

New Species of *Anthurium* (Araceae) from Ecuador

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ABSTRACT

Three species of *Anthurium* (Araceae) are described as new to science; *Anthurium boosianum* Croat, *A. genferryae* Croat and *A. marleenianum* Croat.

KEY WORDS

Anthurium, Araceae, Ecuador, new species.

INTRODUCTION

This is another paper in a series contributing to the aroid flora of South America. The three species described here fall in three different sections of *Anthurium*.

Anthurium boosianum Croat & G. Ferry, **sp. nov.** Type: ECUADOR. Carchi: along road from El Chical to Tobar Donoso, 6.6 km W of El Chical, 1,000 m, 00°56'59"N, 78°14'24"W, 7 Aug 2004, *T.B. Croat & G. Ferry 92950* (holotype, MO-5890353, 5890357-8, isotypes, K, QCNE, US). Figure 1.

Internodia brevia, 5.5–6 cm diam.; cataphyllae 11.4–26 cm longae; petiolus 89–182 cm longus, 3.5–4 cm diam.; lamina 34–83 cm longa, 33–65 cm lata; nervis primariis lateralibus 10–28 utroque; pedunculus 10.8–28 cm longus; spathe 17–27.5 cm longa, 1.2–6 cm lata; spadix 15.5–29.2 cm longus, 1.1–11.0 cm diam.

Terrestrial or hemiepiphytic in the understory, to 1 m tall, stem to 30 cm long; **internodes** short, 5.5–6 cm diam.; **cataphylls** 11.4–26 cm long (averaging 20.2 cm), moderately coriaceous, medium green to purple, semiglossy, persisting semi-intact at upper nodes, soon fibrous-deciduous except for a few pale loose fibers at base; **petioles** 89–182 cm long (averaging 141 cm), 3.5–4 cm diam. at base, 10–11 mm diam. midway, 7 mm diam. below geniculum, subterete and weakly flattened adaxially to terete with no sign of sulcus, medium green to dark green and glossy; **geniculum** 2.5–5.5 cm long, 1.1 mm diam., terete, weakly sulcate, dark green to yellow-green, smooth, short-lineate; **blades** 34–83 cm long, 33–65 cm wide (averaging 64 × 49 cm), subcoriaceous, epunctate, semi-acuminate at apex, dark green, semiglossy above, moderately paler and matte to weakly glossy below, drying semiglossy, yellowish green on upper surface and pale gray-green on lower surface, widest point above petiolar plexus but below middle, margin convex; **midrib** narrowly rounded to bluntly acute and slightly paler above, round-raised and paler below; **primary lateral veins** 10–28 on each side (averaging 17), narrowly quilted-sunken or furrowed and concolorous above (the lowermost with raised ridge in deep valley), bluntly acute to narrowly rounded and slightly paler below; **tertiary veins** in part raised, concolorous above,

