

ICONES PLEUROTHALLIDINARUM
(ORCHIDACEAE)
PLEUROTHALLIS OF ECUADOR III

C. A. Luer*

Pleurothallis abbreviata Schltr., Repert. Spec. Nov. Regni Veg. 10:352. 1912.

Pleurothallis caudatipetala C. Schweinf., Bot. Mus. Leafl. 10:175, t. 22. 1942.

Plant very small, epiphytic, caespitose; roots slender, flexuous. Secondary stem abbreviated, 1-3 mm long, with 1-2 short, ribbed sheaths, unifoliate. Leaf coriaceous, obovate-spatulate, obtuse to subacute, tridenticulate, marginate, base narrowly cuneate into a channeled petiole, 6-12 (including the petiole, 3-4 mm) \times 3-5 mm. Inflorescence a very slender fractiflex raceme to 5 cm long, flowering singly and successively, up to 9 wine-red flowers; peduncle filiform, from a node on the secondary stem; floral bract and pedicel each about 1 mm long; ovary 0.75 mm long; dorsal sepal rosy red-brown, narrowly elliptical or oblong, acute, 4 \times 1.5 mm, 3-veined; lateral sepals united into an elliptical lamina, apex bidentate, acute, base gibbous, 3.5 \times 2 mm, with 2 prominent veins externally, very sparsely pubescent; petals ovate-obovate, oblique, white, apex acuminate, red-brown, 2.5 \times 1 mm; lip maroon, oblong-pandurate, 1.75 \times 0.75 mm, margins minutely ciliate, apex rounded, convex, slightly retuse, margins revolute, margins erect below the middle, base biauriculate and minutely unguiculate, base of the disc with a pair of thickened incurved teeth extending into a pair of central lamellae with a cleft between; column green suffused with purple, terete, clinandrium denticulate, 1.5 mm long, with a short foot.

ETYMOLOGY: From the Latin *abbreviatus*, "shortened," in reference to the very short secondary stems.

TYPE: GUATEMALA: ALTA VERAPAZ: epiphytic by Coban, alt. 4400 ft., Nov. 1877, *Von Tuerckheim 10*.

DISTRIBUTION: Guatemala, Ecuador, and Peru.

ECUADOR: PICHINCHA: epiphytic in a mossy tree near km 80 between Quito and Santo Domingo, alt. 1500 m, 17 Aug. 1975, *Dodson 5957 (SEL)*.

Prior to this report, *Pleurothallis abbreviata* was considered to be rare and endemic in Guatemala where it had been collected and identified only a very few times. Schweinfurth described the plant from Peru as *P. caudatipetala*. The illustration suggests that the inflorescence is fasciculate, but the description is to the contrary. A minute flowering plant answering the descriptions of the above two concepts was collected recently by Dodson on the western slopes of the Ecuadorian Andes. Whether or not these discoveries represent truly disjunct distributions is difficult to declare. The plant is very small and could very well be overlooked or identified with some other species in the long stretches of intervening tropical America. A surprisingly large number of species, previously reported from distant geographical areas, have been recently discovered in Ecuador.

To the naked eye the plant and its reddish purple flowers appear very similar to those of *P. barbulata* Lindl., but the racemose inflorescence, instead of fasciculate, immediately distinguishes it. Microscopically the distinctive characteristics of the petals and lip are readily visible. The petals

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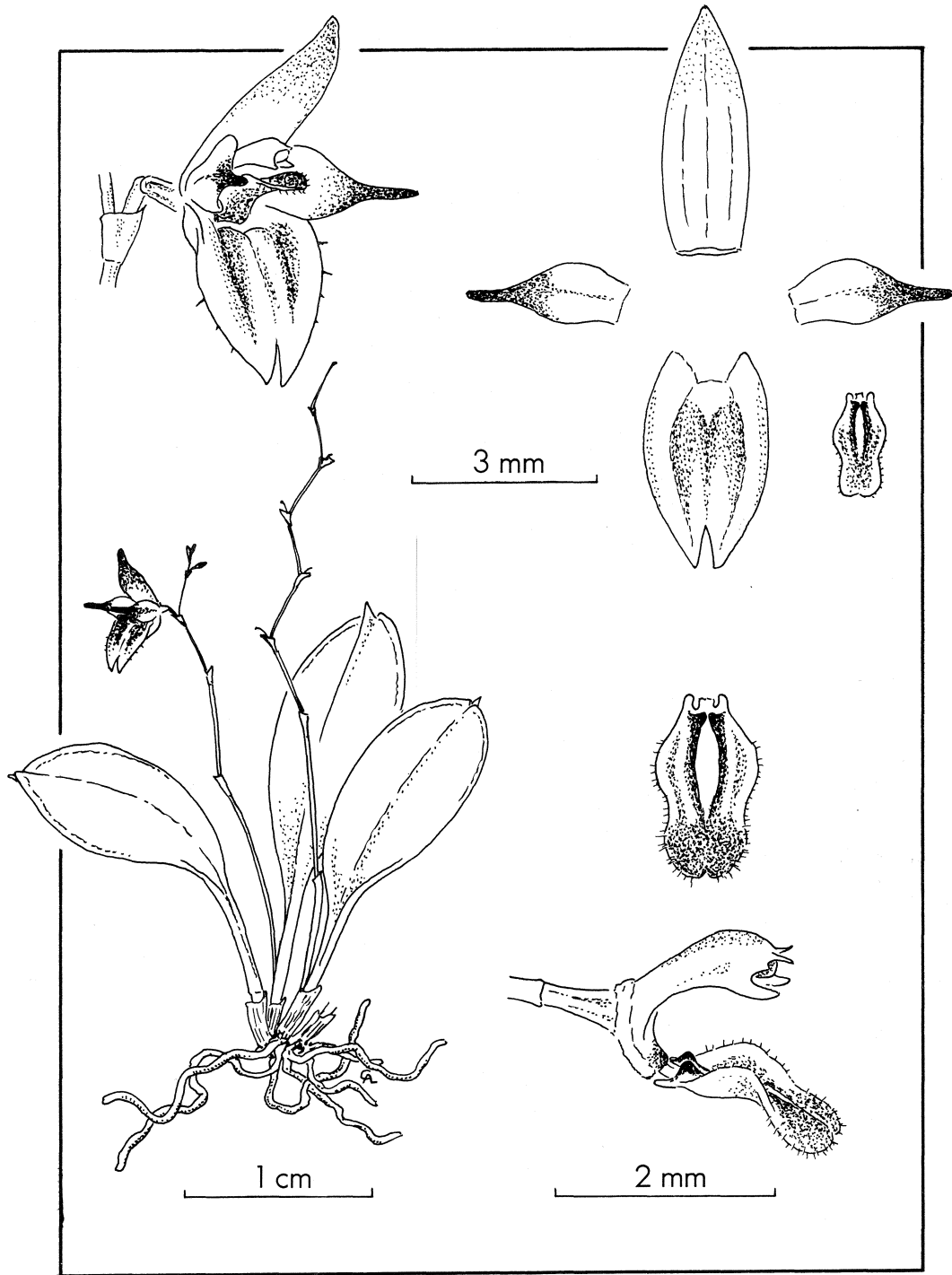


Figure 45. PLEUROTHALLIS ABBREVIATA Schltr.

are glabrous with caudate apices; the minutely ciliated lip, rounded, convex and slightly retuse apically, has a pair of lobules at the base and a pair of teeth above which taper into a pair of parallel lamellae.

Pleurothallis acanthodes Luer, sp. nov.

Planta pusilla caespitosa epiphytica, caulibus secundariis abbreviatis unifoliatis, foliis late ellipticis marginatis obtusis tridenticulatis breviter petiolatis, pedunculo capillari folio longiore, floribus fasciculatis successivis, sepalis translucidis flavovirentibus purpureo variegatis carinis aculeatis, sepalo dorsali late oblongo apice subacuto crasso, sepalis lateralibus supra medium connatis marginibus crassis inflexis, petalis spatulatis subacutis, labello oblongo apice rotundato denticulato base auriculata, lobis lateralibus parvis late triangularibus, disco canaliculato.

Plant very small, caespitose, epiphytic; roots filiform, flexuous. Secondary stems abbreviated, terete, 2-3 mm long, clothed by 1-2 loose, thin, ribbed sheaths, unifoliate. Leaf broadly elliptical to semi-orbicular, marginate, apex obtuse to rounded, tridentate, base broadly cuneate into a short petiole, 6-10 mm long including the petiole, 4-6 mm wide. Inflorescence a fascicle of singly produced flowers from the apex of a filiform, glabrous peduncle, about 2 cm long, from a node on the secondary stem; floral bract about 3 mm long, glabrous; pedicel 3-4 mm long glabrous; ovary red, verruculose, 2 mm long; sepals fleshy, translucent yellow-green with purple markings, glabrous within, verruculose externally, the margins scabrous, carinate, the carinae erose or prickly; dorsal sepal oblong, subacute, 4 × 2 mm, tricarinate; lateral sepals connate to above the middle, oblong, subacute, 3.5 × 2 mm together, bicarinate, the lateral margins lightly pubescent, thickened and grooved above the middle; petals translucent yellow-brown, spatulate, the labellar margin ventricose, 2 × 1 mm; lip fleshy, red to orange, microscopically verruculose, oblong, 2.5 × 1 mm, apex rounded, convex, the margins denticulate, with a pair of small, broadly triangular lateral lobes just below the middle, base membranous with a minute auricle to either side of the attachment to the column-foot, disc channeled with the sides more or less folded inward; column orange, terete, 2 mm long, clinandrium denticulate, with a prominent foot 1 mm long.

ETYMOLOGY: From the Greek *acanthodes*, "prickly," referring to the external appearance of the flowers.

TYPE: ECUADOR: NAPO: epiphytic about 15 km west of Tena, alt. 600 m, 26 July 1975, C. Luer, G. Luer & Wilhelm 475 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

This minute species was one of many which were collected from the mossy twigs near the tops of felled trees west of Tena. The hair-like peduncle bears a fascicle of old pedicels a short distance above the tuft of little rounded leaves. The flowers are produced singly at intervals. At a distance, the flowers appear reddish, but upon close inspection the sepals are found to be yellow-green marked with purple, and the red color of the lip can be seen shining through. Externally the flower appears prickly, not only due to the scabrous margins of the fleshy sepals and ovary, but also due to the erose edges of the prominent carinae. An unusual characteristic of the lateral sepals is the thickened, grooved sides above the middle, which, when held together in the natural position, create a central trough to accommodate the lip.

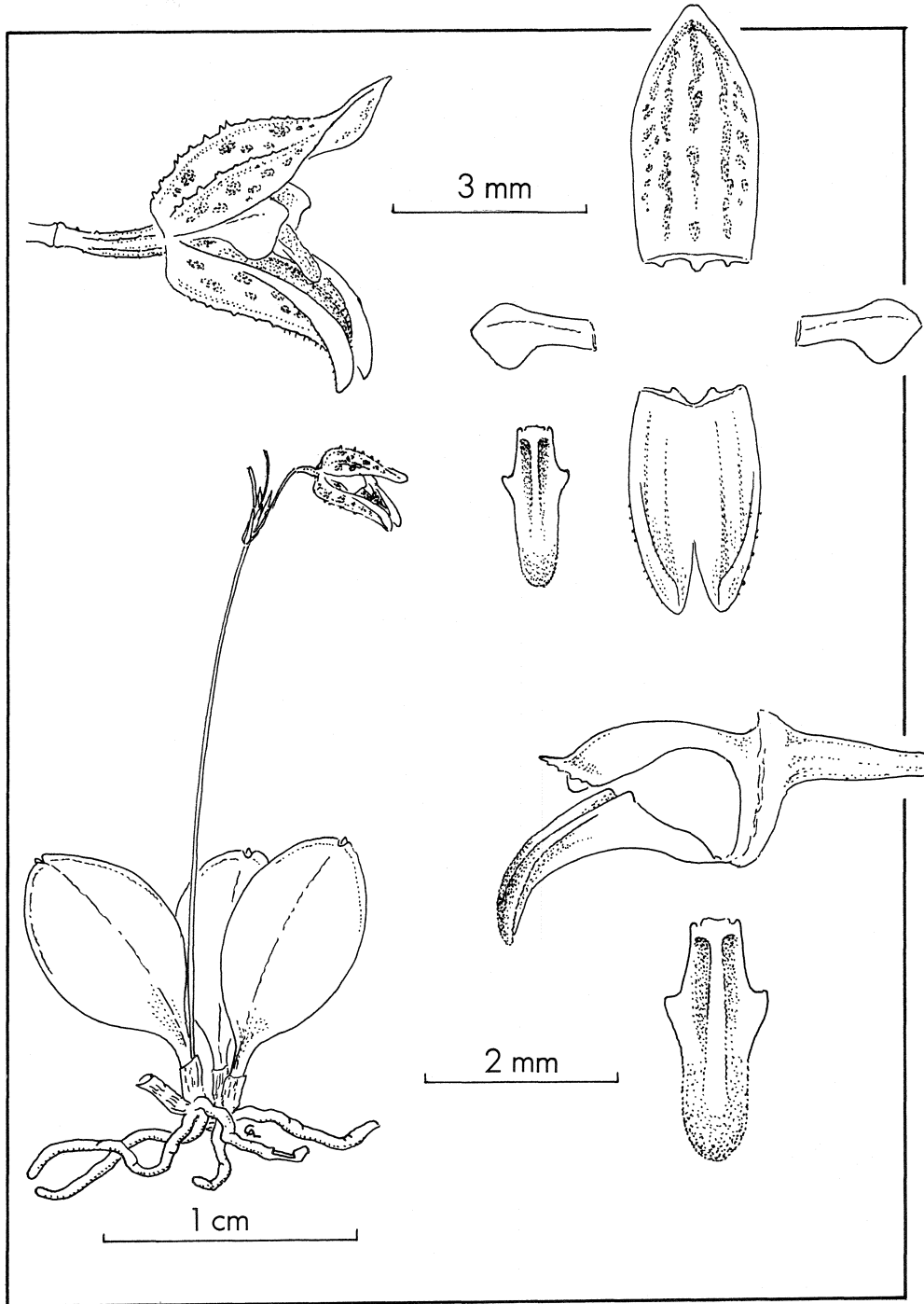


Figure 46. *PLEUROTHALLIS ACANTHODES* Luer

***Pleurothallis aestrophylla* Luer, sp. nov.**

Planta perparva epiphytica caespitosa, caulibus secundariis filiformibus teretibus declinatis unifoliatis, folio anguste lineari acuto, floribus solitariis successivis bilabiatis atropurpureis pusillis, sepalo dorsali et synsepalo ellipticis obtusis, petalis anguste linearibus, labello oblongo obtuso.

Plant very small, epiphytic, caespitose; roots filamentous, flexuous. Secondary stem filiform, terete, declining, 1-7 cm long, with 2 tubular sheaths on the lower third, monophyllous. Leaf long, linear, narrow, fleshy, subterete to conduplicate, acute, tridenticulate, base very narrowly cuneate, sessile, 4-7 cm \times 3-5 mm. Inflorescence single-flowered, fasciculate, red-purple, from a 5 mm spathe at the base of the leaf; floral bract about 3 mm long; pedicel about 4 mm long; ovary 2 mm long; dorsal sepal elliptic, subacute to obtuse, 3.5 \times 2 mm, 3-veined; lateral sepals united into a broadly ovate synsepal, obtuse, 3 \times 2.5 mm, 4-veined; petals dark red, linear, acute, 2.5 \times 0.5 mm, 1-veined; lip oblong-ovate, obtuse to rounded, broadly hinged to the base of the column, margin microscopically erose below the middle, disc plain, 2.25 \times 1.5 mm; column 1 \times 1 mm, with an obsolescent foot.

ETYMOLOGY: From the Greek *acestra*, "a darning needle," and *phyllon*, "leaf," in allusion to the slender, needle-like leaf.

TYPE: *ECUADOR*: PASTAZA: epiphytic in the environs of Puyo, alt. 750 m, 29 July 1975, C. Luer, G. Luer & Wilhelm 485 (HOLOTYPE: SEL); TUNGURAHUA: epiphytic near Rio Negro, alt. 1200 m, 4 March 1963, Dodson & Thien 2320 (SEL).

DISTRIBUTION: Ecuador.

Pleurothallis aestrophylla is a frail little species with stems like soft wire. With the weight of the slender leaves the stems bend and droop from their point of origin. The tiny clustered stems grow on the mossy trunks of trees in the rain forest in the region of the Pastaza River in the Oriente of Ecuador where they are probably endemic.

The needle-like leaves, at least as long as their supporting stems, are very narrow, but thick and centrally channeled. They resemble a grooved director, a simple little instrument used in surgery. The small purple flowers, which are produced singly, perch wide openly upon the base of the leaf.

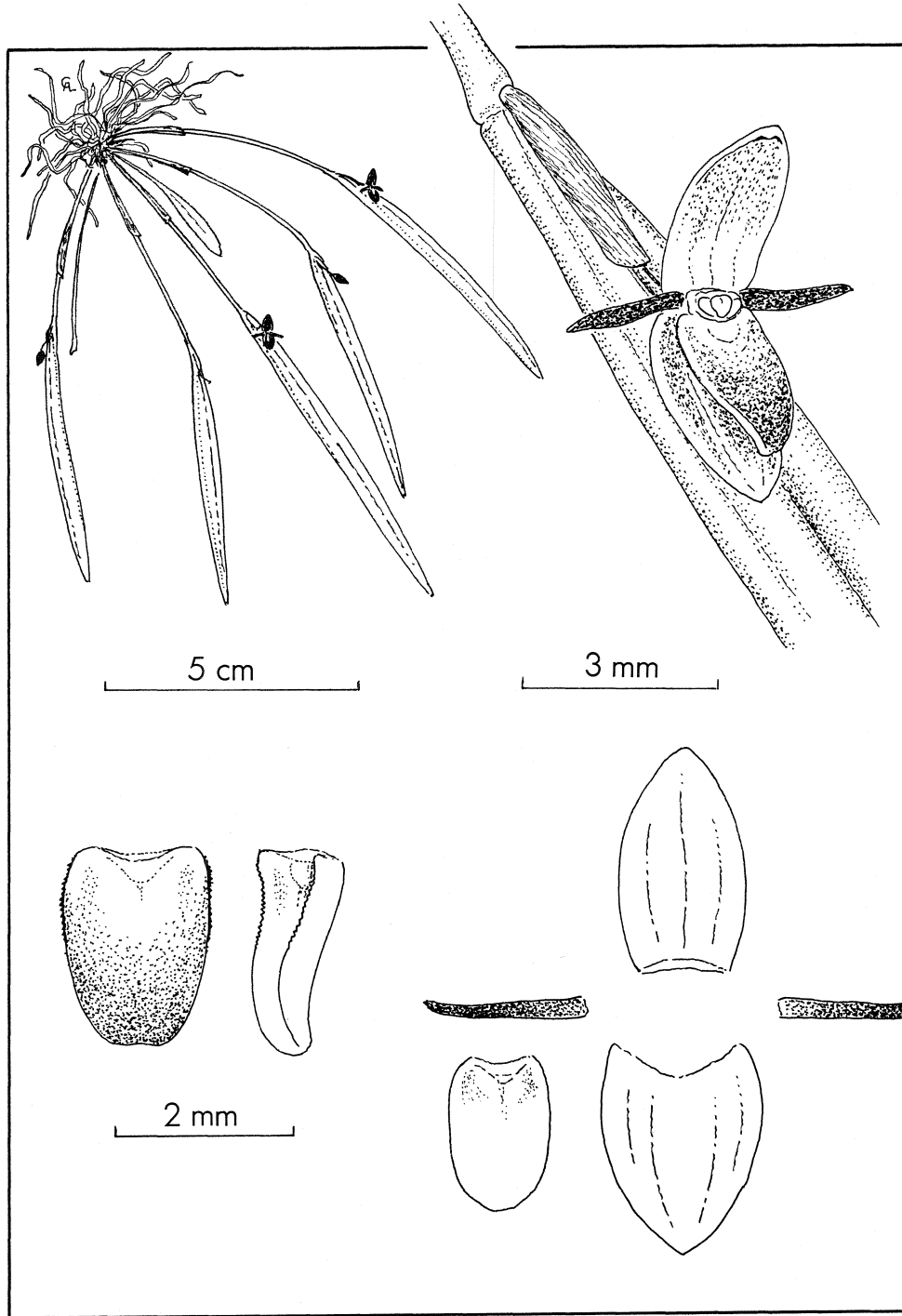


Figure 47. PLEUROTHALLIS ACESTROPHYLLA Luer

Pleurothallis affinis Lindl., Companion Bot. Mag. 2:354. 1830.

Pleurothallis rigidifolia Rchb.f., Bonplandia 3:224. 1855.

Humboldtia affinis (Lindl.) O. Ktze., Rev. Gen. Pl. 2:667. 1891.

Humboldtia rigidifolia (Rchb.f.) O. Ktze., l. c. 2:668. 1891.

Plant epiphytic, medium to large, caespitose; roots numerous, flexuous. Secondary stem 25-50 cm tall, largely concealed by 6-10 snug tubular sheaths, pubescent below, unifoliate. Leaf erect, coriaceous, narrowly elliptic, apex acuminate, tridentate, base cuneate, channeled, subsessile, 12-25 × 2.2-6 cm. Inflorescence a dense fascicle of numerous single flowers from the base of the leaf; flowers yellow-green to white, more or less pubescent externally, on slender peduncles 10-15 mm long; floral bract 3-4 mm long, tubular, scabrous; pedicel 3 mm long; ovary about 2 mm long, densely pubescent to nearly glabrous; dorsal sepal ovate, acute to obtuse, 8-12 × 2.5-3.5 mm; lateral sepals free to near the base, together forming a mentum, ovate, oblique, subacute, 8-11 × 2-3 mm; petals ovate basally, apex produced into a linear thickened portion with the margins microscopically papular-erose to sparsely pubescent, 8-12 × 2-3 mm; lip ovate-oblong, apex obtuse, finely erose, 2-3 × 1 mm, disc with a pair of low longitudinal calli which also may be finely erose, base shortly unguiculate; column stout, 2 mm long with a distinct pair of apical teeth and a foot 1.5 mm long.

ETYMOLOGY: From the Latin *affinis*, "neighboring," or "allied to," referring to its similarity to *Pleurothallis poeppigii* Lindl.

TYPE: PERU: Matthews 1899 (HOLOTYPE: K)

DISTRIBUTION: Venezuela, Ecuador, Peru, and most likely Colombia.

ECUADOR: PICHINCHA: terrestrial along the roadside between Quito and Santo Domingo, near km 87, alt. 1500 m, 15 June 1967, Dodson, Williams & Adams 3752 (SEL); same area, F L Stevenson 1-2575-4 and 1-2675-7 (SEL), both flowered in cult. Jan. 1975; PASTAZA: epiphytic 20 km east of Puyo, alt. 500 m, 27 July 1975, C. Luer, G. Luer & Wilhelm 482 (SEL).

Vegetatively *Pleurothallis affinis* is very similar to *P. peduncularis* Lindl. and *P. poeppigii* Lindl., and also the flowers are borne singly in dense glomerate aggregations at the base of the leaf. The flowers themselves, however, are distinctive from the latter two. *Pleurothallis peduncularis* is easily recognized by its attenuated sepals and petals; *P. poeppigii* is easily recognized by its large engulfing floral bracts.

Two forms of this species are cultivated by F L Stevenson of Chamblee, Georgia. One has yellowish flowers with broad obtuse sepals. The other has white flowers with narrower sepals, but the sepals of neither are long-attenuate as in *P. peduncularis*. The ovary of the first mentioned form is covered with a dense mat of red hairs; the ovary of the second is only microscopically scabrous. These features seem to be merely degrees of variable characteristics, insufficient for specific differentiation. In both forms the petals above the middle are linear, thickened and semi-terete; the pubescence may be clavellate. The simple lips have a pair of lamellae. A well developed pair of teeth project from below the apex of the column.

Plants described under *P. rigidifolia* Rchb.f., in Schweinfurth's *Orchids of Peru* are referable to *P. peduncularis*.

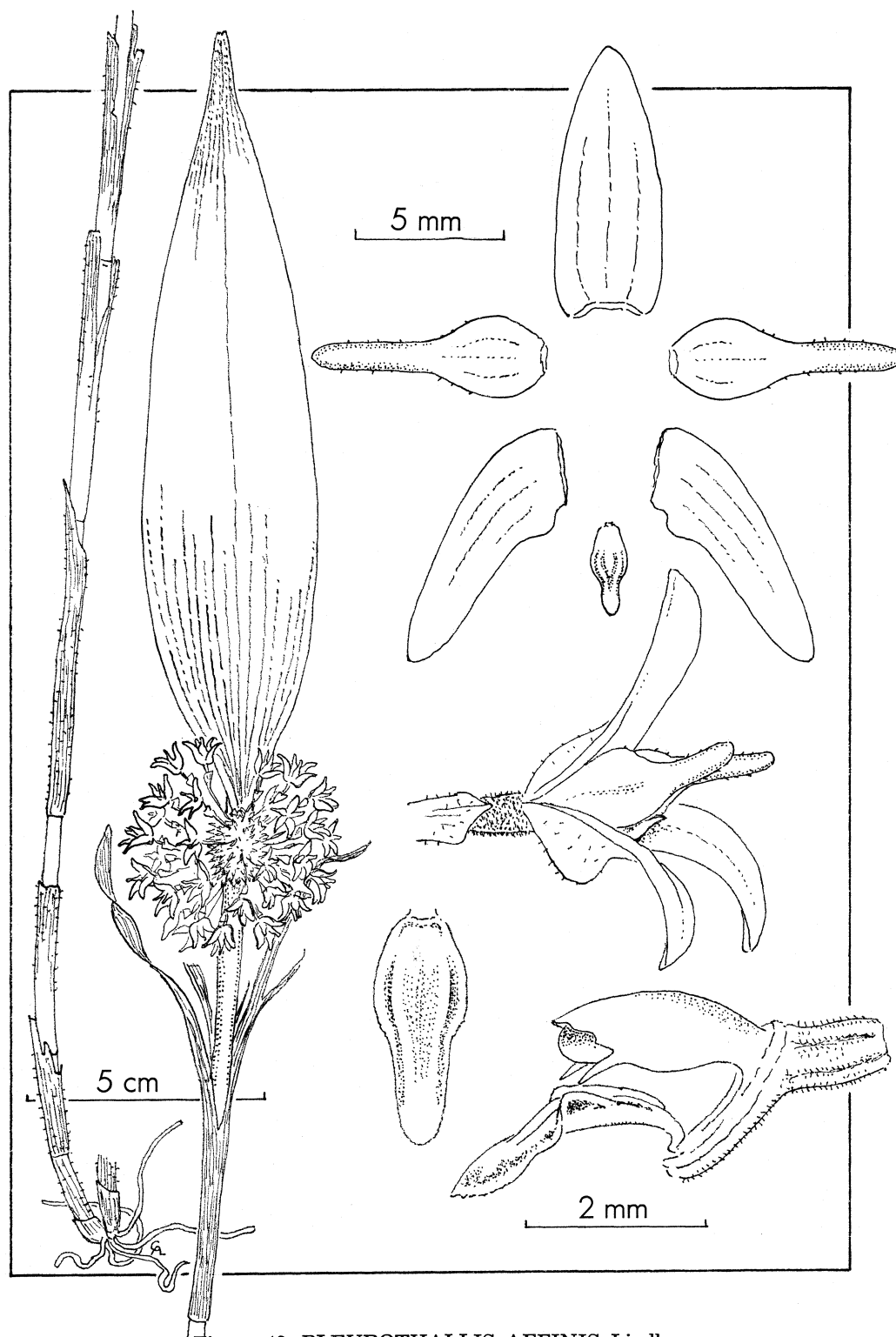


Figure 48. PLEUROTHALLIS AFFINIS Lindl.

Pleurothallis antennifera Lindl., Folia Orchid. Pleuroth. 30. 1859.

Pleurothallis incurva Lindl., Folia Orchid. Pleuroth. 30. 1859.

Humboldtia antennifera (Lindl.) O. Ktze., Rev. Gen. Pl. 2:667. 1859.

Humboldtia incurva (Lindl.) O. Ktze., l. c. 2:667. 1859.

Pleurothallis genychila Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9:94. 1921.

Plant epiphytic to terrestrial, medium to large in size, repent: roots fasciculate, slender, flexuous. Secondary stems stout to slender, terete, to 45 cm long, with a tubular sheath above the middle and 1-2 others below the middle, unifoliolate. Leaf coriaceous, narrowly ovate to fusiform, acute, tridentate, base narrowly cuneate, sessile, 7-18 × 1.5-3 cm. Inflorescence 1-4 densely many-flowered racemes as long as, to longer than the leaf; peduncles from a 0.8-2 cm spathe in the axil of the leaf; flowers yellow-green, bilabiate; floral bract infundibular, about 4 mm long; pedicel about 4 mm long; ovary about 2.5 mm long; dorsal sepal ovate, acute to acuminate, concave, 6-7 × 2-3 mm, 3-nerved; lateral sepals united to the apex into a broadly ovate, deeply concave synsepal, acute, 7 × 5-6 mm, 6-nerved; petals linear, attenuate, thickened, semi-terete, 6 × 0.3-0.8 mm; lip fleshy, green, often spotted with purple, 3-lobed, deflexed from the attachment to the column-foot, mid-lobe slightly concave, broadly ovate to rounded and apiculate, the margins irregular to finely erose, lateral lobes broadly falcate with the apices variable, from blunt to acute, curved forward in the natural position, 1.5-2.25 mm long and 3-5 mm across spread out; column stout, 1.5 mm long, with a very short foot.

ETYMOLOGY: From the Latin *antenna* and *fero, ferre*, "to bear," hence "antenna-bearing," probably in allusion to the protruding, slender, terete petals.

TYPE: ECUADOR: PICHINCHA: "ravines of Pichincha," Jameson s.n. (HOLOTYPE: K).

DISTRIBUTION: Venezuela, Colombia, Ecuador, and Peru.

ECUADOR: PICHINCHA: terrestrial on a road cut about 2 km from the summit between Quito and Santo Domingo, alt. 3200 m, 15 Aug. 1975, C. Luer, G. Luer & Wilhelm 575 (SEL); TUNGURAHUA: terrestrial on old lava fields near Juivi, northeast slope of Volcan Tunguragua, alt. 2400 m, 7 Jan. 1962, Dodson & Thien 1828, 1889 (SEL); terrestrial in Valle de Chaupe, alt. 2200 m, 24 July 1975, C. Luer, G. Luer & Wilhelm 424 (SEL).

Widely distributed in the Andes, *Pleurothallis antennifera* is a variable species related to *P. revoluta* (Ruiz & Pav.) Garay and *P. brachiata* Luer, and more or less intermediate between the two. All three species produce a few, long, many-flowered racemes. The leaves of *P. antennifera* are narrower than those of *P. revoluta* and the flowers are a little larger. Flowering plants are indistinguishable from those of *P. brachiata* unless the minute lips are examined under a strong glass.

The flowers of the three species are basically very similar: an ovate, acute dorsal sepal, a boat-shaped synsepal with a mentum below the lip, narrow, thickened petals, and a minute lip deflexed below the column. The petals of *P. revoluta* are commonly widened above the middle, but they are linear and semi-terete in the other two species. The lip of *P. antennifera* is distinctly three-lobed, the side lobes broadly falcate, more or less acute but frequently obtuse to rounded in the same population, and curved forward in the natural position. In *P. brachiata* the lateral lobes are reduced to terete basal arms.

Pleurothallis brachiata Luer, sp. nov.

Herba epiphytica caespitosa mediocris, caulibus secundariis tenuibus teretibus erectis, foliis anguste ellipticis fusiformibus sessilibus, racemis paucis gracilibus dense multifloris folium equantibus, floribus luteis bilabiatibus, sepalo dorsali ovato acuto, synsepalo acuto profunde cymbiformi, petalis linearibus carnosius teretibus, labello deflexo ovato apiculato basi brachiata.

Plant epiphytic to terrestrial, large to medium in size, shortly repent to caespitose; roots slender, flexuous. Secondary stems erect, terete, slender, to 35 cm long, with a close fitting tubular sheath above and below the middle and 1-2 others at the base, unifoliate. Leaf coriaceous, narrowly elliptic or fusiform, acute, tridentate, base narrowly cuneate, sessile, 10-18 × 1-2 cm. Inflorescence a few (commonly 3) densely-flowered racemes about as long as, to longer than the leaf; peduncles from a spathe 1-1.5 cm long in the axil of the leaf; flowers yellowish, bilabiate; floral bract infundibular, 4-5 mm long, pedicel about 5 mm long; ovary about 3 mm long; dorsal sepal ovate, acute to acuminate, concave, 5-6 × 2 mm, 3-nerved; lateral sepals connate to the apex into a broadly ovate, cymbiform synsepal, acute to acuminate, 6 × 4.5 mm, 4-nerved; petals linear, attenuate, 5-6 × 0.5 mm, 1-nerved, fleshy and terete above the middle; lip fleshy, broadly ovate, apex rounded and abruptly cuspidate, base deflexed at the attachment to the column-foot, with a pair of terete arm-like lobes curved forward, each about 1.5 mm long, the lip itself about 1.5 × 1.5 mm excluding the arms; column about 1.5 mm long, with a rudimentary foot.

ETYMOLOGY: From the Latin *brachiatus*, "provided with arms," referring to the arm-like basal lobes of the lip.

TYPE: *ECUADOR*: TUNGURAHUA: terrestrial on road banks between Baños and Rio Negro, alt. 1700 m, 10 March 1975, C. Luer & R. Kent 337 (HOLOTYPE: SEL).

OTHER MATERIAL EXAMINED: PICHINCHA: epiphytic near km 87 between Quito and Santo Domingo, alt. 1400 m, 15 June 1967, C. H. Dodson, N. H. Williams & R. M. Adams 3748 (SEL); TUNGURAHUA: terrestrial between Baños and Rio Negro, alt. 1700 m, flowered in cult. 5 June 1975, C. Luer & R. Kent 329 (SEL); ZAMORA-CHINCHIPE: terrestrial on road cut near km 30 between Loja and Zamora, alt. 1500 m, 5 Aug. 1975, C. Luer, G. Luer & Wilhelm 402 (SEL).

DISTRIBUTION: Ecuador.

This species is closely related to *Pleurothallis antennifera* Lindl., and very well may have been identified as such in the past. It is rather frequent on both sides of the Andes in Ecuador. It is less closely related to *P. revoluta* (Ruiz & Pav.) Garay.

Plants of *P. antennifera* and *P. brachiata* are very similar, both characterized by their slender stems bearing an erect narrowly ovate leaf. *Pleurothallis brachiata* is more prone to be caespitose. A few, many-flowered, slender racemes are produced from a small spathe. The flowers of the two species are indistinguishable without dissection. Both are pale yellow or greenish; the dorsal sepals are ovate; the synsepals are cymbiform with a mentum below the lip; and the petals are linear and semi-terete. The lips of both are deflexed near the base, with an ovate, rounded and apiculate middle lobe. The forwardly curved lateral lobes, however, are very distinct. They are broad and membranous in *P. antennifera*, and reduced to a basal pair of slender, terete, arm-like process in *P. brachiata*.

