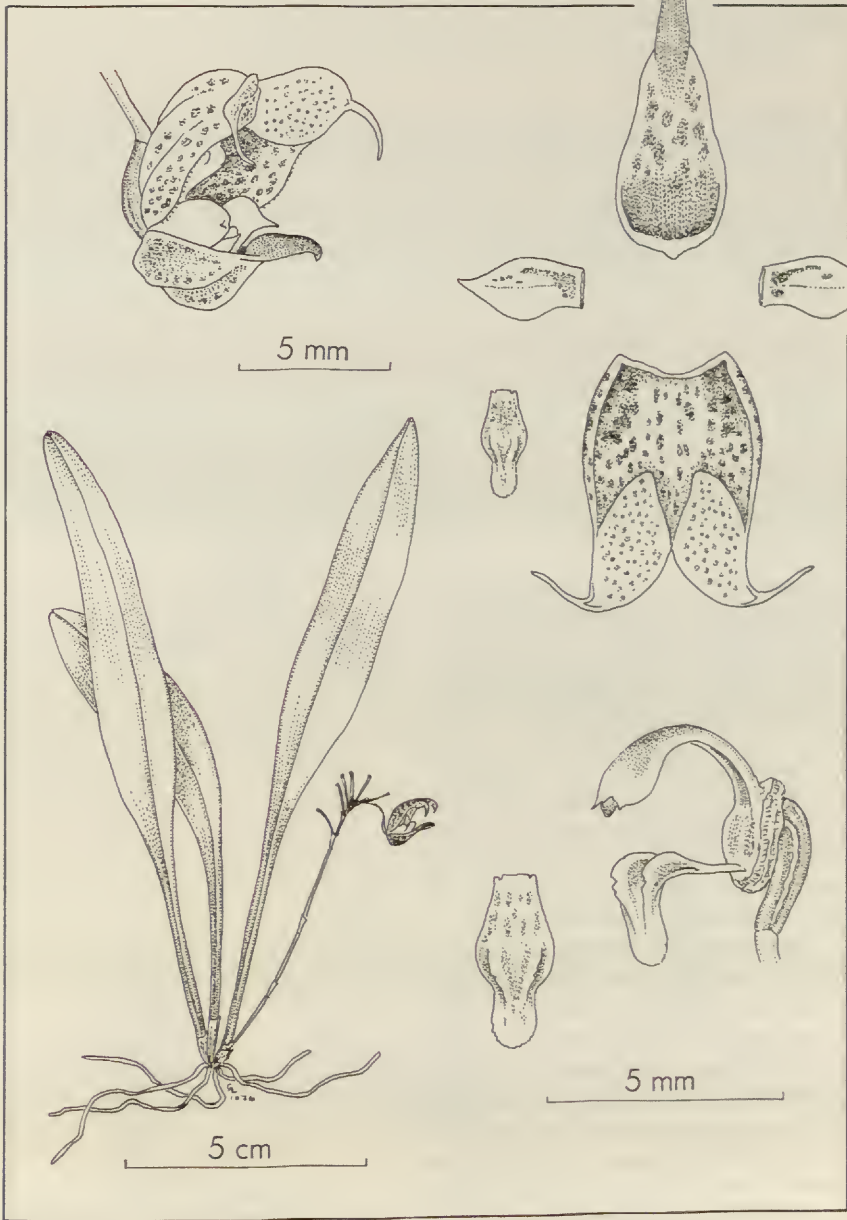


Plate 3. *Scaphosepalum anchoriferum* (Rchb. f.) Rolfe

spotted flowers with large, triangular, velvety cushions half the size of the blade and usually extending beyond the margins of the blade; short, slender, decurved sepaline tails; ovate, ventricose, acute, shortly acuminate petals; and a deflexed lip dilated in the middle third.

Scaphosepalum andreettae Luer, *Phytologia* 57: 64, 1985.

Ety.: Named in honor of Padre Angel Andreetta, who along with Mario Portilla discovered this species.

Plant small, epiphytic, caespitose; roots coarse. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, 4-6.5 cm long including the 1.5-2.5 cm long petiole, the blade narrowly elliptical, subacute to obtuse, 1-1.5 cm wide, cuneate below into the slender petiole. **Inflorescence** a loose, successively flowered raceme up to 2 cm long, borne more or less horizontally by a slender, smooth peduncle ca. 5 cm long, from low on the ramicaul, floral bracts thin, tubular, 2 mm long; pedicel slender, 5-6 mm long; ovary subverrucose, 2.5 mm long; **sepals** brown, green toward the apices, mottled with purple, the middle sepal ovate, narrowly obtuse, concave below the middle, 6 mm long, 3 mm wide, the margins revolute above the middle enclosing the apiculate apex, the lateral sepals connate 5 mm into a concave, ovoid, obtuse lamina 5 mm long, 4 mm wide unexpanded, the apical portion of each lateral sepal with an oblong, pubescent cushion 1.5 mm long, 0.75 mm wide, the rounded apices contracted slender, decurved, subserrate tails 3 mm long; **petals** translucent yellow, more or less ovate, oblique, 2.75 mm long, 1 mm wide, the apex transversely obtuse, with an acute angle on the upper margin near the apex, the labellar margin broadly dilated; **lip** yellow, suffused with brown, reflexed near the middle, oblong-trilobed, 2.75 mm long, 1 mm wide, the anterior third or epichile obovate, broadly rounded, serrulate, the middle third dilated with a pair of erect, serrate calli on the disc, the lower third or hypochile oblong, truncate, hinged by a membranous strap to the bottom of the column-foot; **column** yellow, semiterete, slender, 3 mm long, broadly winged above the middle, with a thick foot 2 mm long.

ECUADOR: Prov. of Morona-Santiago: cloud forest of Cutucú, alt. 1400 m, Oct. 1983, A. Andreetta & M. Portilla, flowered in cultivation at *Hosteria Uzhupud* near Gualacéo, 16 Mar, 1984, *C. Luer 9528* (Holotype: MO); flowered in cultivation at *Colomborquídeas*, Colombia, 10 Apr. 1988, *C. Luer 13120* (MO).

This rare, little species is apparently confined to an isolated mountain range in southeastern Ecuador, where it has been found on only one occasion. The few plants presently in cultivation are derived from the original collection.

Scaphosepalum andreettae is identified by the small habit and small flowers with a membranous, tailless, middle sepal with revolute margins; small, ovoid, pubescent cushions of the lateral sepals that fail to occupy all the space to the margins; and petals with transversely obtuse apices. The lip is not unlike that of several other species, e.g. the widely distributed *S. breve*.



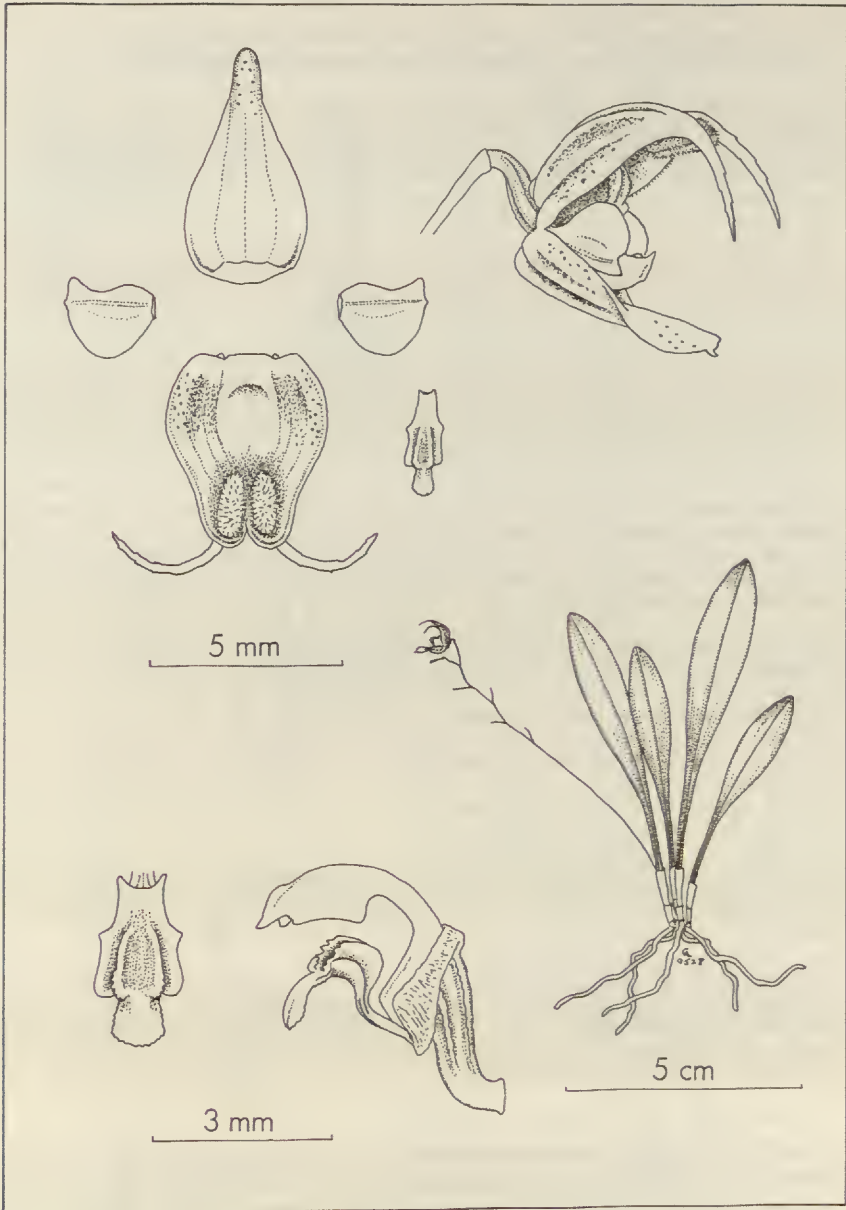


Plate 4. *Scaphosepalum andreettae* Luer

Scaphosepalum antenniferum Rolfe, Gard. Chron. 1: 709, 1890.

Ety.: From the Latin *antennifer*, "antenna-bearing," referring to the appearance of the sepaline tails. Rolfe compared the flower with the head and antennae of a "good-sized centipede."

Syn.: *Scaphosepalum reversum* Krzl., Repert. Spec. Nov. Regni Veg. 17: 436, 1921.

Ety.: From the Latin *reversum*, "reversed," referring to the reflexed sepaline tails.

Plant large, robust, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 2-5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 10-27 cm long including the 3-7 cm long petiole, the blade elliptical, subacute, 2.5-6.5 cm wide, gradually narrowed below into the stout, channeled petiole. **Inflorescence** an erect, rigid, distichous, many-flowered raceme, remotely flowered below to congested above, up to 30 cm long, 2-3 flowers produced simultaneously, borne by an erect, stout, coarsely verrucose peduncle up to 30 cm long, from low on the ramicaul; floral bracts conduplicate, oblique, with the apex rounded, minutely verrucose, 6-8 mm long; pedicels verrucose, 4-14 mm long; ovary subverrucose, 8-10 mm long; **sepals** dull green, suffused and spotted with purple-brown, fleshy, glabrous externally, glandular-cellular within, the middle sepal carinate, ovate and concave below the middle, 15-18 mm long, 5-7 mm wide, thickened and narrowly linear in the distal half with revolute margins, the apex more or less apiculate, the lateral sepals connate 12 mm into a concave, ovate, obtuse to truncate lamina 15 mm long, 9-10 mm wide unexpanded, each lateral sepal with an apical, dull olive green, thick, well-developed, broadly lunate cushion 6-7 mm long, 3 mm wide, with the cushions contiguous, the obtuse apices abruptly contracted into slender, decurved, subverrucose tails 10-12 mm long; **petals** yellow-green, marked with purple, more or less ovate, oblique, dilated on the labellar margin, obtusely angled on the opposite margin near the acute apex, 5-7 mm long, 3 mm wide; **lip** green with purple dots, subpandurate, reflexed near the middle, 5 mm long, 2-3 mm wide, the epichile obovate, rounded at the apex, denticulate, the hypochile more or less oblong, the disc with a low pair of serrated lamellae near the middle, the base truncate, minutely bilobulate; **column** green, suffused with purple, semiterete, 5-6 mm long, broadly winged above the middle, with a thick foot 3 mm long.

COLOMBIA: without known collector or locality, imported in 1890 by Messrs. Charlesworth, Shuttleworth & Co. s.n. (Holotype: K, Isotype: W); without collector or locality, flowered in cultivation (type of *S. reversum*: W). Dept. of Antioquia: Alto del Poleal above Caramanta, alt. 2400 m, 7 Sept. 1884, F. C. Lehmann 3879 (BM, G, K); Río Dolores near Angostura, alt. 1700-1800 m, Dec. 1891, F. C. Lehmann s.n. (K); Munic. of Río Negro, terrestrial along Río Piedras, alt. 2150 m, 29 Apr. 1983, C. Luer, J. Luer, R. Escobar, M. Webb & A. Pridgeon 8861 (SEL).

ECUADOR: Prov. of Morona-Santiago: near San Juan Bosco, alt. 1500 m, 1981, collected by A. Andreetta & M. portilla, flowered in cultivation at Hostería Uzhupud near Gualacéo, 16 Mar. 1984, C. Luer 9527 (MO).

PERU: Dept. of Huánuco: Carpish Mountains, alt. 2550 m, 17 Jan. 1982, M. Dix 4472 (MO).



This huge, coarse species is locally abundant in Colombia, without doubt the country of origin of the cultivated plant described by Rolfe. It was not known to occur in Ecuador and Peru until recently. A collection by Lehmann

in the herbarium at Kew was identified as *S. rolfeanum* by Kränzlin (a synonym of *S. pulvinare*), but the decurved, divergent tails of the sepals of the dried flowers indicate that it is *S. antenniferum*. The sepaline tails of the vegetatively similar *S. pulvinare* are shorter and in apposition from the acute apex of the scaphoid synsepal.

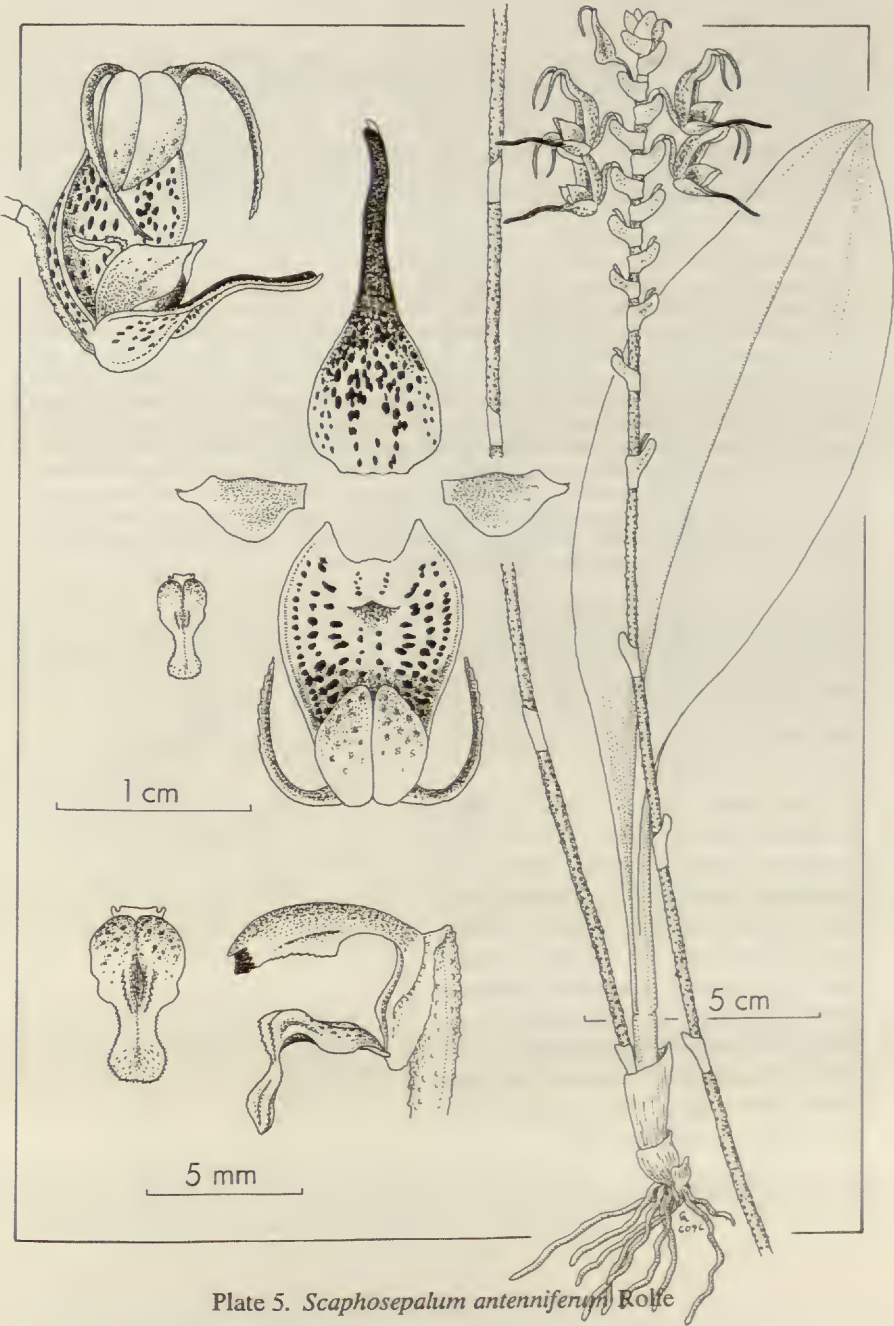


Plate 5. *Scaphosepalum antenniferum* Rolfe

Scaphosepalum beluosum Luer, Selbyana 5: 188, 1979.

Ety.: From the Latin *beluosus*, "full of monsters," referring to the ferocious-appearing flowers.

Plant large, robust, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, long-petiolate, 10-25 cm long including the petiole 5-11 cm long, the blade elliptical, subacute, 3.5-5.5 cm wide, cuneate below into the slender, channeled petiole. **Inflorescence** a loose, distichous, successively several- to many-flowered raceme 5-15 cm long, 2 flowers often open simultaneously, borne by a slender, faintly verrucose, ascending to horizontal peduncle 5-20 cm long, from low on the ramicaul; floral bracts thin, tubular, 4 mm long; pedicel minutely verrucose, 7-11 mm long; ovary spiculate-pubescent, 3.5 mm long; **sepals** yellowish tan to orange, dotted with purple-brown, with ciliate-spiculate carinae, the middle sepal tricarinate, fleshy, ovate and concave in the lower half, 13 mm long, 4 mm wide unexpanded, the apical half narrowly tubular with revolute margins, the lateral sepals connate 8 mm into a bifid, oblong, concave lamina 9 mm wide unexpanded, the apical portion of each lateral sepal occupied by a thick, triangular, diverging, glabrous cushion continuous with the acute, oblique, diverging apex terminating in a decurved, sparsely spiculate tail, the total length of each lateral sepal including the tail 15 mm; **petals** yellow, suffused with purple, longitudinally callous medially, obliquely subovate, acute, 4 mm long, 2.25 mm wide, the labellar margin obtusely angled, the upper margin with an acute angle above the base; **lip** green, dotted with purple, subpandurate-ligulate, sharply deflexed near the middle, 3.5 mm long, 1.6 mm wide, with a small pair of rounded lateral lobes above the middle, the epichile obovate, denticulate, the hypochile more or less ovate, lightly concave, the disc with a small pair of erect, acute, lamellae near the middle, the base truncate, minutely bilobulate; **column** greenish, spotted with purple, semiterete, slender, 4 mm long, broadly winged above the middle, with a thick foot 2 mm long.

ECUADOR: Prov. of Pichincha: epiphytic in cloud forest above Mindo, alt. 2200 m, 11 Nov. 1979, C. Luer, J. Luer & A. Hirtz 4746 (Holotype: SEL); above Mindo, alt. 2000 m, 6 Dec. 1984, A. Hirtz 2134 (MO); cloud forest between Chiriboga and Santo Domingo, alt. 1650 m, 31 Mar. 1984, C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9840 (MO).

This large species occurs rather frequently on the western slopes of the Andes of central Ecuador where it is apparently endemic. It is characterized by the long, slender petioles bearing large, broad but thin, elliptical blades and a suberect to horizontal peduncle usually bearing two relatively large, beastlike flowers simultaneously. The light yellowish brown flowers with purplish brown spots are provided with erose carinae and short tails.



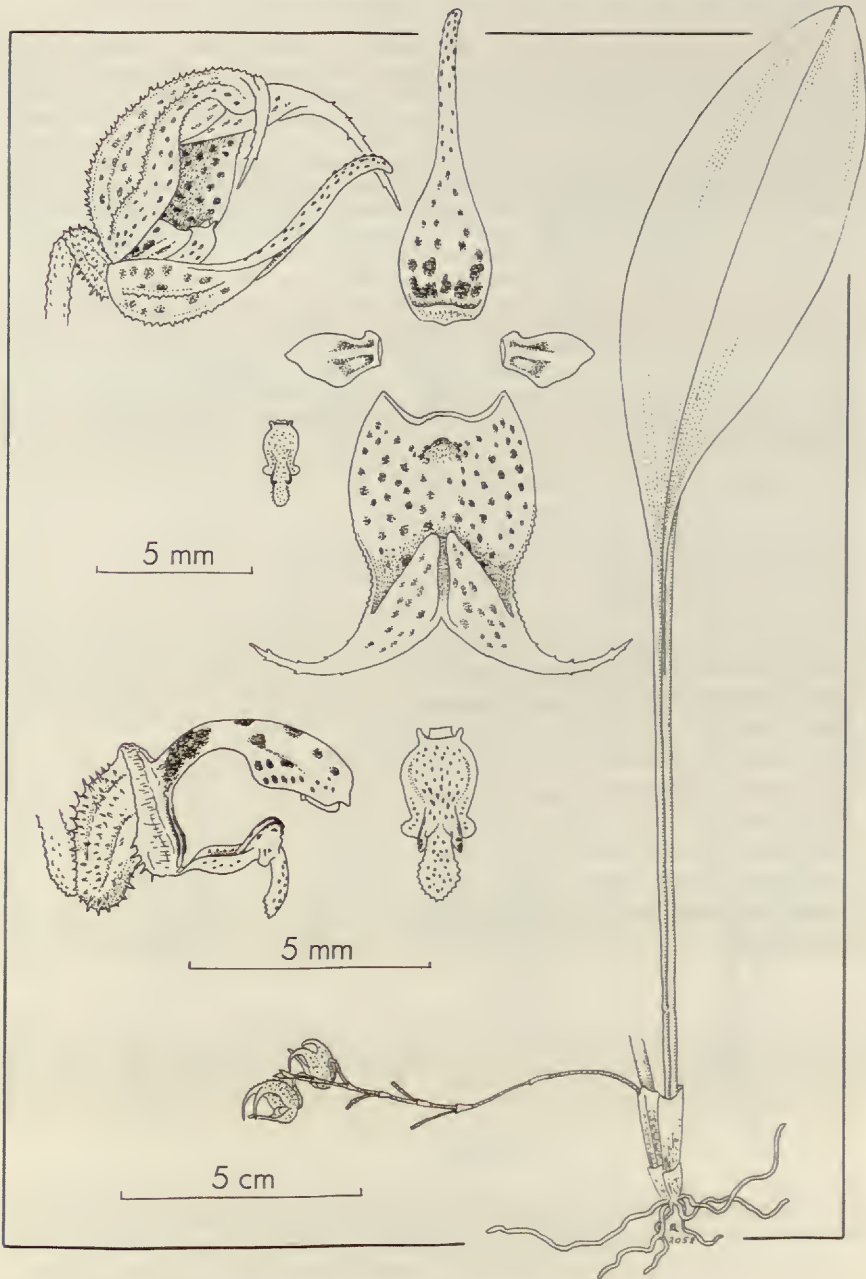


Plate 6. *Scaphosepalum beluosum* Luer

Scaphosepalum bicolor Luer & Escobar, *Orquideología* 14: 186, 1981.

Ety.: From the Latin *bicolor*, "of two colors," referring to the purple and orange flowers.

Plant small, epiphytic, caespitose; roots slender. **Ramicauls** erect to suberect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thinly coriaceous, 4-9 cm long including the 1-3 cm long petiole, the blade narrowly elliptical, acute, 1-2 cm wide, gradually narrowed below into the slender, channeled petiole. **Inflorescence** a congested, successively several-flowered raceme up to 3 cm long, borne by a slender, smooth, horizontal or descending peduncle up to 10 cm long, from low on the ramicaul; floral bracts thin, 2-3 mm long; pedicels 3-7 mm long; ovary ribbed, 3-4 mm long; **sepals** greenish, suffused with purple, the middle sepal tricarinate, ovate, obtuse and concave below the middle, narrowly acute with revolute margins above the middle, 9-10 mm long, 5.5 mm wide expanded, the lateral sepals purple, connate 8 mm into a concave, subquadrate lamina 10 mm long, 10 mm wide expanded, the apical half of each lateral sepal occupied by an thick, orange, subrhomboid, velvety cushion 8 mm long, 5 mm wide, the obtuse, diverging apices contracted into slender, decurved tails 3.5 mm long; **petals** yellow, suffused with purple, subquadrate, ventricose, obtuse, 3.5 mm long, 3 mm wide; **lip** red-brown, oblong, reflexed near the middle, 4.5 mm long, 2 mm wide, dilated in the middle third with a pair of denticulate lamellae, the epichile suborbicular, serrulate, the hypochile more or less oblong, truncate, minutely bilobulate; **column** red, semiterete, slender, 4 mm long, broadly winged above the middle, with a thick foot 2 mm long.

COLOMBIA: Dept. of Chocó: Munic. of Carmen de Atrató, Dos Quebradas, collected by J. M. Serna, August 1973, cultivated by M. & O. Robledo at La Ceja, Colombia, *R. Escobar 1650* (Holotype: JAUM), flowered in cultivation 17 Oct. 1977, *C. Luer 2092* (SEL).

This pretty, small species is apparently endemic in the forests of coastal, western Colombia where it was discovered by the late professional collector J. M. Serna. It is most closely allied to the Central American *Scaphosepalum anchoriferum*, but *S. bicolor* is distinguished by the somewhat smaller habit; unspotted purple flowers with large, orange cushions; and short, broad, obtuse petals.



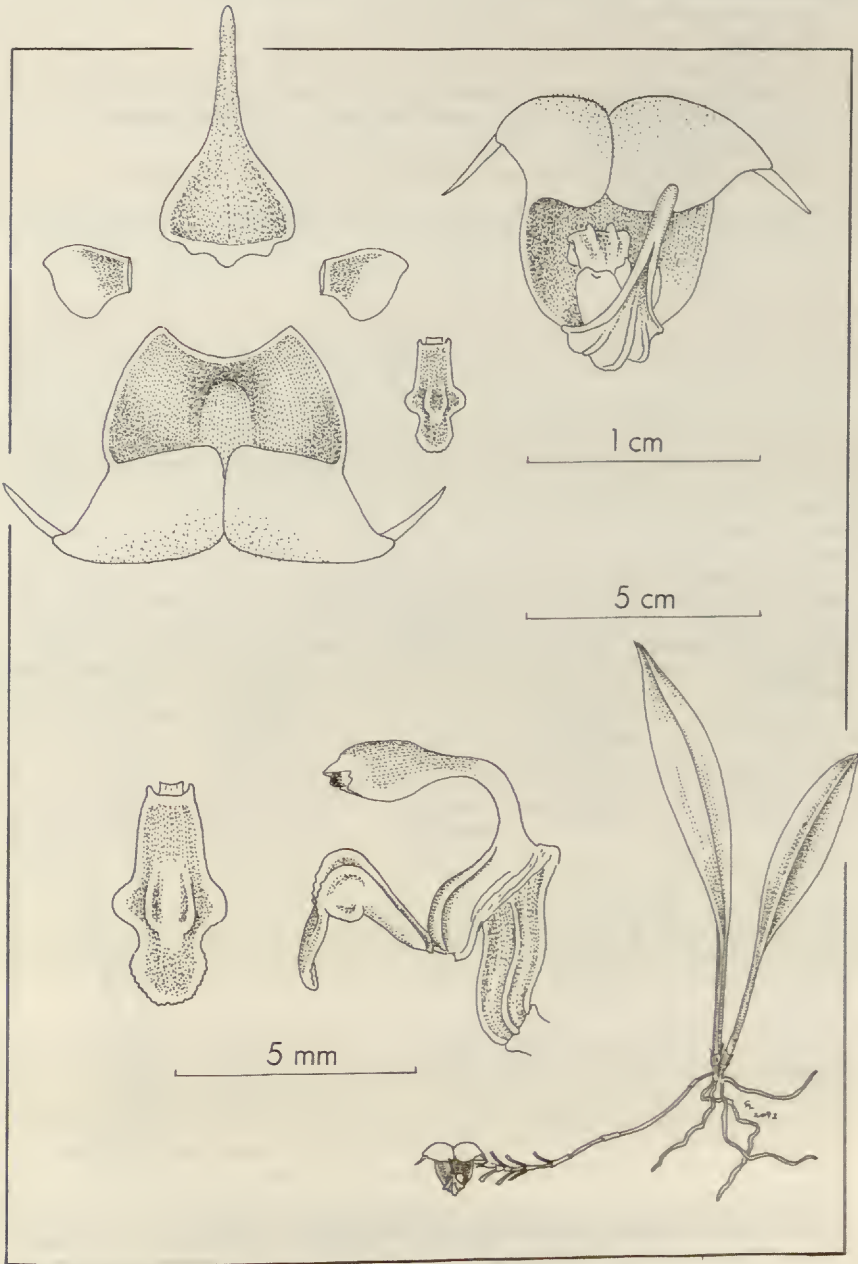


Plate 7. *Scaphosepalum bicolor* Luer & Escobar

Scaphosepalum breve (Rchb. f.) Rolfe, J. Bot. 28: 136, 1890.

Bas.: *Masdevallia brevis* Rchb. f., Gard. Chron. 2: 588, 1883.

Ety.: From the Latin *brevis*, "short," referring to the size of the flowers.

Syn.: *Scaphosepalum breve* (Rchb. f.) Rolfe, J. Bot. 28: 136, 1890.

Syn.: *Scaphosepalum trachypus* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 33, 1919.

Ety.: From the Greek *trachypus*, "rough-footed," referring to the verrucose peduncle.

Syn.: *Scaphosepalum nutans* Krzl., Notizbl. Bot. Gart. Berlin 8: 136, 1922.

Ety.: From the Latin *nutans*, "drooping," in allusion to the position of the peduncle.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-3 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, thinly coriaceous, 6-14 cm long including the 3-5 cm long petiole, the blade narrowly elliptical, acute, 1.5-2 cm wide, gradually narrowed below into the slender, channeled petiole. Inflorescence a loose, sharply flexuous, successively several- to many-flowered raceme 5-25 cm long including the slender, wiry, verrucose, ascending to horizontal peduncle, from low on the ramicaul; floral bracts conduplicate, attenuate, 4-7 mm long; pedicels slender, lightly verrucose, 4-10 mm long; ovary verrucose, 3-6 mm long; sepals yellow-green, suffused or spotted with purple, the middle sepal tricarinate, ovate, acute, concave in the lower third, dark purple and narrowly linear with revolute margins above the lower third, with the apex thickened, 10-18 mm long, 3-4 mm wide, the lateral sepals connate 7-9 mm into a concave, oblong lamina 7-12 mm long, 6-7 mm wide expanded, the apical portion of each lateral sepal occupied by a thick, well-developed, ovate, approximate, minutely pubescent cushion 4-6 mm long, 2-4 mm wide, yellow to orange, often suffused with red, the obtuse apices contracted into slender, straight, deflexed tails 9-13 mm long; petals yellow, marked with purple, elliptical, oblique, 2.5-4.25 mm long, 1.75-2 mm wide, the apex obtuse to narrowly obtuse, with a short, external apiculum; lip yellow or green, suffused or marked with purple, subpandurate, reflexed near the middle, 3-4 mm long, 1.5-2 mm wide, narrowed above the middle, the disc with a pair of denticulate lamellae, the epichile obovate, serrulate, the hypochile more or less oblong, lightly concave, truncate, minutely bilobulate; column green, marked or suffused with red-purple, semiterete, 3-5 mm long, winged above the middle, with a thick foot 2 mm long.

GUYANA: Demerara, imported by Messrs J. Veitch & Sons 444 (Holotype: K; Isotype: W); Mt. Roraima expedition, Oct.-Jan. 1884-1885, E. F. Im Thurn 256 (K); Upper Macaruni district, alt. 3400 ft., 20 Apr. 1979, P. J. Edwards 1457 (K).

VENEZUELA: near Caracas, alt. 5000 ft., 1850, H. Wager 103 (W); without locality, 1854, Fendler 2151 (K). Estado Aragua: Tiara Road, 12 Aug. 1963, G. C. K. Dunsterville 395 (K, SEL). Estado Bolívar: Cerro Venamo, alt. 1400 m, 2 Jan. 1964, J. A. Steyermark & G. C. K. Dunsterville 92571 (K, VEN); Cerro Jaua, alt. 1810-1880 m, Mar. 1974, J. A. Steyermark, V. Carreño E. & C. Brewer-Carias 109705 (K, VEN); Apacará-tepui, alt. 2200 m, 30 Jan.-1 Feb. 1983, J. A. Steyermark, O. Huber & V. Carreño E. 128270 (MO, VEN). Estado Miranda: Sigüire Valley, alt. 500-1000 m, March 1913, H. Pittier 5956 (AMES); without locality, collected by C. García, flowered in cultivation by M. & O. Robledo at La Ceja, 23 July 1978, C. Luer 2956 (SEL).

COLOMBIA: Dept. of Antioquia: Medellín, G. Wallis 343 (W).

ECUADOR: Prov. of Napo: north of Tena, alt. ca. 1000 m, Mar. 1982, flowered in cultivation 28 Dec. 1982, C. Luer 8510 (SEL); between Cotunda and Coca, A. Hirtz 2126 (MO). Prov. of Pastaza: collected near Puyo by J. Brenner, flowered in cultivation 1 Aug. 1977, C. Luer 1796 (SEL); above Puyo, collected by A. Hirtz, flowered in cultivation in Quito, 30 Mar. 1985, C. Luer 11006 (MO). Prov. of Tungurahua: Río Negro, alt. 1500 m, 12 Apr. 1985, C. Luer, J. Luer, A. Hirtz & W. Flores 11179 (MO).