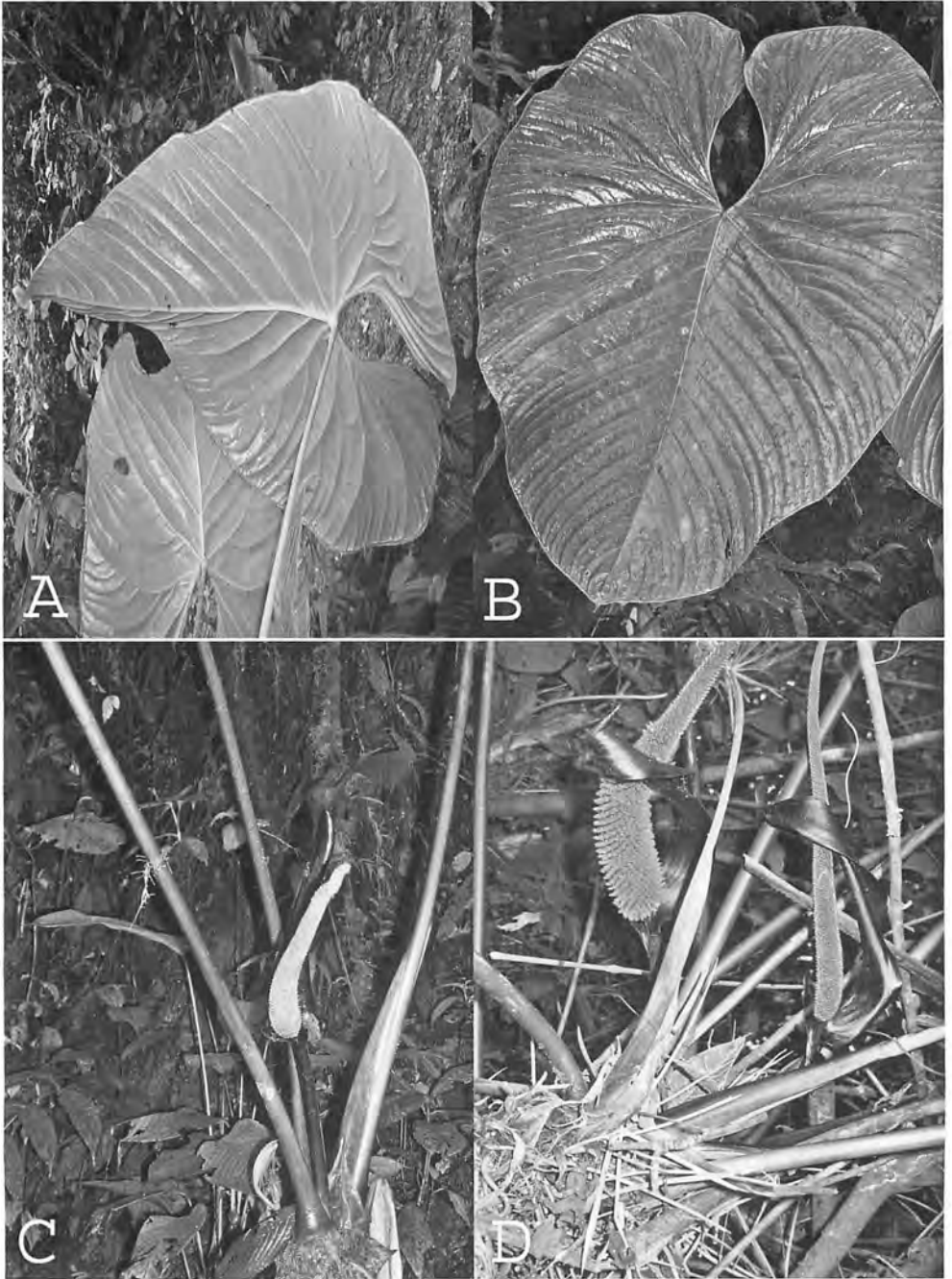


Fig. 1. A–D. *Anthurium boosianum* Croat. (Croat 100933). A. Habit. B. Leaf blade, adaxial surface. C. Stem with inflorescence showing cataphylls and base of petioles. D. Infructescence.

prominulous and concolorous below; **collective veins** arising from the 4th pair of basal veins, 2–3.5 mm from the margin; **anterior lobe** 25–65 cm long (averaging 45 cm), broadest somewhat above petiole attachment; **posterior lobes** 16–31 cm long, 9.5–27 cm wide; **sinus** hippocrepiiform to spatulate, 12.5–19 cm deep (averaging 16.5 cm), 6–7 cm wide; **basal veins** 7–8 pairs, 1st pair free to the base, 5th and higher order pairs coalesced to 5.5 cm; **posterior rib** markedly curved, naked for 4.5–13 cm; surfaces moderately smooth and epunctate on both sides. INFLORESCENCE erect; **peduncle** erect, terete, 10.8–28 cm long (averaging 19 cm), purplish, semiglossy; **spathe** subcoriaceous, shiny dark purple, erect to spreading, glossy outside, semiglossy to weakly glossy inside, 17–27.5 cm long, 1.2–6 cm wide (averaging 21.3 × 2.8 cm), reflexed and slightly curled under; **spadix** 15.5–29.2 cm long, 1.1–11.0 cm diam. at base, .8–2.5 cm diam. midway (averaging 21.3 × 1.6 cm), .4–1.9 cm diam. at 1 cm from tip, creamy white at base becoming pale green further up, matte, the tip yellow-green, post-anthesis in specimen examined sessile 29.2 cm long, 2.2 cm diam. at base, 1.4 cm diam. midway, 5 mm diam. at 1 cm from tip matte; stamens exerted; **flowers** rhombic to sub 4-lobed, 8–11 flowers visible per spiral, 1–1.4 mm long, 1.1–1.7 mm wide; **tepals** matte when dried, lateral tepals .5–.7 mm wide. INFRACTESCENCE erect; **berries** dark red, narrow and pointed, early-emergent.

