

New Species of Araceae from Western Ecuador

Thomas B. Croat

Missouri Botanical Garden

P.O. Box 299, St. Louis, MO 63166

Thomas.croat@mobot.org

David Wolfersberger

Volunteer Research Associate

Missouri Botanical Garden

Carla V. Kostelac

Missouri Botanical Garden

P.O. Box 299, St. Louis, MO 63166

Carla.kostelac@mobot.org

ABSTRACT

Nine new species of *Anthurium* (Araceae) are described and illustrated: *Anthurium alluriquinense* Croat, *A. fosteri* Croat, *A. iltisii* Croat, *A. lojtnantii* Croat, *A. pescadilloense* Croat, *A. pucayacuense* Croat, *A. samamaense* Croat, *A. sebastianense* Croat and *A. ventanasense*.

KEY WORDS

Amazon basin, Araceae, *Anthurium*, new species, western Ecuador.

INTRODUCTION

The western slopes of the Andes in southwestern Ecuador have been largely denuded and relatively few good habitats remain for studying the flora of Ecuador but the few existing remnants such as the Reserva ENDESA in Pichincha Province near Pedro Vicente Maldonado, the Río Palenque Research Center in Tsáchila Province and the Montañas de Ila near El Centinela in Los Rios Province (both near Patricia Pilar south of Santo Domingo de los Colorados), as well as on Cerro Samama in Los Rios Province NW of Babahoyo and in the cloud forests between Balsas and Piñas in El Oro Province, provide rewarding finds.

The species described here originated in a number of areas from the lower western slopes of the Andes, some from those areas

mentioned above, as well as from along the Chiriboga Road in Tsáchila Province, from near Manta Real and the area around Pucayacu in Cotopaxi Province, also in and around the Daule-Peripa Dam north of Guayaquil. References used in this paper are based on the Holdridge Life Zone System (Holdridge *et al.*, 1971) and *Ecuador mapa ecológica* (PRONAREG, 1978).

Anthurium alluriquinense Croat, **sp. nov.** Type: ECUADOR. Pichincha. Along old road from Santo Domingo de los Colorados to Quito via Chiriboga and San Juan, 10.9 km NE of La Unión and Río Pilaton, 1,233 m 00°18'21"S, 78°53'03"W, 17 Mar 2006, T. B. Croat, C. Davidson & S. Davidson 95987 (holotype, MO-5971382-3; isotypes AAU, B, COL, F, K, NY, QCNE, U.S.). Figures 1a–d.

Internodia brevia, 2–4 cm diam.; petiolus acute C-formatus, 44–114 cm longus, 3–9 mm diam.; lamina ovata, 36–58 cm longa, 18–32 cm lata; nervis basales liber ad basim; pedunculus 25–57 cm longus; spatha palide viridis vel alba, suffusus marroninus vel purpureus, 4.5–8 cm longa, 1.0–1.5 cm diam.; spadix cylindroideus, 5–15 cm longus, .5–1.2 cm diam., atropurpureus.

Terrestrial; **internodes** short, 2–4 cm diam.; **cataphylls** 6–8 cm long, intact at upper nodes, dark brown and