BOLIVIA: Dept. of Santa Cruz: Samaipata, collected by Dr. L. Moreno, flowered in cultivation 14 Jan. 1983, C. Luer 8520 (SEL).



A specimen of this species was first collected by Wager near Caracas,

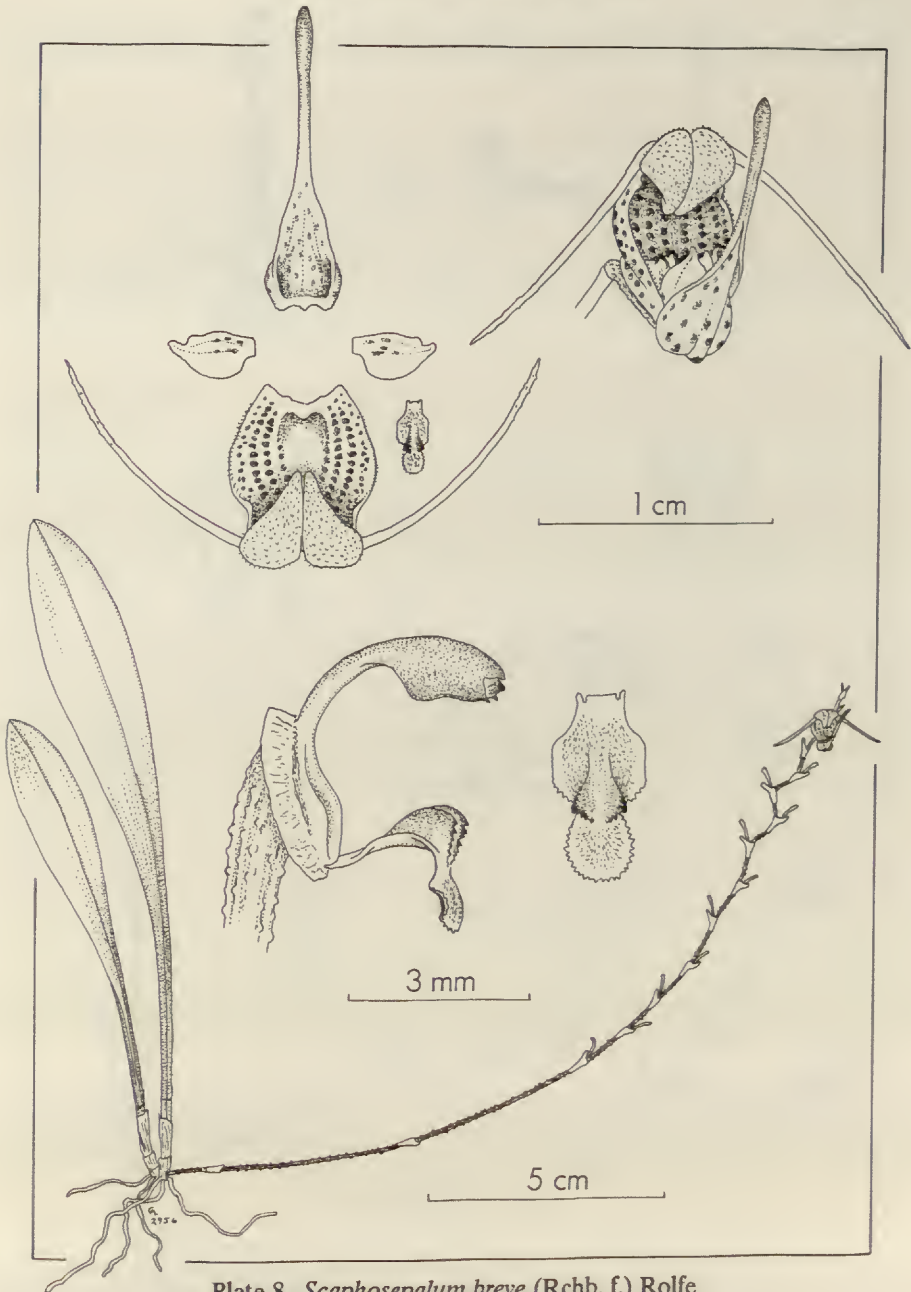


Plate 8. *Scaphosepalum breve* (Rchb. f.) Rolfe

Venezuela, in 1850, but the specimen in Reichenbach's herbarium was incorrectly annotated *Masdevallia verrucosa*. A different Wagenerian collection from Ocaña, Colombia (the same species as Schlim 1439, *M. verrucosa*), was described as *M. ochthodes*.

Scaphosepalum breve was not described by Reichenbach until 1883 from an importation by Messrs. Veitch from British Guiana. The flowers of the type-

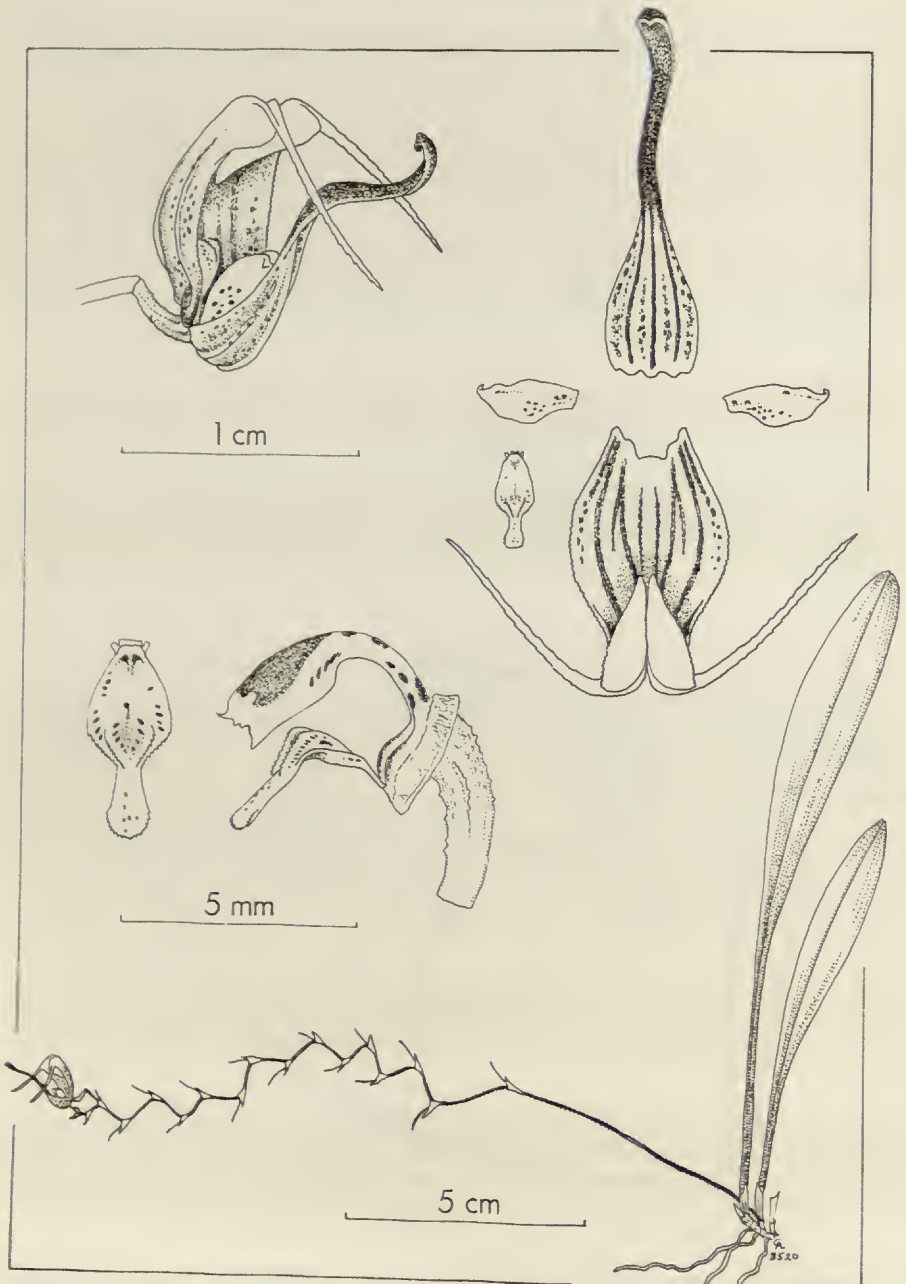


Plate 9. *Scaphosepalum breve* (Rchb. f.) Rolfe

specimen are smaller than the average size of those seen in this widely distributed species, but there are no specific differences.

Scaphosepalum breve is relatively frequent and variable in its wide range on the eastern slopes of the Andes from the Guianas and Venezuela to Bolivia. It does not usually occur at altitudes over 2200 meters above sea level.

Scaphosepalum breve, often erroneously known as *S. verrucosum*, is recognized

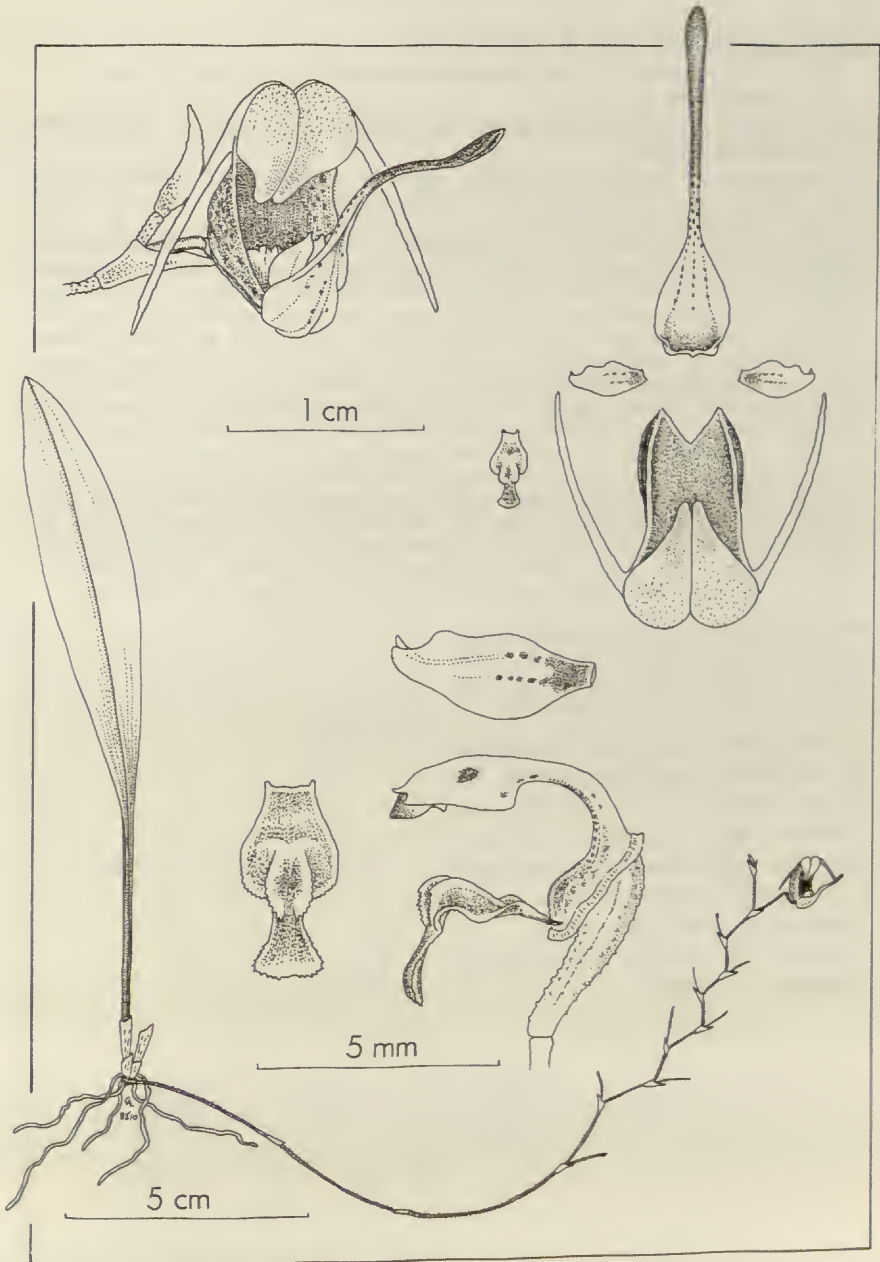


Plate 10. *Scaphosepalum breve* (Rchb. f.) Rolfe

by the more or less horizontal, thin, wiry, verrucose peduncle bearing medium-sized flowers with large cushions, and tails as long as or longer than the blades of the lateral sepals. The apical third of the middle sepal is thickened. The apex of the petals is apiculate. The pandurate lip reflexed near the middle bears a pair of denticulate lamellae above the middle. The size, colors and minor details of the flower parts are variable throughout the range.

Scaphosepalum cimex Luer & Hirtz, sp. nov.

Ety.: From the Latin *cimex*, "a bug," referring to the appearance of the flower with antennalike tails.

Inter species sectionis *Leiocaulii* species haec synsepalo apice angustato acuminato et pulvinis angustissimis differt.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. Leaf erect, coriaceous, 6-10 cm long including the 2-3 cm long petiole, the blade elliptical, acute, 0.7-1 cm wide, cuneate below into the slender petiole. **Inflorescence** a loose, successively several-flowered raceme up to 3 cm long, borne by a slender, smooth, ascending to horizontal or descending peduncle 6-9 cm long, from low on the ramicaul; floral bracts thin, acuminate, 2-3 mm long; pedicels 3-4 mm long; ovary costate, 3 mm long; **sepals** light green, spotted with purple, the middle sepal ovate, tricarinate, concave below the middle, light purple and narrowly linear above the middle with revolute margins, 11 mm long, 3.5 mm wide, the lateral sepals connate 6 mm into a concave, ovoid lamina with the margins revolute below the middle, constricted to an acute, bifid apex above the middle, 10 mm long, 5 mm wide expanded, the apical half of each lateral sepal with a poorly developed, narrowly linear, diverging cushion, 5 mm long, 1 mm wide, the narrow apices continued into slender tails 10 mm long; **petals** purple, subquadrate, oblique, transversely obtuse, dilated on the labellar margin, 2.5 mm long, 2 mm wide; **lip** purple, subpandurate, 3-lobed, reflexed near the middle, 3.25 mm long, 1.5 mm wide, shortly constricted above the middle, the disc with a pair of tall lamellae above the middle, the epichile orbicular, serrulate, the lateral lobes rounded, above the middle, the hypochile more or less ovate, concave, the base bilobulate; **column** white, semiterete, slender, 3.5 mm long, longitudinally winged above the middle, with a thick foot 2.5 mm long.

ECUADOR: Prov. of Imbabura: epiphytic in wet forest south of Lita, between Santa Rosa and Cachabi, alt. 1250 m, 19 Jan. 1987, C. Luer, J. Luer, A. Hirtz et al. 12436 (Holotype: MO)

This species was recently discovered by Alexander Hirtz in excessively wet forest in the lowlands of northwestern Ecuador south of Lita. It is distinctive with the narrow foliage and small flowers with very narrow, diverging cushions of the lateral sepals. The hairlike tails diverge, resembling the antennae of an insect.



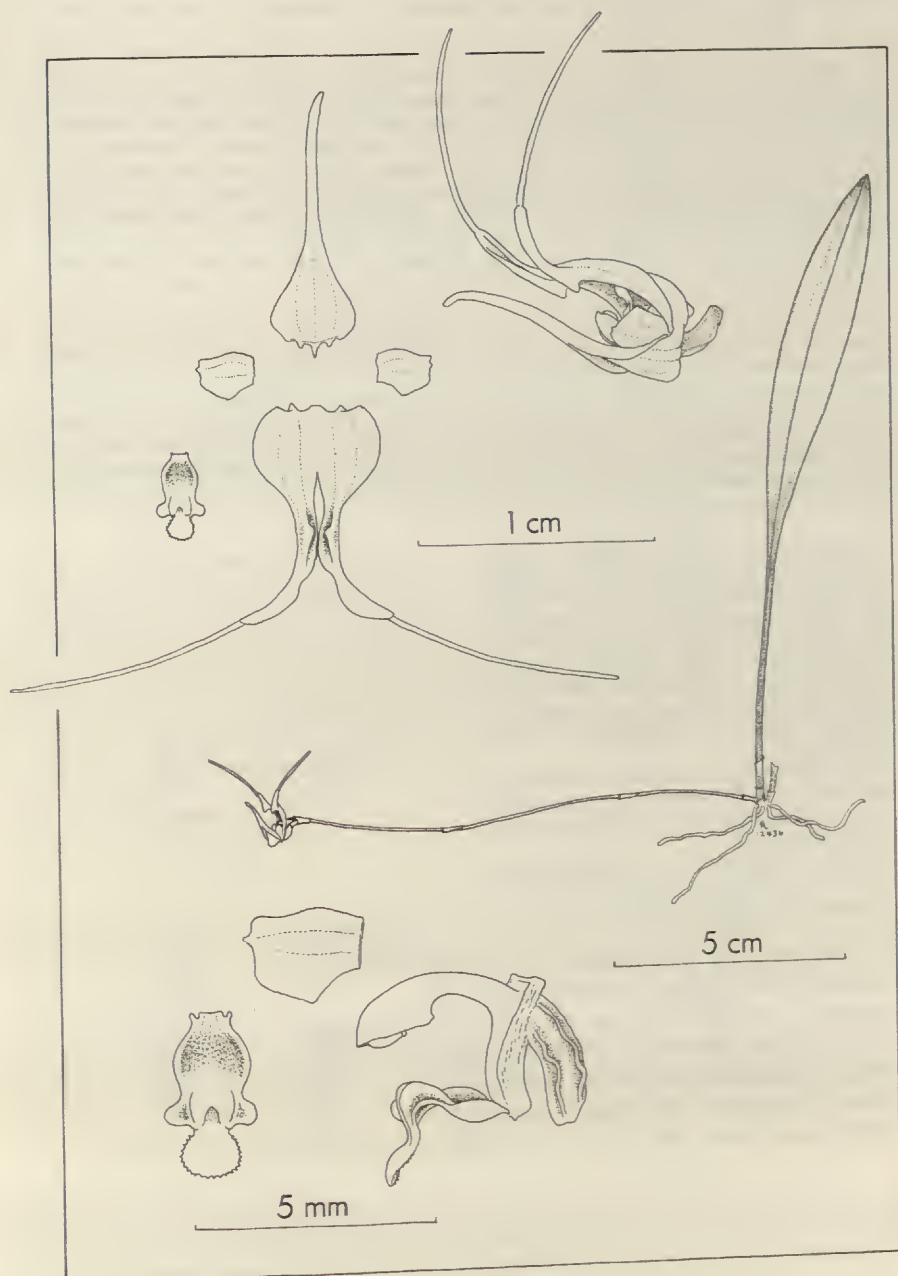


Plate 11. *Scaphosepalum cimex* Luer & Hirtz

Scaphosepalum clavellatum Luer, Selbyana 3: 32, 1976.

Ety.: From the Latin *clavellatus*, "little-clubbed," in reference to the long, club-shaped middle sepal.

Plant small to medium in size, epiphytic, subcaespitose to shortly repent; roots slender. Ramicauls slender, erect, 0.5-1.5 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, 5-11 cm long including the 2-3 cm long petiole, the blade narrowly elliptical, acute, 1-1.6 cm wide, gradually narrowed below into the slender petiole. Inflorescence a congested, distichous, successively several-flowered raceme, up to 7 or more cm long, borne by an ascending to descending, slender, smooth peduncle, 5-12 cm long, from low on the ramicaul, floral bracts triangular, acute, 2-3 mm long; pedicels 3-5 mm long; ovary ribbed, 2-3 mm long; sepals yellow-brown, orange to red, the middle sepal fleshy, narrowly oblong-pan-durate, tricarinate, concave above the base, yellowish, thickened and clavate above the middle with the apex narrowly obtuse, 11-13 mm long, 2.5 mm wide, 1.5 mm wide at the constricted middle, the lateral sepals connate 7 mm into a bicarinate, bifid, ovate, subacute lamina 8-10 mm long, 4.5-5.5 mm wide expanded, concave below the middle, lightly recurved above the middle, each lateral sepal with an indistinct, narrowly ovoid, cushion 4-5 mm long, 1 mm wide, the narrowly obtuse apices approximate, with an apiculum up to 1 mm long; petals translucent yellow with 2 red veins, ovate, oblique, acute, dilated on the labellar margin, 3 mm long, 1.5 mm wide; lip yellow to red, oblong, reflexed near the middle, 2.5 mm long, 1.5 mm wide, slightly dilated in the middle third with a pair of denticulate lamellae, the epichile oblong, rounded at the apex, minutely denticulate, the hypochile oblong, the base truncate, minutely bilobulate; column red, semiterete, stout, 2.5 mm long, broadly winged above the middle, with a thick foot 1.5 mm long.

PANAMA: Prov. of Panamá: epiphytic on Cerro Jefe, alt. 1000 m, 2 March 1976, C. Luer, J. Luer, R. L. Dressler & P. Taylor 740 (Holotype: SEL; Isotype: K); Altos de Pacora road, alt. 650 m, 2 March 1976, C. Luer, J. Luer, R. L. Dressler & P. Taylor 748 (SEL). Prov. of Chiriquí: Cerro Colorado, alt. 1000 m, collected Feb. 1985, flowered in cultivation by P. Jesup, Bristol, CT., 26 Apr. 1987, C. Luer 12860a (MO).

COSTA RICA: without locality, collected and cultivated by J. M. Wubben in Holland, flowered in cultivation 23 Oct. 1985, C. Luer 11439 (MO).

ECUADOR: Prov. of Cotopaxi: Tenefuerste, Río Pitaló, alt. 750-1300 m, 21 Feb. 1982, C. H. Dodson & A. H. Gentry 12772 (SEL).

This species is closely allied to the variable *Scaphosepalum microdactylum*-complex, and occurring sympatrically with it. *Scaphosepalum clavellatum* is easily recognized by the less densely flowered racemes, and larger flowers with a long, clavate middle sepal, considerably longer than the lateral sepals.



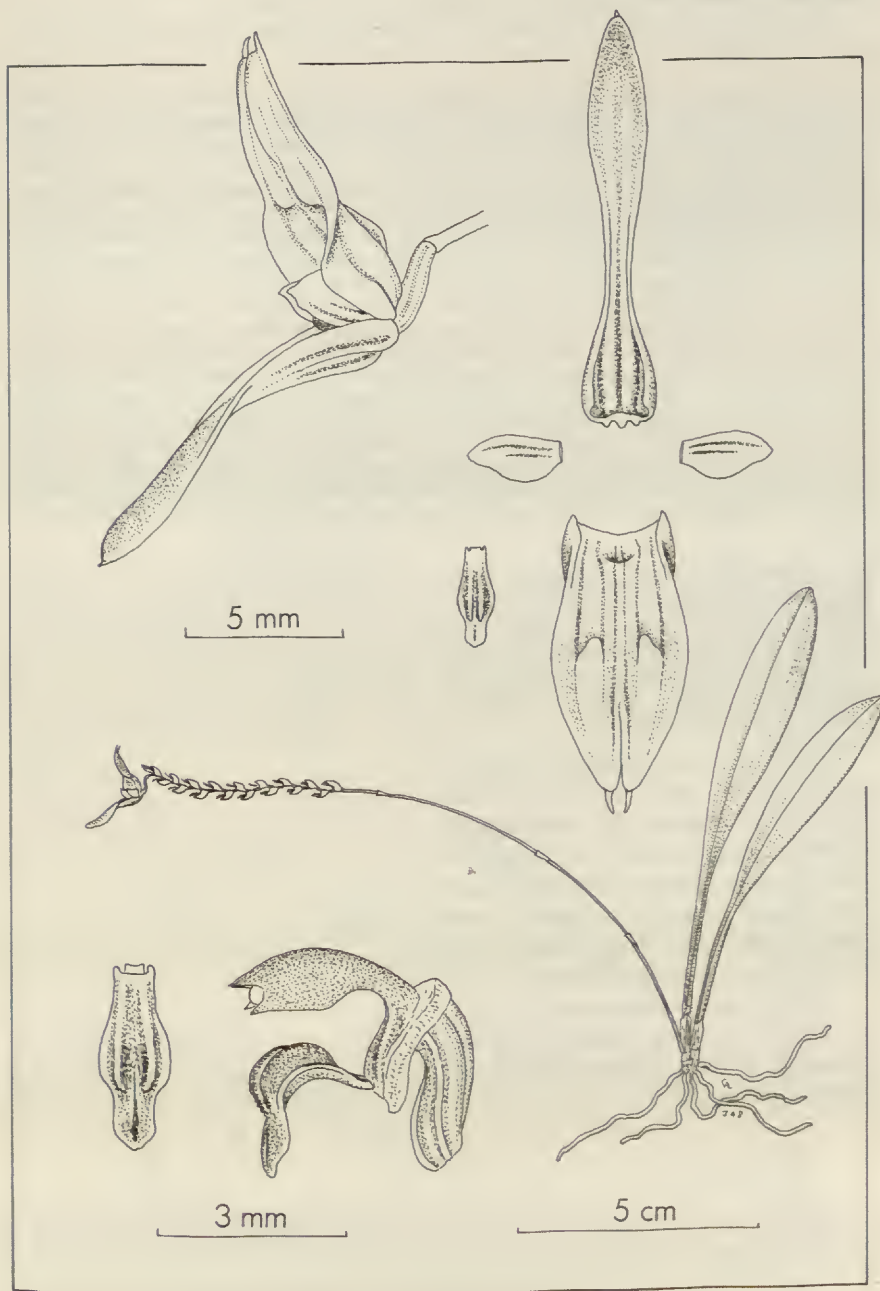


Plate 12. *Scaphosepalum clavellatum* Luer

Scaphosepalum dalstroemii Luer, Orchideer, 5: 180, 1984.

Ety.: Named in honor of Stig Dalström of Borlänge, Sweden, who first discovered this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-14 cm long including the 1.5-7 cm long petiole, the blade narrowly obovate-elliptical, acute, 1-1.5 cm wide, gradually narrowed below into the slender petiole. **Inflorescence** a loose to congested, successively flowered raceme up to 5 cm long, borne by a smooth, slender, ascending to horizontal peduncle up to 10 cm long, from low on the ramicaul; floral bracts thin, tubular, 4 mm long; pedicel 4-5 mm long; ovary 4.5 mm long, with subundulate ribs; **sepals** translucent yellow-green, spotted with purple, the middle sepal tricarinate, ovate and concave in the lower half, 12 mm long, 5 mm wide expanded, the distal half clavate, 2 mm thick with revolute margins, the apex irregularly lobulate, the lateral sepals connate 6 mm into an oblong, concave lamina 11 mm long, 9 mm wide expanded, the apical portion of each lateral sepal occupied by a triangular, acute cushion 5 mm long, 3 mm wide, the obtuse apices contracted into straight, slender, subverrucose, diverging tails 10 mm long; **petals** translucent yellow with 2 purple veins, irregularly oblong, obtuse, 3 mm long, 2.5 mm wide, the labellar margin broadly dilated, the opposite margin with 2 dilations; **lip** brown, subpandurate, 3.5 mm long, 2 mm wide, the epichile deflexed, obovate, the rounded apex minutely denticulate, the disc with a small pair of acute calli above the middle, the hypochile more or less obovate, concave medially, the base truncate, minutely bilobulate; **column** white, arcuate, semiterete, slender, 3 mm long, winged above the middle, the foot thick, 4 mm long, with a rose pubescence.

ECUADOR: Prov. of Loja: epiphytic in cloud forest above Jimbura, alt. 3150 m, 21 Mar. 1984, C. Luer, S. Dalström, T. Höjjer & J. Kuijt 9651 (Holotype: MO); cloud forest north of the pass south of Jimbura, alt. 2600 m, 21 Feb. 1986, C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11992 (MO).

This species is abundant locally at high altitudes south of Jimbura near the Peruvian border in southernmost Ecuador. Vegetatively it is variable in size, depending upon the habitat. Short, stout plants occur in exposed, sunny areas, while much larger plants with thin leaves occur in shaded areas.

Scaphosepalum dalstroemii is similar to *S. breve* of lower altitudes, but the former is readily distinguished by the smooth peduncles.



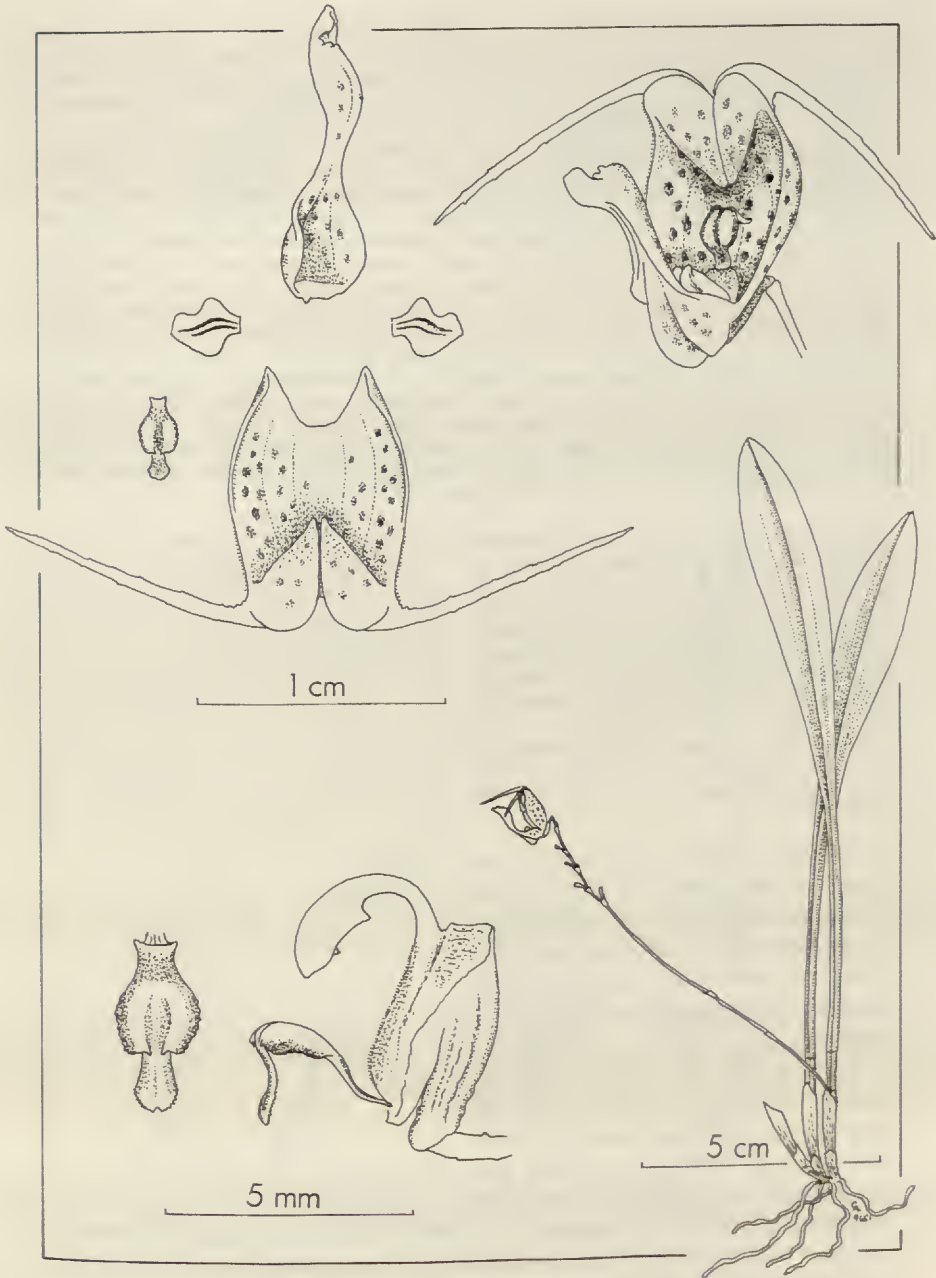


Plate 13. *Scaphosepalum dalstroemii* Luer

Scaphosepalum decorum Luer & Escobar, *Orquideología* 15: 149, 1982.

Ety.: From the Latin *decorus*, "graceful," referring to an aspect of the flowering plant.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-17 cm long, with a tubular sheath below the middle and another 1-2 at the base. **Leaf** erect, thinly coriaceous, long-petiolate, 9-19 cm long including the 2-6 cm long petiole, the blade elliptical, acute, 4-5.5 cm wide, cuneate below into the conduplicate petiole. **Inflorescence** racemose, subcongested, distichous, successively many-flowered, up to 15 cm long, borne by a slender, smooth, erect peduncle 9-25 cm long, from high on the ramicaul; floral bracts conspicuous, oblong-triangular, oblique, conduplicate, 8-12 mm long, 2-4 mm wide; pedicels 5-15 mm long; ovary undulate-muriculate, 3-5 mm long; **sepals** yellow or yellow-green, spotted with red-brown or red-purple, the middle sepal tricarinate, triangular, acute, concave below the middle, dark red-brown and narrowly linear with revolute margins above the middle, 15-17 mm long, 4.5 mm wide, the lateral sepals tall-carinate, connate 10 mm into a concave, ovoid lamina 11-20 mm long, 9-11 mm wide expanded, the falcate, apical half of each lateral sepal with lightly undulate margins, occupied by a thick, well-developed, transversely lunate, glabrous cushion 12-17 mm long, 5 mm wide, the acute, diverging apices contracted into slender, more or less deflexed tails 25-35 mm long; **petals** yellow-green, marked with 3 broad, purple veins, elliptical, oblique, acute, dilated on the labellar margin, 4-4.5 mm long, 2-2.5 mm wide; **lip** yellow, suffused and dotted with purple, subpandurate, reflexed near the middle, 4 mm long, 2 mm wide, the apex ovate, obtuse, minutely fimbriate, the disc with a pair of minutely denticulate lamellae above the middle, oblong below the middle, the base truncate, minutely bilobulate; **column** green, suffused with purple, semiterete, slender, 5 mm long, broadly winged above the middle, with a thick foot 5 mm long.