Anthurium boosianum is at present known only from the western slopes of the Andes in Ecuador with collections from western Ecuador in Carchi Province and in Pichincha Province on the slopes of Volcán Pichincha in *Lower montane wet forest* and *Premontane wet forest* life zones. It is certainly to be expected in the intervening area between Esmeraldas and Pichincha on the western slopes of the Andes as well as in adjacent Colombia in Nariño Department at 1,000 m in a *Premontane rain forest* life zone.

The species is a member of sect. *Cardi-olonchium*, characterized by its terrestrial

habit, long stem, subterete, short internodes, semi-intact cataphylls, petioles which are obtusely flattened adaxially, ovate-sagittate, greenish-drying blades with the collective veins arising from one of the lowermost basal veins, but especially by the short-pedunculate inflorescence with a broad, purple spreading spathe, white spadix with protruding stamens, and the short-tapered infructescence with early-emergent and acute red berries.

Owing to the long, broad, dark purple spathe and the tapered white spadix, the species resembles *Anthurium watermaliense* from Costa Rica and Panama but that species differs in having orange berries and being a member of sect. *Pachyneurium* with involute rather than supervolute ptyxis.

The species was first collected by Mike Madison and Libby Besse near El Pailon, ca. 45 km below Maldonado at 800 m elevation (*Madison & Besse 7135*).

Anthurium boosianum is named in honor of the late Julius Boos, noted naturalist, whose erudite commentary on Aroid-L, the interactive electronic forum of the International Aroid Society, was always interesting and thought-provoking. His broad experiences with aroids, especially of the Lasioideae, have been very helpful to all. Julius, for many years, was a mainstay of the IAS, serving on the IAS Board and always participating in the events of the organization in Miami. I am pleased to be able to name this beautiful species in his honor. Note: Julius Boos died of cancer on 11 July, 2010.

Paratypes: ECUADOR. **Carchi**: El Pailon, ca. 45 km below Maldonado along a foot path to Tobar Donoso, 800 m, 28 Nov 1979, *Madison & Besse 7135* (K). **Pichincha**: Canton Quito, Reserva Mashpi, along road leading into Reserve, departing main Pacto-San Miguel de los Bancos Road, 14.0 km N of plaza in Pacto, then 4.6 km on road to left, Valley of Quebrada Mashpi, main gate is 3 km from road, this stop was 2.9–3.5 km from gate, 00°09'23"N, 78°51'55"W, 1,150 m, 6 Dec 2008, *Croat 100933* (QCNE, MO); along the road from Pacto to San Miguel de los Bancos, 5.9 Km beyond La

Delicia (NE of La Delicia), 00°09'26"N, 78°49'55"W, 1,482 m, 9 Sep 2007, *Croat 98476* (QCNE, MO).

Anthurium genferryae Croat, **sp. nov.**

Type: ECUADOR. Pichincha: Pichincha, along road from Pacto to San Miguel de los Bancos, between La Delicia and Cielo Verde (Imbabura), 10.9 km east of central plaza in Pacto, 5 km east of La Delicia; roadsides with relictual virgin forest, 00°09'35"N, 78°49'30"W, 1,574 m, 8 Sep 2007, *T. B. Croat & G. Ferry 98439* (holotype, MO-6063767–68: isotypes, B, COL, F, K, MEXU, NY, QCNE, S, US). Figure 2.

Internodia brevia, 1.6–2.5 cm diam.; cataphyllae 15–37 cm longae; petiolus 60–154 cm longus, 7–10 mm diam.; lamina ovato-sagittata, 41–83.2 cm longa, 19.5–39 cm lata; nervis primariis lateralibus 8–21 utroque; spatha 9.5–25.5 cm longa.