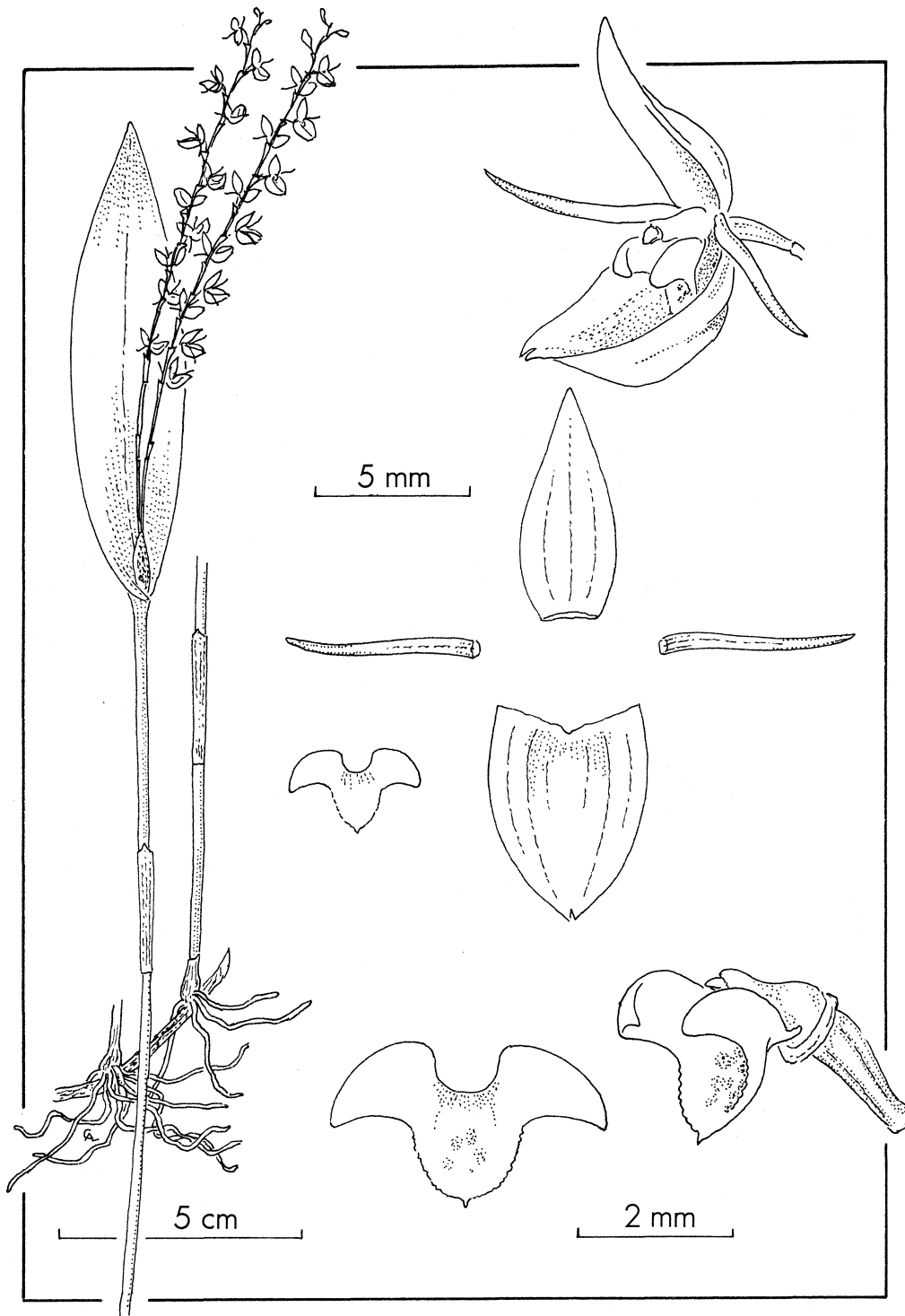


Figure 49. PLEUROTHALLIS ANTENNIFERA Lindl.

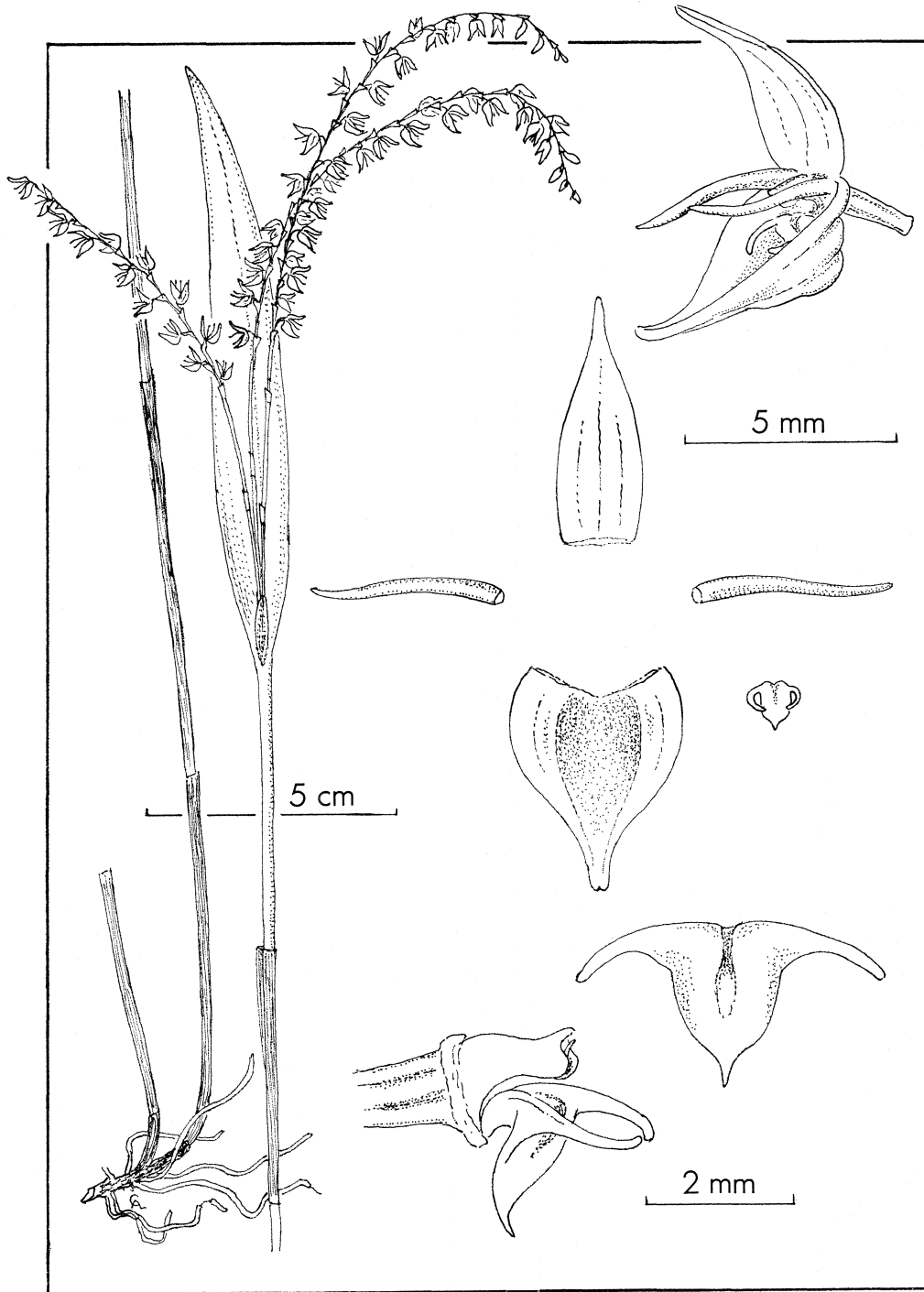


Figure 50. PLEUROTHALLIS BRACHIATA Luer

Pleurothallis canaligera Rchb. f., *Linnaea* 41:15. 1877.

Pleurothallis syringifolia Krzl., *Bot. Jahrb. Syst.* 54, *Beibl.* 117:22. 1916.

Pleurothallis scaphioglottis Schltr., *Repert. Spec. Nov. Regni Veg. Beih.* 7:113. 1920.

Plant small to medium in size, epiphytic to terrestrial, caespitose; roots slender, flexuous. Secondary stem terete, 5-21 cm long, with a brown, loose, tubular, verrucose sheath below the middle and 1-2 others at the base, unifoliate. Leaf coriaceous, ovate, acuminate, acute, base deeply cordate, sessile, 4-9 × 2.4-5.5 cm. Inflorescence a fascicle of single flowers borne in the axil of the leaf; spathe fugacious, concave, 2-4 mm long; peduncle 2-4 mm long; floral bract tubular, about 3 mm long; pedicel slender, 5-8 mm long; ovary green, verrucose, 3.5 mm long; flowers pale yellow-green, flecked with brownish purple, slightly verrucose near the ovary, not widely spreading; dorsal sepal fleshy, ovate, obtuse, concave, 4 × 2.5 mm, 3-veined; lateral sepals united into a concave, broadly ovate, bidentate synsepal, 3.75 × 3.5 mm spread out; petals narrowly ovate-linear, obtuse, 3.25 × 1 mm, fleshy with prominent red cells (beaded) near the middle; lip ovate, subacute, fleshy and cymbiform, base rounded, narrowly and transversely concave just above the articulation with the column-foot, 3 × 1.75 mm, yellow-green, the main concavity lined by large purple cells; column terete, 1.5 mm long, with a very short foot.

ETYMOLOGY: From the Latin *canaligerus*, "channel bearing" (*canalis*, "canal"), in allusion to the shape of the lip.

TYPE: COLOMBIA: ANTIOQUIA: Frontino, Rözl *s.n.* (HOLOTYPE: W).

DISTRIBUTION: Colombia, Ecuador, and Peru.

ECUADOR: ZAMORA-CHINCHIPE: terrestrial on road cut near km 40 between Loja and Zamora, alt. 1500 m, 8 Aug. 1975, C. Luer, G. Luer & Wilhelm 578 (SEL); TUNGURAHUA: terrestrial in Valle de Chaupe above Baños, alt. 2200 m, 24 July 1975, C. Luer, G. Luer & Wilhelm 615 (SEL), flowered in cult. Nov. 1975.

Apparently *Pleurothallis canaligera* is rare and local in its wide distribution in the Andes. It was first collected about a century ago near Medellín in the Department of Antioquia, Colombia. It was described from the same area about a half century later by Schlechter. Kränzlin described the only extant collection from Peru about the same time. Recently another collection from near Medellín was reported by Garay. This is the first report of this species from intervening Ecuador.

The cordate, acuminate leaves are deeply lobed and the older ones are somewhat conduplicate, reminiscent of lilac (*Syringa*) leaves, hence Kränzlin's *syringifolia*. Dense fascicles of old peduncles at the base of the leaf attest to the plant's past floriferousness. Three to ten flowers open simultaneously while very immature buds are forming to appear together several weeks later. The loose sheath of the stem is warty as well as the ovary and the bases of the backs of the sepals. The small fleshy flowers are pale yellow and minutely flecked with brown. The concave synsepal is completely occupied by a thick boat-shaped lip, hence the specific epithets chosen by both Reichenbach and Schlechter.

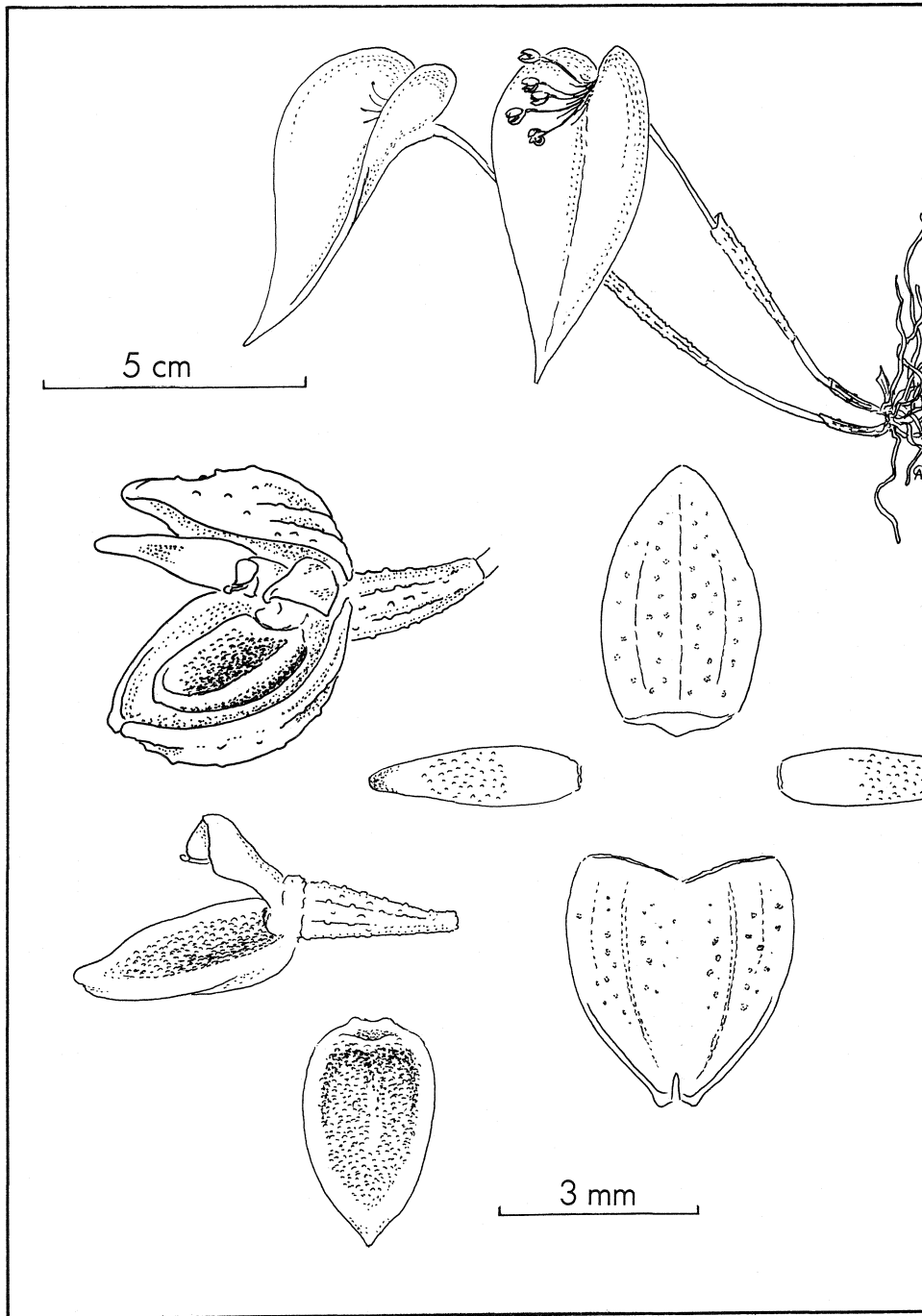


Figure 51. PLEUROTHALLIS CANALIGERA Rehb. f.

***Pleurothallis cernua* Luer, sp. nov.**

Planta mediocris epiphytica caespitosa, caulibus secundariis gracilibus teretibus, foliis ellipticis acuminatis acutis basin versus cuneatis petiolatis, inflorescentia fasciculata pauciflora, floribus singularibus successivis cernuis inversis, sepalo mediano ovato acuminato, synsepalo late ovato concavo acuminato bidenticulato, petalis anguste linearibus acuminatis, labello latissime obovato obtuso lateribus incurvis.

Plant medium in size, epiphytic, caespitose; roots filiform, flexuous. Secondary stem purplish, erect, slender, terete, 10-20 cm long, with a tubular sheath below the middle and 1-2 others at the base, unifoliate. Leaf elliptical, acuminate, acute, tridenticulate, base cuneate into a petiole, 7-13 × 1.5-2.5 cm, the petiole 1.5-2 cm long. Inflorescence fasciculate, few-flowered (1-3), flowers yellow-green, nodding, gaping, non-resupinate, single, successive, from an evanescent sheath at the apex of the stem; peduncle slender, 5-10 mm long; pedicel 5 mm long; floral bract tubular, 4 mm long; ovary 6 mm long; middle sepal ovate, acute, 8 × 3 mm, 3-veined; lateral sepals united into a broadly ovate, concave, acuminate, bidenticulate lamina, uppermost in the flower, 7.5 × 5 mm, 4-veined; petals narrowly linear, acuminate, slightly thickened, 7 × 1 mm, 1-veined; lip broadly obovate, obtuse, with the sides curved up, 3 × 3.5 mm spread out, disc with a transverse carina near the base just above a deflexed circular area at the junction with the base of the column, and with a central purple stripe; column terete, 3 mm long, with an obsolescent foot.

ETYMOLOGY: From the Latin *cernuus*, "nodding," or "drooping," referring to the nodding habit of the flowers.

TYPE: ECUADOR: TUNGURAHUA: epiphytic in Valle de Chaupe above Baños, alt. 2200 m, 24 July 1975, C. Luer, G. Luer & Wilhelm 426 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

This heretofore unrecorded species of *Pleurothallis* was among several which were found in flower in a valley on the flank of Volcán Tunguragua. Its companions included *P. floribuda* Poepp. & Endl., *P. pluriracemosa* Garay, *P. scabrata* Lindl., *P. secunda* Poepp. & Endl., and *P. tunguraguae* Lehm. & Krzl.

Pleurothallis cernua may be recognized by its slender stems, elliptical petiolate leaves, and one to three moderate-sized, yellow-green, drooping, non-resupinate flowers produced singly in a fascicle from the base of the leaf. The concave synsepal stands uppermost behind the lip, while the narrow, pointed petals spread to either side. A purple stripe is visible between the elevated sides of the lip. When the sides are spread, the lip appears very broadly obovate.

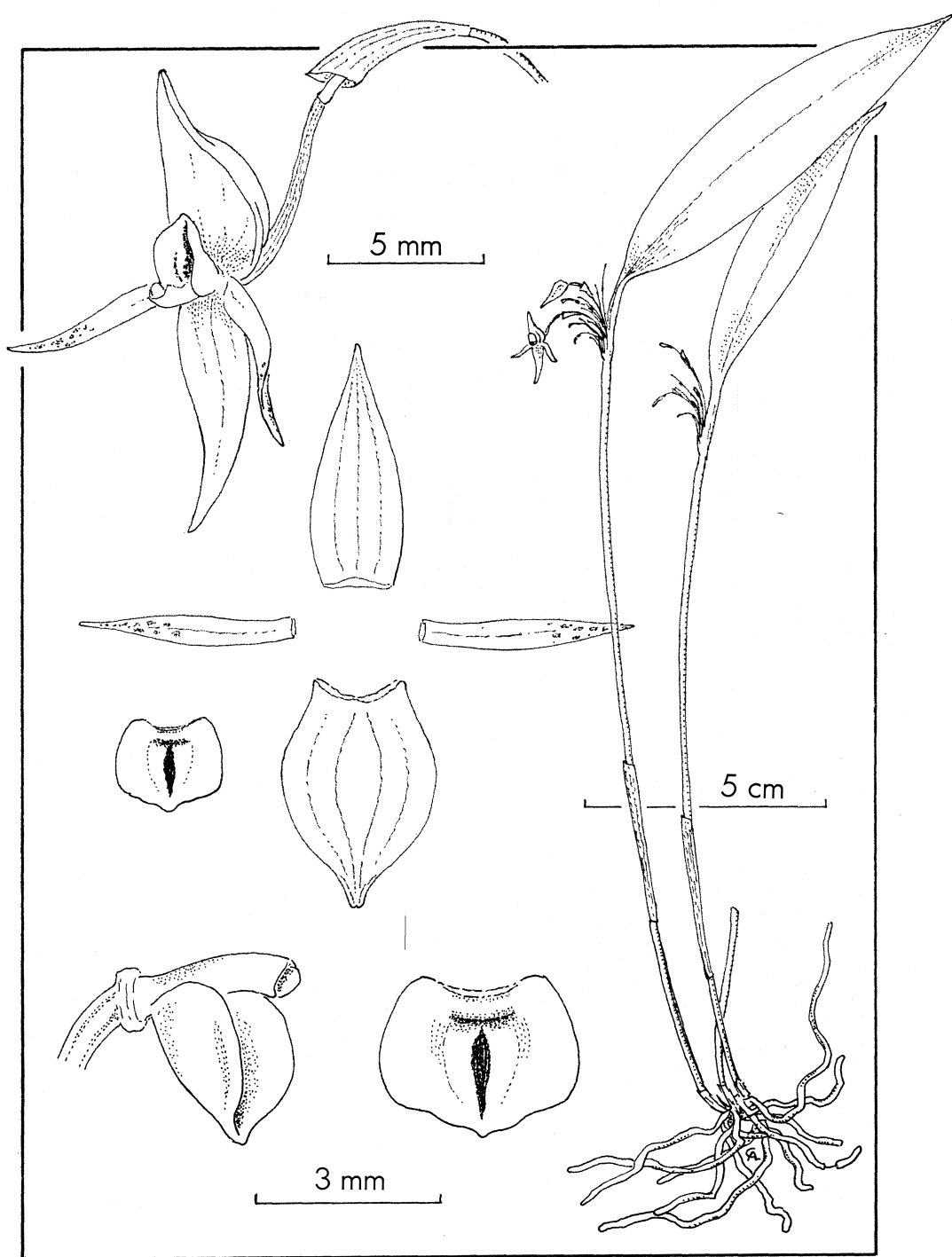


Figure 52. *PLEUROTHALLIS CERNUA* Luer

Pleurothallis conicostigma Luer, sp. nov.

Planta parva caespitosa, caulibus gracilibus unifoliatis, folio elliptico acuminato base leviter cordata, floribus fasciculatis solitariis non-resupinatis parvis luteolis, sepalo medio et synsepal late ovatis, petalis ovatis acutis, labello cordato abrupte acuminato carinis binatis carnosis base concava lateribus rotundis inflexis, columna brevi lobis stigmaticis conicis.

Plant small to medium in size, epiphytic or terrestrial, caespitose; roots filiform, flexuous. Secondary stem terete, slender, 8-15 cm long, with 2 tubular sheaths below the middle, monophyllous. Leaf elliptical, apex acuminate, acute, tridenticulate, base rounded to shallowly cordate, sessile, 5-10 × 1.5-3.5 cm. Inflorescence fasciculate, flowers small, yellow, bilabiate, non-resupinate, produced singly from a spathe about 10 mm long from the base of the leaf; floral bract acute, tubular, 3 mm long; pedicel about 10 mm long; ovary 5 mm long; middle sepal broadly ovate, obtuse, 4-6 × 3.5-4 mm, 3-veined; lateral sepals connate into a broadly ovate synsepal, obtuse to subacute, 3.5-6 × 4-5 mm, 4-veined; petals ovate, acuminate, acute, 4 × 1.5 mm, 1-veined, margins entire; lip uppermost, broadly ovate to cordate, apex abruptly acuminate, base concave and broadly attached to the column-foot, sides below the middle rounded and curved up in the natural position, disc with a pair of thickened rounded calli above the middle; column stout, 1 × 2 mm, with the stigmatic lobes conical to hemiconical, column-foot short.

ETYMOLOGY: From the Greek *konikos*, "conical" (from *konos*, "cone"), and *stigma*, in reference to the cone-shaped stigmatic lobes.

TYPE: ECUADOR: PICHINCHA: terrestrial on a road cut, near km 85 between Quito and Santo Domingo, alt. 1500 m, 2 March 1975, C. Luer & R. Kent 301 (HOLOTYPE: SEL); same area, near km 80, 17 Aug. 1975, C. Luer, G. Luer & Wilhelm 569 (SEL).

DISTRIBUTION: Ecuador.

Without fresh flowers the plants of *Pleurothallis conicostigma* appear very much like many others of the section *Macrophyllae-Fasciculatae*. The slender stems bear an ovate, acuminate, cordate leaf which is more or less spreading. The small yellow flowers are produced singly in a fascicle at the base of the leaf. Because of their size, color and broad petals, they resemble *P. magnipetala* C. Schweinf.

The flowers are distinct in that they are oriented facing outward with the middle sepal lowermost. The sepals are broad and obtuse, and the petals are comparatively large and acute. The uppermost lip is fleshy, broadly cordate, concave with erect sides below the middle, and above the middle a pair of thick, angled elevations courses toward the apex. The short, broad column is similar to those of other members of the section except that the stigmatic lobes are conspicuously pointed or even conical as they protrude from either side of the rostellum.

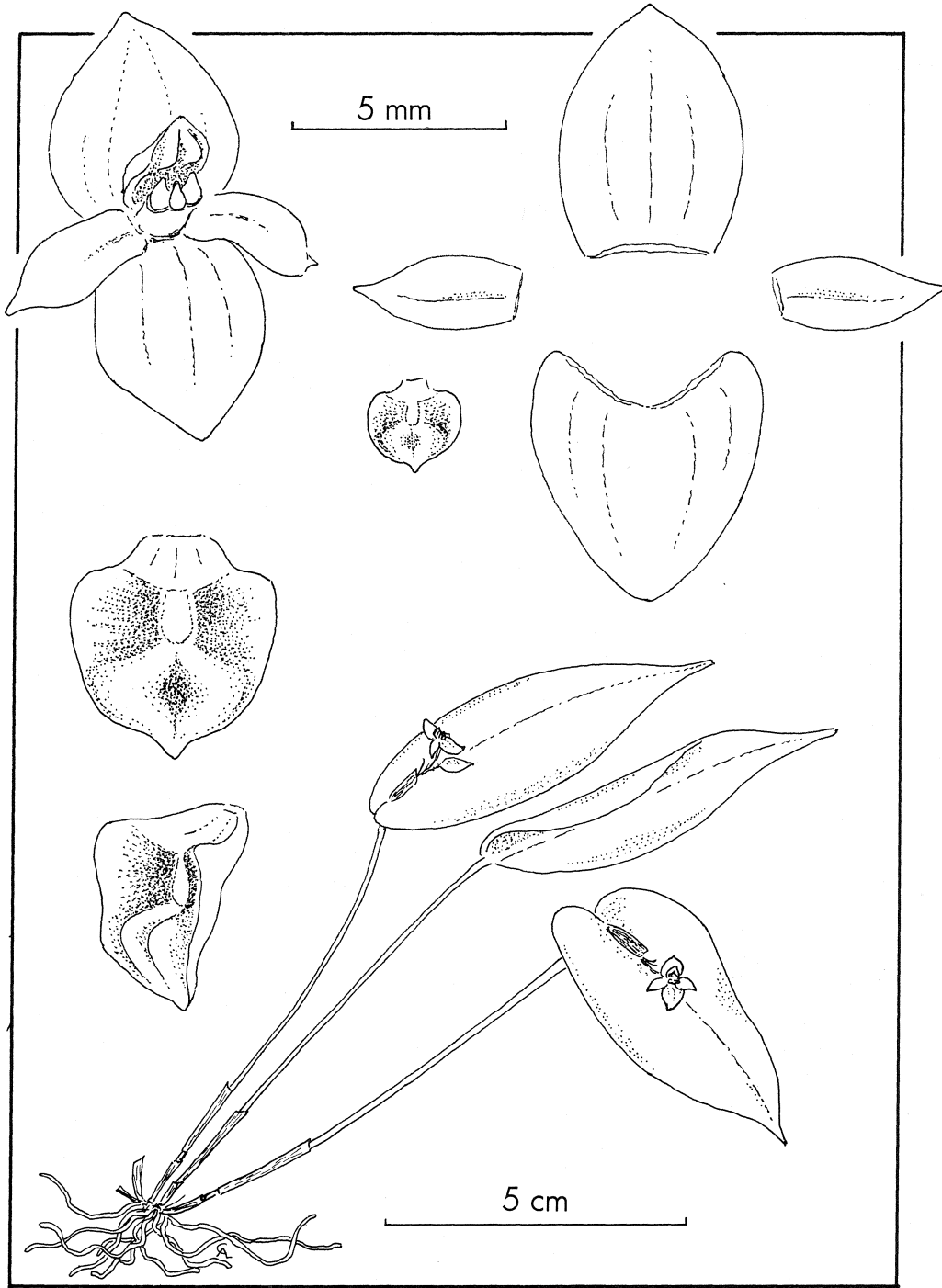


Figure 53. *PLEUROTHALLIS CONICOSTIGMA* Luer

Pleurothallis dibolia Luer, sp. nov.

Herba epiphytica parva vel mediocris caespitosa, caulibus secundariis gracilibus teretibus unifoliatis, folio erecto anguste ovato acuto base cordata, floribus perparvis luteolis fasciculatis brevipedicellatis, sepalo dorsale et synsepalo ovatis subacutis, petalis anguste ovatis, labello brunneola late ovato cordato obtuso base disci bicallosa.

Plant epiphytic, caespitose, small to medium in size; roots filiform, flexuous. Secondary stem erect, slender, terete, 6-34 cm long, with a tight tubular sheath below the middle and 1-2 others at the base, monophyllous. Leaf erect, narrowly ovate, margins revolute in large specimens, acute to acuminate, tridenticulate, base of mature leaves shallowly cordate, sessile, 7-13 × 1.5-3.5 cm. Inflorescence fasciculate, flowers single, 1-10, successive, very small, yellow with a brown lip, short-pedicellate, from the base of the leaf; spathe evanescent, up to 7 mm long; floral bract acute, tubular, 2-3 mm long; pedicel 3-4 mm long; ovary 3 mm long; dorsal sepal ovate, subacute, 3.5-4 × 2-2.5 mm, 3-veined; lateral sepals united into a broadly ovate synsepal, 3-3.5 × 3 mm, 4-veined; petals linear to narrowly ovate, acute, margin smooth to obscurely serrated, 1.75 × 0.5 mm, 1-veined; lip broadly ovate to cordate, subacute to obtuse, 1.5 × 1.25 mm, disc with a pair of rounded calli separated by a channel at the base; column 1 × 1 mm, with a foot 1 mm long.

ETYMOLOGY: From the Greek *dibolia*, "a double edged lance," in allusion to the appearance of the plant.

TYPE: ECUADOR: PICHINCHA: epiphytic in old coffee trees 15 km east of Santo Domingo, alt. 800 m, 28 Feb. 1975, *C. Luer & R. Kent* 269 (HOLOTYPE: SEL); epiphytic in orange trees near Santo Domingo, alt. 625 m, 6 Feb. 1963, *Dodson & Thien* 2240 (SEL); same area, 15 June 1967, *Dodson, Williams & Adams* 3709 (SEL); COTOPAXI: epiphytic in guava trees near km 38 between Quevedo and Latacunga, lat. 500 m, 5 March 1975, *C. Luer & R. Kent* 339 (SEL).

DISTRIBUTION: Ecuador.

Although this species is a common epiphyte at low elevations of the western foothills of the Andes, it is probably restricted to that area. It is not found on the road cuts which so many other epiphytic species seem to colonize readily. It is surprising that a species, which inhabits nearly every citrus, coffee, or guava grove over a wide and populated area, has escaped a formal description. Perhaps these recently introduced habitats account for a population explosion.

The plant is easily recognized by its clump of long, straight and slender stems with narrow erect leaves, which resemble a fascicle of double bladed spears. The leaves of mature plants are narrowly ovate with revolute margins and an indistinctly cordate base. The leaves of juvenile plants are proportionately narrower, without revolute margins, and with a rounded or broadly cuneate base. The little dull yellow flowers with a brown lip are produced singly and continuously in an ever renewing bundle at the base of the leaf. The blunt, heart-shaped lip is provided with a pair of gradually sloping convexities which nearly meet just below the rostellum.

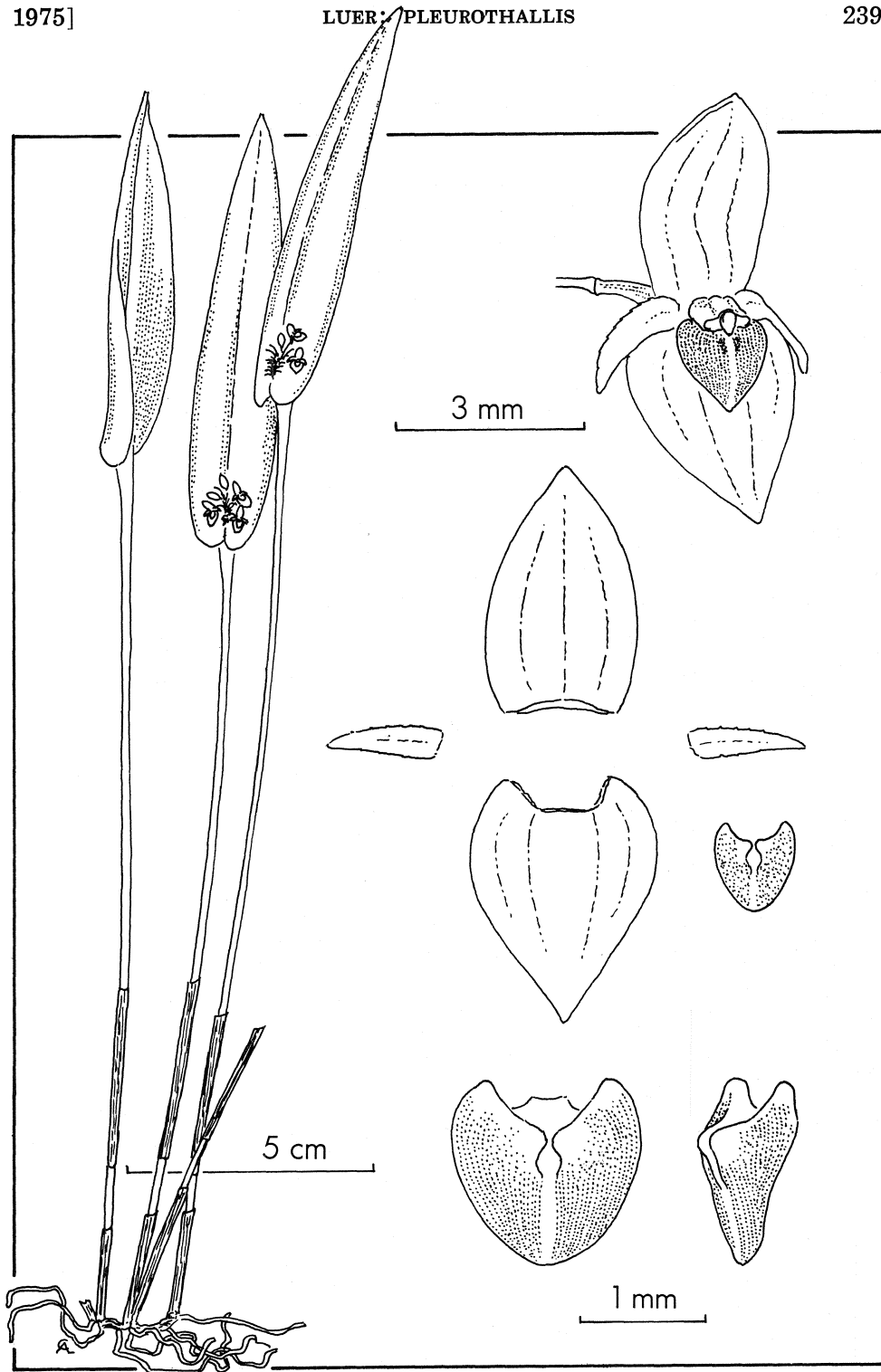


Figure 54. PLEUROTHALLIS DIBOLIA Luer

Pleurothallis ensata Luer, sp. nov.

Planta epiphytica parva caespitosa, caulibus secundariis tenuibus teretibus unifoliatis, foliis ensatis erectis acutis, floribus fasciculatis cernuis singulis aut binis fulvidis, sepalo dorsali elliptico subacuto, synsepalo ovato obtuso, petalis anguste triangularibus acutis crassis carinatis, labello ochraceo late ovato apice rotundato.

Plant epiphytic, small to medium in size, caespitose; roots filiform, flexuous. Secondary stems ascending, terete, slender, 3-22 cm long, with a close tubular sheath below the middle and 1-2 others at the base, unifoliate. Leaf erect, very narrowly elliptical, linear, acute, tridenticulate, base cuneate, sessile, 4-11 cm \times 5-15 mm. Inflorescence fasciculate, flowers dull yellow-brown, nodding, produced singly or doubly from the base of the leaf; spathe evanescent, 3-8 mm long; pedicel 5-8 mm long; floral bract loose, tubular, 3 mm long; ovary 3-4 mm long; sepals yellowish, sometimes tinged with red, sometimes microscopically maculate, with the veins prominent externally; dorsal sepal elliptical, subacute to obtuse, 7-9 \times 2.5-3.5 mm, 3-veined; lateral sepals united into a cordate to ovate synsepal, obtuse, occasionally bidentate, 6-8 \times 4.5-5 mm, 4-veined; petals reddish, triangular, acute, fleshy, carinate, 2-2.5 \times 0.5-1 mm; lip yellow-brown, broadly ovate, apex rounded, 2.5-3 \times 2 mm, with a low, smooth, rounded bilobed callus at the base below the column; column small, 1 \times 1 mm, with a foot 1 mm long.

ETYMOLOGY: From the Latin *ensatus*, "sword-like," referring to the shape of the leaves.

TYPE: ECUADOR: PICHINCHA: epiphytic about 25 km east of Santo Domingo, alt. 1000 m, 15 Aug. 1975, C. Luer, G. Luer & Wilhelm 579 (HOLOTYPE: SEL); epiphytic in coffee trees 15 km east of Santo Domingo, alt. 800 m, 28 Feb. 1975, C. Luer & R. Kent 268 (SEL).

DISTRIBUTION: Ecuador.

Pleurothallis ensata apparently occurs locally at moderate elevations of the western slopes of the Province of Pichincha. It is recognized by its narrow, erect leaf borne on a long, slender stem. Although some mature plants are comparatively small, standing scarcely 10 cm tall, others may stand 25 cm or more tall. The medium-sized brown flowers appear one or two at a time, and droop on slender pedicels from a fascicle at the base of the leaf. Although only half the size, they are morphologically similar to those of *P. ruberrima* Lindl., but the two could never be confused. The synsepal is considerably wider than the dorsal sepal, the petals are short, thick and triangular, and the lip, which is ovate with a rounded apex, lies appressed to the synsepal behind.