COLOMBIA: Dept. of Cauca: without locality, cultivated by Amalia Lehmann de Sarria in Popayán, flowered in cultivation by J & L Orchids, Easton, Ct., 23 Oct. 1978, *C. Luer* 3459 (Holotype: SEL; Isotype: JAUM); El Tambo, Huisito, alt. 1800 m, collected by J. Miranda, flowered in cultivation by Amalia Lehmann de Sarria in Popayán, 2 Oct. 1982, *C. Luer* 8176 (SEL). Dept. of Nariño: epiphytic in cloud forest around La Planada above Ricaurte, 25 Jan. 1987, *C. Luer et al.* 12517 (MO); cultivated at La Planada, 25 Jan. 1987, *C. Luer* 12512 (MO).

This large species is apparently confined to the western slopes of the Andes of southern Colombia. It was first discovered growing in the orchid collection of the late Amalia Lehmann de Sarria of Popayán, granddaughter of Consul F. C. Lehmann.

Scaphosepalum decorum is characterized by the large, petiolate leaves and long racemes emerging from high on the well-developed ramicaul. The large yellow flowers are dotted with red. The large-bracted, distichous racemes are similar to those of *S. grande* from much farther north, but the ramicauls of the later are markedly shorter with the inflorescence emerging from near the base.



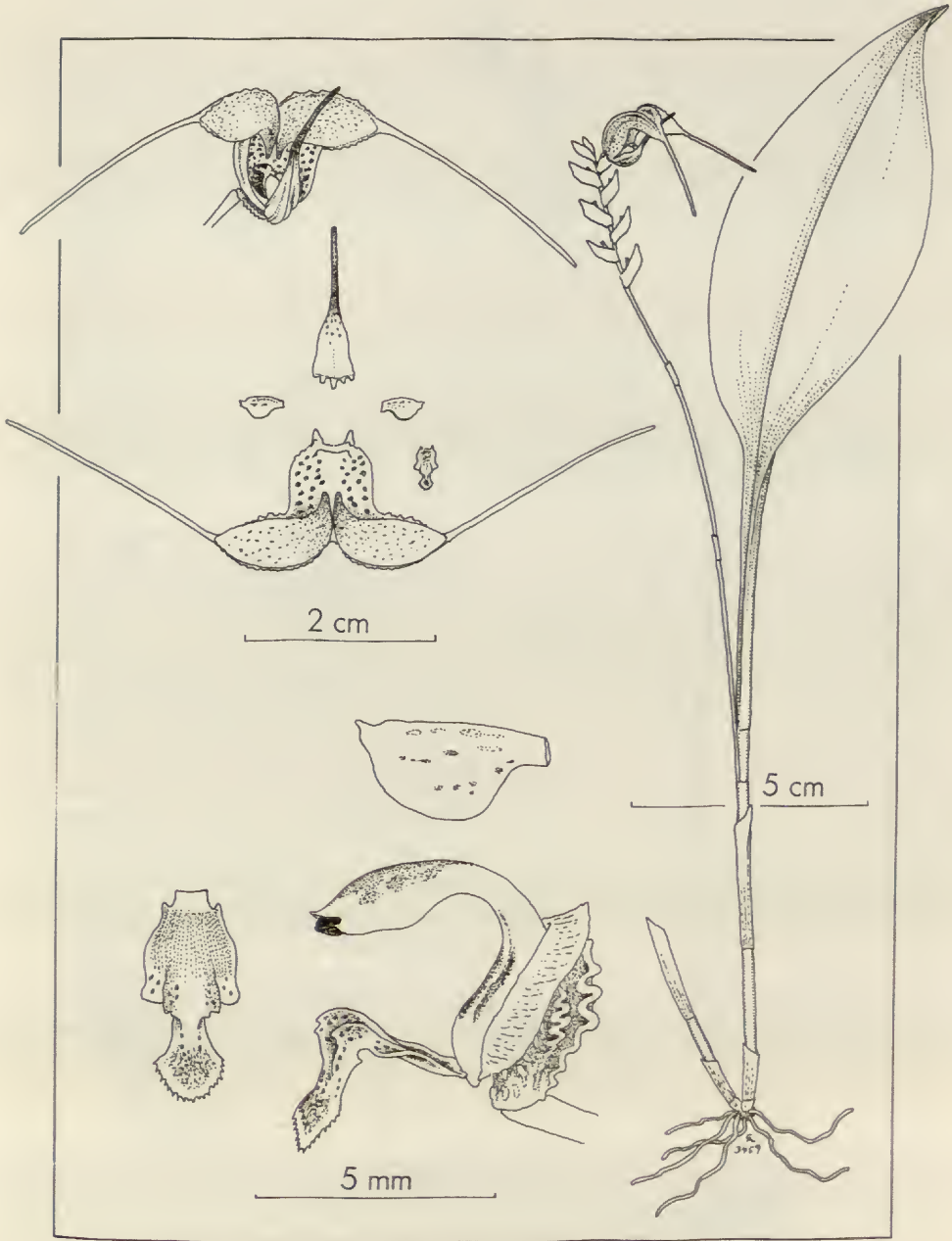


Plate 14. *Scaphosepalum decorum* Luer & Escobar

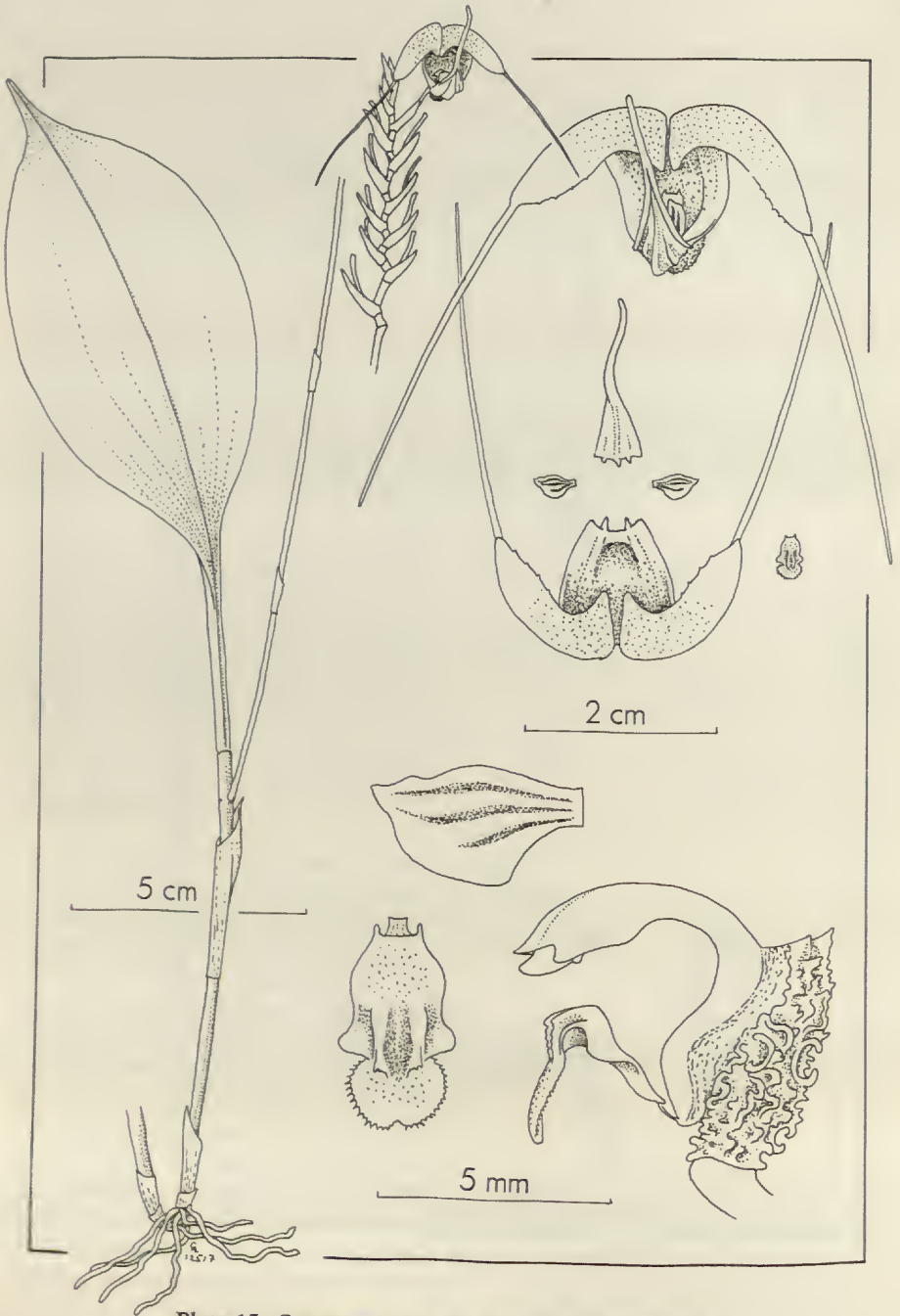


Plate 15. *Scaphosepalum decorum* Luer & Escobar

Scaphosepalum dodsonii Luer, *Phytologia* 54: 390, 1983.

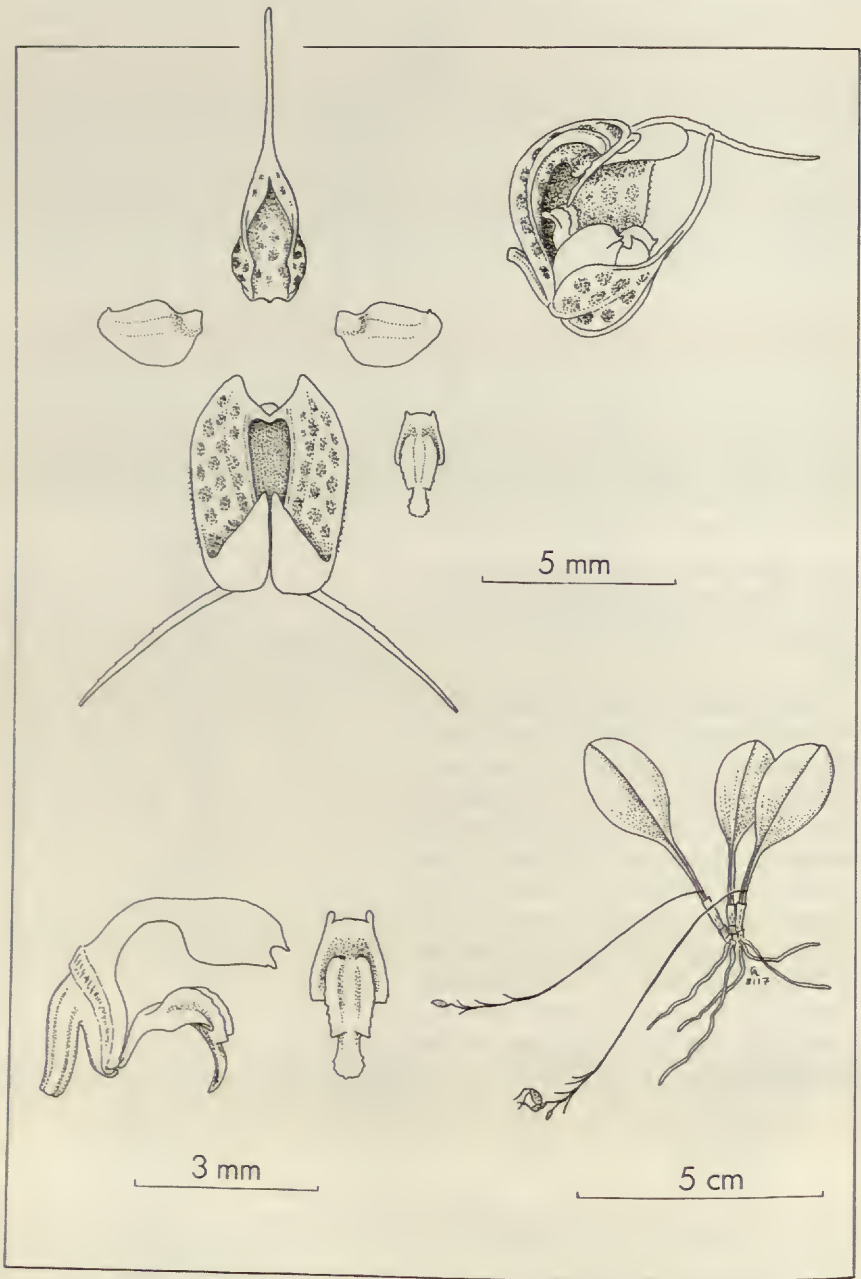
Ety.: Named in honor of Dr. Calaway H. Dodson, investigator of the flora of Ecuador, who discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, spatulate, distinctly petiolate, 2-3.5 cm long including the 0.8-1.5 cm long petiole, the blade elliptical, obtuse, 1.2-1.6 cm wide, cuncate below into the slender, blackish petiole. **Inflorescence** a subcongested, successively several-flowered raceme 5-7 cm long including the slender, smooth, horizontal to descending peduncle, from high on the ramicaul; floral bracts 2 mm long; pedicels slender, 4-7 mm long; ovary smooth, 2 mm long; sepals translucent green, spotted with dark red, the middle sepal tricarinate, ovate, acute, concave in the lower half, narrowly linear with revolute margins above the middle, 7.5 mm long, 3 mm wide expanded, the lateral sepals connate 4.5 mm into an oblong concave carinate lamina with a deep, longitudinal mentum above the base, 6 mm long, 5 mm wide expanded, with minutely ciliate margins, the apical portion of each lateral sepal occupied by a thick, well-developed, triangular, approximate, cushion 2.5 mm long, 1.5 mm wide, the obtuse apices contracted into slender, straight, tails 5.5 mm long; petals yellow, marked with purple, ovate, oblique, 2.75 mm long, 1.5 mm wide, the apex rounded with an apiculum on the upper margin; lip yellow, marked with purple, ovate-subpandurate, reflexed near the middle, 2.5 mm long, 1.25 mm wide, narrowed above the middle, with a prominent pair of denticulate lamellae occupying the middle third, the epichile spatulate, rounded, serrulate, the hypochile more or less oblong, truncate, minutely bilobulate; **column** green, marked or suffused with red-purple, semiterete, slender, 3 mm long, winged above the middle, with a thick foot 1.5 mm long.

ECUADOR: Prov. of Cotopaxi: epiphytic in cloud forest, Tenefuerste, Río Pilaló, alt. 1200 m, Feb. 1982, C. H. Dodson & A. H. Gentry 12265 (Holotype: SEL; Isotype: MO), C. Luer illustr. 8117.

This species is known from only a single collection made by Dodson and Gentry in a patch of forest on the western slope of the Andes of central Ecuador. The very small habit with the spatulate leaves is distinctive. The descending peduncle is smooth, but, except for their small size, the flowers are most similar to those of *S. breve* or a short-tailed form of *S. swertiiifolium*. The lip is distinguished by the prominent pair of tall lamellae on the middle third.



Plate 16. *Scaphosepalum dodsonii* Luer

Scaphosepalum fimbriatum Luer & Hirtz, sp. nov.

Ety.: From the Latin *fimbriatus*, "fimbriate," referring to the long-fimbriate carinae and tails of the lateral sepals.

Inter species sectionis *Leiocaulii* species haec sepalorum lateralium carinis et caudis longifimbriatis et labello trilobato, lobis minute fimbriatis distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect to suberect, slender, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, 5-10 cm long including the 2-3 cm long petiole, the blade elliptical, acute, 1.5-2 cm wide, cuneate below into the slender petiole. **Inflorescence** a loose, successively several-flowered raceme up to 6 cm long, borne by a slender, smooth, ascending to horizontal or descending peduncle 5-8 cm long, from low on the ramicaul; floral bracts thin, acuminate, 2 mm long; pedicels 3-5 mm long; ovary costate, 3 mm long; sepals light green, spotted with purple, the middle sepal ovate, tricarinate, concave below the middle, light purple and narrowly linear above the middle with revolute margins, 10 mm long, 3.5 mm wide, the lateral sepals carinate, with the carinae long-fimbriate, connate 7 mm into a concave, ovoid lamina 8 mm long, 7 mm wide expanded, the apical third of each lateral sepal occupied by a thick, well-developed, quadrilateral cushion, 4 mm long, 3 mm wide, the obtuse apices contracted into slender, fimbriate-spiculate, tails 6 mm long; petals purple, subquadrate, oblique, transversely obtuse, dilated on the labellar margin, 2 mm long, 2 mm wide, with a small, obtuse, uncinat lobule beside the apex on the anti-labellar margin; lip purple, elliptical-subpandurate, 3-lobed, reflexed near the middle, 3 mm long, 1.75 mm wide, shortly contracted above the middle, the disc with a pair of lamellae above the middle, the epichile flabellate, rounded, serrulate, the lateral lobes serrulate, above the middle, the hypochile more or less ovate, concave, the base bilobulate; column white, semiterete, slender, 3 mm long, longitudinally winged above the middle, with a thick foot 3 mm long.

ECUADOR: Prov. of Esmeraldas: epiphytic in wet forest west of Lita, between Lita and San Lorenzo, alt. 750 m, 18 Jan. 1987, C. Luer, J. Luer, A. Hirtz et al. 12371 (Holotype: MO)

This species was recently discovered by Alexander Hirtz in excessively wet forest in the lowlands of northwestern Ecuador between Lita and San Lorenzo. It is reminiscent of the Panamanian *S. viviparum* with the fimbriate carinae of the lateral sepals. In addition, however, the tails of the lateral sepals are markedly fimbriate as well. The petals are distinctive with a little, obtuse, uncinat lobule adjacent to the transversely obtuse apex, and the lip is remarkable for three, serrulate lobes.



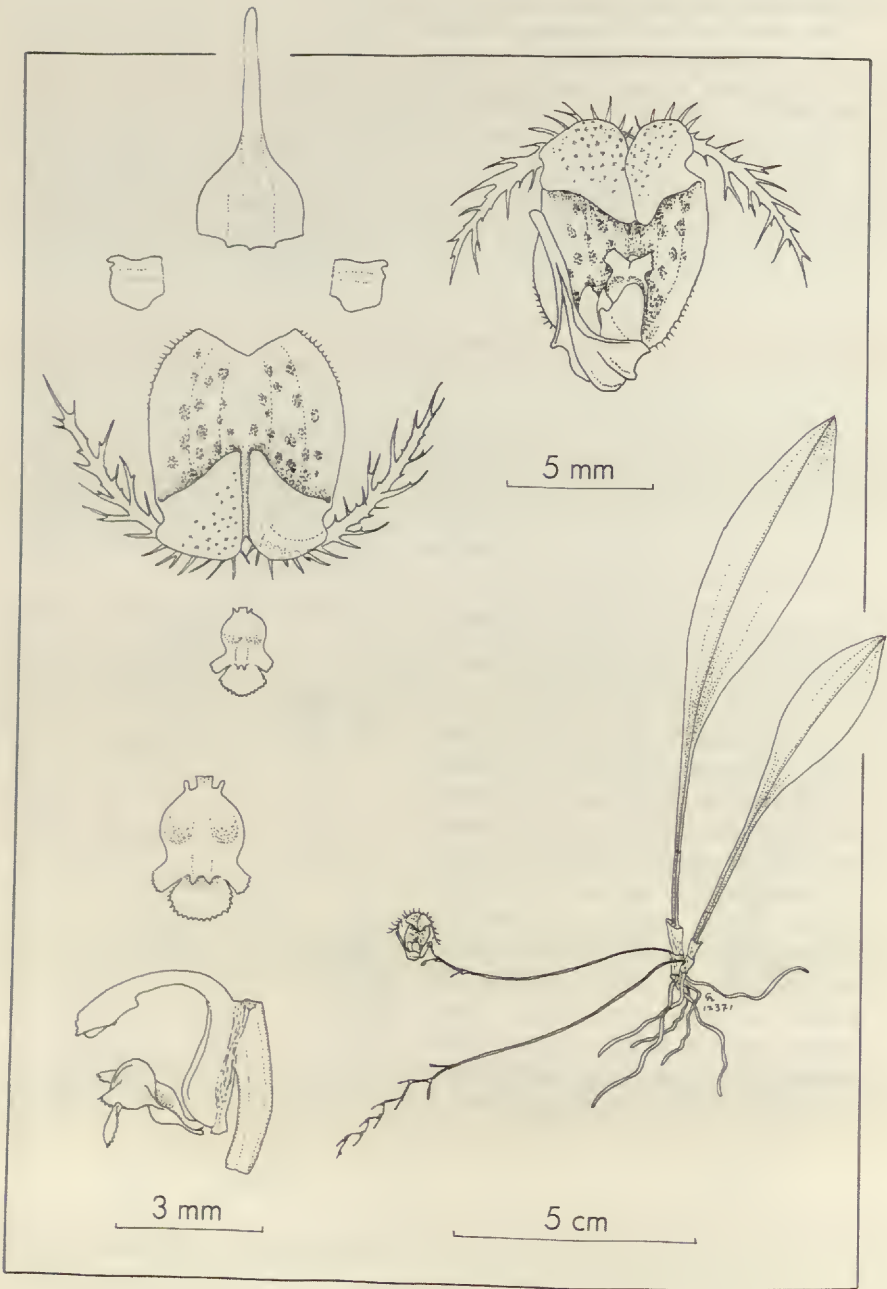


Plate 17. *Scaphosepalum fimbriatum* Luer & Hirtz

Scaphosepalum gibberosum (Rchb. f.) Rolfe, J. Bot. 28: 136, 1890.Bas.: *Masdevallia gibberosa* Rchb. f., Gard. Chron. 1: 8, 1876.Ety.: From the Latin *gibberosus*, "with many humplike swellings," referring to the verrucose peduncle.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1-4 cm long, enclosed by 2-3 short, loose, tubular sheaths. **Leaf** erect, coriaceous, 8-19 cm long including the 3-8 cm long petiole, the blade narrowly elliptical, acute, 1.5-2.5 cm wide, gradually narrowed below into the slender, channeled petiole. **Inflorescence** a loose, flexuous, successively many-flowered raceme up to 50 cm long including the slender but rigid, verrucose, ascending to erect peduncle up to 30 cm long, from low on the ramicaul; floral bracts narrow, conduplicate, acute, 4-10 mm long; pedicels verrucose, 5-20 mm long; ovary verrucose, 4-6 mm long; **sepals** greenish white, suffused and diffusely dotted with purple, the middle sepal tricarinate, ovate, acute and concave above the base, 25-57 mm long, 3-3.5 mm wide near the base expanded, contracted into a dark purple, tail with an obtuse angle between the concave blade and the tail, sometimes with a bend between the middle and outer thirds, the lateral sepals connate 6 mm into an ovoid, concave, bicarinate, bifid lamina 9-10 mm long, 8-10 mm wide expanded, greenish white, spotted with red-purple, the apical half of each lateral sepal occupied by a thick, well-developed, narrowly falcate-triangular, minutely pubescent cushion 10-13 mm long, 3 mm wide, white, usually intensely dotted with purple, the acute, falcate, diverging apices contracted into slender, straight, outstretched, white tails 15-25 mm long; **petals** light green, dotted with purple, ovate-oblong, abruptly acute, dilated on the labellar margin, 3 mm long, 1.5-2 mm wide; **lip** purple to light green, suffused with red-brown, oblong-subpandurate, reflexed near the middle, 3 mm long, 1.5 mm wide, with a pair of small, rounded lobes near the middle, the disc with a pair of denticulate lamellae above the middle, the epichile obovate, serrulate, the hypochile more or less oblong, truncate, minutely bilobulate; **column** green, spotted with purple, semiterete, slender, 3.5 mm long, broadly winged above the middle, with a thick foot 2 mm long.

COLOMBIA: Dept. of Antioquia: Frontino, alt. "8000 ft.," *G. Wallis* 387 (Holotype: W; Isotype: K); Munic. of Frontino, Aug. 1977, collected by R. Escobar et al., flowered in cultivation 24 Oct. 1978, *C. Luer* 3460 (SEL). Dept. of Chocó: Munic. of Carmen de Atrató, alt. 1600-1800 m, collected by S. Restrepo & P. Ortiz, flowered in cultivation by M. & O. Robledo at La Ceja, 17 Oct. 1977, *C. Luer* 2070 (SEL); same area, alt. ca. 2000 m, collected by E. Valencia, Jan. 1985, flowered in cultivation at Colomborquídeas, 6 Apr. 1988, *C. Luer* 13024 (MO). Dept. of Risaralda: Munic. of Pueblo Rico, La Linea, alt. 2000 m, collected by E. Valencia, Feb. 1985, flowered in cultivation at Colomborquídeas, *C. Luer* 13025 (MO); Munic. of Santuario, alt. 2000 m, collected by Pedro Alvarez, Oct. 1981, flowered in cultivation at Colomborquídeas, 6 Apr. 1988, *C. Luer* 13023 (MO). Without locality: flowered in cultivation by Sergio Restrepo, 15 Oct. 1977, *C. Luer* 2050 (SEL); flowered in cultivation at Colomborquídeas, 6 Apr. 1988, *C. Luer* 13026 (MO).



This species was first collected by the professional collector Gustav Wallis for Messrs. Veitch with whom it flowered

in 1876. It was described that same year by Professor Reichenbach. When it flowered in 1879 in the Royal Botanic Gardens at Kew, it became the subject of illustration 6990 for Curtis' *Botanical Magazine*.

The purplish peduncle is slender but very rough, covered by a multitude of hard warts. The sepaline cushions, minutely pubescent and usually diffusely dotted with red-purple, are narrowly falcate and diverging with slender,

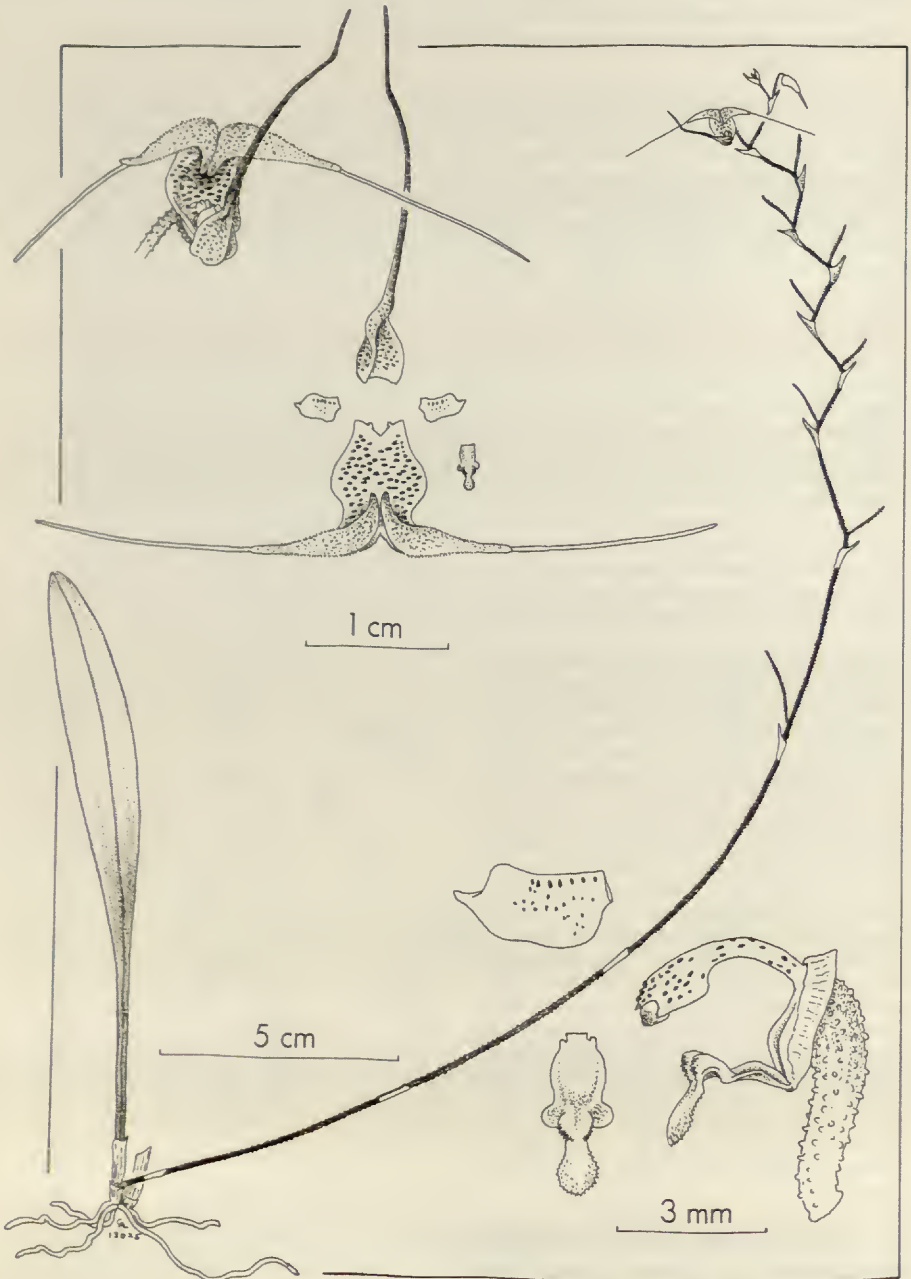


Plate 18. *Scaphosepalum gibberosum* (Rchb. f.) Rolfe

straight, white tails. The middle sepal is attenuated into a long tail which is slightly bent between the middle and distal thirds, and there is an obtuse angle on the inner surface between the concave basal portion and the base of the tail.

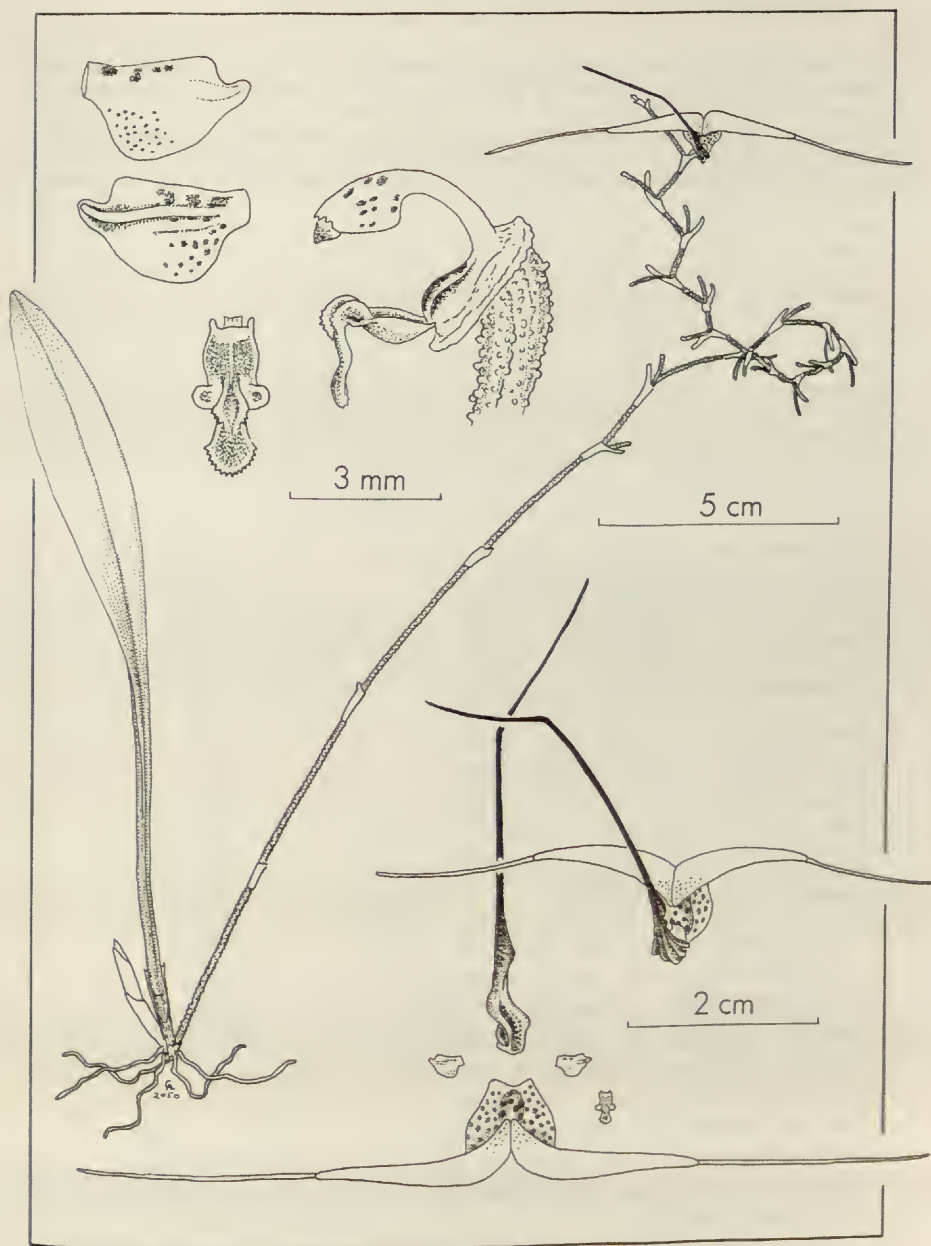


Plate 19. *Scaphosepalum gibberosum* (Rchb. f.) Rolfe

A large-flowered clone with longer, unspotted cushions, and long, horizontally outstretched sepaline tails is in cultivation. The flowers are finer than any of the other plants in cultivation, but, unfortunately, its original collection data have been lost. To date, it has not been rediscovered.

Scaphosepalum grande Krzl., Notizbl. Bot. Gart. Berlin 8: 135, 1922.

Ety.: From the Latin *grandis*, "large," referring to the size of the species.

Syn.: *Scaphosepalum escobarianum* Garay, Orquideologia 6: 62, 1974.

