

ce

REF  
QK1  
.M833  
1994  
v.52  
c.3

ICONES PLEUROTHALLIDINARUM  
XI  
SYSTEMATICS  
OF  
LEPANTHES  
SUBGENUS **BRACHYCLADIUM**  
AND  
PLEUROTHALLIS  
SUBGENUS **AENIGMA**  
SUBGENUS **ELONGATIA**  
SUBGENUS **KRAENZLINELLA**

ADDENDA TO DRACULA, LEPANTHOPSIS, MYOXANTHUS,  
PLATYSTELE, PORROGLOSSUM AND TRISETELLA

(ORCHIDACEAE)

REF  
QK1  
.M833  
1994  
v.52  
c.3

Digitized



Missouri Botanical Garden





ICONES PNEUROTALLONARUM

XI

SYSTEMATICS

OF

EPANTHUS

BRACHYCLADUS

PLANTAGINACEAE

BY J. H. H. H. H.

NEW YORK

1911

THE NEW YORK BOTANICAL GARDEN

HERBARIUM

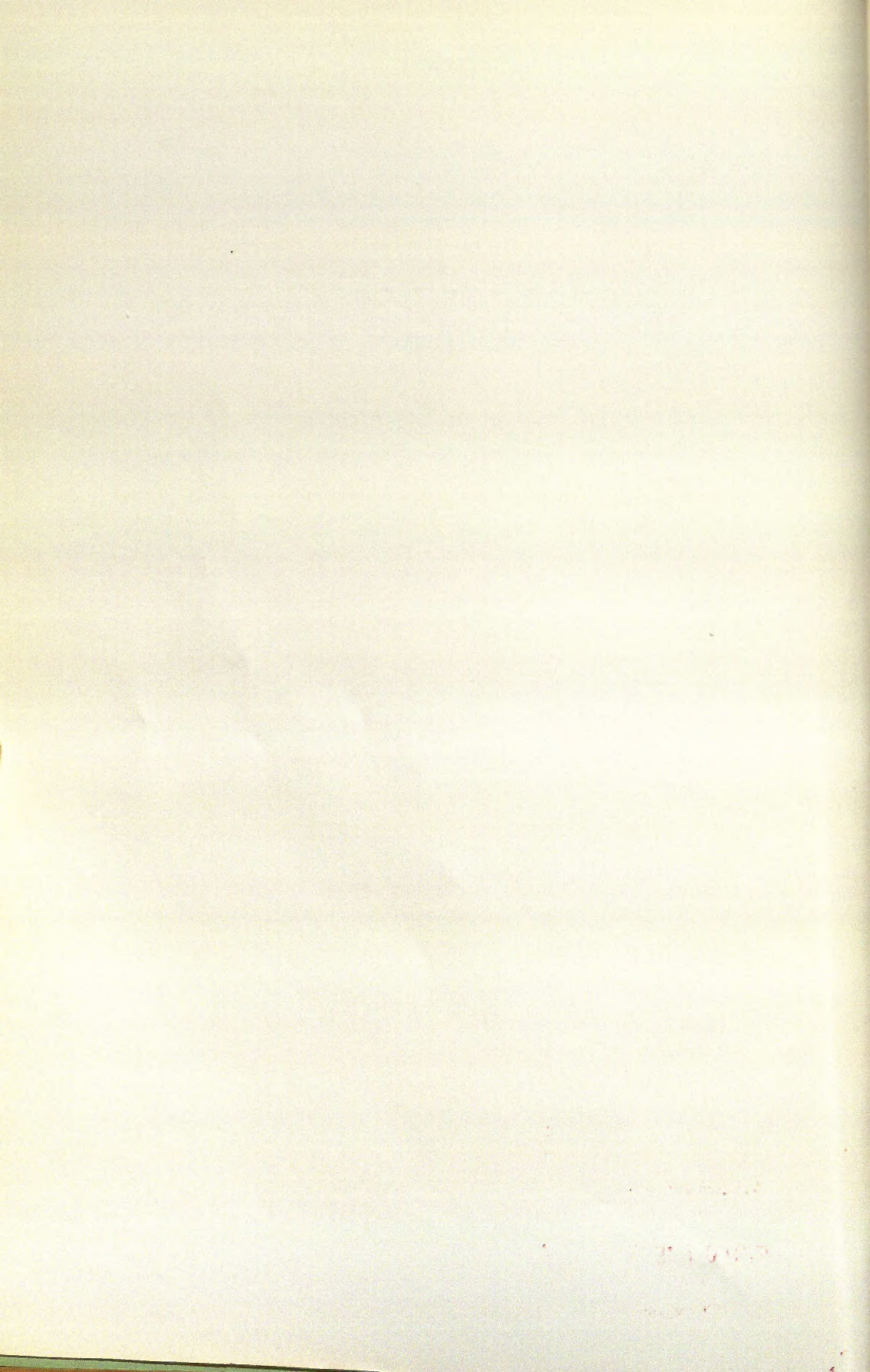
NEW YORK

1911

THE NEW YORK BOTANICAL GARDEN

HERBARIUM







REF  
QK1  
.M833  
1994  
v.52  
c.3

ICONES PLEUROTHALLIDINARUM  
XI  
SYSTEMATICS  
OF  
LEPANTHES  
SUBGENUS BRACHYCLADIUM  
AND  
PLEUROTHALLIS  
SUBGENUS AENIGMA  
SUBGENUS ELONGATIA  
SUBGENUS KRAENZLINELLA

ADDENDA TO DRACULA, LEPANTHOPSIS, MYOXANTHUS,  
PLATYSTELE, PORROGLOSSUM AND TRISETELLA

Carlyle A. Luer



MISSOURI BOTANICAL

Missouri Botanical Garden

FEB 07 1995

GARDEN LIBRARY



MONOGRAPHS IN SYSTEMATIC BOTANY  
FROM THE MISSOURI BOTANICAL GARDEN

Volume 52

Published in December 1994 in an edition  
of 500 copies.

ISSN 0161-1542  
ISBN 0-915279-29-0

Carlyle A. Luer  
3222 Old Oak Drive  
Sarasota, FL 34239

SERIES EDITOR  
Marshall R. Crosby

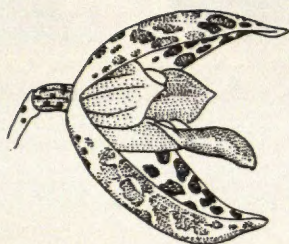
MANAGING EDITOR  
Amy Scheuler McPherson

EDITORIAL ASSISTANT  
Diana Gunter

PUBLICATIONS STAFF  
Magdalen Lampe  
Robin Bruce

Copyright © 1994 by Missouri Botanical Garden  
All rights reserved  
Printed in the U.S.A. by Arcade Lithographing Corp.,  
Bradenton, FL  
Composed at 3222 Old Oak Drive, Sarasota, Florida  
with WordStar 7.0  
Typeset with a Texas Instruments microLaser Plus





## CONTENTS

<i>Lepanthes erepsis</i> .....	Frontispiece
Systematics of <i>Lepanthes</i> subgenus <i>Brachycladium</i> .....	1-50
Systematics of <i>Pleurothallis</i> subgenus <i>Aenigma</i> .....	51-68
Systematics of <i>Pleurothallis</i> subgenus <i>Elongatia</i> .....	69-88
Systematics of <i>Pleurothallis</i> subgenus <i>Kraenzlinella</i> .....	89-110
Addenda.....	111
Addenda to <i>Dracula</i> .....	112-115
Addenda to <i>Lepanthopsis</i> .....	116-119
Addendum to <i>Myoxanthus</i> .....	120
Addenda to <i>Platystele</i> .....	121-133
Addendum to <i>Porroglossum</i> .....	134-135
Addendum to <i>Trisetella</i> .....	136-137





*Lepanthes erepsis* Luer & Hirtz, Ecuador, Province of Zamora-Chinchi, pendent in mossy forest above Yangana, altitude 2450 meters above sea level, 23 Mar. 1985, photo by Alexander Hirtz 2371.



# SYSTEMATICS OF THE SUBGENUS *BRACHYCLADIUM* GENUS *LEPANTHES* (ORCHIDACEAE)

## ABSTRACT

A history of subgenus *Brachycladium* Luer of *Lepanthes* Sw. is given and the subgenus is described. A key to the species is given. Each species is described and illustrated with a black and white drawing. A distribution map is included for each species.

### New taxa:

- Lepanthes* subgen. *Brachycladium* sect. *Amplectentes* Luer, sect. nov.
- Lepanthes* subgen. *Brachycladium* sect. *Bilamellatae* Luer, sect. nov.
- Lepanthes cardiophylla* Luer & Escobar, sp. nov.
- Lepanthes ciliaris* Luer & Hirtz, sp. nov.
- Lepanthes composita* Luer & Escobar, sp. nov.
- Lepanthes irritata* Luer & Escobar, sp. nov.
- Lepanthes lunaris* Luer, sp. nov.
- Lepanthes pholeter* Luer, sp. nov.
- Lepanthes platysepala* Luer & Escobar, sp. nov.
- Lepanthes ricii* Luer & Vásquez, sp. nov.
- Lepanthes triangularis* Luer, sp. nov.
- Lepanthes ursula* Luer & Escobar, sp. nov.

Professor Reichenbach described the first species of this subgenus in 1856 as *Lepanthes nummularia* from a collection by Dr. Jameson near Quito, Ecuador. Simultaneously he proposed the section *Brachycladae* to accommodate the unusual habit of the species with "secondary stems" shorter than the "primary stems" (i.e. ramicauls shorter than the rhizomes). In contrast, the other section he erected was *Macrocladae*, named for the "long stems" which included all the other species of *Lepanthes* known at that time.

Thirty years later, Reichenbach added the next two epithets referable to this subgenus when he described side by side in 1886 the inseparable *L. pilosella* and *L. dasyphylla* from Colombian collections by Consul Lehmann. The next description would not be until 1920 when Schlechter added another name, *L. peperomioides*, for the same frequent and variable species. The third new species, *L. pseudocaulis*, was described in 1934 by Smith and Harris when they also redescribed the two common species *L. nummularia* and *L. pilosella*.

The subgenus is well-defined by the long-repent, more or less pendent habit. The creeping rhizomes, either ascending or descending are produced by individual segments only a few millimeters long, each of which produces a short ramicaul commonly only one millimeter long. The little leaves appear alternating, often overlapping, as the chain of rhizomes continues to elongate, often reaching 30 to 40 centimeters in length, sometimes reaching nearly a meter in length. Each individual rhizomes is enclosed by two or three, commonly long-spiculate sheaths with dilated ostia, while the ramicaul is usually clad in only one. No species of *Lepanthes* with a habit intermediate between this repent habit and a caespitose habit is known.

The leaves are small, coriaceous, and elliptical to suborbicular. The apex is prominently notched with a central mucro. The size of the leaves of some species varies considerably. The leaves vary from being totally glabrous to ciliate, or pubescent. In one widely distributed species, *L. pilosella*, glabrous to densely long-pubescent leaves are found in various regions of its range, while the flowers are indistinguishable.



The flowers of the subgenus are produced successively in few-flowered racemes, although the inflorescence often ceases after producing only one flower in several species. The flowers are resupinate with the unpaired sepal often larger than the combined lateral sepals. The dorsal sepal varies from convex to concave and the number of veins varies from three to nine. The lateral sepals vary from being totally connate to widely spread.

The petals are often longer than broad, a rare finding in the caespitose subgenus, but transversely bilobed petals similar to those of the other subgenus also occur. In a few species the size of the petals is remarkably reduced, sometimes as minute as 0.15 millimeter long and broad.

The lip is extremely variable as it is in subgenus *Lepanthes*, and it is also variable within widely distributed species. It is connate to the base of the footless column. The column also varies as it does in subgenus *Lepanthes*. The anther is either dorsal or apical while the stigma is either apical or ventral.

Today, the subgenus *Brachycladium* contains 24 known species widely distributed in the Andes from the Eastern Cordillera of Colombia into Bolivia. None has yet been identified from Central America, Venezuela or Brazil. The species are usually found trailing in damp moss or from the lower branches of well-shaded trees in wet, virgin forests at altitudes usually over 2000 meters above sea level. Occasionally plants are found on wet, mossy road embankments.

***Lepanthes* subgen. *Brachycladium* Luer, Monogr. Syst. Bot. 15: 31, 1986.**

Ety.: From the Greek *brachyclados*, "a short branch," referring to the short ramicauls.

Type: *Lepanthes nummularia* Rchb.f., *Xenia* Orchidaceae 1: 142, 1856.

Syn.: *Lepanthes* sect. *Brachycladae* Rchb.f., *Xenia* Orchidaceae 1: 142, 1856, as *Brachyclada*.

Syn.: *Lepanthes* sect. *Cauliscentes* Garay, *Canad. J. Bot.* 34: 252, 1956, nomen nudum.

**Plants** perennial, very small to small, but sometimes accumulating into large, entangled masses, weak to robust, epiphytic and pendent to terrestrial and repent, the chain of rhizomes progressively elongating, occasionally branching, with distichous, sometimes overlapping leaves, the segments relatively short between aerial stems (ramicauls), enclosed by 2 tubular, more or less ciliate sheaths usually with dilated ostia; roots slender, appearing from near the base, or from nodes on the rhizome. Ramicauls abbreviated, ascending to erect, unifoliate, enclosed by a single sheath similar to those of the rhizome the inflorescence emerging laterally with an annular ring (annulus) from near the apex (the leaf-stem abscission layer). **Leaf** descending, more or less pendent, coriaceous, sometimes thickly coriaceous, glabrous to ciliate to densely long-pubescent, green or dark green, sometimes suffused or veined with purple, suborbicular, elliptical to narrowly elliptical, the apex acute, obtuse to rounded, shallowly notched with a mucro in the sinus, the base contracted into a short petiole. **Inflorescence** a congested, successively few-flowered raceme, occasionally reduced to a single flower, borne by a short peduncle, usually ascending, but sometimes reclining upon the leaf, from an indistinct annulus on the short ramicaul, the flowers resupinate; floral bract and pedicel short and inconspicuous; ovary smooth to pubescent or spiculate, trivalvate; **sepals** conspicuous, membranous, variously colored, smooth, ciliate, denticulate, or pubescent, the dorsal sepal erect, acute to obtuse, tailless, the lateral sepals free or connate into a synsepal; **petals** usually small and inconspicuous, triangular, linear-oblong, trifid or bifid, or transversely bilobed, often minutely ciliate or pubescent; **lip** small, usually transverse when expanded, more or less cordate or oblong, with the sides clasping or enveloping the column, rarely bilaminate with an appendix as in subgenus *Lepanthes*, or rarely greatly reduced in size beneath the column; the base connate to the base of the column; **column** terete, short, the anther dorsal or apical, the rostellum apical, and the stigma apical or ventral, anther cap deciduous, 2-celled, the pollinia 2, yellow, clavate-pyriform, attached to a detachable viscidium.

Vegetatively all the species are basically similar. They are divided into sections by the morphology of the flowers. First, the lip, then the sepals determine the sections. *Lepanthes stalactites* with a bilaminate lip and an appendix, and *L. nummularia* with the minute lip hidden beneath the column are segregated into monotypic sections. The other species, too closely allied to suggest separating, are included in the third section.

**Lepanthes subgen. Brachycladium sect. Brachycladae Rchb.f.**

Type: *Lepanthes nummularia* Rchb.f.

This monotypic section is characterized by a successively flowered raceme of very small flowers borne on top of the leaf. The minute lip is hidden beneath the column. The lip is pubescent, broadly ovate and concave with a transverse callus more or less filling the cavity.

**Lepanthes subgen. Brachycladium sect. Bilamellatae Luer, sect. nov.**

Type: *Lepanthes stalactites* Luer & Hirtz, Lindleyana 2: 105, 1987.

Ety.: From the Latin *bilaminatus*, "bilaminate," referring to the blades of the lip.

Labellum bilaminatum.

This monotypic section is characterized by a successively flowered raceme of small flowers borne on top of the leaf, similar in habit to *L. nummularia*. The lip is bilaminate with an appendix, similar to those present in subgenus *Lepanthes*.

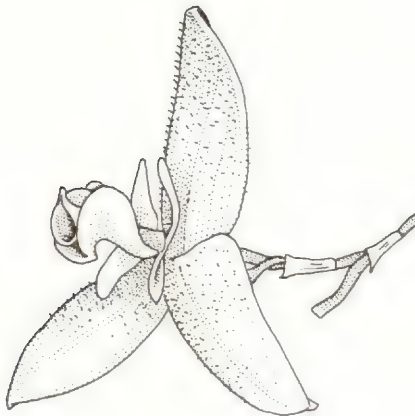
**Lepanthes subgen. Brachycladium sect. Amplectentes Luer, sect. nov.**

Type: *Lepanthes pilosella* Rchb.f., Flora 69: 556, 1886.

Ety.: From the Latin *amplectens*, "clasping," referring to the lip that embraces the column.

Labellum columnam amplectens.

This section contains all the species of the genus except for two that are segregated into monotypic sections. This section is characterized successive flowers that are held above the leaf by a short but ascending peduncle, and a the lip with incurved sides that more or less encircle or embrace the column.





KEY TO THE SECTIONS AND SPECIES  
OF SUBGENUS *BRACHYCLADIUM*

- 1 Inflorescence reclining, borne upon the surface of the leaf .....2  
 1' Inflorescence ascending, borne above the surface of the leaf .....3
- Section *Bilaminatae*
- 2 Lip bilaminate with an appendix.....*L. stalactites*
- Section *Brachycladae*
- 2' Lip minute, concealed beneath the column, not bilaminate.....*L. nummularia*
- Section *Amplectentes*
- 3 Dorsal sepal 3-veined .....4  
 3' Dorsal sepal 5-, 7-, or 9-veined .....16
- 4 Petals trifurcate.....*L. dactyla*  
 4' Petals entire or bilobed.....5
- 5 Petals transverse .....6  
 5' Petals not transverse .....10
- 6 Lip long-ciliate .....7  
 6' Lip glabrous to microscopically pubescent .....8
- 7 Sepals glabrous.....*L. monilia*  
 7' Sepals long-ciliate-pubescent .....*L. ciliaris*
- 8 Lip transverse when expanded, without basal lobes.....*L. pendens*  
 8' Lip subcordate with basal lobes .....9
- 9 Sepals deeply connate; petals crescent-shaped and glabrous.....*L. lunaris*  
 9' Sepals shallowly connate; petals pubescent.....*L. pseudocaulescens*
- 10 Petals narrowly elongate.....11  
 10' Petals not narrowly elongate .....12
- 11 Sepals connate below the middle; petals long-ciliate.....*L. ricii*  
 11' Sepals connate into a concave synsepal; petals glabrous.....*L. pholeter*
- 12 Petals microscopic .....13  
 12' Petals ovate, unguiculate.....16
- 13 Lateral sepals free, transversely spreading; lip obovate.....*L. destituta*  
 13' Lateral sepals connate basally; lip subcordate.....14
- 14 Sepals obtuse, glabrous; lip glabrous.....*L. micropetala*  
 14' Sepals subacute, pubescent; lip pubescent .....15
- 15 Sepals denticulate; lip deeply cordate.....*L. lupula*  
 15' Sepals finely pubescent, not denticulate; lip shallowly cordate.....*L. irrasa*
- 16 Dorsal sepal ciliate; petals less than 1 mm long.....*L. catella*  
 16' Dorsal sepal glabrous; petals more than 2 mm long.....*L. hippocrepica*

- 17 Dorsal sepal orbicular, deeply concave .....18  
 17' Dorsal sepal erect, obovate, flat to shallowly concave.....21
- 18 Dorsal sepal 9-veined; petals with acute, basal lobes.....*L. erepsis*  
 18' Dorsal sepal 5- to 7-veined; petals not with acute, basal lobes.....19
- 19 Petals long-villous ..... *L. villosa*  
 19' Petals glabrous .....20
- 20 Dorsal sepal 9 mm long, long-pubescent externally.....*L. ursula*  
 20' Dorsal sepal 5-7 mm long, glabrous externally.....*L. pilosella*
- 21 Lip transverse, more or less truncate.....*L. platysepala*  
 21' Lip cordate, acute at the apex.....22
- 22 Petals sagittate, bilobed at the base, glabrous.....*L. cardiochila*  
 22' Petals ovate, ciliate ..... *L. composita*

LIST OF ILLUSTRATIONS AND EPITHETS  
 REFERRABLE TO SUBGENUS *BRACHYCLADIUM*

- Lepanthes cardiochila* Luer & Escobar .....Plate 1.  
*Lepanthes catella* Luer & Escobar .....Plate 2.  
*Lepanthes ciliaris* Luer & Hirtz .....Plate 3.  
*Lepanthes composita* Luer & Escobar .....Plate 4.  
*Lepanthes dactyla* Garay .....Plate 5.  
*Lepanthes dasyphylla* Rchb.f. = *Lepanthes pilosella*  
*Lepanthes destituta* Luer & Escobar .....Plate 6.  
*Lepanthes erepsis* Luer & Hirtz .....Plate 7.  
*Lepanthes hippocrepica* Luer & Escobar .....Plate 8.  
*Lepanthes irrasa* Luer & Escobar .....Plate 9.  
*Lepanthes lunaris* Luer .....Plate 10.  
*Lepanthes lupula* Luer & Hirtz .....Plate 11.  
*Lepanthes micropetala* L.O. Williams .....Plate 12.  
*Lepanthes monilia* Luer & Escobar .....Plate 13.  
*Lepanthes nummularia* Rchb.f. ....Plate 14., 15.  
*Lepanthes ospinae* Garay = *Lepanthes nummularia*  
*Lepanthes palmaritoënsis* Garay = *Lepanthes pilosella*  
*Lepanthes pendens* Garay.....Plate 16.  
*Lepanthes peperomioides* Schltr. = *Lepanthes pilosella*  
*Lepanthes pholeter* Luer .....Plate 17.  
*Lepanthes pilosella* Rchb.f. ....Plate 18.  
*Lepanthes platysepala* Luer & Escobar .....Plate 19.  
*Lepanthes polygonoides* L. B. Smith & Harris = *Lepanthes nummularia*  
*Lepanthes pseudocaulescens* L. B. Smith & Harris.....Plate 20.  
*Lepanthes ricii* Luer & Vásquez .....Plate 21.  
*Lepanthes saccosepala* L. B. Smith & Harris = *Lepanthes pilosella*  
*Lepanthes stalactites* Luer & Hirtz .....Plate 22.  
*Lepanthes triangularis* Luer .....Plate 23.  
*Lepanthes ursula* Luer & Escobar .....Plate 24.  
*Lepanthes villosa* Løjtnant .....Plate 25.



***Lepanthes cardiochila* Luer & Escobar, sp. nov.**

Ety.: From the Greek *cardiocheilos*, "a heart-shaped lip," in reference to the labellum.

Species haec *L. pilosellae* Rchb.f. affinis, sed sepalo postico erecto plano late obovato, petalis obscure trilobatis, et labello cordato cum lobis basalibus columnam amplectentibus differt.

**Plant** average in size for the subgenus, epiphytic, pendent, with branches up to 20 cm long or longer, the rhizomes slender, 4-5 mm long between ramicauls, enclosed by 2 long-spiculate, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls 0.5 mm long, concealed by 1 long-ciliate, lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, lightly concave, sparsely short-ciliate, broadly ovate-subcordate, obtuse, 7-9 mm long, 6-8 mm wide, 5-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a loose, successively few-flowered raceme, 3-4 mm long, borne by an ascending peduncle ca. 1 mm long from near the apex of a ramicaul; floral bract long-spiculate, 1.5 mm long; pedicel 1.5-2 mm long; ovary minutely verrucose, 1.5 mm long; **sepals** color unknown, membranous, the dorsal sepal erect, broadly obovate, obtuse, 4.5 mm long, 3.5 mm wide, 5-(7)-veined, connate to the lateral sepals for less than 1 mm, the lateral sepals cellular glandular, connate 3 mm into an ovate, acute, shortly bifid synsepal, 5 mm long, 3.75 mm wide, 4-veined; **petals** obscurely triangularly trilobed, 1.5 mm long, 1.5 mm wide, the lobes triangular, obtuse; **lip** glabrous, deeply cordate, acute, 1.75 mm long, 2.5 mm wide expanded, with the basal lobes rounded, surrounding the column, the base connate to the base of the column; column 2 mm long, with the anther and the stigma apical.

COLOMBIA: Dept. of Risaralda: epiphytic in forest remnant above Pereira, alt. ca. 2000 m, collected by A. DeWilde, flowered in cultivation by A. DeWilde, 10 May 1993, C. Luer 16773 (Holotype: MO).

Superficially, this species is similar to *L. pilosella* and its relatives, but the leaves are more or less cordate in outline, slightly concave, and only slightly ciliate on the margins. The sheaths are long-spiculate. The inflorescence is a short, ascending, successively-flowered raceme. The flat dorsal sepal stands erect, the synsepal is ovate and shortly bifid, and the petals are sagittate, lobed at the base. The lip is deeply cordate with the basal lobes enveloping the column and with the acute apex beneath the column.

***Lepanthes catella* Luer & Escobar, Orquideología 16: 10, 1983.**

Ety.: From the Latin *catella*, "a little chain," in allusion to neat rows of leaves in a pendent chain.

**Plant** small, epiphytic, pendent, with branches up to 30 cm long, the rhizomes slender, 3-4 mm long between ramicauls, enclosed by 2 long-ciliate, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls 1 mm long, concealed by 1 similar lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, ciliate, broadly elliptical, obtuse, 5-6 mm long, 2.3 mm wide, 3-veined, the base rounded, contracted into a petiole less than 1 mm long. **Inflorescence** a single flower, borne by an ascending peduncle 2 mm long from near the apex of a ramicaul; floral bract pubescent, 1 mm long; pedicel 1.5 mm long; ovary spiculate, 0.5 mm long; **sepals** light yellow, sparsely pubescent externally, marginate, the dorsal broadly elliptical, obtuse, apiculate, 3.5 mm long, 2.3 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals ovate, oblique, subacute, apiculate, 3 mm long, 2.1 mm wide, connate 0.5 mm, 2-veined; **petals** dark purple, pubescent, ovate, obtuse, 0.75 mm long, 0.5 mm wide, shortly unguiculate at the base; **lip** dark purple, subcordate-reniform, shortly pubescent, 1.5 mm long, 2 mm wide expanded, the basal lobes obtuse, embracing the column, the apex broadly rounded, the base connate to the base of the column; column 1 mm long, the anther and the stigma apical.

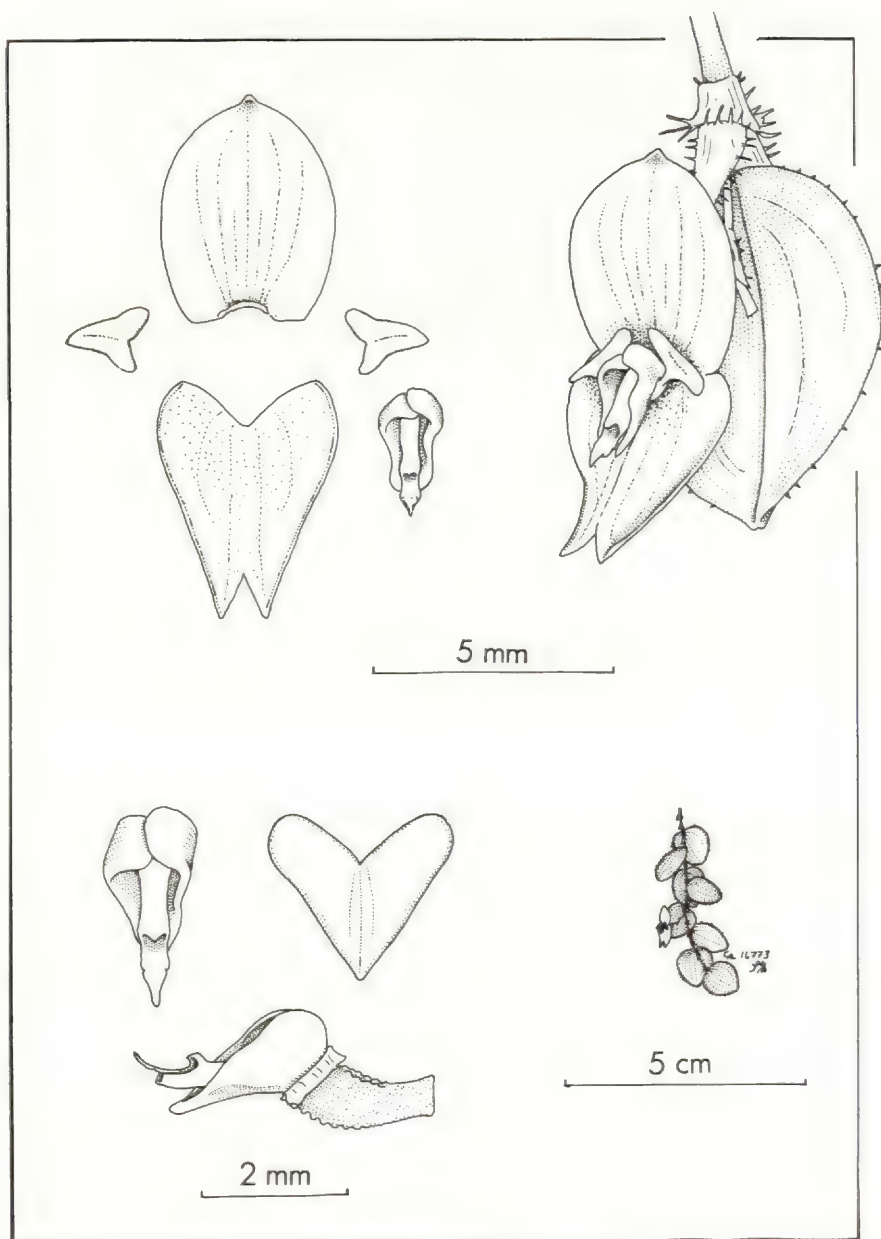


Plate 1. *Lepanthes cardiochila* Luer & Escobar



COLOMBIA: Dept. of Boyacá: epiphytic in wet forest between Arcabuco and Moniquirá, alt. 2500 m, 26 Apr. 1982, C. Luer, J. Luer, R. Escobar & D. Portillo 7554 (Holotype: SEL).

This species is known only from the Eastern Cordillera of Colombia where it occurs with other members of the subgenus (*L. nummularia*, *L. pendens* and *L. pilosella*). Vegetatively, it is distinguished by the ciliate leaves; a successive, few-flowered raceme, broad, apiculate, ciliate sepals; small, ovate, pubescent petals less than one millimeter long; and a minutely pubescent, subcordate lip with basal lobes that surround the column.



***Lepanthes ciliaris* Luer & Hirtz, sp. nov.**

Ety.: From the Latin *ciliaris*, "with cilia," referring to the long-ciliate floral parts.

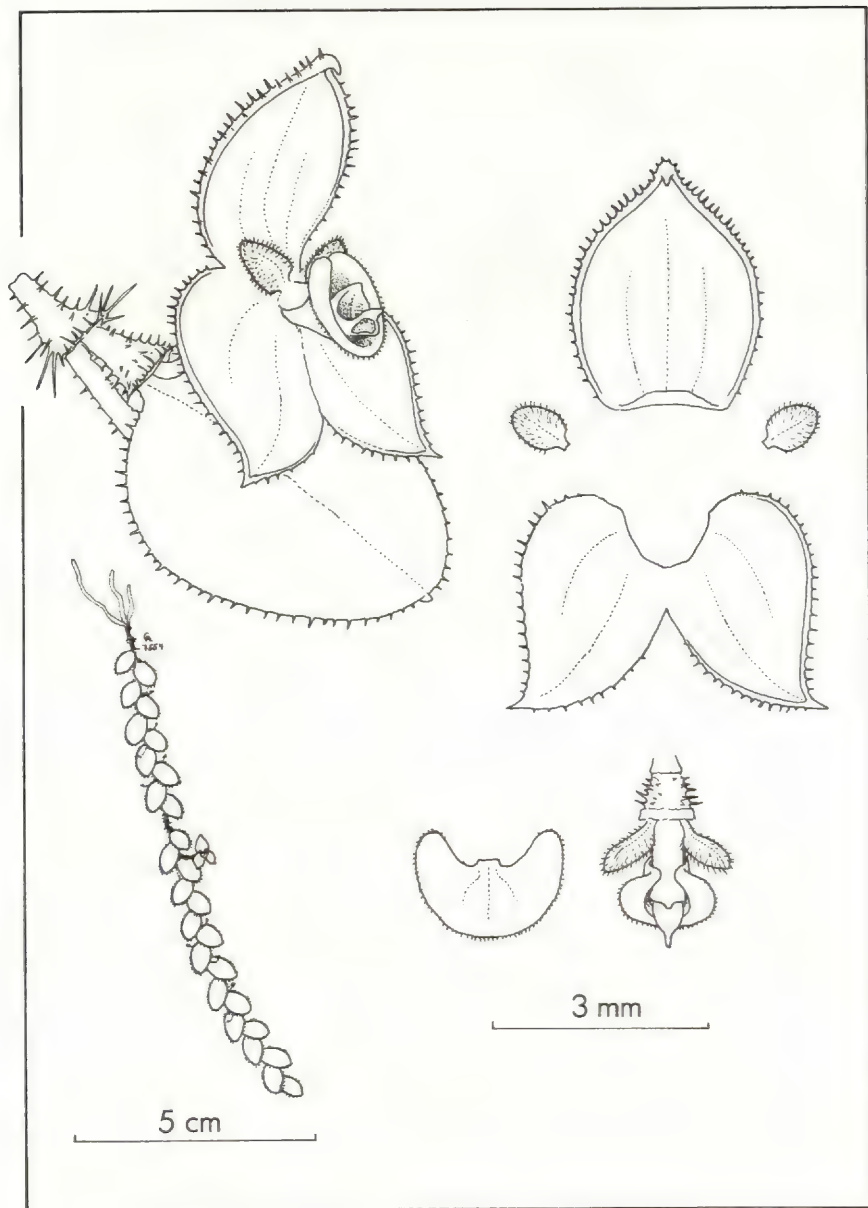
Species haec *L. moniliae* Luer & Escobar affinis, sed foliis glabris, floribus parvis albis, sepalis obtusis ciliatis pubescentibusque et petalis minoribus lunatisque differt.

**Plant** small for the subgenus *Brachycladium*, epiphytic, pendent, up to 20 cm long or longer, the rhizome slender, 3 mm long between ramicauls, enclosed by 2-3 loose, infundibular, long-ciliate sheaths, roots slender at the base. Ramicauls slender, 1-3 mm long, enclosed by 2 infundibular, ciliate, sheaths. Leaves pendent, distichous, thickly coriaceous, glabrous, elliptical, subacute, the blade 5-6 mm long, 4 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a raceme of 2 to 4 white flowers, up to 8 mm long, including the peduncle ca. 3 mm long, borne on top of the leaf; floral bracts 0.75 mm long; pedicels 1.75 mm long; ovary 1 mm long, cellular-pubescent; **sepals** long-ciliate, pubescent, the dorsal transversely ovate, obtuse, 1.8 mm long, 2 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals diverging, elliptical, obtuse, apiculate, 1.8 mm long, 1.4 mm wide, 2-veined, connate 0.5 mm; **petals** transversely bilobed or lunate, long-ciliate, pubescent, 0.2 mm long, 0.8 mm wide, the lobes equal, triangular, incurved with the apices narrowly rounded; **lip** white, long-ciliate, pubescent, cordate, 1 mm long, 1 mm wide expanded, the apex broadly rounded, the basal angles rounded, embracing the column, the body connate to the base of the column by a slender claw; **column** terete, 1 mm long, the anther dorsal, the stigma apical.

ECUADOR: Prov. of Napo: epiphytic forest on the western flank of Volcán Reventador, alt. 1550 m, Apr. 1986, A. Hirtz 2887 (Holotype: MO), C. Luer illustr. 14699. Prov. of Sucumbios: between El Carmelo and La Bonita, alt. 2000 m, Aug. 1990, A. Hirtz, X. Hirtz, J. Del Hierro & F. Sarmiento 4967 (MO).

This species is apparently endemic on the eastern slopes of the Andes of north-eastern Ecuador. *Lepanthes ciliaris* is distinguished by the small habit with glabrous leaves; short, ascending, successively-flowered racemes of small, white flowers with long-ciliate and pubescent floral parts; broadly ovate sepals; very small, lunate petals; and a cordate lip with the sides embracing the column.



Plate 2. *Lepanthes catella* Luer & Escobar



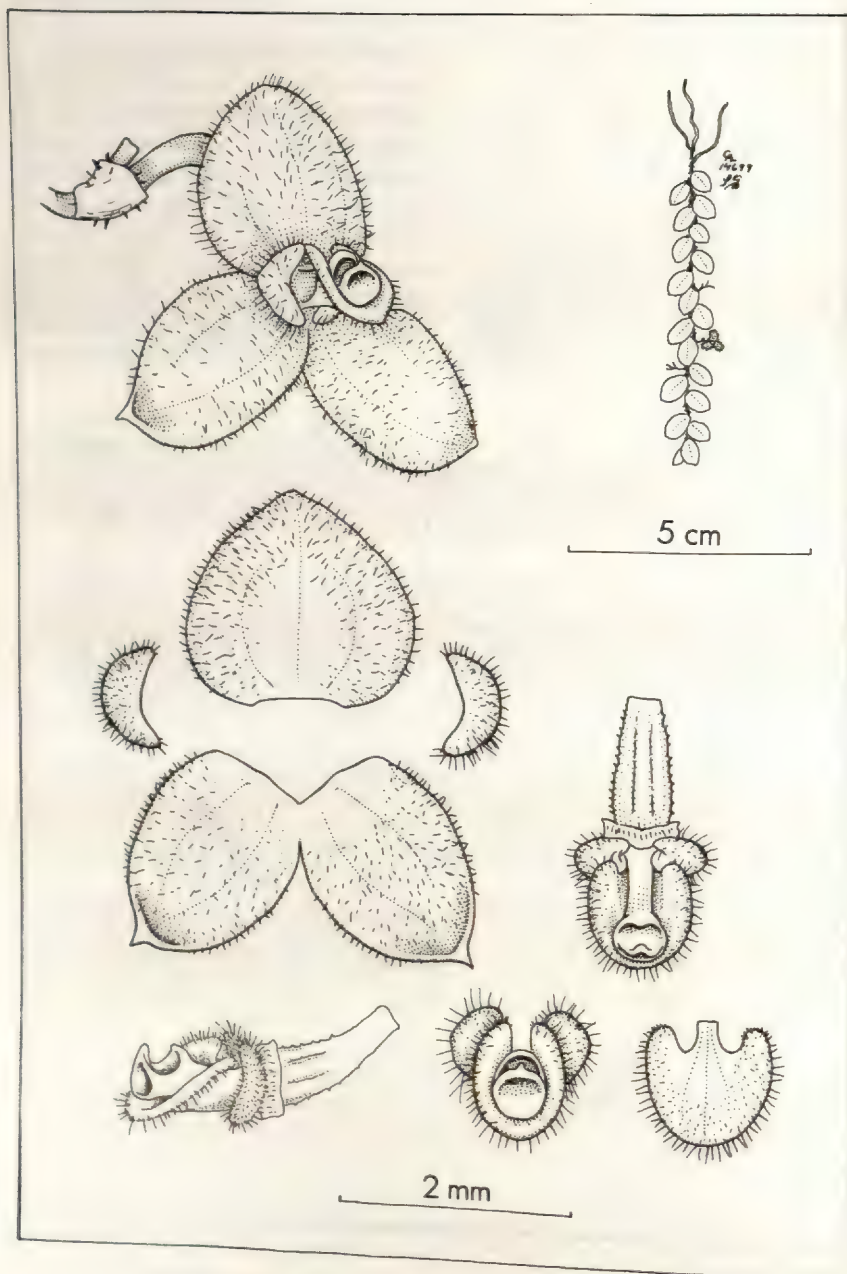


Plate 3. *Lepadites ciliaris* Luer & Hirtz

***Lepanthes composita* Luer & Escobar, sp. nov.**

Ety.: From the Latin *compositus*, "of different parts," in allusion to the similarity of certain floral parts to those of other species.

Species haec *L. pilosellae* Rchb.f. affinis, sed sepalò postico erecto late obovato truncato non concavo et labelli lobo anteriore deflexo distinguitur.

**Plant** average in size for the subgenus, epiphytic, pendent, with branches up to 20 cm long or longer, the rhizomes slender, 2-3 mm long between ramicauls, enclosed by 2 long-ciliate, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls 0.5 mm long, concealed by 1 long-ciliate, lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, lenticiform, long-pubescent, broadly elliptical, obtuse, 7-8 mm long, 5-8 mm wide, 3-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a single flower, borne by an ascending peduncle 1 mm long from near the apex of a ramicaul; floral bract long-ciliate, 1 mm long; pedicel 1 mm long; ovary minutely verrucose, 1 mm long; **sepals** color unknown, membranous, glabrous, the dorsal sepal broadly obovate, erect, subtruncate, 6 mm long, 5 mm wide, 5-veined, essentially free from the lateral sepals, the lateral sepals ovate, oblique, subacute, 4.5 mm long, 3 mm wide, connate 1.25 mm, 2-veined; **petals** ciliate, obliquely triangular-ovate, 1.5 mm long, 0.75 mm wide; **lip** glabrous, obscurely 3-lobed, 2 mm long, 2.3 mm wide expanded, with the apical lobe triangular, deflexed, with the lateral or basal lobes erect, obliquely triangular, embracing the column, the base connate to the base of the column; column 1.5 mm long, the anther and the stigma apical.

COLOMBIA: Dept. of Risaralda: epiphytic in forest remnant above Pereira, alt. ca. 2000 m, Jan. 1993, A. DeWilde 397 (Holotype: MO), C. Luer illustr. 16580.

Features of this species are reminiscent of several of the other species of the subgenus. In habit, it is similar to most of them with average-sized, pubescent leaves. The sepals are glabrous. The erect, obovate, only slightly concave dorsal sepal is similar to that of *L. platyse-pala*. The spreading lateral sepals are similar to those of *L. micropetala*. The ciliate petals are similar to those of *L. catella*. The lip is similar to that of *L. lupula* or *L. micropetala* but with a de-curved apical lobe.

***Lepanthes dactyla* Garay, Orquideología 6: 13, 1971.**

Ety.: From the Greek *dactylos*, "a finger," referring to the shape of the petals.

**Plant** small, epiphytic, pendent, long-repent, occasionally branching, the rhizome 3-4 mm long between ramicauls, each segment enclosed by 2 long-spiculate sheaths with dilated, long-ciliate ostia; roots slender, along the rhizome. Ramicauls abbreviated, 1 mm long, enclosed a long-ciliate, lepanthiform sheath. **Leaf** descending, coriaceous, ciliate, sparsely pubescent, broadly elliptical, obtuse, 6-7 mm long, 4-5 mm wide, 3- to 5-veined, the base cuneate into a petiole less than 1 mm long. **Inflorescence** a single flower, borne by a slender, upcurved peduncle 2 mm long; floral bract spiculate, 1 mm long; pedicel 1.5 mm long; ovary 0.5 mm long; **sepals** light red-purple or yellow, long-ciliate, the dorsal sepal ovate, obtuse, 3 mm long, 2.33 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals ovate, subacute, oblique, 2.75 mm long, 1.5 mm wide, connate 0.5 mm, 2-veined; **petals** purple, narrowly trifurcate, the lobes filiform, long-ciliate toward the apices, the middle lobe 2 mm long, the basal lobes less than 1 mm long; **lip** dark red-purple, cellular-pubescent, subcordate, 1.66 mm long, 1.5 mm wide expanded, the apex rounded, the basal lobes narrowly obtuse, embracing the column, the base connate to the base of the column; **column** 1 mm long, the anther dorsal, the stigma apical.



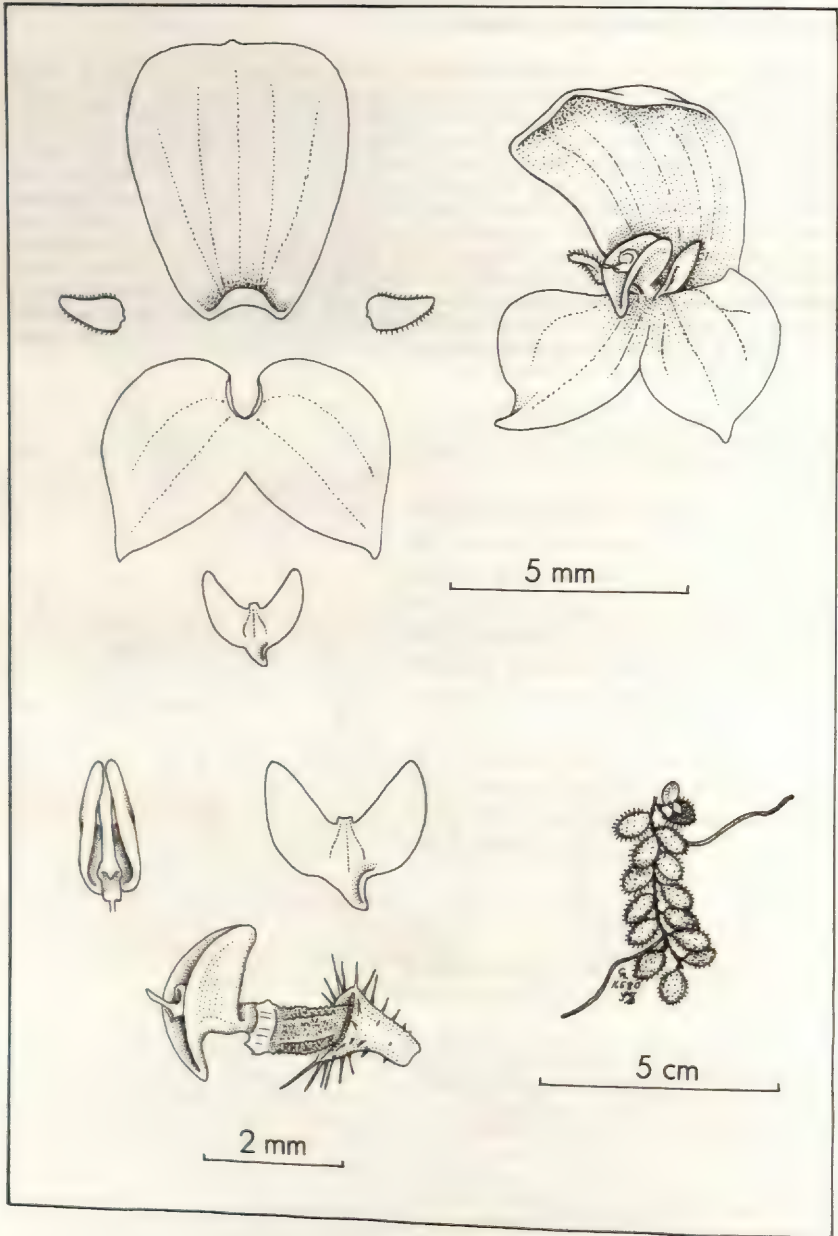
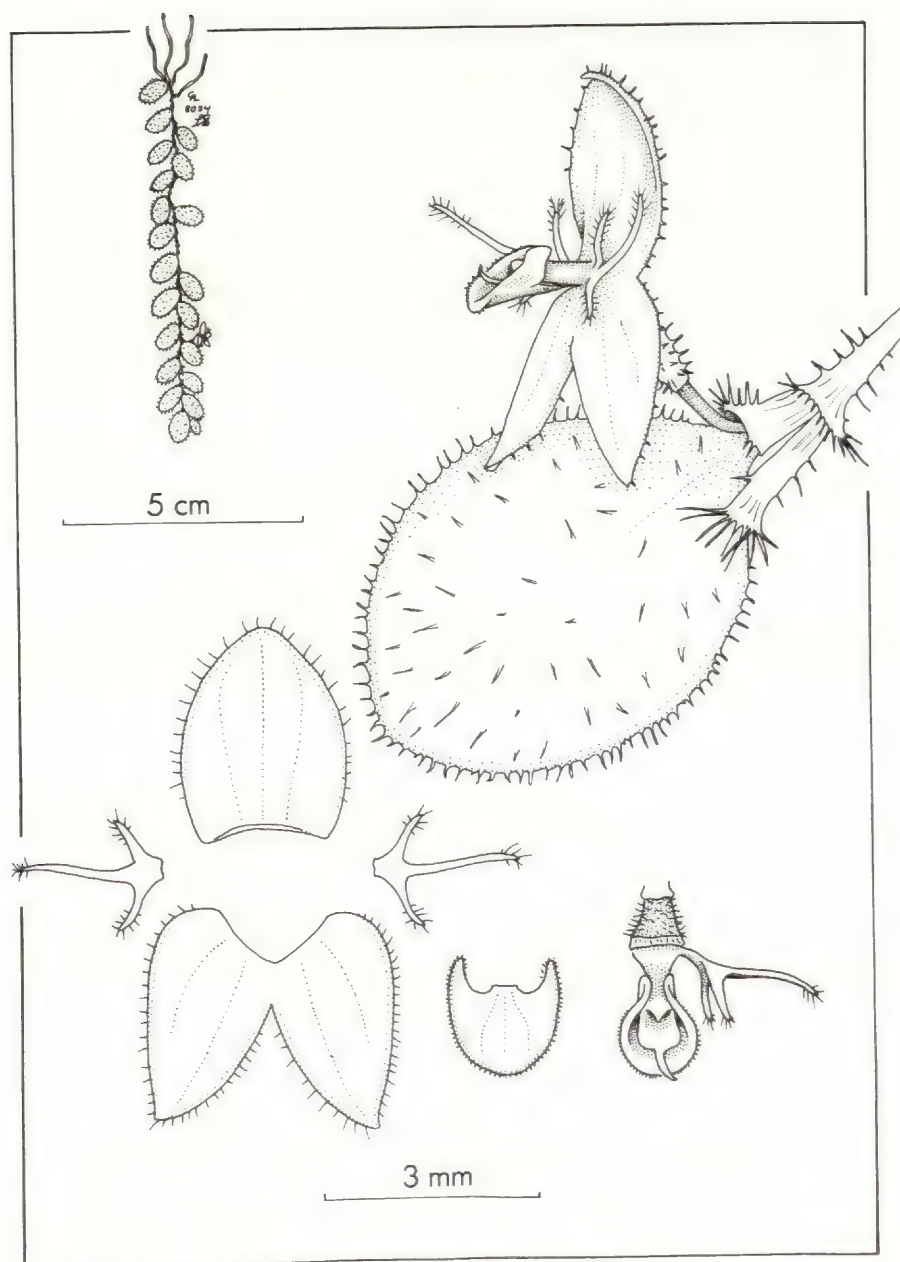


Plate 4. *Lepanthes composita* Luer & Escobar

Plate 5. *Lepanthes dactyla* Garay



COLOMBIA: Dept. of Antioquia: along road between Sonsón and Argelia, without date or altitude, G. Escobar, H. R. Sweet & L. A. Garay 645 (Holotype: AMES). Dept. of Boyacá: epiphytic in scrub forest between Duitama and Virolín, alt. 2600 m, 1 June 1982, C. Luer, J. Luer, R. Escobar & D. Portillo 8034 (SEL). Dept. of Norte de Santander: Toledo, Alto de Santa Inés, alt. 2150 m, 13 May 1984, C. Luer, J. Luer, R. Escobar & E. Valencia 10352 (MO).

This species occurs in both the central and eastern cordilleras of Colombia. It is characterized by chains of broadly elliptical, ciliate leaves that are similar to some other species of the subgenus. The flowers are distinguished by ovate, ciliate sepals and narrowly trifurcate petals. The tips of the filamentous segments are long-ciliate. The sides of the cordate lip surround the column.



***Lepanthes destituta* Luer & Escobar, Orquideología 17: 179, 1988.**

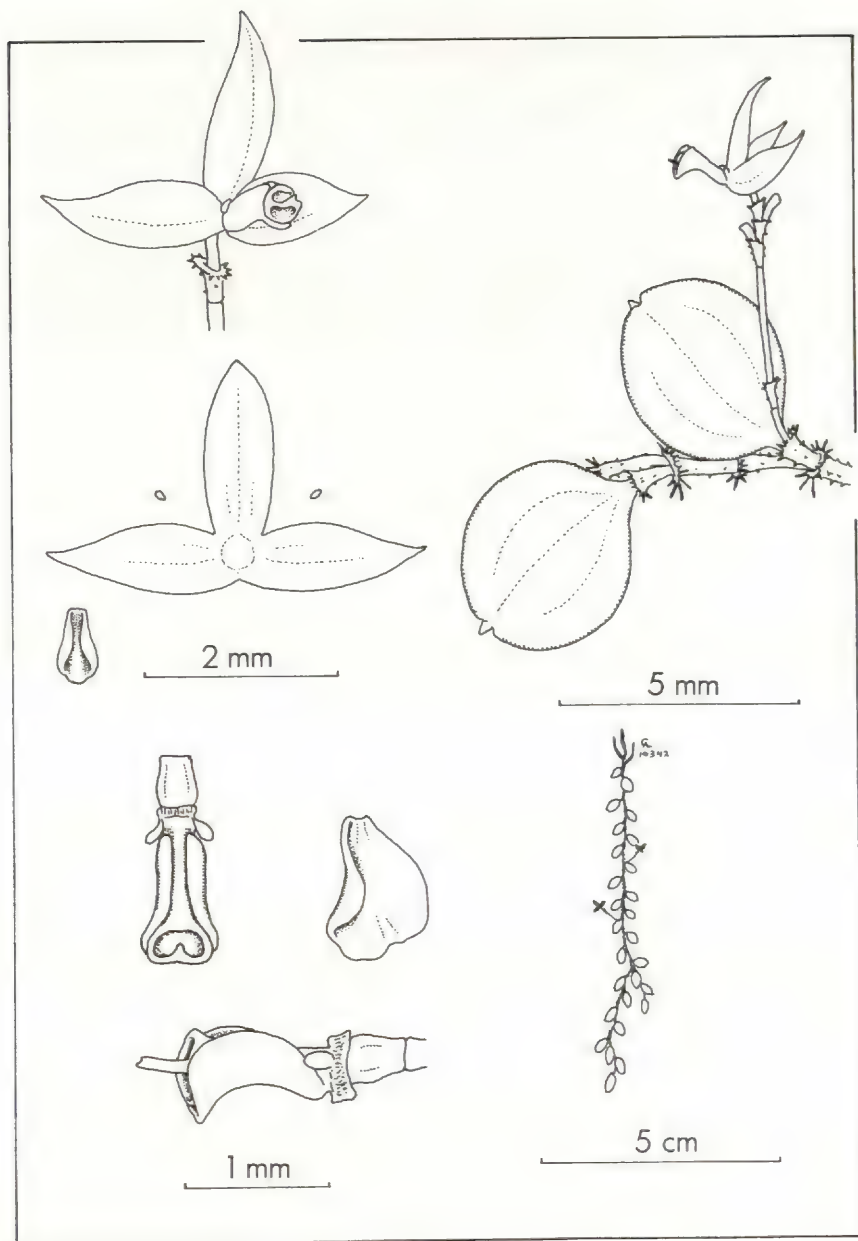
Ety.: From the Latin *destitutus*, "lacking," referring to the illusion of visibly absent petals.

**Plant** very small, epiphytic, pendent, long-repent, the rhizome 2-2.5 mm long between ramicauls, occasionally branching, each segment enclosed by 2 long-ciliate sheaths; roots slender, along the rhizome. Ramicauls abbreviated, 0.5 mm long, enclosed by one lepanthiform sheath. **Leaf** descending, coriaceous, glabrous, broadly elliptical to suborbicular, obtuse, 3-3.5 mm long, 2.5-3 mm wide, 3-veined, the rounded base contracted into a petiole 0.5 mm long. **Inflorescence** a congested, successively few-flowered raceme, borne by a slender, upcurved peduncle 5 mm long; floral bract ciliate, 0.5 mm long; pedicel 0.5 mm long; ovary 0.25 mm long; **sepals** light yellow, glabrous, more or less reflexed, widely spread, ovate, acute, the dorsal sepal 2 mm long, 0.8 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals 2 mm long, 0.75 mm wide, 2-veined, free from each other; **petals** microscopic, orbicular, 0.15 mm long and broad; **lip** red, glabrous, broadly obovate, 1 mm long, 1 mm wide expanded, embracing the column, the apex broadly rounded, the base connate to the base of the column; **column** 1 mm long, the anther and stigma apical.

COLOMBIA: Dept. of Norte de Santander: Munic. of Toledo, epiphytic in cloud forest, Alto de Santa Inés, alt. 2150 m, 13 May 1984, C. Luer, J. Luer, R. Escobar & E. Valencia 10342 (Holotype: MO).

Among the species in this subgenus, *L. destituta* is the smallest known. Apparently it is endemic in the Eastern Cordillera of Colombia. It is distinguished by tiny suborbicular, glabrous leaves less than 3 millimeters long; a congested raceme of successive, tiny, light yellow flowers; glabrous, acute, widely spread and reflexed sepals less than 2 mm long; microscopic petals; and a red, obovate lip with sides that surround the column.



Plate 6. *Lepanthes destituta* Luer & Escobar



***Lepanthes erepsis* Luer & Hirtz, Die Orchidee 37: 215, 1986.**

Ety.: From the Greek *erepsis*, "a roof," referring to the broad, concave dorsal sepal.

**Plant** small, epiphytic, pendent, occasionally branching, the branches 30 cm or more long, the rhizome slender, 3-5 mm long between ramicauls, enclosed by 2 long-ciliate, imbricating sheaths with dilated ostia; roots slender, from the base of the branches. Ramicaul 1-1.5 mm long, enclosed by 1 similar sheath. **Leaf** pendent, coriaceous, long-pubescent, elliptical, subacute to obtuse, 8-12 mm long with a petiole 1 mm long, 4-6 mm wide, the base cuneate. **Inflorescence** a single flower, large for the plant, borne by an ascending peduncle 1 mm long; floral bract ciliate, 1 mm long; pedicel 1 mm long; ovary shortly spiculate, 1 mm long; sepals translucent rosy tan striped in purple, the dorsal sepal glabrous, suborbicular, deeply concave, 11 mm long, 11 mm wide expanded, 9-veined, the lateral sepals brownish purple, microscopically shortly pubescent, connate into a narrowly ovate lamina 9.5 mm long, 3.25 mm wide, 4-veined, the acute apex shortly bifid; **petals** red-brown, 3-lobed, all 3 lobes narrowly triangular, acute, the middle lobe 4 mm long, 0.5 mm wide, the upper basal lobe 1 mm long, the lower basal lobe 0.5 mm long; **lip** red-brown, glabrous, broadly subcordate-reniform, surrounding the column, 2 mm long, 2.5 mm wide expanded, the basal lobes rounded, the apical margin broadly bilobed with a short apiculum in the sinus, the base connate to the base of the column; **column** 2 mm long, the anther and stigma apical.