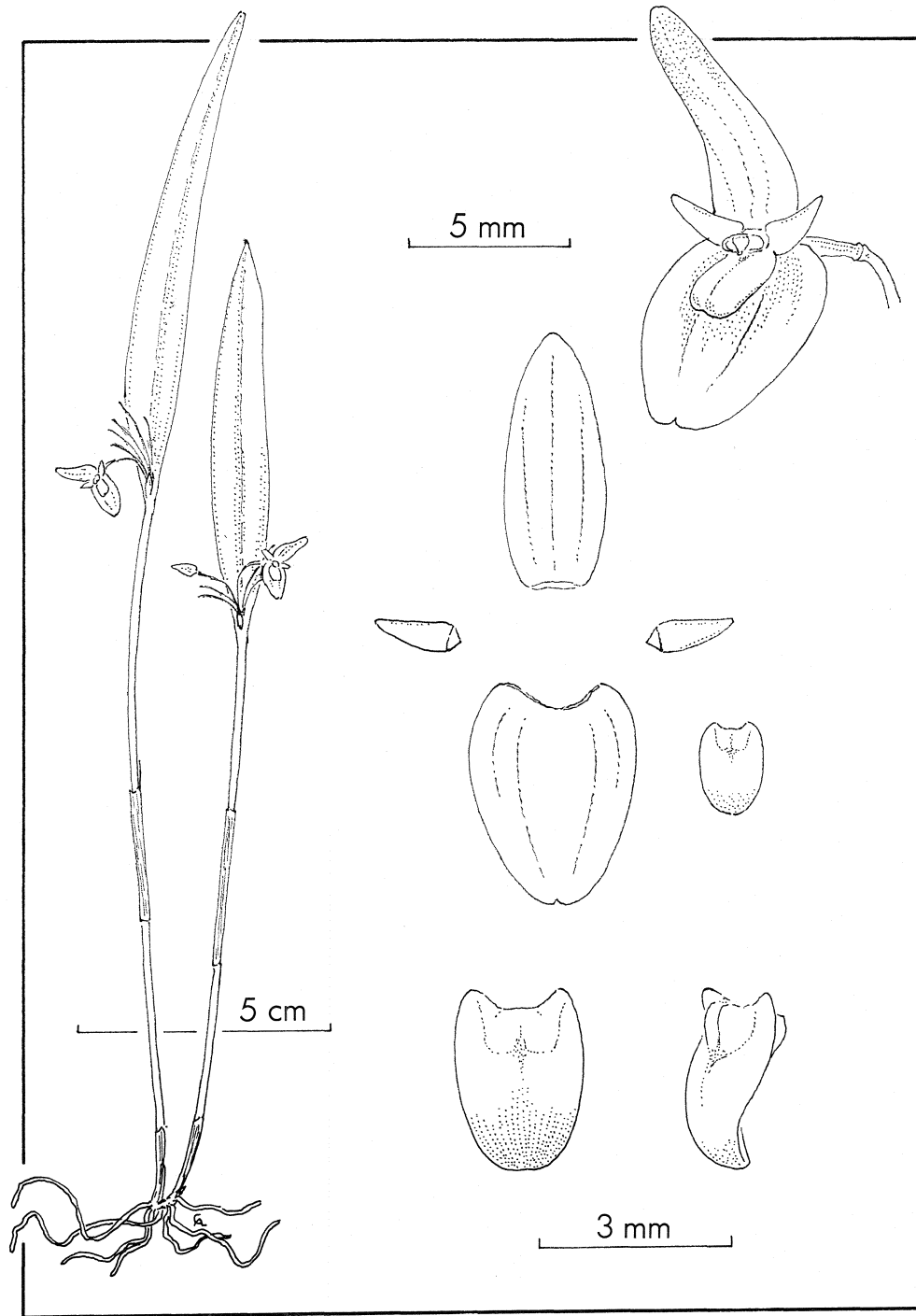


Figure 55. PLEUROTHALLIS ENSATA Luer

Pleurothallis expansa Lindl., Folia Orchid. Pleuroth. 4. 1859.

Pleurothallis diffusa Poepp. & Endl. sensu Lindl., Folia Orchid. Pleuroth. 3. 1859.

Humboldtia diffusa (Poepp. & Endl.) O. Ktze., Rev. Gen. Pl. 2:667. 1891.

Humboldtia expansa (Lindl.) O. Ktze., l. c. 2:667. 1891.

Plant epiphytic to lithophytic or terrestrial, large, robust, caespitose to scandent; roots flexuous, coarse. Secondary stems terete, 10-48 cm long, with a large loose sheath near the middle and 1-2 more at the base, unifoliate, often proliferative. Leaf coriaceous, oblong to elliptical, 6-16 × 2.5-8.5 cm, apex obtuse to subacute, tridentate, base cuneate to rounded, contracted into a short, channeled petiole 1-2 cm long. Inflorescence racemose, 1-3 or more, many-flowered, secund racemes, up to 25 cm long, produced from a spathe 2-5.5 cm long from the apex of the stem; flowers short-pedicellate, yellow-green with purple markings; floral bract cucullate, oblique, acute, about 5 × 4 mm; pedicel 2-3 mm long; ovary 1 mm long; dorsal sepal broadly elliptical to suborbicular, obtuse to rounded, 6-8 × 3.5-5 mm, 3-(5)-veined, margins minutely ciliate; lateral sepals broadly ovate, united to near the middle or to the apex, easily separable, 5.5-8 × 4-6 mm together, each 2-(3)-veined, the veins prominent externally, the margins minutely ciliate; petals oblong to obovate, obtuse to rounded, 4-5 × 2-2.5 mm, 3-veined, the veins heavily marked with purple; lip suborbicular to subquadrate, the sides erect in the natural position, obscurely 3-lobed by a shallow constriction near the middle, apical lobe broadly transverse, retuse, lateral lobes below the middle, rounded, each with a flat callosity, disc with a pair of minute tuberosities near the center, base very shortly unguiculate, narrowly concave, 3-veined; column short, 2 mm long, tapered from a broad base, with a thick foot 1.5 cm long.

ETYMOLOGY: From the Latin *expansus*, "spread," in reference to Lindley's opinion of a quality of the flowers.

TYPE: ECUADOR: PINCHINCHA: In the valley of Lloa. *Jameson s.n.* (HOLOTYPE: K).

DISTRIBUTION: Ecuador.

ECUADOR: PICHINCHA: on rock cliffs between Quito and Santo Domingo, km 25-35, alt. 2400-2800 m, 14 Mar. 1963, *Dodson & Thien 2395* (SEL); terrestrial above Tandapi, alt. 2900 m, 5 Mar. 1974, *Dodson 5414* (SEL); near same location, 1 Mar. 1975, *C. Luer & R. Kent 244* (SEL).

Lindley's *Pleurothallis diffusa* and *P. expansa* are different examples of the same species. In his Folia Orchidaceae Lindley misinterpreted Poeppig's "vile figure" of *P. diffusa* Poepp. & Endl., which is a different species, *P. revoluta* (Ruiz & Pav.) Garay.

Pleurothallis expansa commonly grows into a massive specimen, a tall bundle of intertwined and superposed stems and roots. The habit of generating a secondary stem from the apex of another achieves the height of the plant. Several racemes, usually longer than the leaf, produce a row of yellow-green, purplish spotted flowers nearly to the base of the peduncle where it emerges from a great leaf-like spathe. The flower parts spread, but the expansion is not exceptional in the genus.

The margins of the sepals are decorated with a fine fringe which is largely lost in dried specimens. The oblong petals are obtuse and often conspicuously blotched with purple in three lines along the veins. The dis-

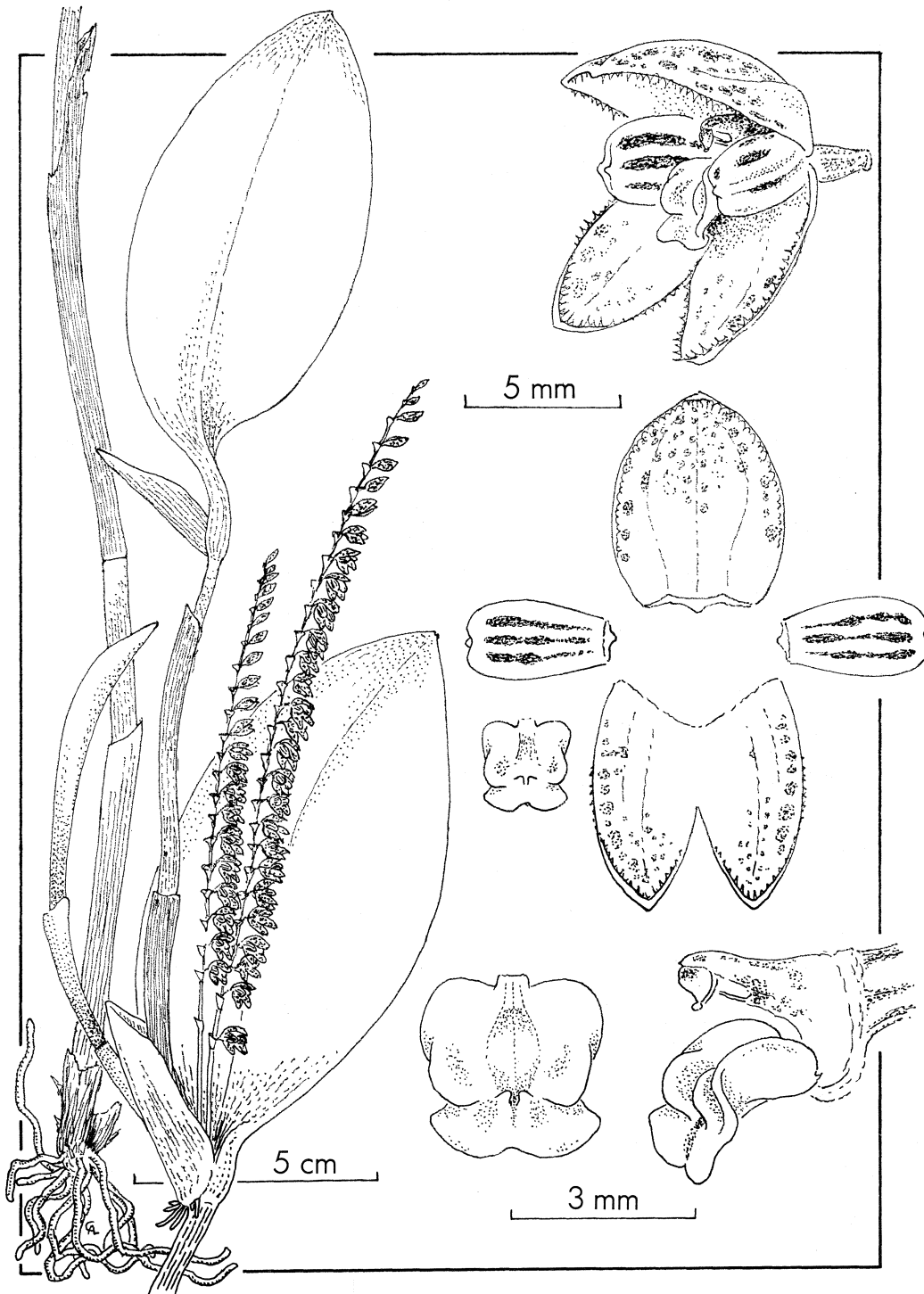


Figure 56. PLEUROTHALLIS EXPANSA Lindl.

tinative lip is more or less square with rounded corners. A shallow notch on either side near the middle marks a broad, retuse middle lobe. Below the middle of the lip the rounded lateral lobe is overlaid by a flat overhanging callus, and near the center the flaps terminate in a pair of minute inward directed teeth.

Pleurothallis fuchsii Luer, sp. nov.

Planta epiphytica pusilla caespitosa, caulibus secundariis brevissimis, foliis anguste obovatis obtusis basin versus cuneatis, flore chlorino purpureo vittato fasciculato successivo, pedunculo filiformi, sepalis patentibus ovatis apicibus acuminatis incrassatis glandulosis carinatis, petalis ovatis obliquis acuminatis serrulatis, labello purpureo carnosio oblongo bilamellato apice rotundato verruculoso basi auriculata.

Plant minute, caespitose, epiphytic; roots fine and flexuous. Secondary stem 2-3 mm long with 1-2 scarious, tubular sheaths, unifoliate. Leaf narrowly obovate, obtuse, tridenticulate, base acuminate into a channeled petiole, 10-15 mm long including the petiole and 3-4 mm broad, coriaceous. Inflorescence a fascicle of successive, single flowers terminating an erect filiform peduncle, about 2-3 cm long, from a node on the secondary stem within a sheath; flower yellow-green with purple stripes; floral bracts imbricating aristate, about 1-2 mm long; pedicel 3 mm long; ovary 0.5 mm long; dorsal sepal ovate, apex caudate-acuminate, thickened, sparsely papillose externally, 4 × 1.5 mm, strongly 3-nerved, carinate dorsally; lateral sepals similar to the dorsal sepal, adherent at the base where they form a shallow mentum, 2-nerved, carinate externally. Petals ovate, oblique, acute to acuminate, 2 × 0.75 mm, striped with purple, margins minutely serrate; lip purple, thick and fleshy, oblong, 2 × 0.75 mm, apex rounded convex, verruculose, disc papular-glandulose with a pair of erect marginal verrucose lamellae near the middle, base very shortly unguiculate with minute auricles; column slender, nearly 2 mm long, with a short foot.

ETYMOLOGY: Named in honor of Fred J. Fuchs, Jr., of Naranja, Florida who discovered this species in Ecuador.

TYPE: ECUADOR: PASTAZA: epiphytic near Puyo, alt. 750 m, *Fred Fuchs, Jr. s.n.* (SEL), greenhouse acc. no. 26-74-114, flowered in cult Jan., Aug., and Sept. 1975.

DISTRIBUTION: Ecuador.

This minute species, recently discovered in the Oriente of Ecuador by Fuchs, is related to *Pleurothallis hastata* Ames and *P. strumosa* Ames of Central America, and to *P. semperflorens* Lindl. of northern South America, but it is specifically distinct. From *P. hastata* it varies in having glandular sepals and a non-fringed lip without the hastate lateral lobes. From *P. strumosa* it is distinguished by the considerably shorter pubescence of the sepals and by the absence of the prominent bilobed glandulose column-foot. It is most closely allied to *P. semperflorens*, but it possesses glandular sepals with thickened apices and a pair of lobules at the base of the lip.

Pleurothallis fuchsii is characterized by its very small tuft of narrowly obovate leaves, a hair-like peduncle which bears in a fascicle a succession of yellow-green flowers striped with purple. The sepals are carinate and shortly glandular, the petals are serrated, and the oblong lip is verruculose with a pair of lamellae and a pair of basal auricles.

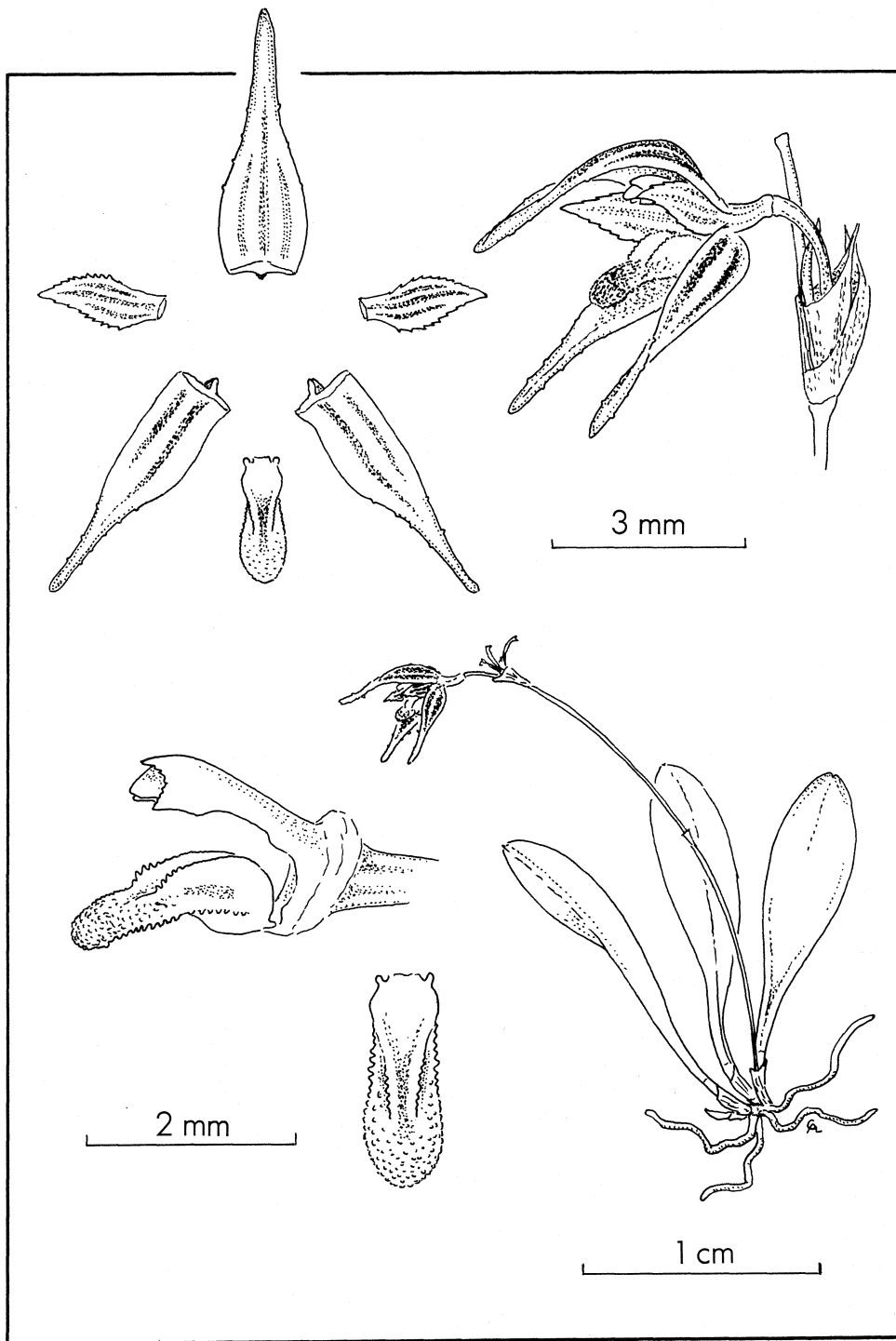


Figure 57. PLEUROTHALLIS FUCHSII Luer

Pleurothallis georgei Luer, sp. nov.

Planta epiphytica caespitosa mediocris, caulibus secundariis gracilibus teretibus vaginis hispidis, foliis coriaceis parvis anguste ellipticis breviter petiolatis, floribus solitariis successivis vinaceis, bracteis et ovariis pubescentibus, sepalo dorsali ovato acuto, sepalis lateralibus subfalcatis acutis, prope basin pubescentibus et laete adhaerentibus, cum pede columnae mentum formantibus, petalis ovatis supra medium abrupte angustatis trinerviis, labello trilobo bicarinato, lobo medio rotundato apiculato, lobis lateralibus late falcatis, base unguiculata bidentata.

Plant epiphytic, caespitose, medium in size; roots filiform, flexuous. Secondary stem slender, terete, spreading to erect, to 28 cm long, clothed by 5-6 imbricating, fugacious, hispid sheaths, unifoliate. Leaf coriaceous, narrowly elliptical, acute, tridenticulate, base cuneate, shortly petiolate, 5-7.5 × 1-1.8 cm with the petiole 5-6 mm long. Inflorescence fasciculate, flowers red-purple, produced singly and successively from a fugacious spathe at the apex of the stem where a dense fascicle of old peduncles remain; floral bract light brown with brown spicules, 6 mm long; pedicel yellow, pubescent, 7 mm long; ovary red, pubescent, 1.5-2 mm long; dorsal sepal ovate, acute, 5 × 2.5 mm; lateral sepals oblong, subfalcate, acute, pubescent and lightly adherent below the middle to form a mentum with the column-foot, each 4 × 1.5-2 mm; petals white, ovate and oblique below the middle, abruptly narrowed near the middle to a red narrowly triangular, acute apex, 4 × 1.5 mm, with 3 prominent veins; lip maroon, edged in pink, 3-lobed, 2.5 × 2 mm spread; middle lobe oblong, 1 mm long, rounded, apiculate, lateral lobes broad, erect, embracing the column, broadly falcate, rounded, abruptly acuminate near the junction with the middle lobe, base shortly unguiculate, with a pair of incurved basal teeth, disc thickened with a pair of rounded elevations at the base and a pair of low carinae just above the middle; column rose, terete, thick, 2 mm long, with a concave foot about 1 mm long.

ETYMOLOGY: Named in honor of its discoverer, George Mather Luer.

TYPE: *ECUADOR*: MORONA-SANTIAGO: epiphytic in felled trees about 30 km south of Gualaquiza, alt. 500 m, 6 Aug. 1975, C. Luer, G. Luer & Wilhelm 451 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

We owe the discovery of this species to George Luer, who not only encouraged the side-trip to Gualaquiza, but also spied the spot and sparked a long climb up a steep slope to reach some recently felled trees at the edge of the montane rain forest. From the epiphyte-laden limbs of the fallen giants this collecting foray produced about 25 different species of pleurothallids, more than one of which is proving to be new to botanical science.

Only one plant of *Pleurothallis georgei* was found. It consists of a more or less spreading rosette of slender stems with hispid sheaths. Each stem bears a small leathery leaf and at the base of the short petiole, a dense cluster of old dried peduncles. From this fascicle the flowers are produced singly at intermittent intervals. One stem was sacrificed for the herbarium and the plant itself is thriving and flowering in the "cool" house of the Marie Selby Botanical Gardens.

The morphology of the flowers suggests a close relationship with *P. ceratothallis* Rchb.f. from Venezuela. I thought it might be a geographical

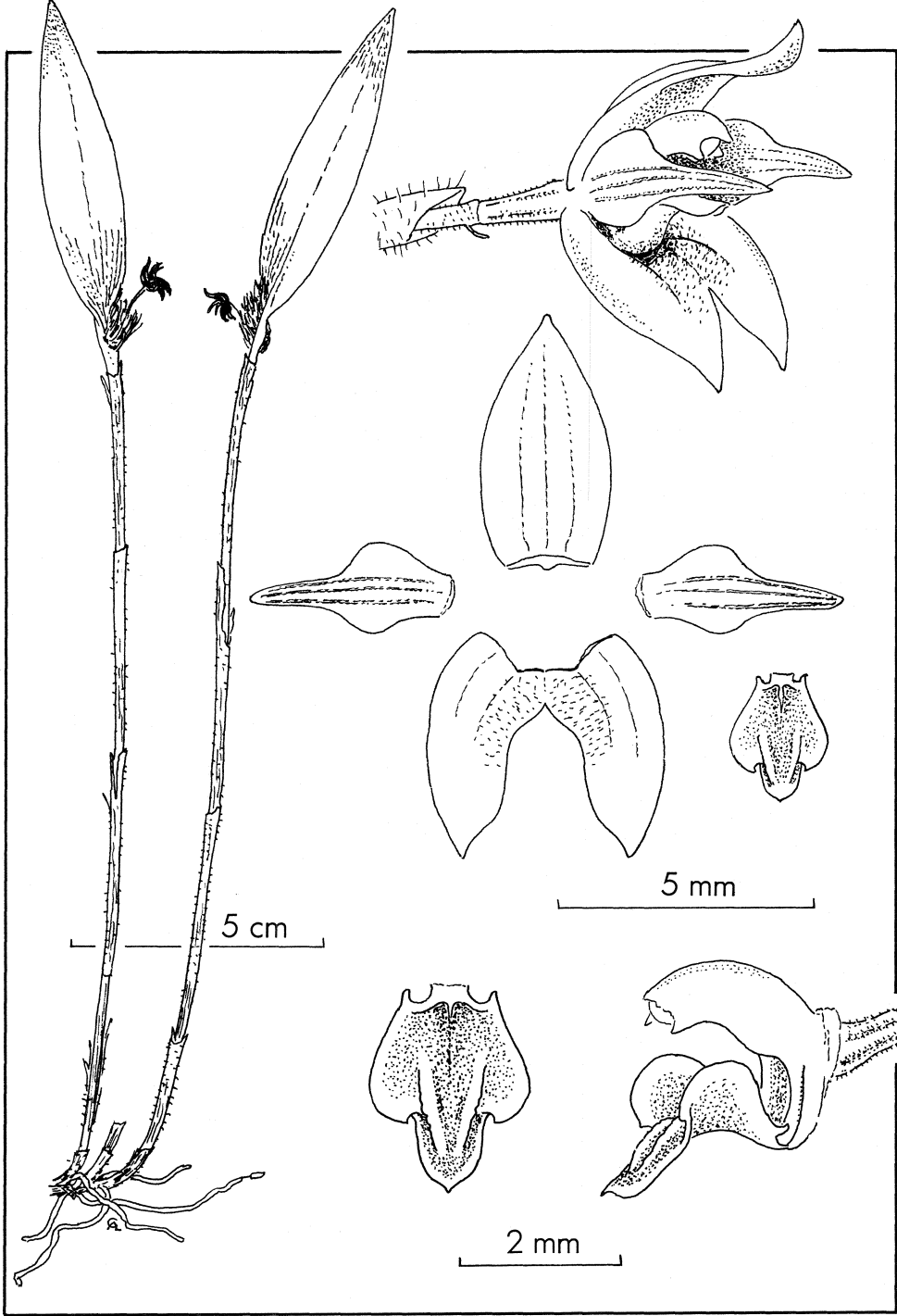


Figure 58. PLEUROTHALLIS GEORGEI Luer

variant, but Garay believes that it is specifically distinct. It differs from *P. ceratohallis* in its smaller habit, terete (not compressed) secondary stems clothed by hispid sheaths, its small, elliptical, petiolate leaf without a prominent mid-rib, and its small, bright purple flowers with broader petals, lip with a shorter apiculate mid-lobe, and broader, rounder lateral lobes.

Pleurothallis lacera Luer, sp. nov.

Herba parva caespitosa, caulibus secundariis gracilibus teretibus unifoliatis, folio crasso patente lineari anguste ovato acuminato base rotundata, floribus fasciculatis successivis atropurpureis, sepalo dorsali et synsepalo suborbiculatis profunde concavis abrupte acuminatis, petalis late ovatis acuminatis marginibus laciniatis, labello rubro carnosio suborbiculato abrupte acuminato marginibus laceris.

Plant small, caespitose, epiphytic to terrestrial; roots numerous, flexuous. Secondary stem slender, terete, ascending, 6-16 cm long, with a close tubular sheath below the middle and 1-2 others basally, unifoliolate. Leaf spreading, deep green, coriaceous, narrowly ovate to linear, acuminate, acute, tridenticulate, base broadly cuneate to rounded, 5-6 cm × 8-11 mm. Inflorescence fasciculate, flowers maroon, produced singly and successively from a spathe 5-7 mm long at the base of the leaf; floral bract and pedicel each 3-4 mm long; ovary 3.5 mm long; dorsal sepal broadly elliptical to suborbicular, deeply concave, apex abruptly acuminate, acute, 5 × 4 mm, 3-veined; lateral sepals connate into a broadly ovate, concave synsepal, abruptly acuminate, 5 × 5 mm, 4-veined; petals broadly elliptical, acuminate, acute, 4 × 3 mm, margin lacinate; lip red, broadly elliptical to suborbicular, apex abruptly acuminate, acute, base concave below the column, channeled centrally, fleshy thickened on both sides, margins coarsely lacerate; column red, stout, 2 × 1.5 mm.

ETYMOLOGY: From the Latin *lacerus*, "torn," referring to the irregularly lacerated margins of the lip and petals.

TYPE: *ECUADOR*: PICHINCHA: terrestrial on a road embankment about 2 km from the pass of the new road between Quito and Santo Domingo, alt. 3200 m, 16 Aug. 1975, C. Luer, G. Luer & Wilhelm 550 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

Dense caespitose masses of this species occur at cold, misty, high elevations. The slender, clustered stems bear deep green, narrow, rigid, thickened leaves each deflexed about 90° in the same direction. From the bases of the leaves the deep wine-red flowers appear one to three at a time and each faces out toward the apex. The broad, shortly lacerate petals protude from under the deeply concave dorsal sepal. A comparatively large, red, conspicuously lacerate, heart-shaped lip fills the concavity of the synsepal.

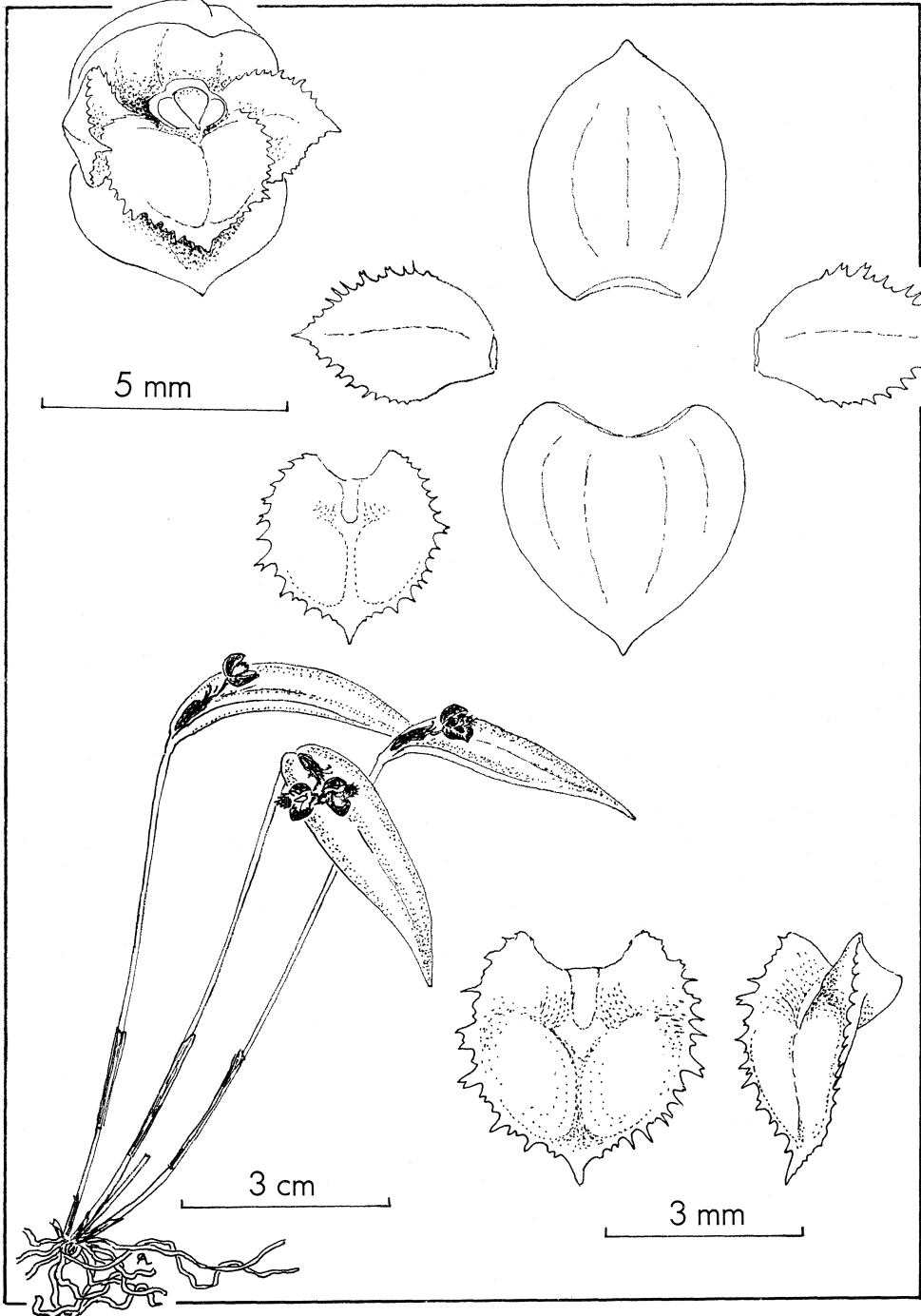


Figure 59. PLEUROTHALLIS LACERA Luer

Pleurothallis lemniscifolia Luer, sp. nov.

Herba epiphytica caespitosa mediocris, caulibus secundariis longis gracillimis teretibus declinatis unifoliatis, foliis pendentibus anguste linearibus attenuatis longissimis, floribus brunneolis solitariis successivis, sepalo dorsali et synsepalo ovatis obtusis, petalis anguste falcatis denticulatis, labello olivaceo pubescenti oblongo obtuso marginibus revolutis.

Plant epiphytic, caespitose, medium-sized; roots slender, flexuous. Secondary stems declining, very slender, terete, 10-30 cm long, with a closely fitting tubular sheath below the middle and 1-2 others at the base, unifoliolate. Leaf pendent, narrowly linear, attenuate, ribbon-like, flexible, 15-30 cm long and 8-11 mm wide, margins more or less revolute, base rounded to subcordate, sessile. Flower brown, bilabiate, solitary, successive, from a spathe 10-17 mm long at the base of the leaf; pedicel 5-8 mm long; ovary 4 mm long; dorsal sepal light yellowish brown with darker brown stripes, elliptical, obtuse, 11 × 6 mm, 5-veined; lateral sepals united into an ovate synsepal, subacute, 10 × 6 mm, 6-veined; petals brown, linear-falcate, apex acute, thickened, margins denticulate-erose, 7.5 × 0.5 mm, 1-veined; lip olive-brown with a white pubescence, red-brown toward the base, oblong, obtuse, margins revolute, 6 × 3 mm; column short, 1.5 × 1.5 mm, with a short foot.

ETYMOLOGY: From the Latin *lemniscus*, "a pendent, or award-winning ribbon," and *folium*, "a leaf," referring to the long, pendent, ribbon-like leaves of the species.

TYPE: ECUADOR: PICHINCHA: epiphytic near km 80 between Quito and Santo Domingo, alt. 1700 m, 17 Aug. 1975, C. Luer, G. Luer & Wilhelm 589 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

This unusual member of the section *Macrophyllae-Fasciculatae* is distinguished by its extraordinarily long and narrow, ribbon-like leaves which dangle from the ends of long, slender, wire-like stems. The leaves are sulcate with a prominent midrib beneath, which is flanked by the moderately involuted margins. Young leaves are essentially straight, but older ones often twist or curl. At the base of the leaf, a brown flower is produced intermittently from a comparatively large spathe. The sepals are not remarkable for the section; the petals are falcate and irregularly dentate; the oblong lip is olive-brown and covered by a mat of short white hairs.

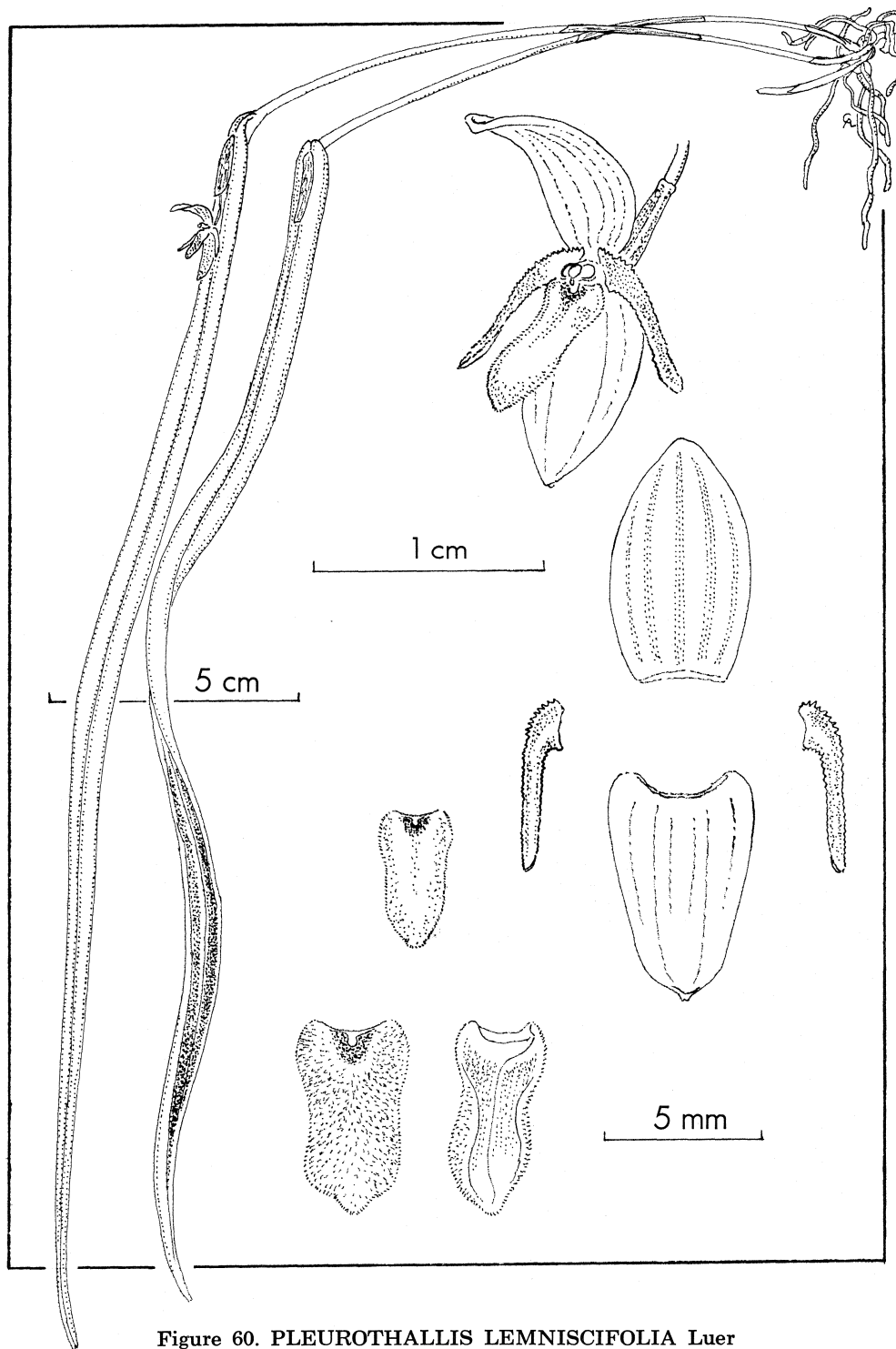


Figure 60. PLEUROTHALLIS LEMNISCIFOLIA Luer

Pleurothallis macra Lindl., Folia Orchid. Pleuroth. 10. 1859.