Ety.: Named in honor of its collector, Gilberto Escobar R., of Medellín, Colombia.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2.5-5 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, thinly coriaceous, plicate, 12-20 cm long including the 3-7 cm long petiole, the blade elliptical, subacute, 3.5-5.5 cm wide, cuneate below into the channeled petiole. Inflorescence racemose, subcongested, distichous, lightly flexuous, successively several to many-flowered, up to 30 cm long or longer, including the slender, smooth, erect, peduncle, from low on the ramicaul; floral bracts conspicuous, triangular, oblique, conduplicate, up to 10 mm long, 5 mm wide; pedicels 7-10 mm long; ovary undulate-carinate, 3-4 mm long; sepals greenish white, the middle sepal tricarinate, triangular, acute and concave below the middle, dark purple and narrowly linear with revolute margins above the middle, 14 mm long, 4 mm wide, the lateral sepals intensely suffused with purple in the central portion, tall-carinate, connate 8 mm into a concave, ovoid lamina 11 mm long, 8 mm wide expanded, the falcate, apical half of each lateral sepal occupied by a greenish white, thick, well-developed, transversely lunate, glabrous cushion 12 mm long, 4 mm wide, the acute, diverging apices contracted into slender, deflexed tails 11-15 mm long; petals white, marked with purple, elliptical, oblique, acute, dilated on the labellar margin, 4 mm long, 2 mm wide; lip white, oblong-subpandurate, 3.75 mm long, 2 mm wide, the epichile suborbicular, obtuse, serrate, the disc with a pair of erect, denticulate lamellae above the middle, the hypochile oblong, the base truncate, minutely bilobulate; column green, suffused with purple, semiterete, slender, 4-5 mm long, broadly winged above the middle, with a thick foot 2 mm long.

COLOMBIA: Dept. of Antioquia: Cinegetas, alt. 1400-1500 m, *Kalbreyer 1846* (Holotype presumably destroyed at B; lectotype here designated: W); collected by Burke, flowered in cultivation in 1897 by *J. Veitch & Sons s.n.* (K); Munic. of Frontino, *G. Escobar R. 712* (type of *S. escobarianum*: AMES); same collection, flowered in cultivation by *M. & O. Robledo* at La Ceja, 8 Oct. 1977, *C. Luer 1951* (SEL); flowered in cultivation at *J. & L. Orchids, Easton, CT.*, 25 Apr. 1987, *C. Luer 12815* (MO); Munic. of Urrao, National Park "Las Orquideas," Río Calles, alt. 1240 m, 29 May 1988, *A. Cogollo & C. Ramirez 3047* (JAUM); trail between Venados and Calles, alt. 1440 m, 25 July 1988, *A. Cogollo et al. 3487* (JAUM).



This pretty species was first collected by Kalbreyer near the community of Cinegetas south of Medellín in the Central Cordillera of Colombia. All forest in this area around Santa Barbara, the present-day name of the town, has now been cut, but plants matching the description and the lectotype at Wien (W) occur in the nearby parts of the Western Cordillera.

Scaphosepalum grande is easily recognized by the large, broad, longitudinally veined, long-petiolate leaves; a smooth, erect peduncle that arises from low on the ramicaul; a large-bracted, distichous raceme; and a greenish white synsepal suffused with purple medially. The only similar species is *S. decorum*, that is easily distinguished by a peduncle that emerges high on a well-developed ramicaul near the apex, and yellowish flowers marked with brown. When dry, the broad bracts of these two species appear narrower.

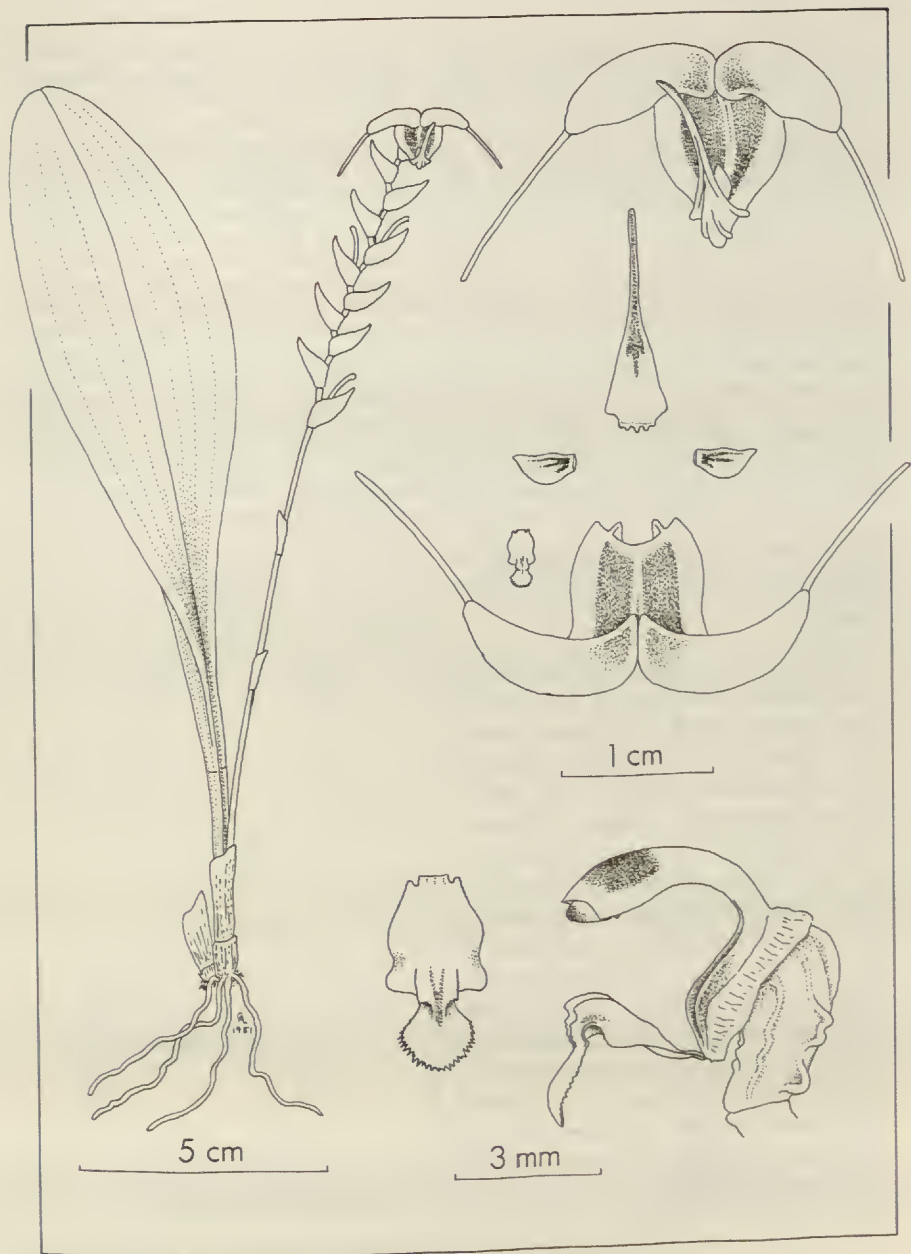


Plate 20. *Scaphosepalum grande* Krzl.

Scaphosepalum hirtzii Luer, *Phytologia* 46: 385, 1980.

Ety.: Named in honor of the discoverer, Mining Engineer Alexander C. Hirtz of Quito, Ecuador.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-7.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thinly coriaceous, long-petiole, 18-27 cm long including the 6-10 cm long petiole, the blade elliptical, acute, 2.7-4 cm wide, cuneate below into the slender, channeled petiole. **Inflorescence** a subclax, successively flowered raceme up to ca. 5 cm long, borne by a slender, smooth, ascending to horizontal peduncle 7-15 cm long, from low on the ramicaul; floral bracts thin, tubular, 4-6 mm long; pedicel slender, 6-12 mm long; ovary purple-brown, smooth, ribbed, 4 mm long; sepals light yellow-brown, carinate, the middle sepal ovate, concave in the lower half, 11 mm long, 3 mm wide unexpanded, connate to the lateral sepals for 6 mm to form a broad, sepaline tube, the upper half narrowly semiterete with revolute sides, recurved, the apex apiculate, the lateral sepals connate 6 mm into a concave, bifid, broadly oblong lamina 8 mm broad when spread, with a narrow, longitudinal mentum above the base, the apical portion of each lateral sepal occupied by a thick, flat, transversely lunate, glabrous cushion 8 mm long, 5 mm wide, red-orange to orange-brown, larger than the blade, reflexed near the middle and in apposition more or less obstructing the orifice to the interior, the acute apices contracted into slender, decurved tails 3 mm long; petals translucent yellow, ovate-falcate, 4 mm long, 1.75 mm wide, the acute apex recurved, the labellar margin dilated; lip yellow, oblong-ligulate, slightly dilated near the middle, reflexed near the middle, 4 mm long, 1.5 mm wide, the anterior portion rounded, serrulate, the disc with a small pair of low, denticulate, lamellae near the middle, the base truncate, obscurely bilobulate; **column** red-brown, semiterete, slender, 4.5 mm long, broadly winged above the middle, with a thick foot 2 mm long.

ECUADOR: Prov. of Pichincha: epiphytic in cloud forest above Mindo, alt. 2200 m, 11 Nov. 1979, C. Luer, J. Luer & A. Hirtz 4752 (Holotype: SEL).

This species, apparently uncommon and endemic in one small area of the western slopes of the Andes near Quito, was discovered by Alexander Hirtz in 1979. The flower is unique in the genus. The middle sepal is connate to the lateral sepals up to the base of the tail to form a broad, subcylindrical tube. The orifice of the tube is blocked by the pair of broad, lunate cushions of the lateral sepals. The diverging surfaces of the cushions create a flat, orbicular face of the flower with only a midline crack between the cushions from which the decurved tail of the middle sepal emerges, and through which the pollinator must force its entry into the interior of the flower.



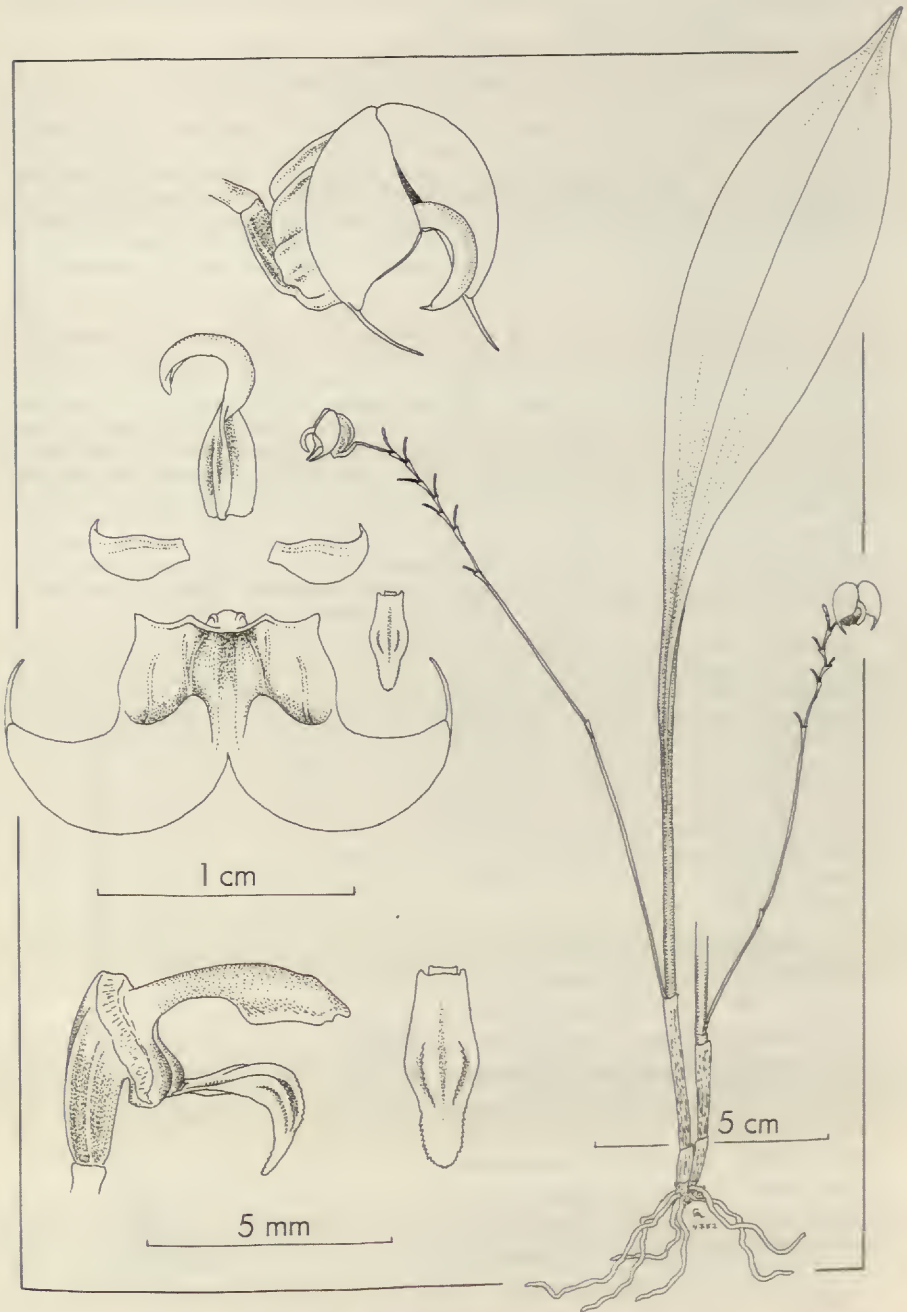


Plate 21. *Scaphosepalum hirtzii* Luer

Scaphosepalum lima (Lehm. & Krzl.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 220, 1920.

Bas.: *Masdevallia lima* Lehm. & Krzl., Bot. Jahrb. Syst. 26: 454, 1899.

Ety.: From the Latin *lima*, "a file," referring to the rough, rasplike peduncles.

Plant medium in size to large, epiphytic to terrestrial, caespitose; roots slender. Ramicauls erect, slender, 2-4 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, 11-17 cm long including the 4-6 cm long petiole, the blade narrowly elliptical, acute, 1.5-2.7 cm wide, gradually narrowed below into the slender, channeled petiole. **Inflorescence** a loose, flexuous, successively many-flowered raceme up to 60 cm long including the slender, verrucose, ascending to erect peduncle up to 15 cm long, from low on the ramicaul; floral bracts ovate, conduplicate, verrucose, 4 mm long; pedicels verrucose, 4-5 mm long; ovary verrucose, 5 mm long; sepals pale purple, dotted with darker purple, the middle sepal tricarinate, ovate, acute and concave above the base, contracted after 4 mm into a slender, terete tail, 18 mm long, 3 mm wide near the base, the lateral sepals carinate-verrucose, connate 5 mm into a concave, ovoid lamina 14 mm long, 5 mm wide expanded, the margins minutely ciliate, the apical half of each lateral sepal occupied by a thick, well-developed, narrowly falcate, shortly pubescent cushion 9-10 mm long, 2 mm wide, the acute, diverging apices contracted into slender, straight, deflexed, white tails 3-4 mm long; petals light green, suffused with purple, ovate-oblong, oblique, dilated on the labelar margin, obtusely angled on the opposite margin, 2.5 mm long, 1.5 mm wide, the apex narrowly rounded with a small, rounded callus on the external surface; lip light green, suffused with purple, oblong-subpandurate, reflexed near the middle, 2.5 mm long, 1.25 mm wide, slightly dilated near the middle, the disc with a pair of denticulate lamellae near the middle, the epichile obovate, serrulate, the hypochile more or less oblong, truncate, minutely bilobulate; column green, suffused with purple, semiterete, slender, 3 mm long, broadly winged above the middle, with a thick foot 1.5 mm long.

COLOMBIA: Dept. of Antioquia: terrestrial at Cuesta de Naranjito above Hato Viejo, alt. 1800-2200 m, Nov. 1891, *F. C. Lehmann 8238* (Holotype: K; Isotype: G); near Hato Viejo near Medellín, alt. 2500 m, 29 Sept. 1884, *F. C. Lehmann s.n.* (K); Río Piedras and La Ceja, alt. 2100-2500 m, 20 Sept. 1883, *F. C. Lehmann 3130* (G); same area, flowered in cultivation by M. & O. Robledo at La Ceja, 8 Oct. 1977, *C. Luer 1954* (SEL); terrestrial on roadcut northeast of La Ceja, alt. 2400 m, 29 Apr. 1983, *C. Luer 8857* (SEL).

This species was apparently first collected by Consul Lehmann in 1883 and again in 1884 and 1891 near Medellín in the Central Cordillera of Colombia where it is endemic, but not rare. Specimens were labeled as an unidentified species of *Pleurothallis*. In 1899, the species was finally described in *Masdevallia*, long after its raspy stemmed relatives had been correctly attributed to Pfitzer's *Scaphosepalum*. Schlechter did not transfer it to *Scaphosepalum* until 1920.

Scaphosepalum lima grows rather commonly on the disturbed soil of road embankments through areas once forested. In habit with the slender but very rough peduncle, it is similar to *S. gibberosum*, but it is easily identified by the short deflexed tails, and the callus at the apex of the petals.



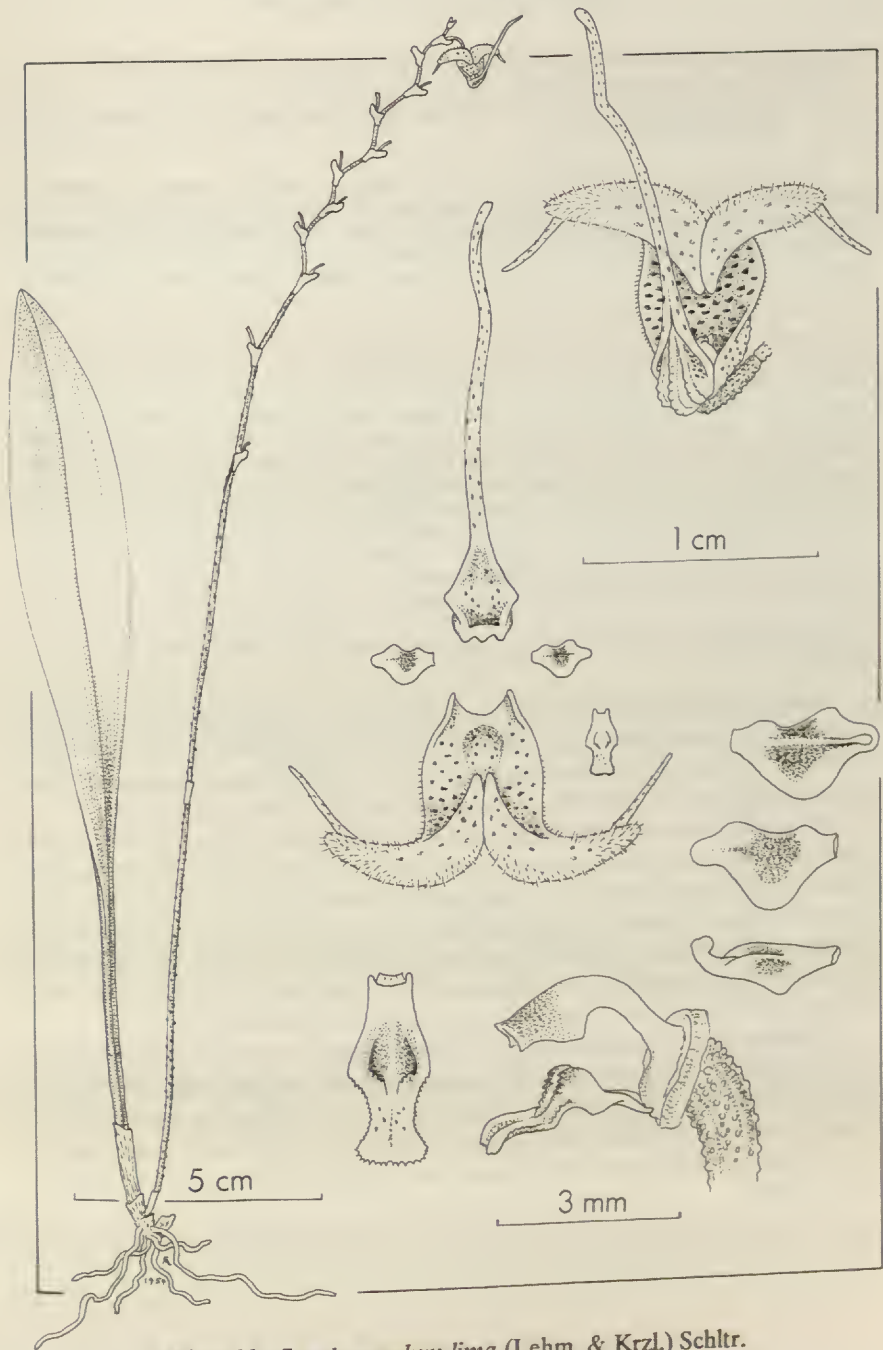


Plate 22. *Scaphosepalum lima* (Lehm. & Krzl.) Schltr.

Scaphosepalum macrodactylum (Rchb. f.) Rolfe, J. Bot. 28: 136, 1890.Bas.: *Masdevallia macrodactyla* Rchb. f., Gard. Chron. 571, 1872.Ety.: From the Greek *macrodactylos*, "a large finger," referring to the thickened tail of the middle sepal.

Plant medium in size, presumably epiphytic, caespitose; roots not present. Ramicauls erect, slender, up to 4 cm long. Leaf erect, coriaceous, up to 12 cm long including the 5 cm long petiole, the blade narrowly elliptical, acute, 1.8 cm wide in the dried state, gradually narrowed below into the slender petiole. Inflorescence a loose, non-flexuous, successively several- to many-flowered raceme up to 8 cm long, 2 flowers usually produced simultaneously, borne by a slender, smooth peduncle, from low on the ramicaul; floral bracts slender, 5 mm long; pedicels slender, 5-8 mm long; ovary ribbed, the ribs slightly irregular, 3-4 mm long; sepals yellow-green, the middle sepal tricarinate, ovate, acute, concave below the middle, narrowed to a thickened apex, with revolute margins above the middle, 8 mm long, 3 mm wide, the lateral sepals connate 8 mm into a concave, bicarinate, oblong lamina 8 mm long, 5.5 mm wide, the apical portion of each lateral sepal occupied by a thick, triangular, approximate, minutely pubescent cushion 3.5 mm long, 1.75 mm wide, the rounded apices abruptly into slender, smooth, deflexed tails 2.5 mm long; petals ovate, oblique, 3.5 mm long, 1.3 mm wide, with 2 brown veins, the apex obtuse with a minute, external apiculum, the base unguiculate; lip purplish black, subpandurate, reflexed near the middle, 3.5 mm long, 1 mm wide, slightly narrowed above the middle, the disc with a pair of denticulate crests, the epichile suborbicular, serrulate, the hypochile narrowed, more or less oblong, lightly concave, truncate, minutely bilobulate; column semiterete, 3 mm long, sharply and broadly winged above the middle, with a thick foot 2 mm long.

NEW GRENADA (COLOMBIA): without locality or collector, imported by Messrs. J. Veitch & Sons 202 (Holotype: W).

This species was imported from New Grenada by Messrs. Veitch and cultivated at the Royal Exotic Nursery at Chelsea. A flowering specimen was forwarded to Professor Reichenbach in Hamburg about 1871. No other information concerning its origin is known. As of today, it apparently has not been rediscovered.

Some confusion must have occurred when Reichenbach stated in the original description that the peduncle was verrucose. He calls it the "third" species with a verrucose peduncle, after *Masdevallia verrucosa* and *M. ochthodes* which were already confounded. The peduncles of the type-specimen now at W (Wien) are smooth, not warty. Only one leaf and ramicaul are present in addition to several flowering racemes with peduncles. The description of the flower was drawn from a dried flower hydrated with concentrated ammonia.

Scaphosepalum macrodactylum is closely related to *S. breve*, but the latter is distinguished by the verrucose peduncles, and sepaline tails at least as long as the blades. *Scaphosepalum macrodactylum* is also similar to the Central American *S. anchoriferum*, but the latter is distinguished by much larger sepaline cushions that usually extend beyond the blades, and acute, shortly acuminate petals.

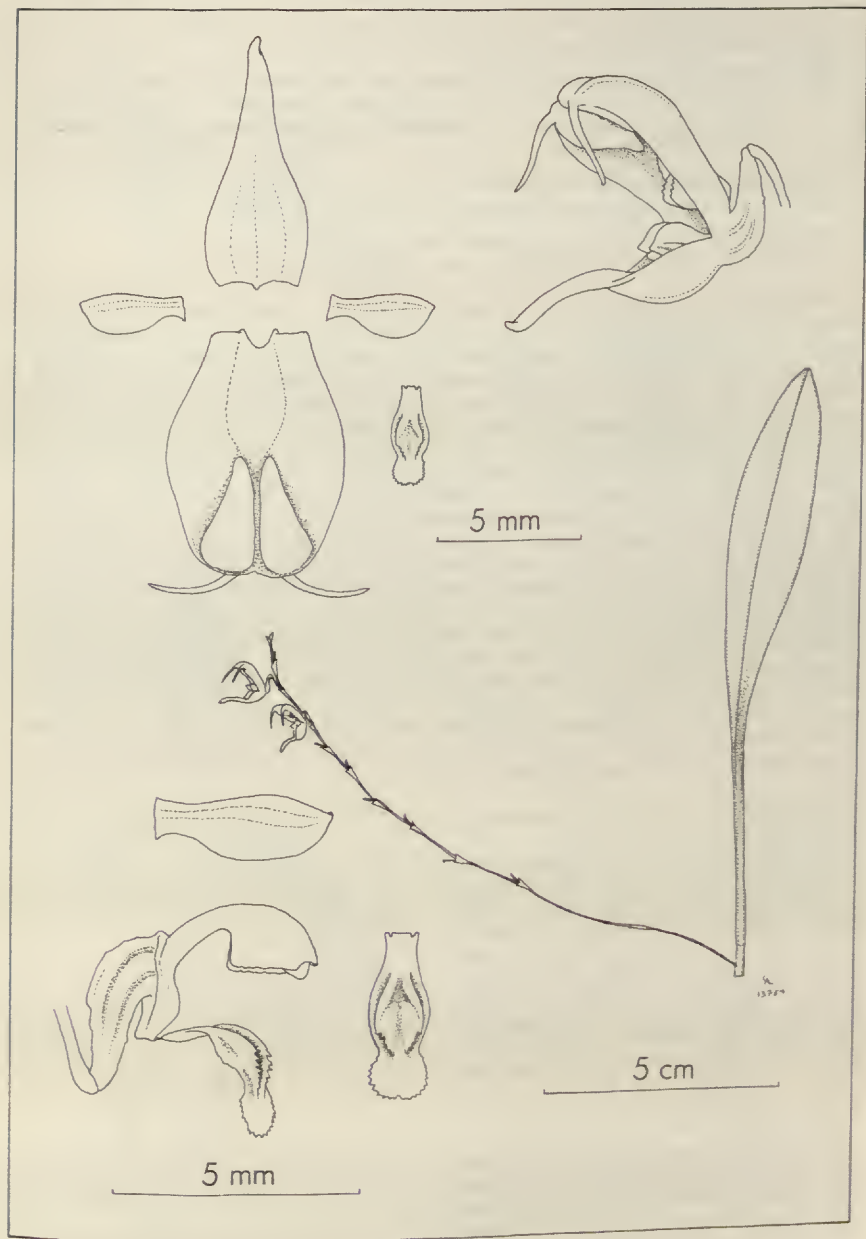


Plate 23. *Scaphosepalum macrodactylum* (Rchb. f.) Rolfe

Scaphosepalum microdactylum Rolfe, Bull. Misc. Inform. 335, 1893.

Ety.: From the Greek *microdactylos*, "a little finger," referring to the middle sepal as compared to the middle sepal of *S. macrodactylum*.

Syn.: *Scaphosepalum pittieri* Schltr., Repert. Spec. Nov. Regni Veg. 3: 76, 1906.

Ety.: Named in honor of its collector, H. Pittier.

Syn.: *Scaphosepalum elasmotopus* Schltr., Repert. Spec. Nov. Regni Veg. 12: 204, 1913.

Ety.: From the Greek *elasma*, -*ios*, "a metal plate" and -*pus*, "-footed," a cryptic epithet without explanation. The cushions of the lateral sepals are not mentioned in the original description.

Syn.: *Scaphosepalum longirepens* Ames, Proc. Biol. Soc. Wash. 34: 153, 1921.

Ety.: From the Latin *longirepens*, "long-repent," referring to the habit.

Syn.: *Scaphosepalum standleyi* Ames, Sched. Orch. 9: 24, 1925.

Ety.: Named in honor of Paul C. Standley, who discovered this species.

Plant small to medium in size, epiphytic to terrestrial, subcaespitose to repent; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, 4-18 cm long including the 1-7 cm long petiole, the blade narrowly elliptical, acute, 1-2.8 cm wide, gradually narrowed below into the slender petiole. Inflorescence a congested, distichous, successively many-flowered raceme, up to 5 or more cm long, borne by an ascending to descending, slender, smooth peduncle, 4-10 cm long, from low on the ramicaul, floral bracts oblong, oblique, acute, conduplicate, 2-3 mm long; pedicels 2-5 mm long; ovary ribbed, 1.5-3 mm long; sepals light yellow or light yellow-green, suffused, dotted or spotted with brown to red, the middle sepal fleshy, oblong, concave below the middle, thickened and convex above the middle with the apex rounded, 4.5-7.5 mm long, 1.5-3 mm wide, the lateral sepals connate 3.5-5 mm into a concave, bicarinate, bifid, oblong, obtuse lamina 4-7 mm long, 3-6 mm wide expanded, the margins sometimes minutely ciliate, each lateral sepal with a usually indistinct, ovoid, cushion 0.5-2.5 mm long, 0.5-1 mm wide, the obtuse apices abruptly contracted into an apiculum up to 1 mm long; petals translucent yellow, sometimes marked with red, ovate, oblique, acute, dilated on the labellar margin, 1.75-2.75 mm long, 1-1.75 mm wide; lip light yellow, marked with red, oblong-subpandurate, reflexed near the middle, 1.5-2.75 mm long, 0.75-1.25 mm wide, slightly dilated in the middle third with a pair of denticulate lamellae, the epichile oblong, rounded at the apex, minutely denticulate, the hypochile oblong, the base truncate, minutely bilobulate; column yellow, heavily suffused with red-purple, semiterete, stout, 1-3 mm long, broadly winged above the middle, the thick foot 0.5-1.5 mm long.

Without locality or collector, cultivated at Kew (Holotype: K).

COSTA RICA: Valley of Agua Buena, Cañas Gordas, alt. ca. 1100 m, Feb. 1897, *H. Pittier s.n.* (CR, type of *S. pittieri*). Prov. of Alajuela: vicinity of Vara Blanca, alt. 1680 m, Mar. 1938, *A. F. Skutch 3744* (K); above Poasito, alt. 2000 m, 12 Sept. 1979, *C. Luer, J. Luer, K. S. Walter & C. Tod-zia 4141* (SEL). Prov. of Cartago: Cerro de Carpintera, alt. 1500-1850 m, Feb. 1924, *P. C. Standley 34477* (AMES, type of *S. standleyi*); Pascajal, Feb. 1920, *C. H. Lankester s.n.* (K). Prov. of San José: central valley, collected by L. Glicenstein, Sept. 1979, *C. Luer 4232* (SEL).

MEXICO: Edo. Chiapas: Agua Azul, prepared from cultivated material, 26 Sept. 1976, *Lamas sub Hågsater 4569* (AMO); Chancala-Sto. Domingo road, alt. 2100 m, 2 Nov. 1977, *Thurston, Dumont & Hågsater 5460* (AMO).

GUATEMALA: Prov. of Izabal: Montaña del Mico between Virginia and Lago Izabal, *J. A. Steyermark 38823* (F).

HONDURAS: Dept. of Atlántida: epiphytic in forest near the Danto River, Mt. Cangrejal, alt. 1100 ft., 2 Aug. 1938, *T. G. Yuncker, J. M. Koepfer & K. A. Wagner 8753* (K).



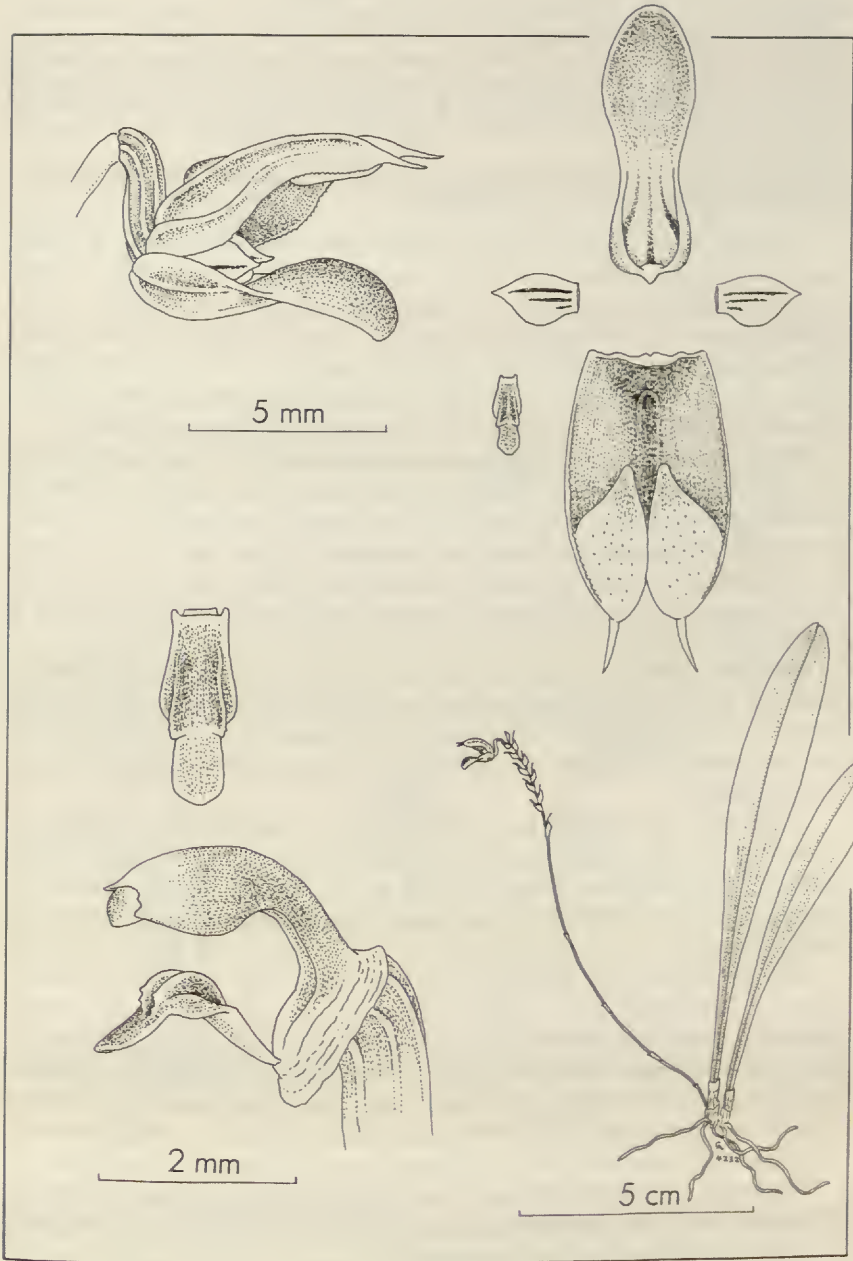


Plate 24. *Scaphosepalum microdactylum* Rolfe

NICARAGUA: Prov. of Jinotega: Bocaycito, *J. Atwood* A97 (MSC).