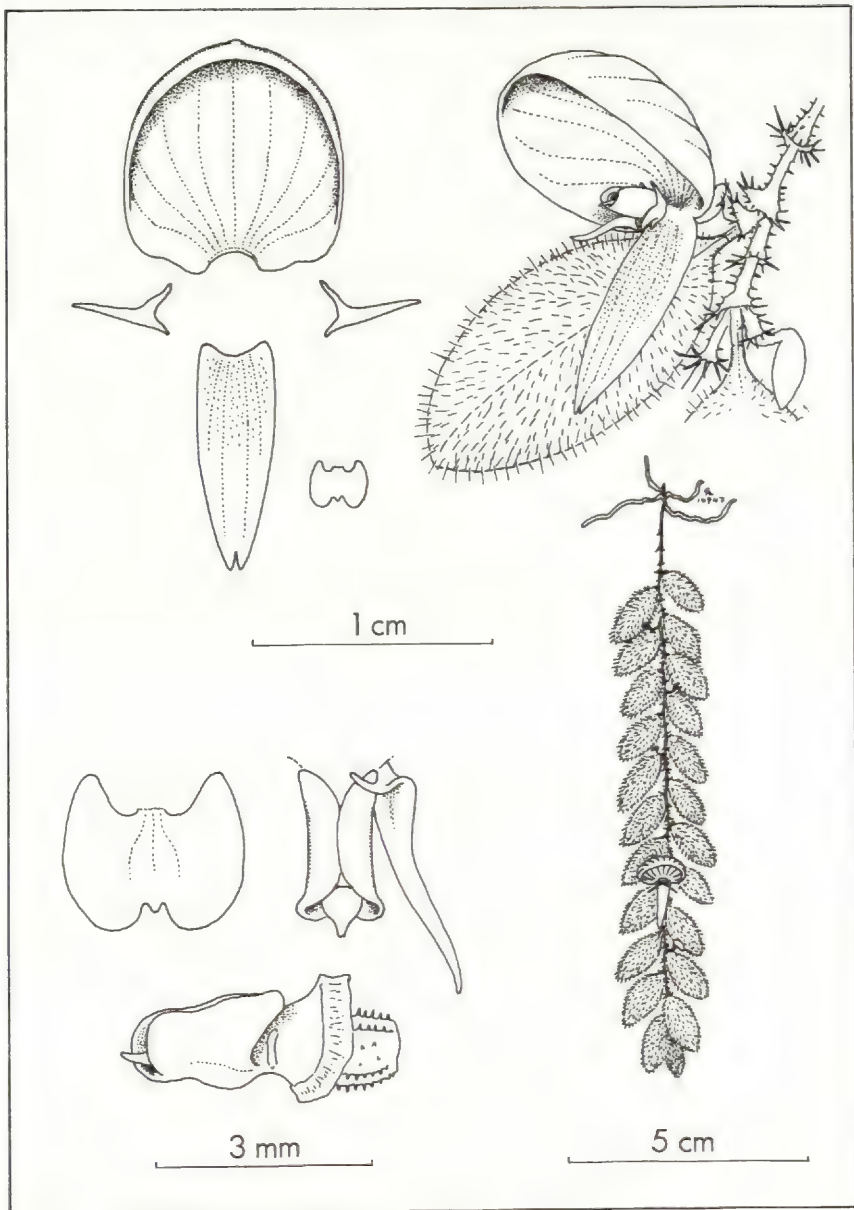
ECUADOR: Prov. of Zamora-Chinipe: epiphytic in cloud forest between Yangana and Valladolid, alt. 2450 m, 23 Mar. 1985, C. Luer, J. Luer, A. Hirtz & W. Flores 10947 (Holotype: MO); same locality, alt. 2000 m, 18 Mar. 1984, C. Luer, S. Dalström, T. Höjter, D. D'Alessandro & J. Kuijt 9626 (MO).

This species, a close relative of the variable *L. pilosella*, is known only from southern Ecuador. Vegetatively, *L. erepsis* is indistinguishable from *L. pilosella*. It is distinguished from the latter by the nine veins in the large, striped, suborbicular, concave dorsal sepal, one of the largest known in the subgenus. Usually seven veins are present in the dorsal sepal of *L. pilosella*. The most distinct features of *L. erepsis* are the narrowly acute petals with a pair of slender, acute basal lobes.

***Lepanthes hippocrepica* Luer & Escobar, Orquideología 18: 54, 1991.**

Ety.: From the Latin *hippocrepicus*, "shaped like a horse shoe," referring to the appearance of the lip encircling the column.

**Plant** small, epiphytic, pendent, occasionally branching, the branches 30 cm or more long, the rhizome slender, 3-4 mm long between ramicauls, enclosed by 2 long-ciliate, imbricating sheaths with dilated ostia; roots slender, from the base of the branches. Ramicaul 1-1.5 mm long, enclosed by 1 similar sheath. **Leaf** pendent, coriaceous, sparsely ciliate, elliptical to orbicular, the apex obtuse to rounded, 4-8 mm long with a petiole 1 mm long, 4-6 mm wide, 3-veined, the rounded base abruptly contracted into the petiole. **Inflorescence** a single flower, large for the plant, borne by an ascending peduncle 1-2 mm long; floral bract spiculate 1.5 mm long; pedicel 2.5-3 mm long; ovary shortly spiculate, 0.75 mm long; sepals translucent yellow-orange, sometimes suffused with tan, microscopically pubescent externally, the dorsal sepal elliptical, obtuse, 3-4 mm long, 2.25-3 mm wide, the lateral sepals ciliate-denticulate, elliptical, oblique, subacute to obtuse, 3-4 mm long, 1.5-2 mm wide, connate 1 mm; **petals** yellow to orange-brown, pubescent, ovate, subacute to obtuse, 1.5-2.25 mm long, 0.9-1.5 mm wide, the base shortly unguiculate; **lip** orange-brown to rose, cordate-hippocrepiform, minutely pubescent, 2.75-3.5 mm long, 3-4 mm wide expanded, the basal lobes narrowly obtuse, erect, extending above the column, 1.5-2 mm long, the base connate to the base of the column; column slender 1.5 mm long, the anther and stigma apical.

Plate 7. *Lepanthes erepsis* Luer & Hirtz



COLOMBIA: Dept. of Antioquia: La Aldea, epiphytic in forest remnant near Santo Domingo, alt. 2130 m, 10 May 1985, C. Luer, R. Escobar & E. Valencia 11343 (Holotype: MO); Concepción, between Barbosa and Concepción, alt. 2200 m, flowered in cultivation at Colomborquídeas, 17 Apr. 1988, C. Luer 13260 (MO). Dept. of Risaralda: Pereira, El Manzano, alt. 2100 m, 7 Jan. 1991, A. DeWilde 3820 (MO). ECUADOR: Prov. of Napo: epiphytic in cloud forest on the eastern slopes of Volcán Reventador, alt. 1850 m, 8 Feb. 1986, C. Luer, J. Luer, A. Embree, A. Hirtz & W. Flores 11720 (MO). Prov. of Sucumbios: between El Carmelo and La Bonita, alt. 2400 m, Aug. 1990, A. Hirtz, X. Hirtz, J. Del Hierro & F. Sarmiento 4972, 4973 (MO).



This species occurs in the Central Cordillera of Colombia and northeastern Ecuador. The leaves of the plants from Ecuador are somewhat smaller than those of plants from Colombia. *Lepanthes hippocrepica* is distinguished by glabrous leaves; obtuse sepals; and proportionately large, minutely pubescent petals and lip. The basal lobes of the horse shoe-shaped lip that surround the column are narrow and stand erect, the apices held far above the column.

***Lepanthes irrassa* Luer & Escobar, sp. nov.**

Ety.: From the Latin *irrassus*, "unshaven," referring to the pubescent floral parts.

*Planta parva foliis suborbicularibus breviter ciliatis, sepalis ovatis subacutis pubescentibus, petalis pubescentibus microscopicis, labello pubescenti late ovato vel suborbiculato*

**Plant** small, epiphytic, pendent, long-repent, the rhizome 2-2.5 mm long between ramicauls, occasionally branching, each segment enclosed by 2 long-ciliate sheaths; roots slender, along the rhizome. Ramicauls abbreviated, 1 mm long, enclosed by 1 infundibular, long-ciliate lepanthiform sheath. **Leaf** descending, coriaceous, shortly ciliate, broadly elliptical to suborbicular, obtuse to rounded at the apex, 4-5 mm long, 4-5 mm wide, 3-veined, the rounded base contracted into a petiole 0.5 mm long. **Inflor.** cence a single flower, occasionally followed by a second, borne by a slender, upcurved peduncle 3 mm long; floral bract ciliate, 1 mm long; pedicel 2 mm long; ovary muricate, 1 mm long; **sepals** red, diffusely pubescent, more or less reflexed, widely spread, ovate, subacute, the dorsal sepal 3 mm long, 2.25 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals oblique, 3 mm long, 2 mm wide, 2-mm long and broad; **lip** red, pubescent, broadly ovate to suborbicular, 1.75 mm long, 1.5 mm wide expanded, with short, obtuse, basal lobes surrounding the column, the apex broadly rounded, the base connate to the base of the column; **column** 1 mm long, the anther and stigma apical.

COLOMBIA: Dept. of Norte de Santander: Munic. of Toledo, epiphytic in cloud forest, alto de Santa Inés, alt. 2150 m, 13 May 1984, C. Luer, J. Luer, R. Escobar & E. Valencia 10341 (Holotype: MO).

This species from the Eastern Cordillera of Colombia is most similar to *L. micropetala* from which it is distinguished by the smaller leaves, and pubescent sepals, petals and lip. The lip is suborbicular with obtuse, basal lobes that surround the column like a collar. It was found growing on small trees and intermixed with *L. destituta* and *L. micropetala*.



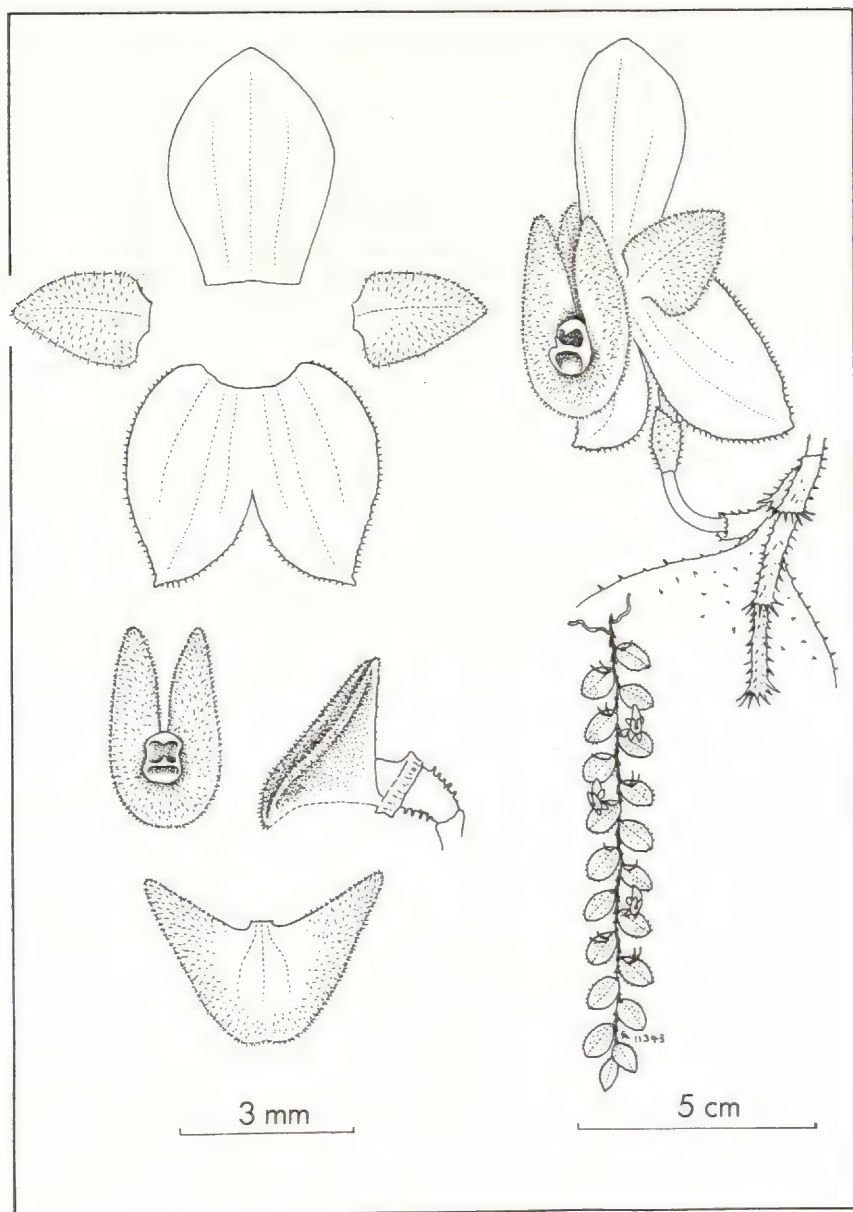


Plate 8. *Lepanthes hippocrepica* Luer & Escobar



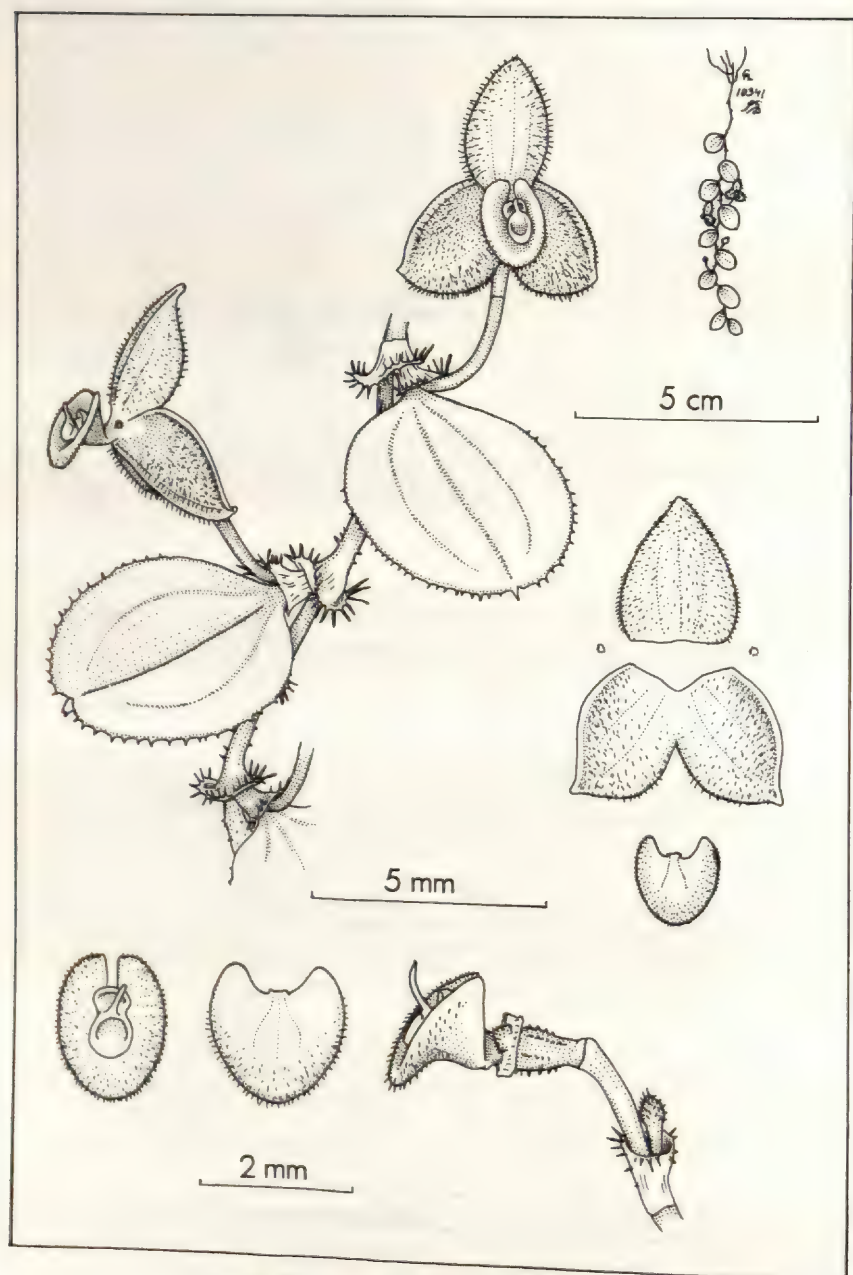


Plate 9. *Lepanthes irrasa* Luer & Escobar

***Lepanthes lunaris* Luer, sp. nov.**

Ety.: From the Latin *lunaris*, "crescent-shaped," in reference to the petals.

*Planta parva pendens, foliis glabris, inflorescentia pauciflora erecta, sepalis subtriangularibus profunde connatis, petalis lunaribus, labello cordato lobis basalibus columnam amplectentibus.*

**Plant** small, epiphytic, pendent, long-repent, the rhizome occasionally branching, 4-5 mm long between ramicauls, each segment enclosed by 2 long-spiculate sheaths with dilated ostia; roots slender, toward the base. Ramicauls abbreviated, 1 mm long, enclosed by a long-spiculate, lepanthiform sheath. **Leaf** descending, coriaceous, glabrous, elliptical, subacute, 5-7 mm long, 3-5 mm wide, 3- to 5-veined, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, successively 2- to 3-flowered raceme, borne by a slender, upcurved peduncle 2-4 mm long; floral bracts glabrous, 1 mm long; pedicel 1.5-2 mm long; ovary 1-1.25 mm long; **sepals** yellow-brown, fleshy, the dorsal sepal broadly ovate, obtuse, shortly pubescent, 2 mm long, 1.8-2.2 mm wide, 3-veined, connate to the lateral sepals for 0.75 mm, the lateral sepals ovate, oblique, obtuse, cellular-glandular, 2-2.5 mm long, 1.2-2 mm wide, connate 0.8 mm, 2-veined; **petals** minutely pubescent, transversely lunate, 0.5-0.8 mm long, 1.4-1.8 mm wide, the lobes lightly incurved, narrowly obtuse; **lip** glabrous, cordate, with the apex rounded, 1-1.6 mm long, 1.2-1.5 mm wide, the basal lobes obtuse, encircling the column, the disc concave, the base connate to the base of the column; **column** 0.5 mm long, the anther dorsal, the stigma ventral.

COLOMBIA: Dept. of Putumayo: East Cordillera of Sibundoy, alt. 2000 m, 18 Feb. 1881, *F. C. Lehmann* 277 (Holotype: G), *C. Luer* illustr. 14817. ECUADOR: Prov. of Sucumbios: epiphytic above La Bonita, alt. 1990 m, 8 July 1990, *C. Dodson, E. Hagsater, D. Rubio & N. Rivera* 18472 (MO), *C. Luer* illustr. 17175.

This species was first collected in 1881 by Consul Lehmann in southern Colombia and deposited at Geneva. All his collections of this subgenus at Geneva had been annotated *Pleurothallis* (*Apodae-Prorepentes*) by Kränzlin.

The little, elliptical leaves are glabrous, but the sheaths of the rhizome and ramicauls are long-spiculate. The flowers are produced in short, ascending racemes. The broadly ovate, obtuse, microscopically pubescent sepals are deeply connate, forming a flat flower. The crescent-shaped petals are also microscopically pubescent. The lip is cordate-U-shaped with basal lobes encircling the column.

***Lepanthes lupula* Luer & Hirtz, Amer. Orchid Soc. Bull. 53: 1162, 1984.**

Ety.: From the Latin *lupulus*, "a little wolf," referring to the appearance of the column and lip.

**Plant** small, epiphytic, pendent, long-repent, the rhizome 3-4 mm long between ramicauls, occasionally branching, each segment enclosed by 2 sparsely pubescent sheaths with long-spiculate, dilated ostia; roots slender, along the rhizome. Ramicauls abbreviated, 1 mm long, enclosed by a long-spiculate, infundibuliform sheath. **Leaf** descending, coriaceous, shortly and sparsely pubescent, broadly elliptical, subacute to obtuse, 5-8 mm long, 3-4 mm wide, 3-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a single flower, borne by a slender, ascending peduncle 2-2.5 mm long, occasionally followed by a second flower; floral bract 1 mm long; pedicel 2 mm long; ovary 0.5 mm long; **sepals** red to red-brown, microscopically pubescent, the margins conspicuously denticulate, the dorsal sepal elliptical, obtuse, 2.5 mm long, 2 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals ovate, oblique, acute, 2 mm long, 1.5 mm wide, connate 0.5 mm, 2-veined; **petals** orbicular, glabrous, 0.15 mm long and broad; **lip** red-brown to red-purple, microscopically pubescent, bilobed or "V"-shaped, 1.6 mm long, 1.6 mm broad expanded, the apex obtuse to rounded, the basal lobes erect with more or less acute apices, embracing the column, the base connate to the base of the column; **column** 1 mm long, the anther dorsal, the stigma apical.



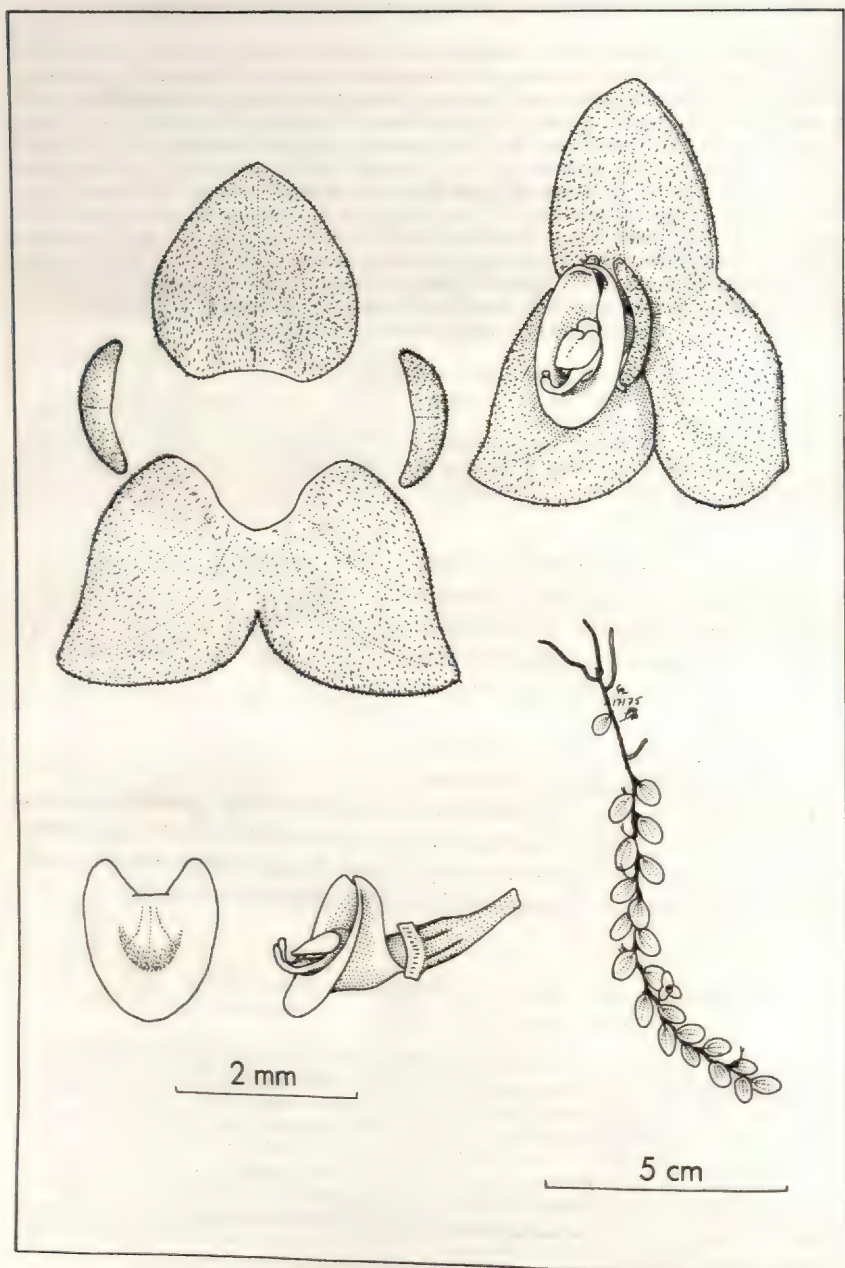
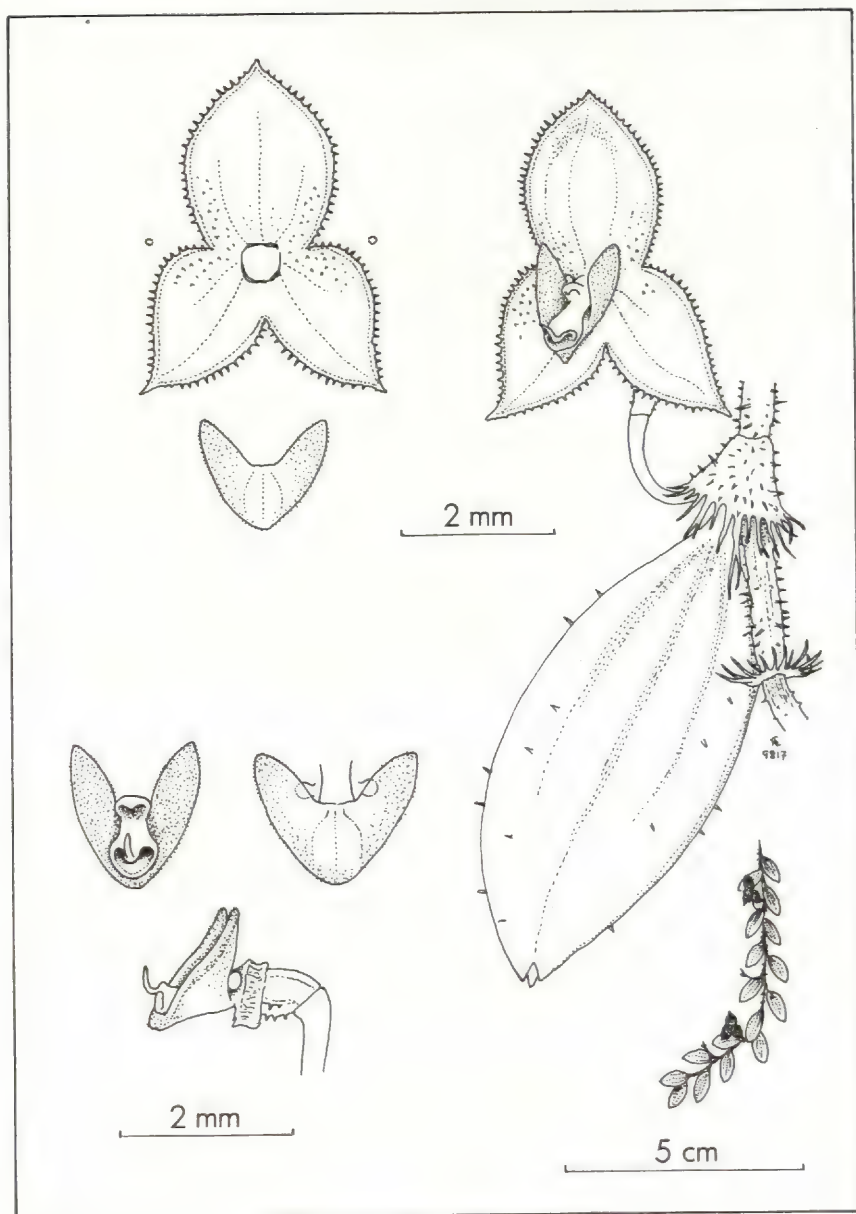


Plate 10. *Lepanthes lunaris* Luer

Plate 11. *Lepanthes lupula* Luer & Hirtz



ECUADOR: Prov. of Pichincha: along the new road from Quito to Tandapi, above Chiriboga, alt. 2100 m, 31 Mar. 1984, C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9817 (Holotype: SEL); same area, alt. 1950 m, 31 Mar. 1984, C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9828 (MO).

This species, closely allied to the sympatric *L. micropetala*, is apparently endemic on the western slopes of Mt. Pichincha in northwestern Ecuador. *Lepanthes lupula* is distinguished by pendent chains of small, elliptical, sparsely pubescent leaves, and small conspicuously denticulate sepals. The petals are microscopic. The acute lateral lobes of the horse shoe-shaped lip stand erect to either side of the column. *Lepanthes lupula* is also similar to the Colombian *L. catella*, but the larger, ovate petals of the latter distinguish it.



***Lepanthes micropetala* L. O. Williams., Bot. Mus. Leaflet 9: 4, 1940.**

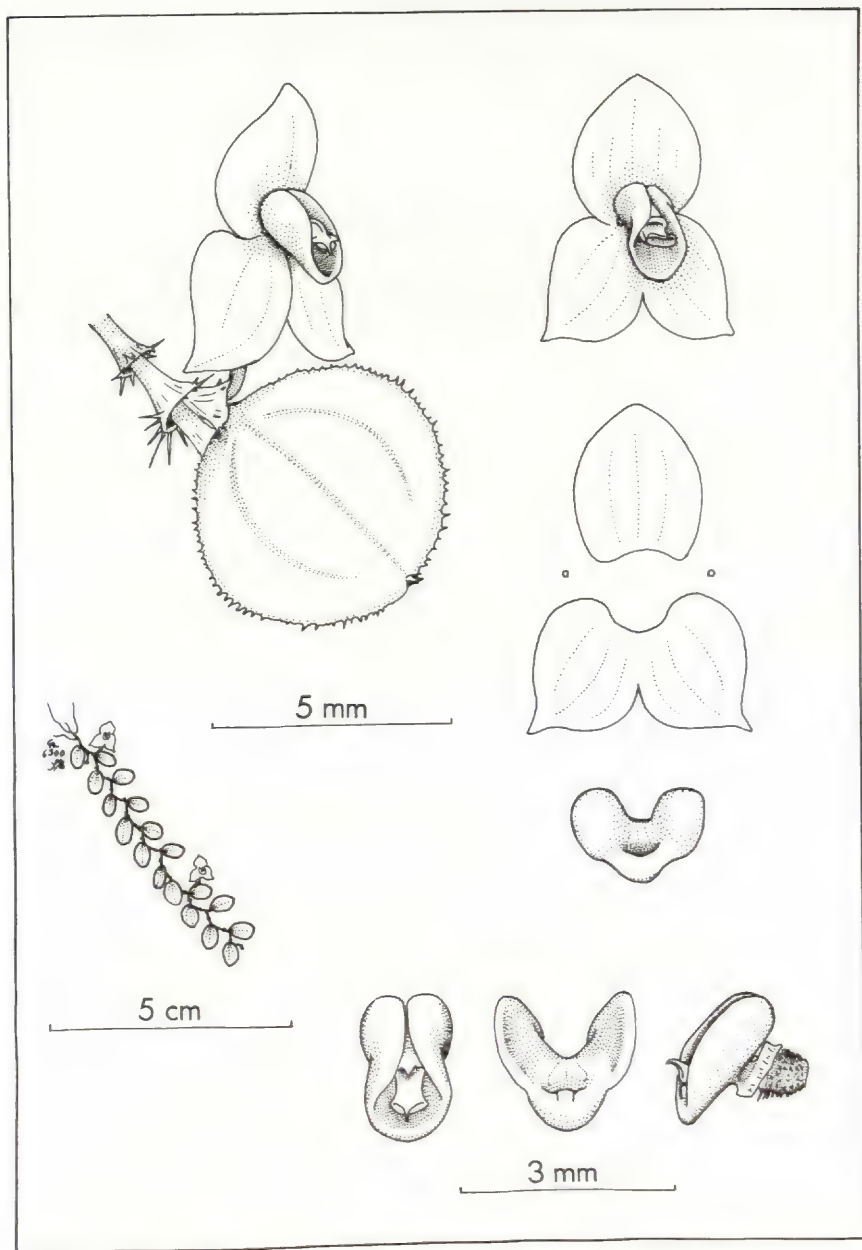
Ety.: From the Greek *micropetalon*, "a small petal," referring to the microscopic petals.

**Plant** small, epiphytic, pendent, long-repent, the rhizome 3-4 mm long between ramicauls, occasionally branching, each segment enclosed by 2 sparsely pubescent sheaths with long-spiculate, dilated ostia; roots slender, along the rhizome. Ramicauls abbreviated, 1 mm long, enclosed by a long-spiculate, infundibuliform sheath. **Leaf** descending, coriaceous, minutely short-ciliate, broadly elliptical to suborbicular, obtuse to rounded at the apex, 4-5 mm long, 4-5 mm wide, 3-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a single flower, borne by a slender, ascending peduncle 1-2 mm long, occasionally followed by a second flower; floral bract 1 mm long; pedicel 2 mm long; ovary 0.5 mm long, echinate; **sepals** light brown, suffused with purple along the veins, glabrous (to microscopically cellular-pubescent), the margins entire, the dorsal sepal broadly ovate to suborbicular, obtuse, 2.5-3.25 mm long, 2.5-2.75 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals ovate, oblique, obtuse, 2.5-3 mm long, 1.5-2.25 mm wide, connate 0.5 mm, 2- to 3-veined; **petals** orbicular, glabrous, 0.2 mm long and broad; **lip** yellow, glabrous (glandular-cellular), subcordate to reniform, 2 mm long, 2-2.25 mm wide expanded, the apex rounded, the basal lobes rounded, embracing the column, the base connate to the base of the column; **column** 1 mm long, the anther dorsal, the stigma apical.

COLOMBIA: Dept. of Cauca: Cordillera Occidental, San Antonio, "San José, alt. 2400-2700 m, 28 June 1922, F. W. Pennell & E. P. Killip 7331 (Holotype: AMES). Dept. of Antioquia: Urrao, Pabón, Las Cruces, alt. 2400 m, collected by E. Valencia, flowered in cultivation at Colomborquídes, 11 May 1985, C. Luer 11332 (MO). Dept. of Cundinamarca: epiphytic in moist forest above Pasca, alt. 2300 m, 4 Feb. 1883, F. C. Lehmann 2531 (G). Dept. of Norte de Santander: epiphytic in cloud forest, alto de Santa Inés, alt. 2150 m, 13 May 1984, C. Luer, J. Luer, R. Escobar & E. Valencia 10341, 10343 (MO). Dept. of Santander: west of Velez, road to Landazuri, alt. 2500 m, 4 May 1984, C. Luer, J. Luer, R. Escobar & E. Valencia 10100 (MO).

ECUADOR: Prov. of Carchi: east of El Carmelo, alt. 2050 m, 17 May 1981, C. Luer, J. Luer & A. Hirtz 6300 (SEL). Prov. of Pichincha above Chiriboga, alt. 2400 m, Sept. 1984, A. Hirtz 1900 (MO). Prov. of Zamora-Chinchipe: south of Yangana above Valladolid, alt. 2450 m, 23 Mar. 1985, C. Luer, J. Luer, A. Hirtz & W. Flores 10946 (MO).



Plate 12. *Lepanthes micropetala* L. O. Williams



Vegetatively, *L. micropetala* is similar to other members of the subgenus, but somewhat smaller in size. It is somewhat variable in its wide distribution in all three cordilleras of Colombia and into southern Ecuador. It is distinguished by the small, broadly elliptical to orbicular, minutely short-ciliate leaves; small flowers with obtuse, non-denticulate, essentially glabrous sepals; microscopic petals; and a subcordate-reniform lip that surrounds the column.

***Lepanthes monilia* Luer & Escobar, Orquideología 16: 12, 1983.**

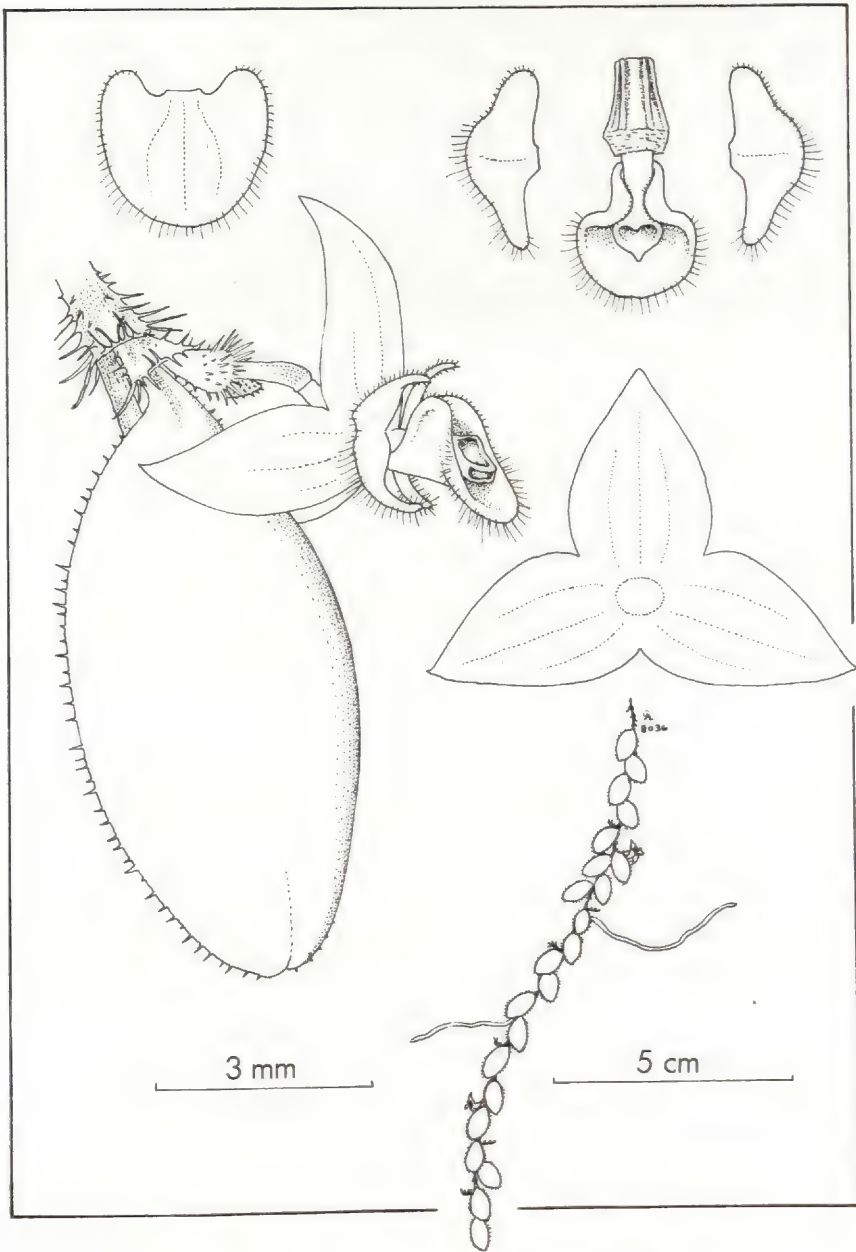
Ety.: From the Latin *monilia*, "necklaces," in allusion to the leafy, pendent habit.

**Plant** small, epiphytic, pendent, with branches up to 30 cm long, the rhizomes slender, 4-6 mm long between ramicauls, enclosed by 2 long-ciliate, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls 1 mm long, concealed by 1 similar lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, ciliate, broadly elliptical, subacute to obtuse, 6-9 mm long, 5-7 mm wide, 3-veined, the base cuneate into a petiole less than 1 mm long. **Inflorescence** a congested, successively few-flowered raceme up to 5 mm long, borne by an ascending peduncle 1 mm long from near the apex of a ramicaul; floral bract ciliate, 1 mm long; pedicel 1.5-2 mm long; ovary glabrous, 1 mm long; **sepals** similar, red-brown, glabrous, ovate, subacute, 3 mm long, 2 mm wide, 3-veined, connate basally for 0.5 mm, the lateral sepals slightly oblique, widely spread; **petals** orange, more or less suffused with purple, long-ciliate, transversely bilobed, 1 mm long, 2.5 mm wide, the lobes subequal, obliquely triangular, obtuse; **lip** red, ciliate, subcordate, 2.25 mm long, 2.25 mm wide expanded, the basal lobes obtuse, embracing the column, the apex broadly rounded, the base connate to the base of the column; column 1 mm long, the anther and the stigma apical.

COLOMBIA: Dept. of Boyacá: epiphytic in scrub forest between Duitama and Virolín, alt. 2600 m, 1 June 1982, C. Luer, J. Luer, R. Escobar & D. Portillo 8036 (Holotype: SEL). Dept. of Santander: El Talaadro, alt. 2400 m, collected by E. Valencia Dec. 1984, flowered in cultivation at Colomborquídeas 11 May 1985, C. Luer 11330 (MO).

This species is apparently endemic in the Eastern Cordillera of Colombia. With minutely ciliate leaves it is similar vegetatively to many other species of the subgenus. The inflorescence is a congested, successively-flowered raceme that ascends above the leaf. The red-brown sepals are ovate, acute, glabrous, widely spread, and the laterals are more or less reflexed. The petals are transversely bilobed and long-ciliate. The lip is shallowly subcordate with the apex broadly rounded and long-ciliate with the basal lobes embracing the column.



Plate 13. *Lepanthes monilia* Luer & Escobar



***Lepanthes nummularia* Rchb.f., Xenia Orchid. 1: 142, 1858.**

Ety.: From the Latin *nummularius*, "like small coins," alluding to appearance of the habit.

Syn.: *Lepanthes polygonioides* L. B. Smith & Harris, Bot. Mus. Leaf. 2: 33, 1934.

Ety.: From the Greek *polygonioides*, "like a species of the *Polygonaceae*, the buckwheat family," referring to the appearance of the habit of the plant.

Syn.: *Lepanthes ospinae* Garay, Orquideología 4: 15, 84, 1969.

Ety.: Named in honor of Mariano Ospina H. of Bogotá, Colombia, who collected this species.

**Plant** medium in size to large for the subgenus, epiphytic, pendent, long-repent, the rhizome 3-5 mm long between ramicauls, occasionally branching, up to 50 cm long, each segment enclosed by 2 pubescent sheaths; roots slender, along the rhizome. Ramicauls abbreviated, up to 1 mm long, enclosed by 1 pubescent sheath. **Leaf** descending, coriaceous, glabrous, elliptical to broadly elliptical to suborbicular, subacute to obtuse, 3-12 mm long, 5-11 mm wide, 5- to 7-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a congested, successively several-flowered raceme up to 5 mm long, borne on top of the leaf by a slender, peduncle 1-2 mm long; floral bract 0.75 mm long; pedicel up to 1 mm long; ovary 0.5-0.75 mm long; flowers very small, dull yellow, yellow-orange, brown, red to purple; **sepals** microscopically to minutely pubescent, the dorsal sepal broadly ovate, obtuse, 1.5-2.5 mm long, 1.5-2.3 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals connate to near the apex into an ovate, obtuse, bifid synsepal, 1.7-2.5 mm long, 1.5-2 mm wide, 2-veined; **petals** minutely pubescent, transversely bilobed, 0.5 mm long, 1.5-2 mm wide, the lobes obliquely triangular, subacute, the lower lobes larger than the upper lobe; **lip** very small under the column, minutely pubescent, transversely ovate to subtrapeziform, 0.5-1 mm long, 0.5-1 mm wide expanded, the obtuse apex variously contracted at the tip, from broadly to narrowly apiculate, the lateral angles obtuse, the base connate to the base of the column; **column** comparatively large, more or less flattened toward the apex, 0.75-1.5 mm long, 0.75-1.5 mm wide, the anther dorsal, the stigma ventral.

ECUADOR: Prov. of Pichincha: without locality, in lofty trees, alt. 7000-8000 ft., *W. Jameson* 97 (Holotype: W); near Quito, *W. Jameson s.n.* (W); Andes of Quito, alt. 7000 ft., Sept.-Oct. 1856, *W. Jameson* 88 (G); apparently the same, but 21 Jan. 1856, *W. Jameson* 88 (GH, type of *L. polygonioides*). Prov. of Carchi: southeast of El Carmelo, alt. 2050 m, 17 May 1981, *C. Luer, J. Luer & A. Hirtz* 6299 (SEL). Prov. of Morona-Santiago: Limón, above Plan de Milagro, alt. 2000 m, 19 May 1985, *B. Stein* 2837 (MO). Prov. of Pastaza: Río Zuñag, alt. 2200 m, *A. Hirtz et al.* 4843 (MO). Prov. of Zamora-Chinipe: south of Yangana above Valladolid, alt. 2450 m, 18 Mar. 1984, *C. Luer, S. Dalström et al.* 9586 (MO); same area, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores* 10940 (MO).

COLOMBIA: Dept. of Antioquia: Alto de Minas, alt. 2000 m, no date, *M. Ospina* 172a (AMES, type of *L. ospinae*); Río Piedras, alt. 2150 m, 29 Apr. 1983, *C. Luer, J. Luer, R. Escobar & A. Pridgeon* 8871 (SEL); Río Sucio, collector unknown, flowered in cultivation at Colomborquideas, 13 May 1985, *C. Luer* 11363 (MO). Dept. of Cauca: epiphytic in moist forest above San Andres, Tierra á Dentro, alt. 2000 m, 27 Feb. 1883, *F. C. Lehmann* 2693 (G). Dept. of Santander: El Taladro, alt. 2400 m, collected by E. Valencia Dec. 1984, flowered in cultivation at Colomborquideas, 11 May 1985, *C. Luer* 11331 (MO).

PERU: Dept. of Amazonas: Bagua, east of La Peca, epiphytic on the top branches of a canopy tree, alt. 1700 m, 29 June 1978, *P. Barbour* 2576A (MO).



This species, the first in the subgenus to be collected and described, is also one of the most frequently found in its wide distribution from the Central Cordillera of Colombia into southern Ecuador. Vegetatively it is variable. All leaves examined have been glabrous, but they vary considerably in size. Some populations with small, elliptical leaves five millimeters long and three millimeters wide contrast with others with orbicular leaves 12 millimeters long and 11 millimeters wide. Sometimes the leaves overlap in their pendent chains.

The inflorescence is a congested, successively flowered raceme of up to eight, tiny flowers that lies on top of the leaf. The dorsal sepal is broadly ovate and obtuse. The laterals are connate into a similar but bifid lamina. The petals are bilobed with the lower lobe larger. The tiny lip is completely hidden beneath the proportionately large column. The lip is ovoid and thick, very much resembling the lip of a *Stelis*. The center of the disc is filled with a variable, transverse callus. The apex is variably contracted into a broad or narrow apiculum which is rarely clavate. No two lips from different collections are exactly the same. The same is true with the column. In some specimens the column is thick, terete and more or less clavate. In other collections the column is more or less flattened and dilated near the middle.

***Lepanthes pendens* Garay, Canad. J. Bot. 34: 252, 1956.**

Ety.: From the Latin *pendens*, "pendent," in reference to the habit.

**Plant** small, epiphytic, pendent, with branches up to 50 cm long or longer, the rhizomes slender, 3-4 mm long between ramicauls, enclosed by 2 pubescent, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls 1-1.5 mm long, concealed by 1 similar, lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, glabrous, elliptical, obtuse, 8-10 mm long, 5-6 mm wide, 3-veined, the base rounded, contracted into a petiole less than 1 mm long. **Inflorescence** a successively few-flowered raceme, borne by an ascending peduncle 1.5 mm long from near the apex of a ramicaul; floral bract 0.75 mm long; pedicel 1.5 mm long; ovary lightly verrucose, 1 mm long; **sepals** similar, widely spread, dark red-purple, minutely pubescent, ovate, subacute, the dorsal sepal 3 mm long, 1.75 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals slightly oblique, 2.75 mm long, 1.5 mm wide, 2-veined, free from each other; **petals** dark purple, glabrous, transversely bilobed, 0.25 mm long, 1.75 mm wide, the lobes equal, elliptical; **lip** dark purple, glabrous, transversely elliptical, 1.25 mm long, 1.66 mm wide expanded, the obtuse sides encircling the column, the apex broadly rounded, the base connate to the base of the column; column 1.3 mm long, the anther and the stigma apical.

COLOMBIA: Dept. of Cundinamarca: Cordillera Oriental south of Bogotá, Alto de Tunque, east of Gutiérrez, temperate forest, alt. 2515 m, 31 July 1944, *M. L. Grant* 9770 (Holotype: US; Isotypes: AMES, WIS); July 1916, *M. T. Dawe* 317 (COL, K); Dept. of Boyacá: epiphytic in wet forest between Arcabuco and Moniquirá, alt. 2500 m, 25 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo* 7553 (SEL). Dept. of Santander: west of Velez, road to Landazuri, alt. 2400 m, 5 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia* 10107 (MO).

This species is apparently endemic in the Eastern Cordillera of Colombia, where it was first collected by M. T. Dawe in 1916. Vegetatively, it is similar to many other species of the subgenus, but the pendent chains of glabrous leaves often form great entangled masses up to a meter





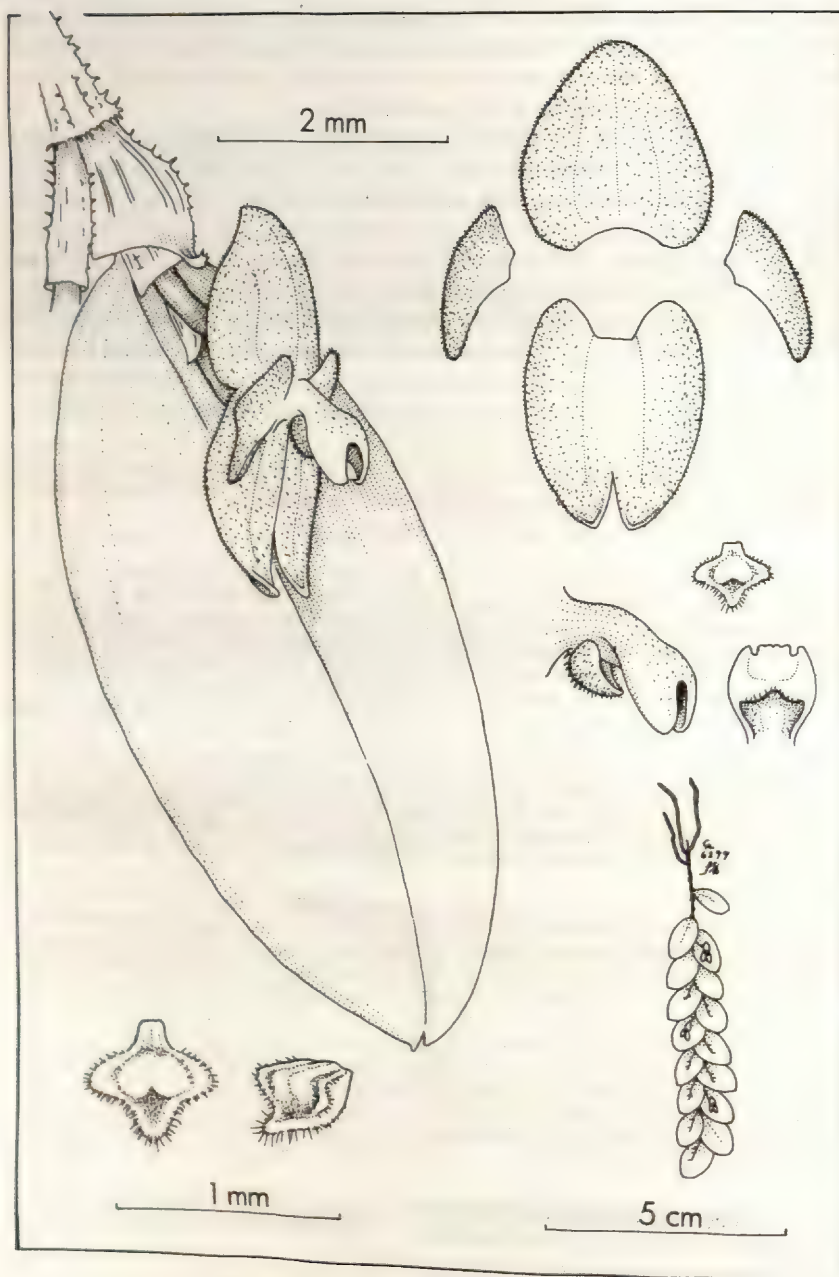
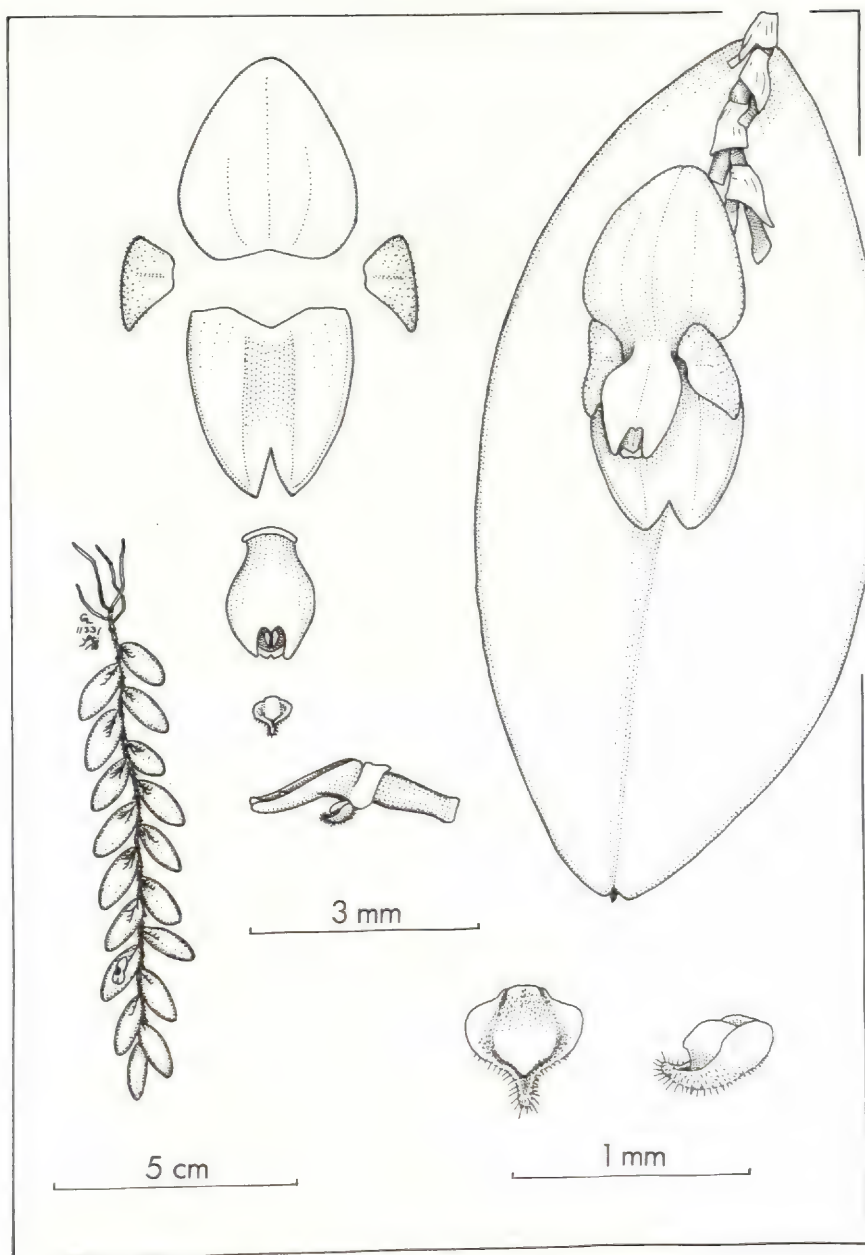
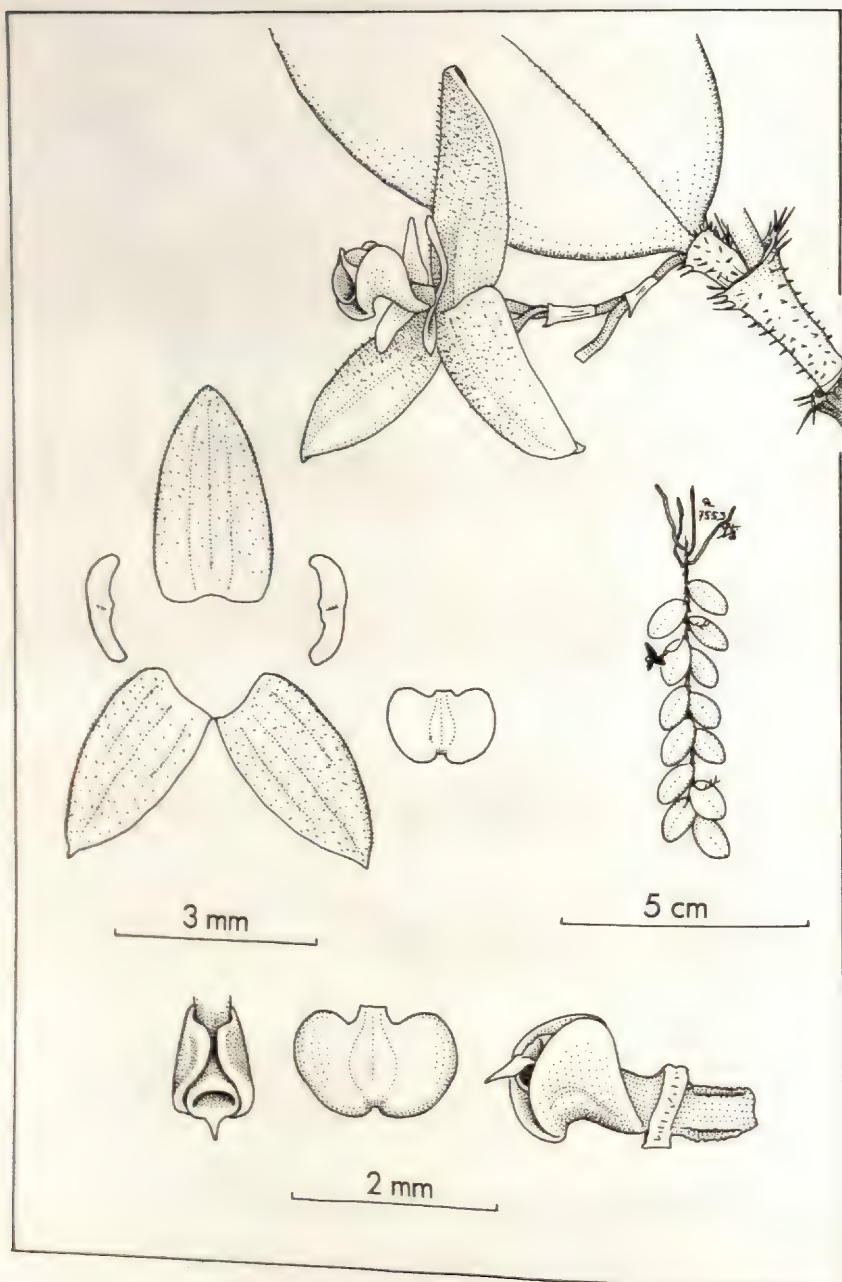


Plate 14. *Lepanthes nummularia* Rchb.f.

Plate 15. *Lepanthes nummularia* Rehb.f.



Plate 16. *Lepanthes pendens* Garay

long. The flowers are borne in short, successively-flowered racemes; the dark red-purple, minutely pubescent, ovate sepals are widely spread; the petals are small and transverse; and the sides of the transverse lip encircle the column.

***Lepanthes pholeter* Luer, sp. nov.**

Ety.: From the Greek *pholeter*, "a cave-dweller," in allusion to the petals, lip and column deep within the sepaline cup.

Inter species subgeneris *Brachycladii* Luer, foliis glabris, pedunculis brevissimis fasciculatis, sepalis dorsali elliptico acuto, sepalis ad apicem in synsepalum profunde concavum connatis, petalis parvissimis linear-triangularibus, et labello hippocrepiformi apice rotundo distinguitur.