Humboldtia macra (Lindl.) O. Ktze., Rev. Gen. Pl. 2-668. 1891

Plant epiphytic to terrestrial, medium sized, caespitose; roots slender, flexuous. Secondary stems terete, slender, to 30 cm tall, with 2 short tubular sheaths below, unifoliate. Leaf narrowly ovate, apex tapered, tridentate, base rounded to subcordate, margins decurrent on the stem, sessile, 7-13 × 1.3-2 cm. Inflorescence a few-flowered (1-2) fascicle from a 10-13 mm, evanescent, conduplicate spathe at the apex of the stem, 10-15 mm from the base of the leaf; flowers yellow-green, often flecked and suffused with red or purple; floral bract tubular, about 1 cm long; pedicel arcuate, about 2 cm long; ovary 5 mm long; dorsal sepal broadly ovate to suborbicular, apex abruptly acute to acuminate, 11-14 × 8-10 mm, convex below, concave above, 3-nerved; lateral sepals united into an ovate synsepal, acute to acuminate, lateral margins more or less revolute, 10-13 × 5-6 mm, 4-nerved; petals linear, falcate-sigmoid, microscopically erose, 9-12 × 1-1.5 mm, 1-nerved, thickened above the middle; lip red-brown, ovate-oblong, obtuse to acute, with a broad-based conical tubercle beneath the apex, microscopically papular-erose, 4-5 × 3-3.5 mm; column short and broad, 2 × 2 mm, with a short foot.

ETYMOLOGY: From the Greek *macros*, "long" or "large," probably in allusion to the elongated secondary stems.

TYPE: ECUADOR (not Peru as stated): 1848, *Jameson s.n.* (HOLOTYPE: K).

DISTRIBUTION: Ecuador.

ECUADOR: PICHINCHA: terrestrial on road cut near km 25 between Quito and Santo Domingo, alt. 3100 m, 22 Oct. 1961, *Dodson & Thien 1020* (SEL); on rock cliff, between km 25-35, near Chiriboga, 2400-2800 m, 14 March 1963, *Dodson & Thien 2394* (SEL); same area, Oct. 1974, *G. Kennedy s.n.* (SEL), greenhouse acc. no. 30-74-276, flowered in cult. 4 Jan. 1975; terrestrial near km 85 between Quito and Santo Domingo, alt. 1500 m, 1 March 1975, *C. Luer & Kent 232* (SEL); COTOPAXI: terrestrial on road cut above Pilalo, alt. 2500 m, 6 March, *C. Luer & Kent 294* (SEL).

Very likely this species was first collected by Jameson in the same areas in the province of Pichincha in which some of the cited collections were made over a century later. It is one of many of the superficially similar members of the section *Macrophyllae-Fasciculata* Lindl. Lindley said it appears "much like a starved *P. grandiflora*." It is apparently endemic to the western slopes of the Ecuadorian Andes.

Although the long secondary stems and the relatively short, narrowly ovate leaves of *Pleurothallis macra* are not particularly distinctive, the striking flower is easily recognized. It is proportionately large for the size of the leaf, and the long pedicel arches over the side of the blade so that the solitary flower is essentially pendent. The dorsal sepal, which is considerably larger than the synsepal, dominates the flower like a large turban. The sepals are yellow-green and liberally suffused and sprinkled with red-purple. The lip in the center is red-brown. The slender thickened petals bend outward to either side.

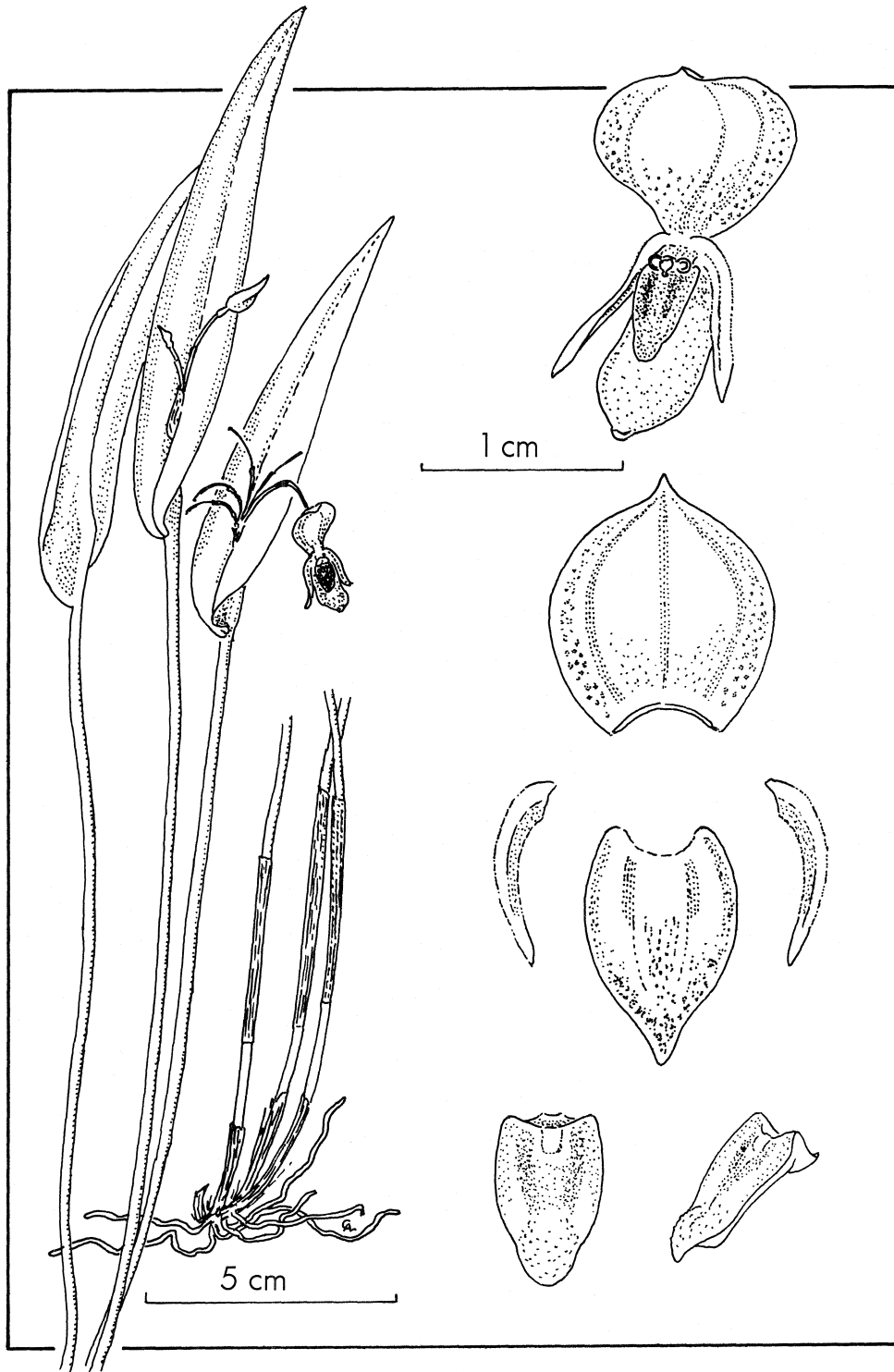


Figure 61. PLEUROTHALLIS MACRA Lindl.

Pleurothallis magnipetala C. Schweinf., Bot. Mus. Leafl. 15:97, t.30. 1951.

Plant small, epiphytic or terrestrial, caespitose; roots slender, flexuous. Secondary stem filiform, terete, 3-14 cm long, with 2 tubular sheaths below the middle, unifoliate. Leaf ovate, acuminate, acute, tridentate, base deeply cordate, sessile, 3-7.5 × 2-4.5 cm. Inflorescence fasciculate; flowers small, yellow, bilabiate, produced singly from a spathe 13-15 mm long from the base of the leaf; floral bract 2-3 mm long; pedicel 10-12 mm long; ovary 3 mm long; dorsal sepal ovate, acute, 5 × 3-4 mm, 3-veined, the veins prominent externally; lateral sepals united into an ovate synsepal, acute, 5 × 4 mm, 4-veined; petals elliptical, acute, 4-5 × 1.3-1.8 mm, 1-veined, margins entire or microscopically erose; lip oblong, or very broadly and bluntly triangular, obtuse to rounded, minutely apiculate, margins microscopically ciliate, base shallowly cordate and concave at the attachment to the column, disc essentially featureless, 2.25 × 1.6 mm; column stout, 1 × 1.5 mm.

ETYMOLOGY: From the Latin *magnus*, "large," and *petalum*, "petal," in allusion to the comparatively large petals of the species.

TYPE: PERU: CUZCO: Prov. of Quispicanchis, Hda. Itio, Marcapata, in stony or rocky open places, alt. 2000 m, 27 Jan. 1943. *C. Vargas C. 3128* (HOLOTYPE: AMES).

DISTRIBUTION: Ecuador and Peru.

ECUADOR: PICHINCHA: epiphytic overhanging Rio Palenque near km 28 between Santo Domingo and Quevedo, alt. 300 m, 27 Oct. 1961, *Dodson & Thien 1138* (SEL); terrestrial on a road cut about 30 km east of Santo Domingo, alt. 1500 m, 28 Feb. 1975, *C. Luer & R. Kent 334* (SEL); COTOPAXI: epiphytic in a guava tree between Quevedo and Latacunga, alt. 600 m, 5 March 1975, *C. Luer & R. Kent 308* (SEL).

Although varying somewhat from typical Peruvian material three collections from Ecuador can be identified as *Pleurothallis magnipetala*. The leaves of Ecuadorian plants are broader, the spathe stands more or less erect from the blade and the little flowers are borne upright on comparatively long peduncles. The last two characteristics were not mentioned by Schweinfurth probably because no living material was seen. The lips of the Ecuadorian specimens are also broader and more obtuse, but these are minor features which could be expected to vary within the distribution. This is the first report of this species outside Peru.

Vegetatively and florally this species resembles *P. conicostigma* Luer which also has equally large petals. The latter, however, has a concave lip with a pair of thick callosities and the characteristic cone-shaped stigmatic lobes. The small habit and the small yellow flowers of these species suggest an alliance with the widespread *P. tridentata* Kl., but their proportionately large petals separate them readily.

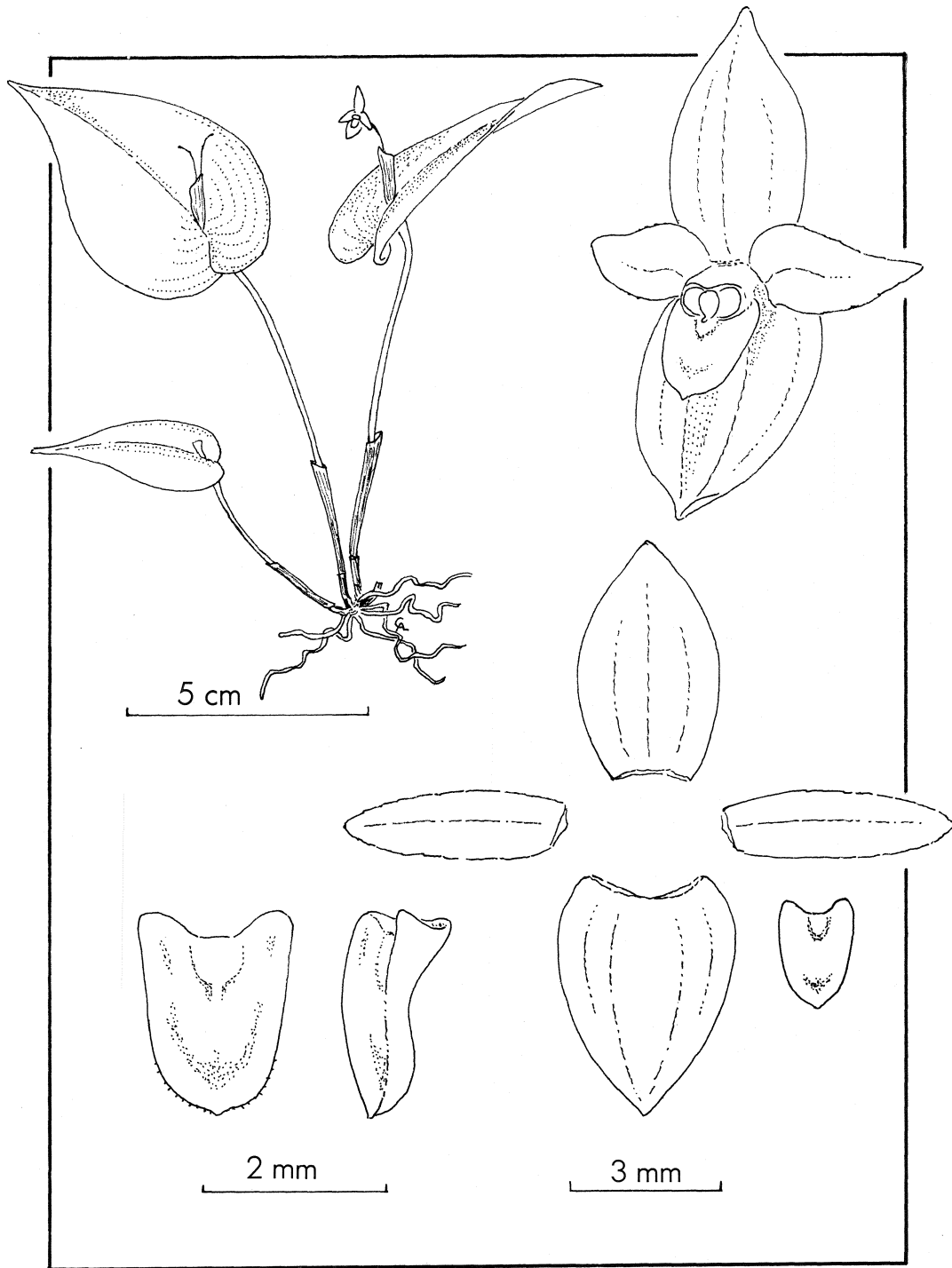


Figure 62. *PLEUROTHALLIS MAGNIPETALA* C. Schweinf.

Pleurothallis nephrocardia Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6:35. 1919.

Plant small, epiphytic to terrestrial, caespitose; roots slender, flexuous. Secondary stem filiform, terete, 3-10 cm long, with a tubular sheath just below the middle and another at the base, unifoliate. Leaf coriaceous, narrowly ovate, apex acute, tridenticulate, base abruptly rounded to subcordate, sessile, 3-7 × 1-2.3 cm. Inflorescence fasciculate, flowers yellowish brown, produced singly from a slender spathe about 7 mm long in the axil of the leaf; pedicel 3-4 mm long; floral bract 1-3 mm long; ovary 2 mm long; dorsal sepal ovate, acute, 6-7 × 3.5 mm, 3-veined; lateral sepals connate into an ovate synsepal, acute 5.5-7 × 4.5-5 mm, 4-veined; petals long-triangular to linear, acute, fleshy, glabrous, 4-4.5 × 0.6-1 mm, 1-veined, thickened externally; lip fleshy, rhomboid or obscurely 3-lobed to reniform, the sides rounded and curved up in the natural position, apex obtuse, base short-unguiculate and abruptly concave, separated from a second concavity centrally by a narrow isthmus of tissue which connects the two sides, 2.5-3 × 2 mm; column stout, 1.5 × 2 mm, with a short foot.

ETYMOLOGY: From the Greek *nephros*, "kidney," and *kardia*, "heart," in reference to the shape of the lip.

TYPE: VENEZUELA: CARACAS, collected from the roots of a cattleya.

DISTRIBUTION: Venezuela and Ecuador.

ECUADOR: TUNGURAHUA: terrestrial on the road embankment between Baños and Rio Negro, alt. 1500 m, 11 March 1975, C. Luer & R. Kent 202 (SEL); ZAMORA-CHINCHIPE: epiphytic along the road between Loja and Zamora, alt. 2300 m, F L Stevenson 111974-15 (SEL), flowered in cult. Nov. 1974.

This species is allied to *Pleurothallis tridentata* Kl. and *P. discoidea* Lindl. It is characterized by its small stature, very slender secondary stems supporting narrow, shallowly cordate leaves. The flowers are not particularly small considering the size of the plant. Typical of the section *Macrophyllae-Fasciculatae* Lindl. to which the species belongs, the dorsal sepal and the synsepal are similar and ovate. The petals are thickened, carinate and long-triangular. The lip, which is red in the collection from Tungurahua, is broadly cordate or it could even be interpreted as kidney-shaped. It is best distinguished by its rounded, erect lateral lobes which are connected by a transverse ridge of tissue, the lip being more or less concave before and behind.

This species was sent to Schlechter by a Herr John of Andernach, Germany who had found the plant growing upon the roots of a *Cattleya* which he had imported from Caracas.

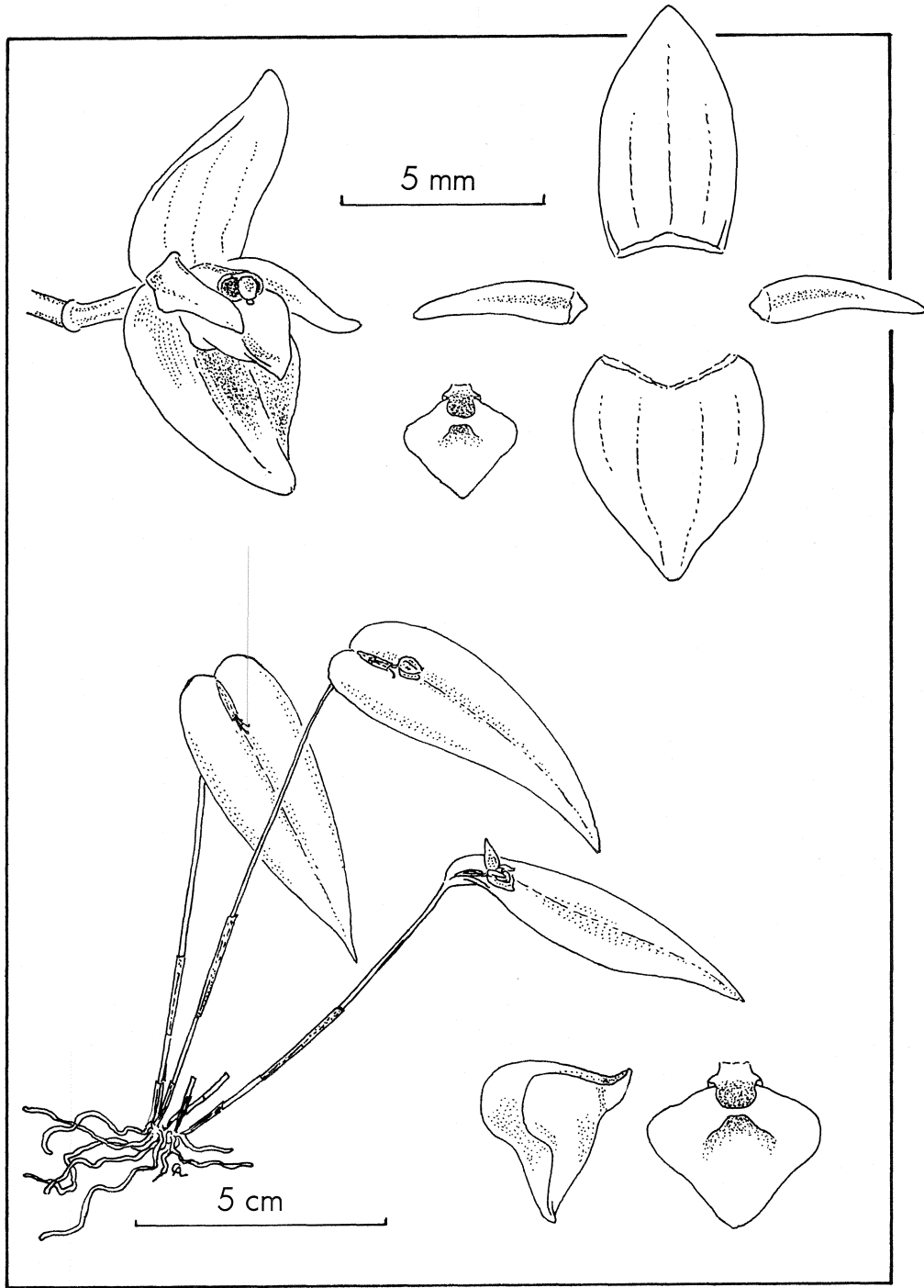


Figure 63. *PLEUROTHALLIS NEPHROCARDIA* Schltr.

Pleurothallis niveoglobula Luer, sp. nov.

Planta parva epiphytica caespitosa, caulibus secundariis gracilibus unifoliatis inferne teretibus superne compressis, folio ovato acuminato base rotundata, floribus minimis niveis globulis fasciculatis longipedicellatis, sepalo dorsali et synsepalo orbiculatis concavis, petalis obovatis obtusis, labello late ovato subplano.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems slender, terete below, compressed above, 5-11 mm long, with a close tubular sheath below the middle and 1-2 others at the base, unifoliate. Leaf elliptical-ovate, acuminate, acute, tridenticulate, base rounded, sessile, 15-38 X 7-20 mm. Inflorescence a fascicle of long-pedicellate, minute, white, globose flowers, from a spathe about 6 mm long, at the base of the leaf; peduncle 4-5 mm long; floral bract tubular, 2 mm long; pedicel 9-10 mm long; ovary purple-brown, 1.5 mm long; dorsal sepal suborbicular, deeply concave, obtuse to rounded, 2 X 1.6 mm, 3-veined; lateral sepals connate into an orbicular synsepal similar to the dorsal sepal, 2 X 2 mm; petals obovate, oblique, subcarinate with a fleshy, abruptly obtuse apex, 1.5 X 1 mm; lip fleshy, broadly ovate, subacute, slightly channeled centrally, broadly united to the base of the column; column terete, 1 mm long, without a discernible foot.

ETYMOLOGY: From the Latin *niveus*, "snow white," and *globulus*, "a little ball" (dim of *globus*), in reference to the shape and color of the flowers.

TYPE: *ECUADOR: PASTAZA:* epiphytic about 10 km west of Puyo along the Rio Pastaza, alt. 900 m, 25 July 1975, *C. Luer, G. Luer & Wilhelm 506* (HOLOTYPE: SEL); probably same area, *Janet Kuhn s.n.* (SEL), greenhouse acc. no. 25-75-101, flowered in cult. 6 June 1975; *NAPO:* epiphytic 15 km west of Tena, alt. 600 m, 26 July 1975, *C. Luer, G. Luer & Wilhelm 507* (SEL).

DISTRIBUTION: Ecuador.

"Snowball" first came to my attention in June of this year when a flowering plant was sent to me by Janet Kuhn of Easton, Connecticut. She had collected it on one of her trips to Ecuador. About a month later the species was encountered frequently on mossy trunks of trees in the Napo-Pastaza region.

In spite of its minute, snow white, globular flowers, the plant is not unattractive because the flowers are produced continuously and in abundance. From the base of the leaf they are held up on hair-like pedicels in a fascicle, like so many white-headed pins. The glossy green, sharp-pointed, round-based leaves are borne on slender stems which are laterally compressed with a sharp-edged posterior carina. The stems are often produced in densely caespitose masses.

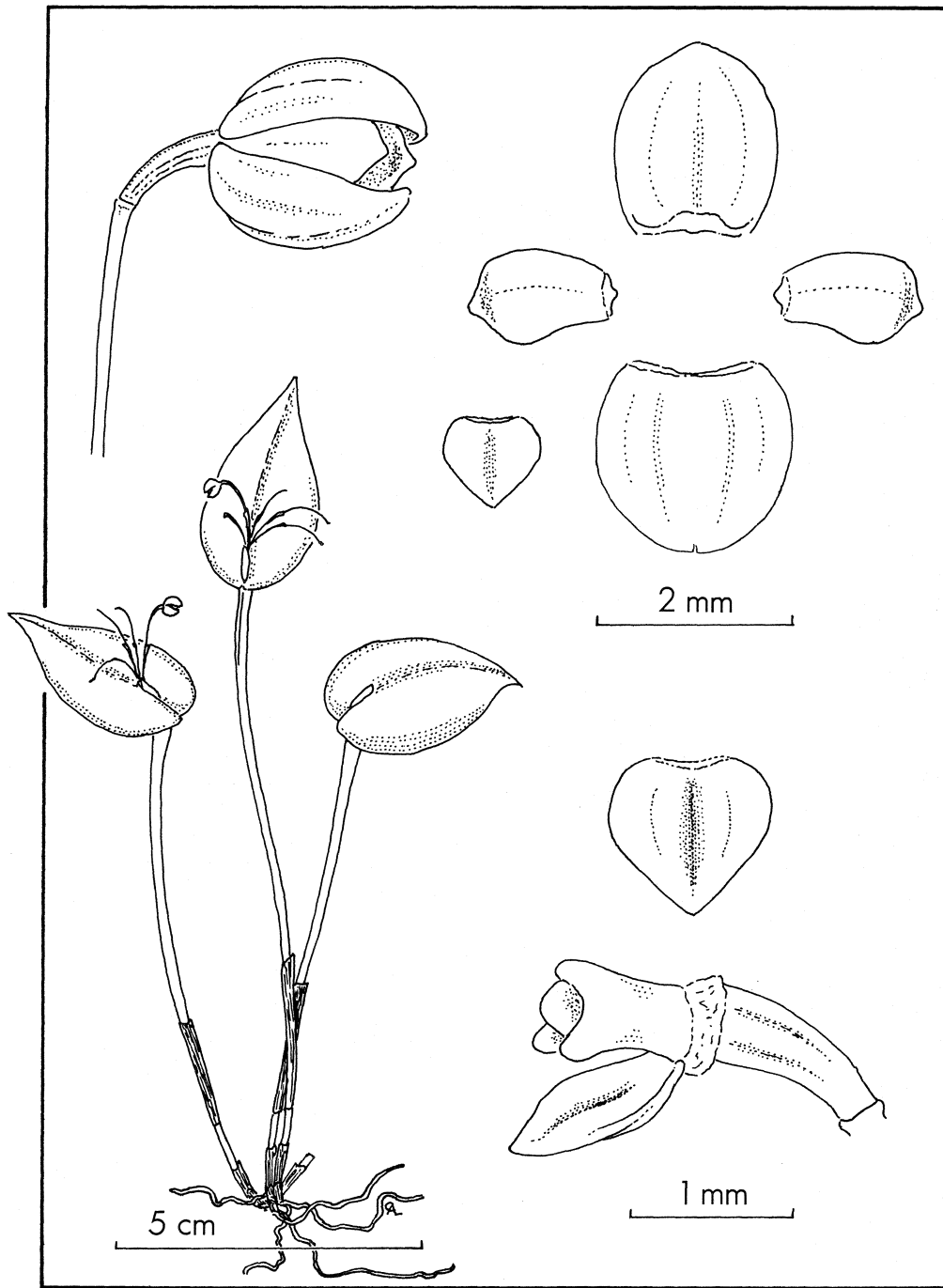


Figure 64. *PLEUROTHALLIS NIVEOGLOBULA* Luer

Pleurothallis peduncularis Lindl., Edward's Bot. Reg. 29:misc. 47. 1843.

Pleurothallis exasperata Lindl., Folia Orchid. Pleuroth. 15. 1859.

Anathallis parahybunensis Barb. Rodr., Gen. Sp. Orch. Nov. 2:76. 1882.

Humboldtia exasperata (Lindl.) O. Ktze., Rev. Gen. Pl. 2:667. 1891.

Humboldtia peduncularis (Lindl.) O. Ktze., l. c. 2:668. 1891.

Pleurothallis macropus Schltr., Repert. Spec. Nov. Regni Veg. 14:131. 1915.

Plant epiphytic, medium to large, caespitose; roots numerous, slender, flexuous. Secondary stem terete, up to 65 cm long, with up to 10 tubular sheaths, at least the lower ones pubescent, unifoliate. Leaf erect, coriaceous, commonly long-ribbed, very narrowly ovate to fusiform, apex acute, tridentate, base cuneate or with a short ill-defined petiole, up to 25 X 3 cm. Inflorescence a few- to many-flowered fascicle of single flowers at the apex of the stem; flowers widely spread, pale yellowish; peduncles terete, about 1 cm long, each subtended by a short pubescent spathe 1-2 mm long; pedicel and floral bract each about 4 mm long, the latter pubescent; ovary 2 mm long, puberulent; dorsal sepal very narrowly ovate, acuminate, attenuate, 10-18 X 2-3 mm, finely pubescent externally; lateral sepals similar to the dorsal sepal, slightly oblique, free to near the base where they form a short mentum; petals ovate basally, margins serrulate to nearly smooth, apex long-attenuate, thickened, 11-20 X 1-2 mm; lip yellow marked with purple, oblong to sub-pandurate, 2.5-3.5 X 1-2 mm, apex sub-truncate, slightly 3-lobed with a central thickening, dilated below the middle, base truncate and fleshy, disc with a pair of low purple lamellae; column stout, 2 mm long, without apical teeth, with a short foot.

ETYMOLOGY: From the Latin *peduncularis* (from *pedunculus*, dim. of *pes*, *pedis*, "little foot"), "provided with a peduncle," referring to the mass of peduncles produced by the glomerate inflorescence.

TYPE: BRAZIL: RIO DE JANEIRO: Imported by Loddiges (HOLOTYPE: K).

DISTRIBUTION: Brazil, Peru, Ecuador, Colombia, Venezuela, and Guyana.

ECUADOR: PICHINCHA: terrestrial on road embankment, about km 80 between Quito and Santo Domingo, alt. 1500 m, 1 Nov. 1961. *Dodson & Thien 1220* (SEL); same area, *F L Stevenson 81974-7* (SEL), flowered in cult. Aug. 1974; epiphytic along Rio Toachi, 15 km east of Santo Domingo, alt. 1000 m, 3 March 1975, *C. Luer & R. Kent 205* (SEL); COROPAXI: epiphytic between Quevedo and Latacunga, alt. 1000 m, 6 March 1975, *C. Luer & R. Kent 338* (SEL), greenhouse acc. no. 15-75-255; ZAMORA-CHINCHIPE: epiphytic between Loja and Zamora, *G. Kennedy s.n.* (SEL), greenhouse acc. no. 30-74-274, flowered in cult. Feb. 1974.

This species is common in damp montane habitats of much of South America. The plant and flowers are relatively stable morphologically over the wide distribution. Plants may form massive robust clumps more than a meter in diameter. They may grow either epiphytically or terrestrially, and erect or pendent.

The long cylindrical stems are clothed by a series of snug sheaths, the bottom ones of which bear minute hairs. The narrow leaf is rigid and erect. At its junction with the stem a swollen, dry, rough callus, indicating the plant's past floriferousness, may be seen. Sporadically various numbers of single flowers, sometimes 2 or 3, sometimes in great profusion, radiate on their peduncles from this common source. The spindly flowers are straw-colored to nearly white. The apices of the sepals and petals are long-attenu-

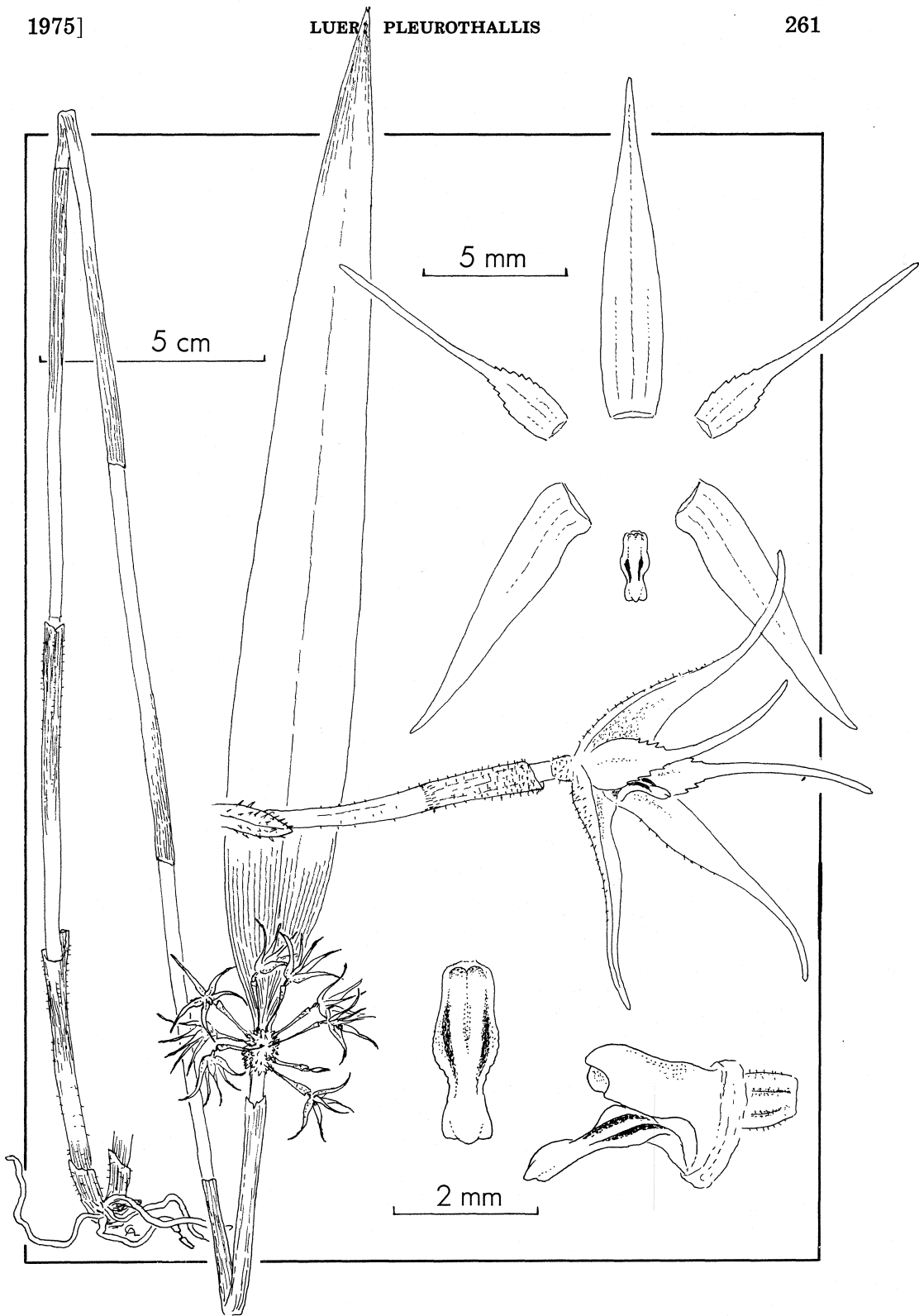


Figure 65. PLEUROTHALLIS PEDUNCULARIS Lindl.

ate, and the minute lip is oblong with a pair of purple lamellae. The column is short and thick with a blunt apex without teeth.

Lindley's *Pleurothallis exasperata* was described from flowers which were past and on well developed fruit; even the lips had dropped off. From the description and the appearance of the specimen this concept must belong to *P. peduncularis*. The description of Schlechter's *P. macropus* also applies to this species.