PANAMA: Prov. of Chiriquí: epiphytic in damp forest between Alto de las Palmas and Cerro de Horqueta, alt. 2100-2300 m, March 1911, *H. Pittier & W. R. Maxon* 3229 (US, type of *S. elasmotopus*; AMES); humid forest of the Cordillera, east of the Río Caldera, alt. 2000 m, 17-19 Feb. 1918, *Killip* 3567 (AMES, type of *S. longirepens*); cloud forest on Cerro Colorado, alt. 1750 m, 15 Feb. 1985, *C. Luer, J. Luer, R. Dressler & K. Dressler* 10562 (MO). Prov. of Panamá: Altos de Pacora road, alt. 650 m, 21 Apr. 1976, *C. Luer, J. Luer, R. L. Dressler & P. Taylor* 956 (SEL).

COLOMBIA: Dept. of Chocó: Bahía Solano, alt. "sea level," flowered in cultivation by J & L Orchids, Easton, Ct., 23 Oct. 78, *C. Luer* 3461 (SEL).

This concept, or species-complex, frequent and widely distributed in humid forests from Chiapas, Mexico to the Chocó of Colombia, is extremely variable morphologically, each population varying somewhat from the neighbor. This variability has led to the naming of several forms. Only the closely allied *Scaphosepalum clavellatum* seems sufficiently distinct to be maintained separately. For various reasons, some of the others also seem distinct, but the characters for which they may seem so, are scattered in other populations.

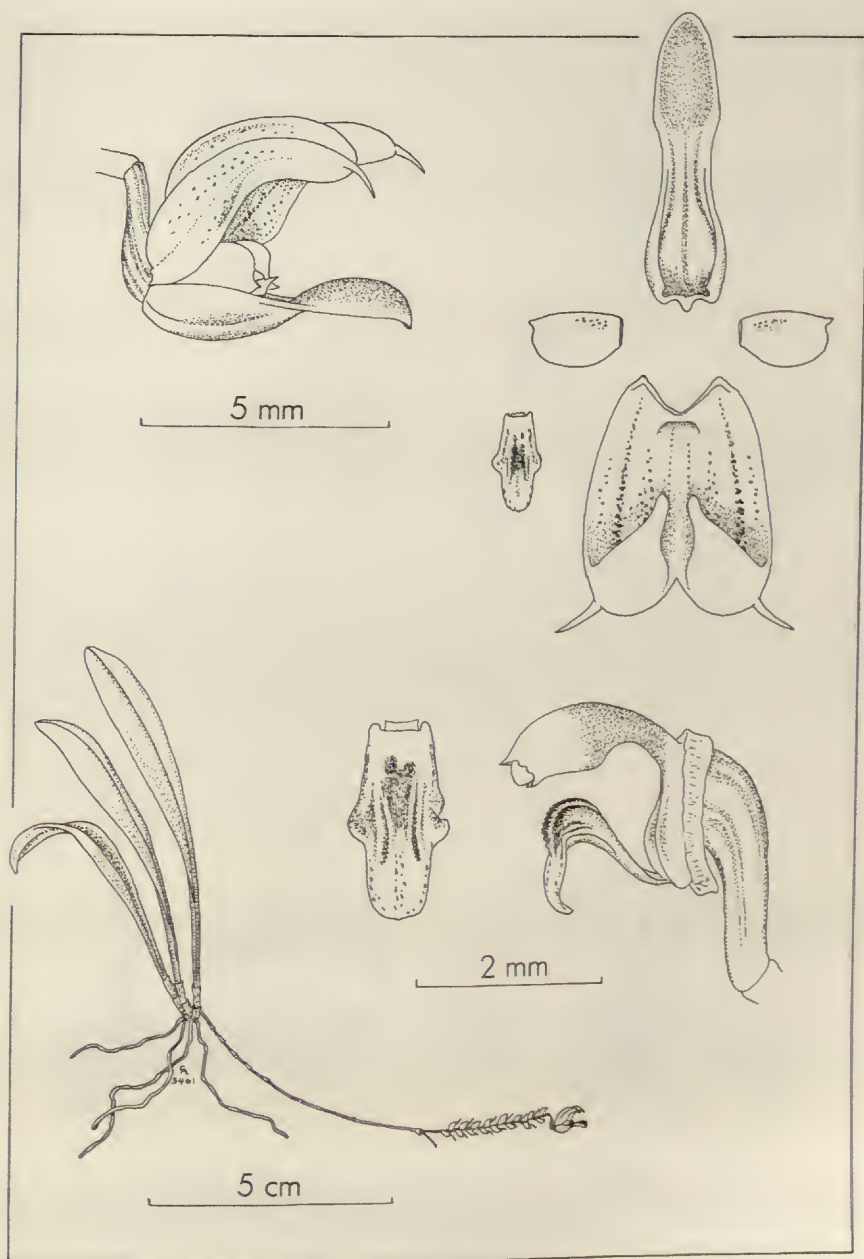
All populations have in common a thickened distal half of the middle sepal, the "little finger," about as long as the synsepal. The variable degree of the development of the cushion on the lateral sepals is remarkable. In some populations the cushion is distinct and triangular (Plates 24., 25.), in others it is merely a scarcely discernible thickening (Plates 26., 27., 28.), but these degrees are not consistently associated with any other variation of a morphological feature.

Rolfe first described a plant in this complex from a specimen cultivated at Kew, but without any collection data, for which Rolfe was so often guilty. Pittier, Standley, and Killip all collected specimens of the complex in the Chiriquí of western Panama and neighboring Costa Rica which resulted in four more epithets.

Schlechter described the pair of cushions of Costa Rican *S. pittieri* as "bifoveolate." He probably misinterpreted his drawing at a later time as having a pair of cavities instead of calli on the lateral sepals. From the Chiriquí of Panama, Schlechter described *S. elasmotopus* without mentioning the cushions.

In his description of *S. standleyi* from Costa Rica, Ames describes the cushion as "a blunt papilliform retrorse emergence on each midnerve," but his illustration shows the cushion about as it is seen in Plate 28. In his description of *S. longirepens* from the Chiriquí, Ames fails to mention any cushion. Most plants of this complex are shortly repent, but plants growing in a loose substrate in shade produce longer rhizomes. A shortly repent specimen is mounted on the same herbarium sheet as a long-repent specimen of *S. longirepens*.

The broad, prominent (although small), distichous floral bracts that place this species in section *Distichium* are so small in some clones that intergradation with section *Leiocaulium* is suggested.

Plate 25. *Scaphosepalum microdactylum* Rolfe

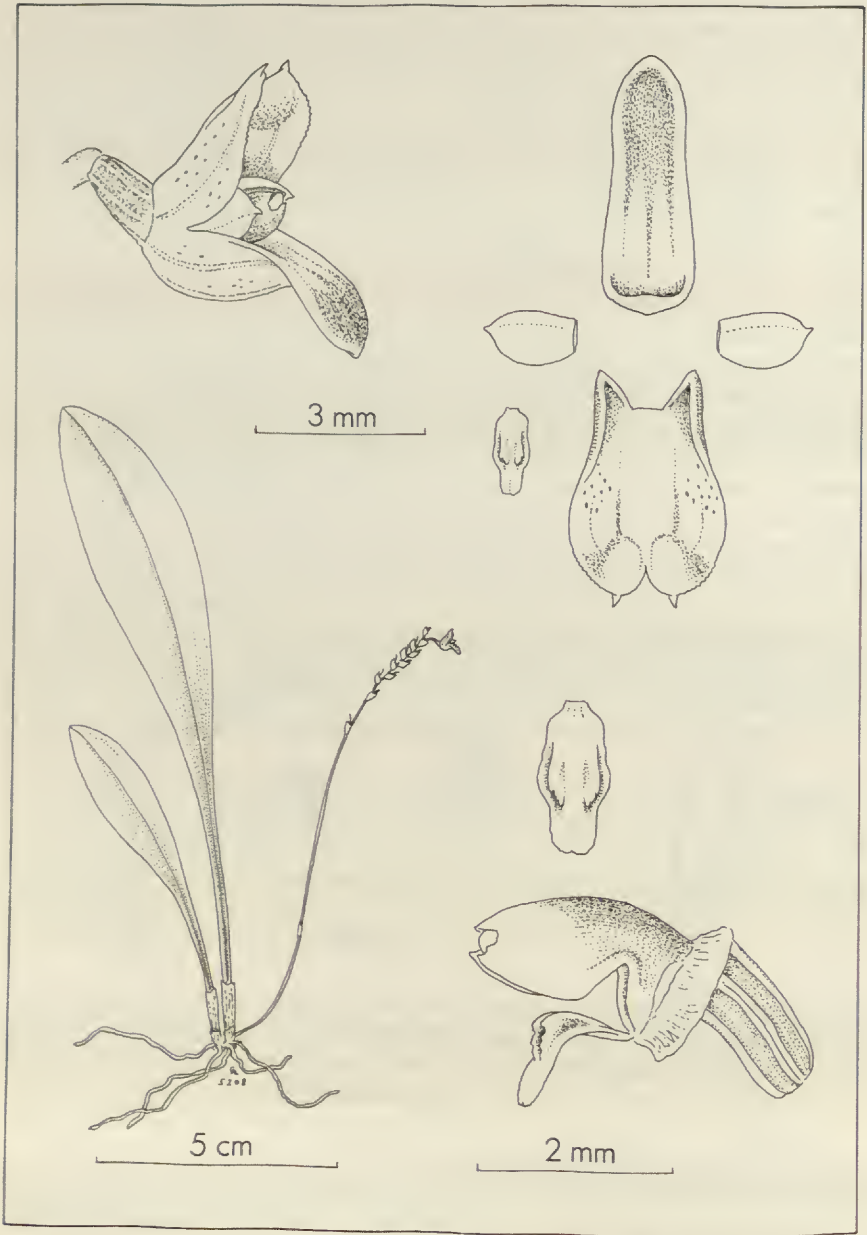


Plate 26. *Scaphosepalum microdactylum* Rolfe

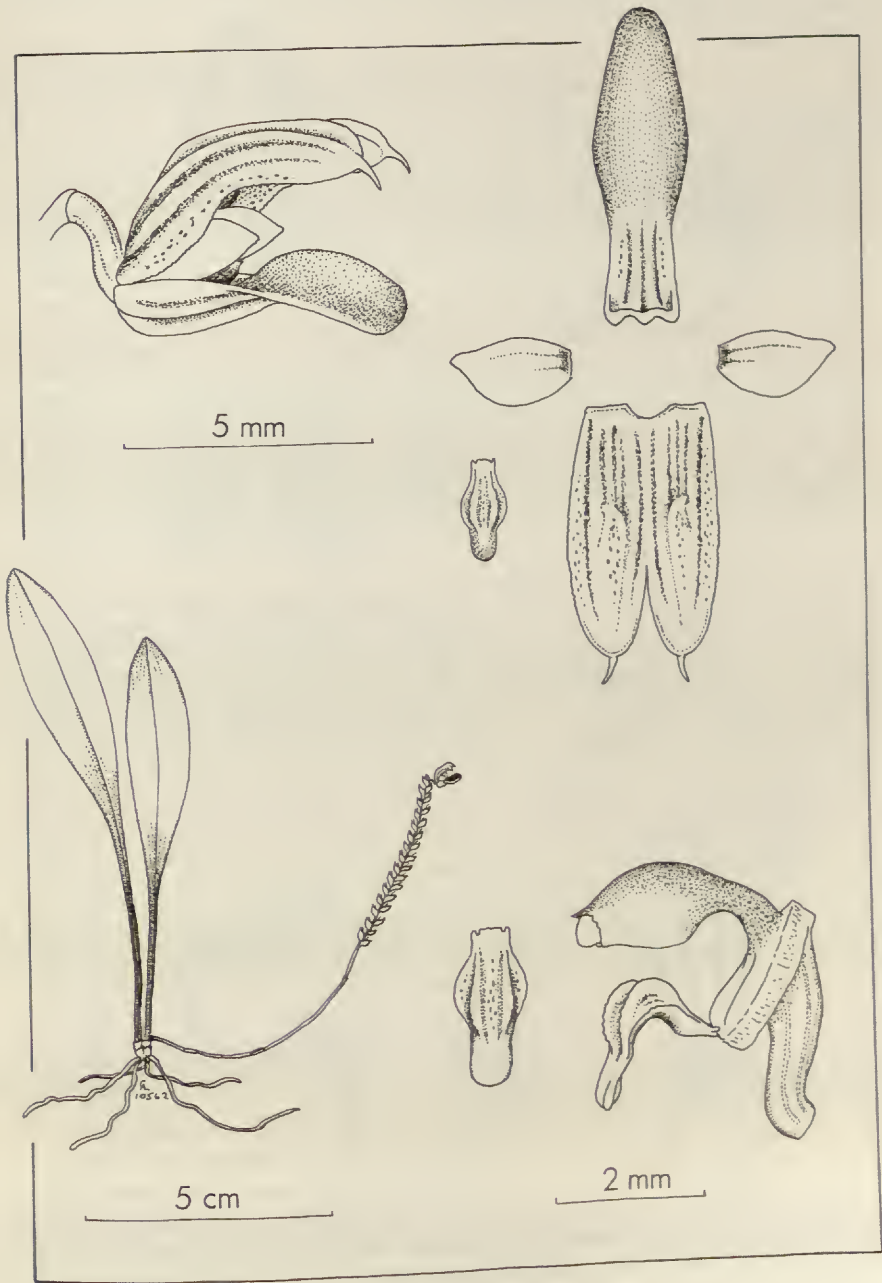


Plate 27. *Scaphosepalum microdactylum* Rolfe

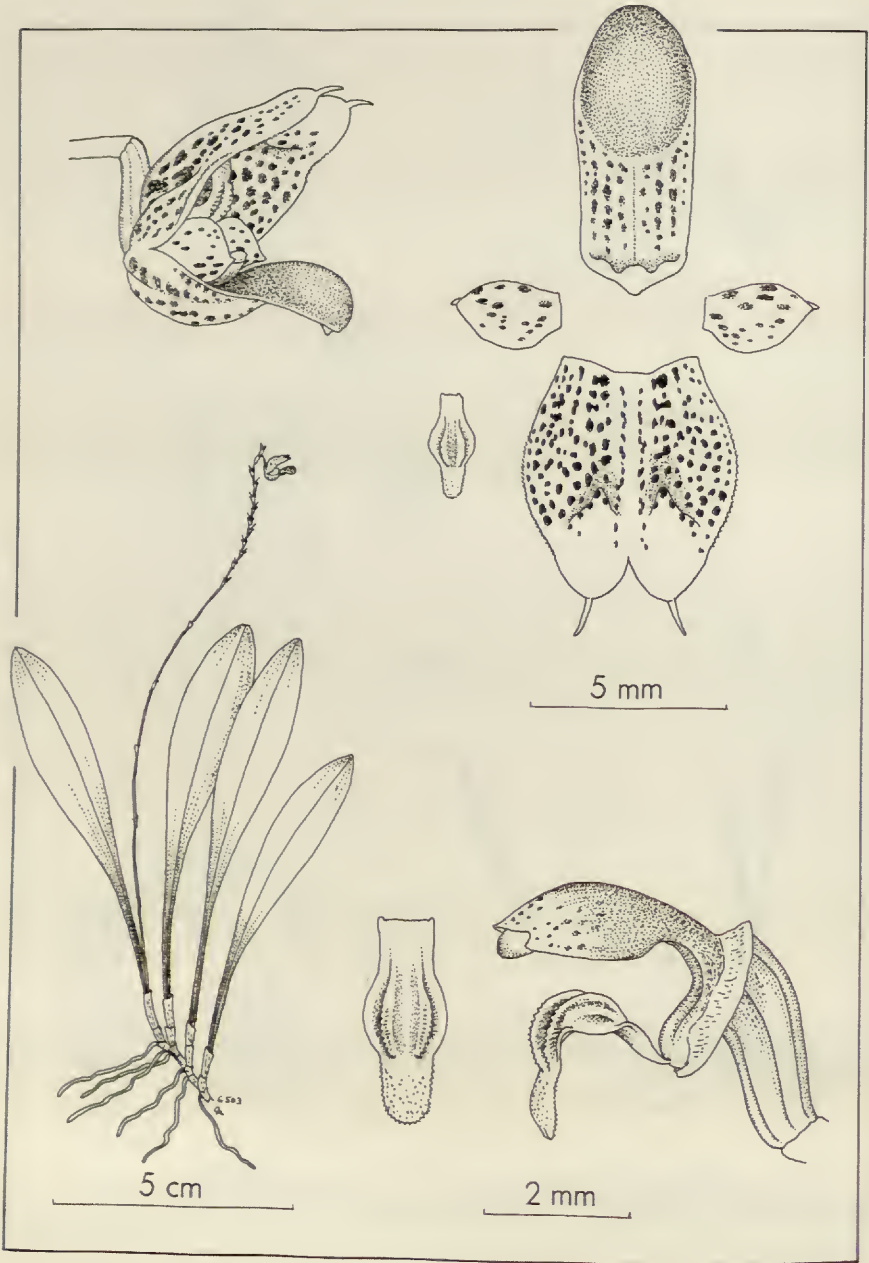


Plate 28. *Scaphosepalum microdactylum* Rolfe

Scaphosepalum odontochilum Krzl., Bull. Misc. Inform. 113, 1925.

Ety.: From the Greek *odontochelios*, "a toothed lip," referring to the denticulate margins of the labellum.

Syn.: *Scaphosepalum sneidernii* Garay, Svensk. Bot. Tidskr. 47: 202, 1953.

Ety.: Named in honor of its Swedish collector, K. von Sneidern.

Plant medium in size, epiphytic, caespitose; roots slender. **Ramicauls** erect, slender, 1-3.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thinly coriaceous, 5-15 cm long including the 2-5.5 cm long petiole, the blade elliptical, acute, 1.5-3.5 cm wide, narrowly cuneate below into the conduplicate petiole. **Inflorescence** racemose, subcongested, distichous, successively several-flowered, up to 20 cm long, including the slender, smooth, peduncle, erect to descending, from low on the ramicaul; floral bracts narrowly triangular, oblique, conduplicate, 5-10 mm long, 1-2 mm wide; pedicels 3-8 mm long; ovary smooth, 2-3 mm long; **sepals** light green to light brown, occasionally red, suffused or mottled with purple, carinate, the middle sepal ovate, deeply concave below the middle, convex above the middle, the apex obtuse, 9-11.5 mm long, 4-5.5 mm wide unexpanded, connate to the lateral sepals for 4.5-5 mm to form a tube, the lateral setpals connate 4-6 mm into a concave, bifid, oblong lamina 8-9 mm long, 6-7 mm wide expanded, the apices subacute with an apiculum up to 1 mm long, the apical half of each lateral sepal with an ill-defined, ovoid, glabrous cushion 4 mm long, 2 mm wide; **petals** white, suffused with purple, oblong, oblique, acute, 4.5-5.5 mm long, 1.75-2.2 mm wide, constricted above the thickened base; **lip** purple, ovate, subacute, 3-3.5 mm long, 2-2.25 mm wide, the margins denticulate above the middle, the disc with a pair of tall, denticulate lamellae above the middle, the base truncate, minutely bilobulate; **column** green, suffused with purple, semiterete, slender, 5-6 mm long, broadly winged above the middle, with a thick foot 2.5 mm long.

COLOMBIA: Dept. of Cauca: without locality, *F. C. Lehmann* B.T.172 (Holotype: K; Isotype: AMES); forests on the west slopes of Cerro Munchique, alt. 2400 m, Mar. 1984, *F. C. Lehmann* 3621 (K); El Tambo, La Costa, *K. v. Sneidern* 950 (S, type of *S. sneidernii*). Dept. of Choco: Alto del Galápagos, alt. 2000 m, 19 Feb. 1977, *E. Forero, A. Gentry, A. Sugden & D. Daty* 2940 (COL, MO). Dept. of Risaralda: Munic. of Pueblo Rico, Alto de La Linea, alt. 2050 m, collected by *R. Escobar* et al., flowered in cultivation by *M. & O. Robledo* at La Ceja, 17 Oct. 1977, *C. Luer* 2072 (SEL); without locality, collected by *Hubein* with *Dracula chimaera*, flowered in cultivation by *W. König* in Munich, 19 May 1980, *C. Luer* 5248, 5249 (SEL).

ECUADOR: Prov. of Morona-Santiago: Cordillera del Condor, epiphytic in forest east of Chunchumbletza, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andretta & W. Teague* 13561 (MO).

This distinct species was first discovered in southern Colombia by Consul Lehmann, and it has been found on several occasions in that area since that time. Although the peduncle usually stands erect, but occasionally plants produce horizontal or descending peduncles. The color of the sepals, connate into a sepaline tube, varies from yellow-green to brown or red, and the tails of the lateral sepals are reduced to minute apicula. The lip is ovate with dentate margins and lamellae.

A recently discovered population in the Cordillera del Condor in southern Ecuador on the Peruvian border produces flowers only have the size of those from Colombia. The sepals recurve above the middle to expose the cushions of the lateral sepals and the similarly thickened apex of the middle sepal.



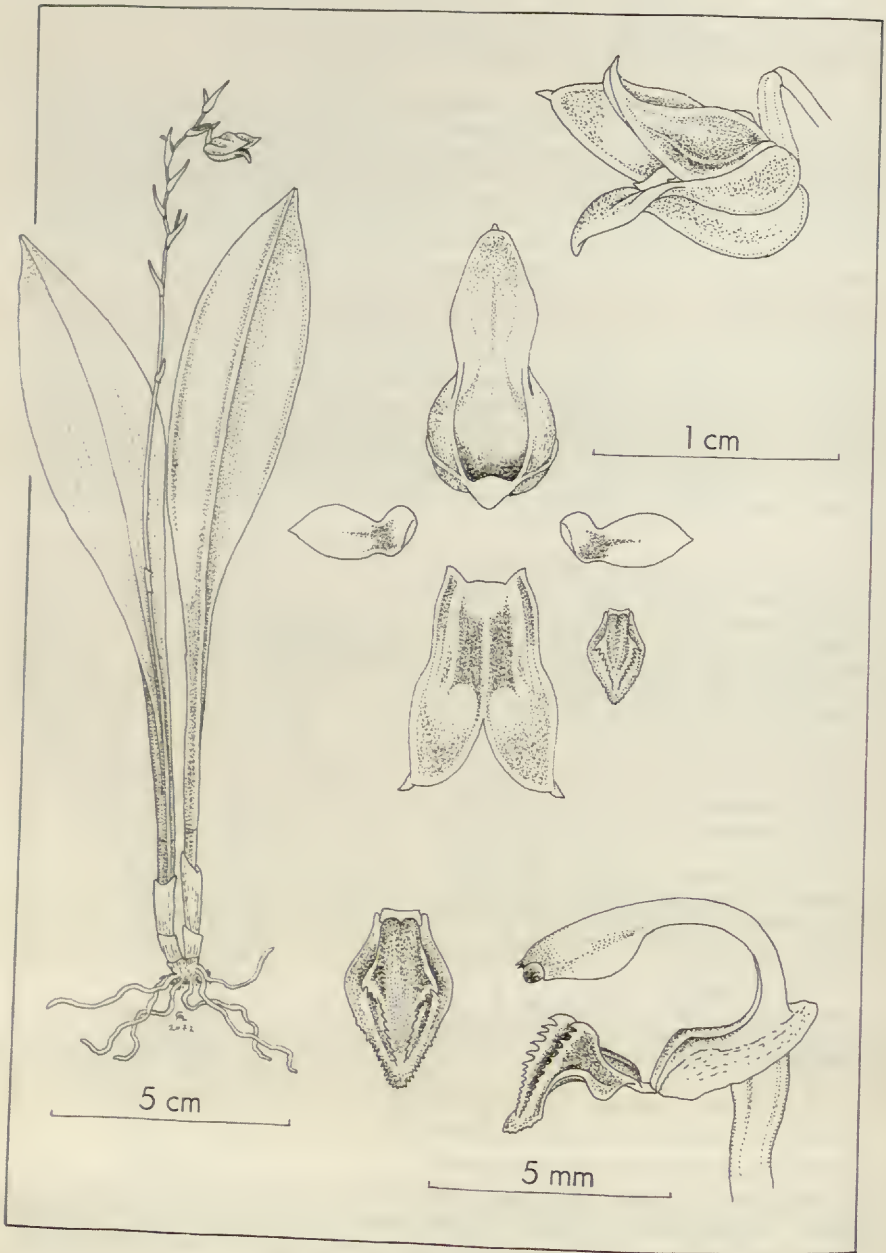
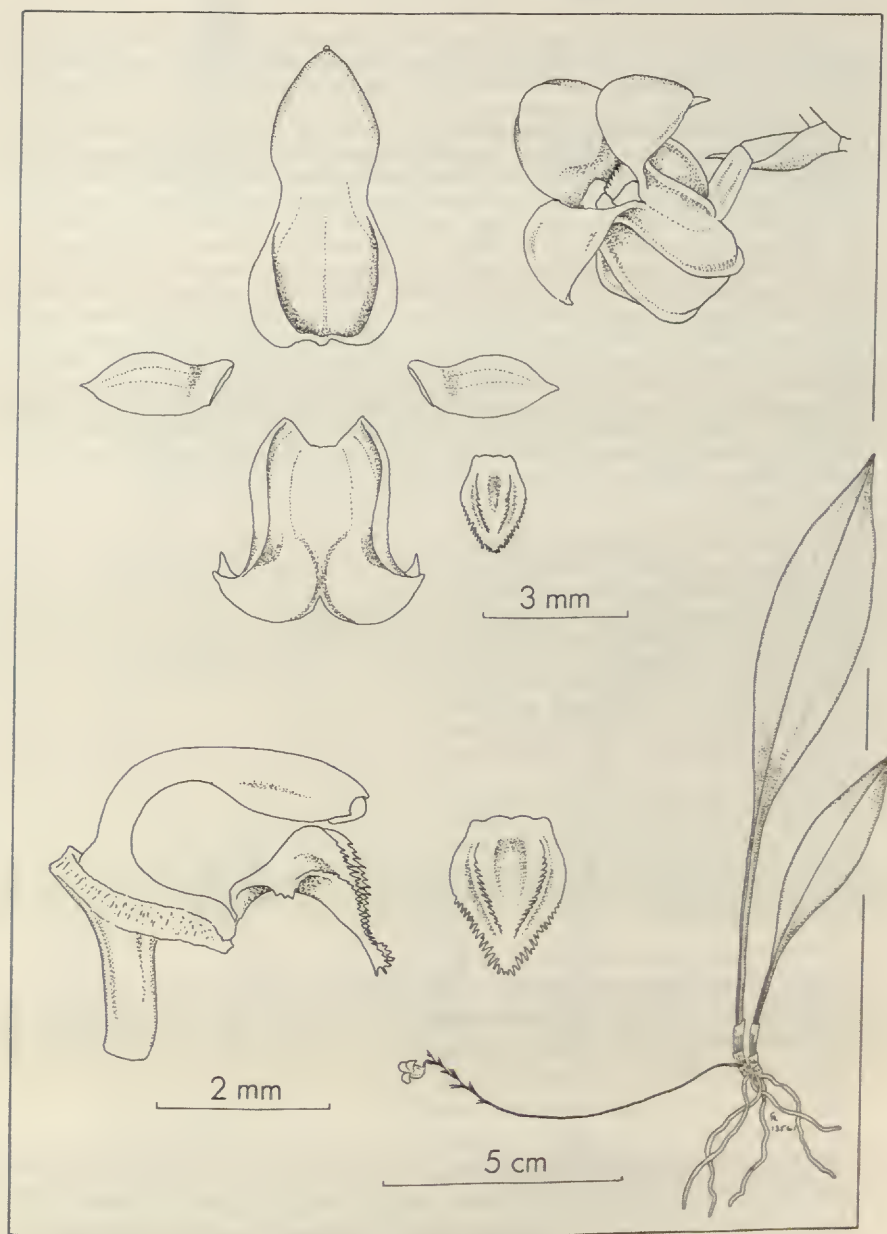


Plate 29. *Scaphosepalum odontochilum* Krzl.

Plate 30. *Scaphosepalum odontochilum* Krzl.

Scaphosepalum ophidion Luer, *Phytologia* 49: 222, 1981.

Ety.: From the Greek *ophidion*, "a little snake," in allusion to the appearance of the flower with bared fangs.

Plant medium in size to large, epiphytic, densely caespitose; roots slender. Ramicauls erect to suberect, very slender, 2-5 cm long, enclosed basally by 2-3 tubular sheaths. **Leaf** erect, thinly coriaceous, long-petiolate, 8-23 cm long including the 4-9 cm long petiole, the blade elliptical, acute, acuminate, 2-4 cm wide, cuneate below into the slender petiole. **Inflorescence** a subdense, sharply flexuous, successively many-flowered raceme up to 12 cm long, borne by a slender, smooth, ascending to horizontal or descending peduncle 5-15 cm long, from low on the ramicaul; floral bracts slender, acute, 4-5 mm long; pedicels 4-7 mm long; ovary smooth, 3.5-5 mm long; **sepals** yellow-green, spotted with purple or brown, glabrous, the middle sepal tricarinate, ovate, and concave below the middle, dark red-brown and thickened with revolute margins above the middle, the apex apiculate, 6-8 mm long, 2-3 mm wide, the lateral sepals connate 4 mm into a concave, bifid, elliptical lamina 5-6 mm long, 5-7 mm wide expanded, the apical half of each lateral sepal occupied by a thick, well-developed, narrowly triangular cushion 2-3 mm long, 1.5 mm wide, the acute apices contracted into slender, shortly serrate, straight tails 3-4.5 mm long; **petals** yellow, spotted with purple, ovate, subacute, minutely apiculate, more or less dilated on the labellar margin, 2.5 mm long, 1.5 mm wide; **lip** brown to orange, suffused or spotted with red or purple, oblong-subpandurate, reflexed near the middle, 2.5 mm long, 1 mm wide, dilated in the middle third with a pair of denticulate lamellae, the epichile obovate, rounded, serrulate, the hypochile more or less oblong, truncate, minutely bilobulate; **column** green, spotted with purple, semiterete, slender, 3 mm long, broadly winged above the middle, with a thick foot 1.5 mm long.

ECUADOR: Prov. of Pichincha: epiphytic in cloud forest above Mindo, alt. 2200 m, 15 Oct. 1979, collected by A. Hirtz & A. Andreetta, *C. Luer* 4381 (Holotype: SEL); same area, 11 Nov. 1979, *C. Luer, J. Luer & A. Hirtz* 4747 (SEL); San Miguel de los Bancos, alt. 1450 m, 1 Apr. 1984, *C. Luer, A. Hirtz, S. Dalström & T. Höjjer* 9864 (MO). Prov. of Carchi: above Maldonado, alt. 2500 m, collected by W. Teague, flowered in cultivation 19 Aug. 1979, *C. Luer* 4108 (SEL).

COLOMBIA: Dept. of Nariño: above Ricaurte, alt. 1600 m, 3 Nov. 1979, *C. Luer, J. Luer, K. Walter & A. Hirtz* 4607 (SEL). Dept. of Cauca: without locality, flowered in cultivation by Amalia Lehmann de Sarria in Popayán, 25 July 1978, *C. Luer* 3011 (SEL).

This species occurs frequently in the forests of northwestern Ecuador and southwestern Colombia. Vegetatively *Scaphosepalum ophidion* is similar to the large-leaved clones of *S. swertiifolium*. The leaves are broad, acuminate and long-petiolate. The long, flexuous racemes are borne by smooth peduncles, and the flowers, except for their much smaller size, are similar to those of *S. breve*. The tail of the middle sepal is thickened with revolute margins, and the tails of the lateral sepals are shorter than the blades.