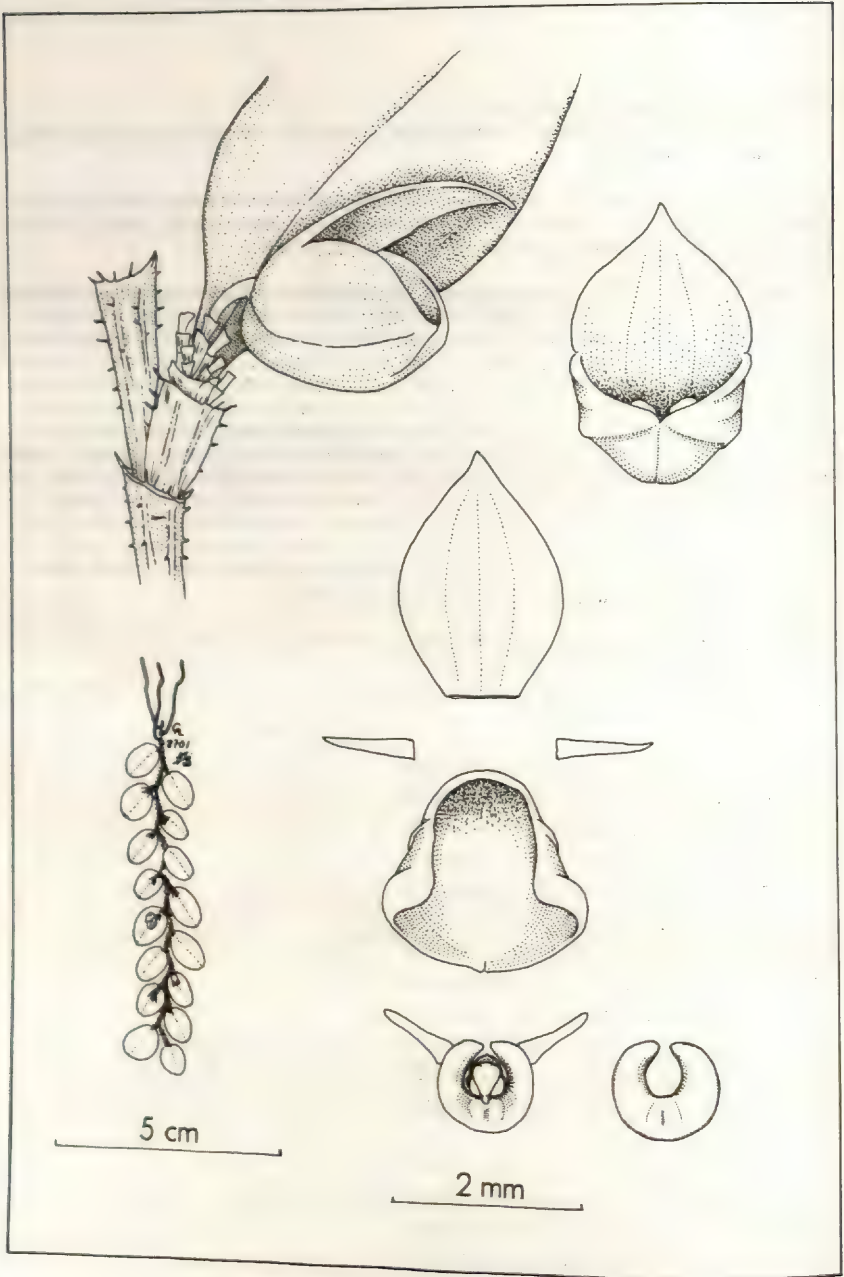
**Plant** average in size for the subgenus, epiphytic, repent or pendent, up to 20 cm long or longer, the rhizome slender, 4-5 mm long between ramicauls, enclosed by 2 spiculate, imbricating, lepanthiform sheaths; roots slender, from nodes near the base. Ramicauls 1 mm long, concealed by 1 ciliate, lepanthiform sheath. **Leaf** prostrate, coriaceous, glabrous, broadly elliptical, obtuse to rounded at the apex, 8-10 mm long, 6-8 mm wide, the base contracted into a petiole ca. 1 mm long. **Inflorescence** a fascicle of successive flowers borne by peduncles ca. 1 mm long from near the apex of a ramicaul; floral bract spiculate, 1-1.5 mm long; pedicel 1.5-2 mm long; ovary 0.75 mm long; **sepals** stated by the collector to be yellowish orange, membranous, the dorsal sepal suberect, broadly elliptical-ovate, obtusely acuminate, 2.5 mm long, 1.75 mm wide, connate to the lateral sepals nearly 1 mm, the lateral sepals connate to the apex into a deeply concave, suborbicular synsepal, 2 mm long, 3 mm wide expanded; **petals** narrowly linear-triangular, acute, 1 mm long, 0.2 mm wide; **lip** horse shoe-shaped, with the apex broadly rounded, the basal lobes obtuse, encircling the column, 0.5 mm long centrally, 1 mm long from basal lobes, 1 mm wide, the disc with an obscure, central, circular thickening, the base connate to the base of the column; column 1 mm long, with the anther and the transversely bilobed stigma apical.

PERU: Dept. of Amazonas: Bagua, east of La Peca, epiphytic on the top branches of a canopy tree, alt. 1700 m, 29 June 1978, P. Barbour 2576 (Holotype: MO; Isotype: SEL), C. Luer illustr. 8701.

This species, indistinguishable from many of the other medium-sized members of the subgenus with glabrous leaves, was collected in the top branches of a canopy-tree about 26 meters high. Under this collection number at MO at least two species are included. One is *L. pholeter* described here, another is *L. nummularia*, and I suspect that still another species is present, but unfortunately no flowers are present. This last species is distinguished by peduncles up to 8 mm long and pedicels up to 4 mm long.

*Lepanthes pholeter* is distinguished from all others in the subgenus by the deeply concave synsepal, similar to that of *Stelis* section *Humboldtia*; tiny, linear petals; and a horse shoe-shaped lip surrounding the column.



Plate 17. *Lepanthes pholeter* Luer



***Lepanthes pilosella* Rchb.f., Flora 69: 556, 1886.**

Ety.: From the Latin *pilosella*, "a little hairy one," in reference to the pubescent leaves.

Syn.: *Lepanthes dasyphylla* Rchb.f., Flora 69: 557, #74, 1886.

Ety.: From the Greek *dasyphyllon*, "a shaggy leaf," in reference to the pubescent leaves.

Syn.: *Lepanthes peperomioides* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 97, 1920.

Ety.: Named for a similarity to the genus *Peperomia*.

Syn.: *Lepanthes saccosepala* L. B. Smith & Harris, Bot. Mus. Leaflet 2: 35, 1934.

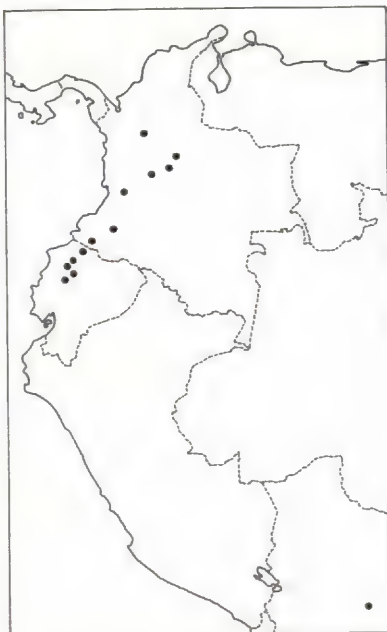
Ety.: From the Latin *saccosepalus*, "a saccate sepal," referring to the concave dorsal sepal.

Syn.: *Lepanthes palmaritoënsis* Garay, Canad. J. Bot. 34: 251, 1956.

**Plant** small to large for the subgenus, epiphytic, pendent, with branches up to 50 cm long or longer, the rhizomes slender, 2.5-5 mm long between ramicauls, enclosed by 2 ciliate, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls 1-2 mm long, concealed by 1 similar, lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, densely villous to sparsely pubescent or sometimes glabrous, elliptical, subacute to obtuse, 8-15 mm long, 5-7 mm wide, 3- to 5-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a congested, successively few-flowered raceme, borne by an ascending peduncle 1-2 mm long from near the apex of a ramicaul; floral bract ciliate, 1-2 mm long; pedicel 1-2 mm long; ovary lightly verrucose to spiculate, 0.5-1 mm long; **sepals** glabrous, the dorsal sepal translucent, colorless, prominently striped in purple along the veins, orbicular, deeply concave, 5 mm long and 5 mm wide, to 7 mm long and 7 mm wide, 7-veined, connate to the lateral sepals for 0.25-0.5 mm, the lateral sepals connate into an ovate, bifid lamina, 4-6 mm long, 2.5-4.5 mm wide, 4-veined, with the apices acute; **petals** white to yellow, more or less suffused with purple, glabrous, narrowly triangular to linear-oblong, acute, 1.25-1.75 mm long, 0.5 mm wide; **lip** white, yellow to purple, glabrous, transversely subquadrate to subcordate, 1.25-1.5 mm long, 1.5 mm wide expanded, with the apex broadly rounded to subtruncate, with the basal angles obtuse, with the sides encircling the column, the base connate to the base of the column; column 1 mm long, the anther and the stigma apical.

COLOMBIA: Without collection data, *F. C. Lehmann* 3217 (Holotype: W); without collection data, *F. C. Lehmann* 3368 (W, type of *L. dasyphylla*). "Cauca," alt. 2000 m, *M. Madero s.n.* (?B, type of *L. peperomioides*). Dept. of Antioquia: Embigado, Alto de Las Palmas, alt. 2400 m, collected by E. Valencia, flowered in cultivation at Colomborquideas, 18 Mar. 1989, *C. Luer* 14234 (MO); Dept. of Cauca: epiphytic in damp mountain forest on western slopes of the Farallones of Cali, alt. 2000 m, 15 Oct. 1882, *F. C. Lehmann* 1992 (G). Dept. of Cundinamarca: epiphytic in shady, moist forest above Pasca, alt. 2300 m, 4 Feb. 1883, *F. C. Lehmann* 2530 (G); Cordillera Oriental south of Bogotá, Valle de Palmarito east of Gutiérrez, temperate forest, alt. 2650 m, 22 July 1944, *M. L. Grant* 9628 (US, type of *L. palmaritoënsis*, AMES, WIS). Dept. of Nariño: above Ricaurte, alt. 1800 m, flowered in cultivation at La Planada, 25 Jan. 1987, *C. Luer* 12503 (MO). Dept. of Valle del Cauca: West Andes of Cali, alt. 2000 m, *F. C. Lehmann* 6833 (K). Dept. of Tolima: Nevado de Ruiz, between Murillo and Libano, alt. 2320 m, 8 Mar. 1984, *Linda Albert de Escobar*, *J. Santa*, *B. Madrigal* & *J. Roldán* 4188 (HUA, MO).

ECUADOR: Prov. of Carchi: Valle de Maldonado, alt. 2100-2200 m, 20 May 1973, *Holm-Nielsen et al.* 6072, 6073 (AAU); same area, alt. 2050-2400 m, 2 Apr. 1984, *C. Luer*, *S. Dalström* & *T. Höjjer* 9941, 9946 (MO); same area, alt. 1600-2300 m, 17 Mar. 1991, *C. Luer*, *J. Luer*, *J. del Hierro*, *A. & X. Hirtz*



15100, 15133, 15160 (MO). Prov. of Imbabura: west of Otavalo, alt. 1900 m, 1 May 1981, C. Luer, J. Luer & A. Hirtz 6076 (SEL); between Carolina and Buenos Aires, alt. 1950 m, 17 Jan. 1987, C. Luer, J. Luer, A. Hirtz & C. H. Dodson 12346 (MO). Prov. of Pichincha: in moss, forests on west flank of Pichincha, alt. 7000-8000 ft., W. Jameson s.n. (GH, type of *L. saccosepala*); old road between Quito and Santo Domingo, below Chiriboga, alt. 1950 m, 28 May 1988, C. Luer & A. Hirtz 13708 (MO); new road between Quito and Santo Domingo, above Tandapi, alt. 2100 m, C. Luer, J. Luer, A. Hirtz & X. Hirtz 11022 (MO); between Calacalí and La Liberia, alt. 2100 m, 7 Apr. 1984, C. Luer, A. Hirtz, S. Dalström & T. Höijer 10009 (MO).

BOLIVIA: Dept. of Santa Cruz: cloud forest near Siberia, alt. 2500 m, 1 Dec. 1978, C. Luer et al. 3590 (SEL); Caballero, north of Comarapa, alt. 2380 m, 2 Nov. 1990, R. Vásquez, D. Ric & A. Burela 1278 (MO), C. Luer illustr. 15532.

This species, the most common and most widely distributed member of the subgenus, is variable in its distribution through all three cordilleras of Colombia, through Ecuador and into Bolivia. Although no collections have been seen from Peru yet, it undoubtedly occurs there.

Vegetatively, this species is usually robust, but small, weak plants occur. The vegetative parts are usually covered by a dense, villous pubescence, but the leaves of some populations are only sparsely short-pubescent, and occasionally the leaves are glabrous. A population of the latter from the Eastern Cordillera was described as *L. palmaritioënsis*, and another exists in Bolivia.

The conspicuous flowers are borne in short, erect racemes. The dorsal sepal is orbicular, considerably larger than the synsepal, deeply concave, and prominently striped in purple along the seven veins. The petals are very small, varying in shape from triangular to linear, and from a half millimeter long to two millimeters long. The shape of the lip is not the same in any two populations. The broad sides encircle the column leaving the rostellum and stigma more or less exposed.

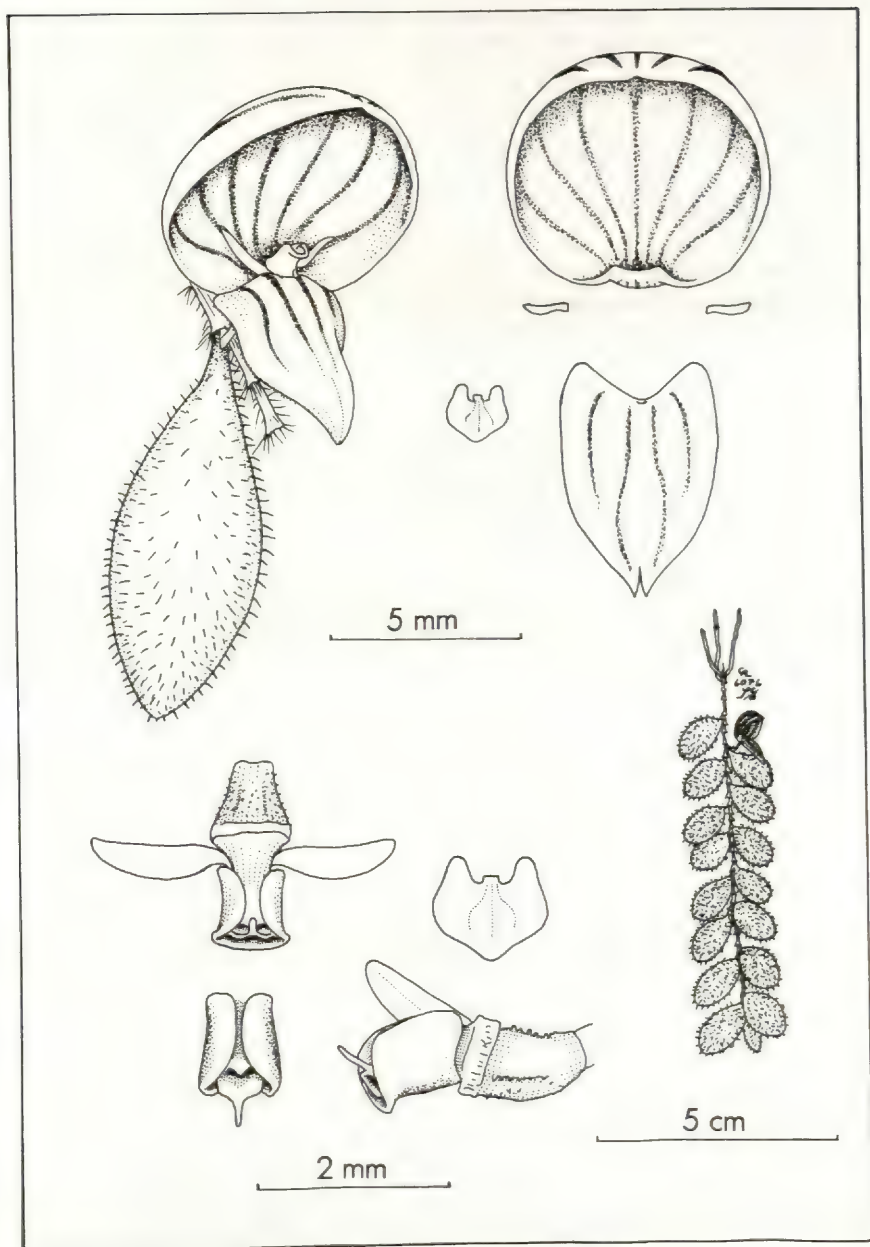
Other closely related, sympatric taxa include *L. erepsis* from southern Ecuador distinguished by a larger, 9-veined dorsal sepal petals trifid at the base; *L. ursula* from the Eastern Cordillera of Colombia distinguished by larger leaves, and considerably larger flowers that are densely pubescent externally; and *L. villosa* from northwestern Ecuador distinguished by longer, pubescent petals.

### *Lepanthes platysepalae* Luer & Escobar, sp. nov.

Ety.: From the Greek *platysepalon*, "a flat sepal," in reference to the pubescent leaves.

Species haec *L. pilosellae* Rehb.f. affinis, sed sepalo dorsali erecto obovato subplano plus minusve maculato differt.

**Plant** small to large for the subgenus, epiphytic, pendent, with branches up to 50 cm long or longer, the rhizomes slender, 2.5-5 mm long between ramicauls, enclosed by 2 ciliate, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls 1-2 mm long, concealed by 1 similar, lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, pubescent, elliptical, subacute to obtuse, 6-9 mm long, 4-5 mm wide, 3-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a congested, successively few-flowered raceme, borne by an ascending peduncle 1-2 mm long from near the apex of a ramicaul; floral bract ciliate, 1-2 mm long; pedicel 1-2 mm long; ovary lightly verrucose to lightly spiculate, 0.5-1 mm long; **sepals** glabrous, the dorsal sepal erect, orange, more or less mottled or suffused with brown or purple, broadly obovate, obtuse, shallowly concave, 6-8 mm long, 5 mm wide, 5-(7)-veined, connate to the lateral sepals for 0.25-0.5 mm, the lateral sepals connate into an ovate, bifid lamina, 4-5 mm long, 3.75-4.5 mm wide, 4-veined, with the apices acute; **petals** white to yellow, more or less suffused with purple, glabrous, triangular to linear-oblong, 1.75-2 mm long, 0.25-0.5 mm wide; **lip** white, yellow to purple, glabrous, subquadrate to transversely subcordate, 1-1.25 mm long, 1.5 mm wide expanded, with the apex broadly rounded to subtruncate, with the basal angles rounded, with the sides encircling the column, the base connate to the base of the column; column 1.5 mm long, the anther and the stigma apical.

Plate 18. *Lepanthes pilosella* Rchb.f.



COLOMBIA: Dept. of Antioquia: epiphytic in forest remnant east of Santo Domingo, alt. 1920 m, 12 May 1985, C. Luer, R. Escobar & E. Valencia 11354 (Holotype: MO); La Aldea west of Santo Domingo, alt. 2130 m, 10 May 1985, C. Luer, R. Escobar & E. Valencia 11323 (MO); northeast of Santa Rosa above the Miraflores Dam, alt. 2050 m, 15 May 1985, C. Luer, R. Escobar & E. Valencia 11370 (MO); Concepción, between Barbosa and Concepción, alt. 2380 m, 10 Apr. 1988, C. Luer, J. Luer & R. Escobar 13175B (MO); Urrao, Pabón, Las Cruces, alt. 2400 m, collected by E. Valencia, flowered in cultivation at Colomborquideas, 11 May 1985, C. Luer 11333 (MO).

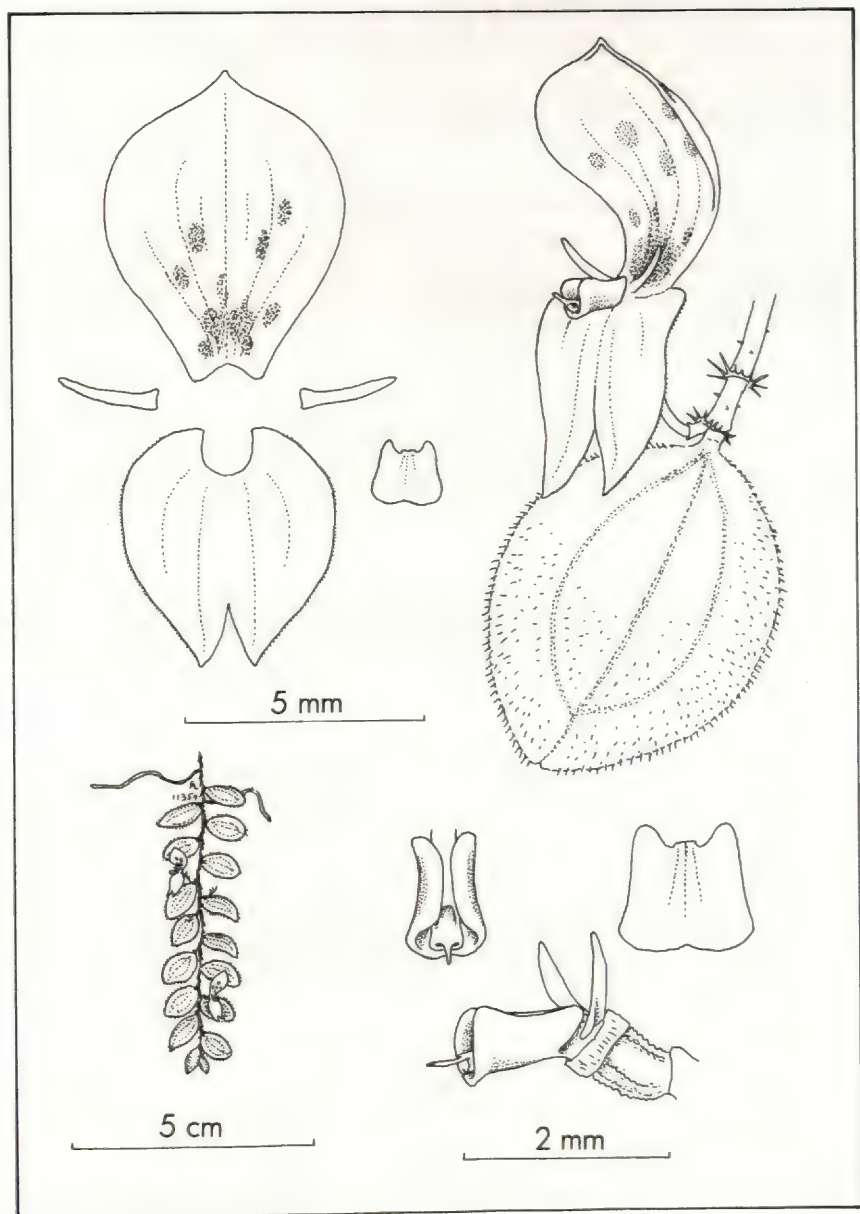


Closely related to the widely distributed *L. pilosella*, this species is frequent in the department of Antioquia, Colombia. It is indistinguishable from *L. pilosella* vegetatively, but *L. platysepala* is readily recognized by the usually spotted, erect, obovate dorsal sepal that is only shallowly concave or sometimes nearly flat. Usually five veins are present, but often there is a vestigial pair of veins between well-developed veins, so that five or seven veins can occur intermixed. Instead of being held within a deeply concave, striped dorsal sepal as in *L. pilosella*, the petals, lip and column are more or less exposed. The petals, lip and column of the two taxa are indistinguishable. As with *L. pilosella*, the shape of the lip is inconstant. This species could be treated as a geographical form of *L. pilosella*, but the very different appearance of the widely spread flower with the erect, more or less spotted, obovate, dorsal sepal is distinct. In *Native Colombian Orchids* volume 2, two photographs of this species are identified as *L. pilosella* and *L. peperomioides*,

***Lepanthes pseudocaulescens* L. B. Smith & Harris, Bot. Mus. Leaf. 2: 33, 1934.**

Ety.: From the Greek *pseudo-*, "false-," and the Latin *caulescens*, "becoming stemlike" in reference to some unknown aspect of the habit.

**Plant** small, epiphytic, pendent, with branches up to 20 cm long or longer, the rhizomes slender, 3-4 mm long between ramicauls, enclosed by 2 sparsely pubescent, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls up to 1 mm long, concealed by 1 similar, lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, ciliate, sparsely pubescent, broadly elliptical, obtuse, 3-6 mm long, 3-5 mm wide, 3-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a single flower borne by an ascending peduncle 1-1.5 mm long from near the apex of a ramicaul, sometimes followed by a second flower; floral bract ciliate, 1 mm long; pedicel 0.75-1 mm long; ovary glabrous, 1 mm long; **sepals** similar, widely spread, red to red-brown, glabrous, ovate, acute, the dorsal sepal, 3-4 mm long, 1.75-2.25 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals slightly oblique, 3-4 mm long, 1.3-1.75 mm wide, 2-(3)-veined, connate 0.5 mm; **petals** yellow, ciliate, transversely bilobed, 0.5 mm long, 3 mm wide, the lobes obliquely narrowly triangular, acute, the upper lobe longer than the lower; **lip** purple, microscopically ciliate-pubescent, subcordate, 1.5 mm long, 1.5 mm wide expanded, the basal angles acute, the sides encircling the column, arcuate in the side view, the apex broadly rounded, the base connate to the base of the column; column stout, 1.25 mm long, the anther dorsal, the stigma ventral.

Plate 19. *Lepanthes platysepala* Luer & Escobar

COLOMBIA: Dept. of Cauca: highlands of Popayán, alt. 1400-1800 m, July 1901, *F. C. Lehmann* B.T. 352 (Holotype: GH; Isotypes: AMES, G). Dept. of Nariño; epiphytic in forest above Ricaurte, alt. 1600 m, 3 Nov. 1979, *C. Luer, J. Luer, A. Hirtz & K. Walter* 4516, 4575 (SEL). Dept. of Valle del Cauca: La Cumbre, 19 Sept. 1922, *Killip* 11417 (?F).  
 ECUADOR: Prov. of Napo: epiphytic in forest on the eastern slopes of Volcán Reventador, alt. 1850 m, 8 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree* 11715 (MO).



This species from southern Colombia and northern Ecuador is another of the numerous, nineteenth century collections of Lehmann. It is similar vegetatively to many of the other species of the subgenus, but it is distinguished by the ovate, acute sepals; transversely bilobed petals with the lobes long-ciliate and narrowly triangular; and a cordate lip with acute basal lobes and sides the engulf the column. The illustration published with the original description is misleading with the lip drawn expanded.

***Lepanthes ricii* Luer & Vásquez, sp. nov.**

Ety.: Named in honor of Darwin Ric of Montero, Bolivia, co-discoverer of this species.

*Planta parva repens pendens, vaginis rhizomatis longispiculatis, foliis ellipticis glabris, inflorescentia uniflora, sepalis ovatis subacutis, petalis anguste linearibus ciliatis base biauriculatis, labello cordato apice rotundato lobis basalibus columnam amplectentibus.*

**Plant** small, epiphytic, pendent, long-repent, the rhizome 3-5 mm long between ramicauls, occasionally branching, each segment enclosed by 2-3 long-spiculate sheaths with dilated ostia; roots slender, along the rhizome. Ramicauls abbreviated, 1 mm long, enclosed a long-spiculate, lepanthiform sheath. **Leaf** descending, coriaceous, glabrous, broadly elliptical, obtuse, 5-7 mm long, 4-5 mm wide, 3- to 5-veined, the base cuneate into a petiole less than 1 mm long. **Inflorescence** a single flower, borne by a slender, upcurved peduncle 1 mm long; floral bract glabrous, 1 mm long; pedicel 1.5-2 mm long; ovary 0.75 mm long; **sepals** ovate, subacute, glabrous, the dorsal sepal 4.5 mm long, 3 mm wide, 3- to 5-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals oblique, 4 mm long, 2 mm wide, connate 1 mm, 3-veined; **petals** narrowly linear, narrowly obtuse, long-ciliate, 3 mm long, 0.5 mm wide, the base minutely biauriculate, 1 mm wide; **lip** cellular-pubescent, cordate, 2 mm long, 1.8 mm wide, the apex rounded, the basal lobes embracing the column, the base connate to the base of the column; **column** 1 mm long, the anther dorsal, the stigma apical.

BOLIVIA: Dept. of Santa Cruz: Prov. of Caballero, north of Comarapa, alt. 2380 m, 2 Nov. 1990, *R. Vásquez, D. Ric & A. Burela* 1277 (Holotype: MO; Isotype: herb. Vásquezianum), *C. Luer* illustr. 15533.

In general habit this species is similar to most of the others of the subgenus. It is distinguished by the small, glabrous leaves; long-spiculate sheaths of the rhizome and ramicauls; ovate, subacute sepals; narrowly elongate, long-ciliate petals; and an obtusely cordate lip.





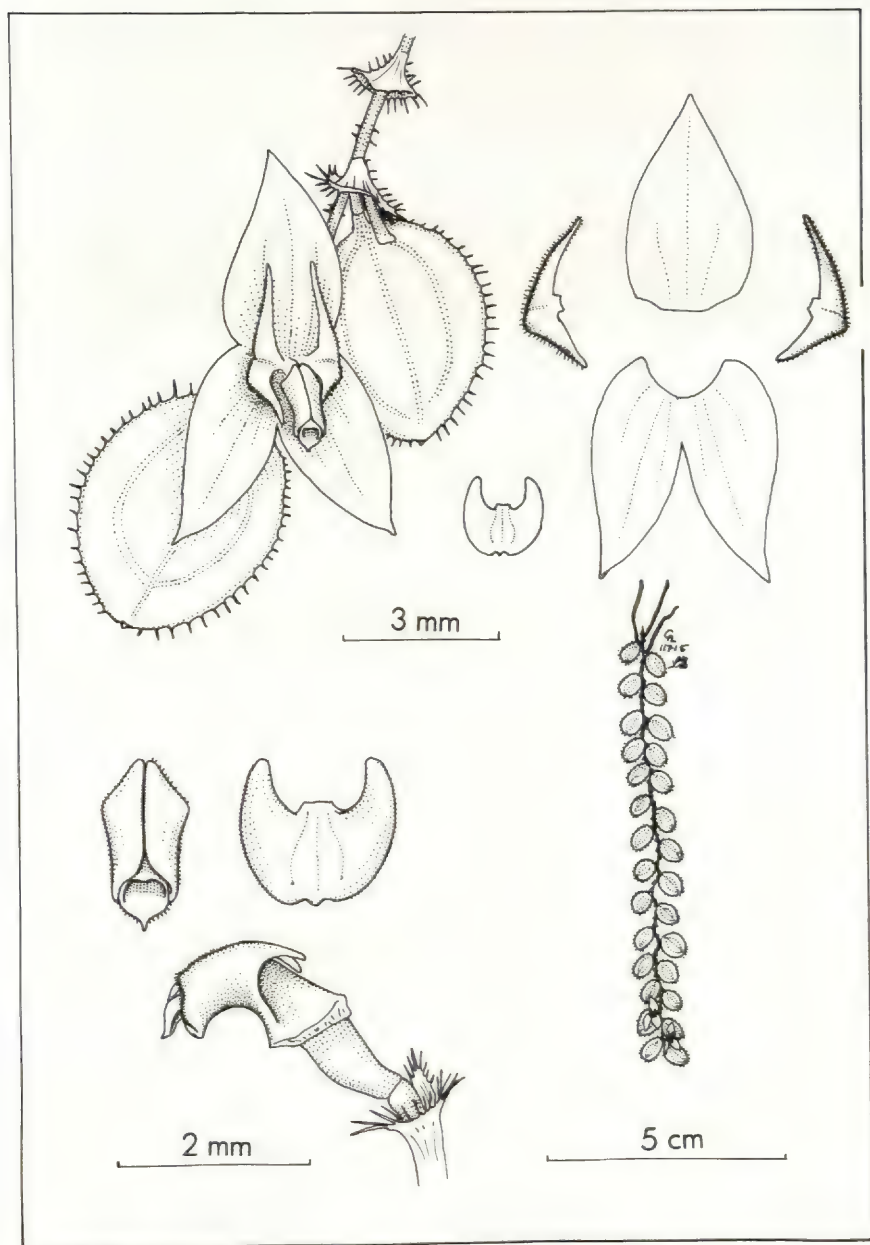


Plate 20. *Lepanthes pseudocaulescens* L. B. Smith & Harris

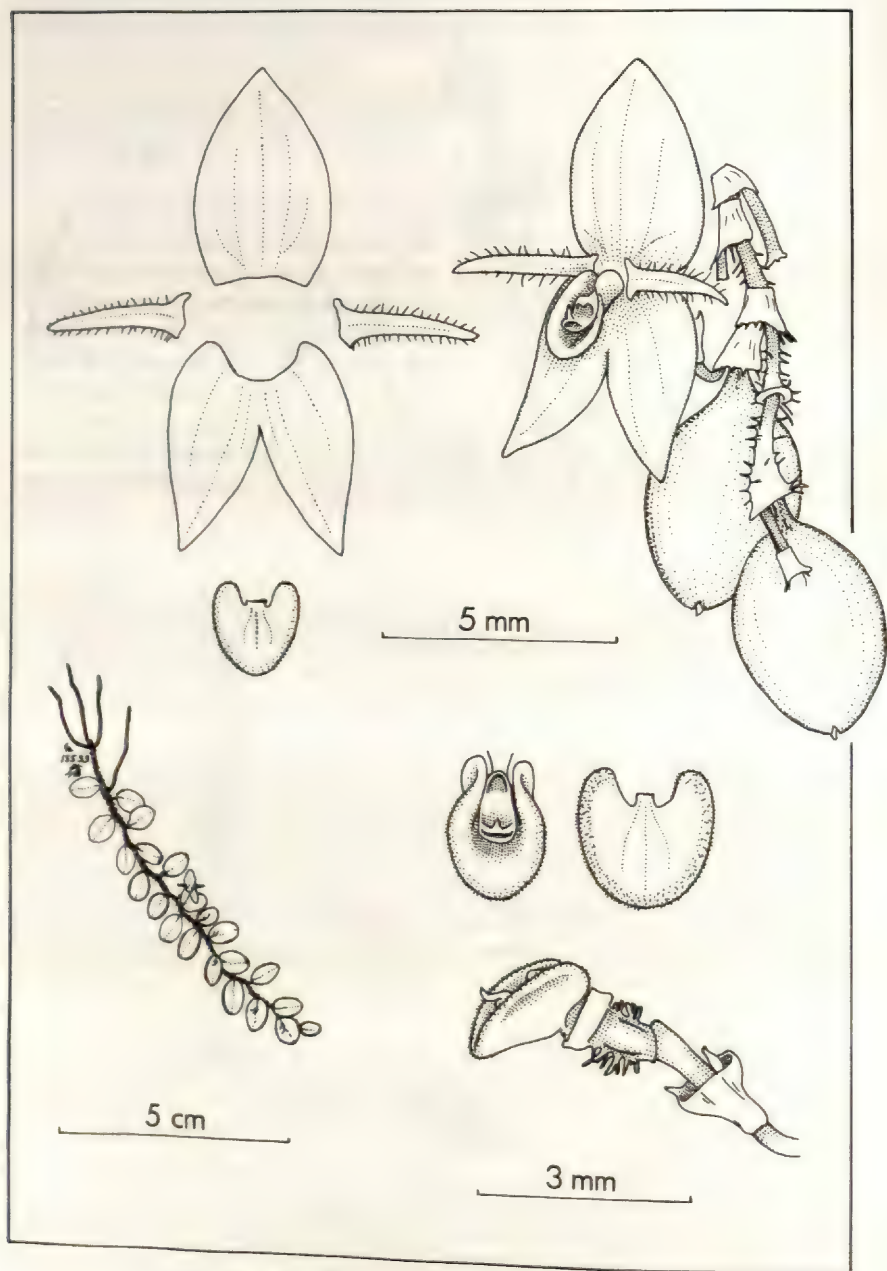


Plate 21. *Lepanthes ricii* Luer & Vásquez

***Lepanthes stalactites* Luer & Hirtz, *Lindleyana* 2: 105, 1987.**

Ety.: From the Greek *stalaktos* (Latin *stalactites*), "a stalactite," in reference to the dangling habit of the plant.

**Plant** coarse, large for the subgenus, epiphytic, pendent, up to a meter long, the rhizome stout, 3-5 mm long between ramicauls, enclosed by 2 loose sheaths, roots coarse at the base. Ramicauls stout 2 mm long, enclosed by 2 glabrous, lepanthiform sheaths. **Leaves** pendent, overlapping, thickly coriaceous, elliptical, subacute, 9-16 mm long, 7-11 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, successively few-flowered raceme up to 3 mm long, including the peduncle ca. 1 mm long, borne on top of the leaf; floral bracts 1 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** cellular-pubescent, the dorsal sepal red-orange, red-brown toward the base, obovate, obtuse, 2.5 mm long, 2 mm wide, free from the lateral sepals, the lateral sepals red-brown, elliptical, obtuse, 2.3 mm long, 1.2 mm wide, 1-veined, connate 1 mm; **petals** dark purple, transversely bilobed, shortly pubescent, 0.5 mm long, 1.6 mm wide, the upper lobe oblong, incurved, rounded, the lower lobe slightly longer, oblong, obtusely angled on the inner margin, obtuse; **lip** deep purple, bilaminate, the blades shortly pubescent, ovoid, 0.8 mm long, held to either side of the column by oblong connectives, the body connate to the base of the column, the sinus occupied by a comparatively large, triangular, concave appendix; **column** thick, 1.2 mm long, 1 mm broad at the apex, the anther dorsal, the stigma ventral.

ECUADOR: Prov. of Loja: epiphytic in cold, cloud forest above Jimbura, alt. 3000 m, 21 March 1984, C. Luer, S. Dalström, T. Höijer & J. Kuijt 9657 (Holotype: MO); same area, 21 Feb. 1986, alt. 2900 m, C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11991 (MO). Prov. of Azuay: Km 69 Cuenca-Loja, alt. 2650 m, 30 Nov. 1984, C. H. Dodson & B. Malo 15492 (MO).

PERU: Dept. of Piura: Ayabaca, along trail to Laguna Prieta, alt. 3150 m, 16 Mar. 1993, D. Bennett 5844 (MO).

Vegetatively this species is probably the largest and the coarsest of all the species in the subgenus. Long, pendent cylinders of the fleshy, overlapping leaves dangle in masses or individually from the undersurfaces of large, mossy, horizontal tree trunks in the cold, mountain forests above Jimbura near the Peruvian border. It is locally abundant, some large branches supporting dozens of the dangling, stalactite-like plants. The flowers are small but numerous. Similar to subgenus *Lepanthes*, the petals are transversely bilobed, and the lip is bilaminate.

***Lepanthes triangularis* Luer, sp. nov.**

Ety.: From the Latin *triangularis*, "triangular," referring to the shape of the flower.

Inter species subgeneris *Brachycladii* Luer, foliis glabris, racemis suberectis congestissimis, sepalis triangularibus acutis marginatis, petalis transverse bilobis glabris et labello cordato apice rotundo lobis basalibus erectis columnam amlectentibus distinguitur.



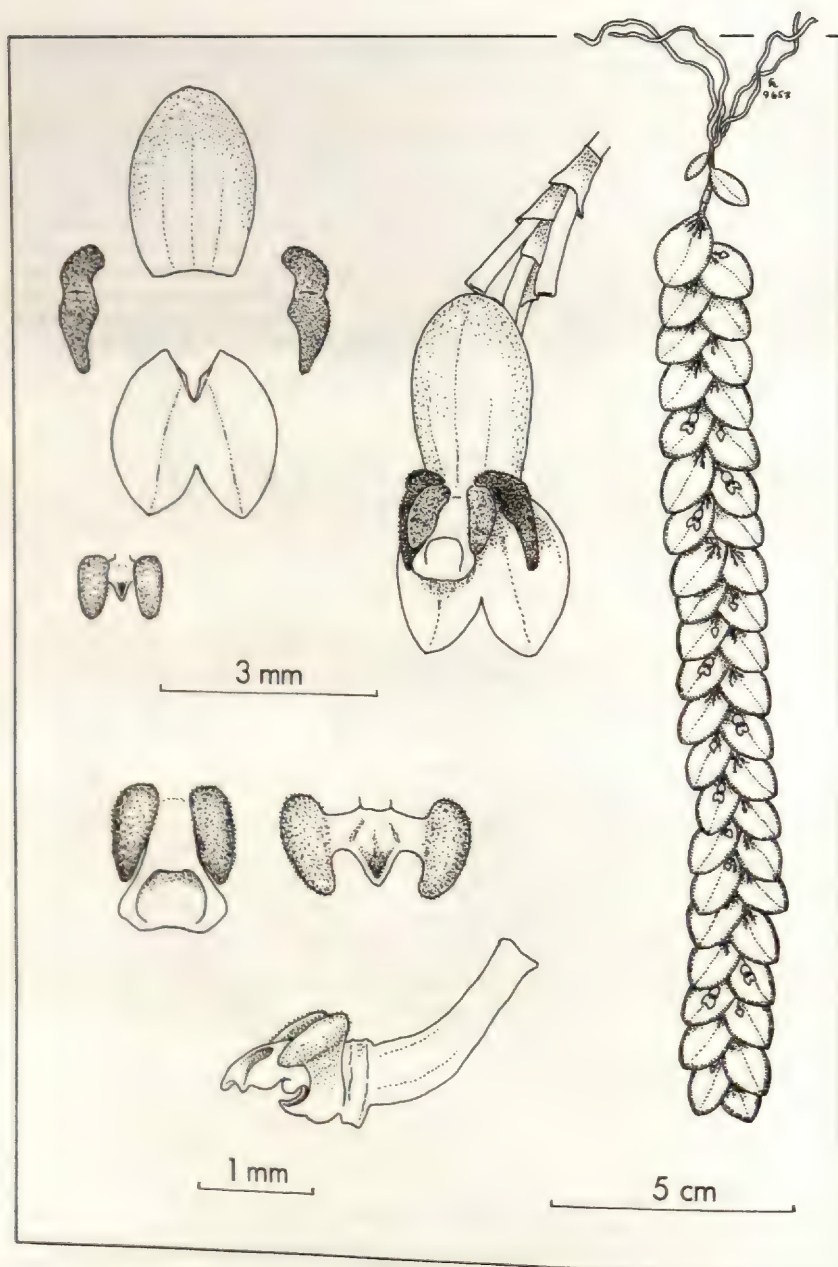
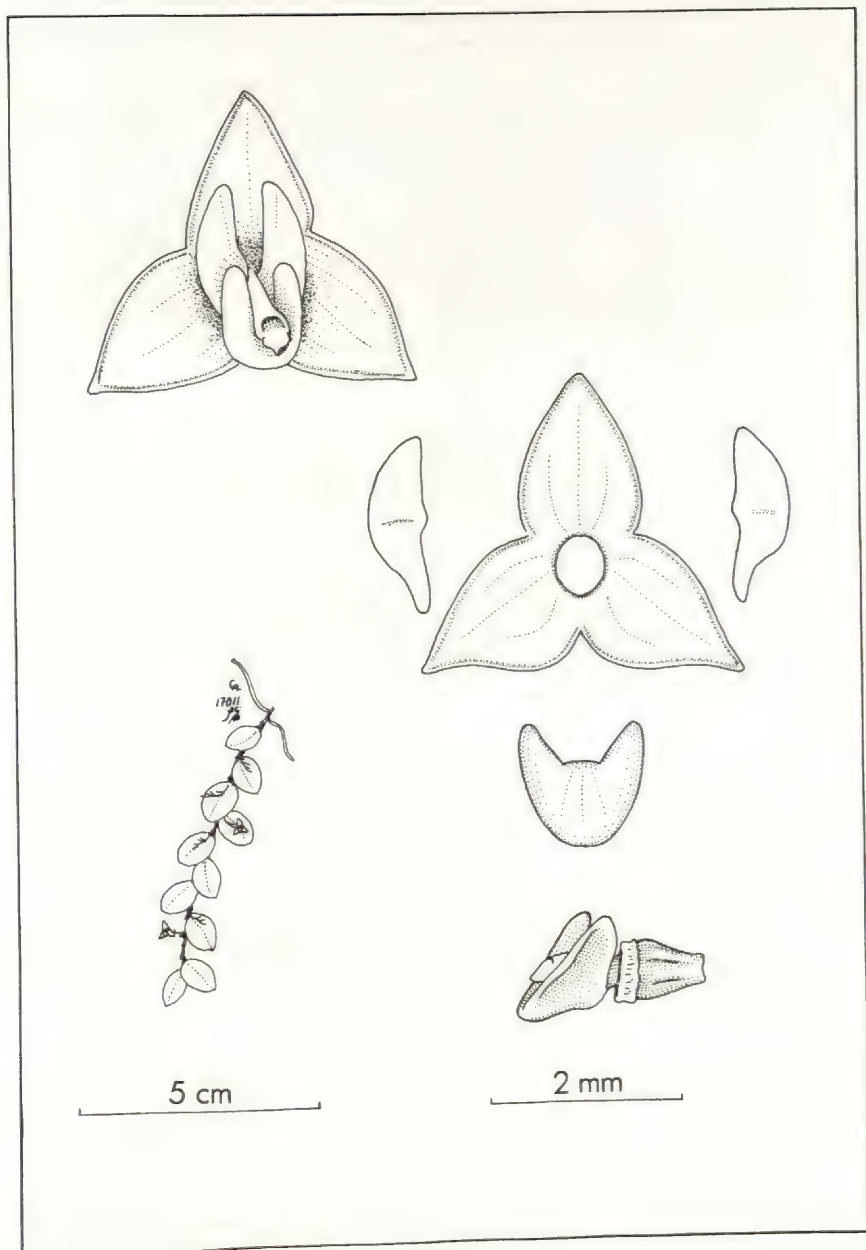


Plate 22. *Lepanthes stalagtites* Luer & Hirtz

Plate 23. *Lepanthes triangularis* Luer

**Plant** average in size for the subgenus, epiphytic, pendent, up to 40 cm long or longer, the rhizome slender, 4-5 mm long between ramicauls, enclosed by 2 long-spiculate, imbricating, lepanthiform sheaths; roots slender, from internodes and near the base. Ramicauls 1 mm long, concealed by 1 long-ciliate, lepanthiform sheath. **Leaf** pendent, thickly coriaceous, glabrous, broadly elliptical, obtuse to rounded at the apex, 8-11 mm long, 5-7 mm wide, the base contracted into a petiole less than 1 mm long. **Inflorescence** a congested raceme of 3 to 8 flowers up to 2 mm long, borne by a peduncle 1-2 mm long from near the apex of a ramicaul; floral bract spiculate, 1.5 mm long; pedicel 2 mm long; ovary 0.75 mm long, glabrous; flowers stated by the collector to be entirely dark red; **sepals** fleshy, the dorsal sepal triangular, acute, with well-defined, thickened margins, 1.75 mm long, 1.25 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals diverging, similar to the dorsal sepal; **petals** transversely bilobed, glabrous, 0.5 mm long, 1.8 mm wide the lobes subequal, obliquely triangular, narrowly obtuse, the lower lobe narrower; **lip** subcordate-horse shoe-shaped, with the apex broadly rounded, the basal lobes obtuse, erect, embracing the column, 0.8 mm long centrally, 1.25 mm long from basal lobes, 1.25 mm wide expanded, the disc featureless, 3-veined, the base connate to the base of the column; column 0.5 mm long, with the anther dorsal and the stigma ventral.

COLOMBIA: Dept. of Magdalena: Sierra Nevada de Santa Marta, between La Cebolleta and Yerba Buena, alt. ca. 2300 m, Jan-Feb, 1959, H. G. Barclay & P. Juaquibio 6809 (Holotype: MO), C. Luer illustr. 17011.

This species is known only from the original, dried material that was collected on the Sierra Nevada de Santa Marta. Vegetatively it is indistinguishable from any of the other medium-sized, pendent members of the subgenus with glabrous leaves. The inflorescences are produced copiously, each ramicaul bearing a congested raceme of up to eight tiny, dark red flowers. The sepals are triangular, acute, equally diverging, and with well-defined, thickened margins. The petals are glabrous and transversely bilobed. The lip is more or less cordate with a rounded apex and basal lobes that flank the column.



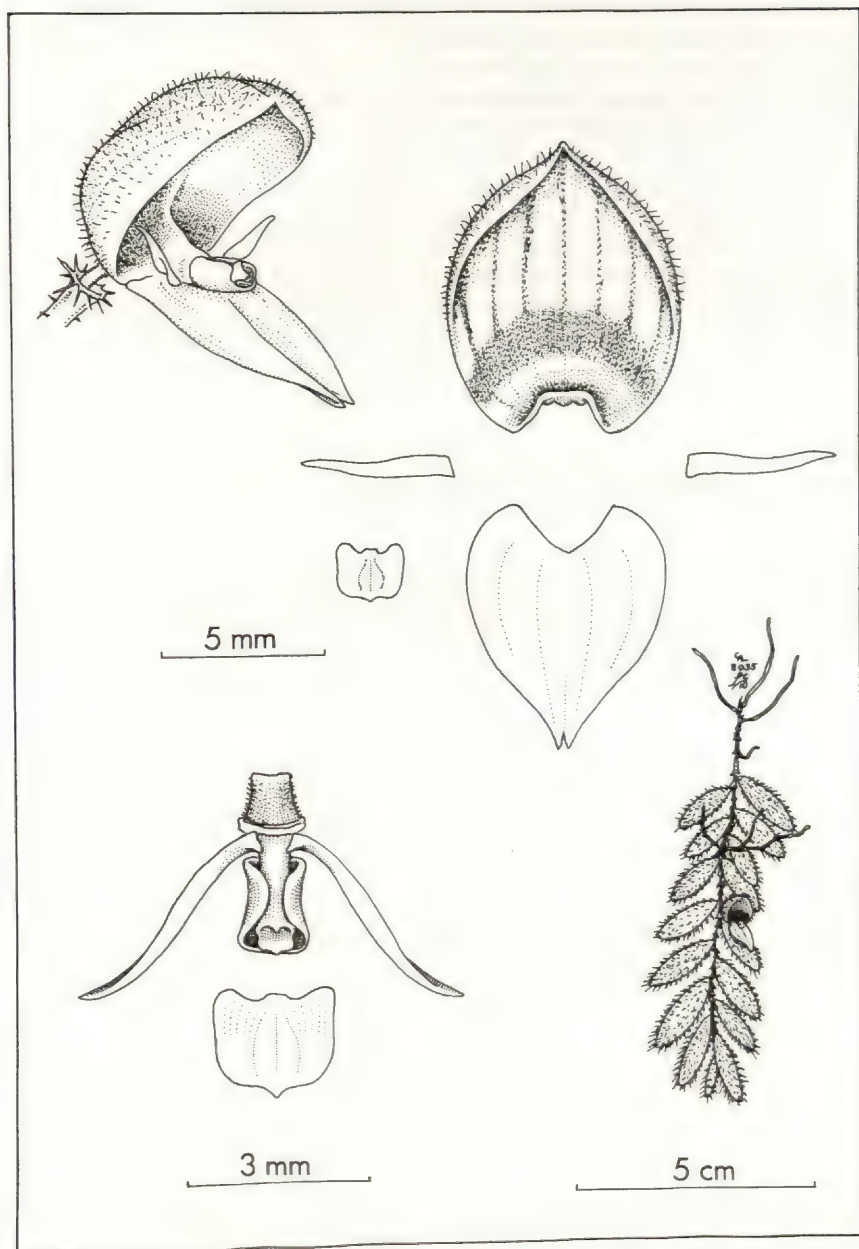
### ***Lepanthes ursula* Luer & Escobar, sp. nov.**

Ety.: From the Latin *ursula*, "a cub bear," in allusion to the large "wooly" leaves and dorsal sepal.

Species haec *Lepanthidis pilosellae* Rchb.f. affinis, sed foliis floribusque majoribus et sepalis pubescentibus extus differt.

**Plant** large for the subgenus, epiphytic, pendent, with branches up to 50 cm long or longer, the rhizomes slender, 3-4 mm long between ramicauls, enclosed by 2 ciliate, imbricating, lepanthiform sheaths; roots slender, from nodes near the base of the branches. Ramicauls 1 mm long, concealed by 1 similar, lepanthiform sheath. **Leaf** pendent in the natural position, coriaceous, densely villous, elliptical, acute to subacute, 12-20 mm long, 4-6 mm wide, 5-veined, the base contracted into a petiole less than 1 mm long. **Inflorescence** a congested, successively few-flowered raceme, borne by an ascending peduncle 0.5-1 mm long from near the apex of a ramicaul; floral bract ciliate, 0.5-1 mm long; pedicel 0.5-1 mm long; ovary shortly ciliate, 1 mm long; **sepals** long-pubescent externally, the dorsal sepal light yellow, veined in purple, with a broad band of purple above the base, concave, broadly obovate to orbicular, obtuse, 9 mm long, 7 mm wide, 7-veined, connate to the lateral sepals for 1 mm, the lateral sepals yellow-orange, suffused with purple, connate into an ovate, acute, shortly bifid lamina, 7.5 mm long, 6.25 mm wide, 4-veined; **petals** white, glabrous, elliptical, acute, 2 mm long, 0.5 mm wide; **lip** yellow, glabrous, subquadrate, 1.75 mm long, 2 mm wide expanded, with obtuse basal angles, the sides encircling the column, the apex broadly obtuse, the base connate to the base of the column; column 2 mm long, the anther and the stigma apical.





COLOMBIA: Dept. of Boyacá: epiphytic in scrub forest between Duitama and Virolin, alt. 2600 m, 1 June 1982, C. Luer, J. Luer, R. Escobar & D. Portillo 8034 (Holotype: SEL).

This species is known from only one collection in the Eastern Cordillera of Colombia where it was found growing with two other species of the subgenus: *L. dactyla* and *L. monilia*. Related to *L. pilosella*, *L. ursula* is also distinguished by villous leaves, and they are the largest known in the subgenus. The flowers are also large, and long-pubescent externally. A prominent purple band is present above the base of the orbicular, deeply concave, seven-veined dorsal sepal. The petals are two millimeters long, but sometimes petals this large are also seen in *L. pilosella*. Although a little larger, the lip is not significantly different.



***Lepanthes villosa* Løjtnant, Bot. Notiser. 130, 1977.**

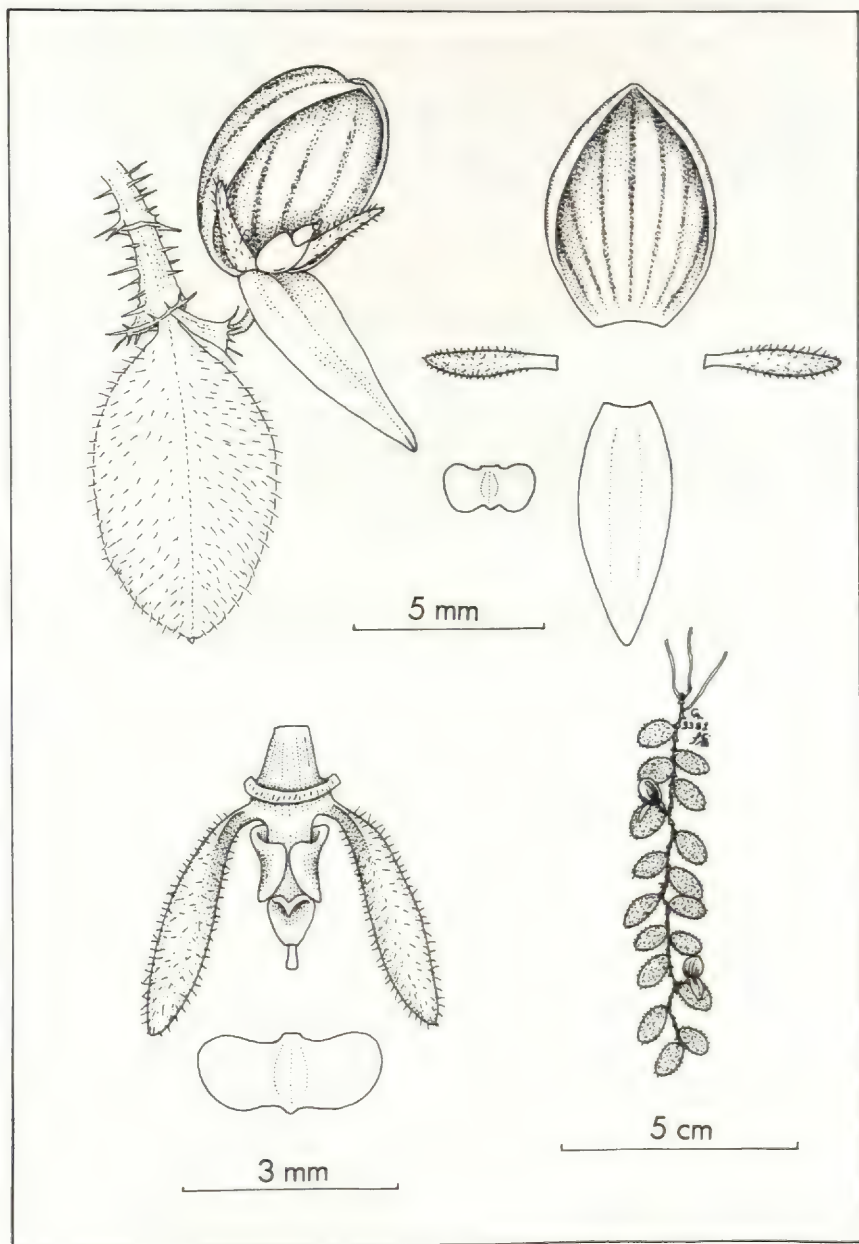
Ety.: From the Latin *villosus*, "villous," referring to the long-pubescent petals.

**Plant** small, epiphytic, pendent, occasionally branching, the branches 30 cm or more long, the rhizome slender, 3-5 mm long between ramicauls, enclosed by 2 long-ciliate, imbricating sheaths with dilated ostia; roots slender, from along the rhizome. Ramicaul 1 mm long, enclosed by 1 similar sheath. **Leaf** pendent, coriaceous, long-pubescent, elliptical, subacute, 7-10 mm long with a petiole less than 1 mm long, 5-7 mm wide, the base cuneate. **Inflorescence** a single flower, borne by an ascending peduncle 1 mm long; floral bract ciliate, 1.5 mm long; pedicel 1.5 mm long; ovary 0.75 mm long; **sepals** translucent, glabrous, marked in purple, the dorsal sepal cream-colored, spotted with purple along the veins, suborbicular, deeply concave, 6.5 mm long, 6 mm wide expanded, 7-veined, the lateral sepals spotted with purple, connate into a narrowly ovate lamina 6.5 mm long, 2.5 mm wide, 4-veined, the acute apex minutely bifid; **petals** purple, long-pubescent, linear-elliptical, acute, 3.5-5 mm long, 0.9 mm wide; **lip** dark purple, glabrous, transversely oblong, with the sides surrounding the column, 1 mm long, 2.5 mm wide expanded, the apical margin transverse, with a short, obscure apiculum, the base connate to the base of the column; **column** 1.5 mm long, the anther and stigma apical.

ECUADOR: Prov. of Carchi: Valle de Maldonado, montane forest between Tulcán and Maldonado, alt. 2400 m, 20 May 1973, Holm-Nielsen, Jeppesen, Løjtnant & Øllgaard 6151 (Holotype: AAU); between Tulcán and Maldonado, alt. 2500 m, 25 Aug. 1978, C. Luer, J. Luer & A. Hirtz 3382 (SEL); same area, alt. 2050 m, 2 Apr. 1984, C. Luer, S. Dalström & T. Höjjer 9931 (MO); alt. 2400 m, 4 Apr. 1984, C. Luer, S. Dalström & T. Höjjer 9945 (MO); same area, alt. 2300 m, C. Luer, J. Luer, J. del Hierro, A. Hirtz & X. Hirtz 15159 (MO). Prov. of Imbabura: Selva Alegre, alt. 1400 m, May 1989, A. Hirtz & X. Hirtz 4251 (MO).

This species is known from the western slopes of the Andes of northern Ecuador where it is not uncommon. Vegetatively, it is inseparable from *L. pilosella*. As in *L. pilosella*, seven veins are present in the large, suborbicular dorsal sepal. Most distinctive in *L. villosa* are the larger, longer, villous petals. The lip is transversely oblong with the sides encircling the column as in *L. pilosella*.



Plate 25. *Lepanthes villosa* Lojtnant



## REFERENCES

- DRESSLER, R. L., 1981. The orchids: natural history and classification. Harvard University Press, Cambridge, MA.
- 1993. Phylogeny and classification of the orchid family. Dioscorides Press, Portland, OR.
- ESCOBAR, R., 1991. Native Colombian Orchids, vol. 2. Editorial Colina, Compañía Litográfica Nacional S. A., Medellín, 233.
- LUER, C. A., 1986. Icones Pleurothallidarum I. Systematics of the Pleurothallidinae. Monogr. Syst. Bot. Missouri Bot. Gard. 15: 29-34.
- REICHENBACH, H. G., 1856. *Lepanthes* Sw. Xenia Orchidaceae 1: 140-158.
- SMITH, L. B. & S. K. HARRIS, 1934, Bot. Mus. Leaflet 2: 33-36.

## ACKNOWLEDGMENTS

I thank Rodrigo Escobar and Alexander Hirtz for their indispensable help in obtaining specimens for study from Colombia and Ecuador respectively, and Colomborquídeas for making available their extensive collection of cultivated species of subgenus *Brachycladium*.