***Pleurothallis peroniocephala* Luer, sp. nov.**

Planta perparva epiphytica caespitosa, caulibus secundariis gracilibus teretibus unifoliatis, vaginis amplexicaulibus, folio coriaceo ovato acuto concavo cordato, floribus roseo-brunneis parvulis subglobosis fasciculatis, sepalo dorsali et synesepalo suborbiculatis concavis, petalis rubris linearibus falcatis, labello oblongo obtuso, callo hemisphaerico.

Plant very small, epiphytic to terrestrial, caespitose; roots filiform, flexuous. Secondary stem slender terete, 2-3.5 cm long, with a loose, tubular sheath below the middle and 1-2 sheaths at the base, unifoliate. Leaf spreading, deep green, rigid and coriaceous, ovate, slightly concave, acute, tridentulate, base of mature leaves deeply cordate, sessile. Inflorescence fasciculate, single-flowered, few (1-3), from a spathe 4-6 mm long at the base of the leaf; flowers very small, subglobose, rose-brown; floral bract tubular 3 mm long; pedicel and ovary each 2 mm long; dorsal sepal orbicular, deeply concave, obtuse to rounded, 2-2.5 × 2.5 mm spread out, 3-veined; lateral sepals connate into a synsepal similar to the dorsal sepal; petals red, linear-falcate, obtuse, 2.5 × 0.3 mm; lip rose, oblong, obtuse to subtruncate, base shortly cordate, disc with a well delineated hemispheric elevation in the center, 1.25 × 0.75 mm; column erect, 1 mm long, with a prominent collar-like stigma.

ETYMOLOGY: From the Greek *peronion*, "little pin" (dim. of *perone*), and *-cephalus*, "-headed," referring to the pin-head sized flowers.

TYPE: ECUADOR: ZAMORA-CHINCHIPE: terrestrial on road-cut between Loja and Zamora near km 41, alt. 1000 m. 5 Aug. 1975, C. Luer, G. Luer & Wilhelm 401 (HOLOTYPE: SEL); near km 33, alt. 1600 m, 8 Aug. 1958, Dodson 235 (SEL); probably same area, flowered in cult. at the Mo. Bot. Gard., 1 April 1961, Dodson 391 (SEL).

DISTRIBUTION: Ecuador.

This very small member of the section *Macrophyllae-Fasciculatae* is apparently endemic in southeastern Ecuador, but it might prove to be more widely spread after more diligent searching. The little heart-shaped leaves are very similar to those of other species in the section, but they are distinctive, nevertheless. The very small, dark purplish green leaves are stiff and thickened, slightly concave with sharp margins, and deeply cordate. The sepals of the pinhead-sized, brownish flowers are orbicular and concave, the red petals are long and curved, but the oblong lip is most distinguished with a rounded callus which is well demarcated in the center of the disc. The column with its collar-like stigma is as large as the lip and it stands erect above it.

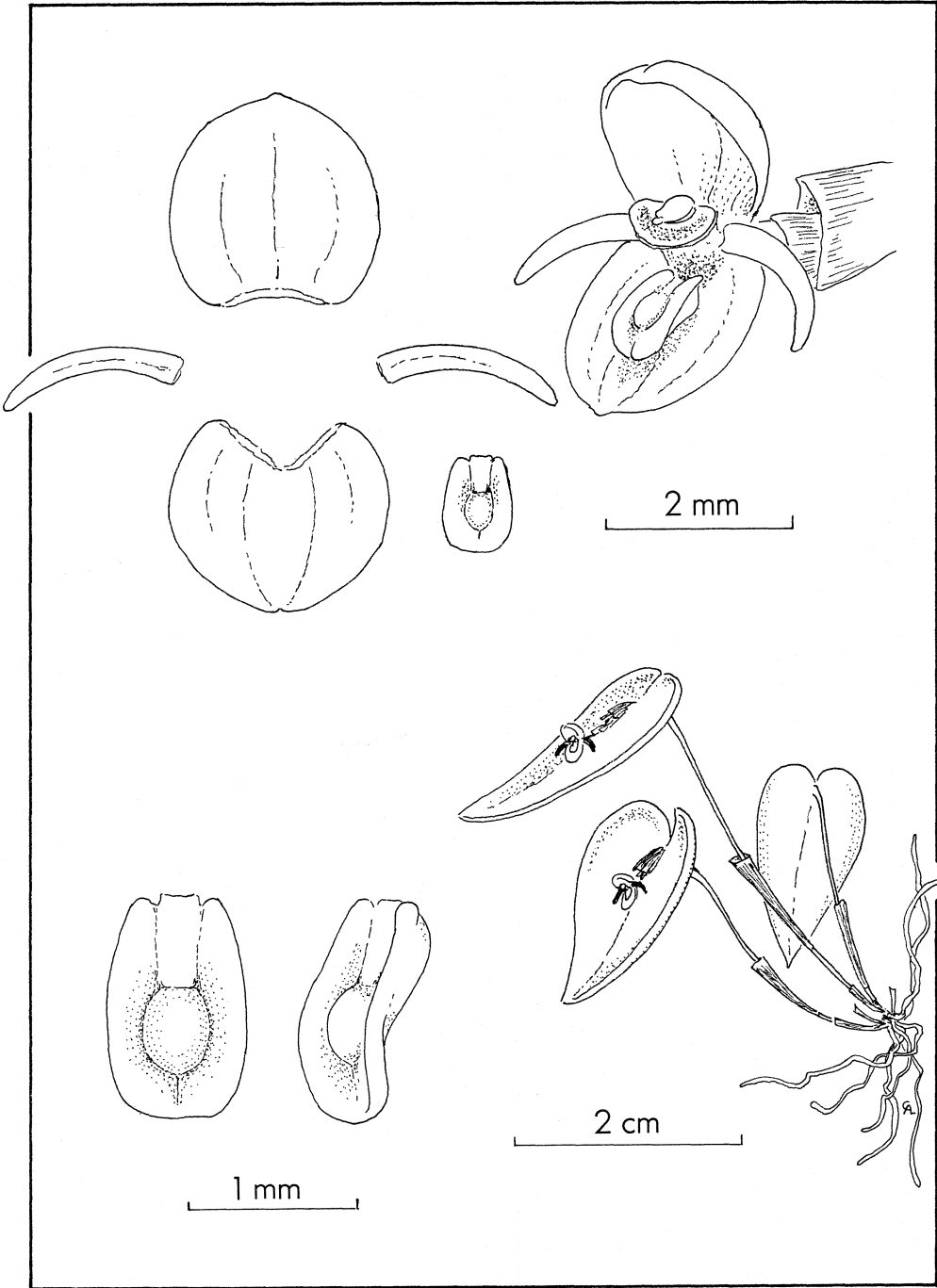


Figure 66. PLEUROTHALLIS PERONIOCEPHALA Luer

Pleurothallis poeppigii Lindl., Companion Bot. Mag. 2:354. 1836 (as *P. Pöppigii*).

Myoxanthus monophyllus Poepp. & Endl., Nov. Gen. Spec. Pl. 1:50, t. 88. 1835; not *Pleurothallis monophylla* (Hook.) Fawc. & Rendle.

Humboldtia poeppigii (Lindl.) O. Ktze., Rev. Gen. Pl. 2:668. 1891.

Pleurothallis myoxanthus Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9:141. 1921.

Plant epiphytic, large, caespitose; roots numerous, rambling. Secondary stems stout, cylindrical, 30-40 cm long, concealed by 5-8 dry, tubular, imbricating sheaths, the lowermost densely pubescent, monophyllous; Leaf dark green, coriaceous, erect, narrowly ovate, conduplicate, longitudinally ribbed, apex attenuate, acute, base narrowly cuneate, sessile, 20-37 × 3-5.5 cm. Inflorescence a dense globose fascicle of white or yellow flowers in the axil of the leaf; floral bract green, villous, infundibuliform, completely concealing the pedicel, ovary and bases of the sepals, 7-8 mm long; pedicel 1.5 mm long; ovary green, pubescent, 1 mm long; dorsal sepal linear-triangular, flexuous, margins more or less revolute, 18-30 × 3-4 mm; lateral sepals similar to the dorsal sepal, oblique, united basally to form a mentum; petals narrowly ovate, margins serrulate, apex long-attenuate, filiform, thickened, semi-terete, 20-30 × 2 mm; lip yellow, oblong, obtuse, delicately hinged to the column-foot, disc with a parallel pair of low lamellae, often suffused or flecked with purple 2-5 × 1 mm; column thick, 1.5 mm long, with a concave foot, 1 mm long.

ETYMOLOGY: Named in honor of its discoverer, Eduard Friedrich Poeppig (1798-1868), Austrian botanist and explorer, who collected extensively in the New World.

TYPE: PERU: HUANUCO: epiphytic in forest trees near Cassapi, *Poeppig 1743*.

DISTRIBUTION: Ecuador and Peru.

ECUADOR: ZAMORA-CHINCHIPE: between Loja and Zamora, alt. c. 2500 m, *F. L. Stevenson 111974-10* (SEL), flowered in cult. Sept. 1974; same area, *G. Kennedy s.n.* (SEL), greenhouse acc. no. 30-74-249, flowered in cult. March 1975.

In 1835, Poeppig and Endlicher first described and delineated this species from Peru in a monotypic genus as *Myoxanthus monophyllus* on characters too trivial to maintain. Possibly the generic name referred to the yellow flowers. The following year Lindley transferred the species to *Pleurothallis*, renaming it *P. pöppigii*. Since the combination *P. monophylla* had been used by Fawcett and Rendle in the Flora of Jamaica in 1910 for a completely different Caribbean species, the original epithet is not available.

Vegetatively the plant is similar to the common and widespread *P. peduncularis*. This large coarse species, however, is easily recognized by its dense, spherical mass of rather large flowers whose long-attenuated and flexuous sepals and petals overlap and intertwine, suggesting the mythical medusa. The erect leaf at the apex of the multi-sheathed stem is tough and ribbed. The flowers may be pure white (Stevenson's collection) or yellow (Kennedy's collection). The base of the perianth, ovary and pedicel are engulfed in a large green, villous bract. The simple lip is yellowish and variously marked with purple.

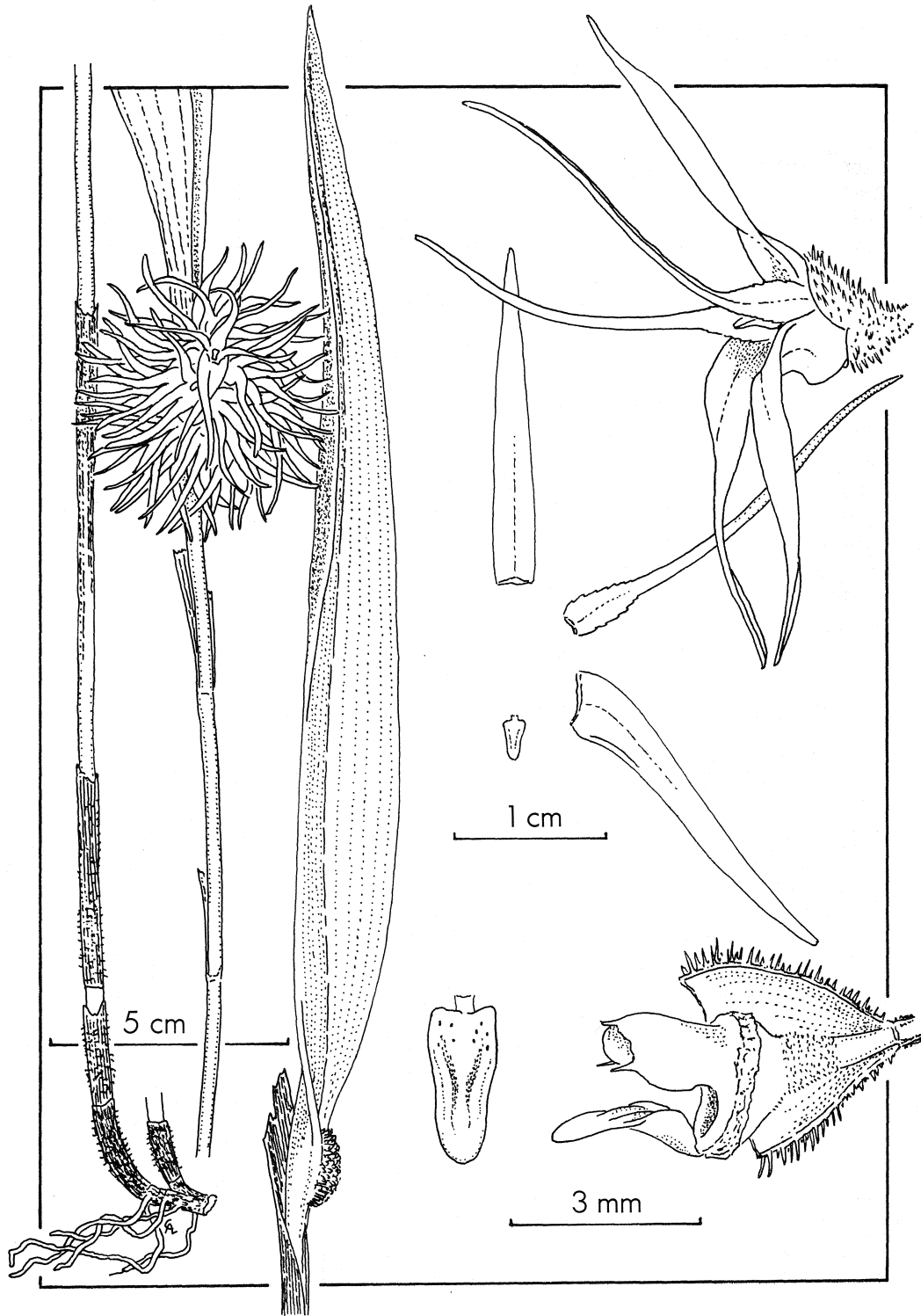


Figure 67. PLEUROTHALLIS POEPPIGII Lindl.

Pleurothallis pruinosa Lindl., Edward's Bot. Reg. 28:misc. 75. 1842.

Humboldtia pruinosa (Lindl.) O. Ktze., Rev. Gen. Pl. 2:668. 1891.

Pleurothallis pauciflora Schltr., Repert, Spec. Nov. Regni Veg. Beih. 19:192. 1923.

Plant small, epiphytic, caespitose; roots filiform, flexuous. Secondary stem terete, slender, 1-7 cm long, with 1-2 close-fitting tubular sheaths on the lower portion, unifoliate. Leaf coriaceous, slightly glaucous, narrowly elliptical, acute, tridentate, base narrowly cuneate, sessile, 1.5-3.5 × 0.5-0.8 cm. Inflorescence a single weak, arching, few-flowered (3-6) raceme, slightly shorter to slightly longer than the leaf; peduncle filiform, from a 3 mm spathe in the axil of the leaf; flowers small, bilabiate, pale yellowish green; floral bract oblique, infundibular, 1-1.5 mm long; pedicel about the same length; ovary about 1 mm long; dorsal sepal ovate, acute to acuminate, 2.5-4 × 1.25-2 mm, mid-vein prominent dorsally; lateral sepals united into an ovate concave synsepal, obtuse, occasionally retuse to bidentate, 2.5-4 × 1.5-2.5 mm, with 2 veins prominent externally; petals narrow, linear, acute, 1.5-3.5 × 0.2-0.5 mm; lip ovate-subcordate, apex subacute, base truncate and concave under the base of the column just above the foot, disc with a low fleshy elevation below the middle and a slight depression near the middle, 1.25-2 × 1-1.25 mm; column 1 mm long, with an indistinct foot.

ETYMOLOGY: From the Latin *pruinus*, "covered with a white powdery 'bloom'" (from *pruina*, "hoarfrost"), referring to the slightly glaucous leaves.

TYPE: *SURINAM*: on branches of *Crescentia*. *Splitgerber 527* (HOLOTYPE: K).

DISTRIBUTION: Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, Venezuela, Trinidad, Guyana, Surinam, French Guiana, Greater Antilles (Jamaica, Dominican Republic, Puerto Rico), and the Lesser Antilles (Guadeloupe, Dominica, Martinique, St. Lucia, Grenada).

NICARAGUA: Buena Vista mountains, A. H. Heller 4278 (SEL).

ECUADOR: PICHINCHA: epiphytic in old orange tree near Santo Domingo, alt. 675 m, 15 June 1967, *Dodson, Williams & Adams 3713* (SEL); *Fred Fuchs, Jr. s.n.* (SEL) greenhouse acc. no. 26-74-120, flowered in cult. Feb. 1975.

Pleurothallis pruinosa is rather common and widespread in tropical America from Honduras in Central America, the West Indies, through western and northern South America. Throughout the range the flowers seem to be one of the more morphologically stable of the genus, which makes the flowering plant easily identifiable. Central American specimens, however, seem to be smaller than those from other areas. Lindley named the plant for the faint "bloom" which sometimes is apparent on the blades.

The little plant may be recognized by its clump of slender stems which support equally long, narrow, backward arching leaves. The weak raceme commonly reclines along the curved surface. Sometimes the inflorescence exceeds the length of the leaf so that the apex may droop over the end of the blade. The little translucent yellow-green flowers are widely spread. The dorsal sepal and synsepal are similar, but the filiform petals protrude to either side. The minute ovate lip in the center is inconspicuous.

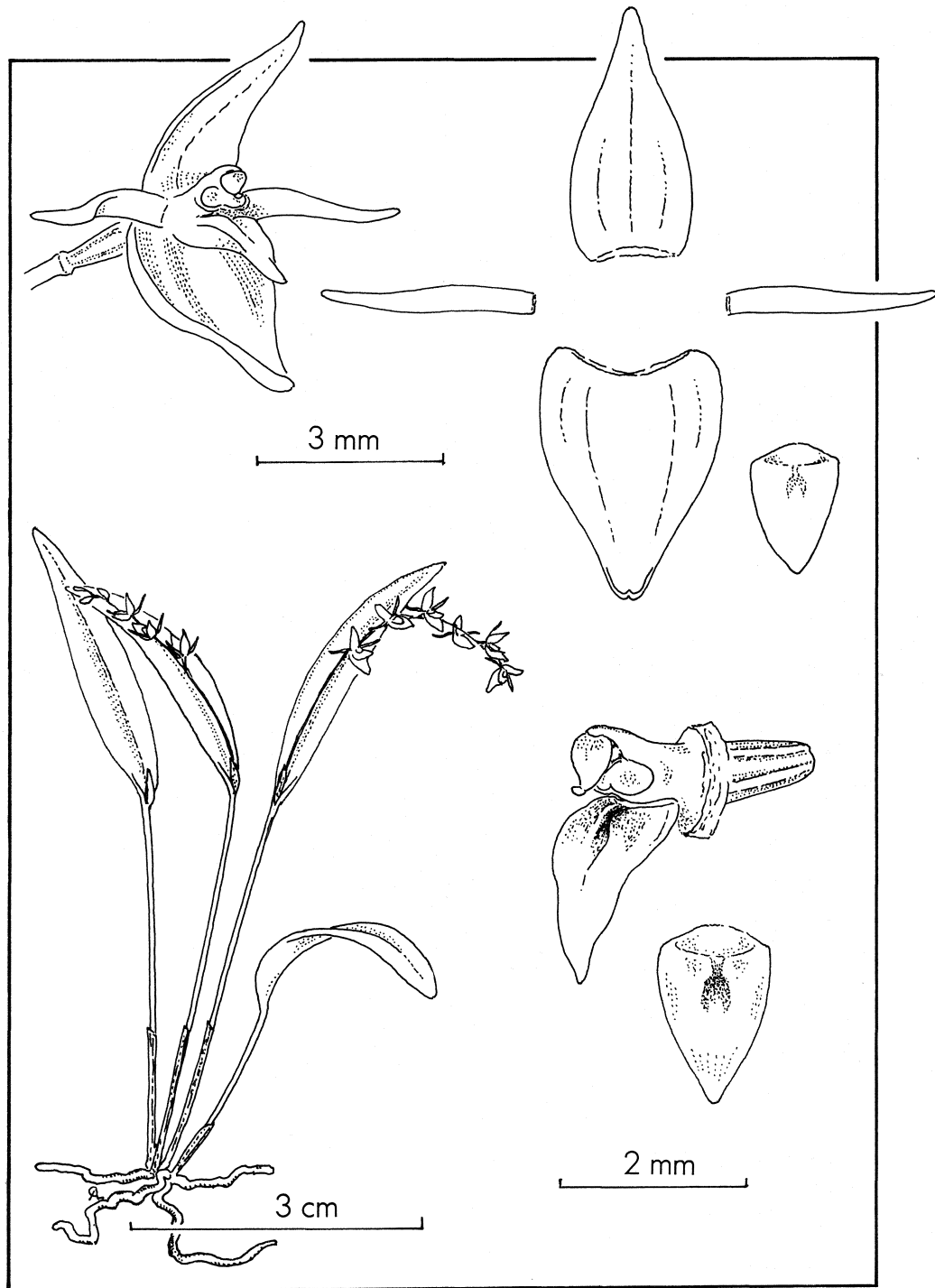


Figure 68. *PLEUROTHALLIS PRUINOSA* Lindl.

Pleurothallis pumila Luer, sp. nov.

Planta pumila caespitosa epiphytica, caulibus secundariis abbreviatis unifoliatis, foliis coriaceis suborbicularibus marginatis, racemo paucifloro, floribus citrinis, sepalo dorsali late ovato concavo breviter acuminato, sepalis lateralibus anguste linearibus acutis basi connatis cum pede columnae mentum formantibus, petalis ellipticis manis, labello ovato indistincte trilobato, lobo medio oblongo apice rotundato, lobis lateralibus semi-orbicularibus, disco bilamellato.

Plant very small, caespitose, epiphytic; roots filamentous, flexuous. Secondary stems abbreviated, stout, about 3 mm long, clothed by 1-2 thin, evanescent sheaths, unifoliate. Leaf coriaceous, broadly elliptical to sub-orbicular, marginate, obtuse, tridenticulate, base cuneate, shortly petiolate, 8-10 × 5-6 mm. Inflorescence a laxly-, few-flowered (3-4) raceme, about twice as long as the leaf; peduncle capillary, from a node on the secondary stem; flowers yellow, glabrous; floral bract 0.5 mm long; pedicel 1 mm long; ovary 0.5 mm long; dorsal sepal broadly ovate, shortly acuminate, concave, 5 × 3.5 mm, carinate along the 3 veins; lateral sepals narrowly linear, acute, connate basally to form a mentum with the sides of the column-foot, 5.5 × 1.5 mm together, each 1(2)-veined, unicarinate; petals elliptical, obtuse, 1.5 × 0.75 mm; lip ovate, shortly unguiculate, indistinctly 3-lobed, the mid-lobe oblong, apex rounded, the lateral lobes semi-orbicular below the middle and curved up, disc with a pair of tall, thin, erect lamellae between the lateral lobes; column terete, 1.5 mm, the foot about 1 mm long.

ETYMOLOGY: From the Latin *pumilus*, "dwarf," referring to the habit of the plant.

TYPE: *ECUADOR*: PASTAZA: epiphytic about 20 km east of Puyo, alt. 500 m, 29 July 1975, C. Luer, G. Luer & Wilhelm 483 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

This species is a minute plant which occurs on the mossy twigs high in the tops of the giant trees of the rain forest at low elevations of the Oriente of Ecuador. The clear yellow flowers seem large for the dwarf habit. The dorsal sepal is deeply concave, tricarinate and shortly acuminate. The lateral sepals are very narrow, together less than half the width of the dorsal sepal. *Pleurothallis pumila* is similar to the Central American *P. fuegi* Rchb.f., but it is distinguished from the latter by the nearly rounded leaves (instead of narrowly obovate), shorter racemes, noncaudate sepals, and the tall pair of thin lamellae on the lower part of the lip between the rounded lateral lobes.

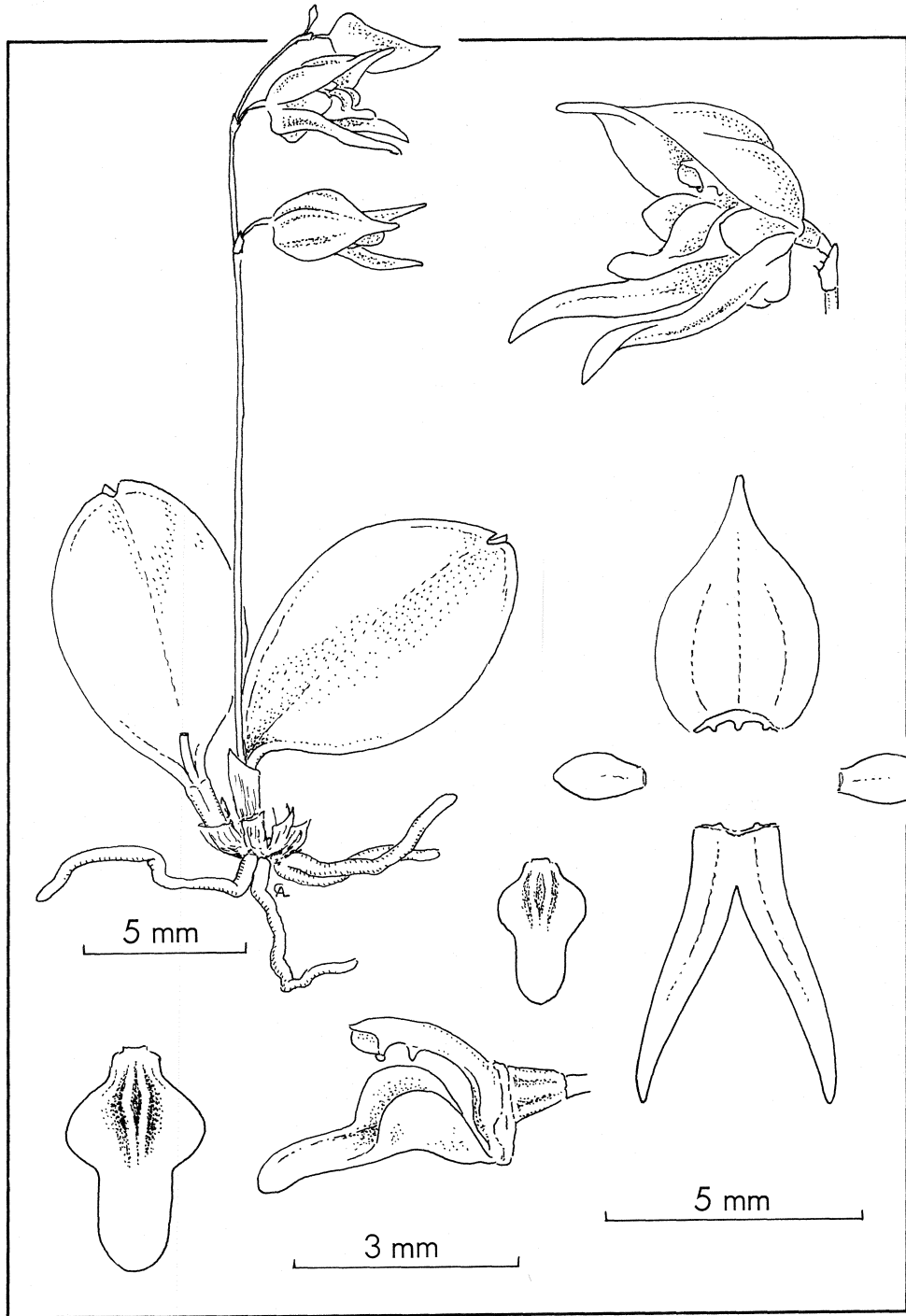


Figure 69. PLEUROTHALLIS PUMILA Luer

Pleurothallis punicea Luer, sp. nov.

Planta mediocris epiphytica rhizoma breviter repenti, caulibus secundariis purpureis anguste compressis, foliis puniceis anguste ellipticis, racemo paucifloro abbreviato, floribus carnosus purpureovittatis, sepalo dorsali anguste oblongo concavo, sepalis lateralibus ad medium connatis gibbosis acutis bicarinatis, petalis anguste ovatis obliquis serratis, labello spatulato longiungiculato supra medium ovato obtuso serrulato.

Plant medium sized to small, epiphytic, shortly repent, the primary stem thick, producing a secondary stem about every 3-5 mm, branching; roots filiform, flexuous. Secondary stem purple, slender, laterally compressed, 3.5-7 cm long, monophyllous, with 2 thin tubular sheaths at the base. Leaf red-purple, coriaceous, narrowly elliptical, acute, tridenticulate, base cuneate, sessile, 7-11 × 1-1.5 cm. Inflorescence a short, few-flowered (commonly 3) raceme, about 1 cm long, from a spathe about 6 mm long, evanescent, at the base of the leaf; floral bract infundibular, 1.5 mm long; pedicel and ovary purple, each 1.5 mm long, flowers fleshy, not widely spreading; dorsal sepal narrowly oblong, acute, concave, 8 × 2 mm, with 3 purple stripes along the veins; lateral sepals connate to near the middle to form a deep mentum below the column-foot, narrowly ovate, oblique, bicarinate, otherwise similar to the dorsal sepal; petals white with a purple mid-vein, narrowly ovate, oblique, acute, margin serrate, 4 × 0.75 mm; lip spatulate, ovate above the middle, obtuse, serrulate, sides turned up with intramarginal lamellae, disc pink with a rounded callus near the apex, abruptly contracted just below the middle into a narrowly linear, concave claw, base minutely auriculate at the attachment to the column foot, 4 × 1.5 mm; column rose, terete, 2.5 mm long, with a prominent foot.

ETYMOLOGY: From the Latin *puniceus*, "red-purple," in reference to the color of the plant and flowers.

TYPE: *ECUADOR*: NAPO: epiphytic, about 15 km west of Tena, alt. 600 m, 26 July 1975, C. Luer, G. Luer & Wilhelm 519 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

The entire plant is heavily suffused with red-purple. The narrow, thickened leaves of this distinctive species are proportionately long, usually a little longer than the narrowly flattened stems that bear them. The purple-striped flowers with a prominent mentum are borne compactly and simultaneously on very short racemes of three or four flowers. The hard and fleshy flowers are only slightly spreading and they remain in seemingly fresh condition as the ovaries swell. The white petals are narrow and serrated with a solitary purple stripe. The pink lip is abruptly contracted into a long narrow claw just below the middle. The apical half is ovate and serrulate with a rounded swelling near the blunt apex.

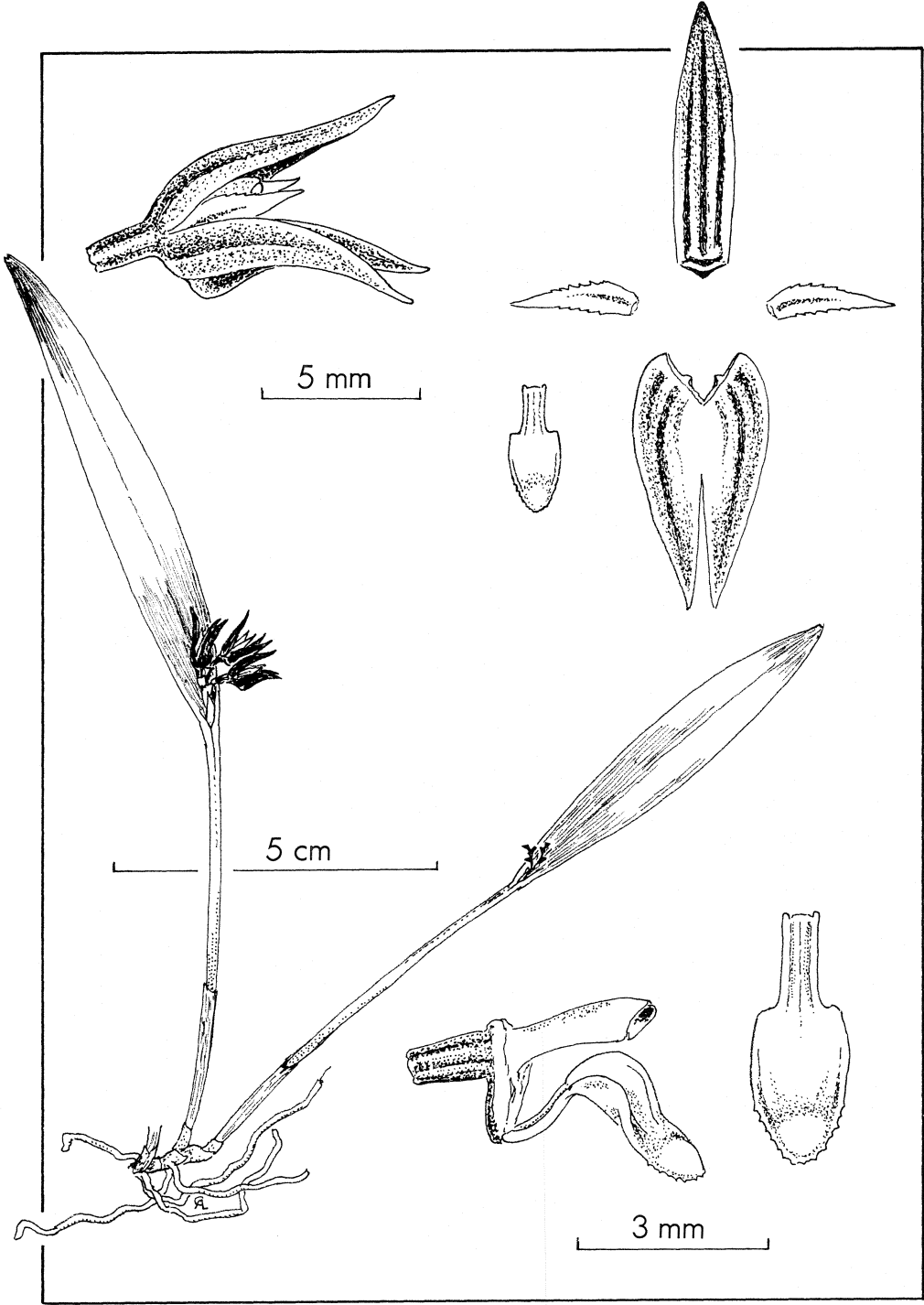


Figure 70. PLEUROTHALLIS PUNICEA Luer

Pleurothallis revoluta (Ruiz & Pav.) Garay, *Caldasia* 8:520. 1962.

Humboldtia revoluta Ruiz & Pav., *Syst. Veg.* 1:235. 1798.

Pleurothallis macrophylla HBK, *Nov. Gen. Sp. Pl.* 1:365. 1815.

Pleurothallis diffusa Poepp. & Endl., *Nov. Gen. Spec. Pl.* 1:49. 1836.

Pleurothallis semipellucida Rchb.f., *Linnaea* 22:823. 1849.

Humboldtia diffusa (Poepp. & Endl.) O. Ktze., *Rev. Gen. Pl.* 2:667. 1891.

Humboldtia macrophylla (HBK) O. Ktze., l. c. 2:667. 1891.

Humboldtia semipellucida (Rchb.f.) O. Ktze., l. c. 2:668. 1891.

Pleurothallis complicata Rolfe, *Mem. Torrey Bot. Club* 6:121. 1896.

Plant epiphytic to terrestrial, large to medium in size, repent; roots fascicled slender, flexuous. Secondary stems stout to slender, terete, to 45 cm long, with 2-3 close-fitting, tubular sheaths below the middle, unifoliate. Leaf coriaceous, ovate, acute to acuminate, tridentate, base cuneate to rounded, sessile, 10-25 × 4-10 cm. Inflorescence 1-5 or more densely multiflowered racemes as long as, to much larger than the leaf; peduncles from a 2-5 cm ancipital spathe in the axil of the leaf; flowers pale yellow-green, frequently spotted with purple, bilabiate; floral bract infundibular, about 2 mm long; pedicel also about 2 mm long; ovary about 2.5 long; dorsal sepal ovate, acute to acuminate, concave, 4-6.5 × 1.75-2.5 mm, 3-veined, the nerves thickened dorsally; lateral sepals united to the apex into a broadly ovate, deeply concave synsepal, acute to acuminate, 4-7 × 3.5-6 mm, 6-veined; petals linear, acuminate, thickened, terete, often dilated above the middle, 4-6.5 × 0.3-0.8 mm; lip fleshy, broadly and transversely oblong, indistinctly 3-lobed, mid-portion concave and apiculate, lateral portions orbicular and curved forward in the natural position, acutely deflexed at the base, broadly hinged to the column-foot, 1.5-2 mm long and 2-4 mm across spread out; column stout, 1.5 mm long, with a short foot.

ETYMOLOGY: From the Latin *revolutus*, "revolute, rolled back or toward the lower side," in allusion to the configuration of the lip.

TYPE: *PERU*: "Muña supra arbores et saxa," *Ruiz s.n.*

DISTRIBUTION: Venezuela, Trinidad, Colombia, Ecuador, Peru, Bolivia, and Argentina.