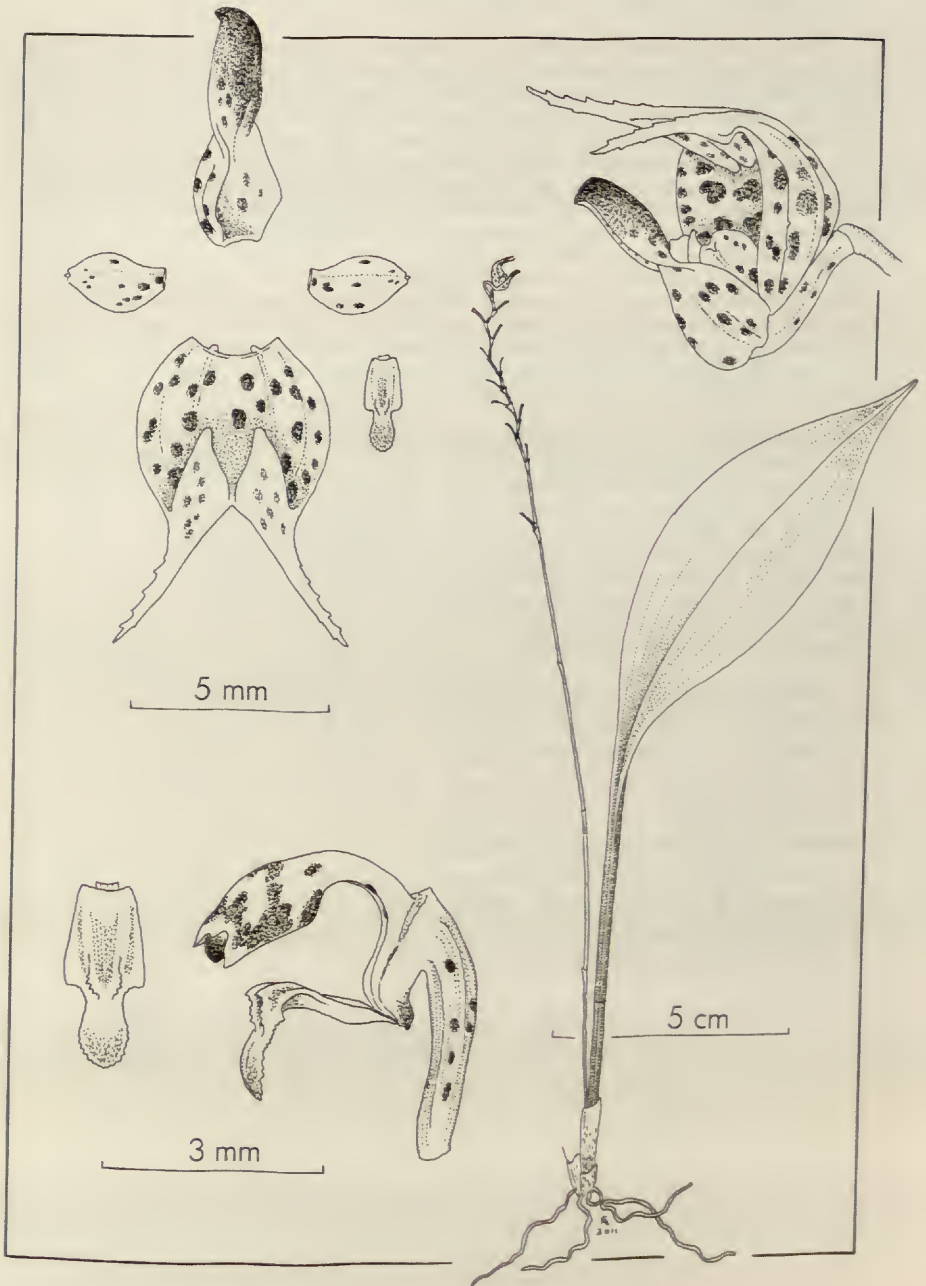


Plate 31. *Scaphosepalum ophidion* Luer

Scaphosepalum ovulare Luer, Selbyana 3: 34, 1976.

Ety.: From the Latin *ovularis*, "like an egg," referring to the shape of the flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-6 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 15-40 mm long including the 3-15 mm long petiole, the blade elliptical, acute, 5-7 cm wide, cuneate below into the petiole. **Inflorescence** a subcongested, successively few-flowered raceme, 2-4 cm long including the slender, smooth, descending peduncle, from low on the ramicaul; floral bracts 1-2 mm long; pedicels 4-6 mm long; ovary minutely verrucose, 1.5-2 mm long; sepals yellow, sometimes suffused or spotted with purple, to purple, the middle sepal ovate, subacute, concave, tricarinate, 5 mm long, 3 mm wide, connate to the lateral sepals for 4 mm to form a tube, the lateral sepals connate 3 mm into a concave, bifid, ovoid lamina 4-5 mm long, 6 mm wide expanded, the apices subacute, the distal third of each lateral sepal with an oblique, triangular cushion 3 mm long, 3 mm wide; **petals** rose, speckled with purple, oblong, oblique, obtuse, 2 mm long, 1.5 mm wide, dilated on the labellar margin, obtusely angled on the upper margin; **lip** purple, oblong, 2.5 mm long, 1 mm wide, the epichile obovate, rounded, serrulate, the disc with a pair of tall, denticulate lamellae above the middle, the base truncate, minutely bilobulate; **column** rose, semiterete, slender, 2.5 mm long, broadly winged above the middle, with a thick foot 1 mm long.

ECUADOR: Prov. of Napo: epiphytic in forest west of Tena, alt. 600 m, 26 July 1975, *C. Luer, G. Luer & S. Wilhelm 460* (Holotype: SEL; Isotype: K); wet forest near Jatunyacu, alt. 600 m, 21 Feb. 1982, *C. Luer & A. Hirtz 6917* (SEL); between Cotundo and Coca, alt. 1000 m, Aug. 1984, *A. Hirtz 1864* (MO); alt. 1100 m, 18 Nov. 1984, *A. Hirtz 2126* (MO); north of Archidona, alt. 1200 m, 13 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11232* (MO).

Although endemic to the wet forests of relatively low altitude on the eastern slopes of the Andes of central Ecuador, this little species is not rare. It is related to the much larger *Scaphosepalum odontochilum* from farther north in southern Colombia. Both species are characterized by their ovoid, tailless, sepaline tubes that vary in color from yellow, with or without spots, to red or red-purple.



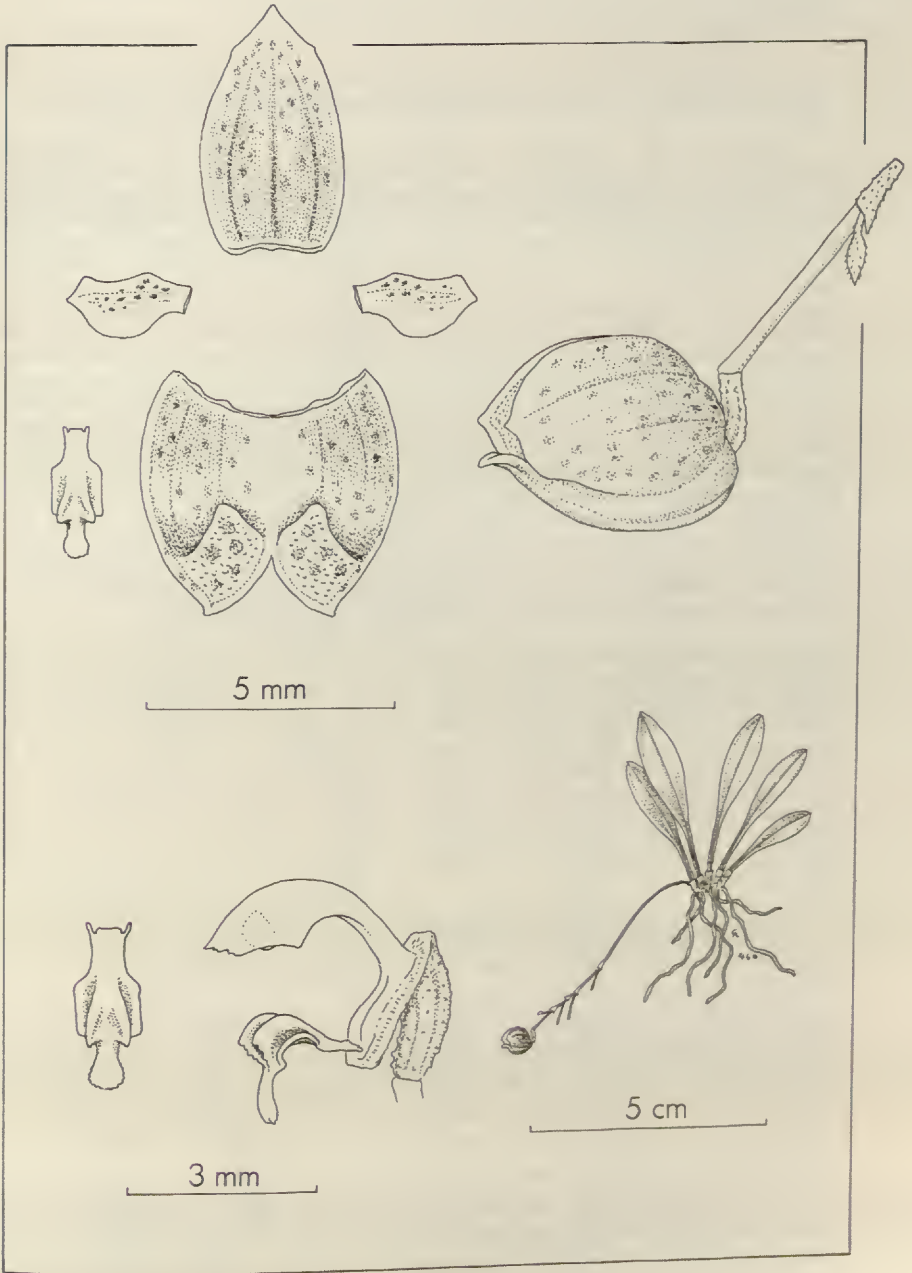


Plate 32. *Scaphosepalum ovulare* Luer

Scaphosepalum pulvinare (Rchb. f.) Rolfe, J. Bot. 28: 137, 1890.Bas.: *Masdevallia pulvinaris* Rchb. f., Gard. Chron. 1: 200, 1880.Ety.: From the Latin *pulvinaris*, "with a cushion," referring to the cushionlike calli of the lateral sepals.Syn.: *Scaphosepalum rolfeanum* Krzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 211, 1925.Ety.: Named in honor of Robert Allen Rolfe of Kew, who did early work in *Scaphosepalum*.

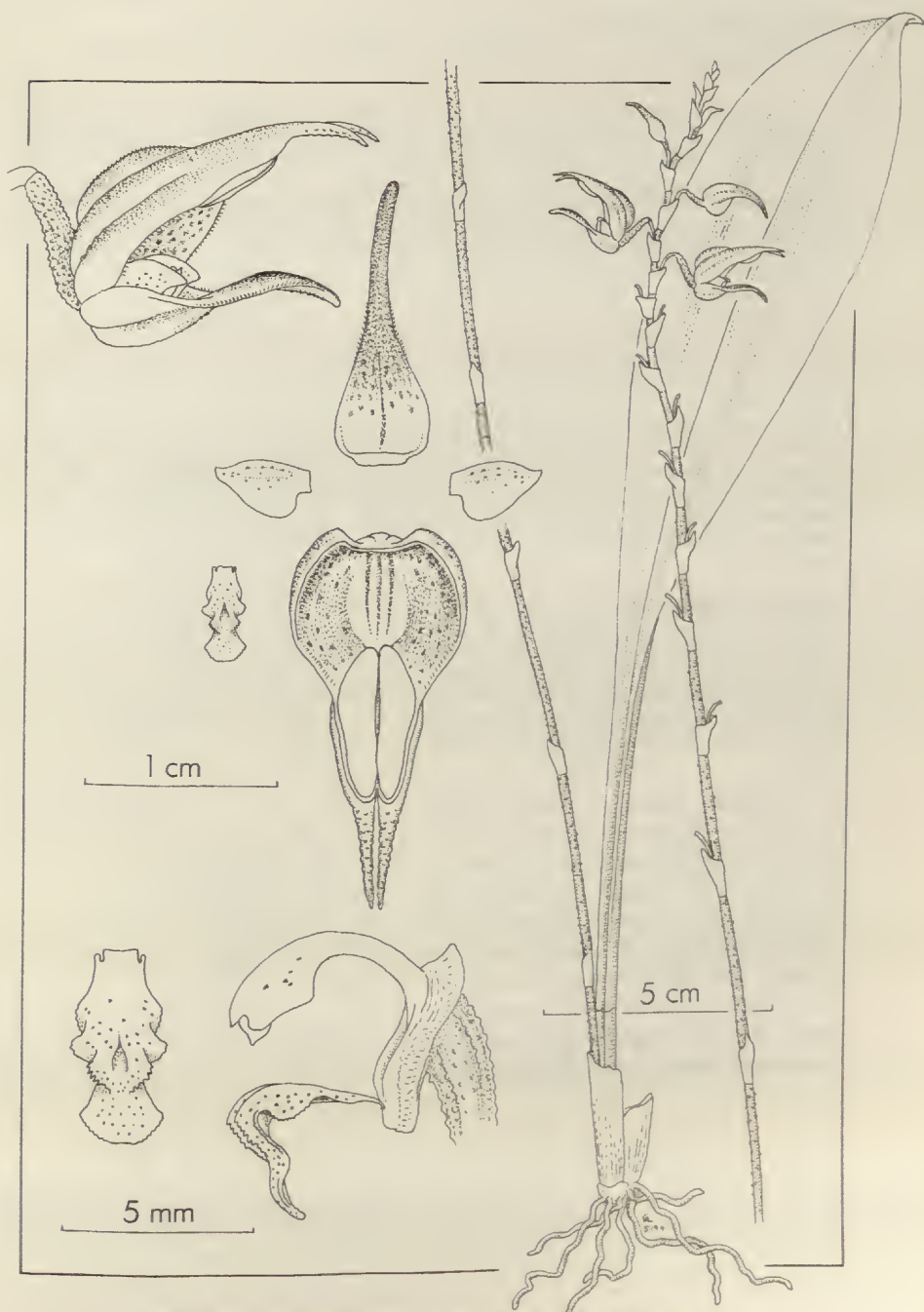
Plant large, robust, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 3-7 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 15-28 cm long including the 4-10 cm long petiole, the blade elliptical, subacute, 3-5.5 cm wide, gradually narrowed below into the stout, channeled petiole. **Inflorescence** an erect, rigid, distichous, many-flowered raceme, up to 20 cm long, distantly flowered below, congested above, 2-3 flowers produced simultaneously, borne by an erect, stout, coarsely verrucose peduncle up to 40 cm long, from low on the ramicaul; floral bracts conduplicate, oblique, 6-9 mm long; pedicel 5-7 mm long; ovary verrucose, 7 mm long; **sepals** green, suffused and spotted with dull red, fleshy, minutely red-pubescent externally and within, the middle sepal carinate, ovate and concave in the lower third, 15 mm long, 5 mm wide, thickened and narrowly linear in the distal half with revolute margins, the lateral sepals connate 15 mm into an ovate, acute, concave lamina 15 mm long, 9 mm wide unexpanded, each lateral sepal with an apical, longitudinal, dull yellow-gray, well-developed, narrowly elliptical cushion 8 mm long, 2 mm wide, with the cushions contiguous, the acute apices approximate, contracted into slender, verrucose, approximate, forwardly directed, green tails 6 mm long; **petals** green, dotted with purple, more or less ovate, acute, oblique, dilated on the labelar margin, 5 mm long, 3 mm wide; **lip** green with purple dots, subpandurate, reflexed near the middle, 5 mm long, 2.25 mm wide, the epichile obovate, rounded at the apex, lightly denticulate, the hypochile more or less oblong, the disc with a low pair of serrated lamellae near the middle, the base truncate, minutely bilobulate; **column** green, semiterete, slender, 5 mm long, broadly winged above the middle, with a thick foot 4 mm long.

COLOMBIA: without collector or locality, flowered in cultivation 22 Dec. 1879, by *Joseph Calvert, s.n.*, (Holotype: W); specimens prepared from cultivated plants without collection data, 1888, 1889, 1890, 1892 (K). Dept. of Antioquia: Medellín, *Boxall s.n.* (Lectotype of *S. rolfeanum* here designated: W); Munic. of Frontino, flowered in cultivation by J & L Orchids 14 Feb. 1980, *C. Luer 5194* (SEL). Dept. of Tolima: without locality, *G. Schmidtchen s.n.* (W).

A century of confusion has obscured the identity of this large, coarse species that is closely related to the much more frequent *S. antenniferum*. The two are easily distinguished by the apices of the connate lateral sepals. The synsepal of *S. antenniferum* is obtuse, the apices diverging with decurved, slender tails about 1 cm long; the apex of the synsepal of *S. pulvinare* is acute, the apices contiguous with thick, straight, approximate tails about 6 mm long.



Scaphosepalum pulvinare was described by Professor Reichenbach from a cultivated plant received from a hobbyist in England without collection data. In a detailed letter still attached to the herbarium sheet, Reichenbach is promised a division of the plant in the future. It was beautifully illustrated and described in Curtis' *Botanical Magazine*, Tab. 7151, in 1890, the year following Reichenbach's death. Kränzlin identified the illustration as his *S. rolfeanum*.

Plate 33. *Scaphosepalum pulvinare* (Rchb. f.) Rolfe

Scaphosepalum rapax Luer, Selbyana 3: 36, 1976.

Ety.: From the Latin *rapax*, "a predatory beast," in allusion to the ferocious appearance of the flower.

Plant small, epiphytic, shortly repent to caespitose; roots slender. Ramicauls erect to suberect, slender, 4-9 mm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, 15-35 mm long including the 5-12 mm long petiole, the blade elliptical, subacute, 5-10 mm wide, cuneate below into the slender petiole. **Inflorescence** a loose to subdense, successively few-flowered raceme up to 4 cm long, including the slender, smooth, ascending to horizontal or descending peduncle, from low on the ramicaul; floral bracts oblique, apiculate, 2 mm long, microscopically lightly spiculate; pedicels 4-5 mm long; ovary minutely verrucose, 1.5 mm long; sepals purple, spotted with darker purple, carinate-serrate, the middle sepal ovate-triangular, concave below the middle, dark purple and thickened with revolute margins above the middle, the apex apiculate, 7-9 mm long, 3 mm wide, the lateral sepals connate 6 mm into a concave, ovoid lamina 6-7 mm long, 6 mm wide expanded, with minutely ciliate margins, the apical half of each lateral sepal occupied by a thick, well-developed, oblong cushion with rounded ends, 3.5 mm long, 1-1.5 mm wide, the obtuse apices contracted into slender, shortly spiculate, slightly decurved tails 4 mm long; petals white, marked with purple, ovate, oblique, obtuse, apiculate, dilated on the labellar margin, 2.5 mm long, 1.5 mm wide; lip purple, oblong-three-lobed, reflexed near the middle, 3 mm long, 2 mm wide, dilated in the middle third to form broad, oblong, lateral lobes, the disc with a pair of denticulate lamellae above the middle, the epichile obovate, rounded, serrulate, the hypochile more or less oblong, truncate, minutely bilobulate; column green, spotted with purple, semiterete, slender, 3 mm long, broadly winged above the middle, with a thick foot 2 mm long.

ECUADOR: Prov. of Pastaza: epiphytic in tall forest east of Puyo, alt. ca. 600 m, 28 July 1975, C. Luer, G. Luer & S. Wilhelm 474 (Holotype: SEL; Isotype: K). Prov. of Napo: epiphytic in tall forest along Río Cascales east of Lumbaqui, alt. 450 m, 9 Feb. 1986, C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11772 (MO).

This little species is found locally in the wet forests at moderately low altitudes of the central Oriente of Ecuador. The flowers are similar to those of several other species of the genus. Except for the smaller size, the flowers resemble those of *S. breve* and *S. ophidion*. *Scaphosepalum rapax*, however, is easily identified by the very small habit with purple, prickly flowers.



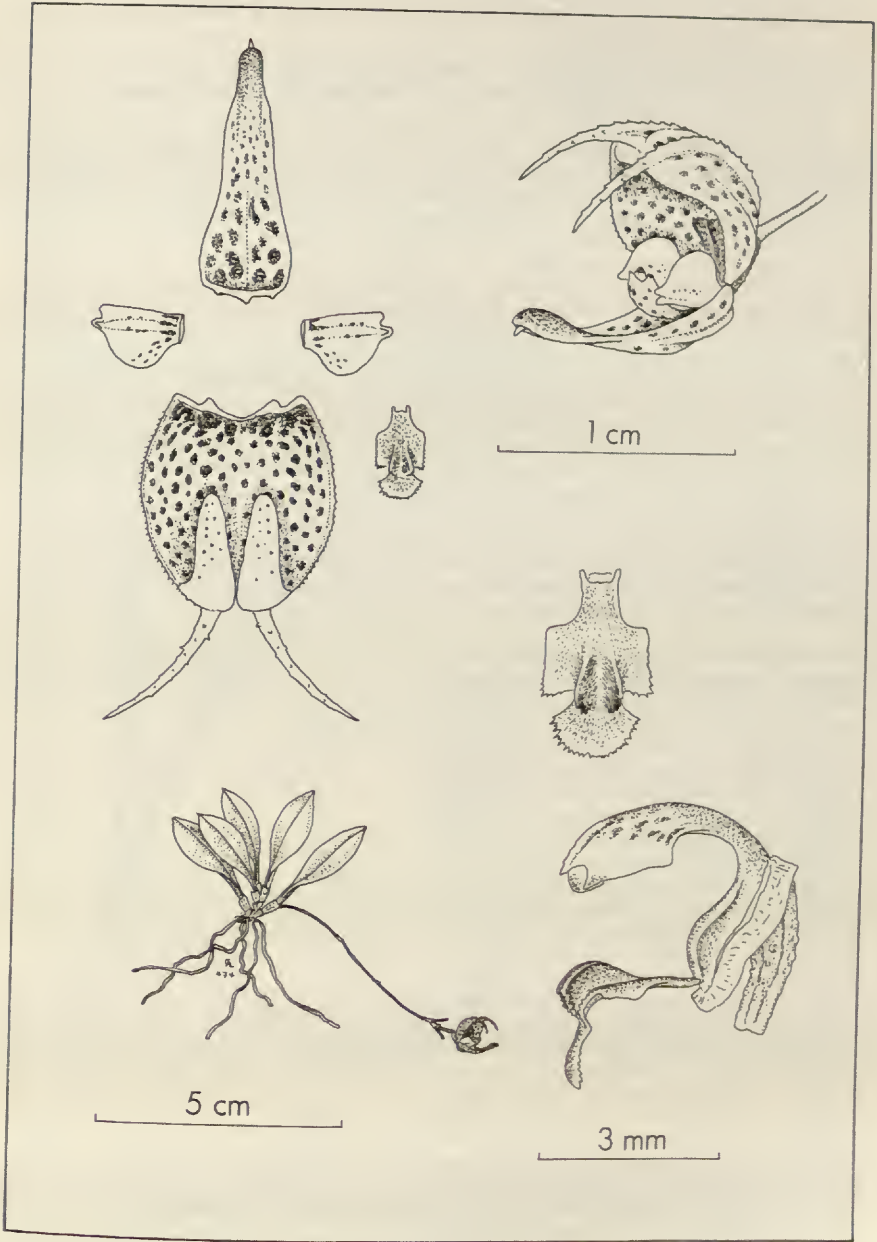


Plate 34. *Scaphosepalum rapax* Luer

Scaphosepalum swertiifolium (Rchb. f.) Rolfe, J. Bot. 28: 13, 1890, subsp. **swertiifolium**.

Bas.: *Masdevallia swertiifolia* Rchb. f., Gard. Chron. 2: 390, 1880, as *swertiaefolia*.

Ety.: Named for the similarity of the petiolate leaves to those of *Swertia perennis* L. in the *Gentianaceae*.

Syn.: *Scaphosepalum platypetalum* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 75, 1920.

Ety.: From the Greek *platypetalon*, "a broad petal," referring to the shape of the petal.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, thinly coriaceous, long-petiolate, 8-21 cm long including the 4-10 cm long petiole, the blade elliptical, acute, subplicate, 1.5-4 cm wide, gradually narrowed below into the slender, channeled petiole. **Inflorescence** a loose to congested, successively several- to many-flowered raceme 5-15 cm long including the slender, smooth, ascending to horizontal peduncle, from low on the ramicaul; floral bracts thin, tubular, 2-4 mm long; pedicels slender, 5-16 mm long; ovary smooth, carinate, 3-4 mm long; **sepals** ivory white to pale yellow, spotted with purple or brown, the middle sepal tricarinate, ovate-triangular below the middle, narrowly linear above the middle with revolute margins, 11-14 mm long, 4-5 mm wide, the lateral sepals connate 8-9 mm into a concave, elliptical lamina 10-11 mm long, 9-12 mm wide expanded, the apical portion of each lateral sepal occupied by a thick, well-developed, transversely lunate, markedly diverging, microscopically pubescent cushion 7-8 mm long, 3-5 mm wide, rose, spotted with purple, the acute apices contracted into slender, straight tails 17-40 mm long; **petals** yellow, marked with purple, ovate, oblique, the labellar margin markedly dilated, 2.5-3 mm long, 2.5-3 mm wide, the apex obtuse, often with a small, blunt apiculum; **lip** white or pale yellow, suffused with purple, subpandurate, reflexed near the middle, 3-4 mm long, 1.5-2.25 mm wide, the narrowed near the middle with a pair of small, rounded lateral lobes, the disc with a small pair of erect, lamellae, entire or denticulate, near the middle, the epichile orbicular, serrulate, the hypochile more or less oblong, lightly concave, the base truncate, minutely bilobulate; **column** white, marked with purple, semiterete, 3-4 mm long, winged above the middle, the foot 2 mm long.

COLOMBIA: Dept. of Nariño: epiphytic near Altaquer, western cordillera of Pasto, alt. 1200 m, July 1879, *F. C. Lehmann 544* (Holotype: W); collected above Ricaurte, flowered in cultivation at La Planada, 25 Jan. 1987, *C. Luer 12489* (MO). Dept. of Antioquia: Medellín, *Boxall s.n.* (W); Munic. of Granada, Río Calderón, alt. 1600-1800 m, collected by J. M. Serna, flowered in cultivation 17 Oct. 1977, *C. Luer 2071* (SEL); Munic. of Frontino, Alto de Cuevas, alt. 2050 m, 4 May 1983, *C. Luer, J. Luer, R. Escobar & A. Pridgeon 8995* (SEL); Munic. of La Union, between La Union and Mesopotamia, alt. 2000 m, 14 Aug. 1988, *R. Escobar, W. & H. Königer et al. 3985* (JAUM); Munic. of Urrao, National Park "Las Orquídeas," Río Calles, alt. 1320 m, 24 Mar. 1988, *A. Cogollo et al. 2560* (JAUM). Dept. of Cauca: without locality, alt. 2000 m, *Madero s.n.* (type of *S. platypetalum*: B?); thick forests around La Conga, west of Popayán, alt. 1800-2300 m, *F. C. Lehmann s.n.* (K). Dept. of Nariño: above Ricaurte, alt. 1600 m, 3 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4615* (SEL). Dept. of Risaralda: Munic. of Pueblo Rico, Vereda Yarumal, alt. 1900-2100 m, collected by J. M. Serna, flowered in cultivation 7 Oct. 1977, *C. Luer 1943* (SEL).

ECUADOR: Prov. of Carchi: above Maldonado, alt. 2000 m, collected by A. Hirtz, flowered in cultivation 17 Feb. 1978, *C. Luer 2615* (SEL). Prov. of Esmeraldas: wet forest west of Lita, alt. 750 m, 18 Jan. 1987, *C. Luer, J. Luer, A. Hirtz, C. H. Dodson, D. Benzing & D. Bermudes 12370* (MO). Prov. of Morona-Santiago: Cordiller del Condor, east of Chuchumbletza, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13563* (MO). Prov. of Pichincha: near Mindo, alt. ca. 2000 m, July 1975, collected by W. Teague, flowered in cultivation 19 Aug. 1978, *C. Luer 4109* (SEL); San Miguel de los Bancos, alt. 2300 m, 1 Apr. 1984, *C. Luer, S. Dalström, T. Höjjer & A. Hirtz 9881* (MO); above Mindo, collected by A. Hirtz, flowered in cultivation in Quito, 30 Mar. 1985, *C. Luer 11007* (MO); above Chiriboga, *A. Hirtz 2420* (MO).



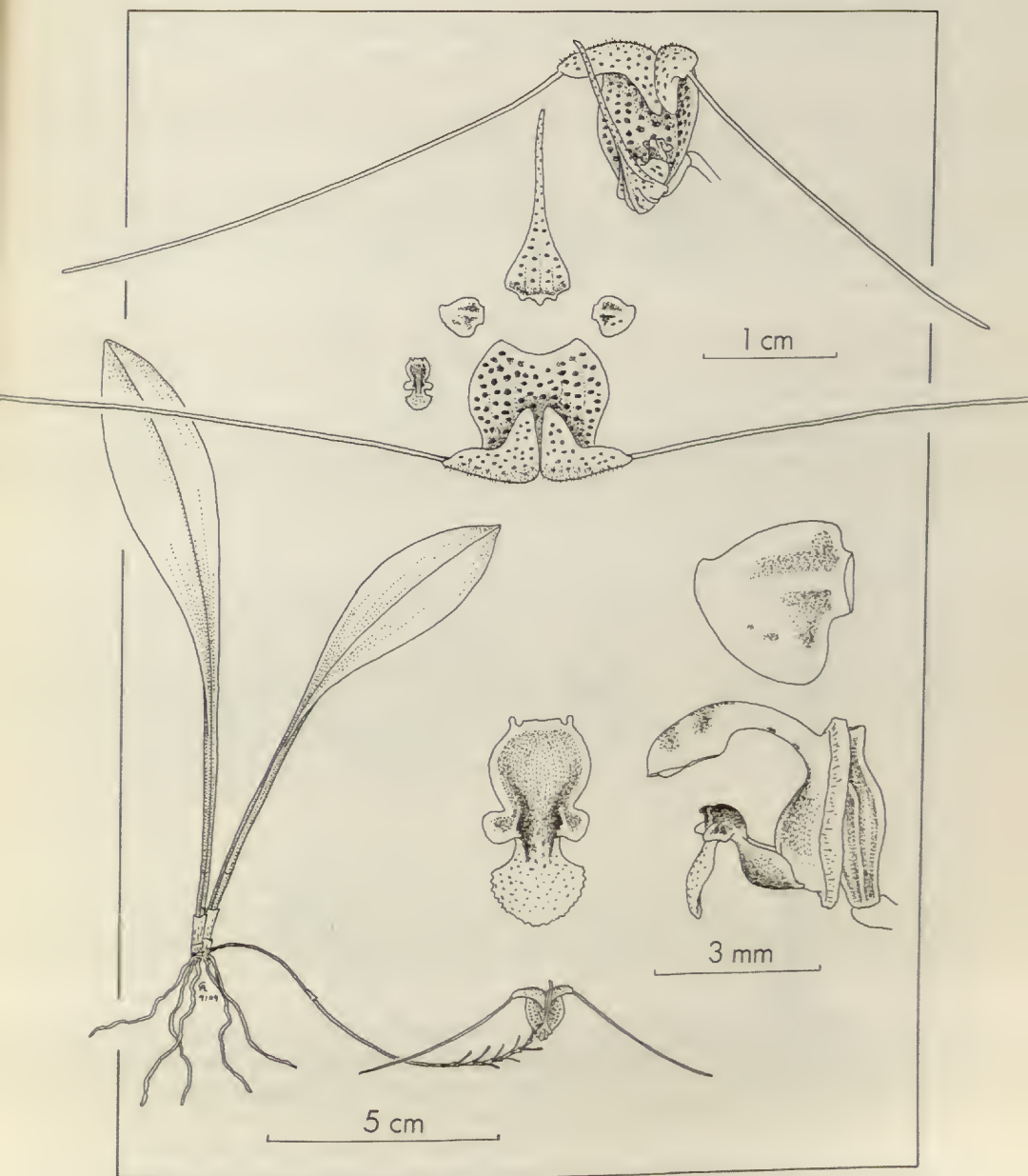


Plate 35. *Scaphosepalum swertiifolium* (Rchb. f.) Rolfe

This species is relatively frequent and variable in its distribution from central Colombia to central Ecuador. It was first discovered in the mountains west of Pasto in southern Colombia by Consul Lehmann.

The leaves, thin and more or less soft in consistency, vary greatly in size, but they are always long-petiolate. When the blades are large and broad, they

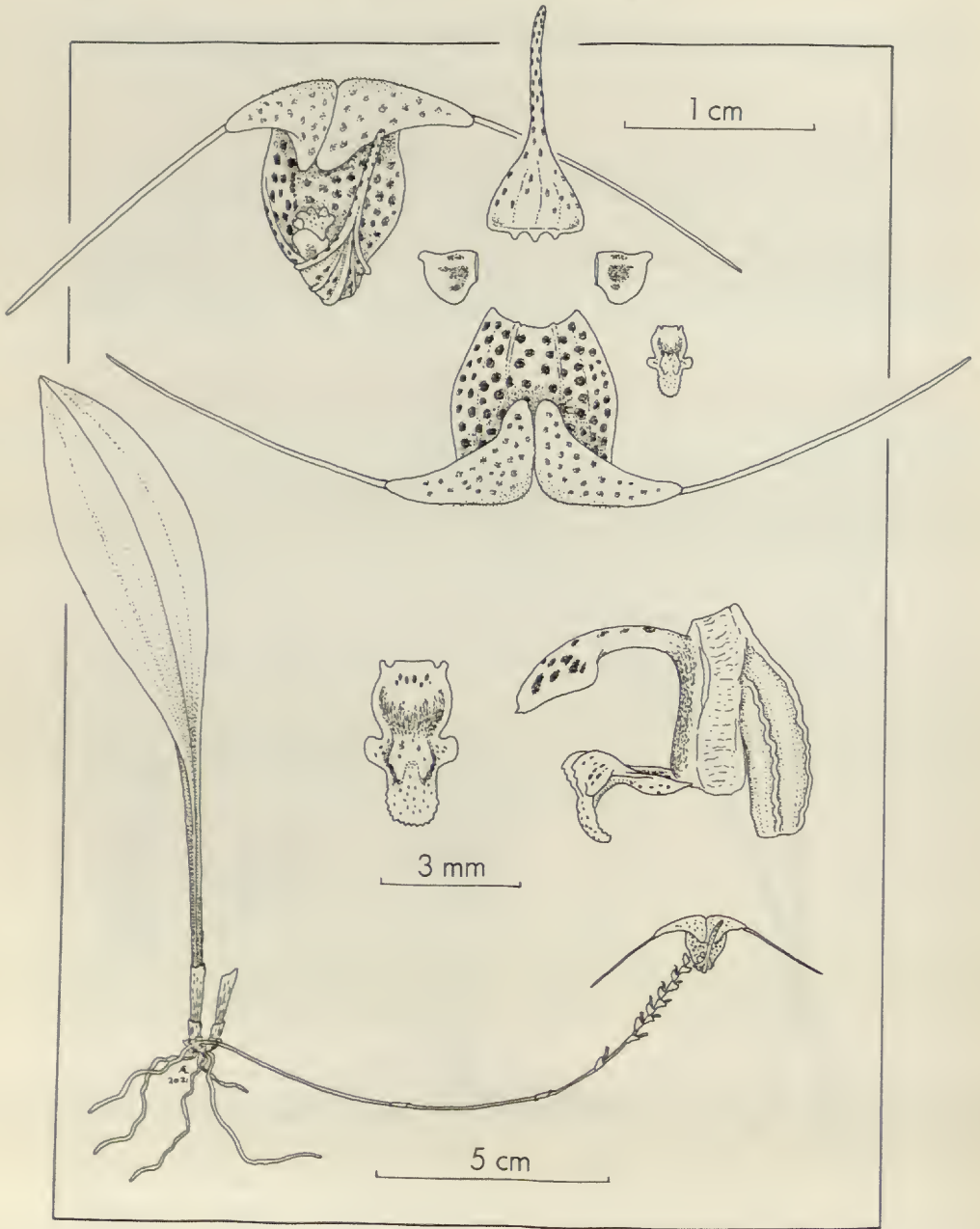


Plate 36. *Scaphosepalum swertiifolium* (Rchb. f.) Rolfe

are lightly plicate. The cushions of the lateral sepals are large, about half the size of the blades. The tails are straight and slender, and vary in length from 1.5 cm to 4 cm. The plants with some of the longest sepaline tails are found near Mindo on the western slopes of the Andes of Ecuador.