Terrestrial on road bank; **stem** to greater than 1 m long; **internodes** short, 1.6–2.5 cm diam. below apex, completely covered by cataphylls; **cataphylls** 15–37 cm long (averaging 26.7 cm), tinged reddish persisting intact, 3–4 of the uppermost remaining green, the lower ones dark brown; **petioles** terete, 60–154 cm long (averaging 99 cm), medium green, weakly glossy, 7–10 mm diam.; **geniculum** 1.5–4.3 cm long; **blades** narrowly ovate-sagittate, 41–83.2 cm long, 19.5–39 cm wide (averaging 60 × 27 cm), 2.3 times longer than wide, .6 times as long as petioles, abruptly acuminate at apex, prominently lobed at base dark green, subcoriaceous, semiglossy to weakly glossy above, glossy and paler below, glandular-punctate on both surfaces, drying brownish above and below, margin convex, position of widest point above petiolar plexus but below middle; **anterior lobe** 36–70.5 cm long (averaging 51 cm), broadly rounded to almost straight along margins; **posterior lobes** 8–16.3 cm long, 7–15.6 cm wide, directed toward the base; **sinus** narrowly hippocrepiform, 6.3–13 cm deep (averaging 9.1 cm); **basal veins** 5 pairs, 1st pair free to base, 2nd pair almost free to base,

3rd–5th pairs fused 2.5 cm; **posterior ribs** weakly curved, naked along sinus 2.5 cm; **midrib** narrowly rounded and slightly paler above, acutely 3-ribbed, paler and prominently raised below, drying bluntly acute above, narrowly rounded below, slightly paler on both surfaces; **primary lateral veins** 8–21 on both sides departing angle 54–60°, narrowly raised and slightly paler in valleys above, bluntly acute and paler below, drying concolorous and weakly raised above, bluntly acute and darker below; **tertiary veins** moderately obscure below, drying prominulous; **collective veins** arising from the 2nd or 3rd pairs of basal veins, 1–2 mm from margin; **upper surface** sparsely glandular-punctate; **lower surface** weakly glandular-punctate, (the glands larger and more abundant below). INFLORESCENCE erect, spreading; **peduncle** 40–109 cm long (averaging 68 cm), subterete with a sulcus below the spathe, drying dark yellow-brown, 6 mm diam.; **spathe** 9.5–25.5 cm long, 2.1–4.2 cm wide (averaging 15.2 × 3.0 cm), hooding, medium green and glossy outside, moderately paler and weakly glossy inside; **spadix** cylindroid, 15.3–16.1 cm long, .9–3.0 cm diam. at base (averaging 9.5 cm × 1.9 cm), .9–3.0 cm diam. midway, .9–3 cm diam. at 1 cm from tip, creamy white, matte, the pistils early-emergent; **flowers** rhombic to sub 4-lobed, 13–20 flowers visible per spiral, 1.6–1.7 mm long, 1.7–1.9 mm wide; **tepals** with surface irregular and with pale inclusions, lateral tepals .8–1.0 mm wide; outer margin 2–3-sided. INFRUCTESCENCE with tepals brown; pistils prominently protruding, becoming red as berries

Anthurium genferryae is endemic to Ecuador, known only from the western slopes of Volcán Pichincha at 1,619 to 1,741 m in a *Premontane wet forest* life zone.

The species is a member of sect. *Calomystrium* characterized by its terrestrial habit, short internodes, persistent, intact cataphylls, terete petioles, ovate-sagittate blades with the midrib acutely 3-ribbed below and the lower surface prominently dark-punctate as well as by its erect-