ARGENTINA: FORMOSA: epiphytic 30 km southwest of Iguazu, *Fred Fuchs, Jr. s.n.* (SEL), greenhouse acc. no. 26-74-74, flowered in cult. Jan. 1975.

ECUADOR: TUNGURAHUA: 4 km east of Baños near Rio Blanco, alt. 1600 m, 8 Oct. 1961, *Dodson & Thien 891* (SEL); about 5 km west of Baños in old lava flow, alt. 2200 m, 10 March 1975, flowered in cult. 2 June 1975, *C. Luer & R. Kent 330* (SEL); same area, *F L Stevenson 1-2475-3, 1-2475-4* (SEL), flowered in cult. Jan. 1975.

Pleurothallis revoluta is morphologically variable in its wide distribution through the Andes. It is commonly a robust, large-leaved plant capable of producing several long racemes of closely spaced small flowers, either pale green or minutely spotted with lavender. The narrow petals are thickened and broadened above the middle, but with an acuminate apex. The lateral sepals are united into a boat-shaped synsepal with a mentum below the minute lip. The distinctive labellum is acutely deflexed at the base, concave centrally, and with large orbicular sides or lateral lobes, which are turned upward or forward in the natural position. When forcibly expanded, the lip appears several times wider than long.

This species is closely related to *P. antennifera* Lindl. and *P. brachiata* Luer.

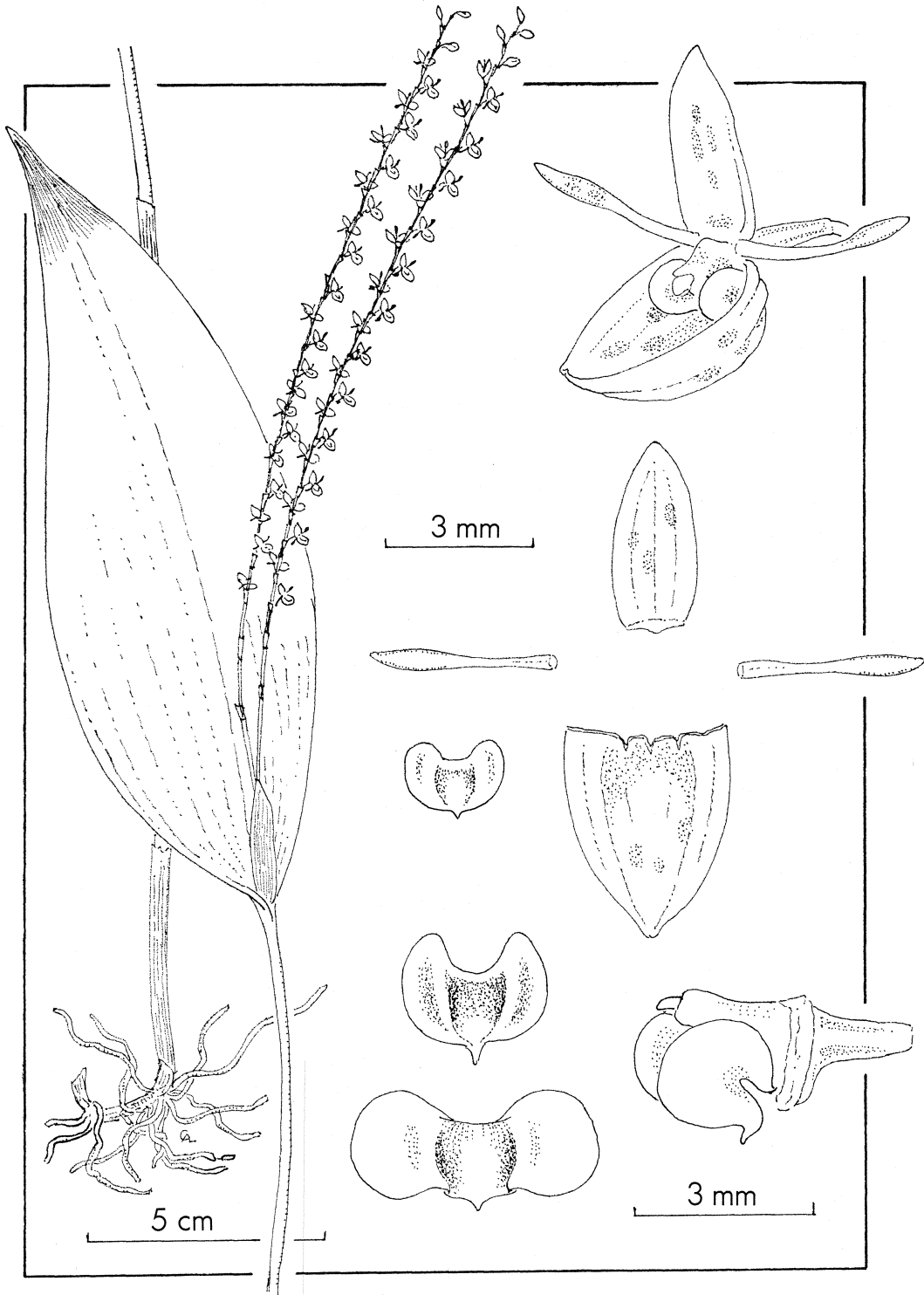


Figure 71. PLEUROTHALLIS REVOLUTA (Ruiz & Pav.) Garay

Pleurothallis ruberrima Lindl., Orchid. Linden. 1. 1846.

Humboldtia ruberrima (Lindl.) O. Ktze., Rev. Gen. Pl. 2:668. 1891.

Pleurothallis yungascensis Rolfe, Mem. Torrey Bot. Club 4:259. 1895.

Pleurothallis nutantiflora Schltr., Repert, Spec. Nov. Regni Veg. 14:131. 1915.

Pleurothallis opeatorhyncha Schltr., l. c. 8:62. 1921.

Plant medium to large, caespitose, epiphytic to terrestrial; roots slender, flexuous. Secondary stem erect to ascending, terete, slender, 12 to 50 cm tall, with 2-3 tubular sheaths below the middle, monophyllous. Leaf more or less erect, narrowly ovate, acuminate, tridenticulate, base shortly cordate and decurrent on the stem, 8-20 × 2.5-4.5 cm. Inflorescence fasciculate, 1-3 flowers appearing from a 10-15 mm spathe in the axil of the leaf; flowers widely spread, pendent, commonly deep red-purple, but yellow forms occur; pedicel weak, 1-3 cm long, floral bract 5-10 mm long; ovary 4-6 mm long, sometimes microscopically pubescent; dorsal sepal narrowly ovate, acuminate, margins revolute, 15-35 × 4-8 mm, 7-11-veined, lateral sepals united into an ovate lamina, acute to acuminate, sometimes bidentate, 14-30 × 9-15 mm, 10-veined; petals short to long-triangular, acuminate, often lobed basally, glabrous, 5-8 × 1-3 mm, 1-3-veined; lip broadly ovate to cordate, obtuse to rounded, disc thickened and convex, 3-4 × 3-4 mm, margin often minutely erose, base concave above the attachment to the column-foot, commonly red edged in yellow; column stout, 2 × 2 mm, with a foot 1.5 mm long.

ETYMOLOGY: From the Latin *ruberrimus*, the superlative of *ruber*, "red," referring to the very red color frequently occurring in the flowers.

TYPE: VENEZUELA: MERIDA: epiphytic near Mérida, alt. 6000 ft., *J. Linden 670* (HOLOTYPE: K).

DISTRIBUTION: Venezuela, Colombia, Ecuador, and Peru.

ECUADOR: PICHINCHA: terrestrial on road embankment near km 86 between Quito and Santo Domingo, alt. 1400 m, 1 Feb. 1963, *Dodson & Thien 2209* (SEL); same area, 1 March 1975, *C. Luer & R. Kent 327* (SEL); near km 60, alt. 2000 m, 5 Feb. 1963, *Dodson & Thien 2222B* (SEL); same area, 9 March 1975, *C. Luer & R. Kent 328* (SEL); TUNGURAGUA: epiphytic near Rio Negro between Baños and Puyo, alt. 1300 m, 11 March 1963, *Dodson & Thien 2359* (SEL); ZAMORA-CHINCHIPE: epiphytic near km 28 between Loja and Zamora, alt. 1800 m, 1 Sept. 1960, *Dodson 206* (SEL).

This species is probably as variable in Ecuador as it is through its wide geographical range. Rolfe distinguished the plant from Bolivia (as *Pleurothallis yungascensis*) by a more cordate lip and a broader dorsal sepal.

The leaves of *P. ruberrima* are long and narrow and consistently shortly cordate at the base, but they vary widely in dimensions. The large flowers, which are borne on elongated weak pedicels, often dangle over the edge of the leaf. Some forms produce unusually large flowers, even rarely attaining the size of *P. jupiter* Luer. The color is commonly dark purplish red, but sometimes the veins are red on a green background. Yellow forms with white lips also occur (*P. opeatorhyncha* Schltr.). Characteristically the synsepal is nearly twice as broad as the dorsal sepal, which seems narrower because of its revolute edges. The petals are proportionately small, widely lobed at the base and tapered to the apex. The small and broad lip is pressed down snugly against the synsepal.

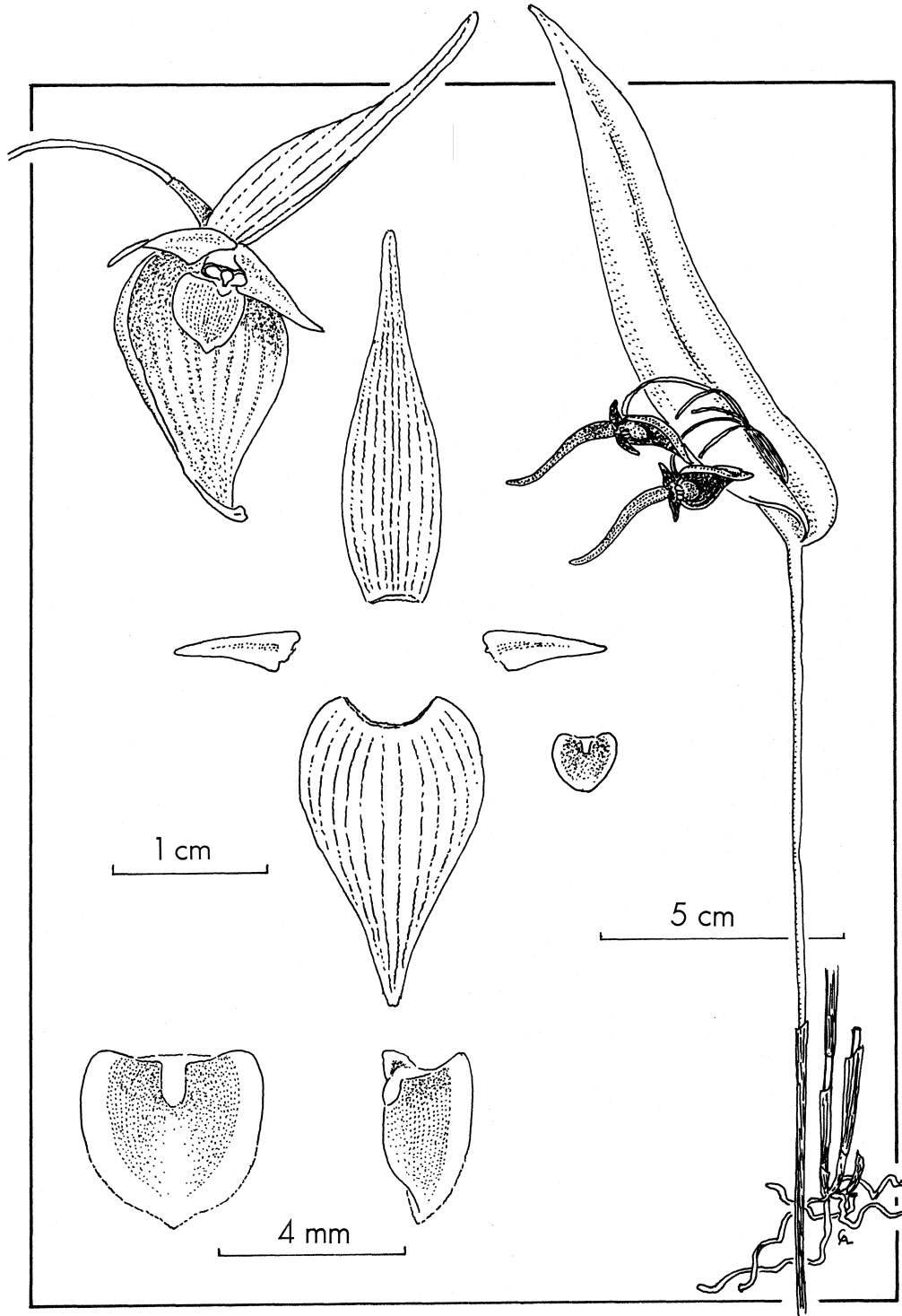


Figure 72. PLEUROTHALLIS RUBERRIMA Lindl.

Pleurothallis rubroinversa Luer, sp. nov.

Planta parva caespitosa, caulibus secundariis gracilibus teretibus unifoliatis, folio anguste cordato acuto, floribus solitariis successivis fasciculatis atropurpureis non-resupinatis, sepalo mediano et synsepalo late ovatis subacutis extra puberulis, petalis ellipticis acuminatis verruculosis marginibus dentatis, labello latissime ovate apice rotundato verruculoso margine denticulato.

Plant small, epiphytic to terrestrial, caespitose; roots filamentous, flexuous. Secondary stems terete, slender, 7-10 cm long, with a tubular sheath below the middle and 1-2 others at the base, unifoliolate. Leaf deep green coriaceous, rigid, narrowly ovate, acute to acuminate, base cordate, sessile, 4-6 × 1.5-2 cm. Inflorescence fasciculate, flowers maroon, nonresupinate, produced singly and successively, from a spathe 10-16 mm long at the base of the leaf; floral bract about 5 mm long; pedicel about 8 mm long; ovary 5 mm long; middle sepal broadly ovate, subacute, 8 × 6 mm, finely pubescent externally, 3-veined; lateral sepals united into a synsepal, similar to the dorsal sepal, 4-veined, uppermost; petals elliptical, acuminate, slightly oblique, 6 × 2.25 mm, margin dentate, surface verruculose; lip uppermost, very broadly ovate, apex rounded, base shortly concave just above the attachment to the column-foot, disc with a circular patch opposite the rostellum flanked by a pair of broad shallowly concave yellow areas, the remainder of the lip purple-red and verrucose, margins denticulate, 3 × 3.5 mm; column short, 1 × 1.5 mm.

ETYMOLOGY: From the Latin *ruber*, *rubris*, "red," and *inversus*, "turned upside down, or non-resupinate," referring to the red inverted flowers.

TYPE: ECUADOR: PICHINCHA: terrestrial on road cut near km 55 between Quito and Santo Domingo, alt. 1800 m, 10 March 1975, C. Luer & R. Kent 226 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

This species was discovered growing terrestrially on a steep road cut, undoubtedly a waif from the surrounding rain forest. The stems held their leaves perpendicular from the bank and each comparatively large inverted maroon flower faced outward with its middle sepal resting in the sulcus of the stiff, deep green leaf.

The habit of presenting flowers with the lip uppermost is not common in the section *Macrophyllae-Fasciculatae* of *Pleurothallis*. Other species in the section with inverted flowers are *P. cardiostola* Rchb.f., *P. chanchamayoensis* Schltr., *P. conicostigma* Luer, and *P. semiscabra* Lindl.

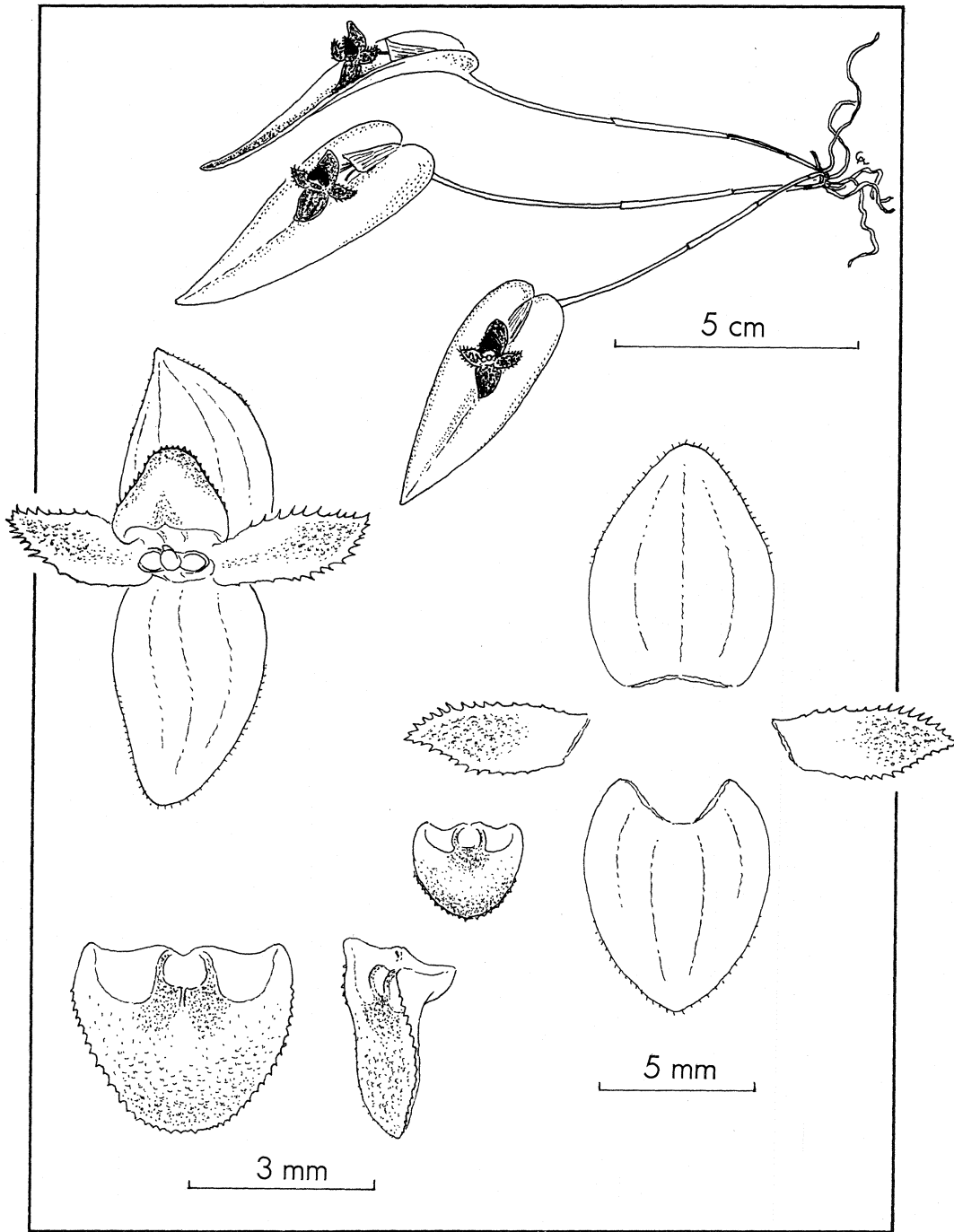


Figure 73. PLEUROTHALLIS RUBROINVERSA Luer

***Pleurothallis samacensis* Ames, Sched. Orchid. 2:22. 1923.**

Plant minute, epiphytic, caespitose; roots slender, flexuous. Secondary stem terete, very short, 1-3 mm long, with 1-2 papery, ribbed, tubular sheaths, unifoliate. Leaf narrowly obovate, obtuse to subacute, tridenticulate, base attenuated indistinctly into a narrow, channeled petiole, 12-22 X 2-4 mm. Inflorescence a loose, few-flowered (2-5) raceme, 2-4 cm in length; peduncle filiform, from the apex of the stem; flowers borne successively, widely spread, translucent yellow-green marked with purple; floral bract acute, tubular, 1 mm long; pedicel 2-3 mm long; ovary pubescent, about 0.5 mm long; dorsal sepal narrowly ovate, acuminate, setose externally, 5.5 X 1.5 mm, 3-veined, the veins prominent dorsally; lateral sepals free, similar to the dorsal sepal, oblique, each 5.5 X 1.5 mm, 2-veined, carinate; petals more or less sagitate, with a few deep lacerations on the inner third, the outer two-thirds a yellowish slender, thickened, caudate extension, 4.5 X 0.5 mm, 1-veined; lip translucent yellow-green marked with purple, obovate to pyriform, dilated above the middle, apex rounded, margin microscopically erose, with a pair of blunt, triangular, erect lamellae near the base, base shortly unguiculate, 2.5-3 X 1-2 mm; column terete, 2 mm long, with a short foot.

ETYMOLOGY: Named for the village of Samác, near where the species was first discovered.

TYPE: GUATEMALA: ALTA VERAPAZ: Samác to Cobán, 20 Oct. 1920, Harry Johnson 765 (HOLOTYPE: AMES).

DISTRIBUTION: Guatemala, ?Costa Rica, Venezuela, and Ecuador.

ECUADOR: NAPO: epiphytic, 14 km north of Archidona, alt. 600 m, 27 July 1975, C. Luer, G. Luer & Wilhelm 520 (SEL); PICHINCHA: epiphytic near km 80 between Quito and Santo Domingo, alt. 1500 m, 17 Aug. 1975, Dodson 5958 (SEL).

Ames described *Pleurothallis samacensis* from Guatemala, but it is very similar to the South American *P. setigera* Lindl. Dunsterville and Garay, and Foldats have recently reported the species from Venezuela, and it has now been found on either side of the Andes in Ecuador. At first it was thought to be *P. setigera*, but the minor differences used to differentiate this species are present. Undoubtedly its distribution is greater than noted because of its very small size and its habitat in the high mossy branches of the rain forest.

The flowers of the Ecuadorian specimens are spotted with purple. The distinctive petals bear a very few deep lacerations near the base with a long, slender and thickened, setose extension occupying the outer two-thirds. Near its base the lip appears lobed because of a small pair of erect keels, but the lip is widest above the middle where it expands into a broadly rounded apex.

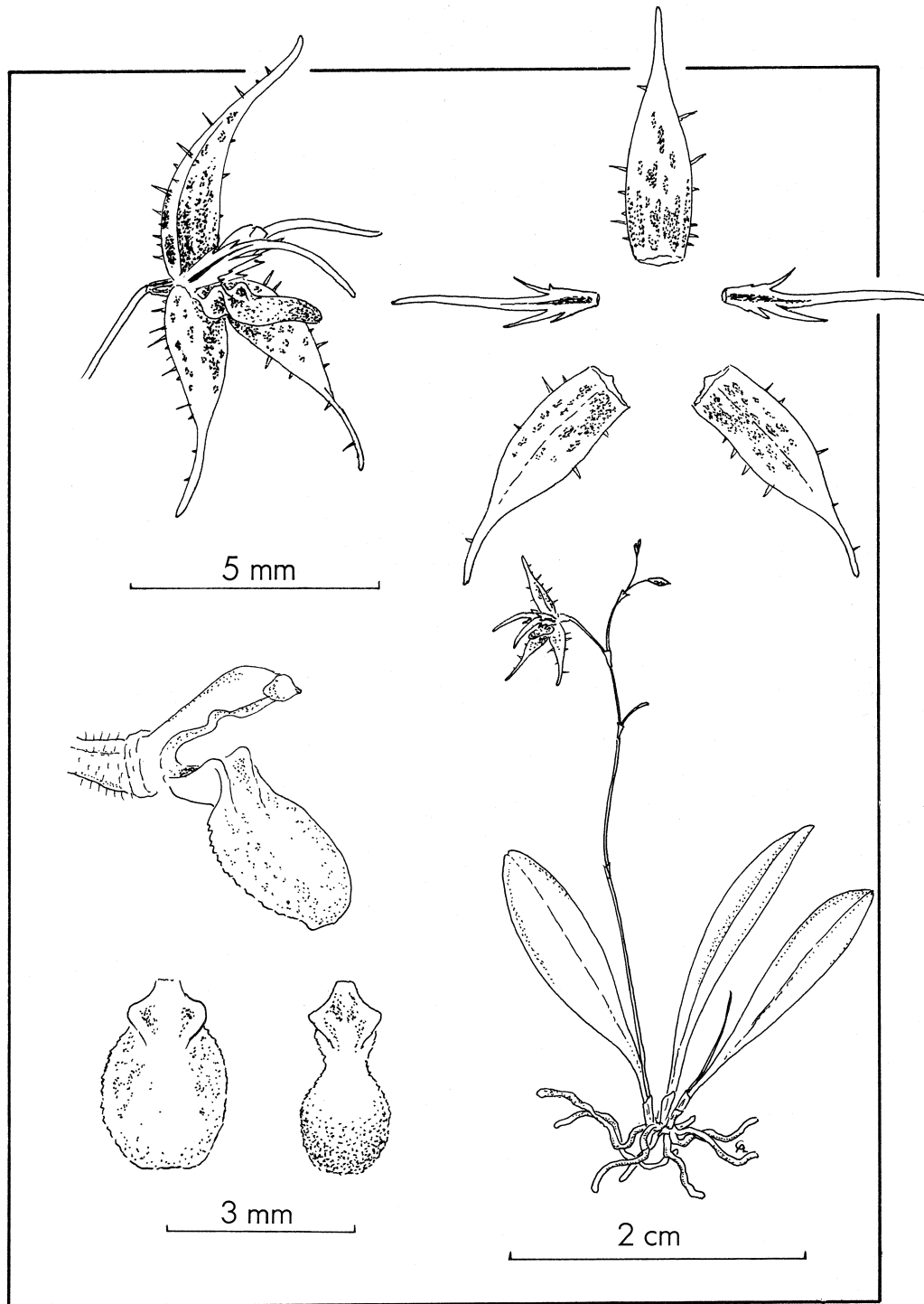


Figure 74. *PLEUROTHALLIS SAMACENSIS* Ames

Pleurothallis scabrata Lindl., Folia Orchid. Pleuroth. 30. 1859.

Humboldtia scabrata (Lindl.) O. Ktze., Rev. Gen. Pl. 2:668. 1891.

Plant large, repent, terrestrial to epiphytic; rhizome stout, terete, producing a fascicle of roots and a secondary stem every 2-3 cm. Secondary stem slender, terete, to 30 cm tall, with a close tubular sheath below the middle and 1-2 others basally, monophyllous. Leaf erect, elliptical, apex narrowly obtuse, base cuneate, sessile, 15-20 × 4-5.5 cm. Inflorescence a solitary, slender, secund, laxly many-flowered, arching raceme, much exceeding the leaf, 30-40 cm long; peduncle from a 1.5 cm spathe in the axil of the leaf; floral bract infundibular, 5 mm long; pedicel slender, 5-6 mm long; ovary 4 mm long; flowers light rosey brown, slender, not wide-spreading; dorsal sepal narrowly ovate, concave, acuminate, acute, 13 × 4 mm, with the veins prominent externally; lateral sepals completely united into a narrowly triangular, obtuse synsepal, 12 × 4 mm; petals ovate and 3-veined below the middle, yellow, linear-acuminate and thickened above the middle with erose to papillose-ciliate margins, 12 × 3 mm; lip 3-lobed near the middle, 5.5 × 4 mm spread, apical lobe 2 × 1 mm, yellow, ovate, acute with dentate margins, lateral lobes 1.5 × 2.5 mm, broadly subquadrate and rounded, elevated in the natural position, spotted with brown-purple, base broadly unguiculate with a distinct tooth at either side of the articulation, disc with a pair of low lamellae near the middle; column brown to yellow, terete, 4 mm long, with a short foot.

ETYMOLOGY: From the Latin *scabratus*, "roughened" (*scaber*, "scabrous, rough"), in allusion to the coarsely ciliated margins of the petals.

TYPE: BOLIVIA: *Bridges 1046* (HOLOTYPE: K).

DISTRIBUTION: Ecuador, Peru and Bolivia.

ECUADOR: TUNGURAHUA: terrestrial in Valle de Chaupe above Baños, alt. 2200 m, 24 July 1975, *C. Luer, G. Luer & Wilhelm 463* (SEL).

Although it may be locally abundant, this species is apparently rare in its wide distribution on the eastern declivity of the Andes from Ecuador to Bolivia. It is a large plant which produces a long solitary raceme from the base of a sessile elliptical leaf. Stumps of old peduncles may persist from the short spathe. The nodding, pinkish brown flowers, borne in a long row, are slender and spread only slightly. The sepals are narrow and concave below. The distinctive petals are thickened and acuminate above the middle with papillary or scabrous margins. The equally distinctive lip has broadly rounded, erect lateral lobes, an acute serrated middle lobe, and a pair of basal teeth on the claw.

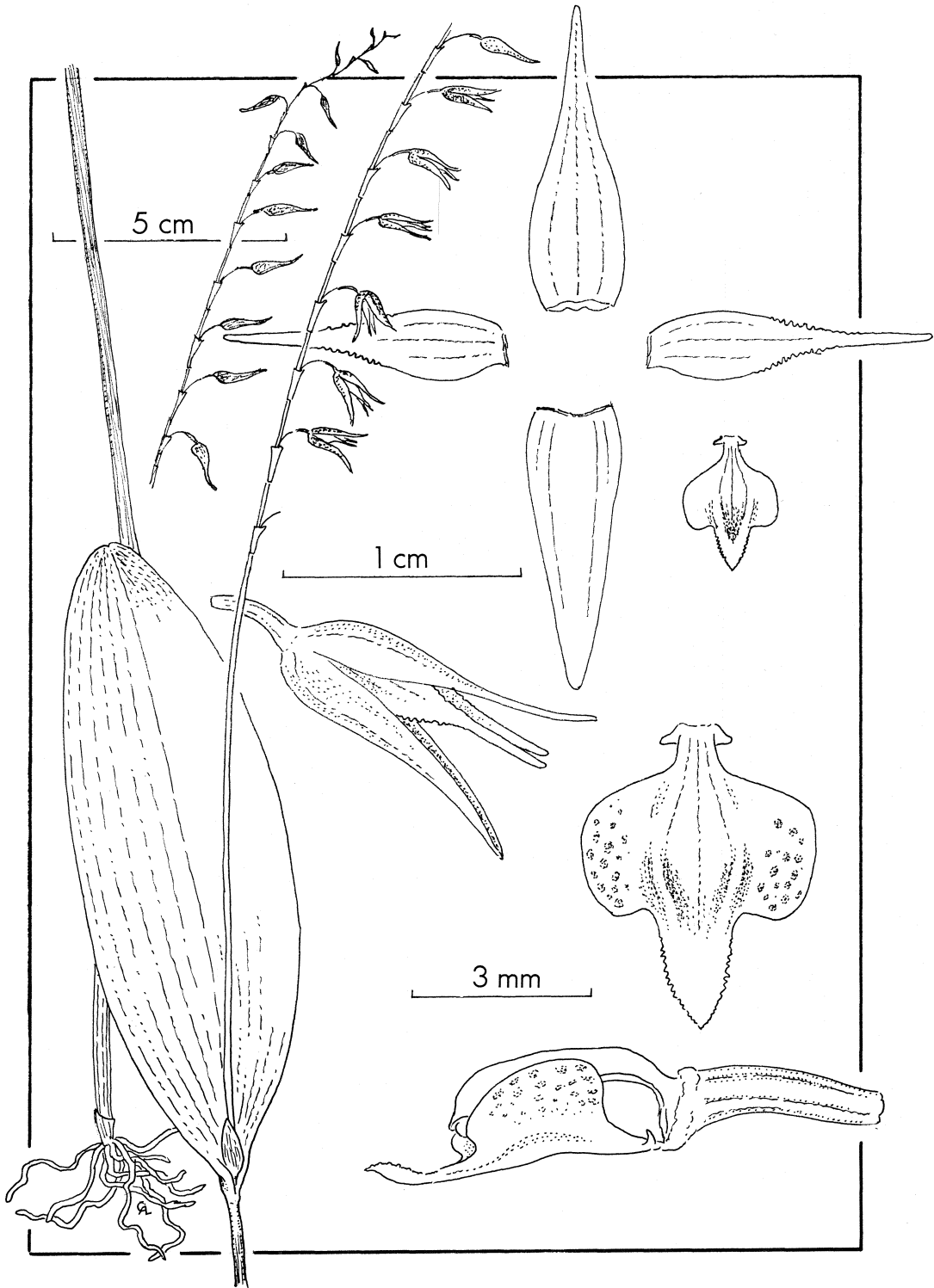


Figure 75. PLEUROTHALLIS SCABRATA Lindl.

Pleurothallis scabrilinguis Lindl., Companion Bot. Mag. 2:354. 183

Pleurothallis microcardia Rchb.f., Bonplandia 3:72. 1855.

Humboldtia microcardia (Rchb.f.) O. Ktze., Rev. Gen. Pl. 2:667. 1891.

Humboldtia scabrilinguis (Lindl.) O. Ktze., l. c. 2:668. 1891.

Plant epiphytic to terrestrial, small, caespitose; roots filamentous, flexuous. Secondary stem terete, slender, 5-8 cm long, with 2-3 closely applied tubular sheaths below the middle, unifoliate. Leaf spreading, coriaceous, narrowly ovate, acute to acuminate, tridenticulate, base rounded to barely subcordate, 3-5.5 × 1-1.5 cm, sessile. Inflorescence fasciculate, single flowers widely spreading, produced from a spathe, 6-7 mm long, at the base of the leaf; floral bract 3-4 mm long; pedicel 5-6 mm long; ovary 2.5-3 mm long; dorsal sepal orange-red, very narrowly ovate, acute, 12 × 2.5 mm, 3-veined, the veins prominent externally; lateral sepals yellow-brown, connate into a narrowly ovate lamina, acute, 11 × 5 mm, 4-veined; petals red-brown, linear, acute, 6 × 0.5 mm, 1-veined, margin denticulate below the middle; lip yellow-brown, ovate, apex obtuse to rounded, minutely papillose, base concave at the attachment to the column-foot, disc plain, 4.5 × 2.5 mm; column 1 × 1.5 mm, with a short, bulbous foot.

ETYMOLOGY: From the Latin *scaber*, "rough, or scabrous," and *lingua*, "tongue," referring to the minutely roughened surface of the lip.

TYPE: PERU: Mathews 1904 (HOLOTYPE: K).

DISTRIBUTION: Colombia, Ecuador, and Peru.

ECUADOR: ZAMORA-CHINCHIPE: terrestrial near km 40 on the road embankment between Loja and Zamora, alt. 1500 m, 6 Aug. 1975, C. Luer, G. Luer & Wilhelm 581 (SEL); epiphytic in same area, near km 25, alt. 1800 m, 11 June 1958, Dodson 225 (SEL); epiphytic in same area, 8 Aug. 1958, Dodson 239 (SEL).

This species may be but little more than a small-leaved form of the variable *Pleurothallis undulata* Poepp. & Endl., but the leaves are so distinctly different that the concept probably deserves specific recognition. Apparently *P. scabrilinguis* is somewhat variable itself in its wide range through the Andes. In my opinion *P. microcardia* Rchb.f. should be included in the synonymy of *P. scabrilinguis*.

In his original description of *P. microcardia* Reichenbach compared the flower to those of *P. undulata*. The leaves of *P. undulata* are comparatively large, soft or pliable, broadly ovate, and with a deeply cordate, bi-auriculate base. The leaves of *P. scabrilinguis* are small, rigid and narrow with a rounded base, only very shortly cordate at most. The flowers spread widely with the narrow dorsal sepal erect above. The margins may be revolute. The broader synsepal lies upon the surface of the leaf as the subulate petals extend widely to either side. The ovate lip is minutely papillose and it lies upon the synsepal.