Scaphosepalum swertiifolium subsp. **exiguum** Luer & Escobar, subsp. nov.

Ety.: From the Latin *exiguus*, "small," referring to the size of the flowers compared to those of typical *S. swertiifolium*.

Subspecies haec *S. swertiifolio* (Rchb. f.) Rolfe affinis, sed foliis anguste ellipticis et floribus multiminoribus cum caudis sepalorum lateralium multibrevioribus.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thinly coriaceous, 8-15 cm long including the 3-7 cm long petiole, the blade narrowly elliptical, acute, 1.8-3.5 cm wide, gradually narrowed below into the slender, channeled petiole. **Inflorescence** a loose to congested, successively several- to many-flowered raceme 8-15 cm long including the slender, smooth, ascending to horizontal peduncle, from low on the ramicaul; floral bracts thin, tubular, 2-2.5 mm long; pedicel slender, 11 mm long in the lower part of the raceme to 5 mm long above; ovary smooth, 5 mm long; **sepals** white, spotted with purple, the middle sepal tricarinate, ovate, narrowly acute, concave in the lower half, 7-8 mm long, 2.5-3 mm wide, purple and narrowly linear in the distal half with revolute margins, the lateral sepals connate 5.5 mm into a concave, oblong, lamina 7 mm long, 4.5 mm wide unexpanded, the apical portion of each lateral sepal occupied by a thick, well-developed, transversely lunate, markedly diverging, glabrous cushion 4.25 mm long, 2.5 mm wide, tan, spotted with brown, the acute apices contracted into slender, decurved tails 5-6 mm long; **petals** yellow, marked with purple, obliquely subquadrate, 1.75-2 mm long, 1.75-2 mm wide, the apex broadly obtuse, subtruncate apex lightly wavy; **lip** purple, subpandurate, reflexed near the middle, 2.3 mm long, 1 mm wide, the narrowed middle with a pair of small, rounded lateral lobes, the disc with a small pair of erect, lamellae near the middle, the epichile orbicular, serrulate, the hypochile more or less oblong, lightly concave, the base truncate, minutely bilobulate; **column** purple, semiterete, slender, 2.25 mm long, winged above the middle, with a thick foot 1.5 mm long.

COLOMBIA: Dept. of Risaralda: Hacienda Santa Teresa, alt. 1600 m, Sept. 1978, collected by M. Robledo et al., flowered in cultivation at Colomborquídeas 1 May 1983, *R. Escobar* 2453 (Holotype: SEL), *C. Luer* illustr. 8911.
ECUADOR: Prov. of Los Ríos: east of Patricia Pilar, alt. 600 m, 23 July 1977, *C. Luer* 1765 (SEL).



The flowers of this taxon are similar to those of *S. swertiifolium*, but they are considerably smaller. The sepaline cushions are essentially glabrous, and the sepaline tails are shorter than the blades. The cushions of typical *S. swertiifolium* are shortly but densely pubescent, and the tails are longer, often much longer than the blades. The lips of the two taxa are also similar, both with small, rounded lateral lobes at the deflexed center. The leaves of subsp. *exiguum* are narrowly elliptical, not broad and long-petiolate as found in typical *S. swertiifolium*. Populations with intermediate characteristics in various combinations exist, but this extreme form in reduced dimensions is remarkable, no doubt attracting a different pollinator.

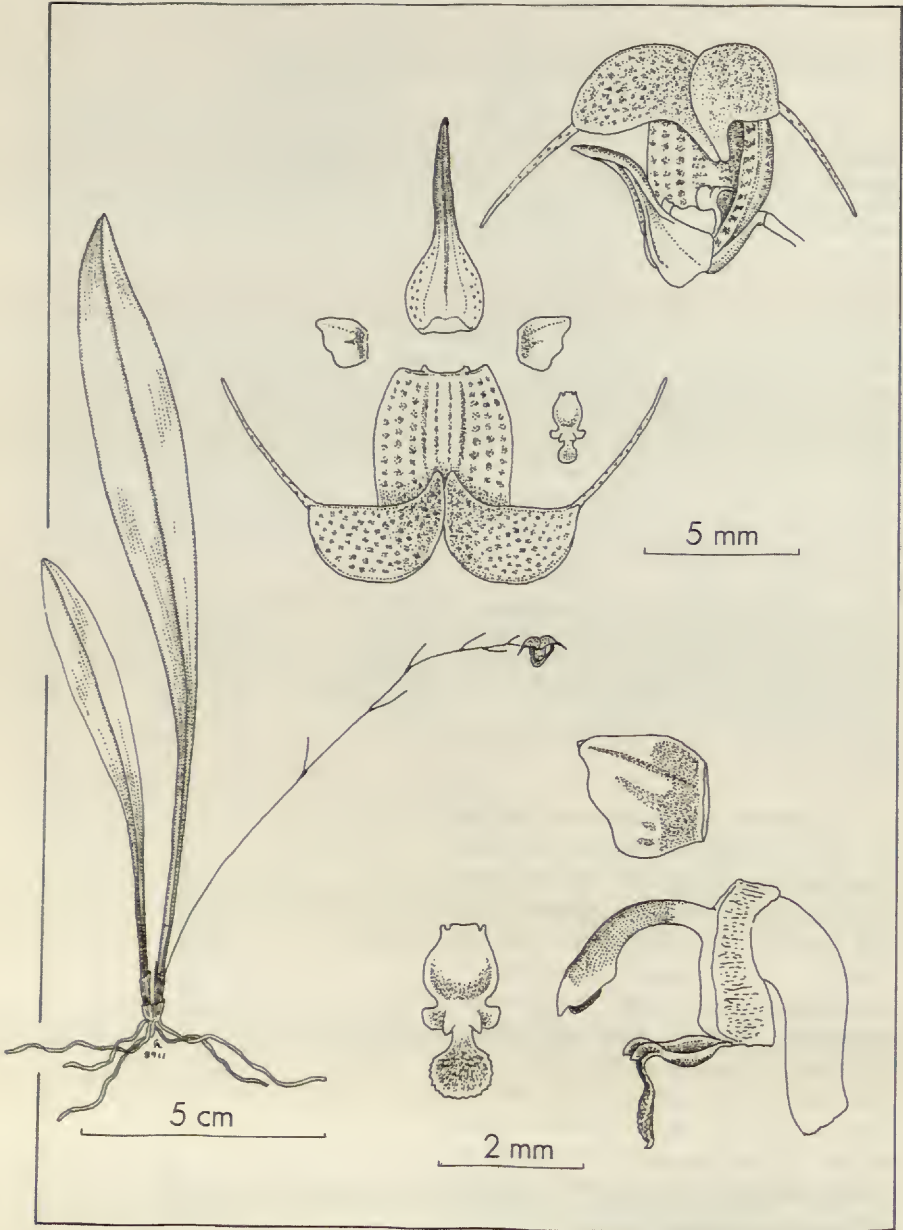


Plate 37. *Scaphosepalum swertiifolium* subsp. *exiguum* Luer & Escobar

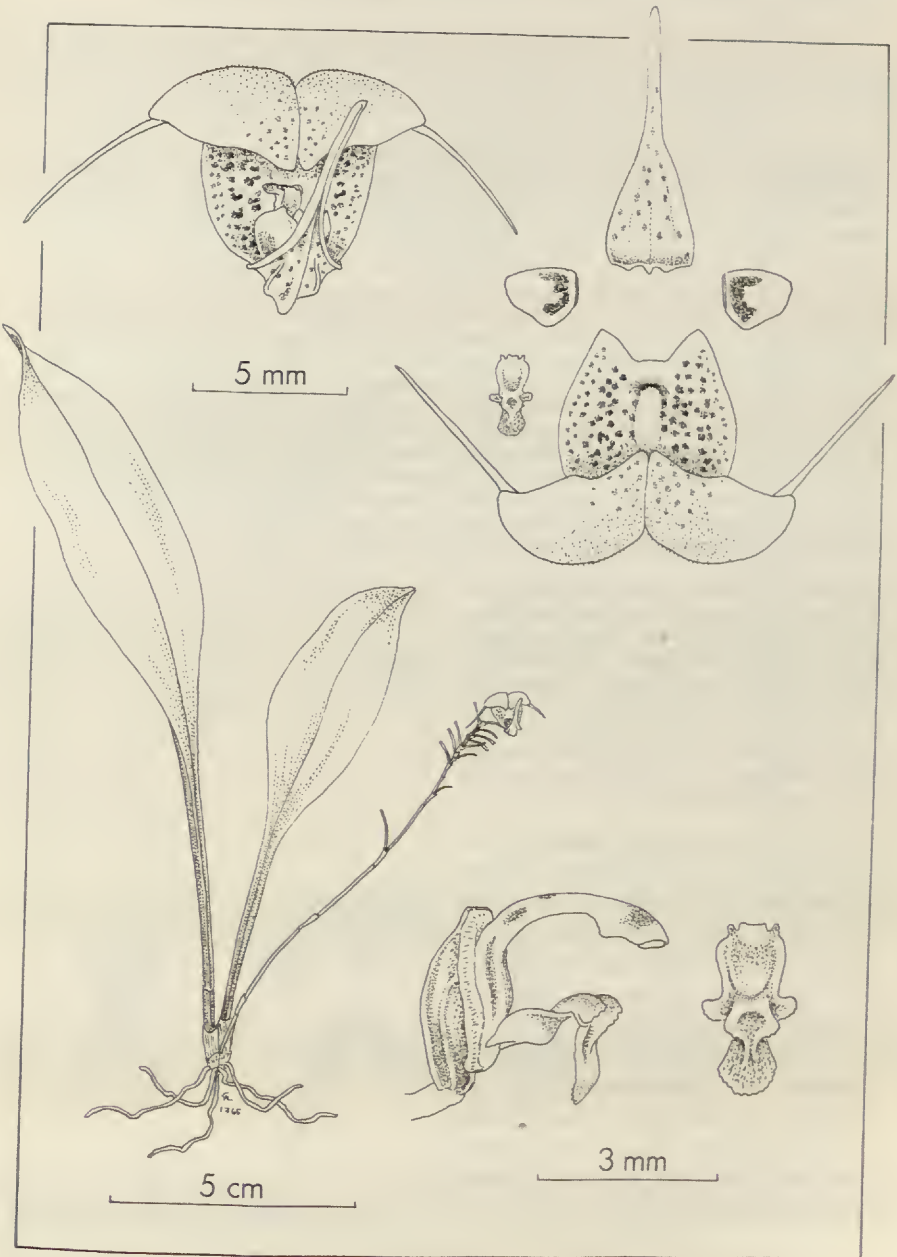


Plate 38. *Scaphosepalum swertiifolium* subsp. *exiguum* Luer & Escobar

Scaphosepalum tiaratum Luer, *Phytologia* 49: 223, 1981.

Ety.: From the Latin *tiaratus*, "turbaned," referring to the concavity of the synsepal.

Plant medium to large in size, presumably epiphytic, caespitose; roots slender. Rami-cauls stout, erect, 2-3 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, 12-20 cm long including the 4-7 cm long petiole, the blade narrowly elliptical, acute, 1.7-2.3 cm wide, gradually narrowed below into the slender, channeled petiole. Inflorescence an erect, distichous, lax, several-flowered raceme, up to 8 or more cm long, occasionally 2 flowers produced simultaneously, borne by an erect, stout, sparsely bracted, coarsely verrucose peduncle up to 25 cm long, from low on the ramicaul; floral bracts conduplicate, oblique, elongate, acute, verrucose, 7-9 mm long; pedicels verrucose, 7-10 mm long; ovary coarsely verrucose, 8 mm long; sepals light green, suffused and spotted with purple, fleshy, verrucose externally, the middle sepal carinate, ovate and concave below the middle, 13 mm long, 4 mm wide, thickened and subclavate-linear in the distal half with revolute margins, with the obtuse apex apiculate, the lateral sepals connate 10 mm into a concave, suborbicular lamina 10 mm long, 10 mm wide unexpanded, with the margins minutely ciliate, with a well-demarcated, saccate concavity in the center, each lateral sepal with an apical, longitudinal, amber-colored, well-developed, triangular cushion 5 mm long, 2.5 mm wide, with the cushions contiguous, the rounded apices abruptly contracted into slender, diverging, subverrucose tails 12 mm long; petals yellow, spotted with purple, more or less ovate, oblique, dilated on the labellar margin, obtusely angled on the opposite margin near the acute apex, 5 mm long, 3 mm wide; lip green, suffused and dotted with purple, subpandurate, reflexed near the middle, 4 mm long, 2 mm wide, the epichile suborbicular, denticulate, the hypochile more or less oblong, the disc with a tall pair of serrated lamellae near the middle, the base truncate, minutely bilobulate; column purple, semiterete, slender, 5 mm long, broadly triangularly winged above the middle, with a thick foot 3 mm long.

COLOMBIA: without locality, imported from Colombia by Broersma in the Netherlands, flowered in cultivation by B. Würstle at Spielberg, Germany, 20 May 1980, *C. Luer* 5255 (Holotype: SEL); without locality, flowered in cultivation by M. & O. Robledo at La Ceja, 9 Apr. 1988, *C. Luer* 13105 (MO). Dept. of Antioquia: epiphytic in forest near Río Dolores above Angostura, alt. 1700-2000 m, Dec. 1891, *F. C. Lehmann* 7454 (K).

This large species, similar to *S. antenniferum* and its relatives, is distinguished by the markedly verrucose ovary and sepals, the clavate middle sepal, the posteriorly saccate synsepal, the tall crests of the lip, and the triangularly winged column.

Living plants are known from two sources, but, unfortunately, both are without collection data. A long-unidentified herbarium specimen by Lehmann with collection data at Kew apparently also is this species.



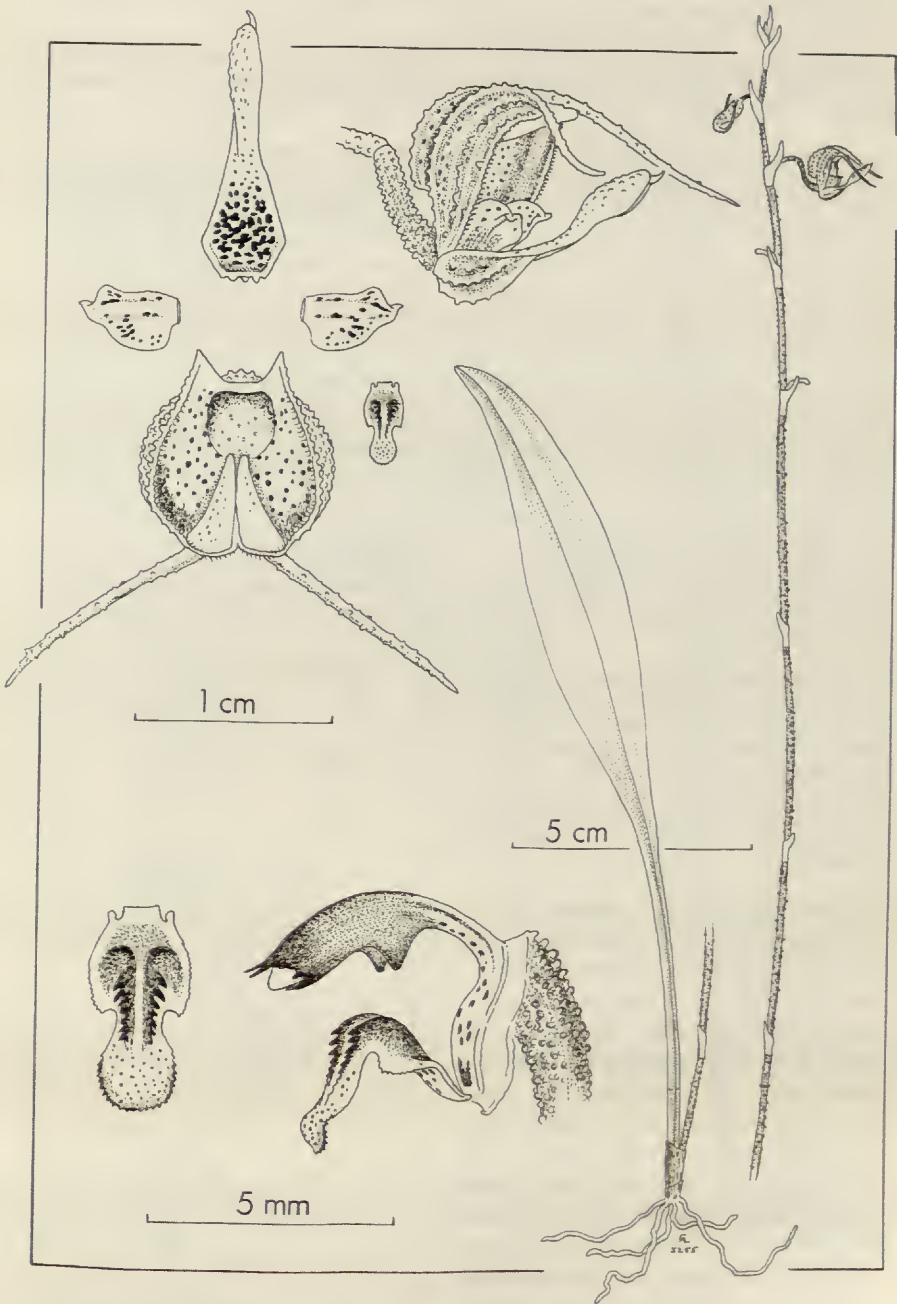


Plate 39. *Scaphosepalum tiaratum* Luer

Scaphosepalum triceratops Luer & Andreetta, sp. nov.

Ety.: Named for the resemblance of the flower to the three-horned dinosaur. From the Greek *triceratops*, "a three-horned face."

Species haec *S. pulvinari* (Rchb. f.) Rolfe affinis, sed sepalis extus glabris, labello sine lobis lateralibus et caudis sepalorum multilongioribus laevibus non approximatis differt.

Plant large, robust, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 3-8.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 14-30 cm long including the 4-8 cm long petiole, the blade elliptical, subacute, 3-5 cm wide, gradually narrowed below into the stout, channeled petiole. **Inflorescence** an erect, rigid, distichous, subaxly many-flowered raceme, up to 20 cm long, 2-3 flowers produced simultaneously, borne by an erect, stout, coarsely verrucose peduncle up to 50 cm long, from low on the ramicaul; floral bracts conduplicate, oblique, 7 mm long; pedicel 4 mm long; ovary verrucose, 9-10 mm long; **sepals** fleshy, dull yellow, spotted with purple-brown, glabrous externally, glandular-cellular within, the middle sepal carinate, narrowly triangular, narrowly obtuse, 17 mm long, 5 mm wide, concave in the lower third, thickened and narrowly linear in the distal half with revolute margins, the lateral sepals connate 12 mm into an ovate, concave lamina 12 mm long, 7 mm wide unexpanded, each lateral sepal with an apical, longitudinal, dull green, thick, well-developed, elliptical cushion 7 mm long, 2.5 mm wide, with the cushions contiguous, the obtuse apices contracted into slender, forwardly directed, smooth, rose-colored tails 18 mm long; **petals** light green, marked with purple, more or less ovate, oblique, dilated on the labellar margin, obtusely angled on the opposite margin near the acute apex, 5.5 mm long, 3 mm wide; **lip** greenish white with purple dots, subpandurate, reflexed near the middle, 4.5 mm long, 2 mm wide, the epichile obovate, rounded at the apex, lightly denticulate, the hypochile more or less oblong, the disc with a low pair of serrated lamellae near the middle, the base truncate, minutely bilobulate; **column** green, suffused with purple, semiterete, slender, 5 mm long, broadly winged above the middle, with a thick foot 3 mm long.

ECUADOR: Prov. of Zamora-Chinchi: epiphytic in cloud forest above Valladolid, alt. 2450 m, 18 Mar. 1984, C. Luer, S. Dalström, T. Höjjer, D. D'Alessandro & J. Kuijt 9579 (Holotype: MO). Prov. of Loja: epiphytic in shrubby vegetation and terrestrial in cloud forest east of Yangana, alt. 2650 m, 4 March 1982, C. Luer, J. Luer, A. Andreetta & D. D'Alessandro 7148 (SEL).

This huge species, a relative of *S. antenniferum* and *S. pulvinare*, was first discovered by Padre Angel Andreetta, and a plant of it has been in cultivation with him since that time. In habit it is indistinguishable from the other two, all three bearing rigid, distichous racemes on a long, erect, thick, coarsely verrucose peduncle. The flowers of all three are superficially similar. The sepaline tails of *S. antenniferum* are shorter than the blades, recurved, diverging and subverrucose; those of *S. pulvinare* are also shorter than the blades and subverrucose, but they are straight and held in apposition, and those of *S. triceratops* are smooth, much longer than the blades, and only slightly diverging.



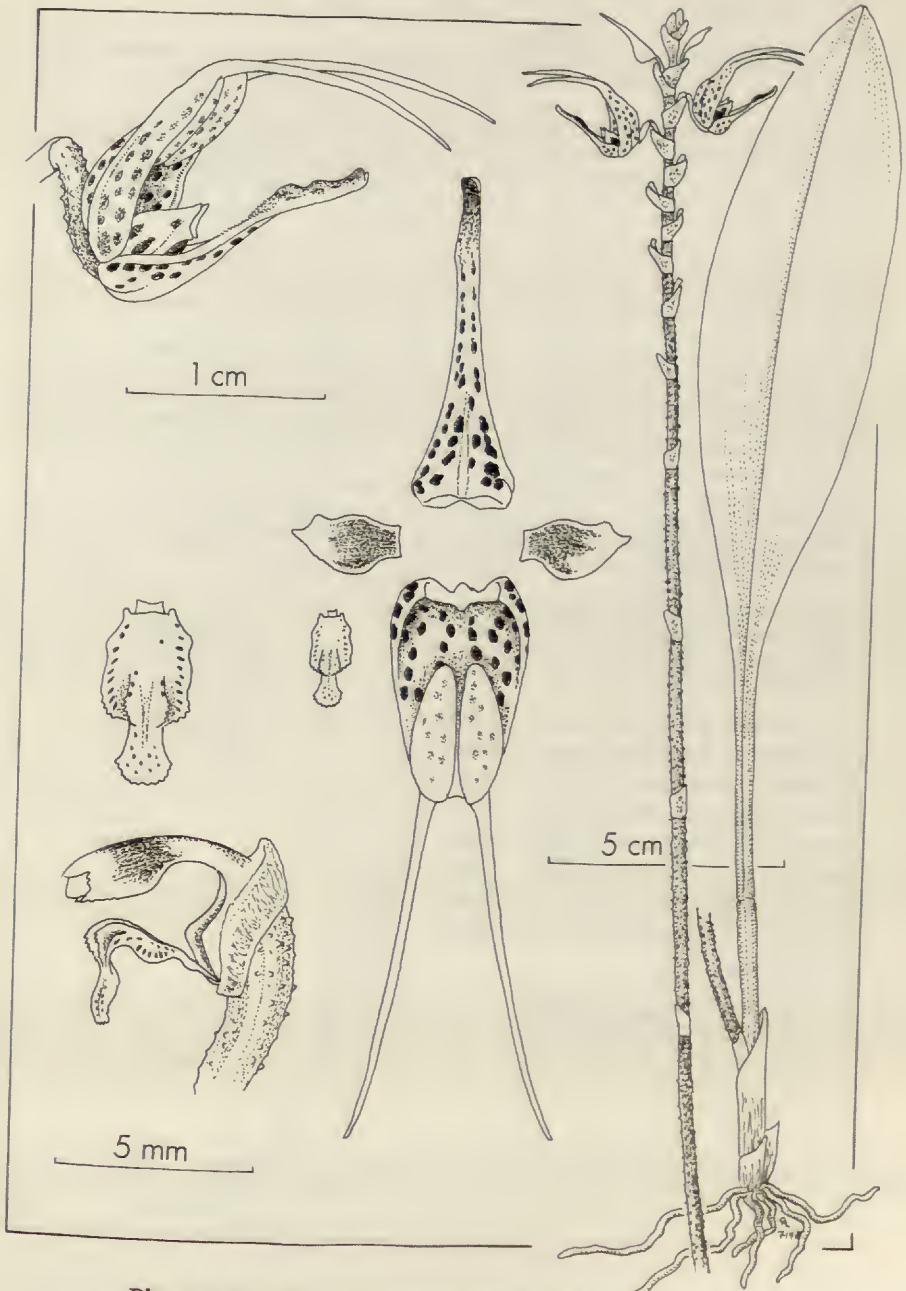


Plate 40. *Scaphosepalum triceratops* Luer & Andreetta

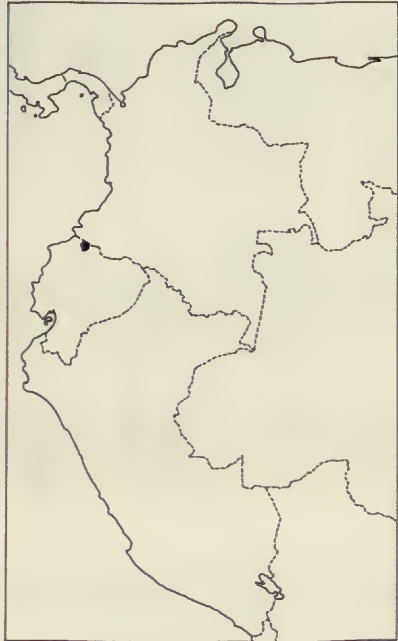
Scaphosepalum ursinum Luer, Selbyana 5: 189, 1979.

Ety.: From the Latin *ursinus*, "pertaining to a bear," in allusion to the appearance of the flowers.

Plant large, epiphytic, shortly repent to caespitose; roots coarse. Ramicauls erect, stout, 5-8 cm long, enclosed by 2-3 loose, tubular sheaths. Leaf suberect, fleshy, thickly coriaceous, dark purplish green, long-petiolate, 20-30 cm long including the petiole 8-11 cm long, the blade narrowly obovate, subacute, 3.5-4.5 cm wide, gradually narrowed below into the channeled petiole. Inflorescence a loose, distichous, successively several-flowered raceme up to 10 cm long, borne by a slender, smooth, ascending to horizontal peduncle 10-25 cm long, from low on the ramicaul; floral bracts tubular, oblique, 4-6 mm long; pedicel minutely verrucose, 9-20 mm long; ovary spiculate-pubescent, 4 mm long; sepals greenish white, spotted with purple, pubescent and carinate externally, the middle sepal fleshy, ovate and concave in the lower half, 14 mm long, 6 mm wide unexpanded, the apical half laterally compressed with reflexed sides, the apex acute, reflexed, the lateral sepals connate 10 mm into a bifid, concave, ovoid lamina 13 mm long, 10 mm wide unexpanded, the apical portion of each lateral sepal occupied by a thick, triangular, diverging, cushion, 7 mm long, 3 mm wide, continuous with the acute, oblique, diverging apex, abruptly contracted into a decurved, pubescent tail 10 mm long; petals yellow-white, marked with purple, dolabriform-pentangular, obtuse, 4 mm long, 3 mm wide, the labellar margin obtusely angled, the upper margin with an obtuse angle near the apex; lip greenish white, suffused and dotted with purple, subpandurate-ovate, sharply deflexed near the middle, 5.25 mm long, 2.25 mm wide, with a small pair of rounded lateral lobes near the middle, the epichile obovate, the rounded apex serrulate, the hypochile more or less ovate, lightly concave, the disc with a small pair of erect, acute, denticulate lamellae near the middle, the base truncate, minutely bilobulate; column greenish-white, spotted with purple, slender, 6 mm long, broadly winged above the middle, with a thick, sulcate foot 4 mm long.

ECUADOR: Prov. of Carchi: epiphytic in cloud forest above Maldonado, alt. 2500 m, 26 Aug. 1978, C. Luer, J. Luer & A. Hirtz 3408 (Holotype: SEL; Isotype: MO).

This huge species is characterized by the fleshy, dark purplish green, narrowly obovate, long-petiolate leaves and a large, pubescent, greenish white flower spotted with purple. The tail of middle sepal is laterally compressed. This species occurs locally but not infrequently in a forested valley of north-western Ecuador.



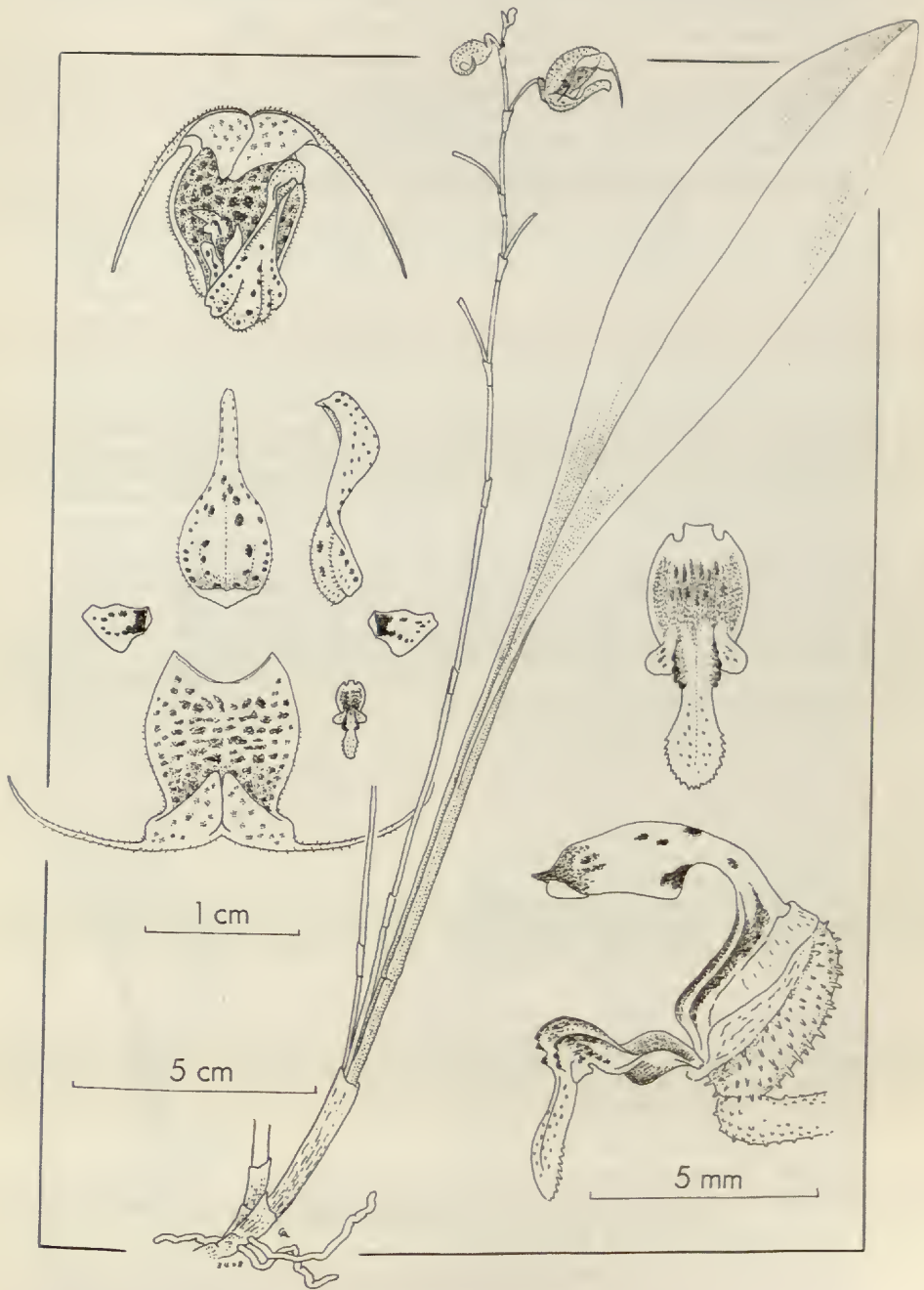


Plate 41. *Scaphosepalum ursinum* Luer

Scaphosepalum verrucosum (Rchb. f.) Pfitz., Nat. Pflanzenfam. 2(6): 139, 1888.

Bas.: *Masdevallia verrucosa* Rchb. f., Linnaea 22: 819, 1849.

Ety.: From the Latin *verrucosus*, referring to the rough peduncle.

Syn.: *Pleurothallis verrucosa* (Rchb. f.) Rchb. f., Bonplandia 2: 24, 1854.

Syn.: *Masdevallia ochthodes* Rchb. f., Bonplandia 3: 70, 1855.

Ety.: From the Greek *ochthodes*, "hilly," in allusion to the verrucose peduncles.

Syn.: *Scaphosepalum ochthodes* (Rchb. f.) Pfitz., Nat. Pflanzenfam. 2(6): 139, 1888.

Syn.: *Humboldtia ochthodes* (Rchb. f.) Kuntze, Rev. Gen. Pl. 668, 1891.