## INDEX OF SCIENTIFIC NAMES

- Lepanthes* 1, 2  
   *subgen. Brachycladium* 1, 2, 3, 4, 5, 33  
   *subgen. Lepanthes* 2, 3  
   *sect. Amplectentes* 3, 4  
   *sect. Bilamellatae* 3, 4  
   *sect. Brachycladae* 1, 2, 3, 4  
   *sect. Canlescentes* 2  
   *sect. Macrocladae* 1
- Lepanthes cardiophila* 1, 5, 6, Plate 1.  
*catella* 4, 5, 6, Plate 2., 11, 24  
*ciliaris* 1, 4, 5, 8, Plate 3.  
*composita* 1, 5, 11, Plate 4.  
*dactyla* 4, 5, 11, Plate 5., 48  
*dasyphylla* 1, 5, 35  
*destituta* 4, 5, 14, Plate 6., 18  
*erepsis* Frontispiece, 5, 16, Plate 7., 36  
*hippocrepica* 4, 5, 16, Plate 8., 18  
*irrasa* 1, 4, 5, 18, Plate 9.  
*lunaris* 1, 4, 5, 21, Plate 10.  
*lupula* 4, 5, 11, 21, Plate 11., 24  
*micropetala* 4, 5, 11, 18, 24, Plate 12., 26  
*monilia* 4, 5, 8, 26, Plate 13., 48
- Lepanthes nummularia* 1, 2, 3, 4, 5, 8, 28,  
   Plates 14., 15., 33  
   *ospinae* 5, 28  
   *palmaritoensis* 5, 35, 36  
   *pendens* 4, 5, 8, 29, Plate 16.  
   *peperomioides* 1, 5, 35, 38  
   *pholeter* 1, 4, 5, 33, Plate 17.  
   *pilosella* 1, 3, 5, 6, 8, 11, 16, 35, Plate 18.,  
     36, 38, 46, 48  
   *platysepala* 1, 5, 11, 36, Plate 19., 38  
   *polygonoides* 5, 28  
   *pseudocaulescens* 1, 4, 5, 38, Plate 20.  
   *ricii* 1, 4, 5, 40, Plate 21.  
   *saccosepala* 5, 35  
   *stalactites* 3, 4, 5, 43, Plate 22.  
   *triangularis* 1, 5, 43, Plate 23.  
   *ursula* 1, 5, 36, 46, Plate 24., 48  
   *villosa* 5, 36, 48, Plate 25.
- Pleurothallis*  
   *Sect. Apodae-Prorrepentes* 21  
   *Stelis* 29  
   *Sect. Humboldtia* 33

## SYSTEMATICS OF THE SUBGENUS AENIGMA OF PLEUROTHALLIS (ORCHIDACEAE)

### ABSTRACT

Subgenus *Aenigma* Luer of *Pleurothallis* R. Br. is described. A key to the species is given. Each species is described and illustrated with a black and white drawing, and a distribution map is included for each species.

**New taxa:**

*Pleurothallis dalstroemii* Luer, sp. nov.

*Pleurothallis hystricosa* Luer, sp. nov.

*Pleurothallis pentamytera* Luer, sp. nov.

*Pleurothallis pogonion* Luer, sp. nov.

This subgenus was first recognized in *Systematics of Pleurothallis*, volume 3 of *Icones Pleurothallidarum* in 1986. As the name *Aenigma* implies, the relationship of these species among the *Pleurothallidinae* is puzzling. Collections of these species had been made by several collectors during the past century, but none had been described before *Pleurothallis vestigipetala* in 1977. The earliest recorded collection of a species of the subgenus is *P. vestigipetala* made by F. C. Lehmann in Colombia in February 1892, although an undated collection of *P. schizopogon* by Hübsch in Ecuador was probably earlier. Lehmann had also made a collection of *P. trimytera* in Colombia in 1892.

The features that set this small group apart from any of the others of the genus *Pleurothallis* is the combination of the following. The rhizome is more or less repent and ascending which often produces caespitose plants. The inflorescence is a loose, successively flowered raceme that may or may not surpass a narrowly elliptical-obovate leaf. The ovary is papillose or spiculate in five of the six species. The sepals and petals are more or less acuminate, but in two species the petals are microscopic, similar to those of *Lepanthes micropetala* L.O. Williams and its close allies. The lip is variable from entire to three-lobed. Seemingly more closely allied to subgenus *Pleurothallis* than to either subgenus *Acianthera* or *Specklinia*, the column is semiterete with an apical or subapical anther, rostellum and stigma, and without a column-foot. The pair of pollinia is provided with a minute viscidium. Some distant relationship with *Lepanthes* could be speculated.

Only four species, all of which had been described in the previous dozen years, were included in the description of the subgenus in 1986. Four more species are now added to bring the total to eight. All are found in moist or wet forests of the Andes at relatively high to high altitudes between 2000 and 3000 meters above sea level. Five of the species are rare and restricted in their distribution, but two are relatively frequent, while one is widely distributed.

The subgenus is currently divided into two sections. The seven species included in section *Aenigmata* are clearly related. The one species with a smooth ovary and microscopic petals is segregated into monotypic section *Vestigipetalae*. One of the seven other species also has microscopic petals. In addition to the extremely small petals, the lip of *P. vestigipetala* is also "invisible." It is thin, simple and membranous, wrapped around the cylindrical shaft of the much larger column.

**Pleurothallis** subgenus **Aenigma** Luer, *Icones Pleurothallidinarum* III, Systematics of *Pleurothallis*, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 26, 1986.

Type: *Pleurothallis schizopogon* Luer, *Selbyana* 5: 179, 1979.

Ety.: From the Latin *aenigma*, "an aenigma," referring to the puzzling relationships of the species within the *Pleurothallidinae*.

**Plants** perennial, very small to medium in size, epiphytic, shortly to long-repent, ascending to caespitose with more or less fasciculated ramicauls, the rhizome abbreviated or elongated; roots slender, but thick in proportion to the rhizome or ramicaul. Ramicauls erect, short to markedly abbreviated, non-pseudobulbous, unifoliate, mostly or completely enclosed by 1 or 2 thin, ribbed, glabrous sheaths. **Leaf** erect to suberect in relation to the ramicaul, coriaceous to thickly coriaceous, smooth, green, more or less elliptical, the apex acute to subacute, shallowly notched with a mucro in the sinus, the base cuneate into a short petiole. **Inflorescence** a successively few to several-flowered raceme, the flowers resupinate, variously colored, borne by a slender peduncle that emerges laterally from the ramicaul with an annulus below the apex; floral bracts thin, tubular, acute; pedicels slender, longer than the floral bract; ovary smooth to densely papillose or spiculate, trivalvate; **sepals** membranous, acute to obtuse, sometimes caudate, the dorsal sepal free from the lateral sepals, the lateral sepals partially connate to free, sometimes pubescent; **petals** simple, linear, sometimes vestigial; **lip** entire to trilobed, the base attached to the base of the column; **column** terete to clavate, non-winged, the apex dilated, the anther and stigma apical or subapical, the pollinia 2, obovoid, with a microscopic viscidium, the base of the column footless.

**Aenigma** sect. **Aenigmata** Luer, *Icones Pleurothallidinarum* III, Systematics of *Pleurothallis*, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 26, 1986.

Type: *Pleurothallis schizopogon* Luer

This section is characterized by the long-spiculate ovaries, and a column shorter than the lip. Six species are included.

**Aenigma** sect. **Vestigipetalae** Luer, *Icones Pleurothallidinarum* III, Systematics of *Pleurothallis*, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 26, 1986.

Type: *Pleurothallis vestigipetala* Luer

This monotypic section is characterized the glabrous ovary; free lateral sepals; vestigial petals; and a terete column longer than the simple lip appressed beneath.

## LIST OF SPECIES

<i>Pleurothallis dalstroemii</i> Luer.....	Plate 1.
<i>Pleurothallis hystricosa</i> Luer.....	Plate 2.
<i>Pleurothallis ibex</i> Luer.....	Plate 3.
<i>Pleurothallis pentamytra</i> Luer.....	Plate 4.
<i>Pleurothallis pogonion</i> Luer.....	Plate 5.
<i>Pleurothallis schizopogon</i> Luer.....	Plate 6.
<i>Pleurothallis trimytera</i> Luer & Escobar.....	Plate 7.
<i>Pleurothallis vestigipetala</i> Luer.....	Plate 8.



## KEY TO THE SECTIONS AND SPECIES OF SUBGENUS AENIGMA

Section *Vestigipetalae*

- 1 Ovary glabrous; lip smaller than the column.....*P. vestigipetala*

Section *Aenigmata*

- 1' Ovary papillose or spiculate; lip larger than the column.....2
- 2 Petals minute, vestigial.....*P. trimytera*
- 2' Petals ovate to narrowly ovate, not vestigial .....3
- 3 Lip more or less entire or 1-lobed .....4
- 3' Lip distinctly 3-lobed .....6
- 4 Sepals attenuate with the laterals long-pubescent.....5
- 4' Sepals obtuse, glabrous .....*P. dalstroemii*
- 5 Sepals 20-30 mm long .....*P. schizopogon*
- 5' Sepals less than 10 mm long .....*P. pogonion*
- 6 Sepals attenuate with the laterals long-pubescent.....*P. pentamytera*
- 6' Sepals acute, not long-pubescent .....7
- 7 Lateral sepals lightly verrucose; lip with narrowly acute lateral lobes.....*P. ibex*
- 7' Lateral lobes not verrucose; lip with uncinat, denticulate lateral lobes .....*P. hystricosa*



Fig. 1. *Pleurothallis pogonion*

***Pleurothallis dalstroemii* Luer, sp. nov.**

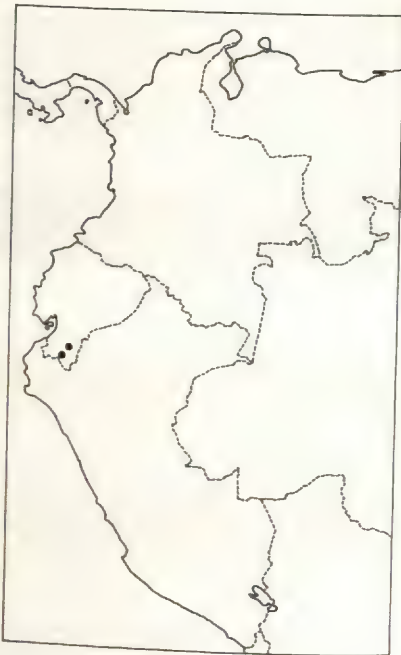
Ety.: Named in honor of Stig Dalström of Falun, Sweden, who first discovered this species.

Planta parva rhizomate breviter ascendenti, racemis paucifloris foliis ellipticis plus minusve aequilongis, ovario longispiculato, sepalis late ovatis obtusis breviter acuminatis, petalis anguste ovatis, et labello late cordato breviter acuminato cum disco antice concavo postice verruculoso.

**Plant** small, epiphytic, densely caespitose, the rhizome more or less ascending; roots comparatively coarse, fasciculate. Ramicauls slender, erect, 1-2 mm long, enclosed by 2 thin, loose, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, subacute to obtuse, 15-18 mm long including a petiole 4-5 mm long, 5-6 mm wide, the base cuneate into the petiole. **Inflorescence** a loose, successively 2- to 3-flowered raceme up to 20 mm long borne by a capillary peduncle 10-15 mm long, from the ramicaul; floral bract oblique, acute, 1.5 mm long; pedicel 2-3 mm long; ovary densely spiculate, 1 mm long; **sepals** translucent rose with purple veins, glabrous, carinate, the dorsal sepal broadly ovate, obtuse, shortly acuminate, concave, 3.5 mm long, 2.75 mm wide expanded, barely 3-veined, the lateral sepals ovate, oblique, obtuse, shortly acuminate, 3.75 mm long, 2 mm wide, connate 1.75 mm to above the middle; **petals** translucent with purple midvein, narrowly ovate, acute, 3.5 mm long, 0.75 mm wide, 1-veined; **lip** purple, suborbicular-cordate, 2.5 mm long, 2.3 mm wide, the margins slightly irregular, the apex obtuse, shortly acuminate, the disc longitudinally thickened in the center with a small cavity above the middle, minutely papillose at the base, the base attached to the base of the column; **column** purple, stout, semiterete, 1.75 mm long, dilated above the middle, the anther, rostellum and stigma apical, the foot obsolescent.

ECUADOR: Prov. of Loja: epiphytic in cold cloud forest above Jimbura, alt. 3000 m, 21 Mar. 1984, C. Luer, S. Dalström, T. Höijer & J. Kuijt 9658 (Holotype: MO; Isotypes: AMES, K); same area, alt. 2600 m, 21 Feb. 1986, C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11983 (MO). Prov. of Zamora-Chinchi: Cajanuma range south of Loja, alt. 2800 m, 16 Dec. 1982, S. Dalström 361 (SEL), C. Luer illustr. 8707.

This species was first discovered by Stig Dalström in the Cajanuma Mountains in the province of Zamora-Chinchi in southern Ecuador, and it has subsequently been found growing abundantly among long chains of *Lepanthes stalactites* in a cold forest on the Peruvian border in the province of Loja. Nevertheless, *P. dalstroemii* remains rare and seldom collected. It is identified by the small, ascending habit; short, few-flowered racemes; a long-pubescent ovary; rather simple sepals and petals; and a broadly cordate lip with a small cavity at the front end of a callus on the disc.

***Pleurothallis hystricosa* Luer, sp. nov.**

Ety.: From the Latin *hystricosus*, "prickly," in allusion to the sepals and ovary.

Species haec *P. ibexis* Luer affinis, sed sepalis laevis carinato-spiculatis, et labelli lobis uncinatis denticulatis differt.

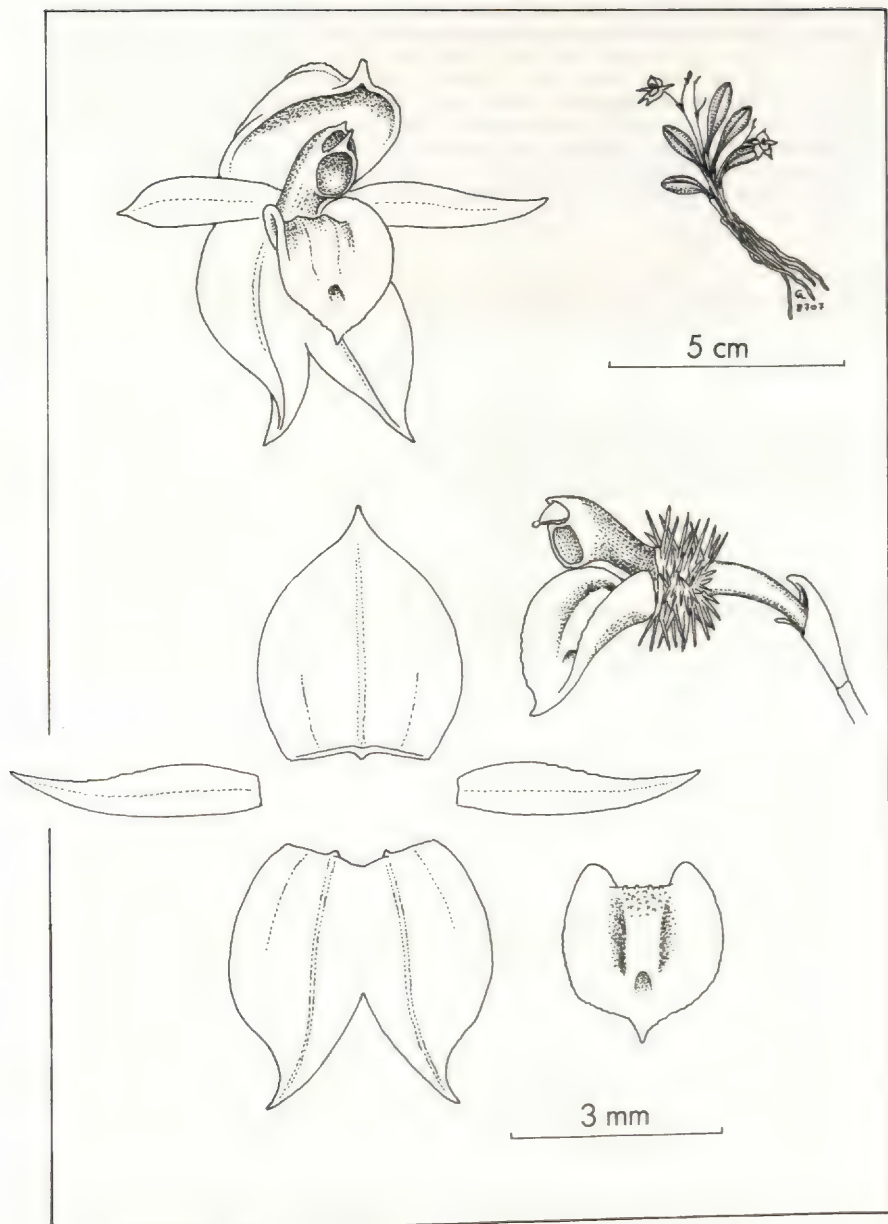


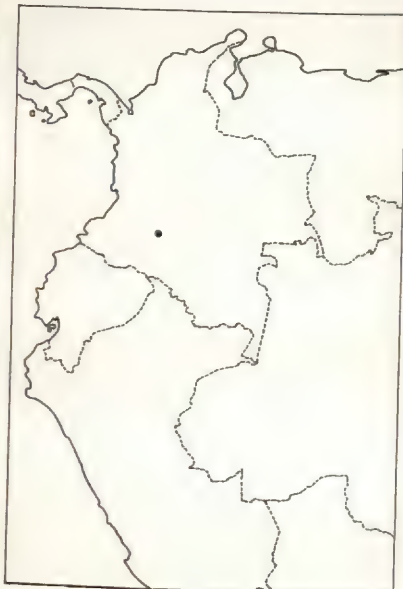
Plate 1. *Pleurothallis dalstroemii* Luer



**Plant** very small, epiphytic, caespitose, roots slender. Ramicauls slender, erect, 1-3 mm long, enclosed by 2 thin, loose, ribbed sheaths. **Leaf** erect, coriaceous, elliptical-obovate, petiolate, 8-18 mm long, 2-4.5 mm wide, the base cuneate into a petiole less than 3-9 mm long. **Inflorescence** a distantly, successively 2- to 3-flowered raceme, up to 13 mm long including the capillary peduncle ca. 8 mm long, borne laterally from the ramicaul; floral bract oblique, acute, 1 mm long; pedicel 2 mm long; ovary long-spiculate, 1.5 mm long; **sepals** carinate-spiculate, the dorsal sepal ovate, acute, acuminate, 3.5 mm long, 1.25 mm wide, 3-veined, the lateral sepals ovate, oblique, acute, lightly acuminate, 4 mm long, 1.25 mm wide, connate 1.5 mm, faintly 3-veined; **petals** translucent, narrowly ovate, acute, long-acuminate, 2.75 mm long, 0.5 mm wide; **lip** transversely 3-lobed, 1 mm long, 1.75 mm wide, the margins crenulate-denticulate, the surfaces subverruculose, the apical lobe narrowly triangular, 0.3 mm long, the lateral lobes uncinately, curved forward, spreading, acute, 1 mm long, the disc with a rounded, shallowly concave callus in the center above the base, the base reflexed, hinged to the base of the column; **column** stout, semiterete, 1.25 mm long, dilated above the middle, the anther and rostellum and stigma subapical, the foot obsolescent.

COLOMBIA: Dept. of Huila: epiphytic in dwarf *Clusia*-*Weinmannia* forest, southwest of Alejandria, south of Cueva de los Guácheros, alt. 8500 ft., 21 Aug. 1944, E. L. Little, Jr. 8519 (Holotype: US).

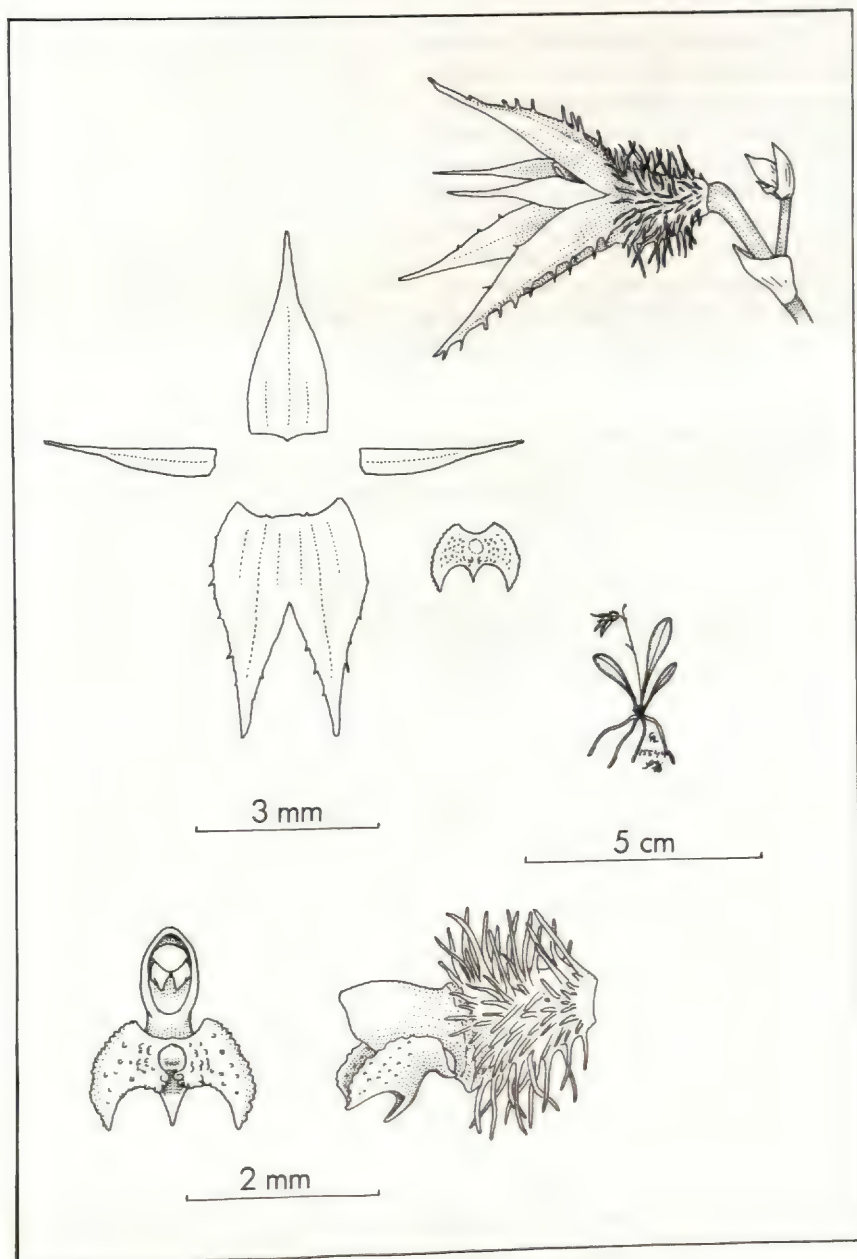
This tiny species is known only from the type-collection from southern Colombia made nearly half a century ago by E. L. Little, Jr., with the Cinchona Division of the Foreign Economic Administration. *Pleurothallis hystricosa* is distinguished by the tiny, caespitose habit with petiolate leaves; proportionately large, long-spiculate ovaries; carinate-spiculate sepals; subulate petals; and a trilobed lip with uncinately lateral lobes. The collector noted that the color of the flowers was "red and green." *Pleurothallis hystricosa* is closely allied to *P. trimetyra*, but the latter differs by possessing microscopic petals.



***Pleurothallis ibex* Luer, Selbyana 5: 168, 1979.**

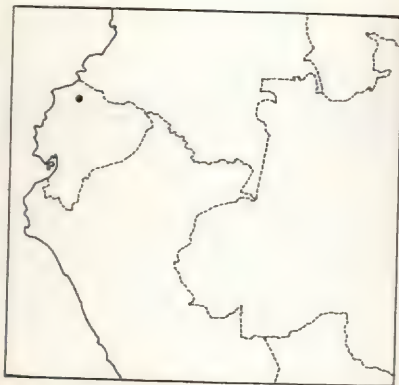
Ety.: From the Latin *ibex*, "a wild goat," in allusion to the three lobes of the lip that resemble the horns and beard of a goat.

**Plant** very small, epiphytic, densely caespitose, the rhizome more or less ascending; roots comparatively coarse, fasciculate. Ramicauls slender, 2-3 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute to subacute, 10-18 mm long, 4-5 mm wide, the base cuneate into a petiole 2-3 mm long. **Inflorescence** a loose, successively 2- to 4-flowered raceme, 2-3.5 mm long including the capillary peduncle, borne laterally from the ramicaul; floral bract oblique, acute, 0.5-1 mm long; pedicel 2 mm long; ovary papillose, 1 mm long; **sepals** pale yellow edged and veined in purple, ovate, oblique, minutely lightly verrucose, with the acute apices everted, 3 mm long, 1 mm wide, 3-veined, the lateral sepals 1 mm to below the middle; **petals** yellow with purple stripe, narrowly linear-ovate, acute, 2.5 mm long, 0.2 mm wide; **lip** white, dotted with purple, ovoid-trilobed, 1 mm long, 2 mm wide across the lobes, the apex rounded, with an abrupt apiculum, the lateral lobes near the middle, narrowly acuminate, widely spread, the disc broadly channeled with a pair of minute calli below the apex, deflexed below the middle and held against the column, with broad, erect, irregular margins, the base hinged to the base of the column; **column** purple, stout, semiterete, 1.5 mm long, dilated above the middle, the anther, rostellum and stigma subapical, the foot obsolescent.

Plate 2. *Pleurothallis hystricosa* Luer

EDUADOR: Prov. of Imbabura: epiphytic in cloud forest near the edge of the páramo west of Otavalo, alt. ca. 3000 m, 17 Feb. 1978, C. Luer, J. Luer & A. Hirtz 2597 (Holotype: SEL).

This apparently rare species is known from only the original collection at a high altitude on the western declivity of northern Ecuador. It is identified by the small, ascending habit; a successive, two- or three-flowered inflorescence; a papillose ovary; narrowly acute sepals; linear petals; and a trilobed lip. The apical lobe is a narrow apiculum while the narrowly triangular lateral lobes diverge to either side. The body of the lip is thick and held against the under surface of the footless column.



**Pleurothallis pentamytera** Luer, sp. nov.

Ety.: From the Greek *pentamyteros*, "five-pronged," in allusion to the lobes of the lip.

Species haec *Pleurothallidis schizopogonis* Luer affinis, sed habitu et flore multiminoribus, et labello quinquelobato cum callo discoideo differt.

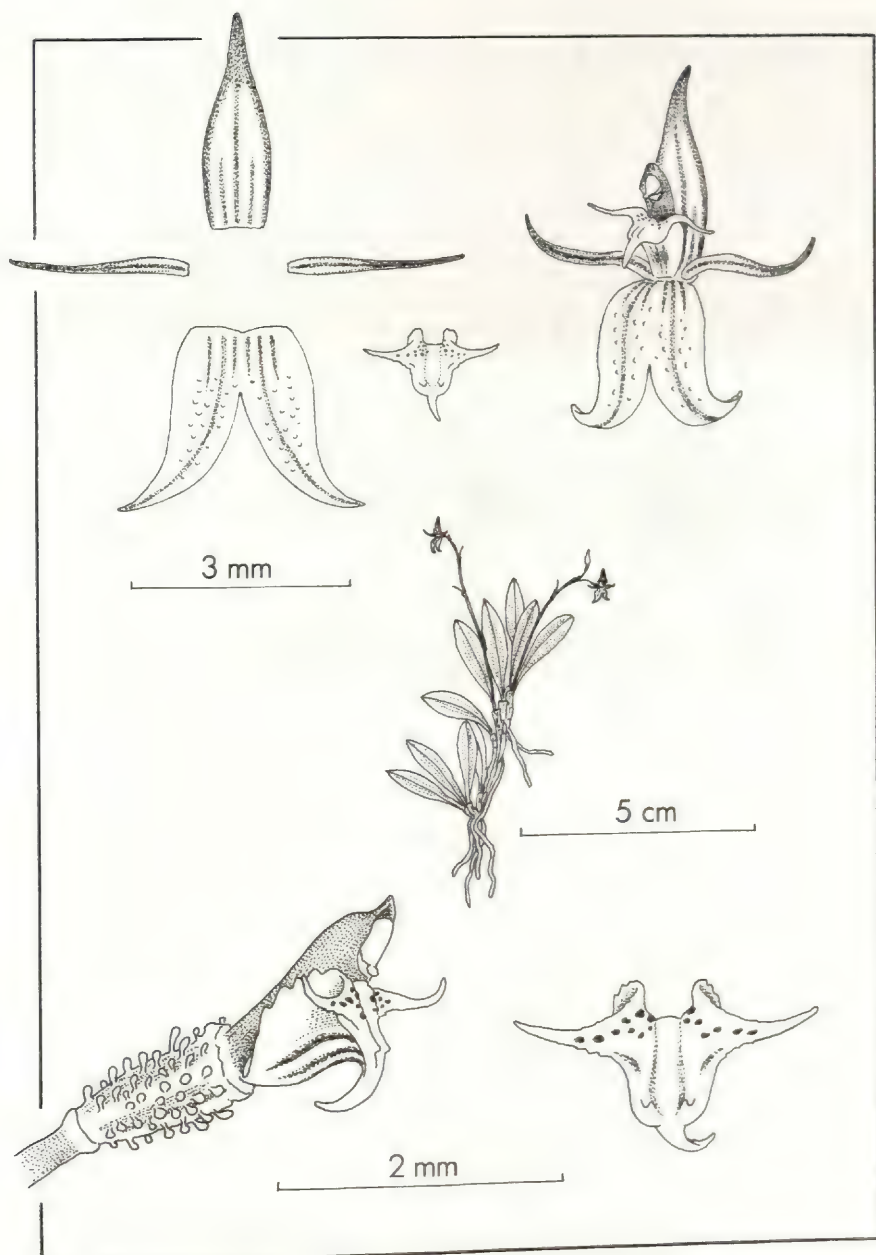
**Plant** very small, epiphytic, ascending and caespitose, roots slender. Ramicauls slender, erect, 1.5-2 mm long, enclosed by 1-2 loose, ribbed sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, the margin denticulate near the apex, 6-8 mm long, 3-3.5 mm wide, the base cuneate into a petiole less than 1 mm long. **Inflorescence** a loose, successively few-flowered raceme, up to 18 mm long including the capillary peduncle, borne laterally from the ramicaul; floral bract oblique, acute, 1-1.5 mm long; pedicel 3-5 mm long; ovary long-apiculate, 0.5 mm long; **sepals** translucent greenish white, suffused with purple centrally, the dorsal sepal narrowly ovate, acute, long-acuminate, 11 mm long, 1.5 mm wide, 1-veined, the lateral sepals narrowly triangular, acute, long-acuminate, sparsely long-pubescent, 14 mm long, 1.2 mm wide, free to the base; **petals** translucent white, narrowly ovate, acute, long-acuminate, 8 mm long, 0.6 mm wide; **lip** purple, transversely 5-lobed, 1 mm long, 2 mm wide, the margins crenulate, the surface verruculose, the apical lobe narrowly triangular, 0.5 mm long, the lateral lobes triangular, spreading, acute, 1 mm long, with a rounded lobe between the apical lobe and the lateral lobes, the disc with a rounded, shallowly concave callus in the center above the base, hinged to the base of the column; a **column** purple, stout, semiterete, 1.5 mm long, dilated above the middle, the anther and rostellum subapical, the stigma ventral, the foot obsolescent.

EDUADOR: Prov. of Zamora-Chinchi: epiphytic in cloud forest south of Yangana above Valladolid, alt. 2000 m, 18 Mar. 1984, C. Luer, S. Dalström, T. Höijer & J. Kuijt 9599 (Holotype: MO).

This tiny species is known only from the type-collection from southern Ecuador. It is distinguished by the elliptical leaves with denticulate margins near the apex, reminiscent of so many pleurothallids (and other subtribes) from Hispaniola. The long tails of the sepals and petals are extremely fine, finer than a hair. The lateral sepals are sparsely long-pubescent, reminiscent of its close relative *P. schizopogon*. Most distinctive is the five lobed lip. The acute apical lobe is flanked by a pair of rounded lobes medial to the acute, spreading, lateral lobes. In addition, a circular callus sits on the center of the disc.





Plate 3. *Pleurothallis ibex* Luer

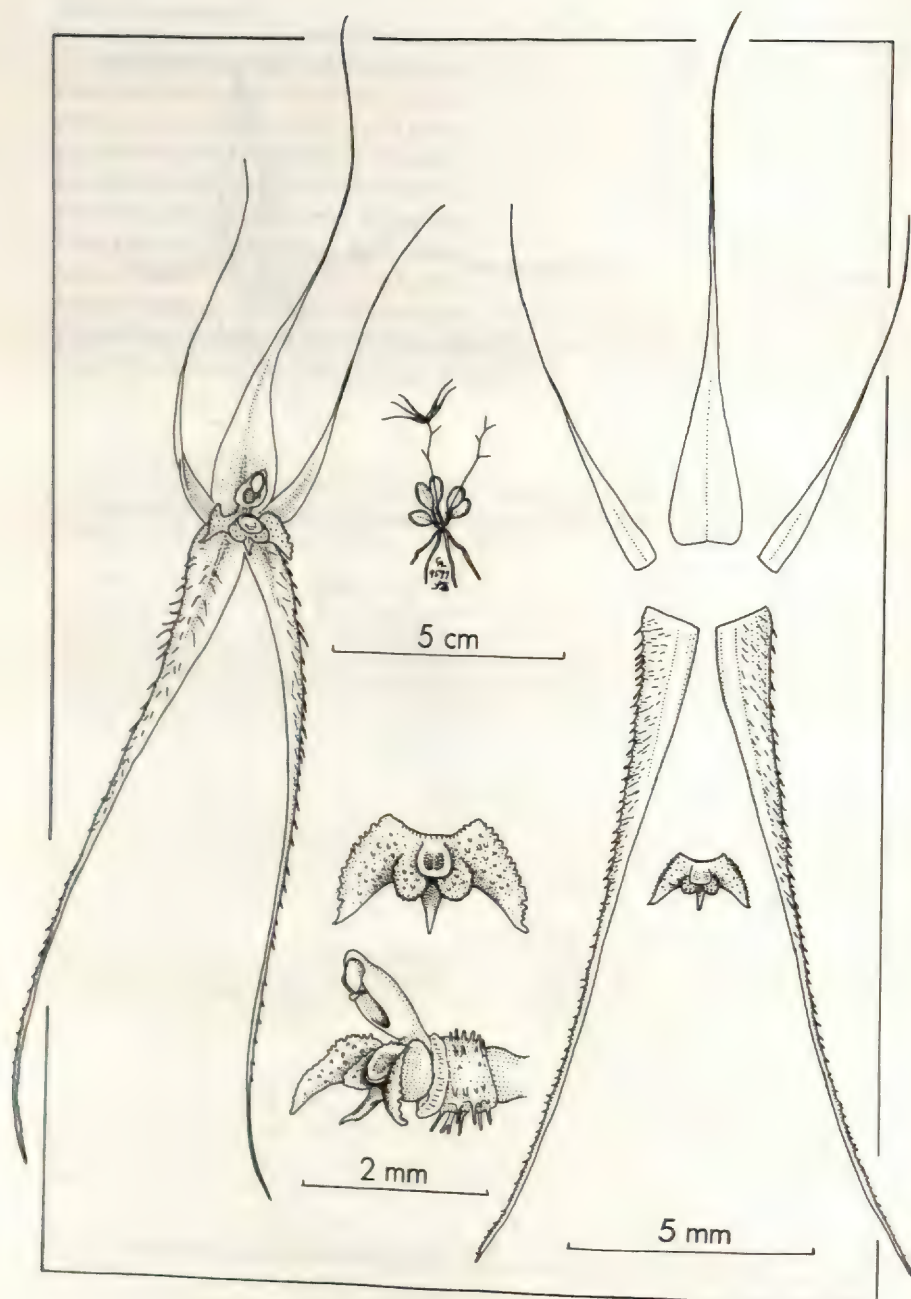


Plate 4. *Pleurothallis pentamytera* Luer

**Pleurothallis pogonion** Luer, sp. nov.

Ety.: From the Greek *pogonion*, "the little beard," referring to the smaller size than *P. schizopogon*.

Species haec *P. schizopogoni* Luer affinis, sed habitu et flore multiminoribus differt.

**Plant** very small, epiphytic, ascending, the rhizome stout, 2-5 mm long between ramicauls; roots slender. Ramicauls slender, ascending, 3-4 mm long, enclosed by 1-2 loose, tubular sheaths. **Leaf** suberect, coriaceous, narrowly obovate, 10-20 cm long, 4-6 mm wide, the apex obtuse to rounded, base gradually narrowed into a subpetiolate base. **Inflorescence** a loose, successively 2- to 3-flowered raceme, 15-25 mm long including the capillary peduncle, borne laterally from the ramicaul; floral bract oblique, acute, 1.5 mm long; pedicel 3 mm long; ovary long-spiculate, 1 mm long; **sepals** purple, subcarinate, the dorsal sepal ovate, concave, acute, acuminate, 7-8 mm long, 2 mm wide, 3-veined, the lateral sepals narrowly ovate, oblique, long-pubescent-spiculate, the apices acute, acuminate, 7-8 mm long, connate 2.5 mm, 2.75 mm wide together; **petals** purple, narrowly linear-ovate, acute, long-acuminate, 6-8 mm long, 0.6-1 mm wide, the margins subspiculate; **lip** purple, thick, subquadrate, 1.5 mm long, 1.5 mm wide, the margins muriculate, the apex subtruncate, shortly acuminate with a keel on the undersurface, the disc papillose, with a rounded depression behind the apex, deflexed below the middle and held against the column, with broadly rounded, erect, sides flanking the column, the base hinged to the base of the column; **column** purple, stout, semiterete, 1.5 mm long, the anther, rostellum and stigma subapical, the foot obsolescent.

EDUADOR: Prov. of Zamora-Chinchi: cloud forest above Valladolid, alt. 2700 m, 3 Mar. 1982, C. Luer, S. Dalström et al. 7116 (Holotype: SEL). Prov. of Loja: without data, flowered in cultivation by B. Malo at Tarqui, 26 Feb. 1982, C. Luer 7028 (SEL).

This uncommon, tiny species is closely allied to the frequent *P. schizopogon*, and it can occur in the same locality. Because *P. schizopogon* is variable in size, this species was at first thought to be merely a small form, but in retrospect the two taxa appear distinct. Except for size, the floral morphology of the two are similar. The sepals of vegetatively larger *P. schizopogon* are more than two centimeters long, while the sepals of the small *P. pogonion* do not surpass one centimeter. The lateral sepals vary from sparsely to densely spiculate (Fig. 1, page 53).

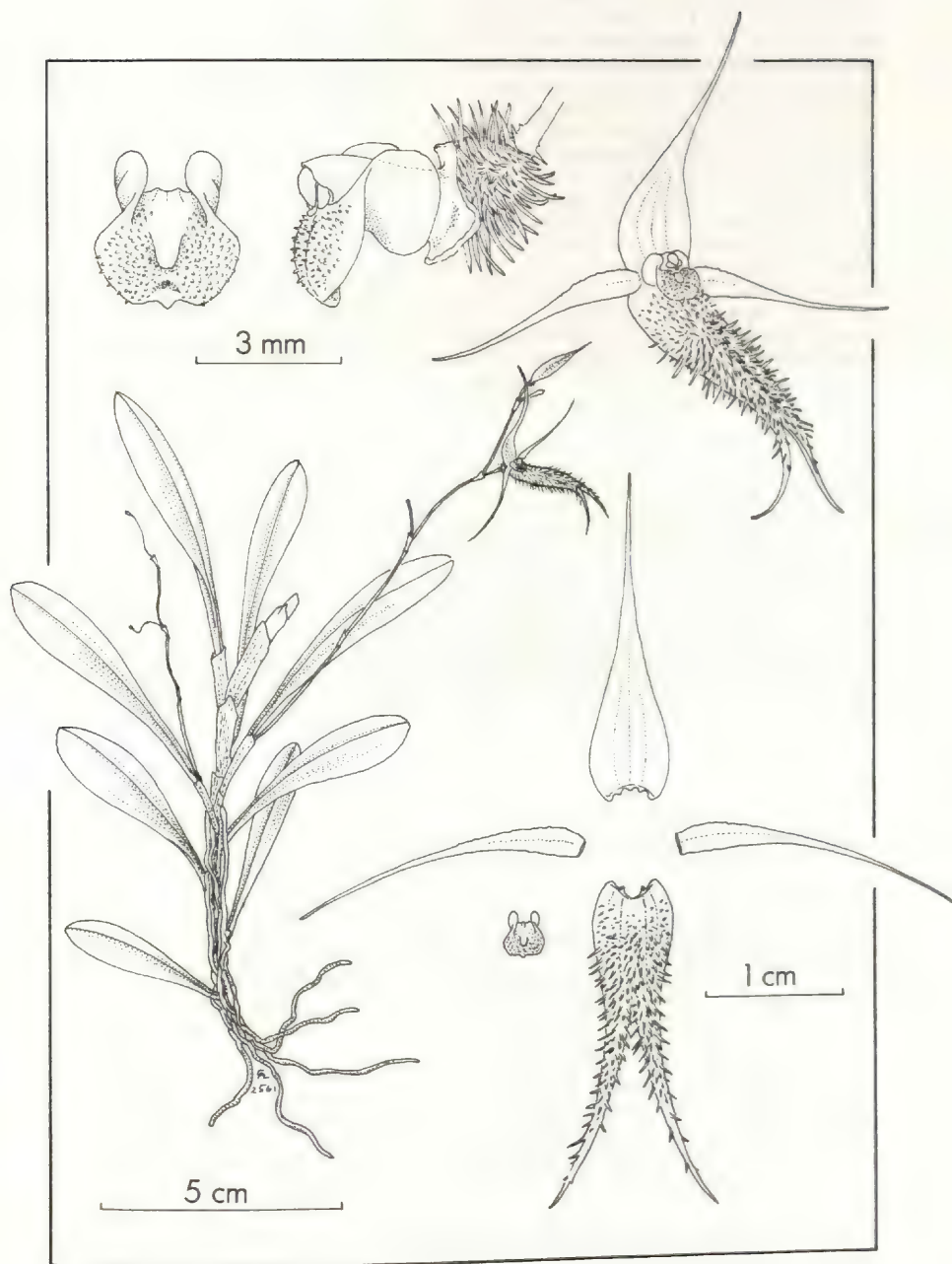
**Pleurothallis schizopogon** Luer, Selbyana 5: 179, 1979.

Ety.: From the Greek *schizopogon*, "a split beard," in allusion to the hairy lateral sepals.

**Plant** small to medium in size, epiphytic, ascending, repent, the rhizome stout, 5-20 mm long between ramicauls; roots slender. Ramicauls slender, ascending, 10-25 mm long, enclosed by 1-2 loose, tubular sheaths. **Leaf** suberect, coriaceous, narrowly obovate, 2.5-6.5 cm long including a petiole 1-2.5 cm long, 1-1.5 cm wide, the apex obtuse to rounded, base gradually narrowed into the petiole. **Inflorescence** a loose, successively 3- to 6-flowered raceme, 5-15 cm long including the capillary peduncle, borne laterally from the ramicaul; floral bract oblique, acute, 2 mm long; pedicel 3-6 mm long; ovary long-spiculate, 2-3 mm long; **sepals** rose to light yellow-green or white, carinate, the dorsal sepal ovate, concave, acute, acuminate, 20-30 mm long, 6-8 mm wide, 3-veined, the lateral sepals narrowly ovate, oblique, long-pubescent-spiculate, the apices acute, acuminate, 20-30 mm long, connate 9 mm, 6-7 mm wide together, with the sides revolute; **petals** white, narrowly linear-ovate, acute, long-acuminate, 20-25 mm long, 1.5-2 mm wide; **lip** rose to white, thick, subquadrate, 3 mm long, 3 mm wide, the apex broadly rounded, shortly acuminate with a keel on the undersurface, the disc cellular-papillose, with a rounded depression behind the apex, deflexed below the middle and held against the column, with broadly rounded, erect, sides flanking the column, the base hinged to the base of the column; **column** yellow, stout, semiterete, 3 mm long, the anther, rostellum and stigma subapical, the foot obsolescent.





Plate 6. *Pleurothallis schizopetala* Luer

ECUADOR: Prov. of Loja: epiphytic in cloud forest near the pass north of Loja, alt. ca. 3000 m, 12 Feb. 1978, *C. Luer, J. Luer & M. Portilla* 2561 (Holotype: SEL); same area, alt. 3100 m, 30 Oct. 1982, *C. Luer & R. Escobar* 8244 (SEL); near Loja, *Hübsch s.n.* (W); Loma de Loro, between Saraguro and Loja, alt. 3200 m, 11 Feb. 1985, *G. Harling & L. Andersson* 21915, 21916 (GB); Cajanuma, alt. 2800 m, 16 Dec. 1982, *S. Dalström* 359 (SEL); road to army post east of Yangana, alt. 3100 m, 22 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores* 10786 (MO). Prov. of Azuay: Páramo south of Cuenca, alt. 2800 m, 20 May 1958, *C. H. Dodson* 256 (MO, SEL). Prov. of Zamora-Chinchipe: cloud forest above Valladolid, alt. 2700 m, 3 Mar. 1982, *C. Luer, J. Luer & A. Hirtz* 7112 (SEL); same area, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores* 10893 (MO); Nudo de Sabanilla above Valladolid, alt. 2800 m, 4 Feb. 1985, *G. Harling & L. Andersson* 21574, 21576 (GB); same area, 5 Apr. 1985, *G. Harling & L. Andersson* 23729, 23739, 23743 (GB).

PERU: Without collection data, flowered in cultivation at the Heidelberg Botanical Garden, *K. Senghas* 799 (HEID).



This species, the largest of the subgenus, is known from cold forests at high altitudes in southern Ecuador and northern Peru. The first record of its existence is an undated nineteenth century collection by Hübsch from near Loja. For a hundred years collections by different collectors have defied identification even to genus. The species is recognized by the shortly scandent habit, and a successively few-flowered inflorescence of bizarre flowers recognized by the pair of hairy lateral sepals that resemble a long, white beard split into two halves.

### ***Pleurothallis trimytera* Luer & Escobar, Orquideología 16: 34, 1983.**

Ety.: From the Greek *trimyteros*, "three-pronged," referring the three-lobed lip.

**Plant** very small, epiphytic, densely caespitose, the rhizome more or less ascending; roots comparatively coarse, fasciculate. Ramicauls slender, ca. 1 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** reclining or prostrate, thickly coriaceous, elliptical, 4-6 mm long, 2.5-3.5 mm wide, the apex obtuse to rounded, apiculate, the base cuneate into a petiole less than 0.5 mm long. **Inflorescence** a loose, successively 2-flowered raceme 4-6 mm long including the capillary peduncle, borne laterally from the ramicaul; floral bract oblique, acute, 1 mm long; pedicel 2 mm long; ovary densely hispid, 0.6 mm long; **sepals** red with yellow margins, glabrous, subcarinate, the dorsal sepal ovate, concave, 2.1 mm long, 1.2 mm wide, barely 3-veined, the apex subacute to obtuse, lightly compressed, shortly acuminate, the lateral sepals ovate, oblique, acute, with the margins microscopically erose, 2.7 mm long, 1 mm wide, connate 1 mm to below the middle; **petals** microscopic, oblong, obtuse, ca. 0.1 mm long; **lip** red, ovate-trilobed, 1.5 mm long, 1.5 mm wide across the apices, the three apical lobes 1 mm long, acute, the middle lobe concave, the base acutely reflexed, attached to the base of the column; **column** red, stout, semiterete, 0.75 mm long, dilated above the middle, the anther, rostellum and stigma apical, the foot obsolescent.

COLOMBIA: Dept. of Cundinamarca: epiphytic in scrub forest between Duitama and Virolin, alt. 2600 m, 1 June 1982, *C. Luer, R. Escobar & D. Portillo* 8033 (Holotype: SEL). Dept. of Antioquia: Yarumal, epiphytic in moist forest around La Bramadora near Yarumal, alt. 1800-2200 m, 1892, *F. C. Lehmann* 7089 (K); epiphytic in forest remnant east of Santo Domingo, alt. 2170 m, 12 May 1985, *C. Luer, R. Escobar & E. Valencia* 11346 (MO).

ECUADOR: Dept. of Carchi: epiphytic in forest remnant east of Maldonado, alt. 2300 m, 17 Mar. 1991, *C. Luer, J. Luer, A. Hirtz, X. Hirtz & J. del Hierro* 15154 (MO).



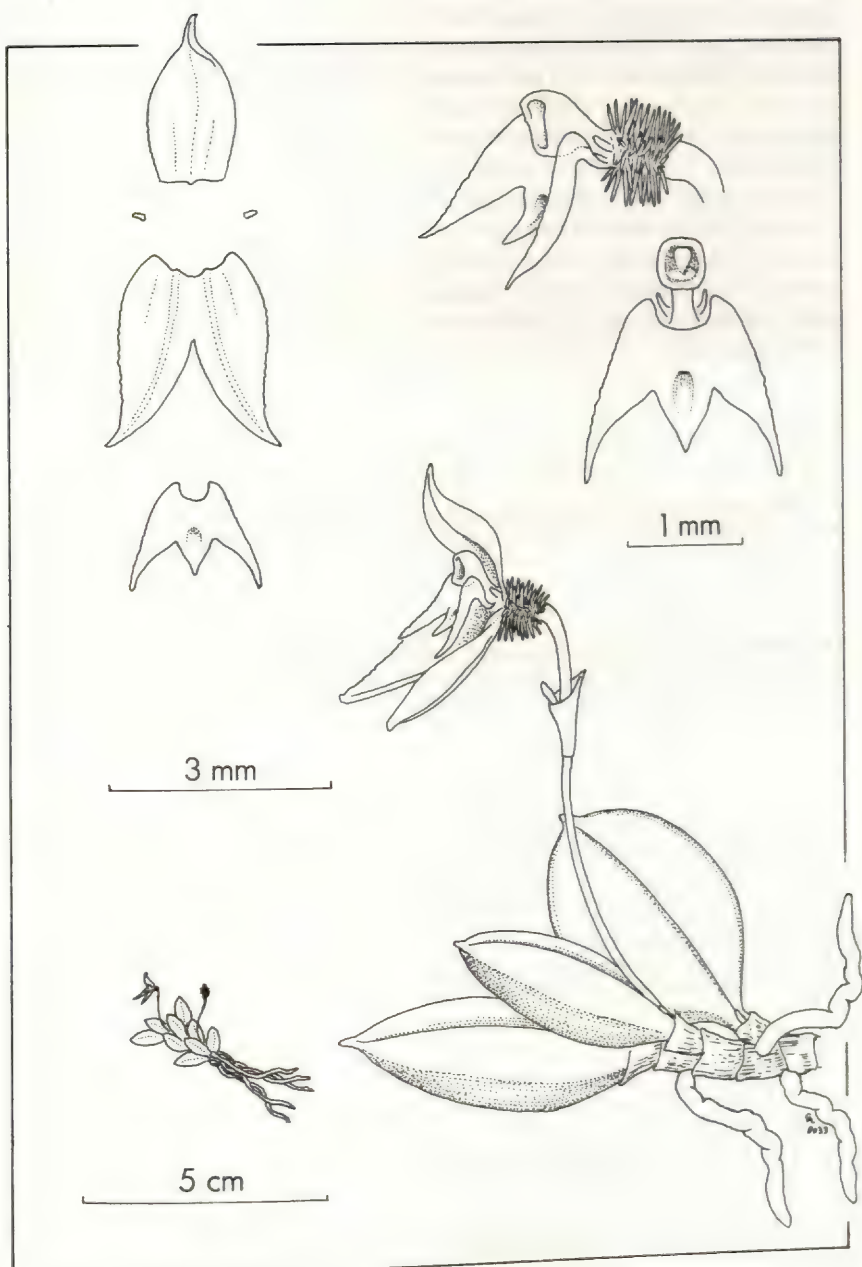


Plate 7. *Pleurothallis trimytera* Luer & Escobar

This species was first discovered in the Eastern Cordillera of Colombia by Consul Lehmann a century ago. It is also known from the Central Cordillera and northern Ecuador. Apparently it is rarely seen because of its small size and infrequent occurrence. It is identified by the very small, more or less prostrate habit with overlapping leaves; a short, one- or successively two-flowered inflorescence; a densely long-pubescent ovary; minutely erose, lightly acuminate sepals; vestigial petals less than 0.1 mm long; and an acutely tri-pronged lip.



***Pleurothallis vestigipetala* Luer, Selbyana 3: 404, 1977.**

Ety.: From the Latin *vestigipetalus*, "with vestigial petals," referring the microscopic petals.

**Plant** small, epiphytic, the rhizome repent, more or less ascending, 3-8 mm long between ramicauls; roots comparatively coarse, fasciculate. Ramicauls slender, 3-7 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** ascending to suberect, coriaceous, narrowly elliptical-obovate, obtuse, 15-35 mm long, 4-6 mm wide, cuneate below into a petiole up to 5 mm long. **Inflorescence** a loose, flexuous, successively several-flowered raceme 3-6 cm long including the capillary peduncle, emerging laterally from the ramicaul; floral bract oblique, acute, 2-3 mm long; pedicel 4 mm long; ovary glabrous, costate, 1.5 mm long; **sepals** pale yellow to white, membranous, glabrous except for a few scattered hairs, carinate, the dorsal sepal ovate, 6-7.5 mm long, 2 mm wide, 3-veined, with the apex narrowly acute, the lateral sepals free, narrowly triangular, widely expanded, oblique, acute, acuminate, 6-7.5 mm long, 1.5-1.75 mm wide; **petals** microscopic, suborbicular, microscopically pubescent, 0.4 mm long, 0.2 mm wide; **lip** membranous, elliptical, acute, microscopically pubescent externally, wrapped around the undersurface of the column, 2.75-3.5 mm long, 1 mm wide expanded, the base narrowly truncate, attached to the base of the column; **column** cylindrical, 3-4 mm long, the anther, rostellum and stigma apical.

ECUADOR: Prov. of Azuay: epiphytic in trees at Lago Zaragücho west of Cuenca, alt. 3000 m, 2 Mar. 1977, C. Luer, J. Luer & K. Cordoba 1496 (Holotype: SEL). Prov. of Loja: above Yangana north of the pass, alt. 2400 m, 25 Mar. 1985, C. Luer, J. Luer, A. Hirtz & W. Flores 10884 (MO); Prov. of Zamora-Chinchipe: epiphytic in scrub cloud forest east of the pass east of Loja, alt. 2750 m, 21 Mar. 1985, C. Luer, J. Luer, A. Hirtz & W. Flores 10730 (MO); Cajanuma mountains south of Loja, alt. 2750 m, 21 Mar. 1985, C. Luer, J. Luer, A. Hirtz & W. Flores 10704 (MO); south of the pass south of Yangana, alt. 2700 m, 14 Feb. 1989, B. Øllgaard & J. E. Madsen 90558 (AAU, QCA).

COLOMBIA: Dept. of Cundinamarca: epiphytic in moist forest on the western slopes of the Páramo de Guerrero above Pacho, alt. 2500-3000 m, Feb. 1892, F. C. Lehmann 7087 (K); Páramo de Guerrero near Zipaquirá, alt. 2600-3000 m, undated, F. C. Lehmann 7088 (K).

PERU: Dept. of San Martín: Dist. Huallaga, valley of Río Apisoncho, 30 Km above Jucusbamba, alt. 2800 m, 27 Aug. 1965, A. C. Hamilton & P. M. Holligan 1288, 1289 (K).

BOLIVIA: Dept. of La Paz: Prov. of Murillo, in trees along Río Zongo, alt. 2870 m, 30 Jan. 1988, C. Luer, J. Luer, R. Vásquez, J. Solomon, T. & D. Mulder & A. Vogel 12962 (MO).



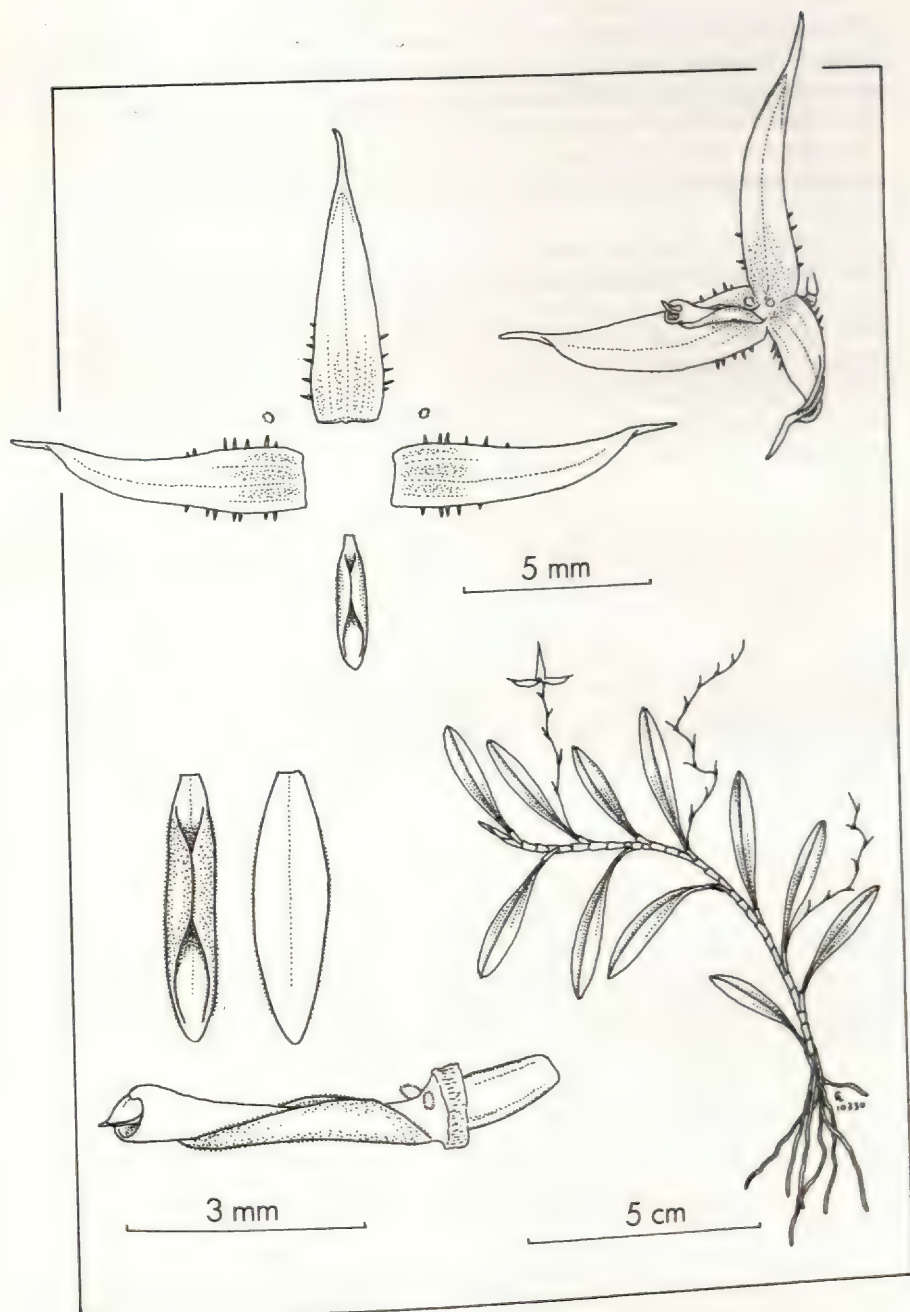


Plate 8. *Pleurothallis vestigipetala* Luer



This species, widely distributed in the Andes at high altitudes near and above 3000 meters above sea level, was first discovered in the Eastern Cordillera of Colombia by Consul Lehmann a century ago. His specimen was found among the indeterminates at Kew. It was described from Ecuador in 1977, and specimens have subsequently been identified from Peru and Bolivia. Because of its insignificant habit, it is infrequently collected. The specimen on which the species is based is cleistogamous, but the flowers from plants subsequently discovered are not cleistogamous.

*Pleurothallis vestigipetala* is characterized by the small, creeping or ascending habit, and flexuous racemes that surpass the little obovate leaves. The sepals are membranous, narrowly acute, and widely expanded, but most distinctive are the microscopic petals and the simple, membranous lip wrapped along the undersurface of the cylindrical column.

Although not closely allied to the other seven species of this subgenus, the unique *P. vestigipetala* seems nearer to them than to any other group in the Pleurothallidinae. The alternative would be to create another monotypic subgenus.

## REFERENCES

- DRESSLER, R. L., 1981. The orchids: natural history and classification. Harvard University Press, Cambridge.  
 ——— 1993. Phylogeny and classification of the orchid family. Dioscorides Press, Portland, OR.  
 LUER, C. A., 1986. Icones Pleurothallidarum III. Systematics of Pleurothallis. Monogr. Syst. Bot. 20: 26-28.