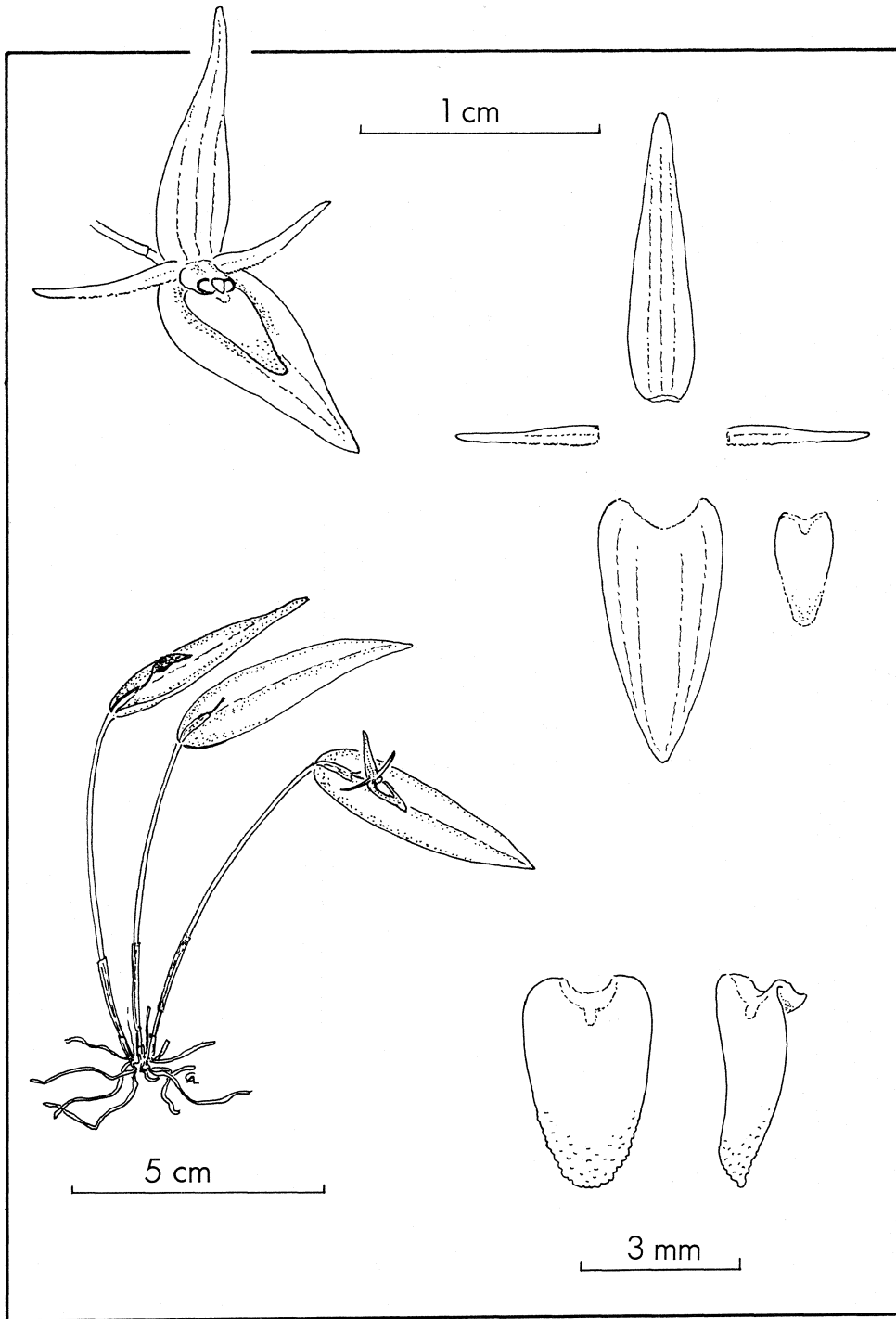


Figure 76. *PLEUROTHALLIS SCABRILINGUIS* Lindl.

- Pleurothallis sclerophylla** Lindl., Edward's Bot. Reg. 21:sub. t.1797. 1835.
Pleurothallis stenopetala Lodd. ex Lindl., l. c. 25:misc. 95. 1838.
Pleurothallis listrostachys Rchb.f., Bonplandia 3:71. 1855.
Anathallis secunda Barb. Rodr., Gen. Sp. Orchid. Nov. 2:72. 1882.
Humboldtia sclerophylla (Lindl.) O. Ktze., l. c. 2:668. 1891.
Humboldtia stenopetala (Lodd. ex Lindl.) O. Ktze., l. c. 2:668. 1891.
Pleurothallis urosepala Lehm. & Krzl., Bot. Jahrb.Syst. 26:442. 1899.
Pleurothallis dolichopus Schltr., Repert. Spec. Nov. Regni Veg. 10:394. 1912.
Pleurothallis dolichopus var. *bradeorum* Schltr., l. c. 10:394. 1912.
Pleurothallis triura Schltr., l. c. 14:386. 1916.
Pleurothallis ottonis Schltr., l. c. 27:52. 1929.

Plant terrestrial to epiphytic, medium in size, caespitose to scandent; roots slender, flexuous. Secondary stems terete, slender, 5-16 cm long, sometimes proliferative, with a close tubular sheath below the middle, and 1-2 sheaths basally, unifoliate. Leaf rigid, erect, elliptic, obtuse to subacute, 1-1.5 cm long. Inflorescence a solitary (occasionally 2) many-flowered raceme to 25 cm long, flowers yellow, spreading, open nearly simultaneously; peduncle short, from a 10-14 mm spathe at the apex of the stem, floral bract infundibular, about 4 mm long; pedicel 3 mm long; ovary 3-4 mm long; dorsal sepal very narrowly ovate, acuminate, attenuate, finely pubescent, about 20 × 2 mm, 3-veined; lateral sepals similar to the dorsal sepal, slightly oblique, adherent basally to form a mentum; petals elliptical-obovate, slightly oblique, 3 × 1 mm, 1-veined, the vein thickened and purple externally; lip yellow to purplish, fleshy, oblong and more or less dilated below the middle with erect margins, apex obtuse to rounded, finely erose, base very shortly unguiculate, disc with a pair of low keels from near the base to near the apex, sometimes also with a longitudinal central elevation, finely serrated or papillose anteriorly, 2.5-4 × 1-2 mm; column terete, yellow suffused with purple, 2.5 mm long, with a foot 1 mm long.

ETYMOLOGY: From the Greek *scleros*, "hard," and *phyllon*, "leaf," in allusion to the rigid character of the leaf.

TYPE: BRAZIL: MINAS GERAIS: Sierra de Piedade, *Martius s.n.*

DISTRIBUTION: Mexico (Chiapas), Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia, Brazil, Guyana, Venezuela, and Trinidad.

ECUADOR: LOJA: summit of Cajanuma Mountains, 18 km southeast of Loja, alt 2800 m, 4 Dec. 1957, *Dodson 305* (SEL); PICHINCHA: terrestrial on road embankment near Guayumo between Quito and Nanegal, alt. 2000 m, 26 Oct. 1961, *Dodson & Thien 1103* (SEL); terrestrial on steep slope about 15 km from pass of new road, Quito to Santo Domingo, alt. about 2500 m, 16 Aug. 1975, *C. Luer, G. Luer & Wilhelm 541* (SEL).

Pleurothallis sclerophylla is fairly frequent and somewhat morphologically variable in its wide range over much of tropical America. In Central America it is commonly known as *P. dolichopus* Schltr. It is very similar to *P. acuminata* (HBK) Lindl. from which it is distinguished by its narrower sepals and proportionately smaller petals and lip.

The species is recognized easily by its slender stem, an elliptical, obtuse, petiolate leaf, and a long raceme of spindly yellowish flowers with long-attenuate sepals, short, obtuse petals and a small oblong lip. Some specimens from Central America have much smaller flowers.

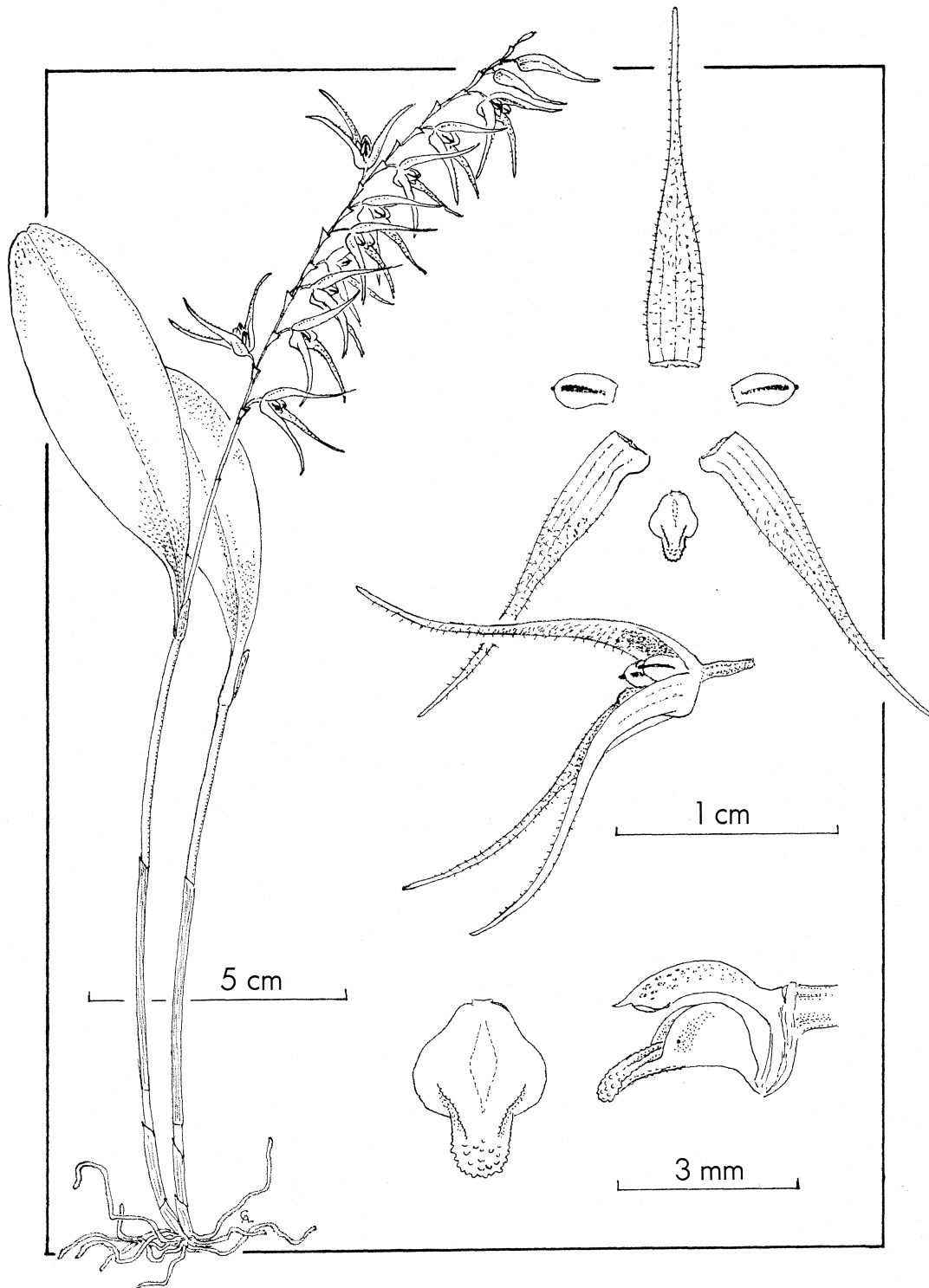


Figure 77. *PLEUROTHALLIS SCLEROPHYLLIA* Lindl.

- Pleurothallis secunda** Poepp. & Endl., Nov. Gen. Sp. Pl. 1:49, t.85. 1836.
Pleurothallis lindenii Lindl., Ann. Mag. Nat. Hist. 12:397. 1843.
Pleurothallis lindenii var. *pumila* Rchb.f., Bonplandia 3:72. 1855.
Pleurothallis lindenii var. *gigantea* Rchb.f., l. c. 3:240. 1855.
Pleurothallis bicornis Lindl., Folia Orchid. Pleuroth. 7. 1859.
Humboldtia bicornis (Lindl.) O. Ktze., Rev. Gen. Pl. 2:667. 1881.
Humboldtia lindenii (Lindl.) O. Ktze., l. c. 2:667. 1891.
Humboldtia secunda (Poepp. & Endl.) O. Ktze., l. c. 2:668. 1891.
Pleurothallis araguensis Ames, Sched. Orchid. 1:9. 1922.
Pleurothallis subreniformis Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8:64. 1921.
Pleurothallis pendula Schltr., l. c. 27:51. 1924.
Pleurothallis nutans Schltr., l. c. 27:165. 1924.
Pleurothallis lindenii var. *longiracema* C. Schweinf., Bot. Mus. Leaflet. 16:53. 1953.
Pleurothallis secunda var. *longiracema* C. Schweinf., l. c. 17:41. 1955.

Plant medium to large, caespitose and shortly repent, terrestrial to epiphytic; roots numerous, coarse. Secondary stem terete, stout to slender, 7 to 80 cm long, concealed below the middle by 2-4 tight-fitting tubular sheaths, monophyllous. Leaf coriaceous, erect, elliptical to oblong, acute to shortly acuminate, base cuneate, sessile, from 9 × 2 to 30 × 13 cm. Inflorescence 1-5 pendent, laxly-, few-flowered (2-9) racemes, up to 20 cm long; peduncle from a conduplicate spathe, 1-2.5 cm long, in the axil of the leaf; floral bract tubular, 4-5 mm long; pedicel about 4 mm long; ovary 5 mm long; middle sepal lowermost, translucent yellow-green, prominently marked with 3 purple stripes, narrowly ovate, acute, 9-16 × 3-4.5 mm; lateral sepals united completely into a concave lamina, striped with purple, broadly ovate, acute to acuminate, 10-16 × 7-12 mm; petals yellow to red, fleshy, narrowly ovate, acuminate, 8-15 × 2-3 mm, 3-veined; lip yellow-brown, suborbicular to broadly crescent-shaped, embracing the column, apex broadly rounded, apiculate, finely erose along the margin, 2.5-4 × 2.5-4.5 mm, base acutely reflexed below the column and broadly attached to it, disc with a subconical callus to either side of the column; column short, 2 × 1.5 mm.

ETYMOLOGY: From the Latin *secundus*, "having organs, e.g. the flowers turned toward the same side," in reference to Poeppig and Endlicher's erroneous interpretation of the flower arrangement.

TYPE: PERU: HUANUCO: near Cuchero, *Poeppig 1746*.

DISTRIBUTION: Venezuela, Colombia, Ecuador, and Peru.

ECUADOR: TUNGURAHUA: terrestrial on old lava field near Baños, alt. 2200 m, 15 July 1967, *Dodson, Williams & Adams 3777* (SEL); terrestrial in Valle de Chaupe above Baños, alt. 2200 m, 24 July 1975, *C. Luer, G. Luer & Wilhelm 422* (SEL); AZUAY: terrestrial among scrub vegetation about 10 km southeast of Sigsig, alt. 3200 m, 3 Aug. 75, *C. Luer, G. Luer & Wilhelm 415, 420* (SEL).

Poeppig and Endlicher described and pictured this species with erect secund racemes, probably a result of observation of pressed material. The lip is also poorly depicted. However, the species is morphologically variable in its extensive range through the Andes. Comparatively small, few-flowered, dull-colored populations may be contrasted by those with huge vividly-

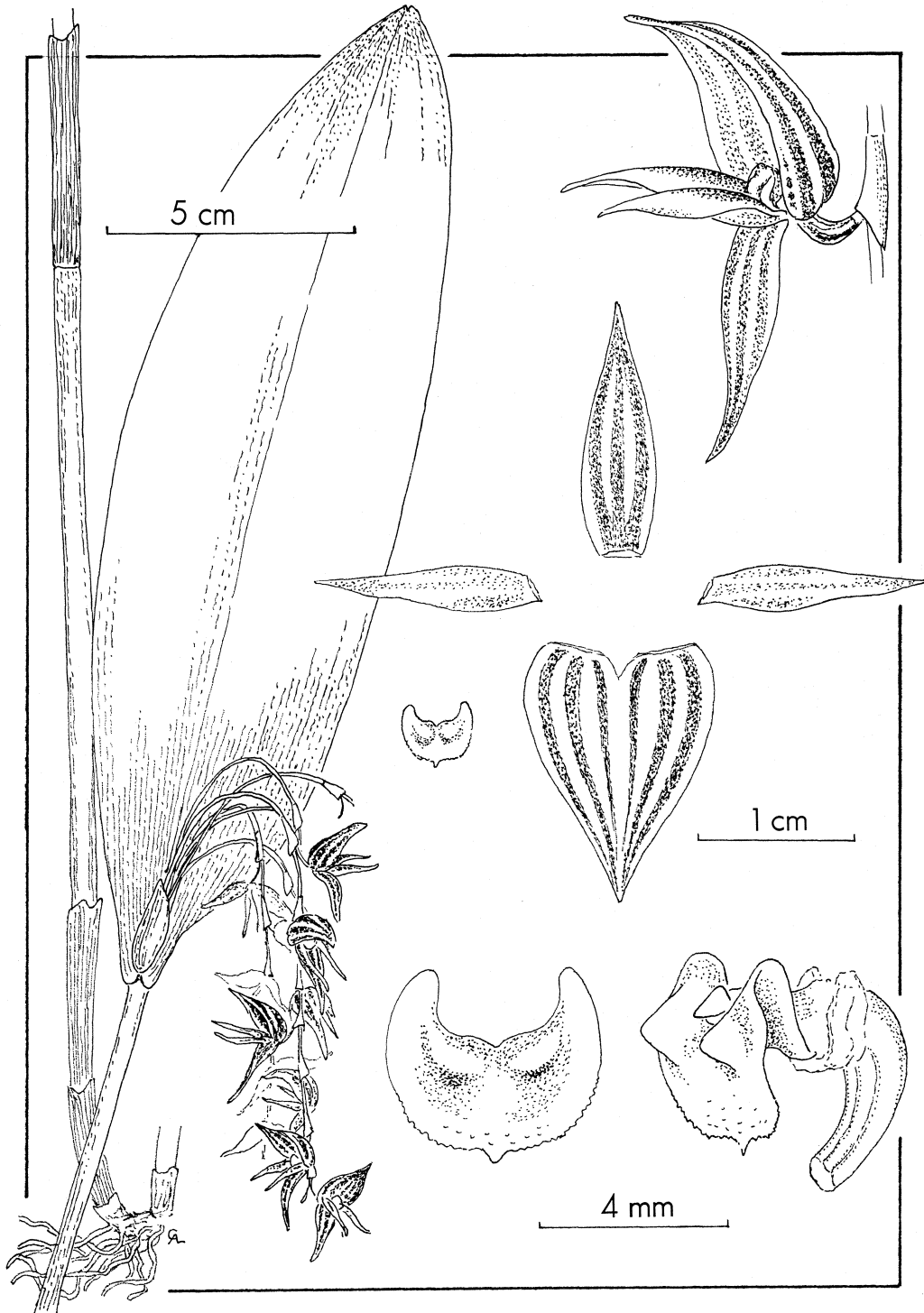


Figure 78. PLEUROTHALLIS SECUNDA Poepp. & Endl.

colored specimens. Various forms have been given different names.

Pleurothallis secunda commonly grows terrestrially, sometimes aggregating into massive clumps of closely crowded stems. The huge erect leaves remind one of an arsenal of spears decorated at the junction of the blade by garlands of colorful flowers. Such a gigantic clone in flower is certainly one of the most spectacular sights to be witnessed within the Pleurothallidinae.

The species is easily recognized by its sessile elliptical leaf, a medium-sized spathe tucked in the axil, and a drooping raceme of relatively large, red-striped flowers. The concave synsepal is uppermost and the narrow petals project outward. The uppermost lip encircles the column and from either side of the surface of the lip protudes a fleshy callus.

Pleurothallis setigera Lindl., Folia Orchid. Pleuroth. 38. 1859.

Humboldtia setigera (Lindl.) O. Ktze., Rev. Gen. Pl. 2:668. 1891.

Pleurothallis simmleriana Rendle, J. Bot. 38:274. 1900.

Pleurothallis fimbripetala Schltr., Repert. Spec. Nov. Regni Veg. 14:385. 1915.

Pleurothallis lauta Schltr., l. c. Beih. 7:105. 1920.

Pleurothallis schistopetala Schltr., l. c. 7:113. 1920.

Plant minute, caespitose, epiphytic; roots slender, flexuous. Secondary stem terete, very short, 2-3 mm long, largely concealed by 2 ribbed tubular sheaths, unifoliate. Leaf narrowly obovate, obtuse to subacute, tridenticulate, base attenuated indistinctly into a narrow channeled petiole, 10-20 × 2-4 mm. Inflorescence a lax, few-flowered (2-5) raceme exceeding the leaf by twice its length or more; flowers borne successively, widely spread, yellowish, suffused and striped with purple; peduncle filiform, from the apex of the stem; floral bract acute, tubular, about 1 mm long; pedicel slender, 5-6 mm long; ovary hispid, 0.5 mm long; dorsal sepal ovate, acuminate, caudate, 4 × 1 mm, 3-veined, the veins prominent dorsally, setose; lateral sepals free, similar to the dorsal sepal, oblique, each 4 × 1.5 mm, 2-veined, carinate; petals elliptical, margins lacerate, apex acuminate, setiform, 2.5 × 1 mm, translucent, 1-veined; lip purple, oblong, sub-pandurate, arcuate, obtuse and minutely scabrous above the middle, dilated below the middle with broad obtuse lateral lobes, erect in the natural position, base cuneate, disc with a pair of low elevations near the middle, 2 × 1.25 mm; column terete, winged, 1.5 mm long, with a foot 0.5 mm long.

ETYMOLOGY: From the Latin *setigerus*, "bristle-bearing" (from *seta*, "a bristle"), either in allusion to the acuminate apices of the sepals and petals, or to the setose sepals.

TYPE: *ECUADOR* (not Peru): without locality (among Selaginellas). *Jameson s.n.* (HOLOTYPE: K).

DISTRIBUTION: Venezuela, Colombia, Ecuador, and ?Peru.

ECUADOR: ZAMORA-CHINCHIPE: epiphytic between Loja and Zamora. *F L Stevenson 61775-1* (SEL), flowered in cult. June 1975; epiphytic along Rio Zamora, alt. 1100 m, 26 July 1960, *Dodson 162* (SEL).

In its wide range through tropical America this minute species is apparently somewhat variable, which has caused it to receive several specific epithets.

Pleurothallis setigera consists of a clump of very small narrowly obovate leaves borne on extremely short secondary stems. The hair-like peduncle

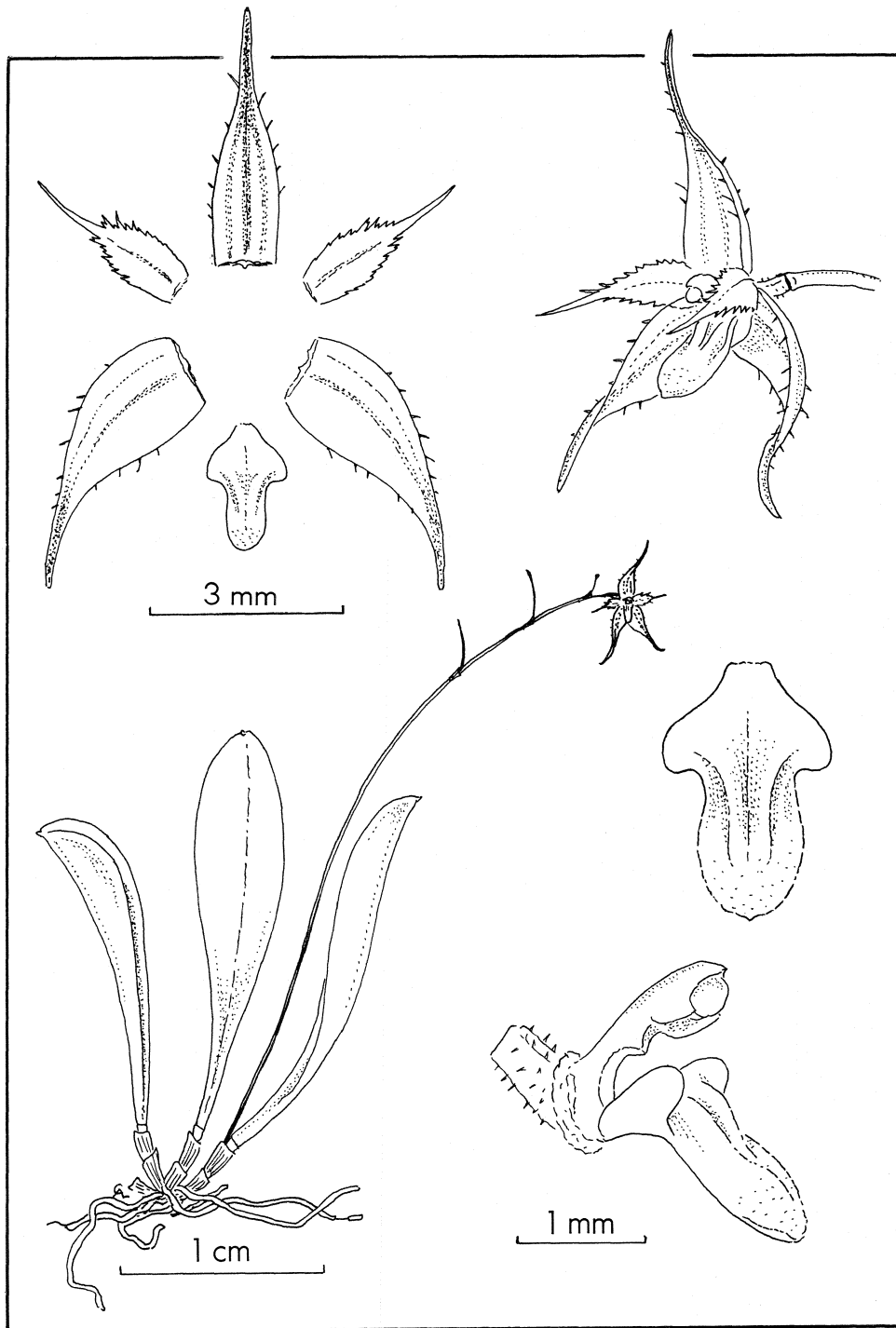


Figure 79. PLEUROTHALLIS SETIGERA Lindl.

bears in a loose raceme a few intermittent flowers. The flowers are widely spread, yellowish and suffused and striped with purple, and minutely setose externally. Apparently the latter character is variable in degree. The apices of the sepals and petals are attenuate-caudate. The margins of the lower part of the petals are finely lacerate, and this fringe may be found in varying degrees. The obtuse lip is dilated below the middle into more or less rounded, erect lateral lobes, each with a lamella extending partway along the disc. The lip is wider below the middle.

From Guatemala Ames described a very closely allied species, *P. samacensis* which has recently been discovered in Ecuador.

***Pleurothallis smaragdina* Luer, sp. nov.**

Planta parva epiphytica breviter repens, caulibus secundariis brevissimis crassis unifoliatis, foliis coriaceis ellipticis subacutis, racemo contracto fractiflexo floribus singularibus successivis, pedunculo longo gracili, sepalis anguste ovatis acuminatis puberulis lateralibus libris, petalis anguste ovatis acuminatis ciliatis ad apicem atropurpureis ad basim smaragdinis, labello oblongo apice rotundato ciliato infra medium bidenticulato basi biauriculato smaragdino atropurpureo irregulariter limbato.

Plant small, epiphytic, shortly repent; rhizome stout, producing a secondary stem about every 5 mm; roots slender, flexuous. Secondary stem short, thick, terete, 0.5-1 cm long, unifoliate, invested by 2-3 brown, tubular sheaths. Leaf ascending to erect, rigid, thick, elliptical, subacute, tri-denticulate, base cuneate, sessile, 4-6.5 × 1.5-2 cm. Inflorescence racemose, contracted, fractiflex, few-flowered (5-20), the flowers appearing singly and successively; peduncle purple, slender, ascending, 10-15 cm long, from a 2 mm spathe at the base of the leaf; floral bract brown, oblique, acute, 4 mm long; pedicel 1 mm long; ovary purple-brown 1.5 mm long; dorsal sepal narrowly ovate, acuminate, acute, 12 × 3 mm, 3-veined, fleshy, green basally with a short brown-purple, velvety pubescence toward the apex, the margins minutely ciliate; lateral sepals free, recurved, oblique, similar to the dorsal sepal; petals very narrowly ovate, acuminate, acute, slightly oblique, 8 × 1.5 mm, bright emerald green, edged in purple-brown and shortly ciliate; lip oblong, ligulate, with a pair of short, erect, intramarginal teeth just below the middle, apex rounded with a finely ciliated margin, base very shortly hinged to the column-foot and flanked by a pair of pedunculated lobes, 3.5 × 1 mm, bright emerald green with an irregular border of dark purple; column red, terete, 2.5 mm long, clinandrium denticulate, with a 1 mm long foot. ETYMOLOGY: From the Latin *smaragdinus*, "emerald green," in reference to the color of the petals and lip.

TYPE: ECUADOR: PASTAZA: epiphytic near Tena, alt. 600 m, 26 July 1975, C. Luer, G. Luer & Wilhelm 473 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

The most outstanding characteristic of this unusual species is the emerald green color of the lip and inner surfaces of the petals which are bordered by a deep brown-violet margin. Although green is a common color in *Pleurothallis*, the deep richness of the green within the flower is equaled in no other. Perhaps the hue is accentuated by the blackish purple edging.

Pleurothallis smaragdina is a short-stemmed species which produces its rigid leaves in dense clusters although the rhizome is shortly creeping.

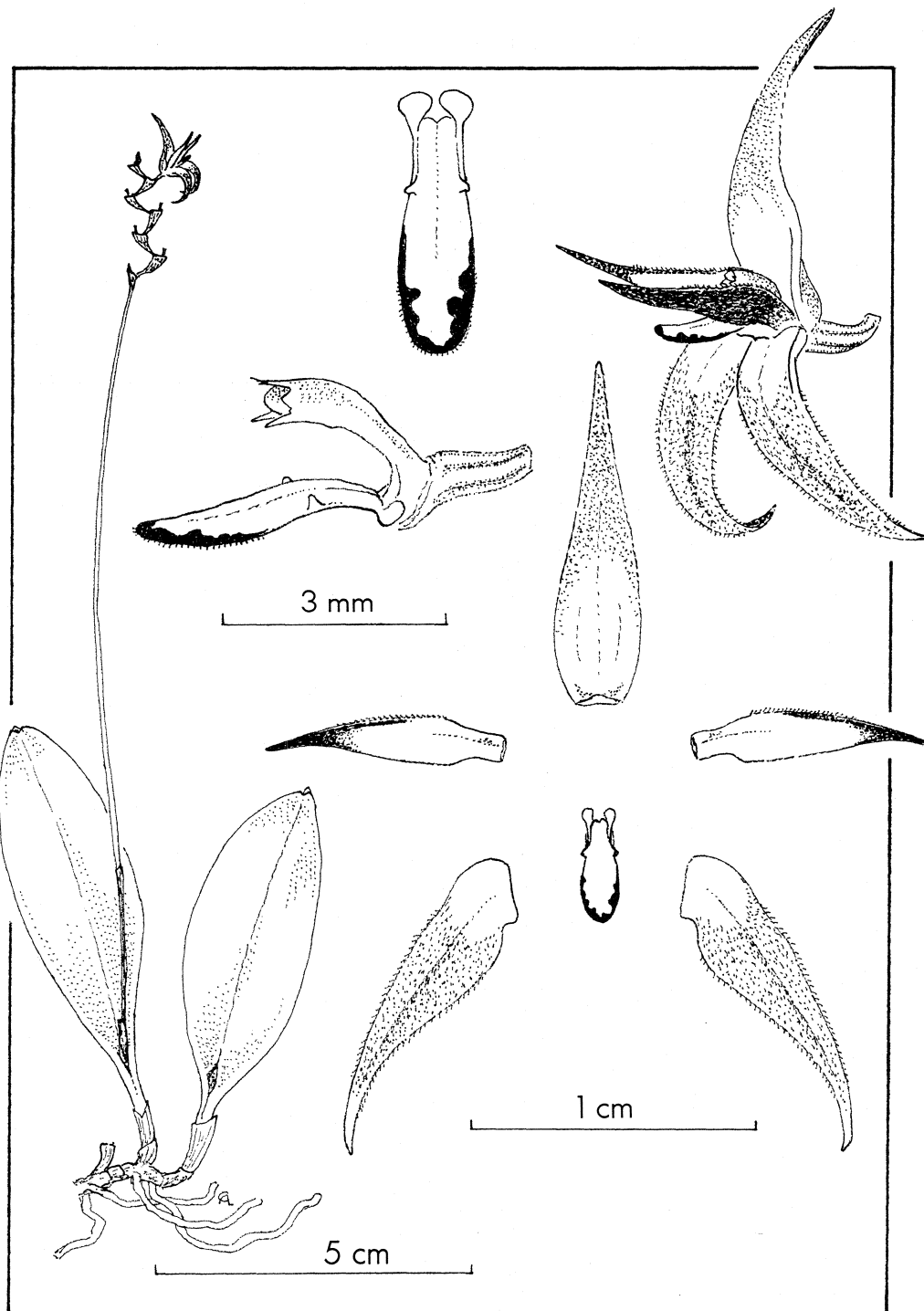


Figure 80. PLEUROTHALLIS SMARAGDINA Luer

The long, slender peduncle appears from the axil of the leaf to support the compact, zigzag raceme twice higher than the blade. The flowers are generated slowly and singly at prolonged intervals over an extended period of time. The acuminate, velvety sepals reflex widely to expose the narrowly pointed petals aiming together straight forward.

Pleurothallis sphaerantha Luer, sp. nov.

Herba parva epiphytica caespitosa, caulibus secundariis filiformibus teretibus unifoliatis, folio ovato acuminato cordato, floribus fasciculatis solitariis successivis parvis subsphaericis citrinis vel purpureis, sepalo dorsali et synsepalo suborbicularibus profunde concavis, petalis aequilongis ovatis, acutis, labello ovato obtuso plano synsepalo decipulato.

Plant small, epiphytic, caespitose; roots slender, flexuous. Secondary stems filiform, terete, 4-7 cm long, with a slightly loose sheath below the middle and another 1-2 sheaths at the base, unifoliate. Leaf spreading, rigid, oblong-ovate, acuminate, acute, tridenticulate, base cordate, sessile, 3-4.5 × 1.5-2.8 cm. Inflorescence a fascicle of single flowers, 1-3, from a spathe, 6-8 mm long, at the base of the leaf, flowers small, globose, yellow or purple; floral bract tubular, 5 mm long, pedicel 5 mm long; ovary brown, verrucose, 1.5 mm long; dorsal sepal broadly ovate to suborbicular, obtuse, deeply concave, 4 × 4 mm spread, 3-veined; lateral sepals connate into a concave synsepal similar to the dorsal sepal, 4-veined; petals ovate, acute, 4 × 1.2 mm, 1-veined; lip ovate, obtuse, wedged within the synsepal, base broadly adherent to the base of the column, disc plain, 2.5 × 1.5 mm; column protruding above the lip, 1.5 × 1 mm, rostellum pointed.

ETYMOLOGY: From the Greek *sphaera*, "a ball, or a sphere," and *anthos*, "flower," in reference to the shape of the flower.

TYPE: ECUADOR: PASTAZA: epiphytic 20 km east of Puyo, alt. 500 m, 29 July 1975, C. Luer, G. Luer & Wilhelm 486 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

The leaves of this species are small, flat, rigid, and deeply cordate, superficially similar to those of many other species with small heart-shaped leaves. The flowers of *Pleurothallis sphaerantha* are more or less globose and do not spread widely; the dorsal sepal and the synsepal are orbicular and deeply concave which creates a spherical appearance. The petals are as long as the sepals, and sometimes they do not readily escape from the cavity of the flower. The comparatively large, ovate, featureless lip is wedged within the concave synsepal with an upturned apex so that the obtuse apex of the lip is caught just behind the apex of the synsepal. As the flower ages the lip becomes disengaged. The color of the flower varies from pure yellow to red-purple.