Syn.: *Humboldtia verrucosa* (Rchb. f.) Kuntze, Rev. Gen. Pl. 668, 1891.

Plant medium in size, epiphytic to terrestrial, subcaespitose to repent; roots coarse. Ramicauls stout, erect, 1-3.5 cm long, enclosed by 2-3 tubular sheaths. Leaf erect, thickly coriaceous, 5-13 cm long including the 1-4 cm long petiole, the blade elliptical to obovate, sometimes suffused with purple subacute to obtuse or rounded, 1.5-3 cm wide, gradually narrowed below into the stout, channeled petiole. Inflorescence an erect, strict (becoming flexible with increasing length), distichous, loosely many-flowered raceme, up to 50 cm long, borne by an erect, slender, minutely verrucose peduncle, from low on the ramicaul, floral bracts oblique, 4 mm long; pedicels verrucose, 5-12 mm long; ovary subverrucose, 4 mm long; sepals yellow, green or yellow-green, suffused or lightly dotted with red-brown or darker green, the middle sepal fleshy, tricarinate, ovate and concave below the middle, 6-8 mm long, 3-4 mm wide, thickened toward the narrowly obtuse apex with revolute margins, the lateral sepals connate 5-6 mm into a concave, elliptical lamina 6-7 mm long, 5-6 mm wide, each lateral sepal with an ovoid, well-developed cushion 3 mm long, 2 mm wide, the obtuse apices abruptly contracted into recurved, subverrucose tails 1.5 mm long; petals translucent yellow-green with brown veins, more or less oblong, oblique, dilated on the labellar margin, the apex subacute, 3-4 mm long, 1.5 mm wide; lip dull white, suffused with purple, subpandurate, reflexed near the middle, 3.5 mm long, 1.5-2 mm wide, the epichile oblong, rounded at the apex, denticulate, the middle third with a pair of serrated lamellae above the middle, the base truncate, minutely bilobulate; column green, suffused with purple, semiterete, slender, 3-4 mm long, broadly winged above the middle, with a thick foot 2 mm long.

COLOMBIA: Dept. of Santander: near La Baja, alt. 8200 ft., 1846, *Schlim 1439* (Holotype: W; Isotypes: G, P); lithophytic around San Pedro and Turmero, alt. 6000 ft., 1856, *Wagner 564* (type of *M. ochthodes*, W). Dept. of Boyacá: terrestrial in scrubby vegetation, above Guicán, alt. 3500 m, 30 May 1982, *C. Luer, R. Escobar & D. Portillo 7987* (SEL), flowered in cultivation at Colomborquídeas, 2 Apr. 1988, *C. Luer 13104* (MO). Dept. of Norte de Santander: Alto de Pozo, alt. 2400 m, 5 May 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7717* (SEL). Dept. of Santander del Sur: terrestrial in oak forest above Cachirí, alt. 2500 m, 21 May 1982, *C. Luer, R. Escobar & D. Portillo 7905* (SEL); terrestrial on the road embankment north of La Laguna, alt. 2850 m, 8 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10184* (MO). Without locality, *Purdie s.n.* (K). Specimens prepared from cultivated plants without collection data, 1877, 1885, 1886, 1887, 1888, 1894, and 1923 (K, annotated *M. ochthodes*).

This species was first collected by the expedition of Funk and Schlim in 1846 at La Baja in the old province of



Ocaña (in the Eastern Cordillera of present-day Colombia), where the trails led to gold mines which are still in operation today. Specimens of their collection 1439 were deposited with Reichenbach, now at W (Wien), Geneva (G) and Paris (P). The specimens at Geneva and Paris acquired no annotation, but, apparently due to a later oversight, the type-specimen of *M. verrucosa* (*Schlim*

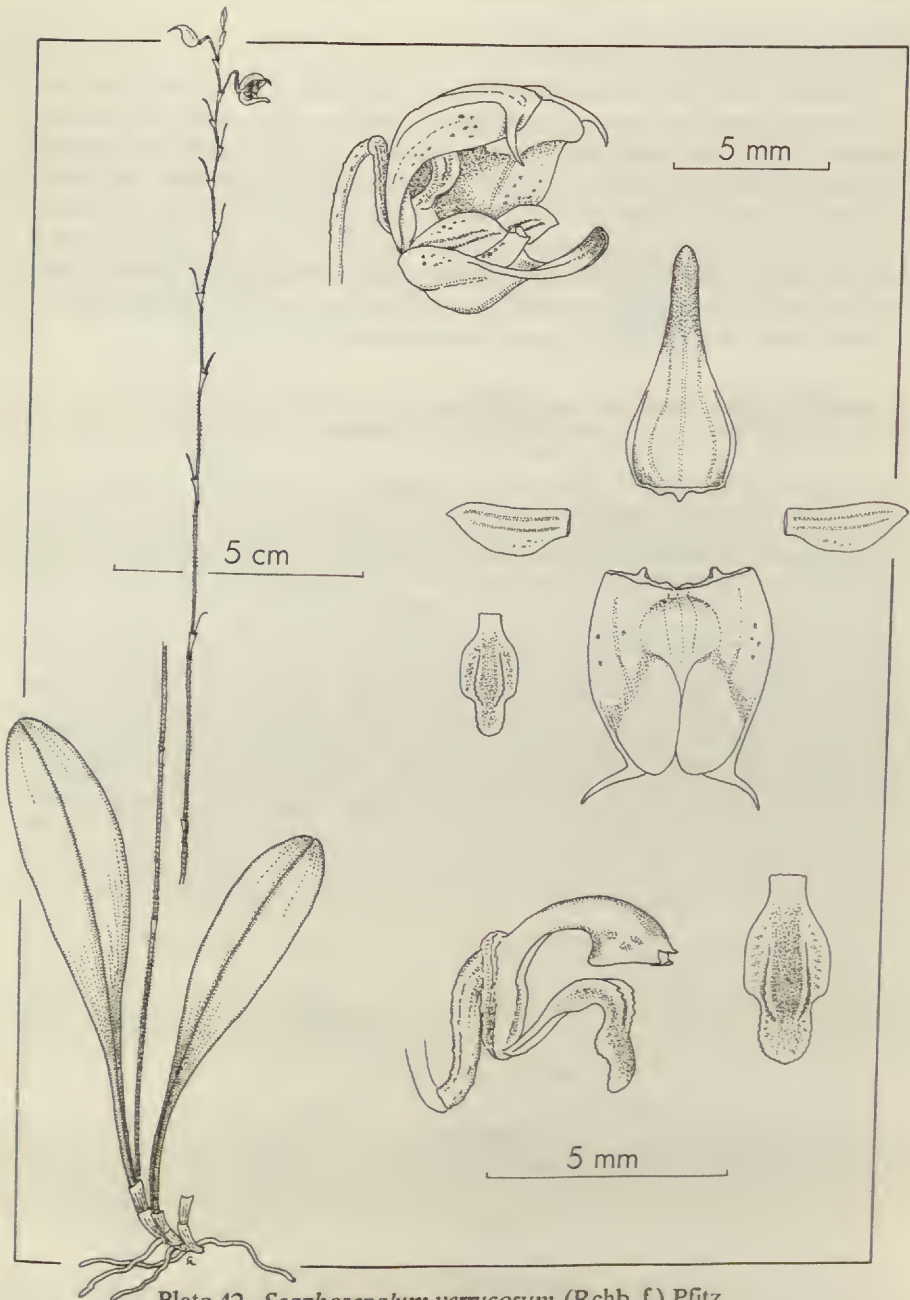


Plate 42. *Scaphosepalum verrucosum* (Rchb. f.) Pfitz.

1439) at W acquired the annotation *Masdevallia ochthodes*. When Reichenbach transferred the epithet *verrucosa* to *Pleurothallis* in *Bonplandia* 2: 24, 1854, both *Schlim* 1439 and a specimen of a different species (the future *S. breve*) collected by Wagener near Caracas, Venezuela, are cited.

Reichenbach described *M. ochthodes* in 1855 from a different collection by Wagener also from the old province of Ocaña. It is the same species as the original *M. verrucosa* from Ocaña. It is commonly cultivated today under the

later name *Scaphosepalum ochthodes*.

Scaphosepalum verrucosum is frequent and locally abundant at elevations over 2500 meters above sea level in the Eastern Cordillera of Colombia where it is endemic. It grows terrestrially, lithophytically or epiphytically in scrubby vegetation, either in shade or full sun. It is easily recognized by the elongating, relatively stiff but slender, minutely but coarsely verrucose peduncle. The small, yellow-green flowers with tiny curved tails of the lateral sepals, are very distant low in the raceme, but they become much closer above as the raceme ages. Some racemes reach 50 cm in length at which time they become flexible, sometimes becoming entangled with other racemes.

***Scaphosepalum viviparum* Luer, Selbyana 2: 390, 1978.**

Ety.: From the Latin *viviparus*, "bearing live offspring," referring to the ability of the racemes to produce plantlets.

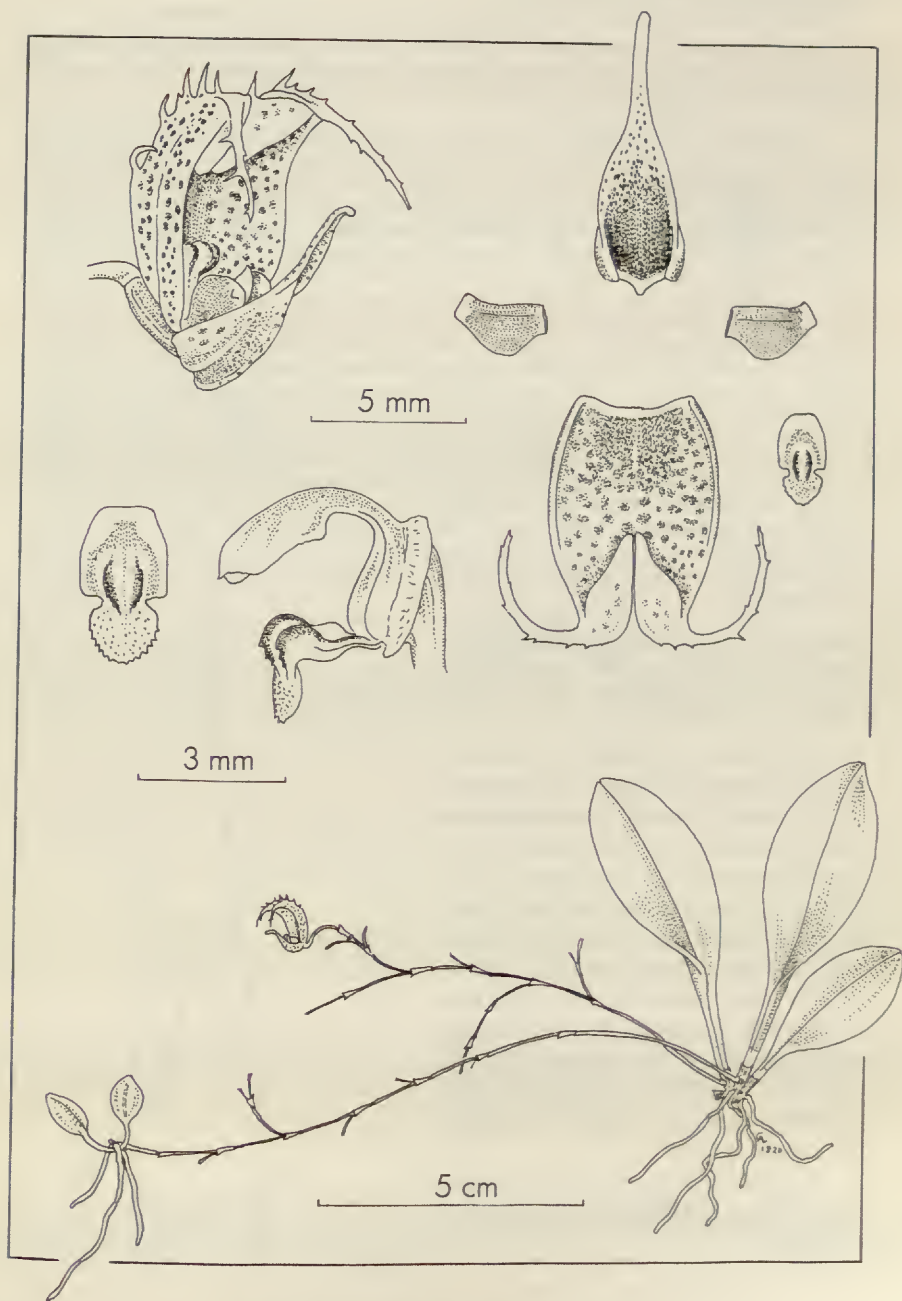
Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect to suberect, slender, 5-12 mm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, 4-7 cm long including the 1.5-3 cm long petiole, the blade elliptical, subacute, 1.5-2 cm wide, cuneate below into the slender petiole. Inflorescence a loose, successively several-flowered raceme, irregularly branching, occasionally producing plantlets, up to 16 cm long, including the slender, smooth, ascending to horizontal or descending peduncle, from low on the ramicaul; floral bracts oblique, 3-4 mm long; pedicels 4-5 mm long; ovary 4-5 mm long; sepals greenish white, suffused with purple within below the middle, dotted with purple, the middle sepal ovate, tricarinate, concave below the middle, light purple and narrowly linear above the middle with revolute margins, 9 mm long, 3 mm wide unspread, the lateral sepals carinate-fringed, connate 6 mm into a concave, ovoid lamina 8 mm long, 5.5 mm wide expanded, the apical third of each lateral sepal occupied by a thick, well-developed, triangular cushion, 3.5 mm long, 1.5 mm wide, the obtuse apices contracted into slender, shortly spiculate, slightly decurved tails 4 mm long; petals purple, ovate, oblique, obtuse, dilated on the labellar margin, 3 mm long, 1.75 mm wide; lip bright purple, elliptical-oblong, reflexed near the middle, 3 mm long, 1.75 mm wide, shortly constricted above the middle, the disc with a pair of denticulate lamellae above the middle, the epichile ovate, rounded, serrulate, the hypochile more or less oblong, truncate; column cream, suffused with red, semiterete, slender, 3 mm long, broadly winged above the middle, with a thick foot 2.5 mm long.

PANAMA: Prov. of Veraguas: epiphytic in cloud forest on Cerro Tute, alt. 900 m, Jan. 1977, collected by R. L. Dressler, flowered in cultivation 21 Aug. 1977, *C. Luer 1820* (Holotype: SEL).

This unusual species is known only from the original collection by Dr. R. L. Dressler in 1977. It is apparently endemic in a wet forest of central Panama where it is locally abundant. Tree trunks covered by dense mats of entwining plants formed by numerous kikis are described by Dressler. The habit of a branching inflorescence and the production of plantlets from the nodes of the floral bracts is unique in the genus.

The flower of *Scaphosepalum viviparum* is distinguished by the long-fimbriate divisions of the carinae of the lateral sepals with echinate tails, and the elliptical lip with a narrow constriction above the middle.



Plate 43. *Scaphosepalum viviparum* Luer

Scaphosepalum xystra Luer, sp. nov.

Ety.: From the Greek *xystra*, "a rasp," referring to the stiff, verrucose peduncles.

Planta mediocris breviter repens, pedunculo asperulo rigido erecto foliis ellipticis multilongiore, ovario papilloso, sepalis laevibus cum caudis comparate crassis, petalis lobulatis apiculatis, labello pandurato cum lamellis fimbriatis, columna alata.

Plant medium-sized, epiphytic to terrestrial, shortly repent; roots slender. Ramicauls slender, erect, 1-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, more or less suffused with purple, 8-13 cm long including the 3-7 cm long petiole, the blade narrowly elliptical, acute, 1.5-2 cm wide, gradually narrowed below into the slender petiole. **Inflorescence** an erect, distichous, flexuous, many-flowered raceme, lax below, congested above, up to 15 cm long, borne by an erect, stout, sparsely bracted, coarsely verrucose peduncle up to 25 cm long, from low on the ramicaul; floral bracts conduplicate, oblique, narrowly obtuse, 4-5 mm long; pedicels verrucose, 2-5 mm long; ovary papillose, 4 mm long; **sepals** dull green, suffused and spotted with purple, fleshy, smooth, the middle sepal carinate, ovate and concave below the middle, 8 mm long, 3 mm wide, thickened and subclavate-linear in the distal half with revolute margins, the lateral sepals connate 5 mm into a concave, suborbicular lamina 6 mm long, 8 mm wide, with the margins minutely ciliate, each lateral sepal with an apical, subtriangular, cushion 3 mm long, 2 mm wide, with the cushions contiguous, the rounded apices abruptly contracted into comparatively thick, diverging, subverrucose tails 5 mm long; **petals**, more or less ovate, oblique, dilated on the labellar margin, obtusely angled on the opposite margin near the acute apex, 2.25 mm long, 1.75 mm wide; **lip** subpandurate, reflexed near the middle, 3 mm long, 1 mm wide, the epichile suborbicular, denticulate, the hypochile more or less oblong, the disc with a tall pair of fimbriated lamellae near the middle, the base truncate, minutely bilobulate; **column** semiterete, slender, 3 mm long, broadly triangularly winged below the middle, with a thick foot 1.5 mm long.

VENEZUELA: State of Zulia: Dist. Perijá, Campamento Frontera VI, alt. 2400 m, 23-28 July, Paul E. Berry 136 (Holotype: MO; Isotype: VEN), C. Luer illustr. 13737.

This species is apparently endemic near the Colombian border in northwestern Venezuela where it was reported as being common. It is distinguished from the other species of the genus by the tall, erect, verrucose peduncle and papillose ovary; medium-sized flowers with smooth sepals; the thick, short middle sepal; comparatively thick tails of the lateral sepals; the tall, fimbriated lamellae of the lip; and the triangularly winged column. Superficially, the habit suggests *S. lima* and the flowers suggest *S. breve*.

The illustration was made from a dried flower rehydrated in concentrated ammonia.



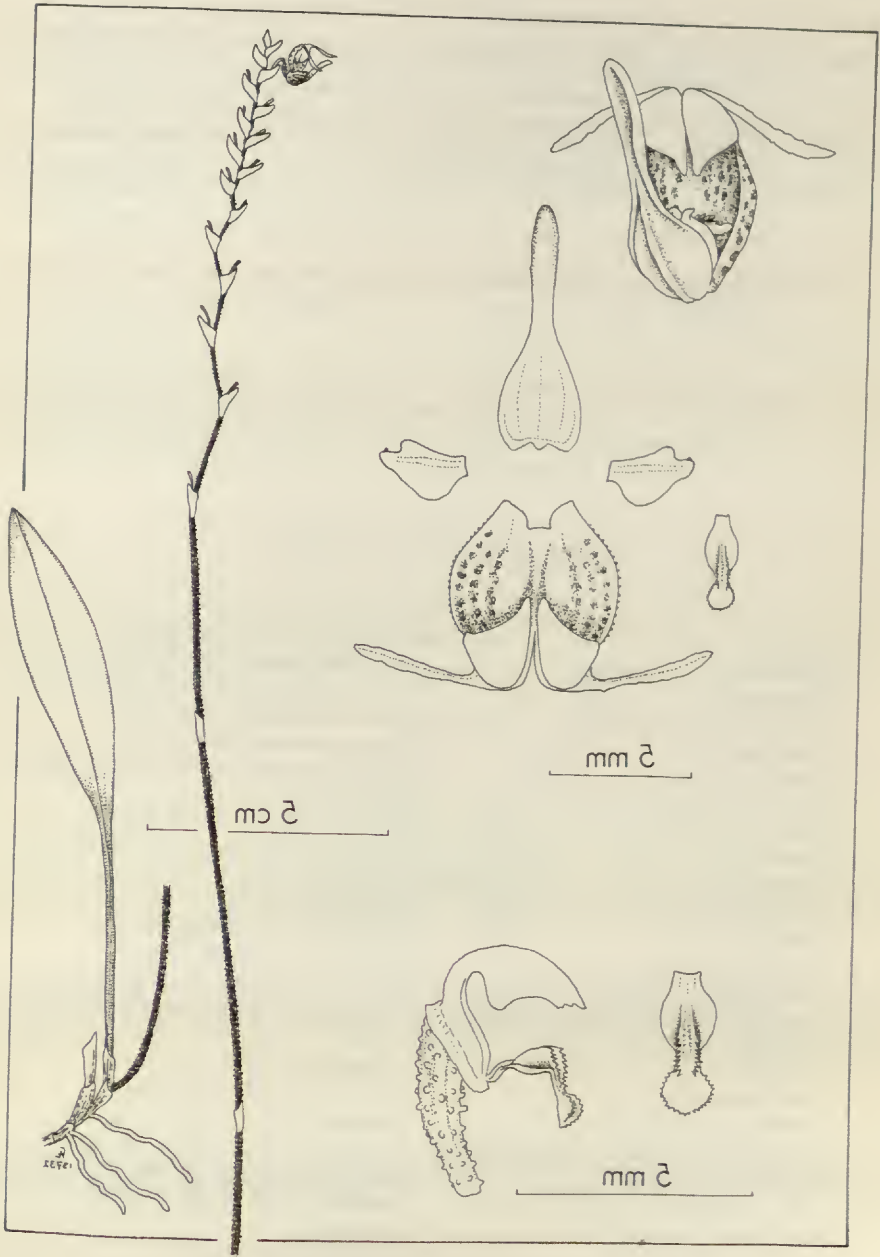


Plate 44. *Scaphosepalum xystra* Luer

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ADDENDA TO PORROGLOSSUM

The following two new species of *Porroglossum* Schltr. have been identified since the publication of *Systematics of Porroglossum* in *Icones Pleurothallidinarum* No. 4 in 1987.

***Porroglossum dactylum* Luer, sp. nov.**

Ety.: From the Greek *dactylos*, "a finger," referring to the fingerlike sepaline tails.

Species haec *P. dalstroemii* Luer similis, sed sepalorum caudis transversis longioribus et labelli lamina latiori triangulari differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 8-10 mm long, enclosed by 2-3 tubular sheaths. Leaf erect, coriaceous, petiolate, 3-6 cm long including the petiole 1-2 cm long, the blade elliptical, subacute, 8-12 mm wide, the base cuneate into the slender petiole. Inflorescence a congested, successively few-flowered raceme, the flowers non-resupinate, borne by an erect, smooth, slender peduncle 8-9 cm long, with 2-3 closely applied, distant bracts, from low on the ramicaul; floral bracts tubular, imbricating, 5 mm long; pedicel 4-5 mm long; ovary twisted, pitted, 5-6 mm long; sepals purple with or without darker purple spots, glabrous, the middle sepal obovate, deeply concave, 5 mm long, 4 mm wide unexpanded, connate to the lateral sepals for 3 mm, the obtuse apex contracted into a 1 mm thick, more or less clavate, descending tail 5.5-7 mm long, the lateral sepals transversely oblong, 5 mm long, 6 mm wide, connate to each other 3 mm behind the free apex of the column-foot, the broadly obtuse apices abruptly contracted into transverse, subclavate tails 6.5-8 mm long; petals rose with purple stripe and dots, ovate-oblong, 3.75 mm long, 1.75 mm wide, narrowed below the thickened apex, both margins with an acute process in the middle third; lip uppermost, purple with the apex white, glabrous, the blade thick, triangular, truncate, 4 mm long, 3.5 mm wide, the lateral angles rounded, the apex a short, obtuse, sulcate apiculum, the base with a low, pyramidal callus, deflexed below into a straplike claw bent with tension around the free apex of the column-foot; column stout, semiterete, 2 mm long, the foot 4 mm long, the stigma with a pair of pointed processes.

ECUADOR: Prov. of Morona-Santiago: Cordillera del Condor, collected by M. Portilla, flowered in cultivation by A. Andreetta at Paute, 16 May 1988, *C. Luer* 13385 (Holotype: MO); Cordillera del Condor east of Chuchumbleta, alt. 1650 m, 21 May 1988, *C. Luer*, *A. Hirtz*, *W. Flores*, *A. Andreetta* & *W. Teague* 13541 (MO).

This species of section *Torta*, recently discovered in the Cordillera del Condor, is similar to *P. dalstroemii* Luer, but *P. dactylum* is distinguished by the much longer, transverse, subclavate tails of the lateral sepals and a broad, triangular, glabrous blade of the lip.



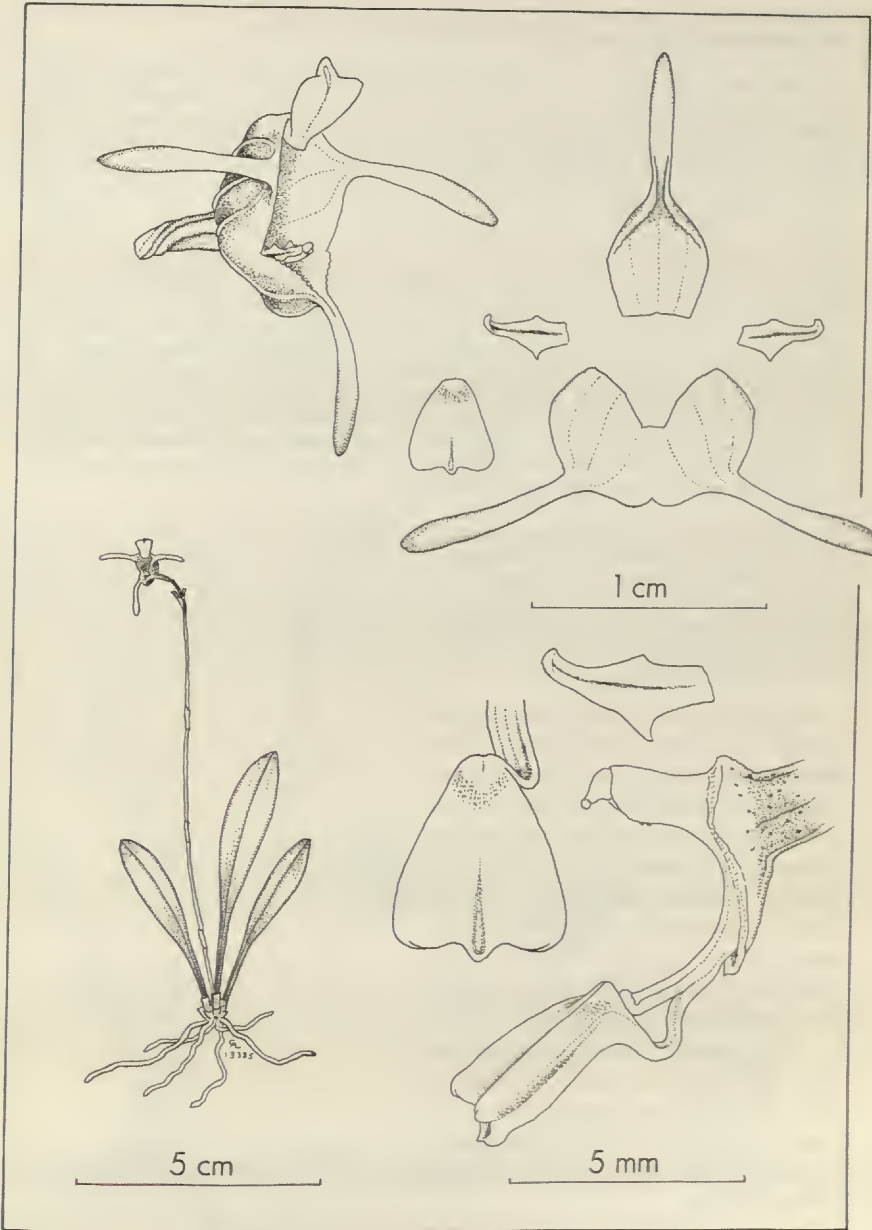


Plate 31. *Porroglossum dactylum* Luer

Porroglossum hystrix Luer, sp. nov.

Ety.: From the Latin *hystrix*, "a porcupine," referring to the bristly peduncle.

Species haec *P. echidnae* (Rchb. f) Garay similis, sed floribus minoribus, sepalorum caudis brevioribus gracilioribus et labelli callo altissimo rotundato differt.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, 1-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, lightly verrucose, petiolate, 5-10 cm long including the petiole 1.5-4 cm long, the blade narrowly elliptical to narrowly obovate, acute, 1-1.7 cm wide, gradually narrowed below into the petiole. **Inflorescence** a congested, successively few-flowered raceme, borne by an erect, densely long-pubescent peduncle 10-17 cm long, with a bract near the middle, from low on the ramicaul; floral bracts tubular, imbricating, 4-5 mm long; pedicel 5 mm long; ovary papillose, 4-5 mm long; **sepals** green with brown veins, lightly verrucose externally, the dorsal sepal transversely obovate, 5-6 mm long, 5-7 mm wide, connate to the lateral sepals for 3-4 mm to form a gaping cup, the apex obtuse, contracted into a slender, erect 7-10 cm long, the lateral sepals transversely ovate, oblique, 4-6 mm long, 5-7 mm wide, connate to each other for 2 mm to form a deep, obtuse mentum beneath the column-foot, the apices acute, contracted into slender tails 8-10 mm long; **petals** translucent tan with a purple midvein, oblong, 5 mm long, 1 mm wide, narrowed to the slightly dilated, rounded apex, the margins without an angle; **lip** white with the apex suffused with dark purple and the callus pink, the blade obovate-spathulate, 5-6 mm long, 3-4 mm wide, the obtuse apex minutely ciliate, with a shallow midline sulcus, the disc with a tall, thick, longitudinal callus, rounded anteriorly, above the straplike claw bent with tension around the free apex of the column-foot; **column** stout, semiterete, 3 mm long, the stout foot 8 mm long.

ECUADOR: Prov. of Morona-Santiago: Valle del Paute, alt. 2200 m, collected by A. Andreetta & M. Portilla, flowered in cultivation at Paute, 16 May 1988, *C. Luer 13384* (Holotype: MO); above Limón, alt. 1000 m, 1972, collected by W. Teague, flowered in cultivation 12 Dec. 1978, *C. Luer 3630* (SEL).

Although this species of section *Echidna* seemed to have affinities with both *P. echidna* and *P. muscosum*, in *Systematics of Porroglossum* it was included in *P. muscosum* and an illustration (Plate 16) was used to show what was believed to be an acceptable variation within *P. muscosum*. Recently, however, more living plants of this taxon have been examined, and it is now apparent that specific differences exist.

The smaller flowers with slender tails distinguish it from *P. echidna*, and the verrucose sepals separate it from *M. muscosum*. From both species it is distinguished by the tall, rounded callus of the lip.



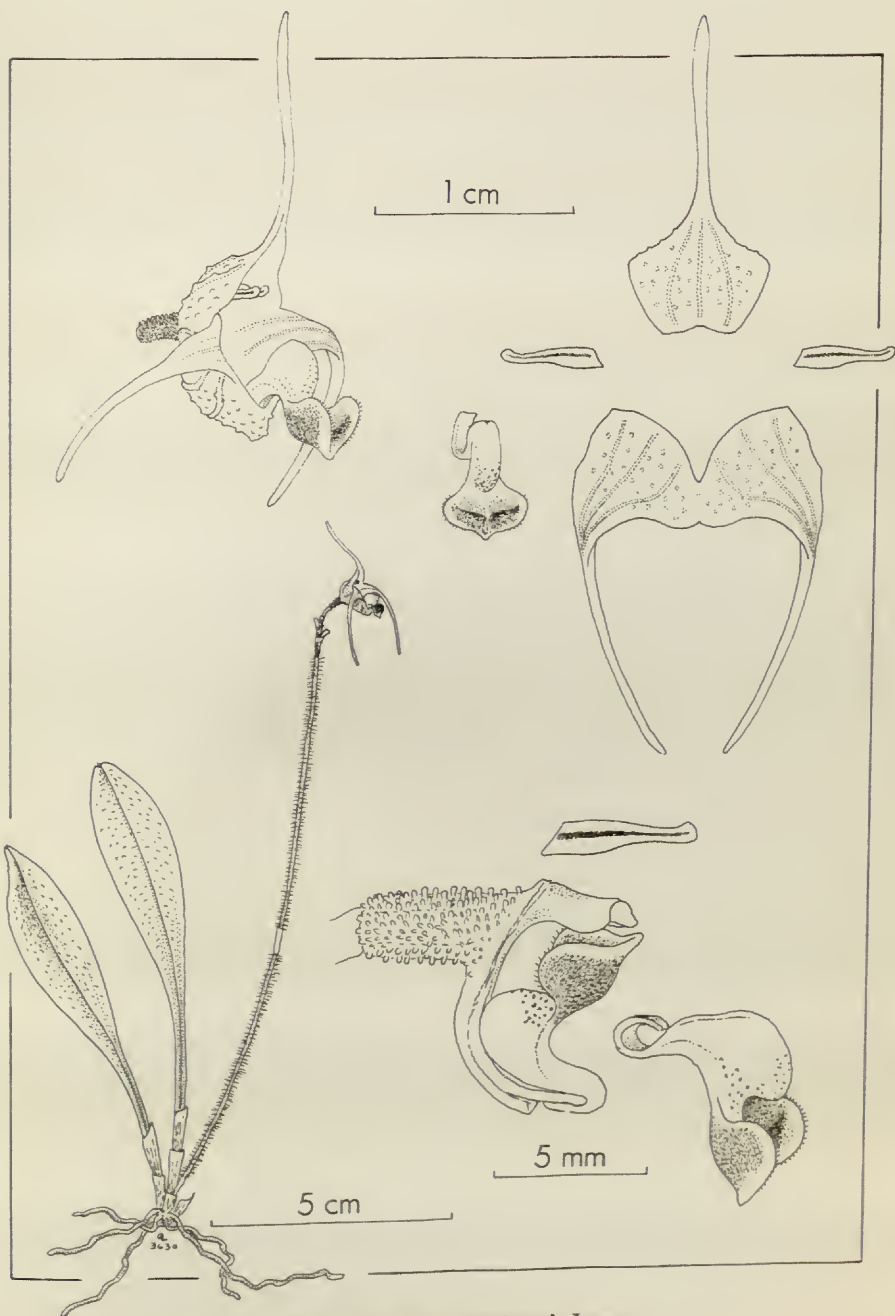


Plate 16. *Porroglossum hystrix* Luer