## INDEX OF SCIENTIFIC NAMES

- |                                 |   |
|---------------------------------|---|
| Lepanthes 51                    | Pleurothallis dalströmii 51, 52, 53, <b>54</b> , Plate 1. |
| micropetala 51                  | hystricosa 51, 52, 53, <b>54</b> , Plate 2., 55           |
| stalactites 54                  | ibex 52, 53, 54, <b>56</b> , Plate 3.                     |
| Pleurothallis 51                | pentamytra 51, 52, 53, <b>58</b> , Plate 4.               |
| subgen. Aenigma 51, 52, 53      | pogonion 51, 52, 53, <b>61</b> , Plate 5.                 |
| sect. Aenigmata 51, 52, 53      | schizopogon 51, 52, 53, 58, <b>61</b> , Plate 6.          |
| sect. Vestigipetalae 51, 52, 53 | trimytera 52, 53, 54, <b>64</b> , Plate 7.                |
| subgen. Acianthera 51           | vestigipetala 51, 52, 53, <b>65</b> , Plate 8.            |
| subgen. Pleurothallis 51        |   |
| subgen. Specklinia 51           |   |

ABSTRACT

Subgenus *Elongatia* Luer of *Pleurothallis* R. Br. is described. A key to the species is given. Each species is described and illustrated with a black and white drawing and a distribution map is included for each species.

New taxa:

*Pleurothallis* subgenus *Elongatia* section *Petiolatae* Luer, sect. nov.

*Pleurothallis holtonii* Luer, sp. nov.

*Pleurothallis superbiens* Luer, sp. nov.

This taxon was first recognized as section *Elongatae* of *Pleurothallis* by Lindley in 1842. He included 43 mostly non-allied species characterized by a raceme exceeding the leaf in length in two subsections (non-indicated subdivisions of the section). Subsection *Racemosae* was characterized by pedicels longer than the floral bracts, and subsection *Spicatae* was characterized by pedicels shorter than the floral bracts. Section *Effusae* was reserved for those non-allied species with the raceme shorter than the leaf.

In his *Folia Orchidaceae Pleurothallis* of 1859 Lindley included an even greater mixture of unrelated species in section *Elongatae*. In an attempt to preserve the name *Elongatae*, subgenus *Elongatia* was proposed in *Systematics of Pleurothallis*, volume 3 of *Icones Pleurothallidarum* in 1986. As the name implies, the subgenus is characterized by an elongated raceme, but this feature is certainly not confined to this subgenus. *Pleurothallis restrepioides* was chosen as the lectotype because all the other species included by Lindley were being placed in other subgenera. In 1842, Lindley had placed *P. restrepioides* in *Disepalae*, a category of subsection of *Racemosae*. In 1859, he placed *P. restrepioides* in *Tristes*, a new undesigned subsection of section *Elongatae*.

*Pleurothallis macrophylla* was the first species of the subgenus to be discovered. It was collected near Popayán in southern Colombia by Humboldt and Bonpland in late 1801 on the leg of their journey from Bogotá to Quito. It was finally published in their famous work of 1815. It still occurs in this original area, but infrequently. The next species described was *P. restrepioides*, collected by Mathews near Chachapoyas, Peru, in the early 1830's, and published by Lindley in 1836. Reichenbach published *P. fritillaria* in 1848 for a collection of the same species by Dr. Jameson from near Quito where it is found frequently today.

In habit this small subgenus of small, medium-sized, large to gigantic plants is not remarkably distinguishable. The ramicaul is usually well-developed. The leaf is either sessile or petiolate, the basis for defining two sections. The few to several-flowered raceme is terminal at the base of the leaf when the leaf is sessile, and lateral with an annulus below the abscission layer when the leaf is petiolate, as in two Central American species. The flowers of both sections are produced simultaneously or successively on pedicels longer than the floral bract.

The distinguishing characters that set this subgenus apart from all other pleurothallids are found in the basically similar, large to very large flowers. The sepals are glabrous, with the dorsal sepal variously ovate or elliptical, non-caudate, and free from the lateral sepals; the lateral sepals are connate into a concave synsepal. The petals are large, broad, and more or less acute to subacute. The lip is large and variously convex or concave. The base is truncate without lobules and inflexibly attached to the base of an obsolescent or pedestal-like column-foot. The column is



well-developed and elongate with a pair of obtuse wings above the middle. The anther, rostellum and stigma are ventral, protected between the wings. The pair of obovoid pollinia is attached to a minute viscidium.

Subgenus *Elongatia* seems more closely allied to subgenus *Specklinia* than to the other two major subgenera of *Pleurothallis*: *Acianthera* and *Pleurothallis*. Superficially, it is similar to section *Effusae* of *Specklinia*. The lips of the latter section are more or less broadly unguiculate, often with basal lobules, flexibly attached to a column-foot, and the apex of the column is variously denticulate.

Subgenus *Elongatia* is composed of eight species known from Costa Rica to Peru. Two species from Central America have petiolate leaves, and in habit they are smaller than the five large, Andean species with sessile leaves, but superficially similar to a third Central American species that has sessile leaves.

**Pleurothallis subgenus *Elongatia* Luer, Icones Pleurothallidarum III, Systematics of *Pleurothallis*, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 26, 1986.**

Lectotype: *Pleurothallis restrepioides* Lindl., Comp. Bot. Mag. 2: 356, 1836.

Ety.: From the Latin *elongatus*, "elongated," referring to the inflorescence.

Syn.: *Pleurothallis* sect. *Elongatae* Lindl., Edwards' Bot. Reg. 28: Misc. 68, 1842.

Lectotype: *Pleurothallis restrepioides* Lindl.

Syn.: *Pleurothallis* subsect. *Racemosae* Lindl., Edwards' Bot. Reg. 28: Misc. 68, 1842.

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

Syn.: *Pleurothallis* "series" *Disepalae* Lindl., Edwards' Bot. Reg. 28: Misc. 68, 1842.

Ety.: From the Greek *disepalum*, "two sepalae," referring to the bilabiate flowers.

Syn.: *Pleurothallis* subsect. *Tristes* Lindl., Folia Orchid. *Pleurothallis* 30, 1859.

Ety.: From the Latin *tristis*, "sad, dull-colored," referring to the flowers.

Plants perennial, small, medium in size to very large, epiphytic, caespitose; roots slender. Ramicauls erect, short to elongated, non-pseudobulbous, unifoliate, enclosed by a tubular, glabrous sheath below the middle, and other sheaths at the base. **Leaf** erect, coriaceous or thickly coriaceous, smooth, green, more or less elliptical, the apex acute to obtuse, shallowly notched, the base sessile or petiolate. **Inflorescence** a simultaneously or successively few- to several-flowered raceme, borne by a peduncle that emerges from the apex of the ramicaul when the leaf is sessile, or laterally with an annulus below the abscission layer when the leaf is petiolate; floral bracts infundibular or tubular, acute; pedicels slender, longer than the floral bract; ovary smooth, trivalvate; flowers large to very large, resupinate, variously colored; **sepals** fleshy to membranous, glabrous, non-caudate, the dorsal sepal free from the lateral sepals, the lateral sepals completely connate into a concave synsepal; **petals** large, variously elliptical to obovate, acute to subacute, entire to denticulate; **lip** entire, more or less concave below the middle, flat or with revolute sides above the middle, the base truncate, inflexibly attached to the base of the column; **column** elongate, semiterete, roundly winged toward the apex, the anther, rostellum and stigma ventral, the pollinia 2, obovoid, with a minute viscidium, the base of the column thickened or pedestal-like with the apex of the ovary.

**Pleurothallis subgenus *Elongatia* section *Elongatae* Lindl.**

Type: *Pleurothallis restrepioides* Lindl.

This section, composed of five large Andean species and one small, Central American species, is characterized by sessile leaves, and a terminal inflorescence.

**Pleurothallis subgenus *Elongatia* section *Petiolatae* Luer, sect. nov.**

Type: *Pleurothallis guttata* Luer

Ety.: From the Latin *petiolatus*, "with petiole," referring to the petiolate leaf.

Folia petiolata.

This section, composed of two, small to medium-sized Central American species, is characterized by petiolate leaves, and a lateral inflorescence.



KEY TO THE SECTIONS AND SPECIES  
OF SUBGENUS *ELONGATIA*

- 1 Leaf petiolate; inflorescence lateral.....2  
 1 Leaf sessile; inflorescence terminal.....3

Section *Petiolatae*

- 2 Habit very small, ramicauls less than 1 cm long; pedicels 3 mm long;  
 flowers small, sepals less than 9 mm long.....*P. guttata*  
 2' Habit medium in size, ramicauls 1.5-2.5 cm long; pedicels 10-12 mm long;  
 flowers larger, sepals 12-18 mm long.....*P. janetiae*

Section *Elongatae*

- 3 Habit small; inflorescence successively flowered.....*P. carpinterae*  
 3' Habit large; inflorescence simultaneously flowered.....4  
 4 Leaf broadly ovate, rounded at the base; lip with a tall  
 channeled callus above the base.....*P. superbiens*  
 4' Leaf elliptical, cuneate at the base; lip with or without a low  
 channeled callus above the base .....5  
 5 Sepals more than 4 cm long .....*P. excelsa*  
 5' Sepals less than 3 cm long .....6  
 6 Lip thickly trilobed at the apex, non verrucose.....*P. holtonii*  
 6' Lip not thickly trilobed at the apex .....7  
 7 Lip with verrucose, revolute margins above the middle.....*P. macrophylla*  
 7' Lip with smooth, revolute margins above the middle.....*P. restrepioides*

EPITHETS PUBLISHED IN SUBGENUS *ELONGATIA*  
AND LIST OF SPECIES

- Pleurothallis atrovioacea* Lehm. & Krzl. = *P. restrepioides*.....Plate 1.  
*Pleurothallis carpinterae* Schltr. ....Plate 2.  
*Pleurothallis excelsa* Garay.....Plate 3.  
*Pleurothallis fritillaria* Rchb.f. = *P. restrepioides*.....Plate 4.  
*Pleurothallis guttata* Luer.....Plate 5.  
*Pleurothallis holtonii* Luer.....Plate 6.  
*Pleurothallis janetiae* Luer .....Plate 7.  
*Pleurothallis taurifolia* H.B.K. *sensu* Rchb.f. = *P. macrophylla*.....Plate 8.  
*Pleurothallis macrophylla* H.B.K.....Plate 9.  
*Pleurothallis restrepioides* Lindl.....Plate 10.  
*Pleurothallis roezlii* Rchb.f. = *P. macrophylla*.....Plate 11.  
*Pleurothallis superbiens* Luer.....Plate 12.

***Pleurothallis carpintera* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 105, 1923.**

Ety.: Named for the region of Carpintera in Costa Rica where the species was discovered.

**Plant** small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect to reclining, 3-10 cm long, with a loose, tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, to suberect or spreading, thinly coriaceous, ovate, acute, sessile, 3-5 cm long, 1.5-2.3 cm wide, cuneate below at the base. **Inflorescence** a congested, successively few-flowered raceme borne by slender peduncle 3-5 cm long, arching or reclining upon the leaf, from a spathe 2-3 mm long, at the base of the leaf; floral bracts infundibular, 3 mm long; pedicels 2.5 mm long, concealed within the floral bract; ovary 1.5 mm long, triolate, spotted with purple; **sepals** membranous, translucent light yellow, lightly spotted with rose-purple, glabrous, the dorsal sepal elliptical, subacute, concave, 12 mm long, 8 mm wide expanded, 3-veined, the lateral sepals connate into an elliptical, obtuse, bicarinate synsepal, 11 mm long, 8 mm wide, 4-veined; **petals** orange, faintly dotted with red, obovate-spathulate, obtuse, 7 mm long, 4 mm wide, 3-veined; **lip** orange, pandurate, unguiculate, subacute at the apex, entire, 10 mm long, 5 mm wide above the middle, 3 mm wide below the middle, 2 mm wide at the isthmus, the disc smooth, shallowly concave below the middle, the claw concave, 1 mm long, broadly but lightly attached to the column-foot; **column** yellow, dotted with purple, slender, clavate, terete below the apex, obtusely winged at the apex, 4 mm long, the anther, rostellum and stigma ventral, the foot thick, pedestal-like.

COSTA RICA: Prov. of San José: Carpintera, Apr. 1908, A. Brade & C. Brade 1214 (holotype presumably destroyed at B;). Prov. of Alajuela: La Palma, alt. 1260 m, 23 May 1922, A. M. Brenes 335 (Neotype: AMES); La Palma and Cerro de Laguna, alt. 1196 m, Nov. 1927, A. M. Brenes 458 (128) (AMES); between San Ramón and Santa Clara, alt. 1040 m, 2 July 1983, R. Escobar & K. Anderson 2779 (SEL). Prov. of Heredia: above San Jeronimo, alt. 1800 m, 18 Sept. 1979, C. Luer, J. Luer, K. Walter & L. Glicenstein 4221 (SEL). Prov. of Puntarenas: Monteverde cloud forest, alt. 1650 m, 4-6 Dec. 1989, J. Atwood & W. Morris 4067, 4048 (SEL). Without locality, 1867, A. Endres 61 (W). PANAMA: Prov. of Chiriquí: Cerro Colorado above Camp Escopeta, alt. 1700 m, 15-16 Feb. 1977, C. Luer, J. Luer & R. Dressler 1418, 1435 (SEL). Prov. of Veraguas: continental divide NW of Santa Fe, alt. 650-750 m, 16 Nov. 1974, R. L. Dressler 4850 (SEL); same area, alt. 750 m, 5 Sept. 1976, C. Luer & R. Dressler 1288 (SEL).



This species is found relatively frequently growing on mossy branches of cloud forests of Costa Rica and western Panama. A collection and a detailed illustration made by Endres in 1867 were sent to Reichenbach who did nothing with them. It was eventually published by Schlechter in 1923 from a collection by the brothers Brade.

In the wild the plants usually grow more or less horizontally so that the slender peduncles recline upon leaves and bear the relatively large, colorful, bilabiate flower beyond the tip. Flowers are frequently cleistogamous. The pale yellow sepals are lightly spotted with rose. The broadly spathulate petals and panduriform lip are orange to dark purple and entire.

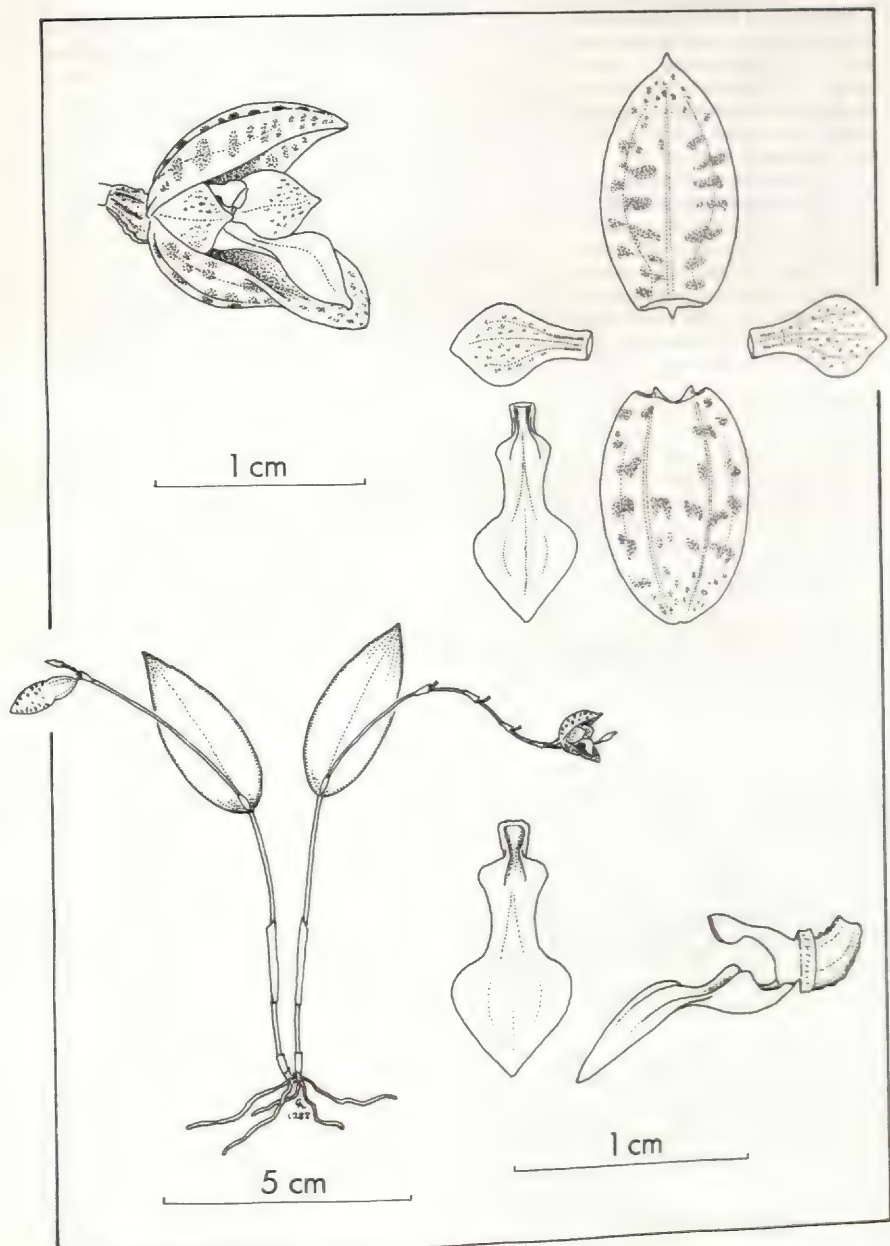


Plate 1. *Pleurothallis carpinterae* Schltr.



***Pleurothallis excelsa* Garay, *Caldasia* 10: 232, 1968.**

Ety.: From the Latin *excelsus*, "tall," referring to the habit of the plant.

**Plant** large, epiphytic, densely caespitose; roots coarse. Ramicauls stout, erect, 30-45 cm long, with a purple-spotted tubular sheath below the middle and 2 other purple-spotted sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical-ovate, subacute, sessile, 25-40 cm long, 9-16 cm wide, cuneate below at the base. **Inflorescence** a suberect to arching, loose, subsecund, simultaneously several-flowered raceme 50-60 cm long including the peduncle ca. 20 cm long, from a spathe 3-4.5 cm long, at the base of the leaf; floral bracts infundibular, acute, 1-1.8 cm long; pedicels 2-3 cm long; ovary 1.2-1.5 cm long; **sepals** rose, suffused with darker rose-brown, glabrous, the dorsal sepal ovate, acute, slightly concave below the middle, 47-52 mm long, 13-16 mm wide expanded, 5-veined, the lateral sepals connate into an ovate, acute synsepal, 45-52 mm long, 17-18 mm wide, 6-veined; **petals** white, suffused with purple medially, oblong-obovate, subacute, 16-20 mm long, 8-9 mm wide, 3-veined; **lip** purple-brown, greenish above the middle, narrowly ovoid, 37-45 mm long, 10 mm wide on basal third, 3-4 mm wide above, concave below the middle with thin, smooth, erect sides, with the sides revolute above the basal third to form a tube, with a pair of low marginal calli at the beginning of the deflection of the sides, smooth to minutely denticulate on the margins, the surface of the apical segment smooth to microscopically verrucose, the disc with a low, central, longitudinal callus, truncate at the base where it is inflexibly attached to the column-foot; **column** greenish white, slender, semiterete below the middle, obtusely winged above the middle, 10-12 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pedestal-like.

COLOMBIA: Without collection data, flowered in cultivation in Medellín by A. Mejía s.n. (Holotype: AMES; Clonotypes K, MO, SEL), C. Luer illustr. 4307. Dept. of Antioquia: Cocorná, Alto de los Comales, alt. 1950 m, collected by H. Granada, 1989, flowered in cultivation at Colomborquideas, 19 May 1993, C. Luer 16906 (MO). Dept. of Tolima: La Plata Vieja, terrestrial, alt. 1600 m, 30 Nov. 1882, F. C. Lehmann 2283 (G).

This gigantic species, vegetatively one of the largest of all racemose species, occurs in the Central Cordillera of Colombia where it is infrequently encountered. It is found growing terrestrially in rich, shaded humus of virgin forests at a moderate altitude less than 2000 meters above sea level. Apparently the first specimen was discovered in the nineteenth century by Lehmann in the department of Tolima. It is still another of the numerous collections by Lehmann that lay unrecognized and undescribed for many years in various herbaria of the world.

Up to ten immense flowers with non-caudate sepals five centimeters long are produced simultaneously on a stout, arching inflorescence. The protruding, cylindrical lip is nearly as long as the sepals. From a shallowly concave basal third, the margins of the lip recurve to form a long, straight, narrow tube.



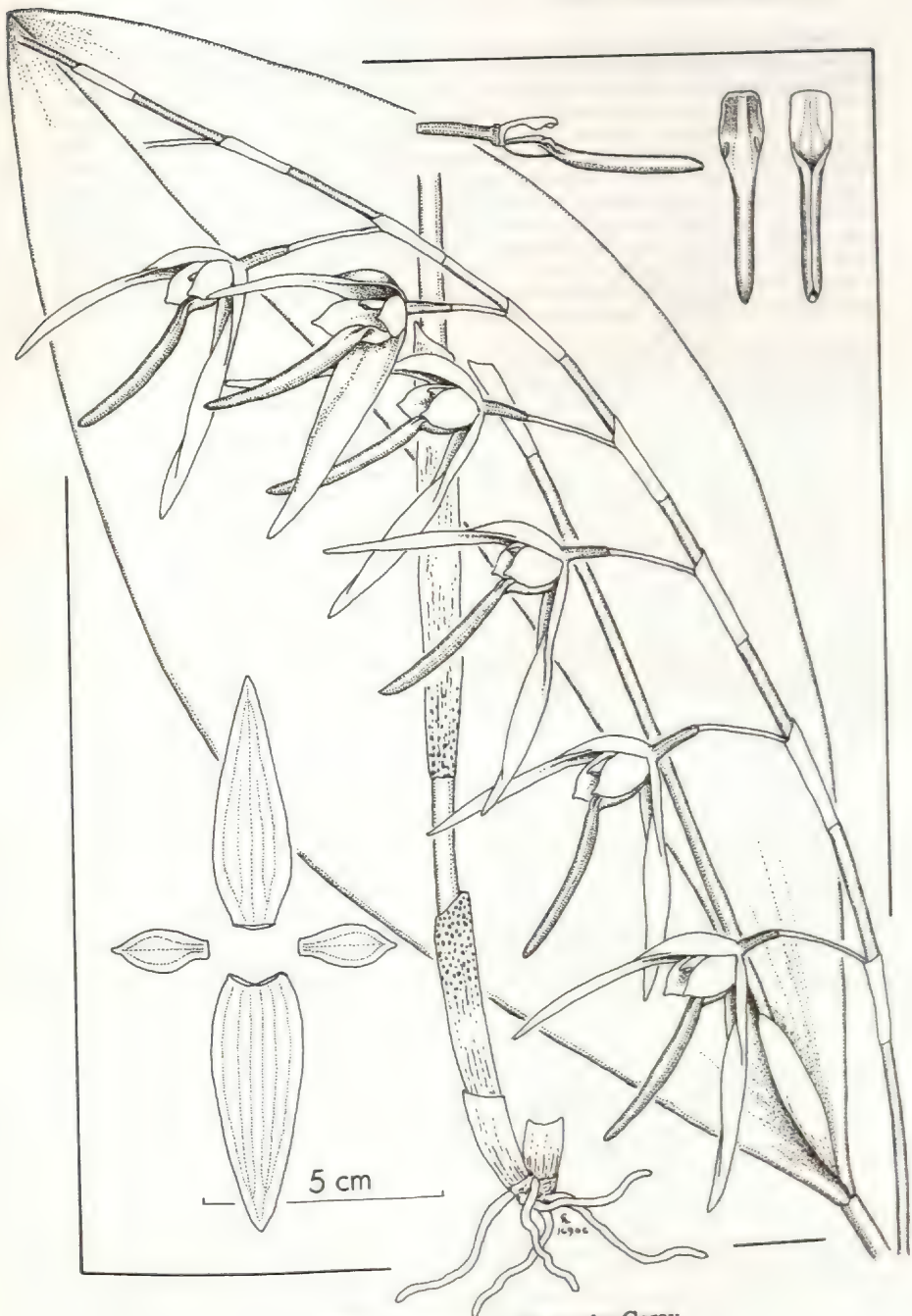


Plate 2. *Pleurothallis excelsa* Garay

***Pleurothallis guttata* Luer, Selbyana 3: 116, 1976.**

Ety.: From the Latin *guttatus*, "spotted," referring to the purple-spotted flowers.

**Plant** small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 6-8 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, elliptical-obovate, obtuse, petiolate, 3-5 cm long including the petiole ca. 1 cm long, 1.5-2.2 cm wide, cuneate below into the petiole. **Inflorescence** a descending, successive, distantly few-flowered raceme 3-6 cm long including the peduncle ca. 5 cm long, from a spathe ca. 2 mm long, laterally from the ramicaul below the abscission layer; floral bracts 2 mm long; pedicels 3 mm long; ovary spotted with purple, 3 mm long; **sepals** membranous, translucent light yellow-green, spotted with purple, glabrous, the dorsal sepal elliptical-ovate, obtuse, concave, 9 mm long, 4 mm wide expanded, 3-veined, the lateral sepals connate into an ovate, obtuse, concave, bicarinate synsepal, 8 mm long, 5 mm wide expanded, 4-veined; **petals** deep red-purple, obovate, acute, serrulate, 7 mm long, 3 mm wide, 3-veined; **lip** red-purple, elliptical, narrowly obtuse, 7 mm long, 2.5 mm wide, with the margins fringed, the disc concave, thickened and convex above the base, connate to the base of the column; **column** yellow-white, semiterete, broadly winged above the middle, 3 mm long, the anther, rostellum and stigma ventral, the foot obsolescent.

PANAMA: Prov. of Panamá: epiphytic on Cerro Jefe, alt. 1000 m, 15 Oct. 1967, R. L. Dressler 3086 (Holotype: SEL); epiphytic along the Altos de Pacora road, alt. 650 m, 4 Mar. 1976, C. Luer, J. Luer, P. Taylor & R. L. Dressler 1064 (SEL); epiphytic on Cerro Campana, alt. 1000 m, Aug. 1975, flowered in cultivation Aug. 1976, R. L. Dressler s.n. (SEL).

This species is apparently endemic in eastern Panama where it was first collected by R. L. Dressler. It is characterized by small, broadly obovate, obtuse leaves borne by short ramicauls. The pendent raceme bears a lax succession of bilabiate, purple-spotted flowers. The lip is cymbiform and fimbriate.

*Pleurothallis guttata* is closely allied to Costa Rican *P. janetiae*, but differs from the latter in the smaller habit with ramicauls less than a centimeter long; broadly obtuse leaves; smaller flowers with proportionately narrower, dark purple-spotted sepals; deep red-purple petals; and a red-purple, elliptical, fringed, boat-shaped lip that is also similar to the lip of *P. janetiae*.

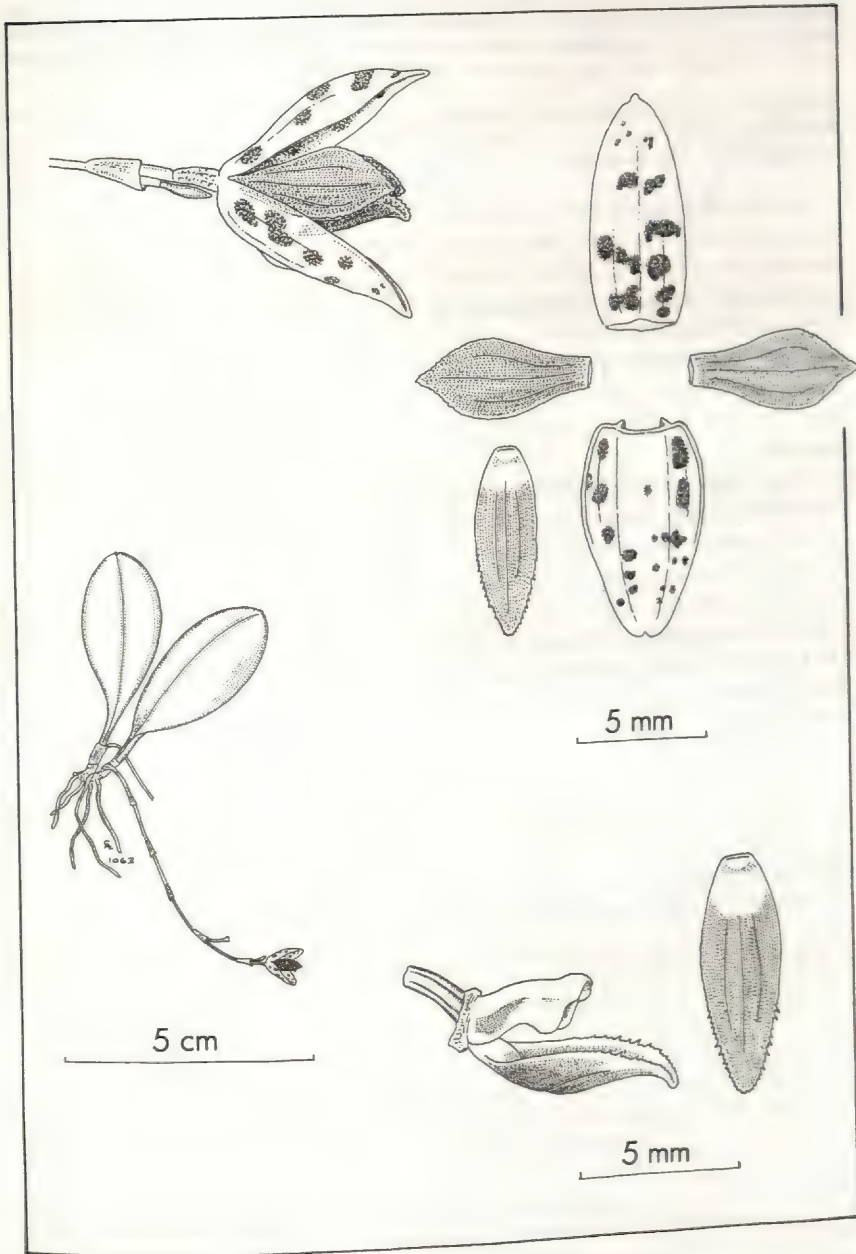
***Pleurothallis holtonii* Luer, sp. nov.**

Ety.: Named in honor of I. F. Holton, who collected this species.

Species haec *P. macrophyllae* H.B.K. affinis, sed labelli parte apicali glabro angusto crasso subtrilobato differt.

**Plant** large, epiphytic, presumably caespitose; roots coarse. Ramicauls stout, erect, 30 cm long or longer (incomplete), with a spotted tubular sheath below the middle. **Leaf** erect, coriaceous, elliptical, subacute, sessile, up to 34 cm long, up to 8 cm wide, cuneate below to the base. **Inflorescence** an erect, loose, subsecund, simultaneously several- to many-flowered (?) raceme up to 17 cm long including the peduncle ca. 10 cm long, from a spathe 2 cm long, at the base of the leaf; floral bracts thin, infundibular, acute, 1.5 cm long; pedicels 2-2.5 cm long; ovary 16-17 mm long; **sepals** presumably darkly colored, glabrous (cellular-glandular externally), the dorsal sepal elliptical, subacute, concave, 24 mm long, 12 mm wide, 3-veined, the lateral sepals connate into an ovoid, concave, bifid(?) synsepal, 23 mm long, 14



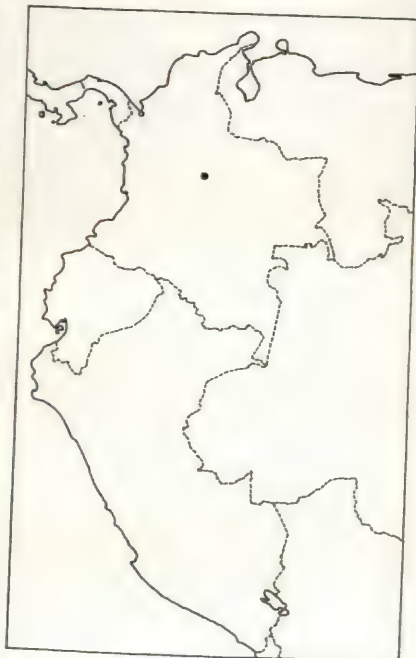
Plate 3. *Pleurothallis guttata* Luer

mm wide expanded, 6-veined, the apices acute, free for about 8 mm; **petals** elliptical-obovate, subacute, 13 mm long, 7.5 mm wide, 3-veined; **lip** ovoid, glabrous, 14 mm long, 4 mm wide, concave below the middle with erect sides, narrowed above the middle with the sides thickened and revolute to form a solid, decurved, obtuse, subtrilobed apical segment, the disc sulcate below the middle between a pair of low longitudinal calli, tricarinate beneath, the base broadly subtruncate, transversely thickened, inflexibly attached to the column-foot; **column** broadly and obtusely winged above the middle, 7 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pedestal-like.

COLOMBIA: Dept. of Cundinamarca: "Bogotá," without more specific locality, 1852, I. F. Holton s.n. (Holotype: NY), C. Luer illustr. 15520.

In habit this large species is indistinguishable from that of *P. macrophylla* which is known only from the Western Cordillera of Colombia. This species is known only from the original collection made by I. F. Holton near Bogotá in the Eastern Cordillera in 1852. The specimen lay unidentified at NY for nearly a century and a half.

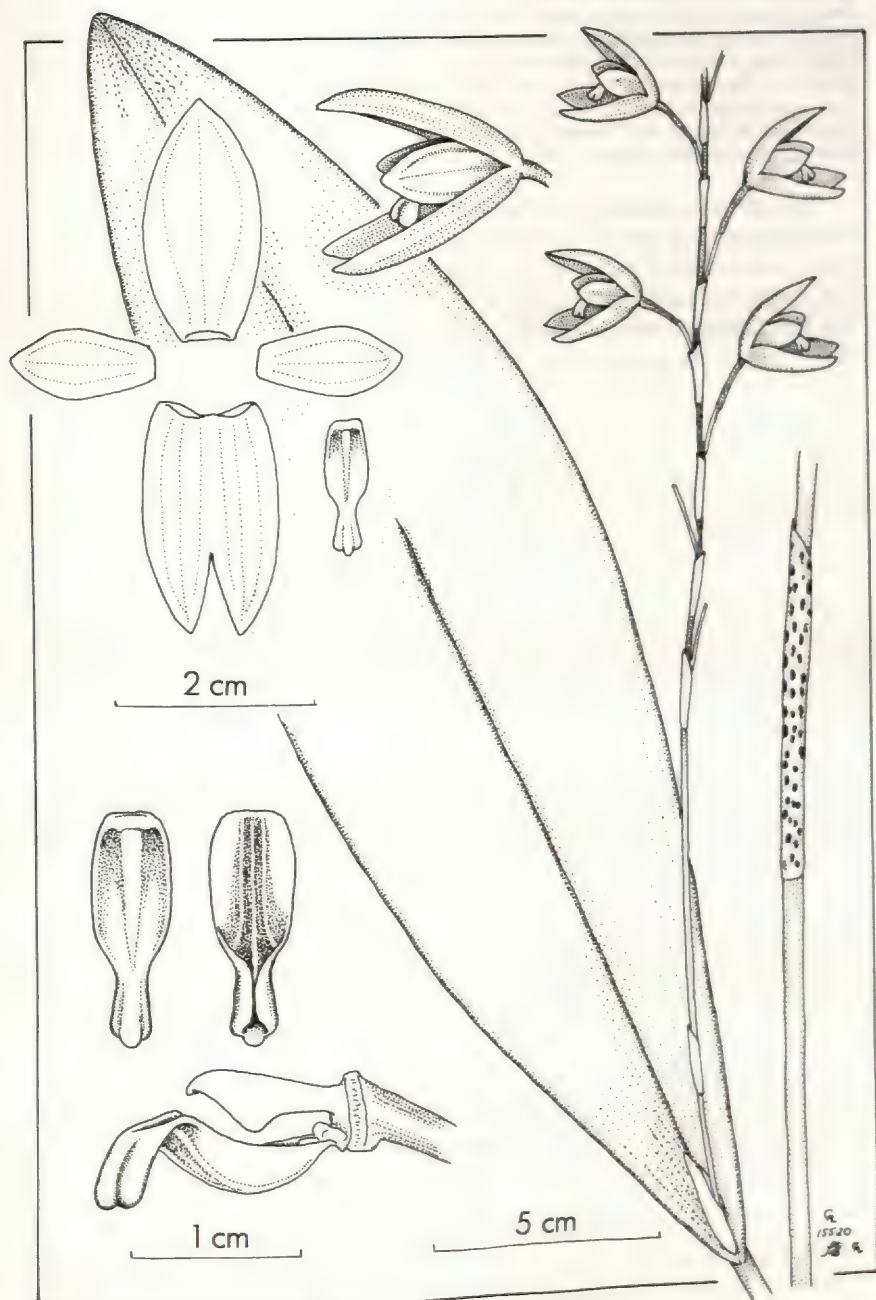
*Pleurothallis holtonii* differs from *P. macrophylla* in the morphology of the lip. As in *P. macrophylla*, the lip is scaphoid below the middle, but above the middle the lip is glabrous, narrowed and decurved. A longitudinally rounded, thickened, central carina, together with the thick, revolute sides, form a trilobed anterior segment.



### *Pleurothallis janetiae* Luer, Selbyana 5: 169, 1979.

Ety.: Named in honor of Janet Kuhn who collected and cultivated this species.

**Plant** small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, purple, 1.5-2.5 cm long, with a tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, to suberect, thinly coriaceous, elliptical-ovate, subacute to obtuse, petiolate, 5-10 cm long including the petiole 2-3.5 cm long, 1.5-2.3 cm wide, cuneate below into the slender, purple petiole. **Inflorescence** a successive, distantly several-flowered raceme 8-15 cm long including the slender peduncle 5-6 cm long, arching, descending, or pendent, from a spathe 2-3 mm long, laterally from the ramicaul below the scission layer; floral bracts 3 mm long; pedicels 10-12 mm long; ovary green, 3 mm long; **sepals** membranous, translucent light yellow, lightly spotted and suffused with rose, glabrous, the dorsal sepal ovate, subacute, concave, 13-18 mm long, 10-11 mm wide expanded, 3-veined, the lateral sepals connate into an ovate, subacute, concave, bicarinate synsepal, 13-18 mm long, 7-9 mm wide expanded, 4-veined; **petals** yellow, mottled with brown, elliptical, acute, serrulate, minutely papillose above the base, 13 mm long, 5 mm wide, 3-veined; **lip** yellow, suffused with brown, ovate-subtrilobed, acute, 12 mm long, 6 mm wide, with the margins fringed, the disc flat, thickened and convex above the base, connate to the base of the column; **column** white, suffused with rose, semiterete, broadly winged above the middle, 5 mm long, the anther, rostellum and stigma ventral, the foot obsolescent.

Plate 4. *Pleurothallis holtonii* Luer



COSTA RICA: Prov. of Puntarenas: epiphytic in cloud forest above Las Cruces, July 1977, flowered in cultivation at J & L Orchids, Easton, CT, 8 Nov. 1977, *C. Luer* 2123 (Holotype: SEL). Prov. of Alajuela: between San Ramón and Santa Clara, alt. 1080-1200 m, 27 July 1983, *R. Escobar & M. Perez* 3093 (SEL). Prov. of San José: Vásquez de Coronado, Parque Nacional Braulio Carrillo, alt. 750 m, 21 Sept. 1990, *S. Ingram & K. Ferrell* 556 (SEL). Without locality, ca. 1867, *A. Endres* 2533 (W).



This species is apparently endemic in Costa Rica where it was first collected by Endres about 1867. Specimens and accurate, detailed illustrations were dutifully sent to Reichenbach who did nothing with them. Endres had proposed the name *P. helva*. This is another of numerous Costa Rican collections by Endres that lay for many years unpublished in several major herbaria. Janet Kuhn collected the species over a century later.

*Pleurothallis janetiae* is distinguished by a petiolate leaf borne by a short ramicaul with a lateral inflorescence. The inflorescence droops and produces a loose raceme of several, successive, comparatively large, long-pedicellate flowers. The petals and lip are fringed. It is very closely allied to Panamanian *P. guttata*, but differs in the larger habit, and considerably larger flowers with broader floral parts. Except for the size, the base of the cymbiform lip and footless column are similar in both species.

*Pleurothallis janetiae* is superficially similar to sympatric *P. carpinterae*, but *P. janetiae* is distinguished by the proportionately shorter ramicaul and a long-petiolate leaf. The bilabiate flowers of the two species are similar in size and color, but the petals and lip of *P. janetiae* are elliptical and serrulate to fimbriate.

***Pleurothallis macrophylla* H.B.K., Nov. Gen. Sp. 1: 365, 1815.**

Ety.: From the Greek *makrophyllos*, "large-leaved," referring to the huge leaves of the species.

Syn.: *Pleurothallis laurifolia* H.B.K. *sensu* Rchb.f., Bonplandia 2: 23, 1854, not *P. laurifolia* H.B.K. = *P. ruscifolia* (Jacq.) R.Br.

Syn.: *Pleurothallis roezlii* Rchb.f., Linnaea 12: 13, 1877.

Ety.: Named in honor of Benedict Rözl, renowned Bohemian collector, who collected this species.

Syn.: *Humboldtia macrophylla* (H.B.K.) Kuntze, Rev. Gen. Pl. 667, 1891.

Syn.: *Humboldtia reichenbachiana* Kuntze, Rev. Gen. Pl. 666, 1891.

Ety.: A new name for *P. laurifolia* H.B.K., *sensu* Reichenbach.

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

**Plant** large, epiphytic, densely caespitose; roots comparatively slender. Ramicauls stout, erect, 10-30 cm long, with a spotted, tubular sheath below the middle and 2 other spotted sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, sessile, 15-30 cm long, 5-9 cm wide, cuneate below to the base. **Inflorescence** a suberect to arching, loose, secund, simultaneously several-flowered raceme up to 25 cm long including the peduncle 9-10 cm long, from a slender, 1.5-2 cm long spathe at the base of the leaf; floral bracts infundibular, acute, 1-1.5 cm long; pedicels 4.5 cm long below to 1 cm long near the apex; ovary 10-13 mm long; **sepals** red-brown, glabrous, the dorsal sepal elliptical-obovate, subacute to obtuse, concave, 25-30 mm long, 12-15 mm wide, 3-veined with 2 incomplete veins, the lateral sepals

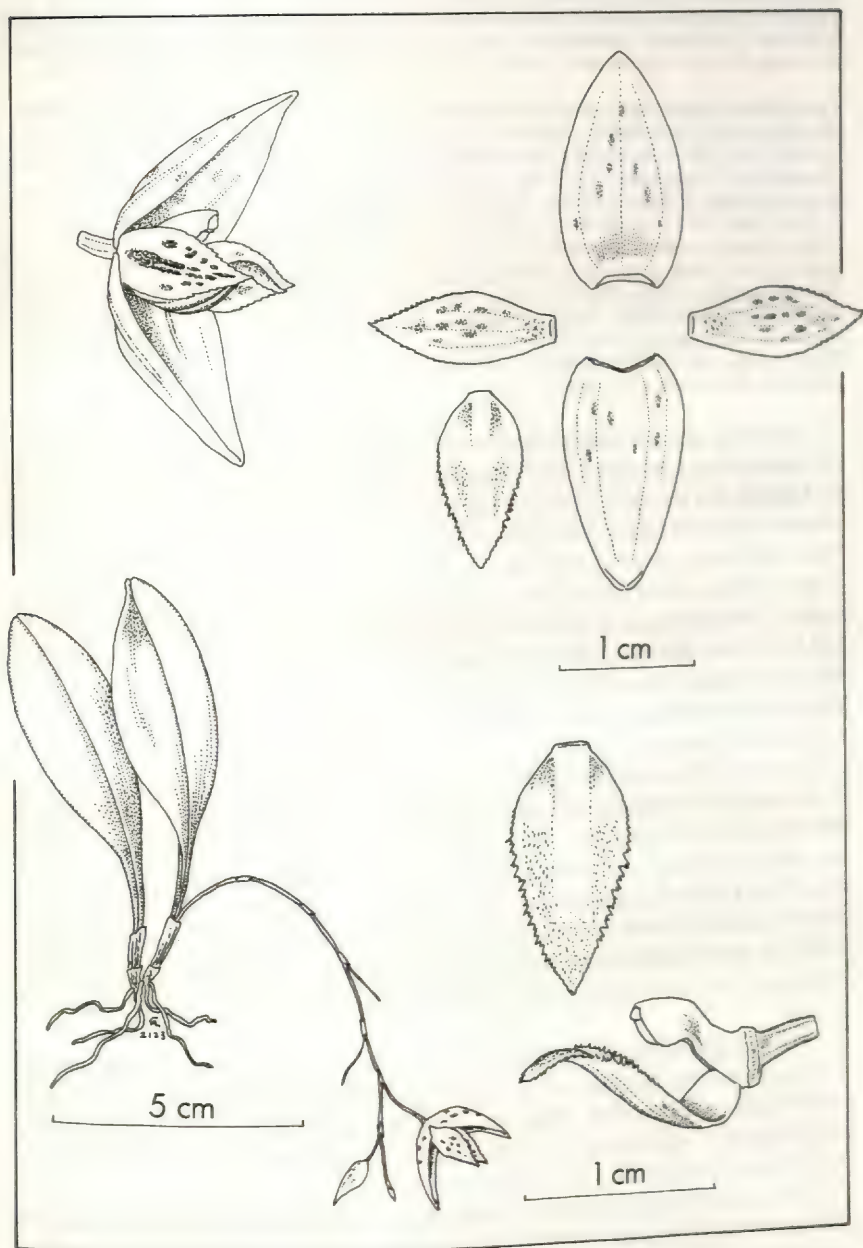
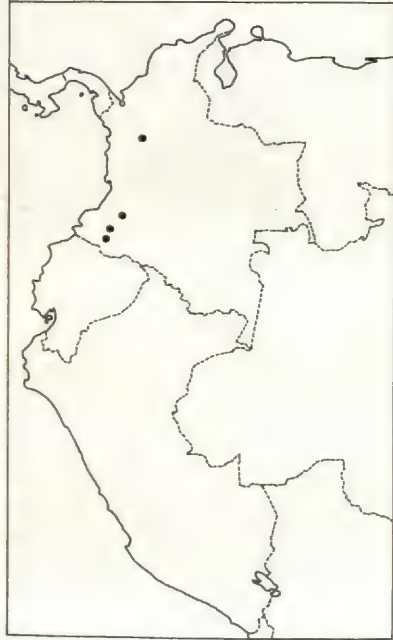


Plate 5. *Pleurothallis janetiae* Luer

connate into an obovoid, obtuse, concave synsepal, 23-27 mm long, 15-16 mm wide, 6-veined; **petals** red-brown, elliptical-obovate, subacute to obtuse, 13-20 mm long, 9-11 mm wide, 3-veined; **lip** orange to purple, ovoid, 16-18 mm long, 5-6 mm wide, concave below the middle with erect margins, convex and variously pubescent or verrucose above the middle with the margins revolute, the apex obtuse, the disc longitudinally thickened and channeled toward the base, the base broadly subtruncate, inflexibly attached to the base of the column; **column** green, slender, semiterete below the middle, obtusely winged above the middle, 9-10 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pedestal-like.

COLOMBIA: Dept. of Cauca: prov. of Popayán near the village La Ere, Río Yanacatu, alt. 800 hex. (alt. 1440 m), Nov. 1801, *Humboldt & Bonpland s.n.* (Holotype: P), C. Luer illustr. 15275. Dept. of Antioquia: near Sonsón, *B. Rözl s.n.* (W, type of *P. roezlii*), C. Luer illustr. 16377; without locality, *Patin* (W). Dept. of Nariño: north of Morasurco, alt. 2400 m, collected by E. Valencia, flowered in cultivation at Colomborquídeas 15 Dec. 1992, *R. Escobar 5039* (MO), C. Luer illustr. 16611. Dept. of Putumayo: Páramo de Bordoncillo, between La Cocha and Sibundoy, alt. 2800-3000 m, 27 May 1946, *R. E. Schultes & M. Villarreal 7522* (AMES).



This huge species was first discovered by Humboldt and Bonpland near Popayán, Colombia, on the leg of their famous journey shortly before Christmas, 1801. They had been visiting with Mutis in Bogotá and were now making their way to Quito. The collection of *P. macrophylla* had been made not long before they made their collection of *Masdevallia bonplandii* Rchb.f. near Rumichaca at the present-day border with Ecuador.

Although this immense species is hard to confuse with *P. ruscifolia* (Jacq.) R.Br., unexplained mixups can occur. Apparently Reichenbach saw a duplicate of the Humboldt collection of *P. macrophylla* in Berlin labeled *P. laurifolia*. In 1854, he published this species as the *P. laurifolia* of Humboldt and Bonpland. Their *P. laurifolia*, however, is a synonym of *P. ruscifolia*. Apparently neither Lindley nor Reichenbach had seen the Humboldt collection in Paris. Lindley treated Humboldt's *P. macrophylla* as an earlier name for Pöppig's very different *P. floribunda* (subgenus *Crocodelanthe*) that is characterized by several short racemes of small flowers.

The vegetatively and florally similar *P. roezlii*, described later by Reichenbach from a collection by Roezl farther north in Antioquia, differs from typical *P. macrophylla* in the coarsely pubescent, apical half of the lip. The apical half of the lip of typical *P. macrophylla* is only minutely verrucose. Otherwise, there is no significant difference between the two concepts.

*Pleurothallis macrophylla* is a large, infrequent species with huge, elliptical, sessile leaves. The raceme of several, large, red-brown or purple flowers is usually a little shorter than the leaf. The species is closely allied to the frequent *P. restrepoides* with which it is sympatric in southern Colombia. From the latter, it is distinguished by the longer leaf, and larger, fewer, non-spotted flowers with a variously verrucose apical half of the lip.



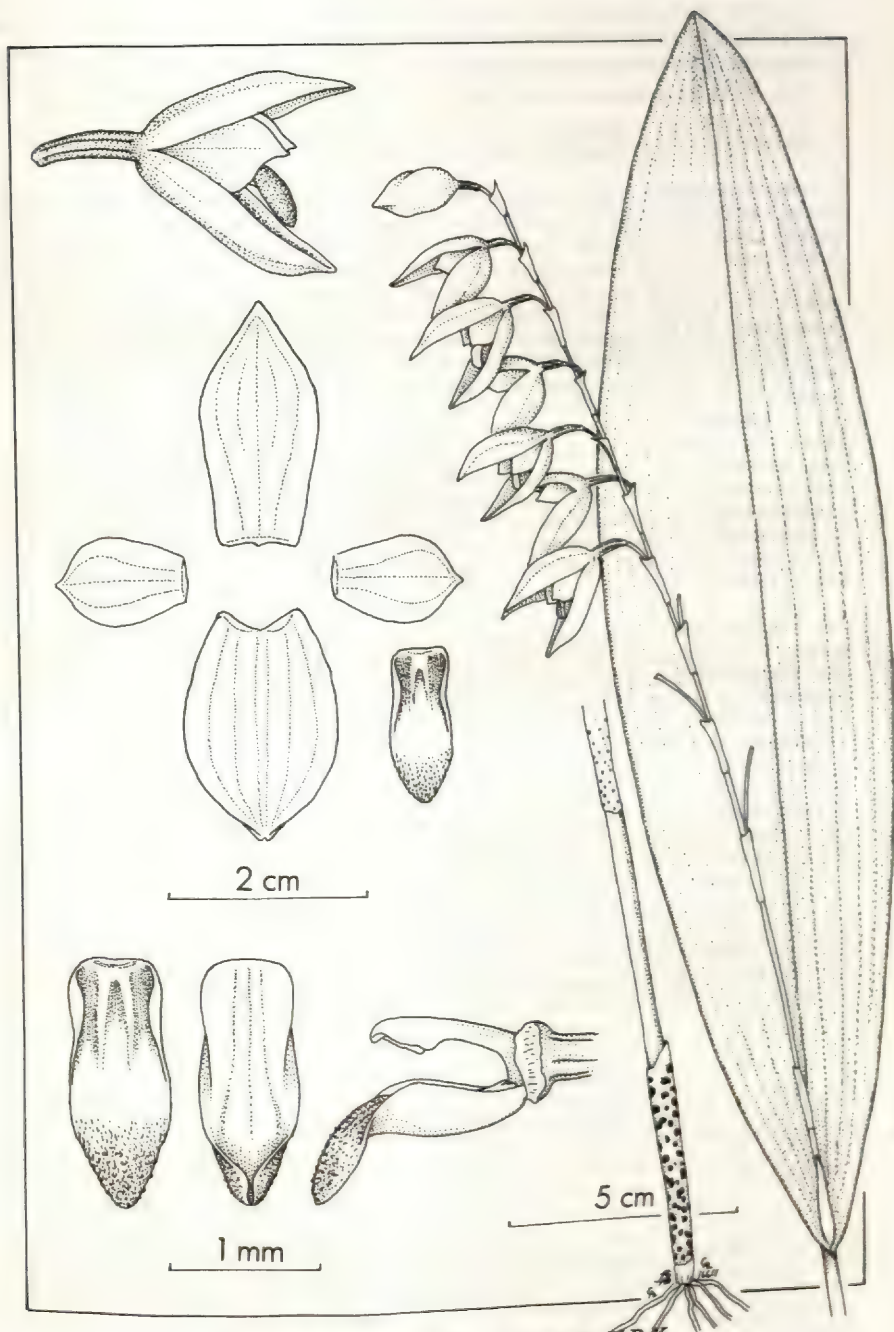


Plate 6. *Pleurothallis macrophylla* H.B.K.

***Pleurothallis restrepioides* Lindl., Comp. Bot. Mag. 2: 356, 1836.**

Ety.: Named for some obscure similarity to the genus *Restrepia*.

Syn.: *Pleurothallis fritillaria* Rchb.f., Bonplandia 3: 240, 1855.

Ety.: Named for a vague resemblance to a *Fritillaria* (Liliaceae).

Syn.: *Humboldtia fritillaria* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia restrepioides* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis atrovioleacea* Lehm. & Krzl., Bot. Jahrb. Syst. 26: 438, 1899.

Ety.: From the Latin *atroviolaceus*, "dark violet," in reference to the color of the flowers.

**Plant** large, epiphytic, densely caespitose; roots coarse. Ramicauls stout, erect, often prolific, 10–45 cm long, with a tubular sheath below the middle and 2 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, sessile, 10–17 cm long, 3–8.5 cm wide, broadly cuneate or rounded below at the base. **Inflorescence** a (occasionally 2) suberect to arching, loose, subsecund, simultaneously several-to many-flowered raceme up to 15–33 cm long including the peduncle 5–12 cm long, from a slender spathe 1–1.5 cm long, at the base of the leaf; floral bracts infundibular, acute, 1–1.5 cm long; pedicels 15 mm long below to 5 mm long near the apex; ovary purple-spotted, 4 mm long; **sepals** white to pale greenish or yellow, usually diffusely and heavily spotted with purple, glabrous, the dorsal sepal ovate, subacute, concave, 16–20 mm long, 8–9 mm wide, 3-veined, the lateral sepals connate into an ovoid, obtuse, concave synsepal, 18–20 mm long, 9–10 mm wide expanded, 6-veined; **petals** purple, elliptical-obovate, subacute to obtuse, more or less lightly acuminate, 9–10 mm long, 5 mm wide, 3-veined; **lip** greenish white, suffused with purple above the middle, ovoid, 13–15 mm long, 5–6 mm wide, concave below the middle with thin, smooth, erect sides, with the sides revolute above the middle to form a tube, more or less microscopically verrucose, the margins minutely denticulate, the disc longitudinally thickened medially and with an obscure pair of calli just below the middle, the base broadly subtruncate, inflexibly attached to the base of the column; **column** pale green, slender, semiterete below the middle, obtusely winged above the middle, 5–6 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pedestal-like.

PERU: Dept. of Amazonas: near Chachapoyas, A. Mathews s.n. (Holotype: K); Cerros Calla Calla above Leimebamba, alt. 2400 m, 26 Mar. 1964, P. C. Hutchison & D. E. Bennett 4554 (AMES, UC, USM); same area, alt. 2200 m, 7 Apr. 1964, C. C. Hutchison & W. Krahn 4946 (AMES, UC); road ascending mountain southeast of Chachapoyas, alt. 8700 ft., 20 Jan. 1983, R. M. King & L. E. Bishop 9266 (MO).  
 ECUADOR: Prov. of Imbabura: wet forest, Los Cedros Reserve, alt. 1700 m, 21 Jan. 1993, S. Dalström, T. Höijer & H. Wanner 1710, 1723a (MO).  
 Prov. of Pichincha: western declivity of the Andes, on rocks and precipices, alt. 7000 ft., 1848, W. Jameson 678 (K, W, types of *P. fritillaria*); same collection, W. Jameson 677 (G); Andes of Quito, alt. 8,000 ft., Jan. 1856, W. Jameson 466 (AMES, G); margins of old lava flows in humid forest near Silante and Milligallé, western declivity of Corazón, alt. 2200–2600 m, F. C. Lehmann 8200 (AMES, K, type of *P. atrovioleacea*); Pululagua, alt. 2600 m, 19 Jan. 1940, E. Asplund 10353 (G, S, US); old road between Quito and Santo Domingo, flowered in culture 14 Feb. 1982, C. Luer 6831 (SEL); road to Malatos west of Chiriboga, alt. 1300 m, Jan. 1989, A. Hirtz 3960B (MO); same area, alt. 1000 m, Feb. 1991, M. Whitten & F. L. Stevenson 91012; La Liberia, alt. 2700 m, Nov. 1983, A. Hirtz 1407 (MO); west of Calacalí, alt. 2700 m, 19 Mar. 1942, O. Haught 3173 (AMES, US); west of Calacalí, alt. 2800 m, 4 Apr. 1985, C. Luer, J. Luer, A. Hirtz, C. Dodson & P. Dodson 11039 (MO); same area, alt. 2800 m, 14 Mar. 1987, V. Zak 1812 (K).  
 Prov. of Bolívar: west of Guaranda on road to Balzapamba, alt. 2000 m, 26 Mar. 1984, C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9733A (MO).  
 Prov. of Zamora-Chinipe: above Valladolid, alt. 2000 m, 18 Mar. 1984, C. Luer, S. Dalström, T. Höijer, J. Kuijt & D. D'Alexandro 9619 (MO).  
 COLOMBIA: Dept. of Nariño: Altaquer, alt. 1600 m, collected by E. Valencia, flowered in cultivation at Colomborquideas, 12 Dec. 1992, R. Escobar 5020 (MO).



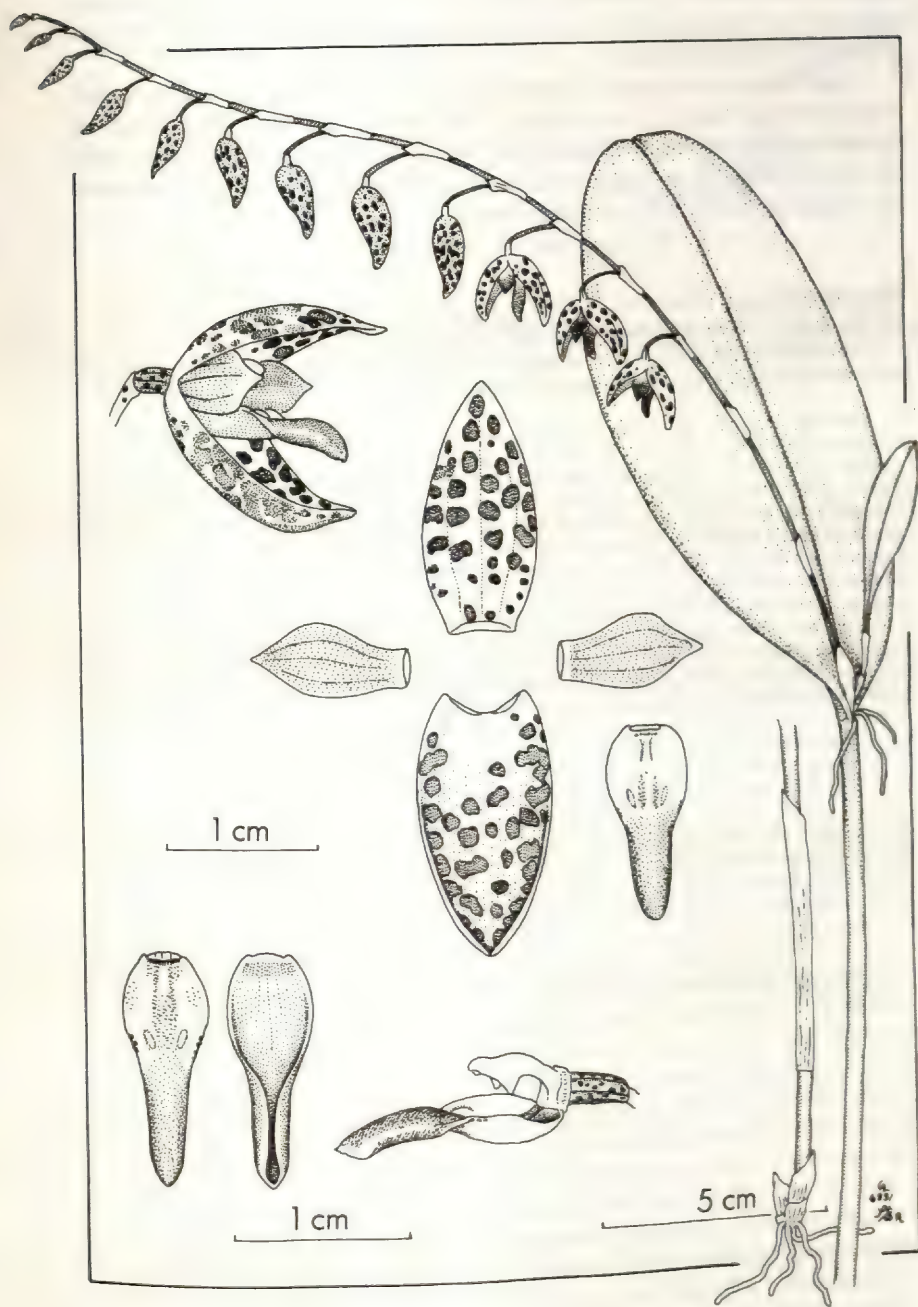


Plate 7. *Pleurothallis restrepioides* Lindl.