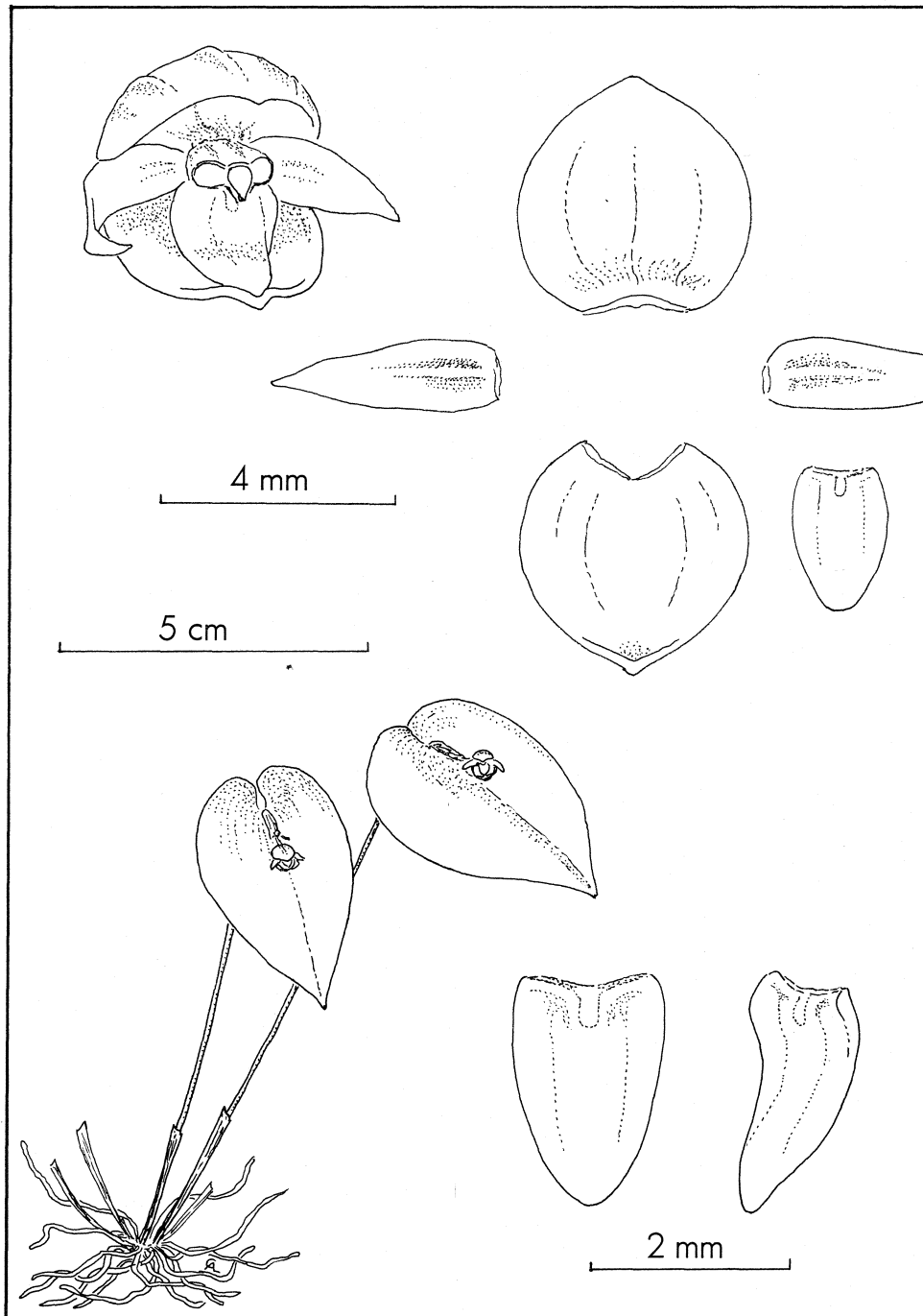


Figure 81. PLEUROTHALLIS SPHAERANTHA Luer

Pleurothallis spiralis (Ruiz & Pav.) Lindl., Gen. Sp. Orchid. 7. 1830.

Humboldtia spiralis Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1:237. 1798.

Stelis spiralis (Ruiz & Pav.) Pers., Syn. Pl. 2:524. 1807.

Pleurothallis macrorhiza Lindl., J. Bot. (Hooker) 1:9. 1834.

Humboldtia macrorhiza (Lindl.) O. Ktze., Rev. Gen. Pl. 2:667. 1891.

Pleurothallis millei Schltr., Repert. Spec. Nov. Regni Veg. 15:52. 1917; not Schltr. 1915.

Pleurothallis rhizomatosa Schltr., l. c. Beih. 8:62. 1921.

Plant small to medium in size, scandent, terrestrial to epiphytic; rhizome erect, elongated, occasionally branching, terete, mostly hidden by sheaths, secondary stems and roots, producing a secondary stem about every 1 cm; roots comparatively thick, coursing down and along the primary stem. Secondary stem terete, ascending, 1-3 cm long, concealed by 1-2 tubular sheaths, unifoliate. Leaf linear to narrowly elliptical, acute, apiculate, base narrowly cuneate, subpetiolate, coriaceous, longitudinally channeled, 3-6 cm × 5-8 mm. Inflorescence racemose (1-2), laxly few-flowered (4-5), about 5 cm long, peduncle slender, from a lateral node on the secondary stem; flowers ringent, yellow; floral bract acute, infundibular, 2-3 mm long; pedicel 4-5 mm long; ovary 4 mm long; dorsal sepal ovate, acute, 11 × 4.5 mm, 3-veined, carinate; lateral sepals united to above the middle into a bifid lamina, apices acute, 12 × 7 mm, bicarinate; petals obovate, slightly oblique, obtuse to rounded, unguiculate, 5 × 2.5 mm, 1-veined; lip ovate, obscurely 3-lobed, 8 × 5.5 mm spread, lateral lobes oblique, broadly rounded, erect, mid-lobe ligulate, subacute, fleshy, 3-4 mm long, with erose margins, calli broadly hinged to the column-foot, disc with a pair of mammillate calli basally and in the center an oval depression with sharp edges; column terete, obscurely winged, 4 mm long, with a bulbous foot 1 mm long.

ETYMOLOGY: From the Latin *spiralis* (from the Greek *spira*, "something twisted"), "spiraled, or twisted," referring to the appearance of the erect rhizome surrounded by the secondary stems and roots.

TYPE: PERU: HUANUCO: Huassa-huassi, in rocky places, *Pavon s.n.*

DISTRIBUTION: Ecuador and Peru.

ECUADOR: LOJA: terrestrial among scrub vegetation between El Progreso and Saraguro, alt. 3200 m, 4 Aug. 1975, *C. Luer, G. Luer & Wilhelm 410* (SEL); AZUAY: near Zaragucho, 20 km west of Cuenca, alt. 3000 m, 10 Jan. 1958, *Dodson 287B* (SEL).

This species occurs among alpine-like vegetation at high elevations of the Andes of Southern Ecuador and northern Peru. It grows terrestrially, but frequently it climbs upon itself to reach into the lower branches of nearby shrubs. As the rhizome continues to grow upward, coarse descending roots and slender ascending secondary stems emanate to engulf it. The aging upright rhizome supports the plant which may reach more than 30 cm in height.

A few loose racemes of clear yellow flowers are produced from a node just above an articulation of the secondary stem. The most remarkable feature of the flower is a "punched-out" oval depression in the center of the disc of the lip. The floor of the labellum is thick, and an external bulge is visible below the depression.

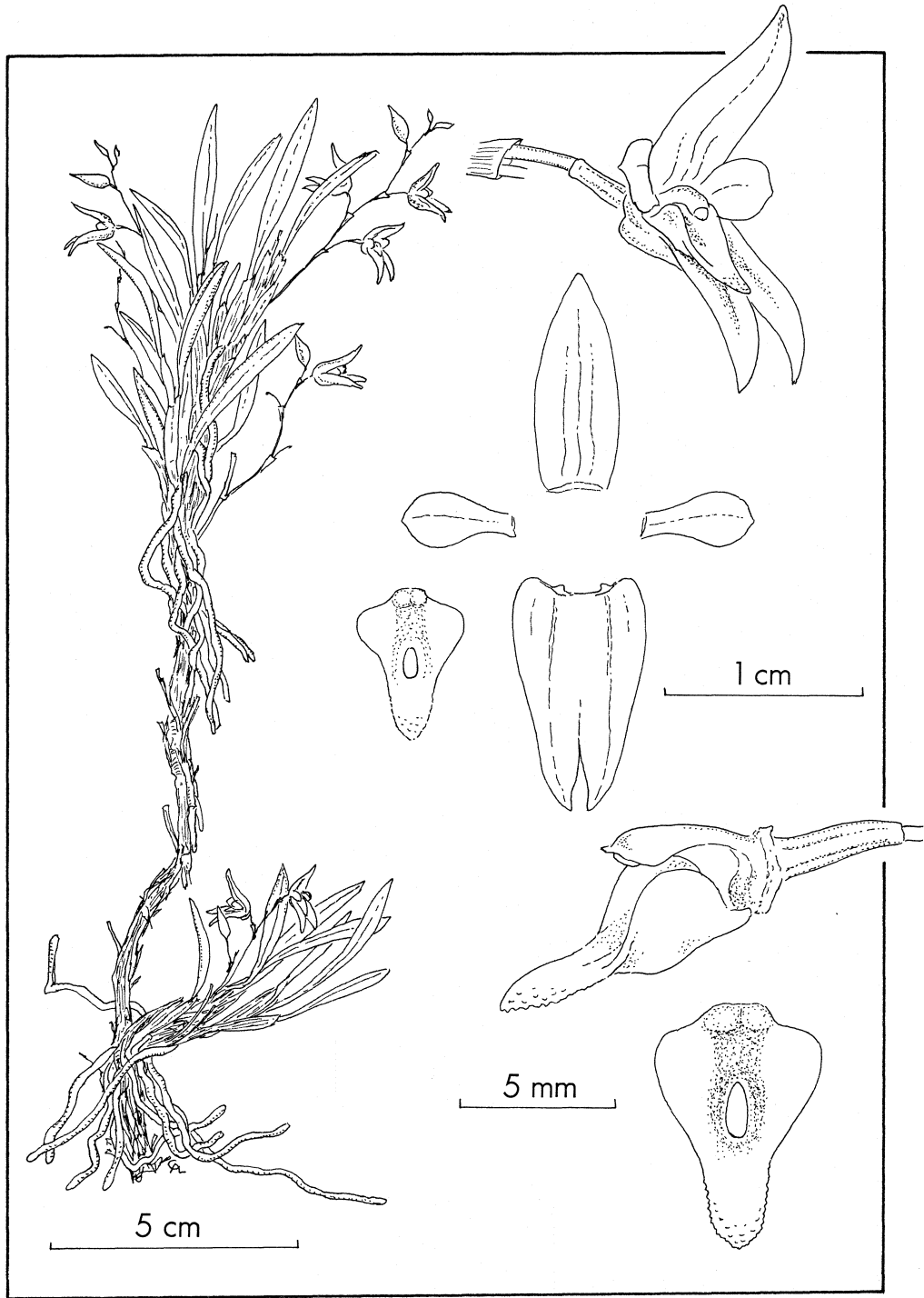


Figure 82. *PLEUROTHALLIS SPIRALIS* (Ruiz & Pav.) Lindl.

***Pleurothallis stevensonii* Luer, sp. nov.**

Planta parva epiphytica caespitosa, caulibus secundariis gracilibus teretibus, foliis ovatis acuminatis acutis mucronatis base rotundata sessili, floribus fasciculatis longipedicellatis paucifloris, sepalo dorsali et synsepalo ovatis concavis apice anguste acuminato, petalis carnosis anguste linearibus acuminatis, labello indistincte trilobato lobis lateralibus rotundatis incurvatis lobo mediano anguste acuminato apiculato disco transversim carinato.

Plant small, caespitose, epiphytic to terrestrial; roots filiform, flexuous. Secondary stems ascending, very slender, terete, 5-12 cm long, with a thin tubular sheath below the middle and another at the base, unifoliate, occasionally prolific. Leaf ovate, abruptly acuminate, acute, tridentate, the central mucro elongate, base rounded, sessile, 25-35 × 15-22 mm. Inflorescence a few-flowered fascicle of erect, long-pedicellate, single, widely spreading flowers, from a spathe 5 mm long at the base of the leaf; peduncle capillary, about 2.5 cm long, pedicel about 1.5 cm long, floral bract tubular, 3 mm long, ovary 2.5 mm long; dorsal sepal yellow-green, ovate and concave below the middle, narrowly acuminate above, 10 × 4 mm, 3-veined, the central vein subcarinate externally; lateral sepals united to their apices into a lamina similar to the dorsal sepal; petals narrowly linear, acuminate, 9 × 1.5 mm, thickened, translucent yellow-green with pale red spots and stripes; lip broadly ovate, thickened, geniculate, indistinctly 3-lobed, 2.5 × 2.5 mm spread out, lateral lobes yellow, broadly rounded and curved up, middle lobe small, narrowly triangular, apex long-acuminate, base concave just above the attachment to the column-foot, disc with a sharp transverse carina near the middle, marked with purple-brown; column terete, 1.5 mm long, with a short foot.

ETYMOLOGY: Named in honor of F L Stevenson of Chamblee, Georgia, who first discovered the species.

TYPE: *ECUADOR*: PINCHINCHA: terrestrial and epiphytic along the roadside near km 70, alt. 1800 m, between Quito and Santo Domingo, 10 March 1975, C. Luer & R. Kent 224 (HOLOTYPE: SEL); near km 80, alt. 1500 m, 17 Aug 1975, C. Luer, G. Luer & Wilhelm 567 (SEL); same area, F L Stevenson 111974-12 (SEL) and 1-2575-3.

DISTRIBUTION: Ecuador.

F L Stevenson has been successfully cultivating this species in his greenhouse in Georgia for several years, and he called my attention to it last year. This year it was found in flower on the western slopes of Pichincha in both March and August. It seems related to the Venezuelan *Pleurothallis gracilipedunculata* Foldats, but it is easily distinguished by its acuminate sepals, narrow glabrous petals, and an apiculate lip.

Pleurothallis stevensonii is easily recognized by its dense clump of thread-like stems, each of which supports a small, oval, abruptly acuminate leaf. The central tooth at the apex is noticeably elongated. The erect, long-pedicellate flowers are produced singly, a few at a time, from a fascicle of old pedicels at the base of the leaf. The gaping flowers are yellow-green and the fleshy narrow petals are delicately marked with rose. The lip is also fleshy with upturned, broadly rounded lateral lobes connected by a transverse carina. The small middle lobe is long-apiculate.

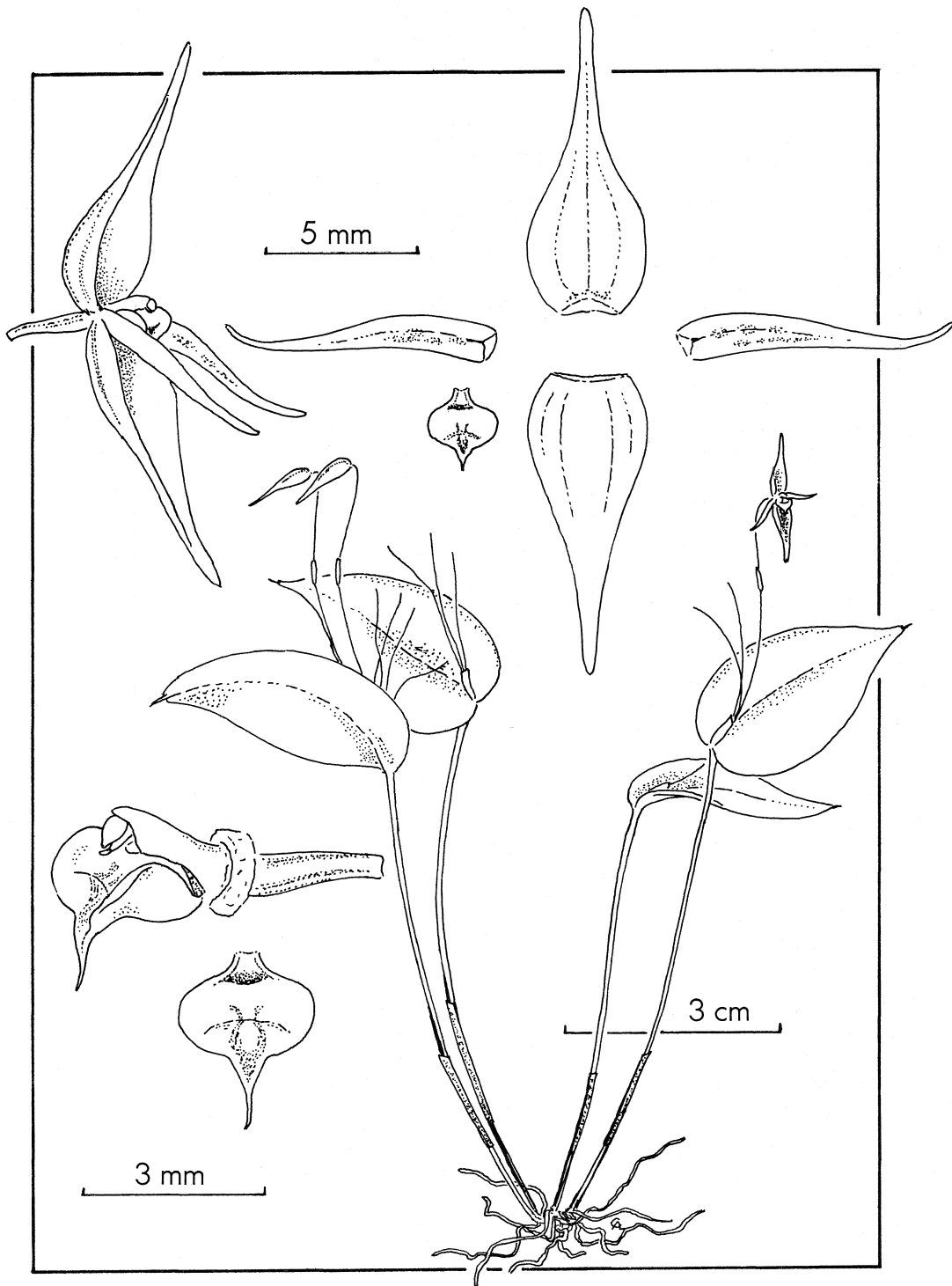


Figure 83. *PLEUROTHALLIS STEVENSONII* Luer

Pleurothallis tunguraguae Lehm. & Krzl., Bot. Jahrb. Syst. 26:439. 1899.

Pleurothallis tunguraguae var. *minor* Garay, Canad. J. Bot. 34:255. 1956.

Plant medium to large in size, caespitose, epiphytic to terrestrial; roots numerous, flexuous. Secondary stem relatively stout, terete, fasciculate, 10-30 cm. long, with a close tubular sheath below or near the middle and 1-2 more basally, unifoliate. Leaf erect, coriaceous, elliptical, acute to sub-acute, tridentate, base cuneate, petiolate, 8-13 × 2.5-3 cm, excluding the distinct petiole, 1.5-2 cm long. Inflorescence 2-5 erect racemes, about as long as the leaf, densely many-flowered to the base; peduncle from a conuplicate spathe, 1-1.5 cm long, at the base of the petiole; floral bract acute, infundibular, 3-4 mm long; pedicel about the same length; ovary 1.5 mm long, glabrous, spotted with brown; sepals free, pale yellow, minutely flecked with brown along the nerves which are prominent externally, sparsely pubescent; dorsal sepal ovate, concave, apex acuminate, acute, thickened, 5.5 × 3 mm, 3-nerved; lateral sepals lightly coherent at the base, narrowly ovate, acuminate, carinate, 5.5 × 1.75 mm; petals pale yellow-green, narrowly linear, acuminate, 3.5 × 0.8 mm, 1-nerved; lip fleshy, pale yellow, 3-lobed near the middle, 2 × 1.5 mm, apical lobe ovate, acuminate, acute, lateral lobes broadly triangular, obtuse, erect in the natural position, base concave behind a transverse thickening to accommodate the column-foot; disc thickened as a flat fleshy callus on the middle lobe; column terete, 1.5 mm long, with a 1 mm bulbous foot.

ETYMOLOGY: Named for Volcán Tunguragua where the species was discovered.

TYPE: ECUADOR: TUNGURAHUA: "Epiphytica et in stratis lavae circa Baños in monte ignivomo Tunguragua, 1800-2400 m," *Lehmann 4504*.

DISTRIBUTION: Colombia, Ecuador, and Peru.

ECUADOR: TUNGURAHUA: terrestrial in Valle de Chaupe above Baños, alt. 2200 m, 24 July 1975, *C. Luer, G. Luer & Wilhelm 425* (SEL).

The plant figured was found in the same general area as Lehmann's original collection. The majority of the plants encountered were in full flower and were growing fully exposed in the rich soil of ancient lava flows on the flank of Volcán Tunguragua. Huge companion orchids included *Pleurothallis galeata* Lindl. past flower and *P. secunda* Poepp. & Endl. in full flower. There is some similarity to the common *P. floribunda* Poepp. & Endl.

Pleurothallis tunguraguae may be recognized by its compact fascicle of sturdy stems, each with an erect petiolate leaf, and a rather small spathe from which a few racemes bearing columns of small, pale yellow flowers all the way to the base. The sepals are free and sparsely pubescent; the petals are narrow; and the lip is three-lobed, the apical lobe thick and acuminate, the lateral lobes blunt and erect.

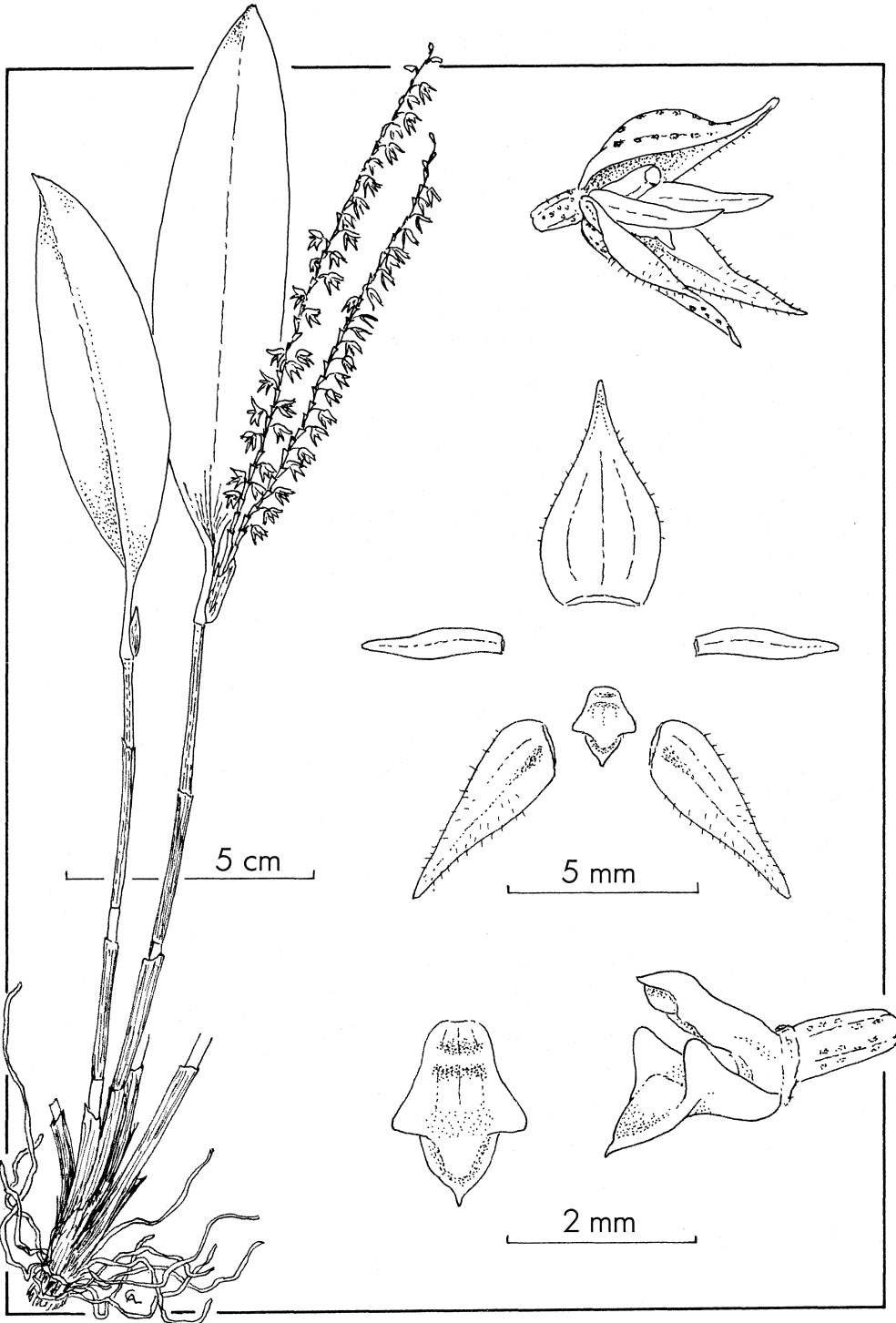


Figure 84. PLEUROTHALLIS TUNGURAGUAE Lehm. & Krzl.

Pleurothallis xanthella Luer, sp. nov.

Herba minuta epiphytica caespitosa, caulibus secundariis abbreviatis, foliis ellipticis subacutis subpetiolatis, inflorescentia fasciculata ex apice pedunculi capilliformi, floribus singularibus xanthellis, sepalis carnosis purpureovittatis extra scaberulis ellipticis subacutis vel acutis, petalis spatulatis laciniatis vittatis bicarinatis, labello carnosio armeniaco verruculoso oblongo-ligulato ad basim bidentato.

Plant minute, epiphytic, caespitose; roots filiform, flexuous. Secondary stem abbreviated, terete, 2-3 mm long, clothed by 1-2 thin, ribbed sheaths, unifoliate. Leaf elliptical, subacute, tridenticulate, marginate, the back surface minutely pusticulate, base narrowly cuneate, indistinctly petiolate, 10-12 X 3-4 mm, including the petiole. Inflorescence fasciculate, single-flowered, from the apex of a capillary peduncle about 25 mm long; floral bract acute, evanescent, 2-3 mm long, pedicel slender, 6 mm long; ovary yellow-green, with 6 rough keels, 1 mm long; dorsal sepal yellow-orange with 3 purple stripes, obovate, subacute, 5.5 X 2.5 mm, fleshy, scabrous externally along the margins and carinate veins; lateral sepals orange, each with a purple stripe, ovate, acute, slightly oblique, united to near the middle, each 5 X 2 mm, otherwise similar to the dorsal sepal; petals translucent yellow with 2 purple stripes, spatulate, oblique, the margins lacinate above the middle, 3 X 1 mm, bicarinate externally; lip yellow-orange and red centrally, the entire surface and margins verruculose, oblong-ligulate, apex rounded, the sides thick and elevated below the middle, base truncate, flanked by a pair of minute teeth; column terete, 3 mm long, winged and denticulate apically, with a short foot.

ETYMOLOGY: From the Latin *xanthellus*, dim. of *xanthus* (from the Greek *xanthos*), "yellow-orange," in reference to the color of the flowers.

TYPE: ECUADOR: NAPO: epiphytic about 15 km west of Tena, alt. 600 m, 26 July 1975, C. Luer, G. Luer & Wilhelm 456 (HOLOTYPE: SEL).

DISTRIBUTION: Ecuador.

Vegetatively this minute plant is very similar to many others in the section *Apodae*: the bases of the little oval leaves which taper into indistinct petioles are supported by many times shorter secondary stems. The fascicle of successively appearing flowers is produced at the apex of a hair-like peduncle about twice as long as the leaf. The yellow-orange flowers are proportionately large for the plant. The sepals are striped with purple and carinate, the petals are spatulate and lacinate, and the entire surface of the oblong lip is microscopically verruculose, as if "beaded" with large red and yellow cells.

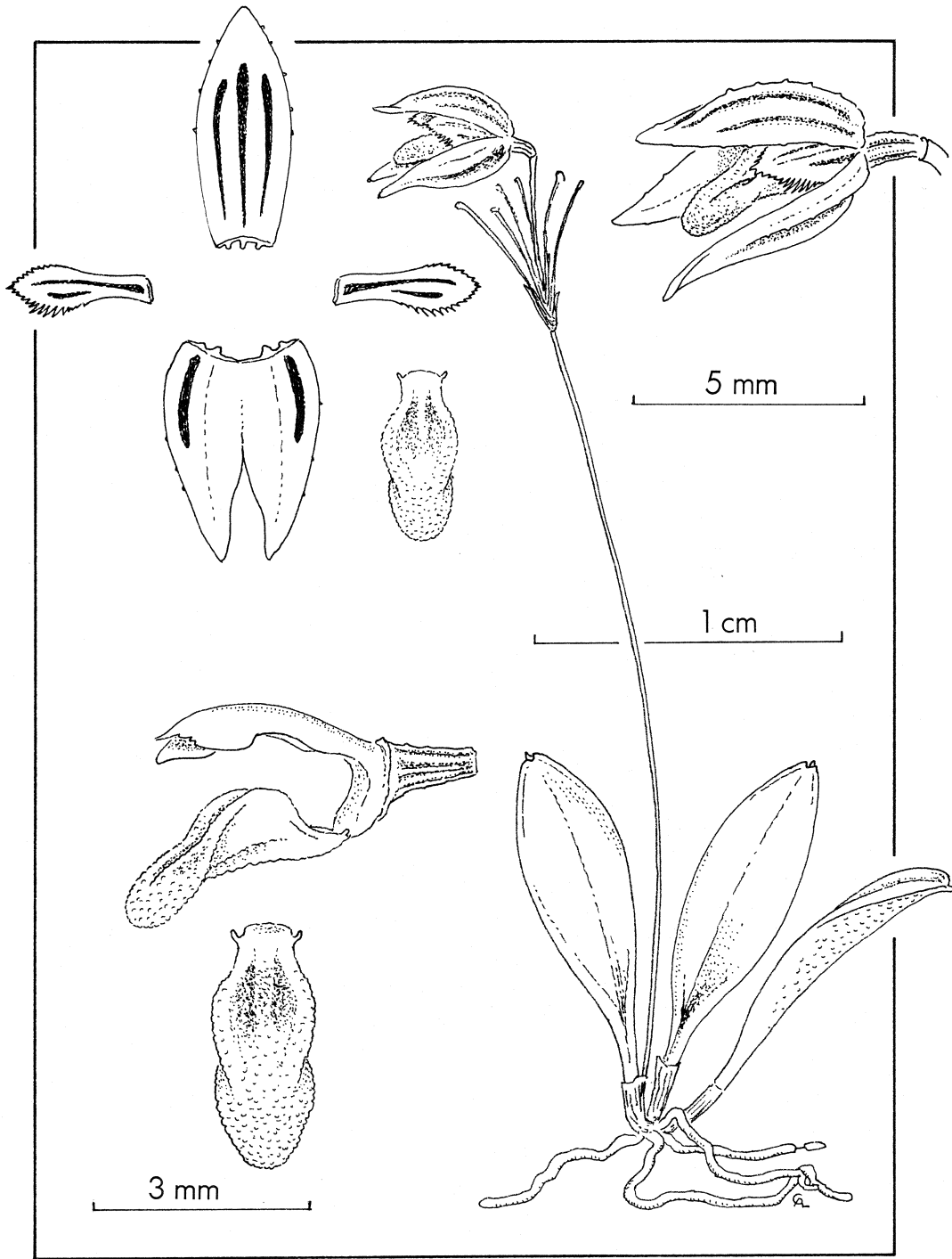


Figure 85. PLEUROTHALLIS XANTHELLA Luer

Pleurothallis pachyphyta Luer, sp. nov., figure 32. Selbyana 1:193.

Herba parva epiphytica, rhizoma crassa breviter repenti, caulibus secundariis crassisimis brevibus unifoliatis, foliis coriaceis incrassatis ellipticis obtusis cuneatis, racemo paucifloro folio brevior, bracteis scabris, floribus successivis carnosis, sepalis aurantiacis libris ovatis acutis, petalis rubris glabris ovatis acuminatis acutis, labello rubro pubescenti oblongo apice obtuso apiculato, prope medium lobis lateralibus parvis, basi lobulis pedunculatis parvis.

Plant small, epiphytic, caespitose, with a short, stout, creeping rhizome; roots slender flexuous. Secondary stems 0.5-1 cm long, concealed by 1-2 tubular sheaths, unifoliate. Leaf coriaceous, elliptical to narrowly obovate, obtuse to acute, tridenticulate, base cuneate, obscurely to narrowly petiolate, 2-5 cm long including the petiole, and 1-2 cm broad. Inflorescence a short (1-2 cm), few (1-5)-flowered raceme; peduncle from a node on the secondary stem. Flowers orange with red-purple petals and lip, produced singly and successively; floral bract scabrous, 2 mm long; pedicel 2-4 mm long; ovary 1-5 mm long; dorsal sepal fleshy, subcarinate, ovate, acute to acuminate, 5 × 2 mm; lateral sepals similar to the dorsal sepal, free to the base where they form a shallow mentum, slightly oblique; petals glabrous, ovate, acuminate-aristate, fleshy, 3.5 × 1 mm; lip oblong, 2.5 × 0.5-1 mm, fleshy, glandular pubescent, with small, erect, triangular lateral lobes just below the middle, apex obtuse, sometimes apiculate, base delicately unguiculate, with a pair of thin white, pedunculated lobules; column 2 mm long, apex denticulate, column-foot short.

ETYMOLOGY: From the Greek *pachys*, "thick, stout," and *phyton*, "plant," referring to the characteristically stout habit of the plant: primary and secondary stems, and leaves.

TYPE: ECUADOR: TUNGURAHUA: epiphytic between Baños and Puyo, alt. 1500 m, *Fred Fuchs, Jr. s.n.* (HOLOTYPE: SEL) greenhouse acc. no. 26-74-113.

OTHER MATERIAL EXAMINED: AZUAY: near Cuenca, *Mrs. Chowning s.n.* (SEL).

DISTRIBUTION: Ecuador.

Pleurothallis pachyphyta is a small coarse herb which produces a stout creeping primary stem and very short, stout secondary stems. Each bears a broadly obovate, thick, leathery, shortly petiolate leaf. The raceme is abbreviated, furnished with scabrous bracts, and it produces a flower intermittently over a long period of time. The flowers are orange with red-tipped petals and a red lip. The sepals are very sparsely pubescent externally; the acuminate petals are fleshy and glabrous. The oblong lip is glandular-pubescent, especially toward the base. It is provided with a pair of erect, short triangular lobes near the middle and a pair of thin pedunculate lobes at the base.

This species is closely related to *P. brevipes* Focke, from which it may be distinguished by the scabrous bracts, short secondary stem, and the presence of lateral lobes on the lip. It was erroneously identified as *P. lasioglossa* Schltr. in Selbyana 1:192.

Pleurothallis tryssa Luer, sp. nov., figure 11. Selbyana 1:79.

Herba epiphytica vel terrestris parva ad mediocris subtilis, caulibus secundariis gracillimis versus apicem anguste compressis unifoliatis, foliis oblongo-ovatis acuminatis supra basin rotundatis sessilibus, racemo delicato multifloro folio longiore, floribus pusillis translucenter viriscentibus purpureo-guttatis, sepalo medio et synsepalo anguste ovatis acuminatis cymbiformibus, petalis anguste linearibus, labello trilobo unguiculato ad medium deflexo, lobo antico oblongo acuminato, lobis lateralibus triangularibus incurvis.

Plant epiphytic or terrestrial, small to medium in size, caespitose; roots slender, flexuous. Secondary stem very slender, terete to narrowly ancipital above, 4-13 cm, with 2-3 close-fitting tubular sheaths, unifoliate. Leaf oblong 3-6 × 1-2 cm, apex attenuate to acuminate, apiculate, base broadly cuneate to rounded, sessile. Inflorescence a many-flowered raceme as long as or slightly longer than the leaf; peduncle slender, from a narrow sheath 5-12 mm long in the axil of the leaf. Flowers small, non-resupinate, green with or without red spots; floral bract 1.5-2 mm; pedicel 1-1.5 mm long; ovary 0.5-1 mm long; middle sepal (lowermost) narrowly ovate, acuminate, 5 × 1.5 mm, concave, 3-veined; lateral sepals united into a synsepal which is uppermost, ovate, attenuate, 5 × 2 mm, concave, 4-veined; petals narrowly linear, acuminate, 4 × 0.25 mm, 1-veined; lip obscurely oblong, 3-lobed just below the middle and acutely deflexed near the middle, 2 × 1 mm spread out, lateral lobes triangular subacute, incurved in the natural position, middle lobe oblong, acuminate, acute with 2 smooth, low elevations, base long-unguiculate; column 1 mm long with a subulate rostellum, winged below the apex with an indistinct foot.

ETYMOLOGY: From the Greek *tryssos*, "dainty, delicate," in allusion to the habit of the plant and quality of the flowers.

TYPE: **ECUADOR**: PICHINCHA: terrestrial on road embankment near km 85 between Quito and Santo Domingo, alt. 1500 m, 1 March 1975, C. Luer & R. Kent 223 (HOLOTYPE: SEL).

ADDITIONAL MATERIAL EXAMINED: PICHINCHA: epiphytic and terrestrial on road embankment near km 86 between Quito and Santo Domingo, alt. 1400 m, 1 Feb. 1963, C. H. Dodson & L. B. Thien 2210 (SEL); terrestrial near Chiriboga, km 70, alt. 1400 m, 3 July 1967, C. H. Dodson, N. H. Williams & R. M. Adams 3805 (SEL).

DISTRIBUTION: Ecuador.

Pleurothallis tryssa is a very delicate little plant of the rain forests at moderate elevations on the western slopes of the Province of Pichincha. The long, frail, thread-like stems, laterally flattened near the junction with the leaf, bend and sway with the weight of the little ovate leaves which are terminated by acuminate setaceous apices. The fine, lace-like racemes hang over the edge of the more or less horizontal leaves so that the non-rotated flowers, which become pendent, present with their lips lowermost. The dainty, translucent green flowers are spotted with purple. The dorsal sepal and the similar synsepal are narrowly ovate and boat-shaped; the petals are narrowly linear; and the lip is three-lobed, deflexed near the middle with incurved lateral lobes.

This species was erroneously identified as *P. incurva* Lindl. in Selbyana 1:78.