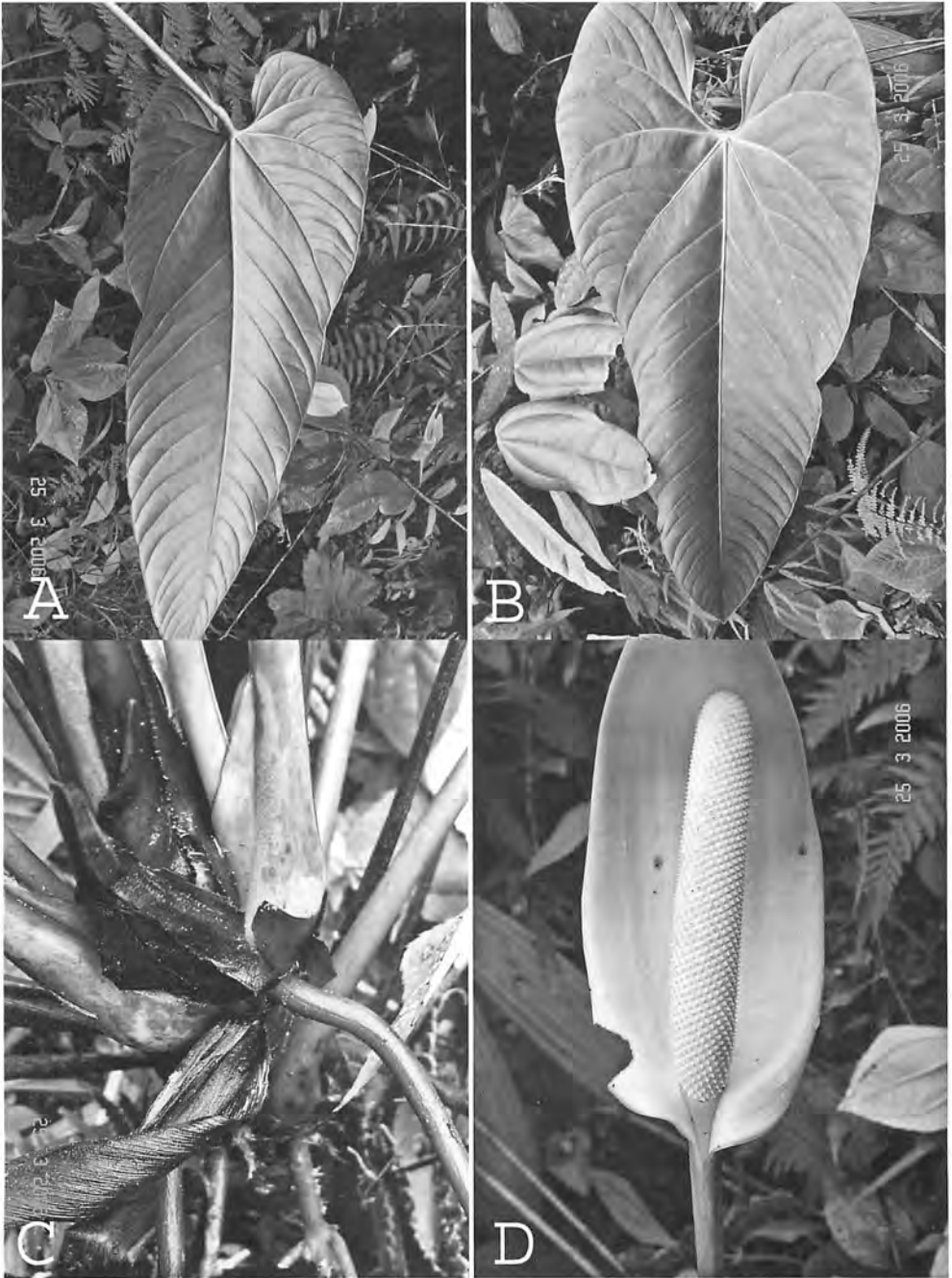


Fig. 2. A–D. *Anthurium genferryae* Croat. (Croat 96352). A. Blade, abaxial surface. B. Blade, adaxial surface. C. Stem showing cataphylls and base of petioles. D. Inflorescence showing spathe and spadix.

hooding greenish white spathe and white cylindroid spadix with early emergent, white, acute pistils. The berries are white at the base and red at the apex.

Anthurium genferryae keys in the Lucid *Anthurium* key to *A. albidum* Sodiro, *A. obtusilobum* Schott and *A. plurisulcatum* Sodiro. *Anthurium albidum* differs in having blades less than 30 cm long and 15 cm wide and with petioles less than 40 cm long; *A. obtusilobum* Schott differs in having the spathe reflexed, a spadix turning dark lavender to violet-purple after anthesis with the pistils not early-emergent and in lacking dark dots on the lower surface, and in having pale-linear cellular inclusions on both surfaces. *Anthurium plurisulcatum* differs in being a member of sect. *Belonchium* with heavily ribbed petioles.