This large species was first discovered by Mathews in northern Peru where it is apparently uncommon. In northern Ecuador, however, it is frequently encountered, especially on road-cuts where it grows with many other pleurothallids. It is less common in southern Ecuador.

*Pleurothallis restrepioides* is a handsome species with large, glossy, elliptical leaves surpassed by one or two racemes of several to many large, purple-spotted flowers with the protruding apical half of the lip tubular from the revolute sides. The margins of the lip above the middle are minutely denticulate, below the middle the margins are erect, smooth and membranous.

***Pleurothallis superbiens* Luer, sp. nov.**

Ety.: From the Latin *superbiens*, "superb," referring to the handsome flowers.

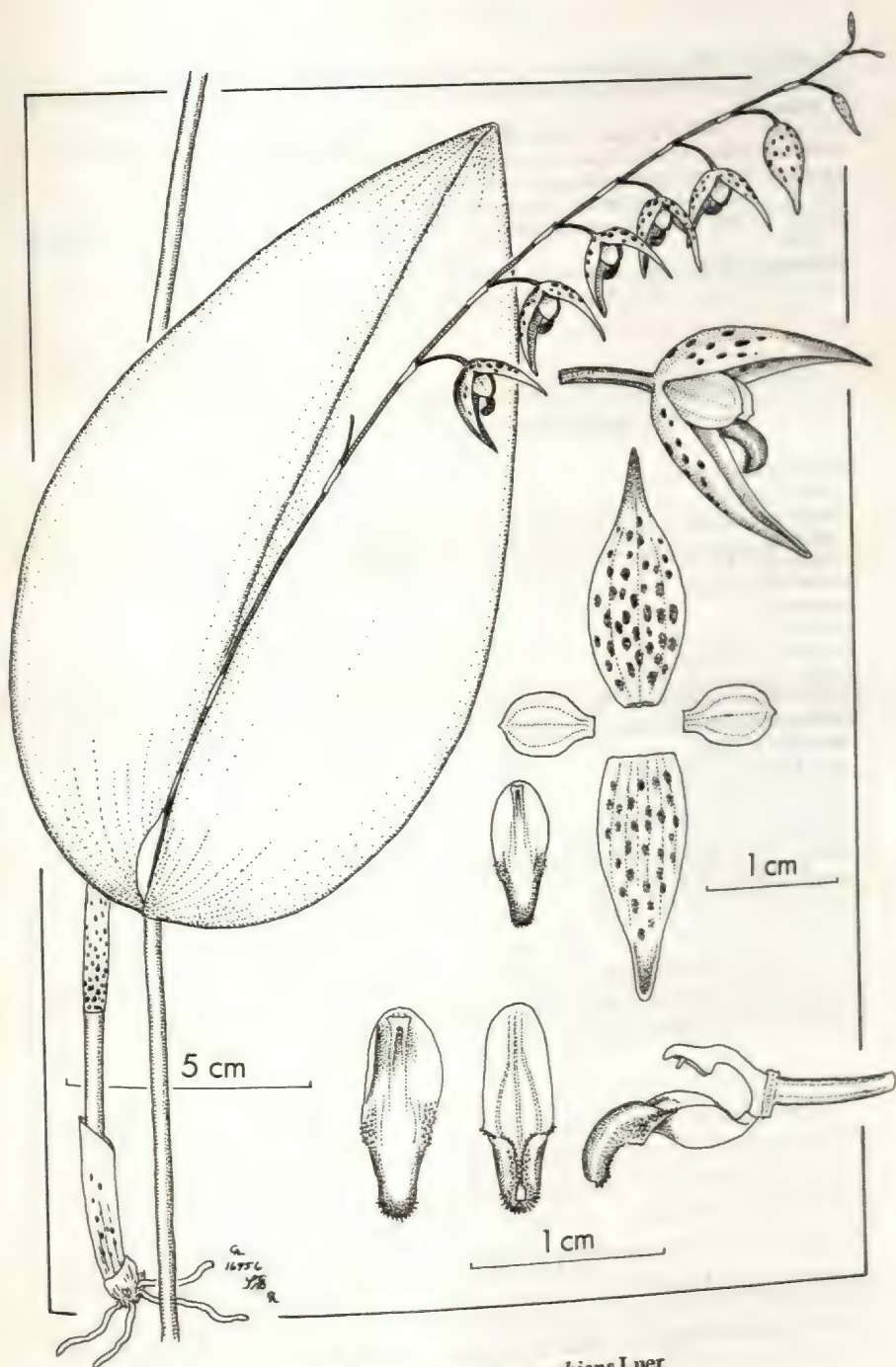
Species haec *P. restrepioides* Lindl., affinis, sed sepalis acuminatis, petalis obtusis et labello cum callo canaliculato longitudinali infra medium et cum marginibus supra medium dense papillis differt.

**Plant** large, epiphytic, densely caespitose; roots coarse. Ramicauls stout, erect, to 45 cm long, with a purple-spotted tubular sheath below the middle and 2 other purple-spotted sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical-ovate, subacute, sessile, to 19 cm long, 10 cm wide, rounded below at the base. **Inflorescence** a (occasionally 2) suberect to arching, loose, subsecund, simultaneously several-flowered raceme up to 22 cm long including the peduncle 9-10 cm long, from a slender spathe 2 cm long, at the base of the leaf; floral bracts infundibular, acute, 6-7 mm long; pedicels 9 mm long below to 5 mm long near the apex; ovary 5-7 mm long; **sepals** cream-colored, glistening, spotted within in purple, suffused with purple along margins and toward apices, glabrous, the dorsal sepal ovate, acute, acuminate, concave, 18 mm long, 8 mm wide expanded, 3-veined, the lateral sepals connate into an ovoid, acute, acuminate, concave synsepal, 17 mm long, 7 mm wide expanded, 6-veined; **petals** oblong, obtuse, 7 mm long, 4.25 mm wide, 3-veined; **lip** purple, ovoid, 10 mm long, 4 mm wide, concave below the middle with thin, smooth, erect sides, with the sides revolute above the middle to form a decurved tube, coarsely papillose on the margins, extending onto the surface of the lip at the middle with a pair of erect, irregular calli, the surface of the apical segment more or less microscopically verrucose, the disc with a central, longitudinal callus, shallowly sulcate centrally, truncate at the base where it is inflexibly attached to the column-foot; **column** slender, semiterete below the middle, obtusely winged above the middle, 5 mm long, the anther, rostellum and stigma ventral, the foot short, thick, pedestal-like.

ECUADOR: Prov. of Carchi: epiphytic in forest between Maldonado and Chical, alt. 1400 m, collected July 1991, flowered in cultivation in Chamblee, GA, F L Stevenson 91-1129-1 (Holotype: MO), C. Luer illustr. 16956.

This large species was recently discovered by F L Stevenson in northernmost Ecuador, and cultivated in Chamblee, Georgia. It is closely related to *P. restrepioides* which is common a short distance to the south. *Pleurothallis superbiens* is distinguished by the larger, broadly ovate leaf round at the base, and with similar, loose racemes of large flowers. The dorsal sepals and synsepals are slightly narrower and acuminate. The petals are broad and obtuse. The lip is concave below the middle with a distinct, central, longitudinal callus that is attached to the column-foot. Above the middle the surface of the lip is densely and coarsely papillose at the place where the margins become revolute. The papillae continue below along the revolute margins.



Plate 8. *Pleurothallis superbiens* Luer

## REFERENCES

- COGNIAUX, A., 1898. *Pleurothallis roezlii*. Dictionnaire iconographique des Orchidées. Plate 1.  
 DRESSLER, R. L., 1981. The orchids: natural history and classification. Harvard University Press, Cambridge, MA.  
 ----- 1993. Phylogeny and classification of the orchid family. Dioscorides Press, Portland, OR.  
 GODEFROY-LEBEUF, A., 1888. *Pleurothallis roezlii*. L'Orchidophile 8: 80-81.  
 LINDLEY, J., 1842. *Pleurothallis*. Edwards' Bot. Reg. 28: Misc: 67-84.  
 ----- 1859. Folia Orchidacea *Pleurothallis* 26-32.  
 LUER, C. A., 1986. Icones Pleurothallidinarum III. Systematics of *Pleurothallis*. Monogr. Syst. Bot. 20: 41-42.  
 REICHENBACH, H. G. f., 1861. *Pleurothallis*. Walpers Annales. Ann. Bot. Syst. 6: 167-175.  
 ----- 1874. *Pleurothallis laurifolia*. Xenia Orch. 2: 21-23, t. 108.

## INDEX OF SCIENTIFIC NAMES

- |                              |  |
|------------------------------|--|
| Humboldtia fritillaria 84    | Pleurothallis atrovioleacea 84                 |
| macrophylla 80               | carpinterae 71, 72, Plate 1., 80               |
| reichenbachiana 80           | excelsa 71, 74, Plate 2.                       |
| roezlii 80                   | floribunda 82                                  |
| restrepioides 84             | fritillaria 69, 71, 84                         |
| Masdevallia bonplandii 82    | guttata 70, 71, 76, Plate 3., 80               |
| Pleurothallis 69             | helva 80                                       |
| subgen. Acianthera 70        | holtonii 69, 71, 76, Plate 4.                  |
| subgen. Crocodeilanthe 82    | janetiae 71, 76, 78, Plate 5., 80              |
| subgen. Elongatia 69, 70, 71 | laurifolia H.B.K. 80, 82                       |
| subgen. Pleurothallis 70     | laurifolia Rchb.f. 71, 80, 82                  |
| subgen. Specklinia 70        | macrophylla 69, 71, 76, 78, 80, Plate 6., 82   |
| sect. Effusae 69, 70         | restrepioides 69, 70, 71, 82, 84, Plate 7., 86 |
| sect. Elongatae 69, 70, 71   | roezlii 71, 80, 82                             |
| sect. Petiolatae 69, 70, 71  | ruscifolia 80, 82                              |
| subsect. Racemosae 69, 70    | superbiens 69, 71, 86, Plate 8.                |
| subsect. Spicatae 69         | Restrepia 84                                   |
| subsect. Tristes 69, 70      |  |
| series Disepalae 69, 70      |  |



# SYSTEMATICS OF THE SUBGENUS *KRAENZLINELLA* GENUS *PLEUROTHALLIS* (ORCHIDACEAE)

## ABSTRACT

A brief history of the subgenus *Kraenzlinella* (Kuntze) Luer of the genus *Pleurothallis* R.Br. is given and the subgenus is described. A key to the species is given. Each species is described and illustrated with a black and white drawing, and a distribution map is included for each.

### New species:

*Pleurothallis anfracta* Luer, sp. nov.

The first species attributable to this subgenus to be described is *Pleurothallis erinacea*. It was collected by the traveler Hermann Wager in the old province of Ocaña in the Eastern Cordillera of Colombia and described by Professor Reichenbach in 1855. The next species to be described is *P. gigantea*, from a Peruvian collection by Mathews described by Professor Lindley in 1859 in his *Folia Orchidaceae*. Lindley (1859) recognized the relationship of these two species in section *Elongatae*, and gave some thought to their constituting a distinct genus.

When the third species related to the above two was described by Kränzlin in 1899, he proposed a monotypic genus, *Otopetalum*. He was not aware of any relationship to the previous two. In 1904, Otto Kuntze proposed *Kraenzlinella* as a new name for the genus, because the name *Otopetalum* already existed in the Apocynaceae. Pfitzer listed this species of *Kraenzlinella* in *Pleurothallis* in the addenda to Engler and Prantl's *Pflanzenfamilien*.

Collections of the variable and widely distributed *P. erinacea* from Central America were described three times by Schlechter (*P. muricata* and *P. sororia* in 1912, and *P. diuturna* in 1922). Rolfe transferred the first two of these epithets to *Kraenzlinella* in 1915 and added still another epithet for *P. erinacea* as *Kraenzlinella rufescens*. In 1921, Schlechter transferred Rolfe's *K. rufescens* to *Pleurothallis*, which seemed to discourage further attempts to recognize these three species in a separate genus.

Since that time, five other related species were described in *Pleurothallis*. Seven were brought together in subgenus *Kraenzlinella*, proposed in 1986. A specimen collected by Lehmann over a century ago is described in this work as a ninth species.

Although *Kraenzlinella* as a unit is as generically distinct as are many genera of large-flowered taxa of other subtribes, it is most easily dealt with as a subgenus within *Pleurothallis* with which it can most easily be identified. All nine species share in common a short, stout ramicaul and a longer, fleshy, sessile leaf; a racemose inflorescence (except for single-flowered *P. shuarii*) emerging from the apex of the ramicaul at the base of the leaf, with successive, fleshy flowers; more or less free, carinate sepals; petals more or less auriculate at the base; an unguiculate lip with the claw often biauriculate at the hinge with the column-foot; and a slender, winged column with a more or less hooded clinandrium covering a ventral anther with two ovoid pollinia. The integument of the ovary is variously ornamented with papillae, spicules or scalelike appendages. Of the three major subgenera of *Pleurothallis*, *Kraenzlinella* is more closely allied to *Acianthera* than to *Pleurothallis* or *Specklinia*.

The species are found in mountainous forests from southern Mexico into Bolivia, the most common and variable species, *P. erinacea*, ranging nearly throughout the distribution of the genus. *Pleurothallis otopetalum* occurs from southern Colombia into Peru, *P. echinocarpa* occurs in Ecuador and Peru, and the other six species are apparently confined to limited areas.

***Pleurothallis* subgenus *Kraenzlinella* (Kuntze) Luer, *Icones Pleurothallidarum* III, Monogr. Syst. Bot. Missouri Bot. Gard. 15: 44, 1986.**

Bas.: *Kraenzlinella* Kuntze, Lex. Gen. Phan. 310, 1904.

Type: *Otopetalum tungurahuae* Lehm. & Krzl., Bot. Jahrb. Syst. 26: 457, 1899. (*Pleurothallis otopetalum* Schltr., Repert. Spec. Nov. Regni Veg. 10: 292, 1912, not *P. tungurahuae* Lehm. & Krzl.)

Ety.: Named in honor of Fritz Kränzlin who worked in orchids.

Syn.: *Otopetalum* Lehm. & Krzl., Bot. Jahrb. Syst. 26: 457, 1899, not Miquel 1856, a genus in the Apocynaceae.

Type: *Otopetalum tungurahuae* Lehm. & Krzl.

Ety.: From the Greek *otos*, *otos*, "an ear," and *petalon*, "a petal," referring to the auricles at the base of the petals.

**Plants** perennial, small to large in size, epiphytic, terrestrial to lithophytic, caespitose, ascending to shortly repent; roots few to many, coarse. Ramicauls ascending to erect, stout, nonpseudobulbous, shorter than the leaf, unifoliate, enclosed by 2 or 3 tubular, loose or closely appressed sheaths, the inflorescence emerging terminally without an annulus. **Leaf** erect, thickly coriaceous to semiterete, sessile, the blade narrowly to broadly elliptical, the apex acute to obtuse, minutely notched with an apiculus in the sinus, the base narrowly cuneate to rounded. **Inflorescence** racemose (reduced to a single flower in 1 species), usually longer than the leaf, the raceme erect to drooping, strict to flexuous, distichous to secund, loosely flowered, the flowers resupinate, produced successively, singly to a few simultaneously, borne by an erect to ascending, stout, or relatively stout, terete peduncle, with a few bracts; floral bracts infundibular, oblique; pedicels stout; ovary variably pubescent, spiculate, echinate, or with scale-like appendages; **sepals** fleshy, more or less carinate, variously colored, more or less ovate, multiveined, the dorsal sepal essentially free or shortly connate to the lateral sepals, the lateral sepals essentially free to connate at the base; **petals** more or less ovate, acute, usually with a marginal lobule at the base, often on both margins; **lip** thick, rigid, unguiculate, the blade oblong to ovate, more or less papillose, with or without calli or lateral lobes, the claw usually deflexed, often with basal lobules, more or less flexibly attached to the apex of the column-foot; **column** elongate, winged, semiterete below the middle, more or less cucullate at the apex, the base developed into a short, thick, column-foot with the apex of the ovary, the anther, rostellum and stigma ventral, the pollinia 2, obovoid, free or with a small viscidium.



KEY TO THE SPECIES OF SUBGENUS *KRAENZLINELLA*

- 1 Plant large and robust, mature plants 10 cm or more tall  
(exclusive of the inflorescence).....2
- 1' Plant small, mature plants less than 8 cm tall  
(exclusive of the inflorescence).....8
- 2 Inflorescence shorter than the leaf.....3
- 2' Inflorescence more or less erect, exceeding the leaf.....4
- 3 Inflorescence racemose, drooping.....*P. lappago*
- 3' Inflorescence single-flowered.....*P. shuarii*
- 4 Inflorescence markedly flexuous; lip spatulate.....*P. anfracta*
- 4' Inflorescence not markedly flexuous; lip not spatulate.....5
- 5 Lip narrow, arcuate, without a claw or lateral lobules.....*P. otopetalum*
- 5' Lip with a claw and a blade with lateral lobules.....6
- 6 Blade of the lip with acute, uncinatate lobes.....*P. gigantea*
- 6' Blade of the lip without acute, uncinatate lobes.....7
- 7 Blade of the lip verrucose-papillose with basal  
auricles.....*P. erinacea*
- 7' Blade of the lip not verrucose-papillose, without  
basal auricles.....*P. echinocarpa*
- 8 Leaves fusiform-ovoid, sessile, semiterete.....*P. hintonii*
- 8' Leaves elliptical, subpetiolate, not semiterete.....9
- 9 Floral bracts large, compressed, oblique;  
ovary over 5 mm long.....*P. echinocarpa*
- 9' Floral bracts small, closely appressed;  
ovary about 1 mm long.....*P. sigmoidea*

EPITHETS PUBLISHED IN SUBGENUS *KRAENZLINELLA*  
AND LIST OF ILLUSTRATIONS

- |   |          |
|---|----------|
| <i>Pleurothallis anfracta</i> Luer.....                                   | Plate 1. |
| <i>Pleurothallis diuturna</i> Schltr. = <i>P. erinacea</i> .....          | Plate 2. |
| <i>Pleurothallis echinocarpa</i> C. Schweinf. ....                        | Plate 3. |
| <i>Pleurothallis erinacea</i> Rchb. f. ....                               | Plate 4. |
| <i>Pleurothallis gigantea</i> Lindl. ....                                 | Plate 5. |
| <i>Pleurothallis hintonii</i> L. O. Wms. ....                             | Plate 6. |
| <i>Pleurothallis lappago</i> Luer .....                                   |          |
| <i>Pleurothallis muricata</i> Schltr. = <i>P. erinacea</i> .....          | Plate 7. |
| <i>Pleurothallis otopetalum</i> Schltr.....                               |          |
| <i>Pleurothallis rufescens</i> (Rolfe) Schltr. = <i>P. erinacea</i> ..... | Plate 8. |
| <i>Pleurothallis shuarii</i> Luer .....                                   | Plate 9. |
| <i>Pleurothallis sigmoidea</i> Ames & Schweinf. ....                      |          |
| <i>Pleurothallis sororia</i> Schltr. = <i>P. erinacea</i>                 |          |



***Pleurothallis anfracta* Luer, sp. nov.**

Ety.: From the Latin *anfractus*, "bent, or crooked," referring to the flexuous rachis.

Planta grandis, pedunculo folio longiore, rhachidi valde fractiflexa, sepalis petalisque carnosiss anguste triangularibus, lamina labelli spatulata bicarinata basi bilobulata et basi unguis biauriculata.

**Plant** medium in size to large, terrestrial, shortly repent, the rhizomes stout, 0.5-1 cm long between ramicauls; roots coarse. Ramicauls stout, erect, 2-5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, acute to subacute, 5-11 cm long, 1.5-2 cm wide, narrowed below to the subpetiolate base. **Inflorescence** a loose, distichous, markedly flexuous, successively several-flowered raceme, up to 7 cm long, borne by a slender peduncle 10-18 cm long, from the apex of the ramicaul at the base of the leaf, with a spathe ca. 5 mm long; floral bracts oblique, acute, conduplicate, 5-7 mm long; pedicel 2 mm long; ovary smooth, 6 mm long, with numerous, minute, crystalline deposits; **sepals** thick, fleshy, mottled with dark brown, narrowly triangular, acute, the dorsal sepal minutely ciliate, 19-20 mm long, 4 mm wide, connate at the base with the lateral sepals for 1 mm, the lateral sepals 19-20 mm long, 3.5 mm wide, carinate, sulcate within, connate 1 mm at the base, forming a small mentum; **petals** mottled in brown, minutely pubescent, narrowly ovate, narrowly acute, 11 mm long, 2 mm wide, with an ill-defined lobule on the lower margin at the base; **lip** spatulate, spotted with brown, 11 mm long, 3 mm wide above the middle, 1 mm wide below the middle, the blade longitudinally bicarinate, the distal half elliptical, obtuse, microscopically ciliate, 5.5 mm long, with a pair of minute uncinat, marginal lobules at the junction with the claw, the claw ill-defined, not decurved, 1.5 mm long, with a pair of pedunculate lobules at the base; **column** stout, winged above the middle, long-denticulate at the apex, 5 mm long, the foot stout, 2 mm long.

COLOMBIA: Dept. of Tolima: terrestrial on lightly shaded slopes near Santa Ana on Río Cabrera, alt. 1500 m, 8 Jan. 1883, F. C. Lehmann 2388 (Holotype: G).

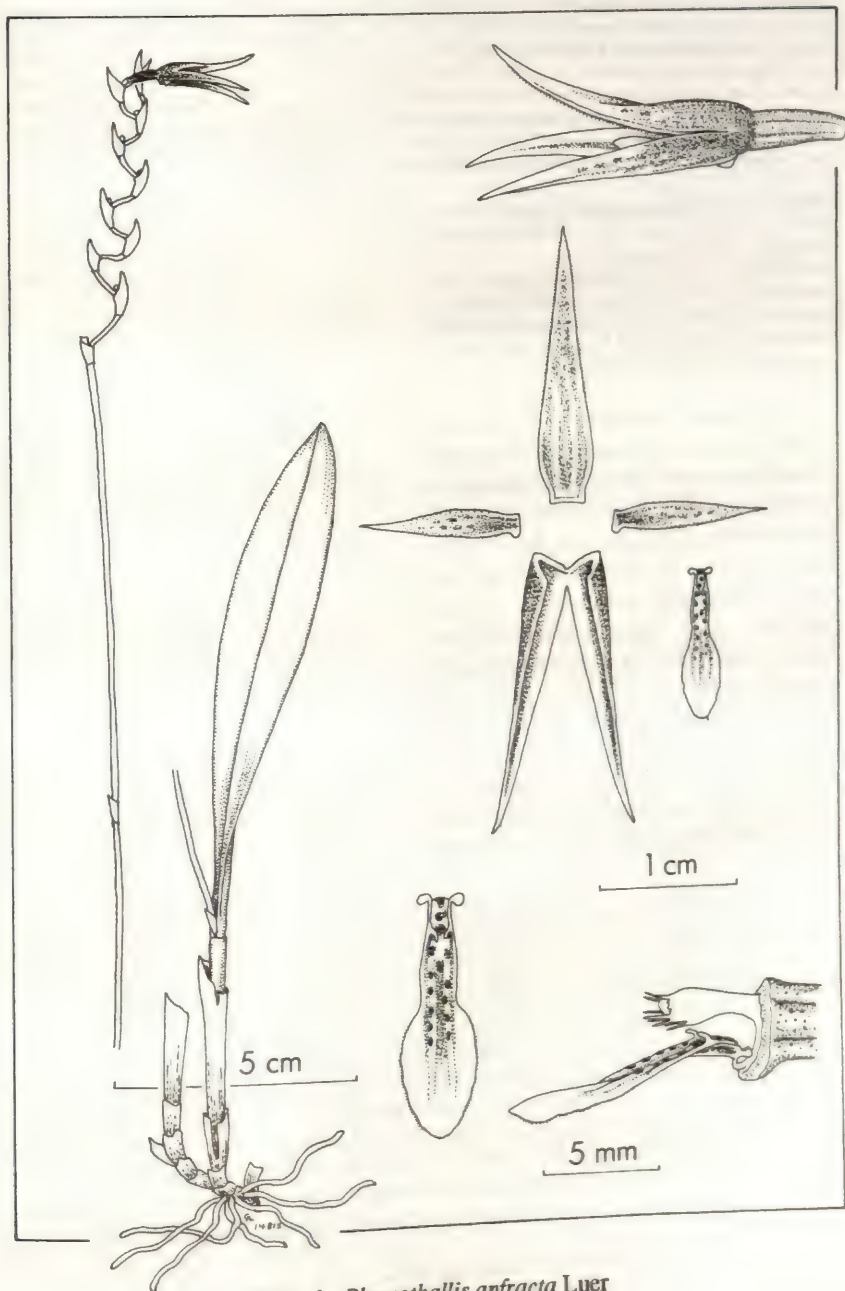
This species is known from only the original collection by Consul Lehmann in a remote area in Colombia in 1883. The specimen lay among his collections of "indeterminates" at Genève. The species is easily recognized by the stout ramicauls shorter than the fleshy leaves, and a tall peduncle bearing an elongate, markedly zig-zag raceme.

Lehmann described the color of the flowers as "dark black-brown." The sepals are fleshy and narrowly acute. The narrowly acute petals are barely auriculate at the base. The demarcation between the spatulate blade and the non-decurved claw of the lip is obscure, but marked by a minute pair of uncinat lobules. The claw is biauriculat at the base.

***Pleurothallis echinocarpa* C. Schweinf., Bot. Mus. Leaf. 10: 179, 1942.**

Ety.: From the Greek *echinocarpus*, "with fruit like a hedgehog," referring to the capsule.

**Plant** small to medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, terete, erect, 1-3.5 cm long, enclosed at the base by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, subacute to obtuse, 3-11 cm long, 1-2 cm wide, cuneate below into the sessile base. **Inflorescence** a loose, distichous, subflexuous, successively several-flowered raceme with prominent bracts, to 16 cm

Plate 1. *Pleurothallis anfracta* Luer

long including the stout, terete peduncle ca. 5 cm long, from the apex of the ramicaul at the base of the leaf, with a spathe less than 5 mm long; floral bracts oblique, acute, compressed, 5-7 mm long; pedicel 4-6 mm long; ovary densely echinate, 5-8 mm long; **sepals** fleshy, reddish green, thickened and carinate toward the apex, the dorsal sepal ovate, acute, cucullate, 7-8 mm long, 3.75-4 mm wide, 9-veined, essentially free, the lateral sepals barely connate at the base, ovate, oblique, acute, 8-9 mm long, 3.75-4 mm wide, 7-veined, tall-carinate; **petals** translucent yellow, narrowly obovate, acute, 5.5 mm long, 1.5 mm wide, with an indistinct lobule on the margin of one or both sides at the base, the lower lobule decurrent on the column-foot; **lip** unguiculate, the blade ovate, 5.5-6 mm long, 2 mm wide, the apex narrowly truncate, tridenticulate, the lateral margins lightly irregular, the disc channeled between a low pair of longitudinal calli, the claw decurved, 1 mm long, with a broad pair of obtuse lobules at either side of the base; **column** stout, semiterete, 3.5 mm long, the foot stout, 2.5 mm long.

PERU: Dept. of Huánuco: Muña, in dry woods, alt. 2150 m, 23 May-4 June 1923, J. F. Macbride 3969 (Holotype: AMES; Isotype: F).  
ECUADOR: Prov. of Loja: Las Juntas near Loja, alt. 1600-2000 m, F. C. Lehmann s.n. H.K.1331 (K), C. Luer illustr. 14911. Prov. of Zamora-Chinchipe: Quebrada Honda south of Yangana, alt. 1800 m, Aug. 1985, D. D'Alessandro 474 (MO).

This species is apparently rare, known from very few collections, the first in the nineteenth century by Consul Lehmann in southern Ecuador. A much later collection from Peru by MacBride was described by Schweinfurth. In habit it is similar to a small plant of *P. erinacea* or *P. otopetalum*: short, stout ramicauls bearing a thick, fleshy, sessile leaf. It is distinguished by an elongating inflorescence producing small to medium-sized flowers; large, markedly echinate ovaries; thickened sepals tall-carinate toward the apices; acute petals inconspicuously biauriculate at the base; and an unguiculate, channeled lip.



***Pleurothallis erinacea* Rchb. f., Bonplandia 3: 72, 1855.**

Ety.: From the Latin *erinaceus*, "the European hedgehog," referring to the bristly ovary.

Syn.: *Humboldtia erinacea* (Rchb. f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis muricata* Schltr., Repert. Spec. Nov. Regni Veg. 10: 293, 1912.

Ety.: From the Latin *muricatus*, "muricate," referring to the ovary.

Syn.: *Pleurothallis sororia* Schltr., Repert. Spec. Nov. Regni Veg. 10: 294, 1912, not Schltr. 1920.

Ety.: From the Latin *sororius*, "like a sister," referring to the similarity to *P. muricata*.

Syn.: *Kraenzlinella muricata* (Schltr.) Rolfe, Orchid Rev. 23: 326, 1915.

Syn.: *Kraenzlinella rufescens* Rolfe, Orchid Rev. 23: 326, 1915, *nomen nudum*; Bull. Misc. Inform. 77, 1916.

Syn.: *Kraenzlinella sororia* (Schltr.) Rolfe, Orchid Rev. 23: 326, 1915.

Syn.: *Pleurothallis rufescens* (Rolfe) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 142, 1921.

Syn.: *Pleurothallis diuturna* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 19, 1922.

Ety.: From the Latin *diuturnus*, "long-lasting," referring to the inflorescence.



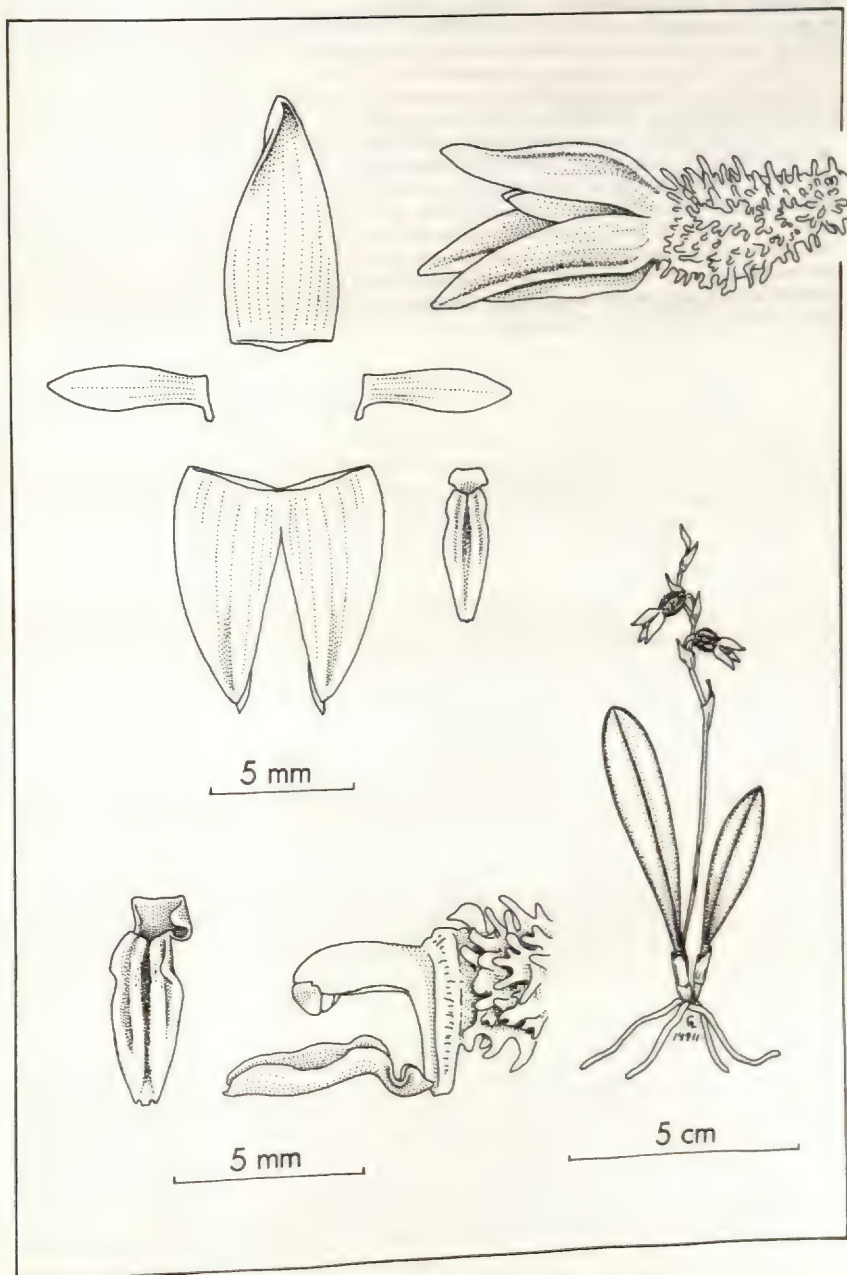


Plate 2. *Pleurothallis echinocarpa* C. Schweinf.

**Plant** medium to large in size, epiphytic, very shortly repent to caespitose; roots coarse. Ramicanls stout, terete, erect, 2.5-6 cm long, enclosed at the base by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical-ovate, acute, subsacate to obtuse, 8-17 cm long, 2-4.5 cm wide, cuneate below into the sessile base. **Inflorescence** a loose, distichous, subflexuous, successively several- to many-flowered raceme with prominent bracts, to 40 cm long including the terete, few-bracted peduncle 10-18 cm long, from the apex of the ramicaul at the base of the leaf, with a spathe 0.5-2 cm long, 1 to 4 flowers open simultaneously; floral bracts oblique, acute, compressed, 10-22 mm long; pedicel 10-15 mm long; ovary densely echinate, 2 mm long; **sepals** fleshy, yellow, more or less lightly veined in red or brown, tall-carinate toward the apex, the dorsal sepal ovate, acute, shortly apiculate, 10-18 mm long, 5-7 mm wide, 7- to 9-veined, essentially free, the lateral sepals free or barely connate at the base, ovate, oblique, acute, 15-20 mm long, 4-5.5 mm wide, 5- to 7-veined; **petals** translucent yellow, narrowly ovate, acute, 7-10 mm long, 1-2 mm wide, with an orange lobule on the margin of both sides at the base, the lower lobule decurrent on the column-foot; **lip** thick, unguiculate, greenish orange to orange or yellow, the blade ovate, 7-9 mm long, 2.5-3 mm wide, the apex rounded with a pair of minutely serrated lobules at the base above the claw, sometimes with serrated pair near the middle, the disc papillose or verrucose with a low pair of calli below the middle, the claw decurved, 2 mm long, with a pair of lobules at the base; **column** yellow-green, slender, winged above the middle, semiterete below the middle, 6 mm long, the apex cucullate, the foot stout, 2.5 mm long.

MEXICO: without locality, "Fenia," *C. A. Purpus* 307 (AMES).

BELIZE: District of Cayo: Río de La Flor, alt. 1700-2000 m, 3 June 1973, *T. B. Croat* 23747 (MO); road to Millionario, alt. 600 m, 9 Mar. 1980, *B. R. Adams* 234 (K); Camp 32, British Honduras-Guatemala survey, alt. 2700 ft., 10 May 1934, *W. A. Schipp* 8-847 (AMES).

GUATEMALA: Prov. of Alta Verapaz: epiphytic near Cobán, alt. ca. 1350 m, May 1907, *H. von Türckheim* II, 2392 (AMES, type of *P. muricata*); between San Cristobal and Chixoy, alt. 1200-1300 m, 19 Feb. 1942, *J. A. Steyermark* 43883 (AMES); Chixoy, near Cobán, collected by O. Mittelstaedt, flowered in cultivation in Cobán, 13 Feb. 1990, *C. Luer* 14609 (MO). Prov. of Baja Verapaz: near Puralá, alt. 1500 m, 10 May 1882, *F. C. Lehmann* 1466 (G). Prov. of Zacapa: Sierra de Las Minas, 9 Feb. 1942, *J. A. Steyermark* 43738 (AMES).

HONDURAS: Dept. of Comayagua: Siguatepeque, alt. 3700 ft., 19 Jan. 1933, *J. B. Edwards* 353 (AMES); Rancho Grande, alt. 3500 m, 1 Jan. 1933, *J. B. Edwards* 343 (AMES, K). Dept. of Cortez: Santa Cruz de Yojoa, alt. 2000 ft., 5 Jan. 1934, *J. B. Edwards* 636 (AMES, K). Dept. of Yoro: Yoro, *J. B. Edwards* 651 (AMES).

NICARAGUA: Prov. of Jinotega: between Volcano Grande and Finca La Fundadora, alt. 1720 m, *A. Heller* 1671 (SEL); between El Greco and El Roblar, alt. 900 m, *A. Heller* 3988 (SEL). Prov. of Matagalpa: Santa Rita, alt. 1440 m, *A. Heller* 9139 (SEL); Cerro Buena Vista, alt. 1440 m, *A. Heller* 4306 (SEL).

COSTA RICA: Without locality, *A. R. Endres* 56 (W). Prov. of Cartago: near Finca Las Concavas, alt. 1200-1300 m, 7 Dec. 1925, *P. C. Standley* 41502 (AMES); Lankester's lagoon, alt. 4500 ft., 22 May 1928, *H. E. Siork* 2140 (AMES); in the forest of Rancho Flores, alt. 2043 m, 15 Feb. 1890, *H. Pittier* 2157 (type of *P. sororia*, AMES, US).

PANAMA: Prov. of Coclé: El Valle de Antón, alt. 800 m, 20 Jan. 1941, *P. Allen* 2294 (AMES); El Valle, Río Indio trail, alt. 500-700 m, 10 Jan. 1935, *A. A. Hunter* & *P. Allen* 361 (AMES, G); Río Coclé de Norte, alt. 1500-2000 m, 3 Mar. 1959, *H. A. Dunn* 7 (AMES, JEPS). Prov. of Veraguas: near Santiago, alt. 500-700 ft., *C. W. Powell* 172 (AMES, type of *P. diuturna*).

COLOMBIA: Dept. of Norte de Santander: Agua de La Virgen near Ocaña, *H. Wagoner* s.n. (Holotype: W; Isotype: K). Dept. of Tolima: *G. Schmidtchen* s.n. (W). Dept. of Nariño: Panga am Soto Mayor, *F. C. Lehmann* 4130 (G).

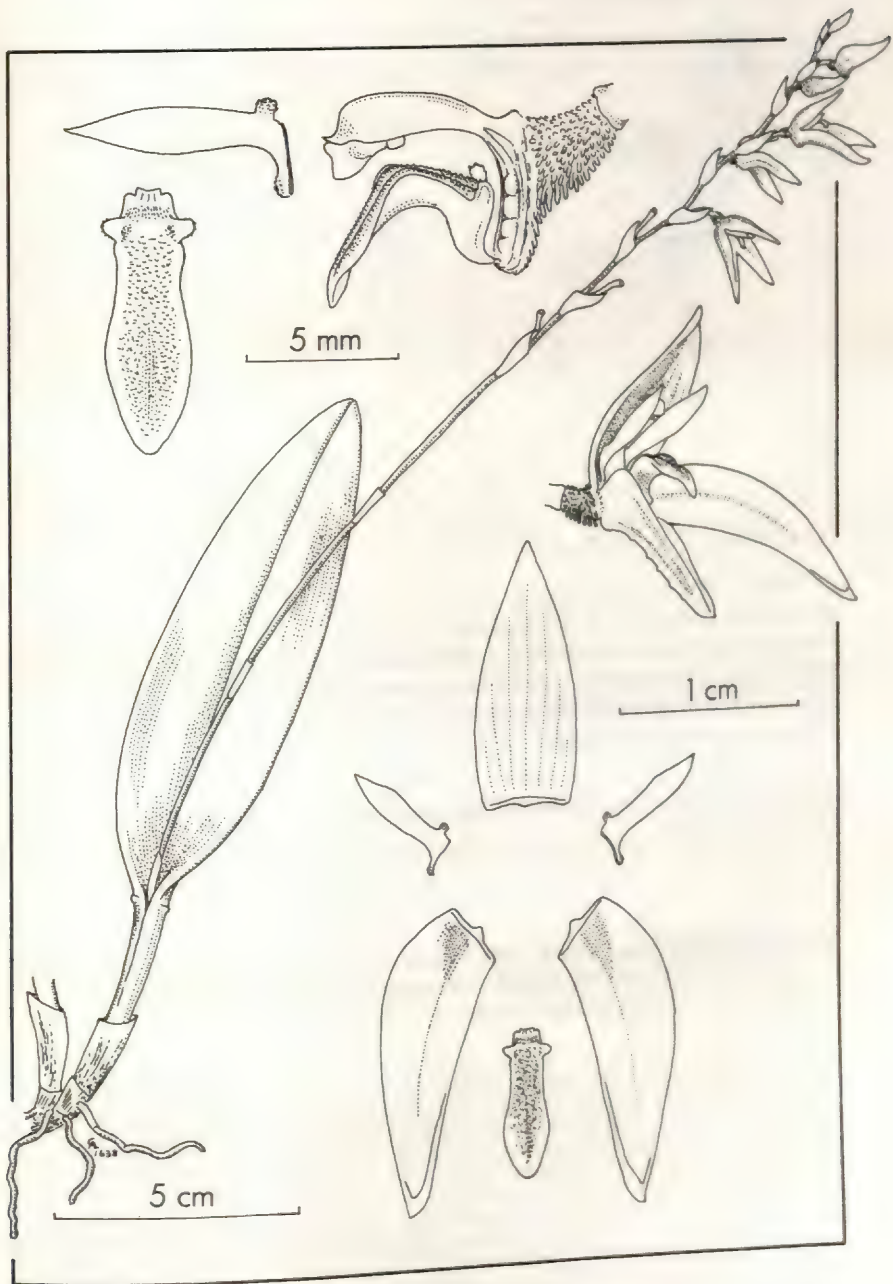
VENEZUELA: Without locality, flowered in cultivation, *Lansberg* s.n. (W). Edo. Bolívar: Santa Elena de Uairén, Cerro Muyupapó, alt. 1100 m, *E. Rutkis* 125 (VEN). Edo. Miranda: La Cortada del Guayabo (Juan Krauze), Mar. 1955, *G. C. K. Dunsterville* s.n.

SURINAME: forested lower slopes of Juliana Top, north of Lucie River, alt. 500-600 m, 14 Aug. 1963, *H. S. Irvin*, *G. T. Prance*, *T. R. Soderstrom* & *N. Holmgren* 54783 (AMES).

ECUADOR: without locality, "Quebrada Palanuma," 24 Dec. 1876, *E. Andre* 4653 (K). Prov. of Loja: north of Yansasa, alt. 1000 m, May 1985, *D. D' Alessandro* 462 (MO). Prov. of Morona-Santiago: Cordillera del Cutucú, new road east of Mendez, alt. 1000 m, 5 Feb. 1987, *C. Luer*, *J. Luer* & *A. Hirtz* 12657 (MO). Prov. of Tungurahua: Volcán Tungurahua, alt. 2000 m, 30 Oct. 1879, *F. C. Lehmann* 341 (W).

PERU: Without locality, flowered in cultivation by Sander & Sons, St. Albans, 14 Oct. 1915 *L. Forget* s.n. (K, type of *P. rufescens*). Dept. of Cuzco: Quispicanchi, Cadenó, alt. 1020 m, 29 July 1946, *C. Vargas* 6217 (AMES, Herb. Vargas). Dept. of Junín: Pichis Trail, alt. 1400 m, 28 June 1929, *E. P. Killip* & *A. C. Smith* 25437 (AMES, NY, US); Tarma, road between La Merced and Oxapampa, alt. 700-1000 m, Nov. 1985, *D. E. Bennett* & *A. Bennett* 3452 (MO); Cordillera Azul, alt. 1450 m, 1 Nov. 1986, *D. E. Bennett* & *A. Bennett* 3719 (MO). Dept. of San Martín: Chachapoyas, 1846, *M. Mathews* 88 (G).

BOLIVIA: Dept. of Santa Cruz: without locality, collected and cultivated by Luis Moreno in Santa Cruz, flowered in cultivation, 10 Feb. 1980, *C. Luer* 5197 (SEL).

Plate 3. *Pleurothallis erinacea* Rchb.f.





This robust species is relatively frequent and widely distributed at relatively low to moderate altitudes in the forested mountains from southern Mexico into Bolivia. Although not recorded from Peru, it must certainly occur there. Throughout this wide range, it is somewhat variable in size and minor details of the flowers. It is characterized by the short, stout ramicaul and large, fleshy leaf; an elongating inflorescence producing large flowers continuously for as long as a year or longer; echinate ovaries; yellowish, sepals tall-carinate toward the apices; acute petals biauriculate at the base; and an unguiculate, verrucose lip with erose lobules at the base of the blade.

***Pleurothallis gigantea* Lindley, Folia Orchidacea 28, 1859.**

Ety.: From the Latin *giganteus*, "gigantic," referring to the size of the plant.

Syn.: *Humboldtia gigantea* Kuntze, Rev. Gen. Pl. 2: 667, 1891.

**Plant** medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 3-4 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute to obtuse, 10-15 cm long, 2-2.5 cm wide, cuneate below into the sessile base. **Inflorescence** a loose, distichous, lightly flexuous, successively several-flowered raceme, up to 30 cm long including the stout, few-bracted peduncle ca. 15 cm long, from the apex of the ramicaul at the base of the leaf, with a spathe 1 cm long; floral bracts infundibular, oblique, acute, 10-15 mm long; pedicel 5-8 mm long; ovary densely papillose, 3 mm long; **sepals** fleshy, the color not stated, the dorsal sepal ovate-triangular, acute, 12-14 mm long, 5.5 mm wide, 3-(5-) veined, connate only at the base with the lateral sepals, the lateral sepals essentially free, ovate-triangular, oblique, acute, 15 mm long, 4.5 mm wide, 3-(4-) veined, tall-carinate, the carina undulate-erose; **petals** oblong, acute, 8 mm long, 1.75 mm wide, with a lobule on the margin of both sides at the base; **lip** thick, unguiculate, the blade ovate, obtuse, 7 mm long, 2.75 mm wide, with a pair of erect, uncinuate lobules at the base above the claw, the disc with a pair of calli, the claw lightly decurved, 2 mm long, with a pair of pedunculate lobules at the base; **column** stout, winged above the middle, semiterete below the middle, 7 mm long, the apex shortly hooded, the foot stout, 2 mm long.

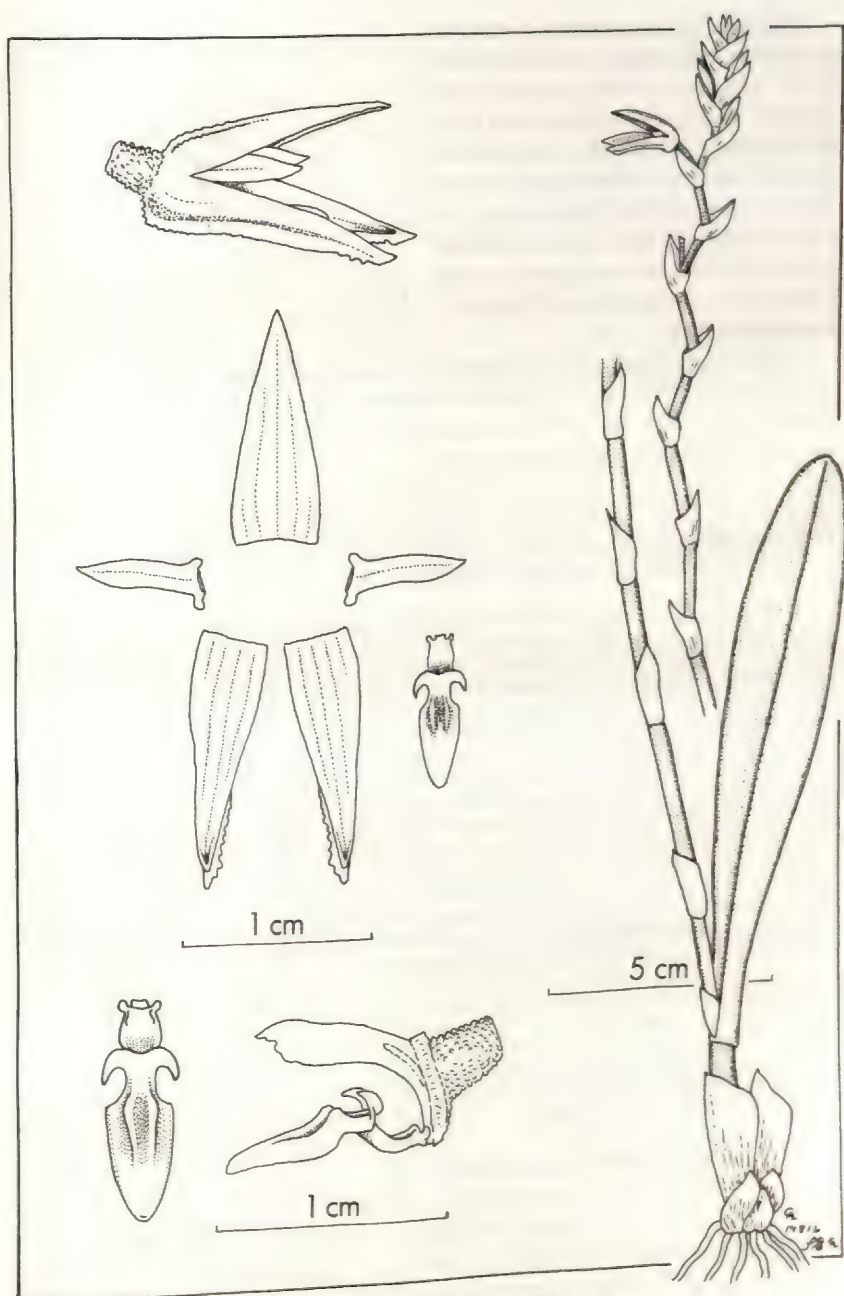
Erratum

*Icones Pleurothallidinarum XI*  
by Carlyle A. Luer

On page 98, line 3, the following sentence should be deleted from the text: "Although not recorded from Peru, it must certainly occur there."

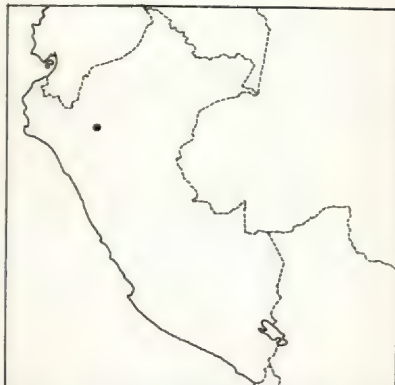
THE  
UNIVERSITY OF CHICAGO  
LIBRARY  
540 EAST 57TH STREET  
CHICAGO, ILL. 60637



Plate 4. *Pleurothallis gigantea* Lindl.

PERU: without locality, 1833-1841, A. Mathews s.n. (Holotype: K), C. Luer illustr. 14816

This species is apparently rare and endemic in Peru where it was discovered by the well-known early plant collector Mathews before the middle of the nineteenth century. It probably was found in the area around Chachapoyas where Mathews did much of his collecting. To my knowledge, it has not been collected again, the only specimen known to exist being the type-specimen in Lindley's herbarium at Kew.



*Pleurothallis gigantea* is truly worthy of its name, although equally large specimens of the similar *P. otopetalum* have been seen. *Pleurothallis gigantea* is readily distinguished by the tall-carinate lateral sepals and the acute, uncinuate lobes at the base of the blade of the lip above the claw.

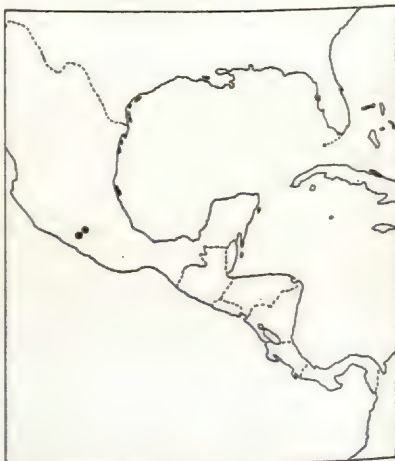
***Pleurothallis hintonii* L. O. Wms., Amer. Orchid Soc. Bull. 9: 69, 1940.**

Ety.: Named in honor of George B. Hinton, who first collected the species.

**Plant** medium in size, epiphytic, very shortly repent to caespitose; roots coarse. Ramicauls stout, erect to suberect, 0.5-1 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, fusiform-ovoid, semiterete, acute, 3-6 cm long, 7-8 mm wide, 6-8 mm deep, sessile. **Inflorescence** a loose, secund, successively several-flowered raceme, 10-18 cm long including the few-bracted peduncle 8-10 cm long, from the apex of the ramicaul at the base of the leaf, with a spathe 2-3 mm long; floral bracts infundibular, 3-4 mm long; pedicel 5 mm long; ovary densely muricate, 1.5-2 mm long; **sepals** fleshy, yellow, lightly veined in brown, carinate-serrate externally, the dorsal sepal ovate, subacute, shortly apiculate, 8.5 mm long, 6.25 mm wide, 7- to 9-veined, connate only at the base with the lateral sepals, the lateral sepals connate 1.5 mm at the base, ovate, oblique, acute, 10 mm long, 4 mm wide, 3- to 4-veined, tall-carinate; **petals** yellow with brown veins, triangular-ovate, acute, 5.5 mm long, 1.25 mm wide, with a bright orange, pedunculated lobule on the margin of both sides at the base; **lip** thick, unguiculate, yellow, the blade ovate, obtuse, 5.5 mm long, 2.5 mm wide, with a pair of minutely serrated lobules at the base above the claw, the disc with a low pair of spiculate calli below the middle, minutely spiculate above, the claw decurved, bright orange, 2.5 mm long, with a pair of lobules at the base; **column** green, dotted with purple, slender, winged above the middle, semiterete below the middle, 5.5 mm long, the apex shortly hooded, the foot stout, 2 mm long.

MEXICO: Edo. de Guerrero: Dist. de Mina, Chilacayote, epiphytic in oak forest, alt. 1574 m, 16 Apr. 1939, G. Hinton 14174 (Holotype: AMES; Isotype: US); Cruz de Ocote, epiphytic in limestone bowl, alt. 1800 m, collected by E. Hagsater, flowered in cultivation 6 Mar. 1984, C. Luer 9502 (MO).

This species is endemic in seasonally dry oak forests of southcentral Mexico in the state of Guerrero. It is easily identified by the stout, ovoid-semiterete, sessile leaves and a considerably longer raceme of successive flowers. The sepals are carinate and serrulate; the petals are bilobulate at the base; the blade of the lip is ovate, obtuse and bilobulate; and the claw is decurved and bilobulate at the base.



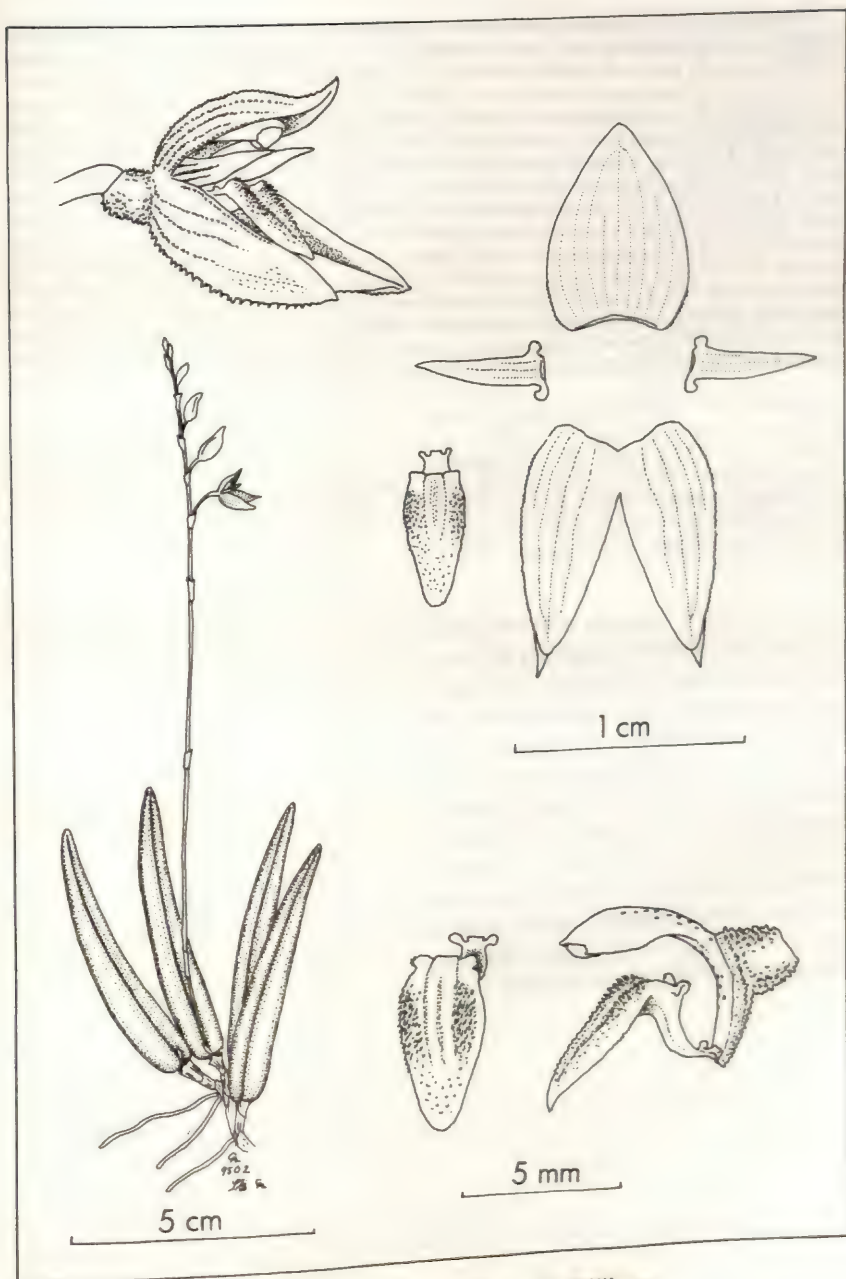


Plate 5. *Pleurothallis hintonii* L. O. Williams



***Pleurothallis lappago* Luer, Phytologia 46: 368, 1980.**

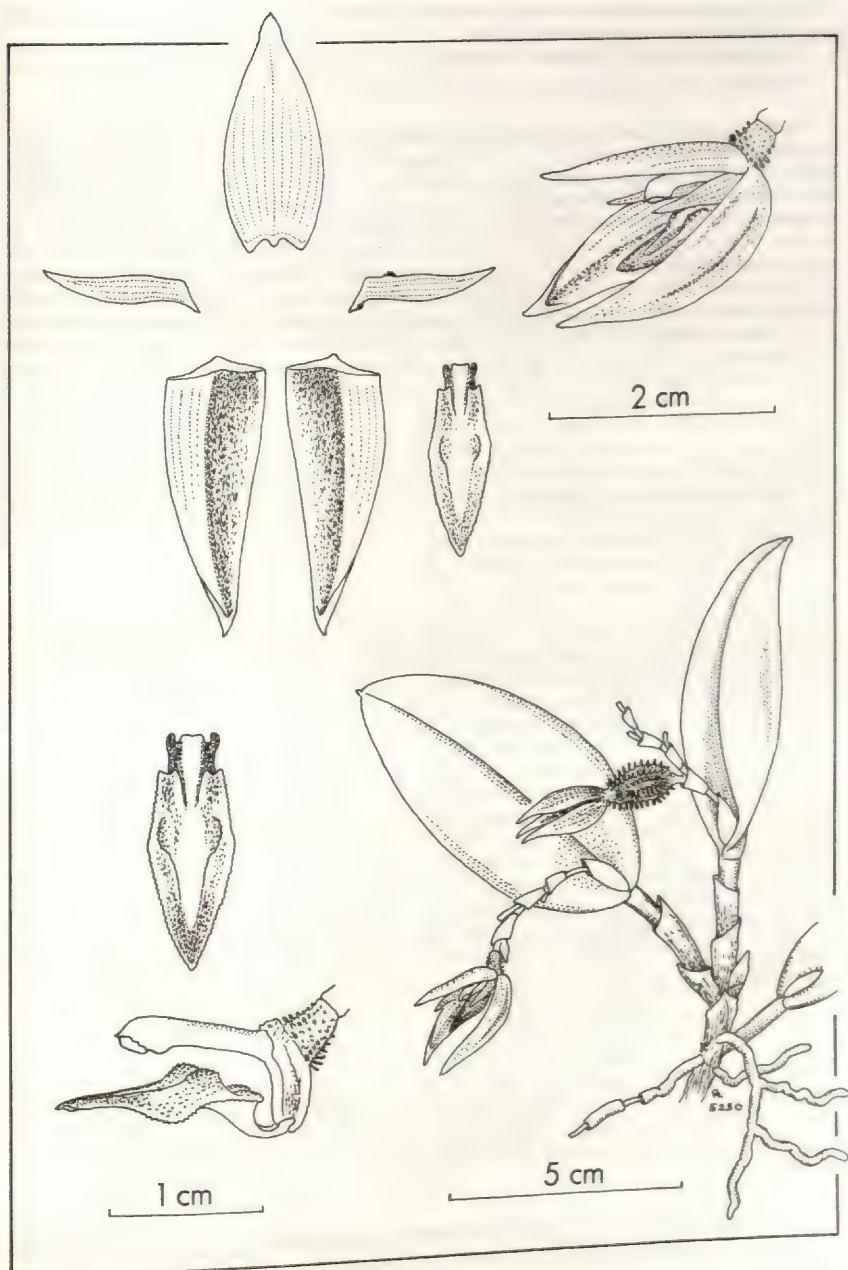
Ety.: From the Latin *lappago*, "a burr-bearing plant" (*lappa*, "a burr"), referring to the appearance of the plant with fruit.

**Plant** medium in size, epiphytic, shortly repent to caespitose, the rhizome stout; roots coarse, occasionally branching. Ramicauls stout, erect to suberect, 2-3.5 cm long, enclosed by 2-3 thin, tubular, imbricating sheaths. **Leaf** erect, thickly coriaceous, rigid, ovate, acute to subacute, more or less convex, 3-11 cm long, 2-3.5 mm wide, the base cuneate to rounded, sessile. **Inflorescence** a drooping, subdense, successively few-flowered raceme up to 3.5 cm long including the few-bracted peduncle 1-1.5 cm long, from the apex of the ramicaul at the base of the leaf, with a spathe 0.5-1.5 cm long; floral bracts loose, infundibular, 5 mm long; pedicel 5-7 mm long; ovary shortly and densely spiculate, 3 mm long; **sepals** fleshy, yellow-green, suffused and speckled with purple, carinate, the dorsal sepal ovate, acute, 19 mm long, 8.5 mm wide, 9- to 11-veined, essentially free to the base, the lateral sepals free, ovate, oblique, acute, 22 mm long, 8.5 mm wide, tall-carinate; **petals** translucent yellow, veined in red, linear-ovate, narrowly acute, 13 mm long, 2 mm wide, with a minute serrulate lobule on the upper margin above the base and on the lower margin at the base; **lip** thick, unguiculate, dull white, dotted with red-purple, the blade ovate, acute, 15 mm long, 5.5 mm wide, minutely verrucose with serrulate margins, the disc with a pair of erect, rounded, minutely serrated calli below the middle, the claw decurved, concave, 2 mm long, with a pair of lobules at the base; **column** green, slender, winged near the apex, semiterete below the middle, 8 mm long, the apex shortly hooded, the foot stout, 3 mm long.

ECUADOR: Prov. of El Oro: epiphytic in cloud forest near Zaruma, alt. 1100 m, 18 July 1979, C. H. Dodson *et al.* 8435 (Holotype: SEL), flowered in cultivation 31 Mar. 1980, C. Luer illustr. 5230; same area, epiphytic in mature cloud forest, alt. 1250-1500 m, 21 Apr. 1989, C. H. Dodson *et al.* 17971 (MO). Prov. of Napo: Bermejo, alt. 450 m, Apr. 1990, A. Hirtz 4850 (MO).

This distinctive species is known from two widely separated localities on both sides of the Andes of Ecuador. It is found growing on mossy limbs in wet forests at relatively low altitudes. Identified by the stout ramicaul and a thick, ovoid leaf; a short, drooping inflorescence of large, heavy flowers; large, burr-like ovaries; acute, carinate, purple speckled sepals; pointed petals with obsolescent basal lobules; an ovate blade of the lip with a pair of serrulate carinae; and a concave, decurved claw bilobulate at the base.



Plate 6. *Pleurothallis lappago* Luer

**Pleurothallis otopetalum** Schltr. *Repert. Spec. Nov. Regni Veg.* 10: 292, 1912.

Ety.: From the genus *Otopetalum* in which the species was described.

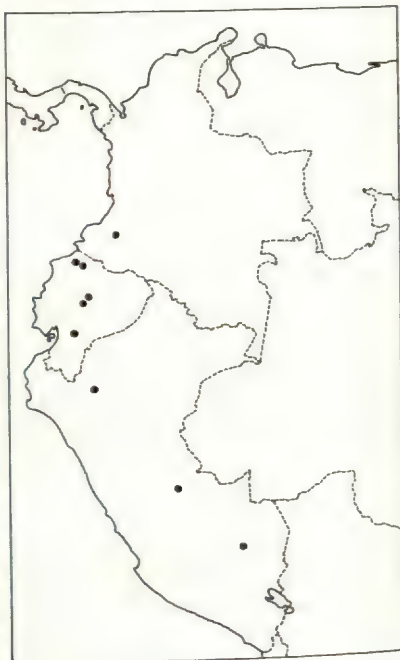
Syn.: *Otopetalum tungurahuae* Lehm. & Krzl., *Bot. Jahrb. Syst.* 26: 457, 1899, as *tunguraguae*, not *Pleurothallis tungurahuae* Lehm. & Krzl.

Ety.: Named for Volcán Tungurahua where the species was discovered.

Syn. *Kraenzlinella tungurahuae* (Lehm. & Krzl.) Kuntze, *Lex. Gen. Phan.* 310, 1904.

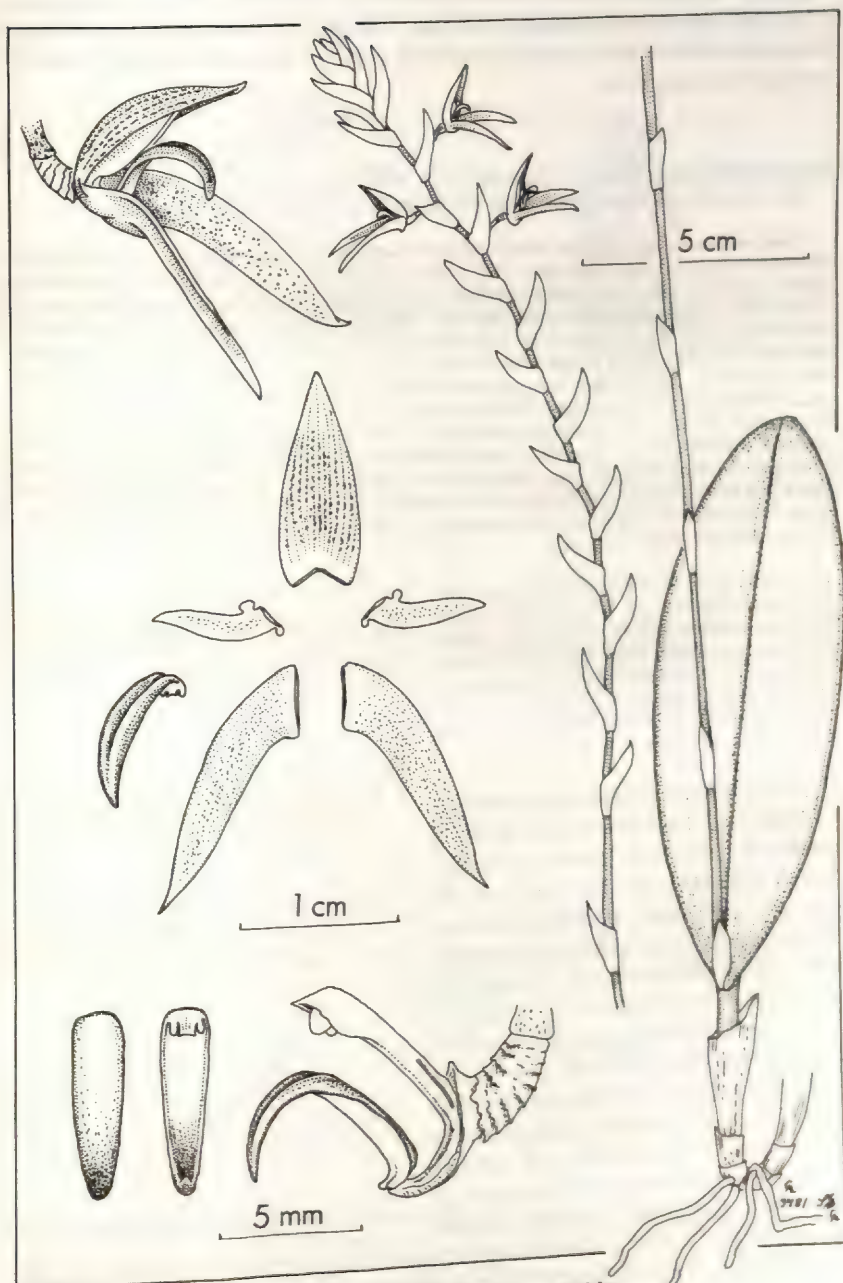
**Plant** medium to large in size, epiphytic, very shortly repent to caespitose; roots coarse, occasionally branching. Ramicauls stout, terete, erect, 2-5 cm long, enclosed at the base by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical-ovate, subacute to obtuse, 8-16 cm long, 3-5.5 cm wide, cuneate below into the sessile base. **Inflorescence** a loose, secund, subflexuous, successively several- to many-flowered raceme with prominent bracts, to 50 cm long including the terete, few-bracted peduncle 15-30 cm long, from the apex of the ramicaul at the base of the leaf, with a spathe 1-2 cm long, 1 to 4 flowers open simultaneously; floral bracts oblique, acute, compressed, 10-20 mm long; pedicel 6-7 mm long; ovary simiculate, 3-4 mm long; **sepals** fleshy, yellow, more or less lightly dotted and veined in red, tall-carinate toward the apex, the dorsal sepal ovate, acute, shortly apiculate, 10-14 mm long, 5-6 mm wide, 7- to 9-veined, essentially free, the lateral sepals free or barely connate at the base, ovate, oblique, acute, 17-22 mm long, 3-3.5 mm wide, 5-veined; **petals** translucent yellow, dotted with red, narrowly ovate, acute, 7-8 mm long, 1-1.5 mm wide, with a lobule on the margin of both sides at the base, the lower lobule decurrent on the column-foot; **lip** thick, obscurely short-unguiculate, orange, suffused with purple-brown, the blade narrowly oblong, arcuate, smooth, lightly channeled, 8-9 mm long, 1.5-2 mm wide, the apex narrowly rounded, the claw acutely decurved, 1 mm long, with a pair of lobules at the base; **column** greenish white, slender, winged above the middle, semiterete below the middle, 6 mm long, the apex cucullate, the foot stout, 2.5 mm long.

ECUADOR: Prov. of Tungurahua: epiphytic in forest at the foot of Volcán Tungurahua near Baños, alt. 1500-2000 m, *F. C. Lehmann 8088* (Holotype: K, Isotype: AMES); same area, slopes of Volcán Tungurahua, alt. 2300 m, 9 Oct. 1961, *C. H. Dodson & L. Thien 937* (MO, SEL), *C. Luer* illustr. 112; Río Pastaza around Baños, alt. 1500-2000 m, 14 Dec. 1880, *F. C. Lehmann 235* (G, W); epiphytic in forest between Río Verde and Río Negro, alt. 1500 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11176* (MO); between Puyo and Baños, in orange trees, alt. 940 m, 10 Dec. 1986, *C. H. Dodson & E. Hagsater 16715* (MO). Prov. of Azuay: forest around Shonay, Cuenca, alt. 1800-2100 m, 10 Oct. 1888, *F. C. Lehmann s.n.* (K). Prov. of Carchi: near mountain crest between Ibarra and San Lorenzo, alt. 800 m, 10 Aug. 1958, *C. H. Dodson 229* (MO, SEL). Prov. of Imbabura: epiphytic in forest above Guadual, Río Blanco, alt. 1450 m, 20 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12447* (MO). COLOMBIA: Dept. of Cauca: El Tambo, alt. 800 m, 4 Aug. 1936, *K. von Sneider 1103* (AMES, S). PERU: Dept. of Amazonas: Bongara, near Shilla, alt. 1900 m, 8 May 1981, *K. Young & M. Eisenberg 420* (MO). Dept. of Loreto: epiphytic in forest south of Oxapampa, alt. 1800 m, 31 Jan. 1979, *C. Luer & J. Luer 3841* (SEL). Dept. of Cuzco: Urubamba, Aguas Calientes, Machu Picchu, alt. 2000 m, 24 Mar. 1987, *P. Núñez 7543* (MO).



This robust species is relatively frequent in the Andes from southern Colombia into Peru. The range is entirely within the distribution of the extremely similar *P. erinacea*. *Pleurothallis otopetalum* is characterized by the short, stout ramicaul and large, fleshy leaf; an elongating inflorescence producing large flowers continuously



Plate 7. *Pleurothallis otopetalum* Schltr.

from large, oblique bracts for as long as a year or longer; less prominently echinate ovaries; yellowish, sepals tall-carinate toward the apices; acute petals biauriculate at the base; and a narrowly oblong, smooth, arcuate lip. Only the short, decurved claw is provided with a pair of lobules at the base. The lip of *P. erinacea* is prominently unguiculate with the blade verrucose and with a pair of erose lobules at the base of the blade above the claw.

***Pleurothallis shuarii* Luer, Selbyana 7: 122, 1982.**

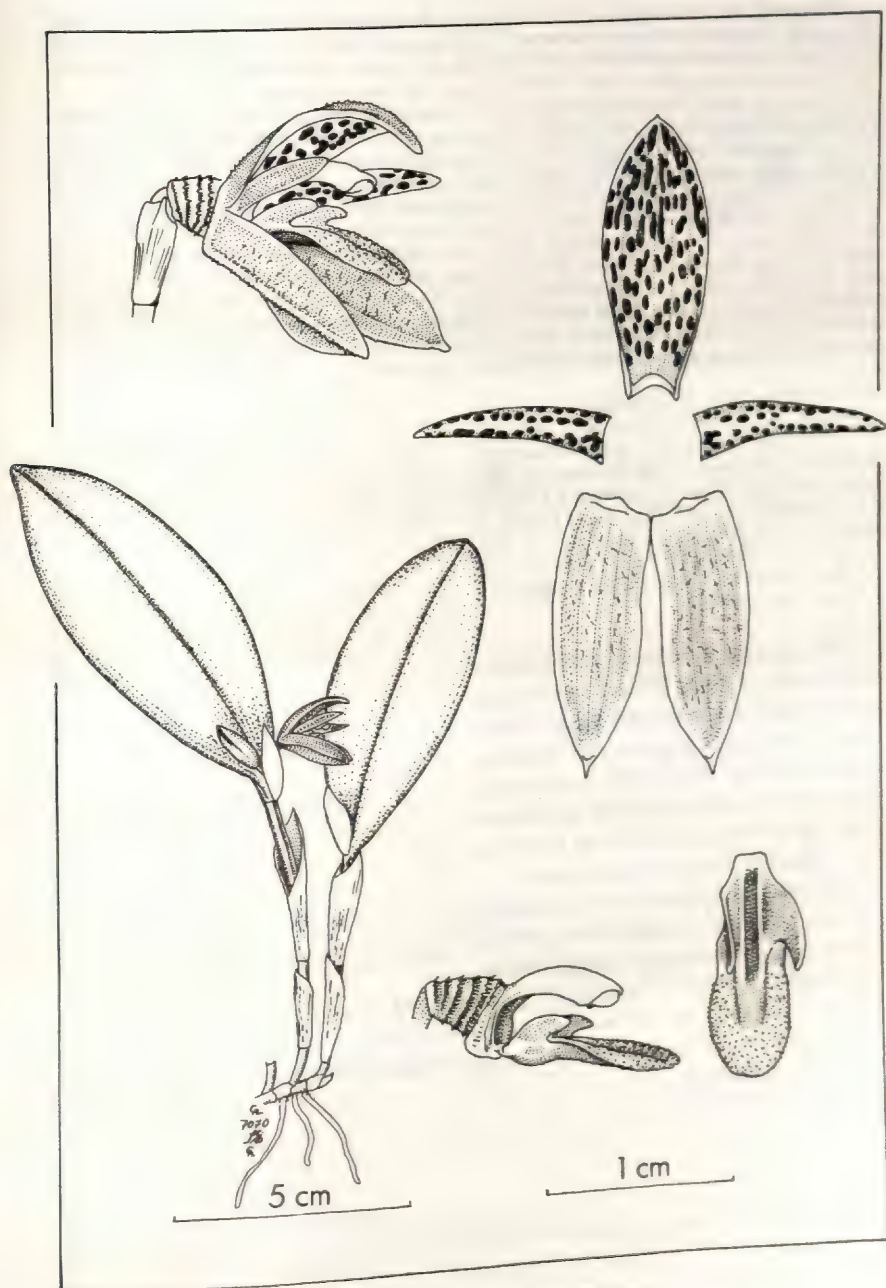
Ety.: Named for the Shuar (Jibaro) people who inhabit the area where this species occurs.

**Plant** medium in size, epiphytic, shortly repent to caespitose, the rhizome stout, 3-10 mm between ramicauls; roots coarse. Ramicauls stout, erect, 3-6 cm long, enclosed by 3-4 loose, tubular, imbricating sheaths. **Leaf** erect, dark green, thickly coriaceous, rigid, elliptical, subacute to obtuse, 6-9 cm long, 2-3.3 mm wide, cuneate below to the subsessile base. **Inflorescence** a succession of solitary flowers, borne from a spathe 1-1.5 cm long at the base of the leaf; peduncle 2-5 mm long, pedicel 6 mm long; floral bract 5 mm long; ovary shaggy-pilose in rows, 3-4 mm long; **sepals** shiny dark purple from confluent spots, fleshy, rigid, carinate, sparsely pubescent and more or less minutely fringed along the carinae, the dorsal sepal elliptical, obtuse, 15 mm long, 6 mm wide, free to the base, the lateral sepals free, oblong-ovate, oblique, acute, apiculate, 15 mm long, 4.5 mm wide; **petals** spotted with purple, linear-triangular, narrowly acute, 11 mm long, 2 mm wide; **lip** dark purple, thick, oblong-trilobed, 11 mm long, 4 mm wide, the lateral lobes below the middle, antrorse, narrowly obtuse, the anterior lobe obtuse, verrucose with minutely serrulate margins, the disc shallowly channeled, the base subunguiculate, truncate, hinged to the column-foot; **column** green, semiterete, subclavate, 7 mm long, the apex shortly hooded, the foot stout, dark purple, 2 mm long.

ECUADOR: Prov. of Morona-Santiago: epiphytic near Misión Bomboiza, alt. 900 m, 4 Mar. 1982, C. Luer & A. Andreetta 7070 (Holotype: SEL); Shuinia Nait, ridge near Misión Bomboiza, alt. 900-1000 m, 24 Apr. 1973, L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 4419 (AAU). Prov. of Zamora-Chinchi: Cordillera del Condor: alt. 1400 m, Dec. 1991, A. Hirtz 5677 (MO).

This distinctive species, apparently endemic in Jibaro country of lowland southeastern Ecuador, has been known to Father Andreetta for the many years he spent at the mission. It differs in several ways from the other species in the subgenus. The inflorescence is reduced to a single flower; the petals are narrowly triangular without basal auricles; and the three-lobed lip is without a decurved, auriculate claw. However, the features that indicate the position of this species in *Kraenzlinella* are: the habit with a thickly coriaceous leaf borne by a shorter, stout ramicaul; free, fleshy, carinate sepals; ovaries with transverse, spiculate appendages; an oblong, fleshy, verrucose lip; and an elongate column shallowly hooded at the apex. Although unusual for subgenus *Kraenzlinella*, this species is not accommodated in other subgenera.



Plate 8. *Pleurothallis shuariae* Luer



***Pleurothallis sigmoidea* Ames & Schweinf., Sched. Orchidianae 10: 36, 1930.**

Ety.: From the Latin *sigmoideus*, "curved like a sigma," referring to the shape of the lip.

**Plant** small, epiphytic, shortly repent to caespitose, the rhizome 2-3 mm long between ramicauls; roots coarse. Ramicauls stout, erect to suberect, 5-7 mm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical, fusiform, acute, more or less conduplicate near the base, 18-30 mm long, 5-6 mm wide, sessile. **Inflorescence** a loose, lightly flexuous, successively several-flowered raceme, up to 10 cm long including the few-bracted peduncle 4-5 cm long, from the apex of the ramicaul at the base of the leaf, with a spathe 2-3 mm long; floral bracts infundibular, 4 mm long; pedicel 4 mm long; ovary densely echinate, 1.5-2 mm long; **sepals** fleshy, yellow-green, dotted with purple, carinate, cellular-glandular externally, minutely ciliate, the dorsal sepal ovate, subacute, 8.5 mm long, 4.5 mm wide, 7-veined, connate only at the base with the lateral sepals, the lateral sepals connate 1.5 mm at the base, ovate, oblique, acute, 10 mm long, 4 mm wide, 4-veined, tall-carinate; **petals** yellow, ovate, acute, 6 mm long, 1.75 mm wide, minutely serrate, with a pedunculated lobule on the margin of both sides at the base; **lip** thick, unguiculate, the blade oblong, obtuse to rounded, cellular-glandular, 5.5 mm long, 2 mm wide, with a pair of erose-serrated lobules at the base above the claw, the disc longitudinally channeled between a low pair of calli below the middle, the claw decurved, concave, 2 mm long, with a pair of lobules at the base; **column** green, slender, irregularly winged above the middle, semiterete below the middle, 6 mm long, the apex hooded, the foot stout, 2 mm long.

COSTA RICA: Prov. of Guanacaste: El Arenal, vicinity of Tilarán, alt. 500-650 m, 10-31 Jan. 1926, *P. C. Standley & J. Valerio* 46653 (Holotype: AMES), C. Luer illustr. 14806; El Arenal, alt. 485-600 m, 18-19 Jan. 1926, *P. C. Standley & J. Valerio* 45141 (AMES); east of Tilarán above Laguna de Arenal, alt. 900-1000 m, 13 Feb. 1963, *L. O. Williams & T. P. Williams* 24580, 25490 (G); Los Aguilares, alt. 600 m, 29 Jan. 1926, *P. C. Standley & J. Valerio* 46350 (AMES).

This species is endemic in the south-central part of Costa Rica at moderately low altitudes. Although rare today, collections of abundant specimens were made by Paul Standley in 1926. This is one of the very few Costa Rican species that apparently had not been forwarded by Endres in the nineteenth century to Reichenbach.

*Pleurothallis sigmoidea* is identified by the small, thick, conduplicate, sessile leaves and a considerably longer raceme of successive flowers. The sepals are carinate and minutely ciliate; the petals are bilobulate at the base; the blade of the lip is oblong, obtuse, cellular-glandular, erose-bilobulate at the base and channeled medially; and the claw is decurved and bilobulate at the base.



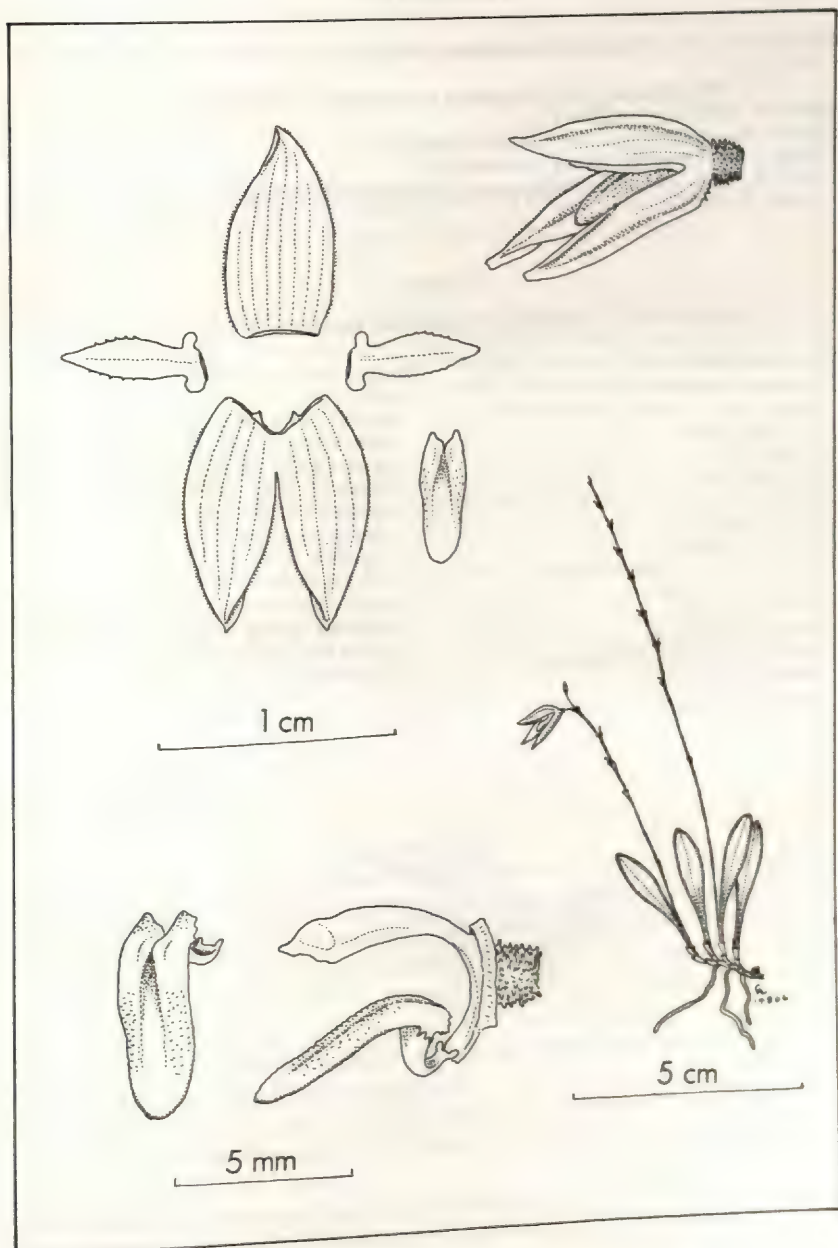


Plate 9. *Pleurothallis sigmoidea* Ames & C. Schweinf.

## REFERENCES

- DRESSLER, R. L., 1981. The orchids: natural history and classification. Harvard University Press, Cambridge, MA.
- 1993. Phylogeny and classification of the orchid family. Dioscorides Press, Portland, OR.
- KUNTZE, O., 1904. Lex. Gen. Phan. 310.
- LEHMANN, F. C. & KRÄNZLIN, F., 1899. Bot. Jahrb. Syst. 26: 457.
- LINDLEY, J., 1859. Folia Orchidaceae *Pleurothallis* 28.
- LUER, C. A., 1986. Icones Pleurothallidarum III. Systematics of Pleurothallis. Monogr. Syst. Bot. 20: 44-45.

## INDEX OF SCIENTIFIC NAMES

- |                                       |   |
|---------------------------------------|---|
| Apocynaceae 89                        | Pleurothallis anfracta 89, 91, <b>92</b> , Plate 1. |
| Humboldtia erinacea 94                | diuturna 89, 91, 94                                 |
| gigantea 98                           | echinocarpa 90, 91, <b>92</b> , Plate 2.            |
| Kraenzlinella 89, 90                  | erinacea 89, 90, 91, <b>94</b> , Plate 3., 104, 106 |
| muricata 94                           | gigantea 89, 91, <b>98</b> , Plate 4., 100          |
| rufescens 89, 94                      | hintonii 91, <b>100</b> , Plate 5.                  |
| sororia 94                            | lappago 91, <b>102</b> , Plate 6.                   |
| tungurahuae 104                       | muricata 89, 91, 94                                 |
| Otopetalum Miquel 90                  | otopetalum 90, 91, 94, 100, <b>104</b> , Plate 7.   |
| Otopetalum Lehm. & Krzl. 89, 90, 104  | rufescens 91, 94                                    |
| tungurahuae 90, 104                   | shuarii 90, 91, <b>106</b> , Plate 8.               |
| Pleurothallis 89, 90                  | sigmoidea 91, <b>108</b> , Plate 9.                 |
| subgen. Acianthera 90                 | sororia 89, 91, 94                                  |
| subgen. Kraenzlinella 89, 90, 91, 106 | tungurahuae 90                                      |
| subgen. Pleurothallis 90              |   |
| subgen. Specklinia 90                 |   |





## ADDENDA TO DRACULA, LEPANTHOPSIS, MYOXANTHUS, PLATYSTELE, PORROGLOSSUM AND TRISETELLA

### ABSTRACT

The following new species of *Lepanthopsis* (Cogn.) Ames, *Platystele* Schltr., *Porroglossum* Schltr., and *Trisetella* Luer have been discovered since the most recent additions to the genera in *Icones Pleurothallidarum*. *Myoxanthus affinoides* Luer is reduced to the synonymy of *Myoxanthus herzogii* (Schltr.) Luer. The plates are numbered as continuations of their respective appearances in *Icones*.

#### New Taxa:

- Lepanthopsis dewildei* Luer & Escobar, sp. nov.
- Lepanthopsis lilliputalis* Luer & Hirtz, sp. nov.
- Platystele adelphe* Luer & Hirtz, sp. nov.
- Platystele dewildei* Luer & Escobar, sp. nov.
- Platystele lawessonii* Luer, sp. nov.
- Platystele lehmannii* Luer, sp. nov.
- Platystele oblecta* Luer, sp. nov.
- Platystele papillosa* Luer, sp. nov.
- Platystele risaraldae* Luer & Escobar, sp. nov.
- Platystele steyermarkii* Luer, sp. nov.
- Porroglossum tokachii* Luer, sp. nov.
- Trisetella dalstroemii* Luer, sp. nov.

The following taxa include new species discovered in their respective genera since the genera were revised in a previous *Icones Pleurothallidarum*. The following two new species of *Lepanthopsis* belong to subgenus *Microlepanthes*, and single species are added to *Porroglossum* and *Trisetella*.

Obviously, the revision of *Platystele* in 1990 was far too premature, because 16 additional, unknown species have come to our attention in the four years since the revision that contained 73 species. Four of the latter, however, were removed later to *Teagueia*. Today 85 species are known.

Since the revision of *Myoxanthus*, hydration of a flower from a syntype of *M. herzogii* reveals that this species from Bolivia is an earlier name for *M. affinoides* that was described from Ecuador.

An attempt has been made to keep the pagination of the genera separate, so that photocopies of the pages and be inserted more easily into the previous revisions by those persons wishing to keep their revisions current.

***Dracula nisseniae* P. Ortiz, Orquideología 20: 3, 1994.**

Ety: Named in honor of Dra. Andrea Niessen de Uribe, who first cultivated this species.

**Plant** medium in size, epiphytic, densely caespitose; roots coarse. Ramicauls slender, erect, 3-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, 16-18 cm long including the petiole 2-3 cm long, the blade narrowly obovate, acute, 2.5-3 cm wide, gradually narrowed below into the petiole. **Inflorescence** a suberect, loose, simultaneously 2- to 4-flowered raceme, 10-12 cm long including the sparsely bracted peduncle 7-8 cm long, from low on the ramicaul; floral bracts, tubular, oblique, 7-9 mm long; pedicels 5-7 mm long; ovary 3 mm long, lightly verrucose, round in cross-section; **sepals** dull white, with numerous purple dots and minute transverse bars, long-pubescent within with scattered, cellular papillae, the dorsal sepal transversely ovate, 6 mm long, 8 mm wide, connate to the lateral sepals for 5 mm to form a campanulate, sepaline cup, the apex obtuse, contracted into a slender, suberect, purple tail 7.5 cm long, the lateral sepals connate 8 mm into a transversely oblong lamina, 10 mm long, 16 mm wide, with a broad, shallow mentum, the apices obtuse to rounded, contracted into spreading tails similar to that of the dorsal sepal; **petals** ivory with blackish brown center, cartilaginous, obovate, 3 mm long, 2.5 mm wide, bivalvate near the middle, papillose beyond the middle on the inner surface, the inner lamina short, acute, the outer lamina rounded, minutely denticulate; **lip** white, obscurely pandurate, 6 mm long, 2 mm wide, the epichile ovoid, shallowly concave, with the margins not incurved, but with the apex concave and incurved with erect margins, traversed by 3 longitudinal keels, the central keel terminating in a callus within the concave tip, 3.5 mm long, 2 mm wide, the hypochile indistinctly demarcated from the epichile, suboblong, 2.5 mm long, 1.75 mm wide, with erect, narrowly rounded, marginal angles, deeply cleft centrally between a pair of plates, the concave base hinged to the column-foot; **column** white, stout, semiterete, 2.5 mm long, with a stout foot 2 mm long.

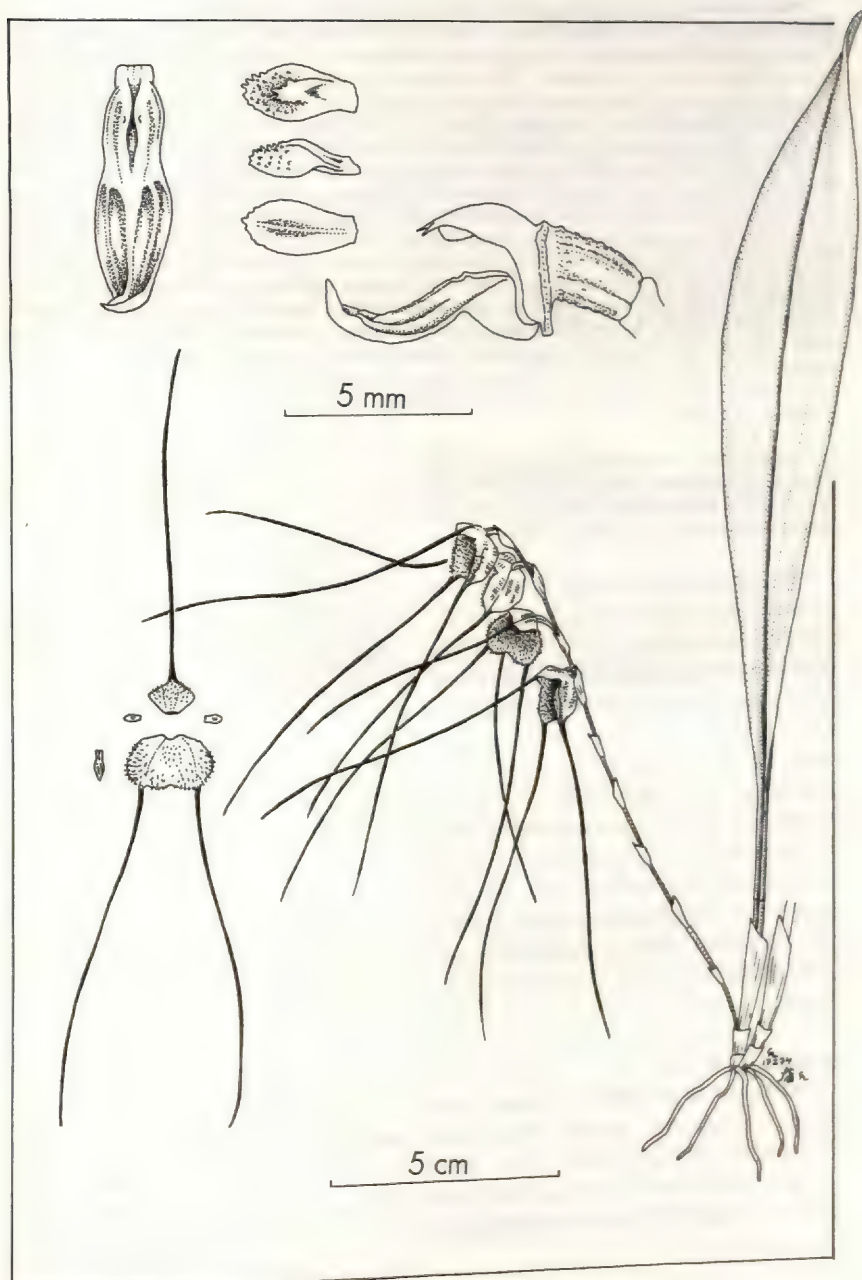
COLOMBIA: Dept. of Valle del Cauca: Río Bravo, lower zone, collected by I. Miranda, flowered in cultivation by Andrea Niessen de Uribe at Ginebra, May 1994, *P. Ortiz 1059* (Holotype: HPUJ); same collection, flowered in cultivation by P. Ortiz, Aug. 1994, *P. Ortiz 1068* (HPUJ, MO).

This species has been found recently in lowland western Colombia. Although reminiscent of *Dracula sodiroi* because of the simultaneous flowers, it is best associated with those species of series *Parviflorae* of subgenus *Dracula*.

*Dracula nisseniae* is most closely allied to *D. decussata* which is also found in the Western Cordillera of Colombia. *Dracula nisseniae* is distinguished from all others of subgenus *Dracula* by the production of two to four flowers simultaneously in a suberect raceme. The flowers, long-pubescent within, are very similar in appearance to those of *D. decussata*. The similar, narrow lips of the two plants are characterized by three longitudinal keels in a shallowly concave epichile that is incurved at the apex.

*Dracula decussata* was described from a single, cultivated plant that still lingers in cultivation, but without flowering. I suspect that if this plant had been cultivated in some other growing condition, perhaps a warmer condition, it might have proved to produce more than one flower simultaneously. *Dracula nisseniae* may eventually be reduced to the synonymy of *D. decussata*.



Plate 108. *Dracula nisseniae* P. Ortiz



***Dracula pubescens* Luer & Dalström, Thesaurus Dracularum 7, 1994.**

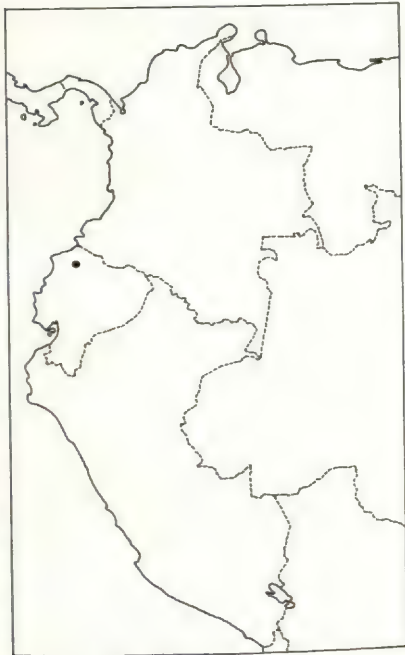
Ety: From the Latin *pubescens*, "pubescent," in reference to the markedly pubescent sepals.

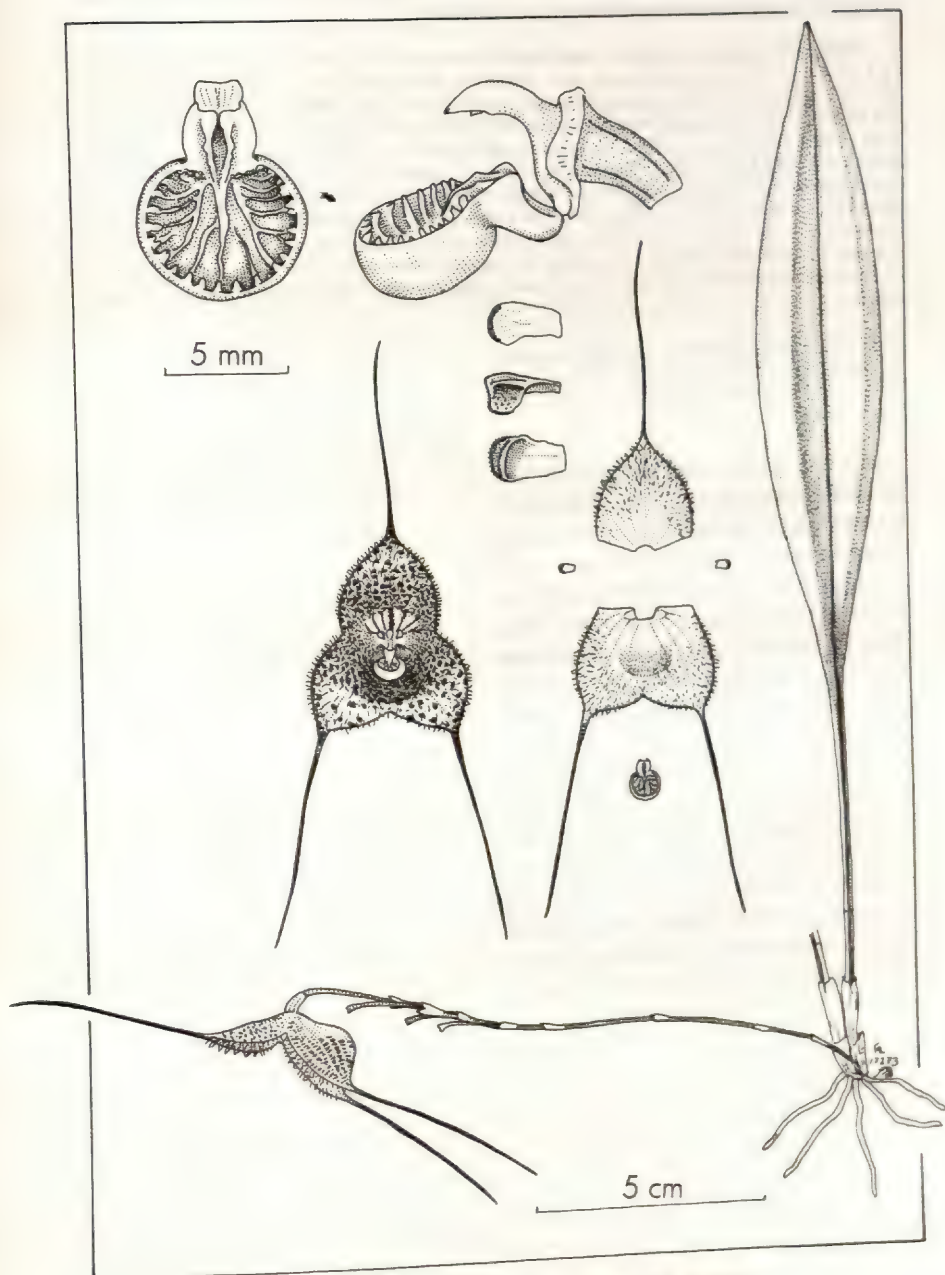
**Plant** medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 3-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, long-petiolate, 13-22 cm long including the petiole 6-8 cm long, the blade narrowly elliptical, acute, 2.5-3 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a loose, successively several-flowered raceme, borne by a horizontal to descending, sparsely bracted peduncle 10-18 cm long, from low on the ramicaul; floral bract, tubular, oblique, 5-8 mm long; pedicel 15-25 mm long; ovary 5 mm long, microscopically verrucose, round in cross-section; **sepals** dull white, intensely dotted with blackish purple, especially toward the apices and bases, with a long, dense, white pubescence within, the dorsal sepal broadly ovate, 20 mm long, 20 mm wide, connate to the lateral sepals for 8 mm to form an expanded flower, the obtuse apex contracted into a slender, erect, blackish purple tail 42-45 mm long, the lateral sepals broadly ovate, oblique, 20 mm long, connate 18 mm into a broad lamina 30 mm wide, with a broadly rounded mentum, the apices obtuse, contracted into tails similar to that of the dorsal sepal; **petals** white, marked with black, cartilaginous, oblong, 3 mm long, 1.5 mm wide, the apex bivalvate, papillose between the laminae, the inner lamina obtuse, denticulate, the outer lamina rounded, recurved; **lip** pale yellow, spatulate, 9 mm long, 7 mm wide, the epichile subglobose, deeply concave, 6 mm long, 7 mm wide, 3 mm deep, filled with pink, radiating, branching lamellae, microscopically verrucose externally, the hypochile subovoid, 4 mm long, 3 mm wide, with erect, obtuse, marginal angles, cleft centrally between a pair of plates, the concave base hinged to the column-foot; **column** white, stout, semiterete, 5 mm long, with a stout foot equally long.

ECUADOR: Prov. of Imbabura: epiphytic in wet forest in the Los Cedros reserve, alt. ca. 1700 m, 16 Mar. 1992, S. Dalström, M. Reed & C. Schröder 1642 (Holotype: MO), C. Luer illustr. 17273.

This species is apparently endemic in a remote, wet, primary forest in northwestern Ecuador where it occurs in the extraordinarily rich neighborhood with many other species of the genus: *Dracula alcitoë*, *D. chiroptera*, *D. felix*, *D. lafleuri*, *D. mantissa*, *D. marsupialis*, *D. morleyi*, *D. polyphemus*, *D. radiosa*, *D. venosa*, *D. vespertilio* and *D. woolwardiae*. When encountered, it is not found intermixed with any of the other species. *Dracula pubescens* is most closely allied *D. morleyi*. The two taxa are of similar habit and color of the floral parts. The flower of the former, however, is larger with thrice longer, slender tails, and a long, dense pubescence within.

The flowers are similar to some forms of the Colombian *D. wallisii*. Other than *D. morleyi*, the only species with densely long-pubescent sepals found in Ecuador is *D. alcitoë* and *D. woolwardiae*. From them, *D. pubescens* is distinguished by the acute, long-petiolate leaves, and deeply concave epichile without involute margins.



Plate 109. *Dracula pubescens* Luer & Dalström

***Lepanthopsis dewildei* Luer & Escobar, sp. nov.**

Ety.: Named for the Arend DeWilde of Pereira, Colombia, who discovered this species.

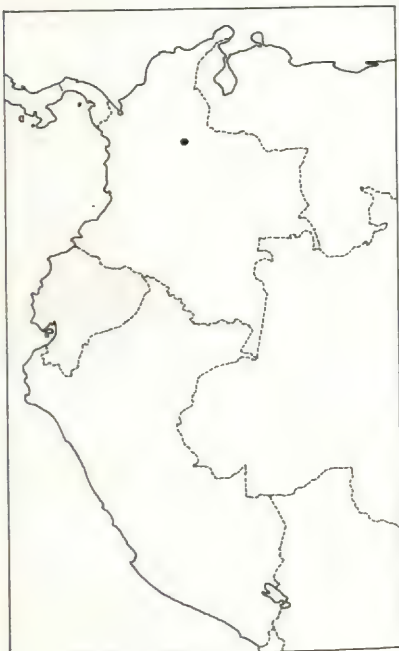
Species haec *L. apodae* (Garay & Dunsterv.) affinis sed sepalo dorsali ovato, sepalis lateralibus noncavatis, et labello plano supra basim non concavo differt.

**Plant** small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-5.5 cm long, enclosed by 4-5 minutely ciliate, lepanthiform sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical, acute, 15-28 mm long, 5-6 mm wide, cuneate below into a petiole 1 mm long. **Inflorescence** a solitary, successive flower, borne by a slender peduncle 6-8 mm long, from the apex of the ramicaul; floral bract 2 mm long; pedicel 2 mm long; ovary 1.5 mm long; **sepals** yellow-orange, glabrous, the dorsal sepal ovate, acute, acuminate, 6 mm long, 2.75 mm wide, 3-veined, connate to the lateral sepals for 0.75 mm, the lateral sepals ovate, oblique, non concave with the apices acute, narrowly obtuse, spreading, 5.5 mm long, 2.25 mm wide, 2-veined; **petals** ovate in the lower third, acute, attenuate, 5 mm long, 1.6 mm wide above the base; **lip** orange, suborbicular, with the apex obtuse to broadly rounded, with the base deeply cordate, the basal lobes obtuse, surrounding the column, 2 mm long, 2 mm wide, the disc flat, non concave, the base hinged to the base of the column; **column** terete, 0.5 mm long, the anther and stigma apical.

COLOMBIA: Dept. of Boyacá: epiphytic in secondary forest west of Chiquinquirá, alt. 3000 m, 2 Jan. 1993, A. De Wilde 4436 (Holotype: MO), C. Luer illustr. 16579.

This species is closely related to the aberrant *Lepanthopsis apoda*, from which it is most easily distinguished by the lateral sepals that are not a concave synsepal, but instead, are flat and diverging, giving the flower a stellate appearance. The lateral sepals of *L. apoda* are approximate and form a deeply concave recess at the base. In addition, the dorsal sepal is ovate, not narrowly triangular, and the disc of the lip is flat, not concave above the base beneath the column.

*Lepanthopsis apoda* is found in a very wide distribution through the Andes from Venezuela into Bolivia, but nowhere is it common. Almost always, only a single plant is encountered. *Lepanthopsis dewildei* is found abundantly in only one area in the Eastern Cordillera of Colombia.





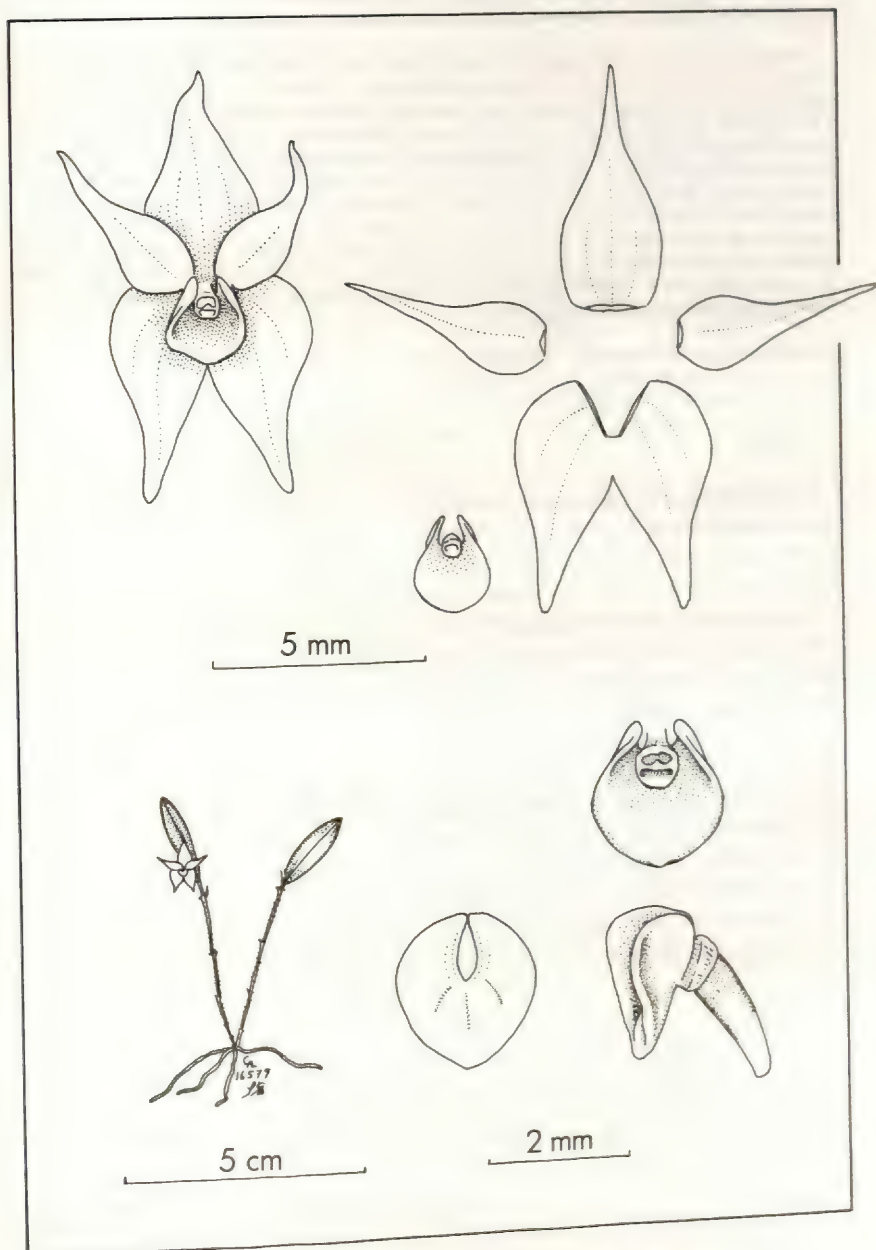


Plate 38. *Lepanthopsis dewildei* Luer & Escobar

***Lepanthopsis lilliputalis* Luer & Hirtz, sp. nov.**

Ety.: Named for the fictional country visited by Gulliver where everything was minute.

Planta parvula, ramicaulibus proliferantibus, racemis paucis erectis folio elliptico duplolongioribus, sepalo dorsali ovato trinervo, sepalis lateralibus minoribus obliquis uninervis, petalis acutis, labello late obovato obscure trilobato basi bicalloso, anthera dorsali et stigma ventrali differt.

**Plant** small, up to 8 cm tall, epiphytic, prolific; roots slender. Ramicauls erect, slender, producing another ramical from the apex, 10-15 mm long, enclosed by 4-5 lepanthiform sheaths, microscopically ciliate along brown ribs, and with ciliate ostia. **Leaf** erect, coriaceous, elliptical, acute, 9-12 mm long, 3.5-4 mm wide, cuneate below into a petiole 1 mm long. **Inflorescence** a loose, secund, simultaneously several-flowered raceme, 15-22 mm long, including the filiform peduncle 5 mm long, from the apex of the ramicaul; floral bracts 0.5 mm long; pedicels 1 mm long; ovary 0.25 mm long; **sepals** translucent brown, glabrous, the dorsal sepal ovate, subacute, 1.6 mm long, 0.9 mm wide, 3-veined, free from the lateral sepals, the lateral sepals free, recurved, ovate, acute, oblique, 1.3 mm long, 0.6 mm wide, 1-veined; **petals** translucent brown, obovate, acute, 0.9 mm long, 0.3 mm wide; **lip** green, fleshy, cellular glandular, obovate, trilobed above the middle, with the lobes obtuse, 1.1 mm long, 1.1 mm wide expanded, the disc with a pair of parallel calli at the base, the base hinged to the column-foot; **column** terete, 0.5 mm long, the anther dorsal, the stigma ventral.

ECUADOR: Prov. of Esmeraldas: epiphytic in wet forest west of Lita, alt. 400 m, Oct. 1991, A. Hirtz 5612 (Holotype: MO), C. Luer illustr. 16206; same area, alt. 300 m, 12 Jan. 1992, C. Luer, A. Hirtz et al. 15575 (MO).

This minute species, apparently endemic in lowland western Ecuador, is another perplexing problem that straddles the boundary between *Lepanthopsis* and *Trichosalpinx*. It is distinguished by the tiny, prolific habit with lepanthiform sheaths, and with simultaneously multi-flowered, secund racemes. These characters together with the simple sepals and petals could agree with either genus, but the broad, trilobed lip with a pair of basal calli is strange to both genera. The short column with a dorsal anther and an entire, ventral stigma is strange to *Trichosalpinx*, but is compatible with subgenus *Microlepanthes* of *Lepanthopsis*.



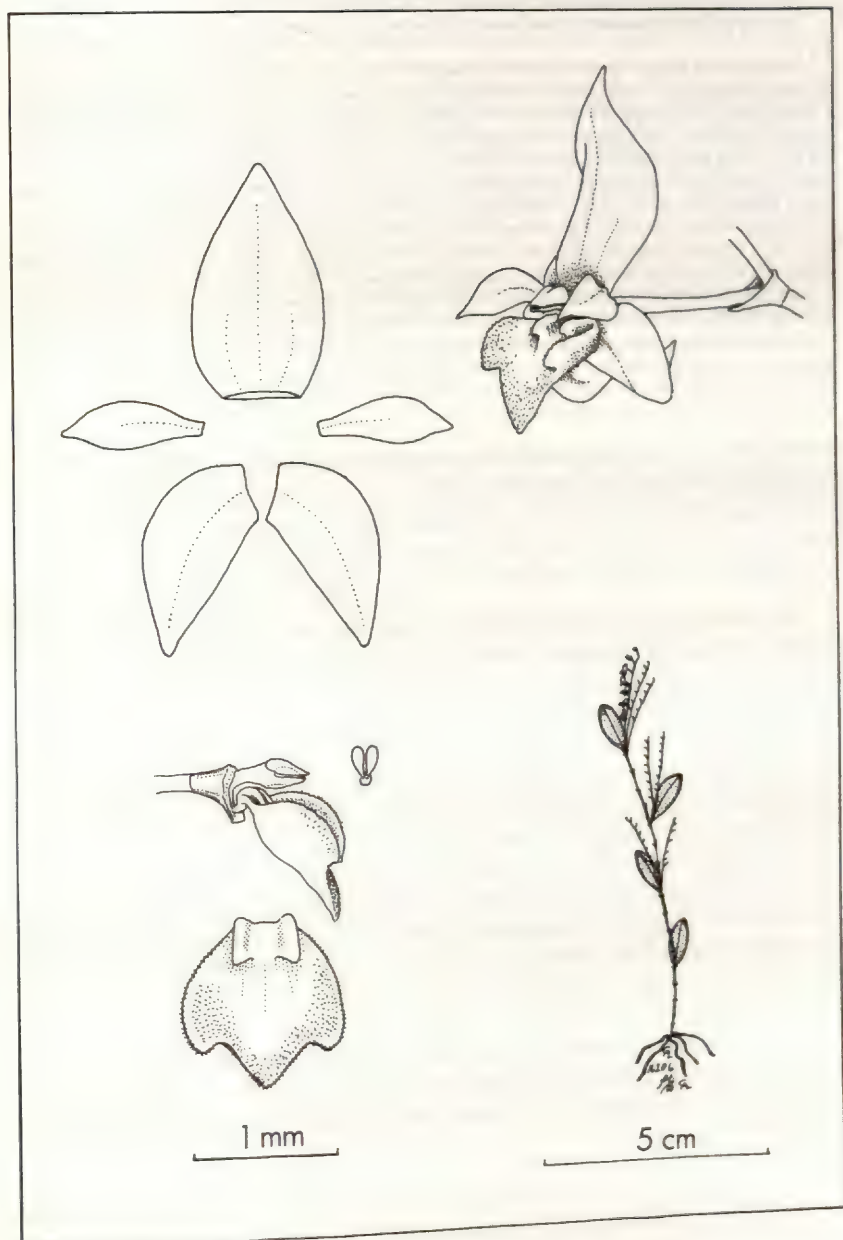


Plate 39. *Lepanthopsis lilliputalis* Luer & Hirtz



**Myoxanthus herzogii** (Schltr.) Luer, Selbyana 7: 43, 1982.

Bas.: *Pleurothallis herzogii* Schltr., Repert. Spec. Nov. Regni Veg. 12: 487, 1913.

Ety.: Named in honor of Theodor Herzog who discovered this species in Bolivia.

Syn.: *Myoxanthus affinoides* Luer, Phytologia 54: 385, 1983.

Ety.: Named for the similarity of the flowers of this species to those of *M. affinis*.