Etymology

The specific epithet recognizes the contributions of Geneviève Ferry who has made valuable collections in northern South America

Paratypes: ECUADOR. **Pichincha**: along road between Pacto and Cielo Verde (Prov. Imbabura) on Río Guayabamba, 10.2 km SW of Pacto, 34.8 km SW of Armenia junction with Nanegalito-Pto. Quito Hwy, 00°09'42"N, 78°41'23"W, 1,619 m, *T.B. Croat, C. Davidso, & S. Davidson* 96352 (AAU, GB, HUA, MO, QCNE, USM); 96357 (MO, QCNE); along old road from Mindo to Tandayapa departing main asphalt road from Nanegalito to Puerto Quito just east of turn off to Mindo, .2 km from (north of) junction with main highway, 00°01'36"S 078°44'56"W, 1,741 m, 16 Oct. 2007, *T.B. Croat, M. Carlsen & D. Levin* 99999 BRIT, CAS, DUKE, GH, M, MO, QCA, QCNE, SEL, VEN).

***Anthurium marleenianum* Croat, sp. nov.** Type: ECUADOR. Pichincha: along road between Pacto to San Miguel de los Bancos, between La Delicia and Cielo Verde (Imbabura), 10.3 km E of plaza in Pacto, 00°09'46"N, 78°49'27"W, 1,585 m, 7

Sep 2007, *T.B. Croat & G. Ferry* 98417 (holotype, MO-6192216: isotype, QCNE). Figure 3.

Internodia brevia, 3 cm diam.; cataphyllae 13 cm longae; petiolus 43–44 cm longus, .8–1.1 cm lata; lamina 62–73 cm longa, 17.5–21.4 cm lata; nervis primariis lateralibus 20–25 utroque; spathe 7.2 cm longa, 8 mm lata; spadix 13.8 cm longus, 1.9 cm diam.

Terrestrial; **internodes** short, densely rooted, 3 cm diam., **cataphylls** 13 cm long, soon persisting as loose, pale fibers; **petioles** obtusely flattened and medium green, weakly glossy, 43–44 cm long, .8–1.1 cm wide; **geniculum** 1.2–2 cm long; **blades** 62–73 cm long, 17.5–21.4 cm wide, 3.4–3.5 times longer than wide, .6 times longer than petiole, subcoriaceous, dark green and matte-subvelvety above, moderately paler and semiglossy below, eglandular, drying greenish above and below; **midrib** narrowly rounded and paler above more narrowly so toward apex, narrowly triangular and paler below with acute medial rib and paler below; **primary lateral veins** 20–25 on both sides, weakly raised, narrowly rounded and concolorous above, weakly raised and dark below, departing angle 72–75°; **tertiary veins** not visible; **collective veins** 8–10 mm from the margin, sunken above, raised below, drying yellowish green, originating only from basal veins; **upper surface** upon magnification moderately glossy, minutely areolate with short pale linear to punctuation cellular inclusions; **lower surface** glossy at magnification, moderately smooth. INFLORESCENCE reclining on ground; **peduncle** purple, 73 cm long, 9 mm diam.; **spathe** medium green, pale outside and inside, reflexed-spreading, 7.2 cm long, 8 mm wide; **spadix** cylindroid, 13.8 cm long, 1.9 cm diam. at base, 1.8 cm diam. midway, 1.5 cm diam. at 1 cm from tip, drying pale yellowish-green; **tepals** lateral tepals 1 mm–1.7 mm wide; outer margin 2 sided; INFRUCTESCENCE **fruits** green, protruding, immature.

Anthurium marleenianum is endemic to Ecuador, known only from the type locality

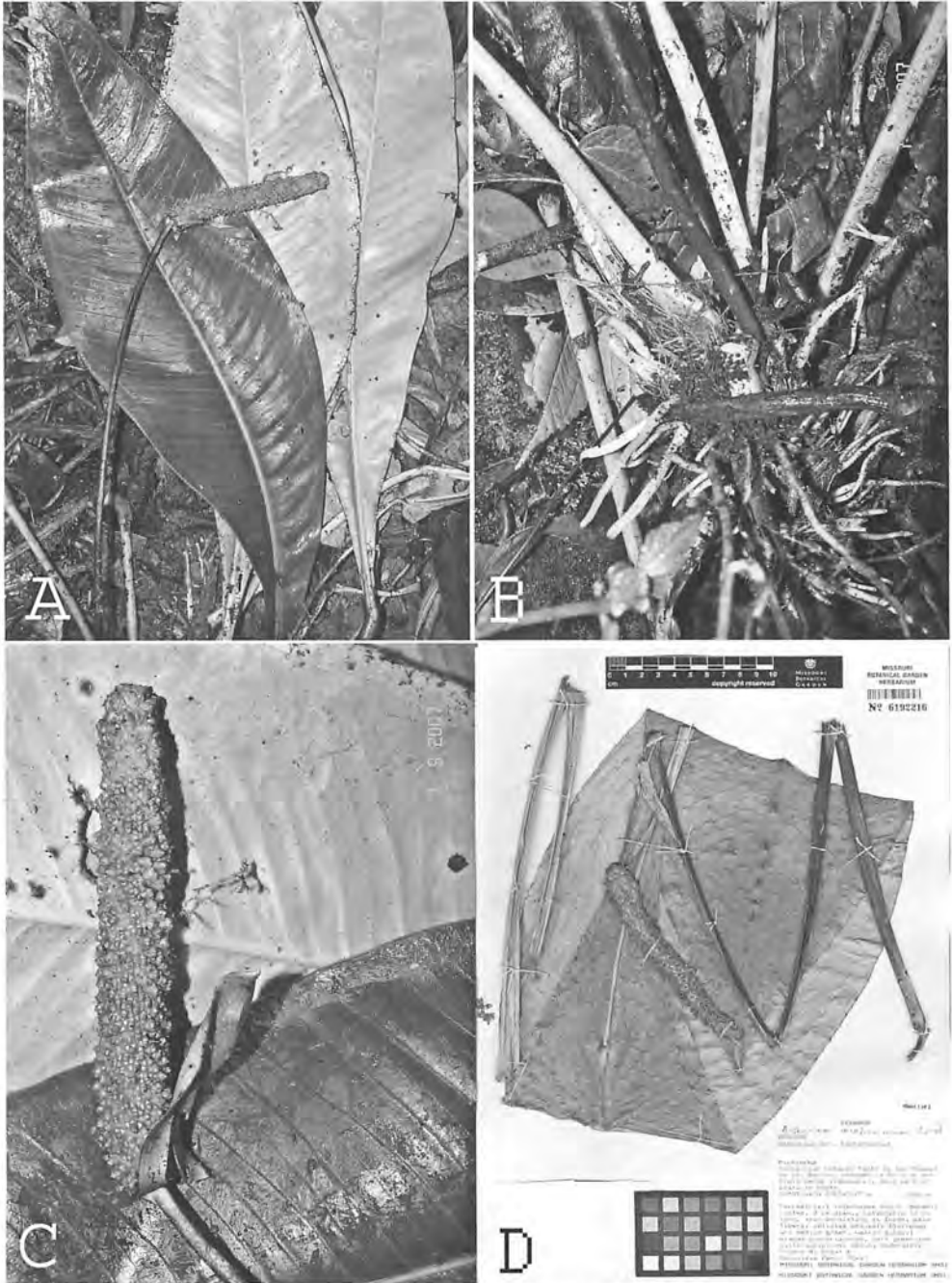


Fig. 3. A–D. *Anthurium marleenianum* Croat. (Croat 98417). A. Habit. B. Stem showing cataphylls and base of petioles. C. Inflorescence, close-up. D. Herbarium specimen.

in Pichincha Province at 1,585 m in a *Premontane wet forest* life zone.

The species is a member of sect. *Pachyneurium* series *Multinervium*, characterized by its terrestrial habit, short, thick internodes, obtusely flattened petioles, the oblanceolate-elliptic, markedly bicolorous blades with matte-subvelvety upper surfaces and a semiglossy lower surface.

Anthurium marleenianum is probably closest to *A. angustilaminatum* Engl. and *A. fasciale* Sodiro, two other members of series *Multinervium*. *Anthurium angustilaminatum* Engl differs in having proportionally narrower leaf blades with a length to width ratio more than 5.7 times longer than wide, while *A. fasciale* Sodiro differs in having a length to width ratio between 3.6 and 12.4 times longer than wide and

also differs in having a D-shaped petiole with sharply raised marginal ribs and sometimes also with a medial rib.

The species is named in honor of, Lili Marleen Calderon Tamayo, graduate of the Instituto Tecnológico de Estudios Superiores de Occidente (ITESO) in Tlaquepaque, Jalisco, Mexico. Marleen, an Ingeniera Ambiental, worked with me as a volunteer researcher and was responsible for describing several new species, including this one from Ecuador.

LITERATURE CITED

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