**Plant** medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 10-34 cm long, enclosed by 5-8 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, very narrowly ovate, acute, 7-20 cm long, 0.7-1.5 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a congested fascicle of a few, simultaneous, single flowers, at the apex of the ramicaul, the peduncles 1-3 mm long; floral bracts infundibular, red-spiculate, 3-5 mm long, enclosing pedicel and ovary; pedicel stout, 2-3 mm long; ovary densely short-pubescent, 1.5-2.5 mm long; **sepals** yellow-green, more or less lightly suffused with purple, fleshy, shortly pubescent externally, cellular-glandular within, the dorsal sepal elliptical-ovate, obtuse, 8-9 mm long, 3-3.5 mm wide, the lateral sepals connate 1-1.5 mm at the base, ovate, oblique, subacute, 8 mm long, 2.5-3 mm wide, finely pubescent near the base; **petals** light yellow, ovate in the lower third with erose margins, thickened and linear above, obtuse, 8.5-9 mm long, 2.5 mm wide above the base, 1 mm wide above the middle; **lip** yellow below the middle, dark purple above the middle, oblong-subpandurate or trilobed, 3 mm long, 1.75 mm wide expanded, the lateral lobes below the middle, erect, minutely denticulate, antrorse, subacute, the apical lobe rounded, minutely fringed, the disc with a low pair of calli converging near the center, the base truncate with a pair of obtuse, membranous lobules, hinged on the end; **column** rosy white, stout, semiterete, 3 mm long, 1 mm wide, bidentate at the apex, the foot stout, concave.

BOLIVIA: Dept. of La Paz: forest along Río Sanjana (San Juan), alt. 3000 m, Oct. 1911, *T. Herzog* 2423 (Lectotype here designated: S), C. Luer illustr. 17165.

ECUADOR: Prov. of Zamora-Chinipe: epiphytic in forest south of the pass south of Yangana, alt. 2600 m, 3 Mar. 1982, C. Luer, A. Andreetta, D. D'Alessandro & S. Dalström 7114 (Holotype: SEL); Quebrada Honda, south of Yangana, alt. 1800 m, June 1982, D. D'Alessandro 238 (SEL); east of Yangana, alt. 2950 m, 22 Mar. 1985, C. Luer, J. Luer, A. Hirtz & W. Flores 10792 (MO).

This species is was first described by Schlechter from a Bolivian collection by Herzog. Because the location of the type was unknown and because Schlechter's illustration and description of *P. herzogii* could apply to *M. ceratothallis*, and because *M. ceratothallis* had been collected by us nearby in Bolivia, *M. herzogii* was erroneously listed as a synonym of *M. ceratothallis* in *Systematics of Myoxanthus* in 1992. An illustration of a hydrated flower from Herzog 2423 at Stockholm (S) reveals that it is conspecific with the recently described *M. affinoides* Luer from Ecuador. Only insignificant differences exist.

*Myoxanthus herzogii* is distinguished by the slender ramicaul, a long, very narrowly ovate leaf, and a few-flowered fascicle of shortly pedunculate flowers. The sepals are fleshy, obtuse and densely short-pubescent externally. The petals are linear and thickened above the middle, and longer than the lateral sepals. The lateral lobes of the oblong lip are below the middle and antrorse with a low pair of carina on the disc between them.

For those persons keeping *Icones Pleurothallidarum* current, photocopy this page and paste the above text over the text of *Myoxanthus affinoides* on page 16 of *Icones Pleurothallidarum* IX, and paste the legend below over the legend of Plate 2, page 17.

Plate 2. *Myoxanthus herzogii* (Schltr.) Luer

**Platystele adelphe** Luer & Hirtz, sp. nov.

Ety.: From the Greek *adelphē*, "a sister," referring to the close relationship to other species.

Species haec *P. pubescenti* Luer & Hirtz affinis, sed sepalis petalisque ciliatis acuminatis et labello glabro lobis basalibus columnam amplectentibus.

**Plant** small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 9-15 mm long including a petiole 1.5-2.5 mm long, the blade narrowly obovate, subacute to obtuse, 4-5.5 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, loose, distichous, flexuous, successively several-flowered raceme, up to 3 cm long, borne by a slender peduncle 1-1.5 cm long, emerging laterally from the ramicaul; floral bracts thin, 1.5 mm long; pedicels 2-3 mm long; ovary 0.5 mm long; **sepals** pale rose, darker toward the base, membranous, glabrous, ciliate, with the hairs microscopically capitate, the dorsal sepal ovate, subacute, acuminate, 5 mm long, 1.25 mm wide, the lateral sepals essentially free, ovate, oblique, acute, acuminate, 4.5 mm long, 1.75 mm wide, connate about 0.25 mm; **petals** pale rose, membranous, ciliate, with the hairs microscopically capitate, ovate, oblique, acute, acuminate, 4 mm long, 1 mm wide; **lip** rose, glabrous (microscopically cellular), transversely cordate, obtuse, less than 1 mm long, 1.3 mm wide, the disc slightly concave, featureless, the basal lobes obtuse, erect, embracing the column, the base firmly hinged to the rudimentary column-foot; **column** deflexed, cucullate, 1 mm long and broad, the stigma bilobed, the foot rudimentary.

ECUADOR: Prov. of Carchi: plateau above Chical, alt. 1800 m, 11 Jan. 1993, A. Hirtz et al. 5867 (Holotype: MO), C. Luer illustr. 16603.

This little species is closely allied to three other species, all of which are known from the western declivities of the Andes of Ecuador. All four species are characterized by a successively flowered, flexuous raceme that surpasses the leaf for about twice its length. *Platystele adelphe* is easily distinguished from *P. pubescens*, *P. scopulifera*, and *P. ximenae* by the acuminate sepals and petals, and the glabrous lip.

**Platystele dewildei** Luer & Escobar, sp. nov.

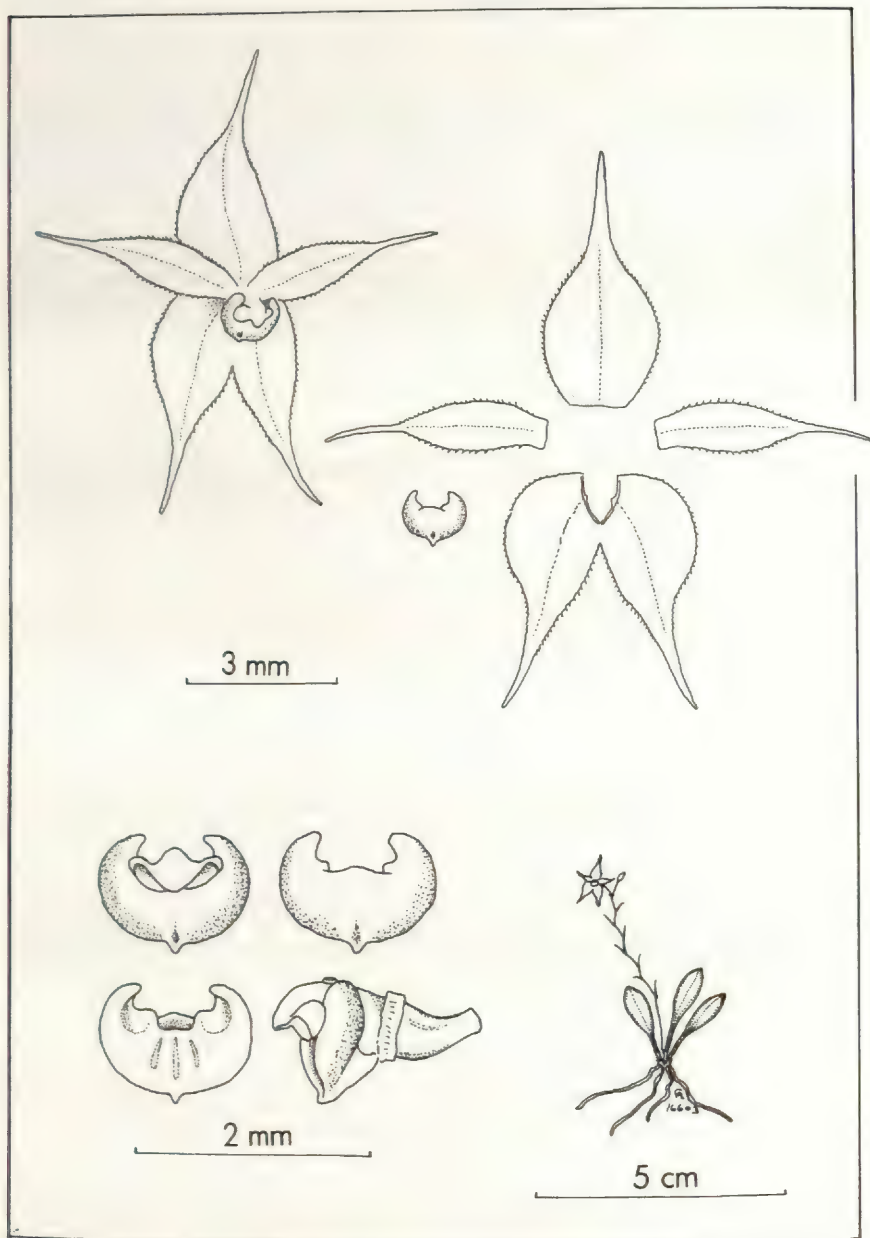
Ety.: Named for Arend De Wilde of Pereira, Colombia, who discovered this species.

Species haec *P. calanthae* P. Ortiz affinis, sed pedunculo longiore cum racemo congesto et floribus partibus minutissime ciliatis differt.

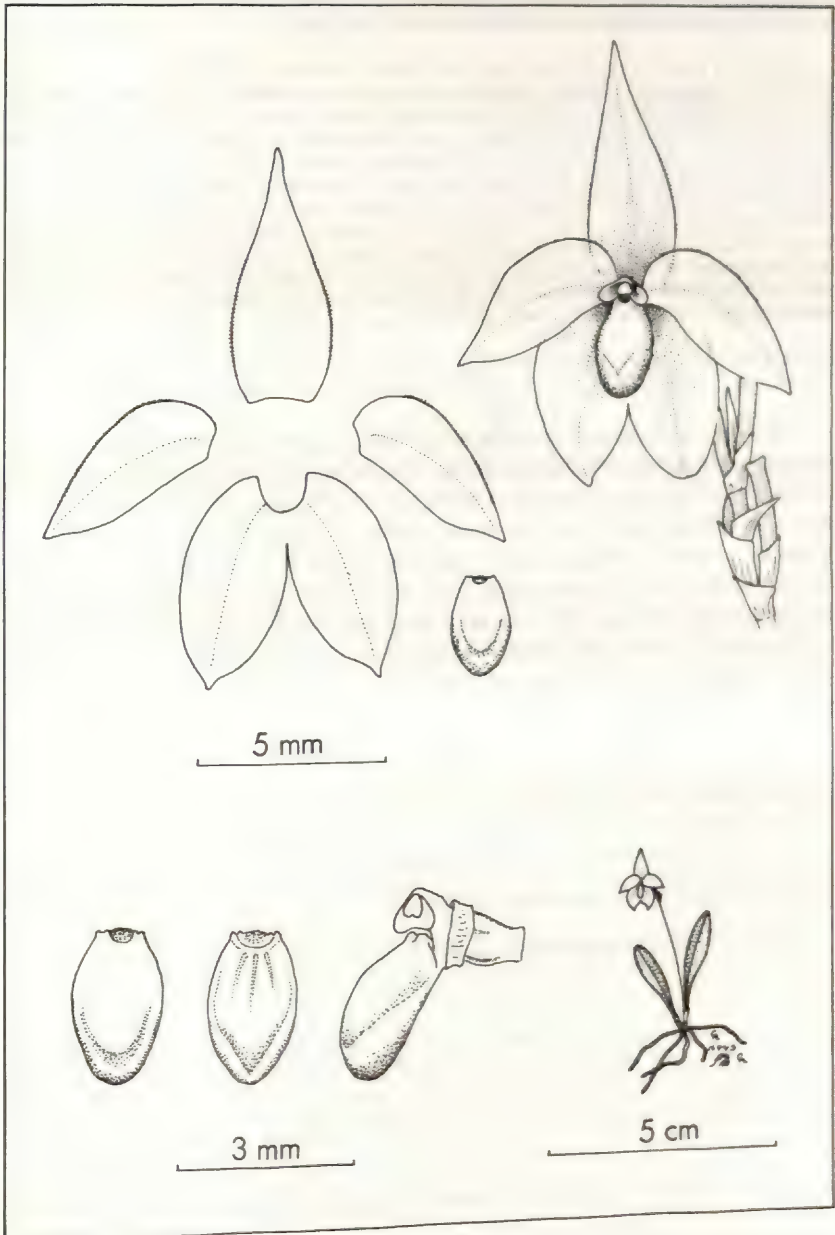
**Plant** small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-5 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 12-18 mm long including a petiole ca. 3 mm long, 4-5 mm wide, the base narrowly cuneate into the slender petiole. **Inflorescence** a congested, successively few-flowered raceme, 2-3 mm long, borne by a slender peduncle 20-25 mm long, from low on the ramicaul; floral bracts 1-1.5 mm long; pedicels 3-4 mm long; ovary tricarinate, 1 mm long; **sepals** translucent pinkish brown, glabrous, microscopically cellular-ciliate, the dorsal sepal ovate, narrowly acute, 6.75 mm long, 2.5 mm wide, the lateral sepals connate at the base, oblong, obtuse, shortly acuminate, 5.5 mm long, 2.8 mm wide; **petals** microscopically cellular-ciliate, oblong-obtuse, shortly acuminate, 5.5 mm long, 2.2 mm wide; **lip** thick, fleshy, ovoid, obtuse, 2.6 mm long, 1.5 mm wide, the sides indistinctly revolute, disc featureless, the base subtruncate with a microscopically pubescent glenion on the end, firmly attached to the obsolescent column-foot; **column** thin, cucullate, 1 mm long and wide, the anther, rostellum and stigma apical.

COLOMBIA: Dept. of Risaralda: El Manzano, above Pereira, epiphytic in patch of secondary mountain forest, alt. 2150 m, Apr. 1992, A. De Wilde 3908 (Holotype: MO), C. Luer illustr. 16943.

This species is most closely allied to *P. calantha*. The flowers are similar in size and shape of the sepals and petals. Vegetatively they are also similar. Instead of a loose, flexuous raceme borne by a peduncle less than half the length of the leaf, the raceme of *P. dewildei* is short and congested, and borne by a peduncle longer than the leaf. In addition, instead of entire, the margins of the sepals and petals on *P. dewildei* are minutely ciliate; and the thick, fleshy lip is elliptical in outline instead of obovate.

Plate 82. *Platystele adelphae* Luer & Hirtz



Plate 83. *Platystele dewildei* Luer & Escobar

**Platystele lawessonii** Luer, sp. nov.

Ety.: Named in honor of J. E. Lawesson who discovered this species.

*Planta parvula pedunculo foliis anguste oblanceolatis petiolatis plus minusve duplolongiore, racemo secundo paucifloro floribus minutissimis, sepalis enervis ovatis, petalis ellipticis subacutis sparsim ciliatis et labello ovato acuto glanduloso amplitudine sepalorum lateralium.*

**Plant** very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-4 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 5-20 mm long including a petiole 2-10 mm long, the blade narrowly oblanceolate, subacute to obtuse, 2.5-3.5 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, subcongested, subsecund, few-flowered raceme 5-7 mm long, borne by a filiform peduncle 20-30 mm long, emerging laterally from the ramicaul; floral bracts thin, 0.6 mm long; pedicels 0.6 mm long; ovary 1-2.5 mm long; **sepals** green, membranous, glabrous, without veins, the dorsal sepal broadly ovate, obtuse, concave, 0.6 mm long, 0.6 mm wide, the lateral sepals ovate, concave, oblique, subacute, shortly acuminate, 0.6 mm long, 0.5 mm wide, barely connate at the base; **petals** green, translucent, elliptical, subacute, 0.5 mm long, 0.25 mm wide, with the margins sparsely ciliate; **lip** red, fleshy, ovate, acute, cellular-verrucose, 0.8 mm long, 0.5 mm wide, the disc shallowly sulcate basally, the base subtruncate, firmly hinged to the rudimentary column-foot; **column** cucullate, swollen in the specimen examined, the anther and stigma apical, the foot rudimentary.

ECUADOR: Prov. of Napo: Añangu, Río Napo, tropical rain forest, alt. 260-350 m, 11-15 Mar. 1983, J. E. Lawesson, T. Læssøe & P. M. Jørgensen 39385 (Holotype: AAU), C. Luer illustr. 17230.

This very small species occurs in the lowlands of eastern Ecuador, where it has been collected but once to my knowledge. The habit with narrowly elliptical leaves is not distinctive except for the very small size. The hairlike peduncle, between 20 and 30 mm long, bears a tiny, subsecund raceme no longer than seven millimeters. Capsules seem to be readily formed. The minute flowers are among the smallest of the genus, the ovate, concave sepals being no more than 0.6 mm long. The petals are smaller and subacute. No veins are visible in either the sepals or petals, but the cells are easily visible with strong magnification. The lip, slightly larger than the lateral sepals, is coarsely cellular-verrucose.

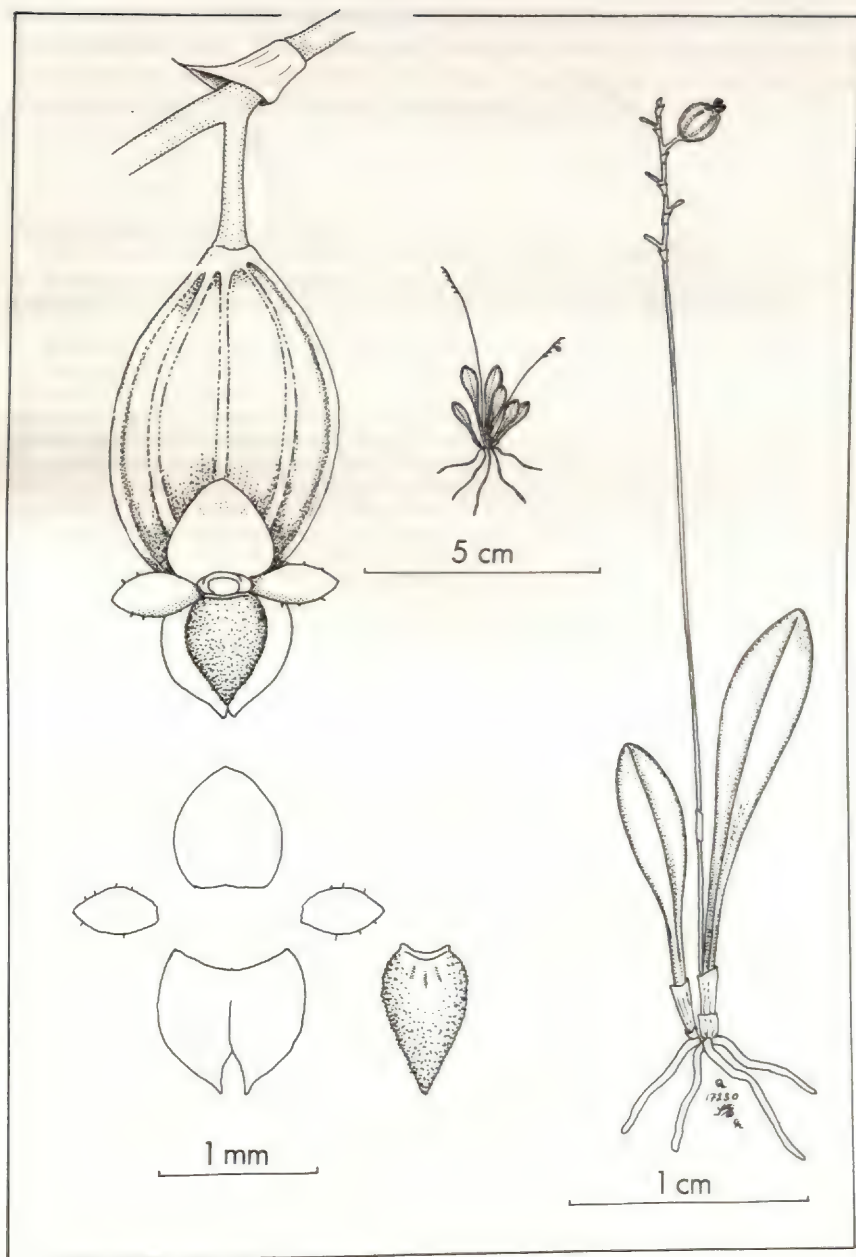
**Platystele lehmannii** Luer, sp. nov.

Ety.: Named in honor of Consul F. C. Lehmann who discovered this species.

*Planta parva foliis anguste ellipticis petiolatis quam pedunculo brevioribus, racemo laxo paucisuccessivifloro floribus proportionem grandibus, sepalis glabris membranaceis ovatis acutis, petalis grandibus obliquis acutis, et labello elliptico basi bicalloso.*

**Plant** small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3.5 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 15-25 mm long including a petiole 5-10 mm long, the blade narrowly elliptical, subacute, 4-5 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, loose, successively few-flowered raceme up to 10 mm long, borne by a slender peduncle 25-30 mm long, emerging laterally from the ramicaul; floral bracts thin, 1.5 mm long; pedicels 5 mm long; ovary 1 mm long; **sepals** pale yellow, membranous, glabrous, subcarinate, the dorsal sepal narrowly ovate, concave, acute, attenuate, 8 mm long, 1.75 mm wide, the lateral sepals elliptical, oblique, 7 mm long, 2 mm wide, connate 2 mm, the apices acute, shortly acuminate; **petals** pale yellow, membranous, ovate, oblique-subfalcate, acute, 6 mm long, 1.75 mm wide; **lip** fleshy, elliptical, narrowly obtuse, 3.25 mm long, 1.25 mm wide, the disc shallowly sulcate between an indistinct pair of low, broad calli, the base subtruncate with a small pair of suberect, calli, firmly hinged to the rudimentary column-foot; **column** cucullate, 0.75 mm long and broad, the stigma bilobed, the foot rudimentary.

COLOMBIA: Dept. of Cauca: epiphytic around El Hatice above Popayán, alt. 1400-1700 m, May and June without year, F. C. Lehmann 7090 (Holotype: K), C. Luer illustr. 16397; same area, alt. 1500-1700 m, October without year, F. C. Lehmann s.n. (K).

Plate 84. *Platystele lawessonii* Luer



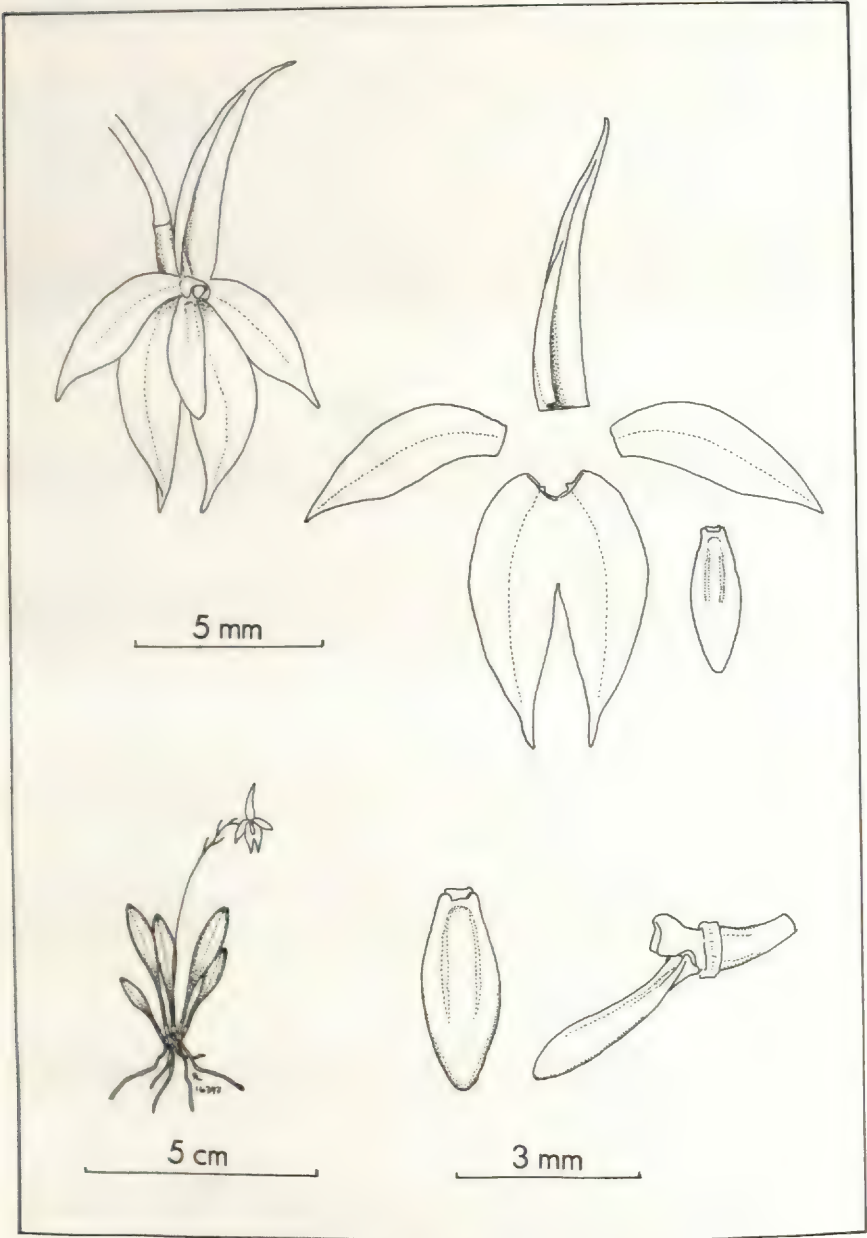


Plate 85. *Platystele lehmannii* Luer

This comparatively large-flowered species was collected twice in the same area of southern Colombia by Consul Lehmann in the last century. It is distinguished by the small habit, narrowly elliptical, petiolate leaves, with the peduncle a little longer. The raceme is loosely and successively flowered. The pale yellow flowers are proportionately large. The dorsal sepal is narrowly ovate and concave; the laterals are oblique and shortly acuminate. The broad, oblique, acute petals are nearly as large as the sepals. The lip is elliptical and shallowly channeled.

***Platystele obtecta* Luer, sp. nov.**

Ety.: From the Latin *obtectus*, "covered," or "hidden," referring to the inflorescence.

*Planta parva foliis ellipticis petiolatis, racemo brevissimo paucifloro in vagina ramicaulis oblecto, pedunculo subnullo, sepalis brevibus concavis, petalis oblongis acutis, labello elliptico glanduloso.*

**Plant** small, epiphytic, densely caespitose; roots slender. Ramicauls erect, abbreviated, slender, 2-6 mm long, enclosed by 2-3 loose, ribbed, tubular sheaths. **Leaf** erect, coriaceous, margined, elliptical, petiolate, 10-20 mm long including a petiole 1.5-3 mm long, 3-7 mm wide, rounded at the apex, cuneate below into the petiole. **Inflorescence** a congested, simultaneously 2 to 3-flowered raceme ca. 2 mm long including the peduncle, emerging laterally from the ramicaul within the sheath; floral bracts thin, 0.3 mm long; pedicels 0.3 mm long; ovary tricarinate, 0.5 mm long; **sepals** thick, concave, glabrous, the dorsal sepal ovate, 1.3 mm long, 0.9 mm wide, 1-veined, with the apex rounded, minutely apiculate, the lateral sepals ovate-triangular, oblique, subacute, subapiculate, 1.3 mm long, 0.7 mm wide, 1-veined, connate at the base; **petals** elliptical-oblong, acute, 2 mm long, 0.5 mm wide; **lip** fleshy, elliptical, 1.2 mm long, 0.6 mm wide, densely cellular papillose, the disc shallowly sulcate, the base subtruncate with a glenion, firmly hinged to the rudimentary column-foot; **column** proportionately large, cucullate, 0.5 mm long and broad, the foot rudimentary.

COSTA RICA: Dept. of Guanacaste: Parque Nacional Guanacaste, Estación Maritza, primary forest, Volcán Orosí, alt. 600 m, 2 July 1989, "INBIO" 149 (Holotype: CR), C. Luer illustr. 16511.

This species is related to the frequent and widely distributed *P. stenostachya* with similarly minute flowers and an elliptical, diffusely glandular lip. *Platystele obtecta* is distinguished by the broader, petiolate leaves, and an extremely abbreviated inflorescence that produces tiny racemes of what appear to have been dark purple flowers. The racemes are hidden within the loose sheaths of the ramicauls that will not be found unless a careful search is carried out.

***Platystele papillosa* Luer, sp. nov.**

Ety.: From the Latin *papillosus*, "papillose," referring to the densely papillose lip.

*Planta mediocris foliis anguste ellipticis petiolatis pedunculo plus minusve aequilongioris, racemo fractiflexo laxo successivifloro, sepalis glabris membranaceis ovatis acutis, petalis anguste triangularibus acutis, et labello elliptico acuto dense papilloso disco leviter canaliculato.*

**Plant** medium in size for the genus, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 10-17 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 15-40 mm long including a petiole 5-20 mm long, the blade narrowly elliptical, subacute to obtuse, 5-8 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, loose, distichous, flexuous, successively flowered raceme up to 7 cm long including the slender peduncle 3-4.5 cm long, emerging laterally from the ramicaul; floral bracts thin, 1.5 mm long; pedicels 2 mm long; ovary 0.75 mm long; **sepals** membranous, glabrous, subcarinate, the dorsal sepal ovate, concave, acute, slightly acuminate, 2.5 mm long, 1.2 mm wide, the lateral sepals ovate, oblique, acute, 2.25 mm long, 1.2 mm wide, connate 0.5 mm; **petals** membranous, narrowly triangular, acute, 2 mm long, 0.5 mm wide; **lip** fleshy, ovate, acute, 2 mm long, 0.6 mm wide, densely papillose above the middle, the disc shallowly sulcate between a pair of low, broad calli, the base subtruncate with a comparatively large glenion, firmly hinged to the rudimentary column-foot; **column** proportionately large, cucullate, 0.75 mm long and broad, the foot rudimentary.

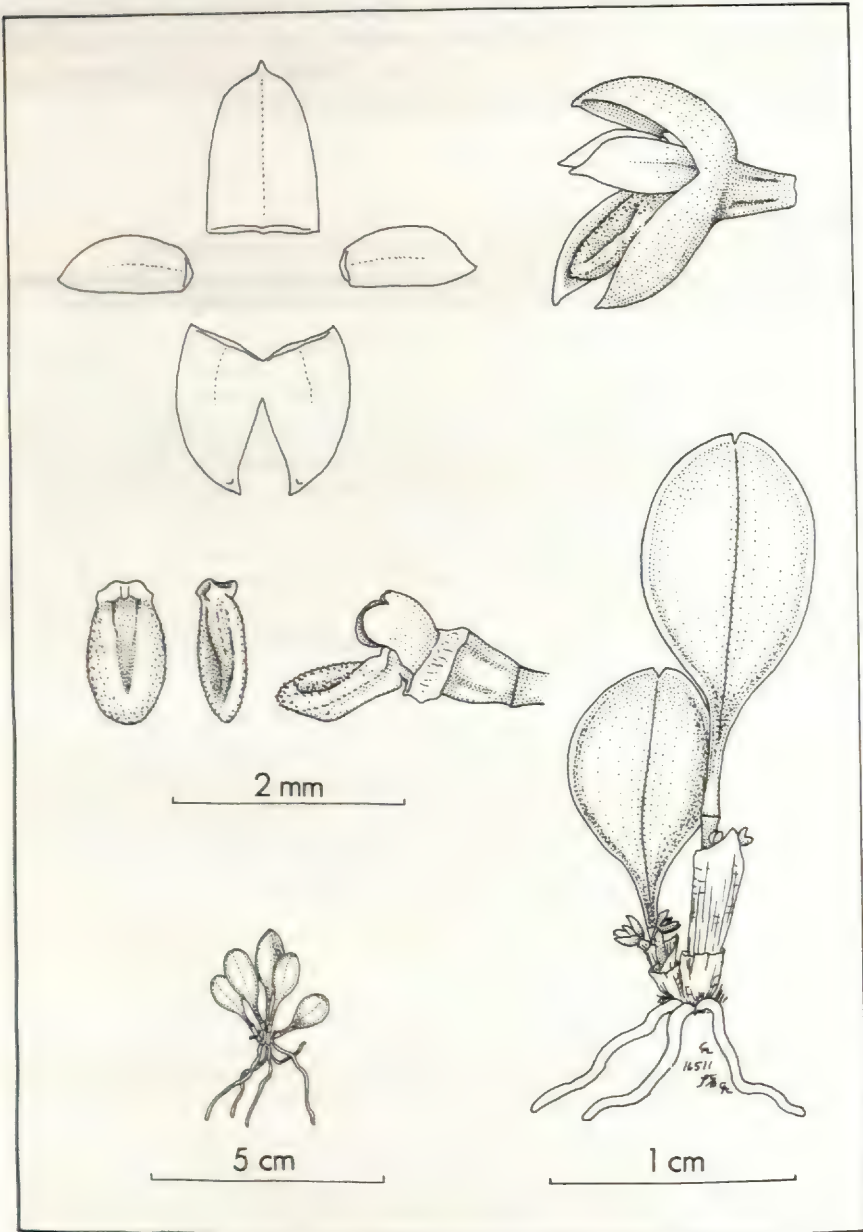
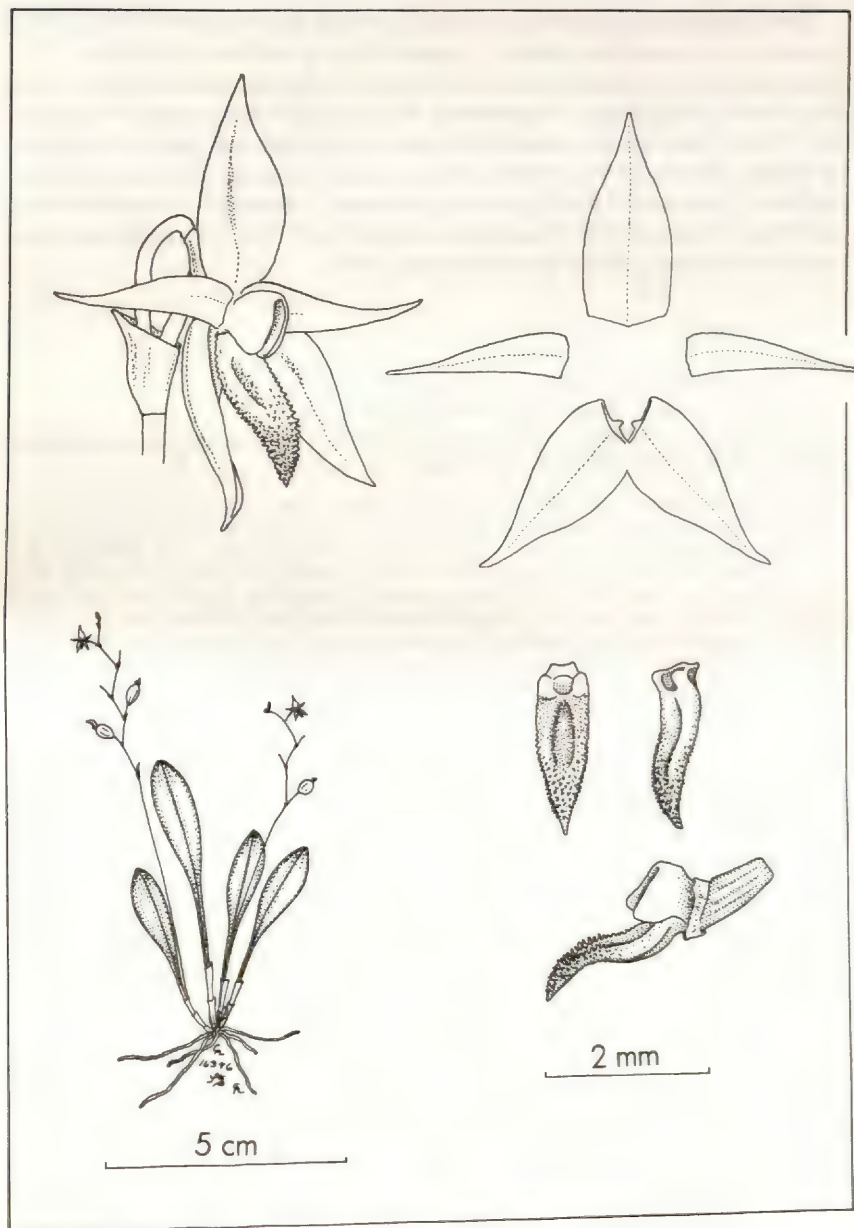


Plate 86. *Platystele obtecta* Luer



Plate 87. *Platystele papillosa* Luer

COLOMBIA: Dept. of Cauca: Páramo de Delicias above Popayán, alt. 3000-3500 m, without date, *F. C. Lehmann s.n.* (Holotype: K), *C. Luer* illustr. 16396; Páramo de Guanacas above Popayan, alt. 3000-3500 m, April-June without year, *F. C. Lehmann 6940A* (K).

This species was discovered by Consul Lehmann in two different but nearby paramos in the nineteenth century. Apparently it has not been recollected. It is distinguished by the medium sized habit, narrowly elliptical, petiolate leaves, with the peduncle a little longer. The raceme is flexuous and loosely successively flowered. The flowers are very small with ovate, acute sepals and narrowly triangular petals. The shallowly channeled lip is ovate, acute and densely cellular-papillose. The colors of the flowers were not stated. Lehmann's second collection cited above was mixed with *Pleurothallis setigera* Lindl. The color notes here seem to apply to the latter, a much larger-flowered species.

***Platystele risaraldae* Luer & Escobar, sp. nov.**

Ety.: Named for department of Risaralda where this species occurs.

Species haec *P. schmidtchenii* Schltr. affinis, sed habitu floribusque minoribus cum sepals petalisque proportione latioribus et labelli base rotundato differt.

**Plant** small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 6 mm long, enclosed by 3 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 30 mm long including a petiole ca. 10 mm long, 6 mm wide, the base narrowly cuneate into the slender petiole. **Inflorescence** a loose, simultaneously few-flowered raceme, up to 45 mm long including the peduncle 10 mm long, from low on the ramicaul; floral bracts 1.5 mm long; pedicels 1-1.5 mm long; ovary 0.5 mm long; **sepals** translucent yellowish, glabrous, but the cells are visible in all floral parts, the dorsal sepal ovate, acute, lightly acuminate, 2.5 mm long, 1 mm wide, the lateral sepals ovate, oblique, acute, lightly acuminate, more or less approximate, 2.75 mm long, connate 1 mm, 1.75 mm wide together; **petals**, oblong-ovate, oblique, acute, 2 mm long, 0.5 mm wide; **lip** thick, fleshy, cellular-glandular, elliptical, obtuse, 1 mm long, 0.6 mm wide, the disc featureless, the base rounded and protuberant beyond the attachment, firmly attached to the obsolescent column-foot; **column** cucullate, 0.5 mm long and wide, the anther, rostellum and stigma apical.

COLOMBIA: Dept. of Risaralda: Pereira, Ucumari, Regional Nature Reserve, epiphytic on oak, alt. 1950 m, 9 Oct. 1992, *A. De Wilde 326* (Holotype: MO), *C. Luer* illustr. 16942.

This species, characterized by a minute raceme of a few simultaneous flowers, is superficially similar to *P. schmidtchenii*, but *P. risaraldae* is considerably smaller in habit and size of the flowers. The sepals and petals are proportionately broader. The lip is fleshy and elliptical with the base convex and protruding beyond the truncate base.

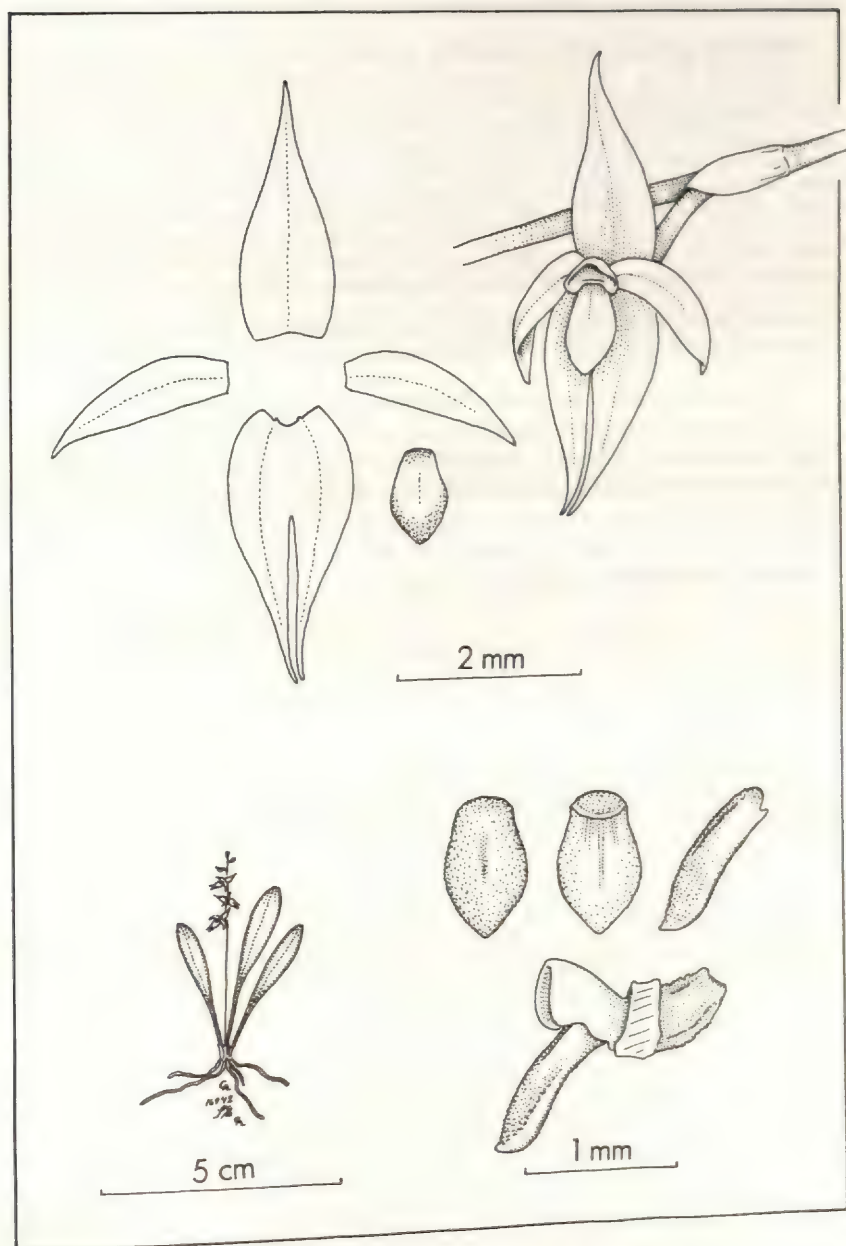


Plate 88. *Platystele risaraldae* Luer & Escobar



**Platystele steyermarkii** Luer, sp. nov.

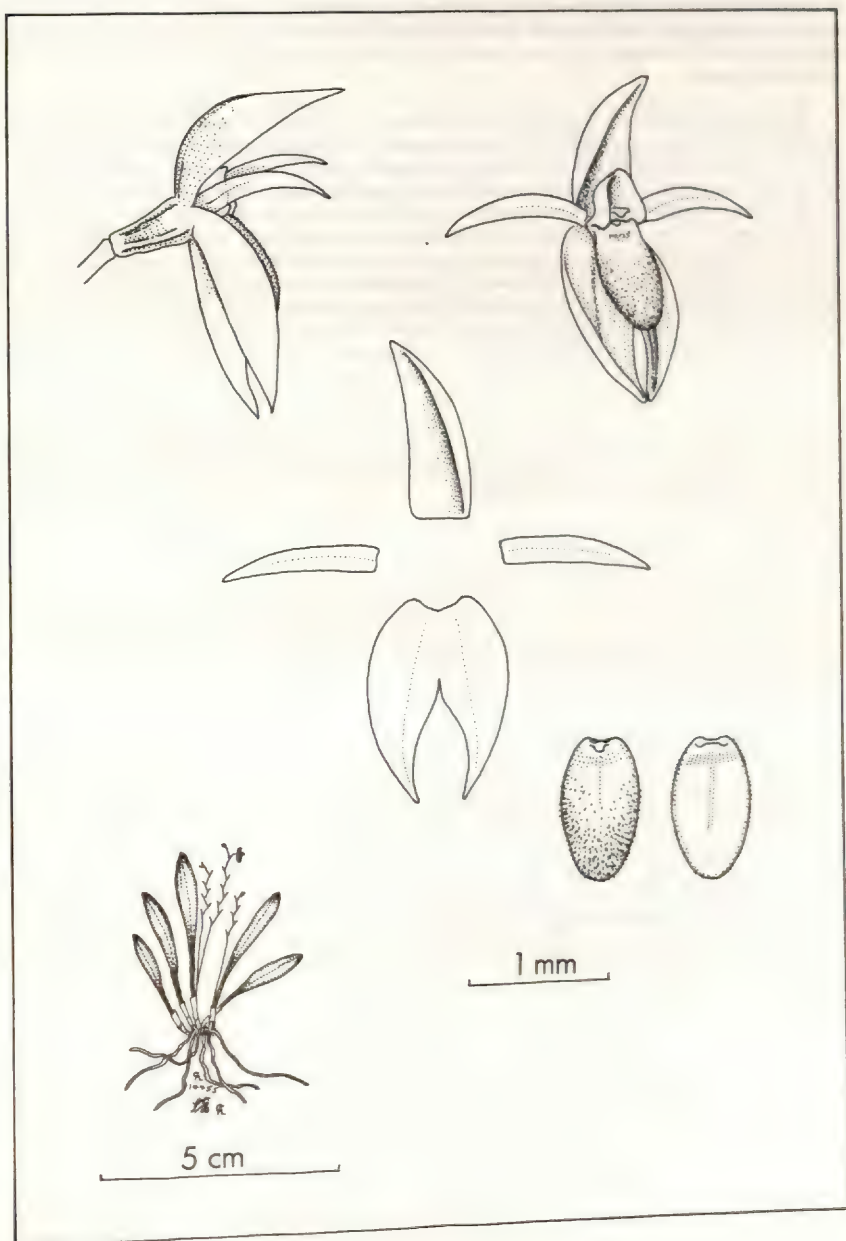
Ety.: Named in honor of Julian A. Steyermark who discovered this species.

Species haec *P. stenostachyae* Rchb.f. affinis, sed ramicaulibus quam foliis proportione brevioribus, inflorescentia racemosa quam foliis plus minusve aequilonga, sepalis acutiset petalis falcatis differt.

**Plant** small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-10 mm long, enclosed by 3 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to obtuse, 15-30 mm long including the petiole 5-10 mm long, 3-5 mm wide, the base narrowly cuneate into the slender petiole. **Inflorescence** a loose, distichous, successively several-flowered raceme, 20-33 mm long including the peduncle 10-15 mm long, from near the apex of the ramicaul; floral bracts 1 mm long; pedicels 1.5-2 mm long; ovary tricarinate, 0.5 mm long; **sepals** yellow, membranous, glabrous, the dorsal sepal ovate, concave, acute, 1.3 mm long, 0.5 mm wide, the lateral sepals ovate, oblique, acute, lightly acuminate, more or less approximate, 1.5 mm long, 0.5 mm wide, connate 0.6 mm; **petals**, narrowly linear-falcate, acute, 1 mm long, 0.15 mm wide; **lip** thick, fleshy, cellular-glandular, ovoid, 1 mm long, 0.6 mm wide, with the apex rounded, the disc featureless, the base subtruncate, firmly attached to the obsolescent column-foot; **column** cucullate, 0.3 mm long and wide, the anther, rostellum and stigma apical.

VENEZUELA: Edo. Sucre: Peninsula de Paria, summit of ridge, alt. 700-900 m, 23 Feb. 1980, J. A. Steyermark, R. Liesner & V. Carreño 121629 (Holotype: MO; Isotype: VEN), C. Luer illustr. 14455.

This species, known only from a Venezuelan collection by Steyermark, is most closely allied to *P. stenostachya*, but *P. steyermarkii* is distinguished by the ramicauls proportionately shorter in relationship to the leaves; a loose, flexuous raceme of successive flowers that eventually surpasses the leaf; acute sepals; and narrowly linear petals. The lips of the two species are similar. The racemes of *P. stenostachya* are short and very congested, and never surpass the leaf in length. The sepals are obtuse and the petals are not linear.

Plate 89. *Platystele steyermarkii* Luer

***Porroglossum tokachii* Luer, sp. nov.**

Ety.: Named in honor of Kenneth Tokach of Tacoma, WA, who discovered this species.

Planta mediocris caespitosa, pedunculo erecto folio subverrucoso petiolato longiore, flore mediocri resupinato flavo glabro, sepalo dorsali obovato concavo cum cauda brevi crassissima, sepalis lateralibus transverse oblongis cum caudis brevibus crassissimis, petalis subovatis subclavatis infra medium oblique oblongis, lamina labelli triangulari cuneata truncata sulcata angulis lateralibus obtusis ciliatis callo basali longitudinali humili.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 10-15 mm long, enclosed by 2-3 tubular sheaths. Leaf erect to suberect, rigidly coriaceous, subverrucose, petiolate, 12-23 mm long including the blackish petiole 10-18 mm long, the blade elliptical, obtuse to rounded, 5-15 mm wide, the base cuneate into the petiole. Inflorescence a successively few-flowered raceme, borne by an erect, smooth, slender peduncle 8 cm long, with 3 closely applied, distant bracts, from low on the ramicaul; floral bracts tubular, imbricating, 5 mm long; pedicel 6 mm long; ovary 3 mm long; sepals yellow, glabrous, the blade of the dorsal sepal obovate, deeply concave, 5 mm long, 3 mm wide unexpanded, connate to the lateral sepals for 3 mm, the obtuse apex contracted into thick tail 2 mm long, 1 mm thick, the lateral sepals transversely oblong, 2.5 mm long, 6 mm wide, connate to each other 2.5 mm behind the free apex of the column-foot, the broadly obtuse apices contracted into thick tails 4 mm long; petals yellow, subovate-oblong, curved, 4 mm long, 0.5 mm wide above the middle, 1.25 mm wide below the middle, the apex thickened, subclavate, rounded, dilated with obtusely angled margins below the middle; lip yellow, the blade triangular, red-brown centrally, concave, cuneate, truncate, 5 mm long, 3 mm wide, the lateral angles obtuse, ciliate, the apex a short, obtuse, sulcate apiculum, arcuate below the middle with a low, longitudinal callus, callus, with a straplike claw bent with tension around the free apex of the column-foot; column stout, semiterete, 1.5 mm long, the foot 4.5 mm long, the stigma with a pair of pointed processes.

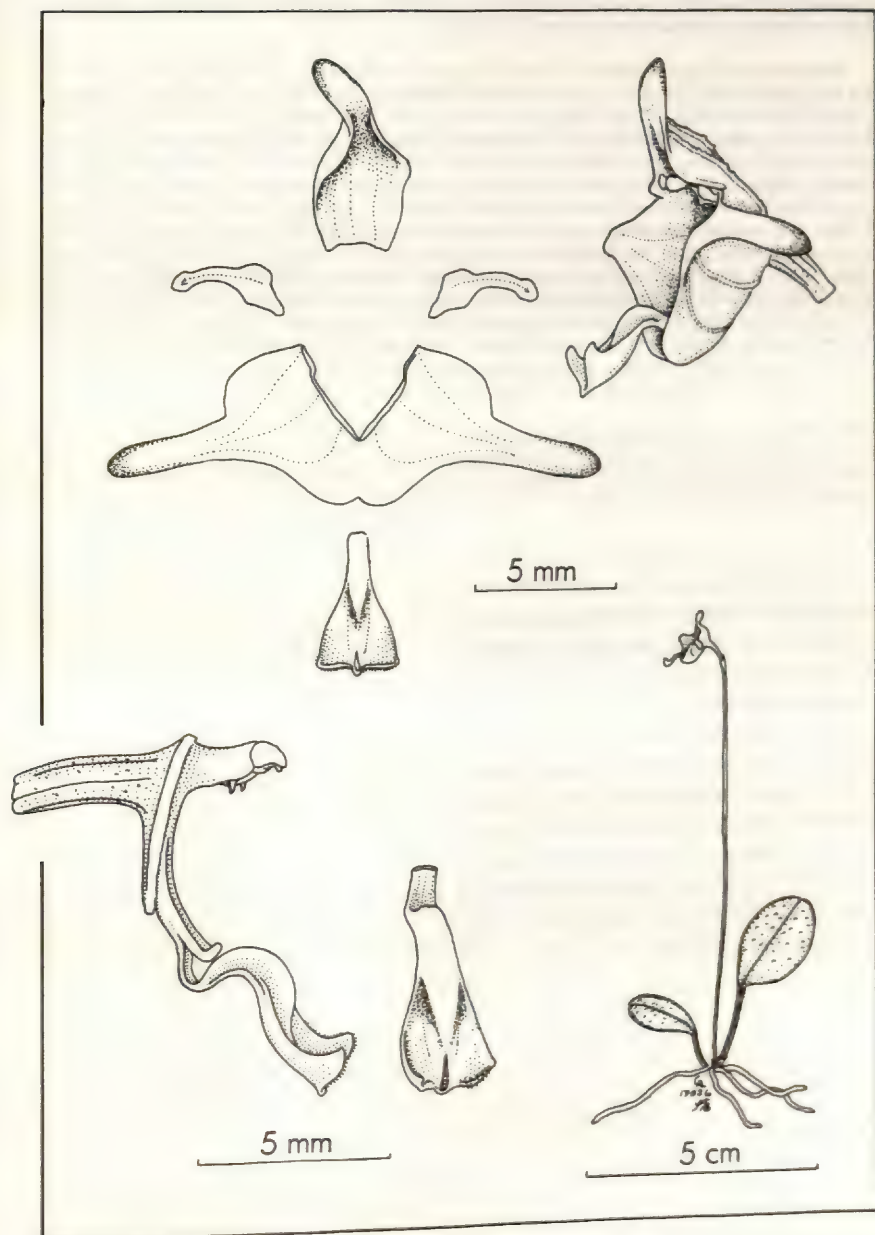
PERU: Dept. of Amazonas: epiphytic near Pomacochas, alt. ca. 2000 m, collected by Kenneth Tokach, Feb. 1993, flowered in cultivation in Tacoma, WA, C. Luer 17036 (Holotype: MO).

This species is distinguished by the small, spatulate, subverrucose leaves far surpassed by the slender peduncle that bears a succession of yellow, resupinate flowers. The sepaline tails are short and thick, the petals are narrow above the middle and subclavate, and the blade of the lip is triangular and concave.

*Porroglossum tokachii* is most similar to *P. dalstroemii*, but the former is distinguished by the short, broad leaves, the non-rotated ovary, and the low, longitudinal labellar callus.





Plate 35. *Porroglossum tokachii* Luer

***Trisetella dalstroemii* Luer, sp. nov.**

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

Species haec *Trisetellae vittatae* Luer affinis sed habitu majore, foliis anguste obovatis pedunculo gracili brevioribus, ovario cristato, sepalis purpureis non-vittatis cum caudis ter longioribus sepalis lateralibus proportionem majoribus supra medium liberis differt.

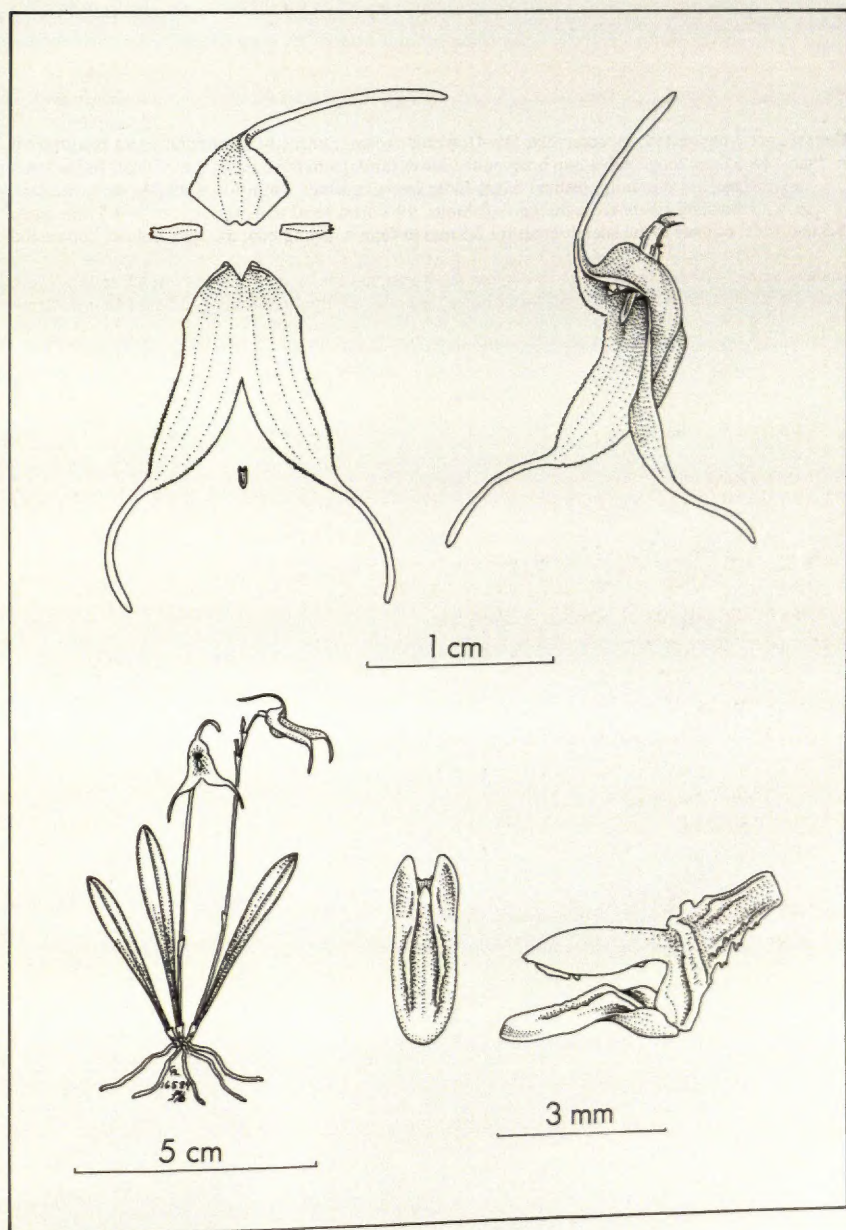
**Plant** large for the genus, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 5-7 mm long, enclosed by 2 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute to obtuse, 30-40 mm long, 6-7 mm wide, narrowed below into an ill-defined petiole 5-8 mm long. **In-florescence** a congested, successively, few-flowered raceme, borne by a slender, erect to suberect peduncle 45-55 mm long, with a thin bract on the lower third, from the base of a ramicaul; floral bract tubular, oblique, 3-4 mm long; pedicel 6 mm long; ovary crested, 2 mm long; **sepals** membranous, purple, with minutely ciliate-erose margins, glabrous, the dorsal sepal transversely ovate, 4.5 mm long, 5.5 mm wide, connate to the lateral sepals for 2.5 mm to form a gaping cup, the apex obtuse, contracted into a reflexed, stout, yellow tail, slightly thicker in the distal half, 10 mm long, the lateral sepals oblong, oblique, acute, 9-10 mm long, 2.5 mm wide, connate 4 mm, the apices contracted into thick tails 6-7 mm long; **petals** white with red-purple midvein, oblong, truncate, obscurely tridentate, 2.5 mm long, 0.8 mm wide, the labellar margin slightly swollen; **lip** purple, thick, elliptical-oblong, 3.5 mm long, 1 mm wide, the apex rounded, the disc with a low pair of irregular, longitudinal calli in the middle third, the margins above the base broadly rounded, erect, the base hinged within the cleft; **column** white, suffused with purple, semiterete, 2.5 mm long, the foot 1.5 mm long, laterally compressed.

ECUADOR: Prov. of Imbabura: epiphytic in wet forest, Los Cedros Reserve, alt. 2100 m, 26 Jan. 1993, S. Dalström, T. Höijer & H. Wanstorp 1769 (Holotype: MO), C. Luer illustr. 16584.

This species is related to the smaller *T. vittata* which also occurs on the western slopes of the Andes of northern Ecuador. Because of the much larger size, a plant of *T. dalstroemii* superficially resembles a small *Masdevallia*.

From the other species of the *Trisetella*, it is distinguished by the large, broad leaves, and comparatively large flowers that bear spreading, thickly tailed sepals. From *T. vittata* it is distinguished by the larger habit; purple, non-striped flowers with thrice longer tails; and proportionately larger lateral sepals.

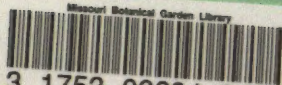


Plate 26. *Trisetella dalstroemii* Luer





Missouri Botanical Garden Library



3 1753 00204 3153