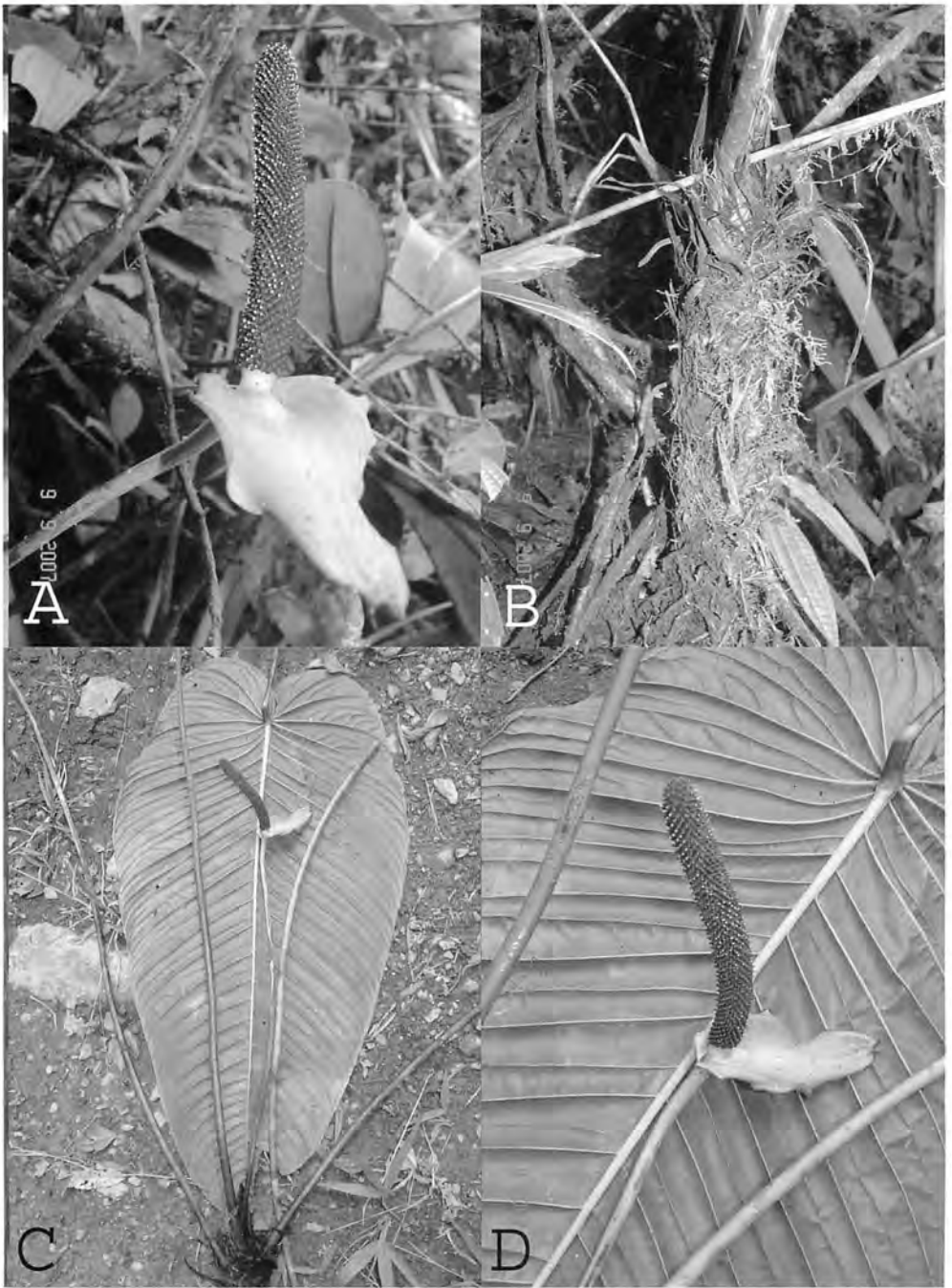


Fig. 1. a–d. *Anthurium alluriquiense* Croat. (Croat et al. 95987). a. Inflorescence. b. Stem showing dense layer of cataphyll fibers. c. Whole plant on ground showing leaf abaxial surface and inflorescence. d. Leaf abaxial surface and inflorescence, close-up.

loosely fibrous below; **petioles** sharply C-shaped with narrow, bluntly acute-raised margins, often acutely ridged along one side near the base, the opposite side faintly 3-ribbed, semiglossy, medium to dark green, drying light to dark brown, 44–114 cm long, 3–9 mm diam., blade/petiole ratio .6–1.0; **blades** ovate, 36–58 cm long, 18–32 cm wide, length/width ratio 1.8–2.6, dark green and semiglossy to matte-subvelvety above, slightly paler and weakly glossy to semiglossy below, subcoriaceous, caudate-acuminate at apex; **anterior lobe** 31–48 cm long; **posterior lobes** directed toward base, 4–10 cm long, 8–13 cm wide; **basal veins** 5 per side, normally free to base, on occasion 4th and 5th fuse at about 1 cm, all join collective vein; **midrib** narrowly rounded and paler above, convex at base becoming bluntly acute toward apex, round-raised and paler below with marginal acute ribs, often acutely 5-ridged below; **primary lateral veins** 13–15 pairs usually offset, arising at 20–45°, slightly to deeply sunken and concolorous above, round-raised and paler below, form collective vein; **tertiary veins** weak and sunken above, some are more obvious below. INFLORESCENCE erect or erect-spreading; **peduncle** 25–57 cm long, 27 mm diam., dries typically to brown; **spathe** 4.5–8 cm long, 1.0–1.5 cm diam., pale green to almost white, tinged with maroon or purple, the margins wavy, sometimes reflexed, usually prominently twisted or undulate along the margins; **spadix** cylindroid, 5–15 cm long, .5–1.2 cm diam., dark violet-purple, the tepals glossy to semiglossy, becoming brownish; **pistils** early emergent. INFRUCTESCENCE 17–24 cm long, 22–27 mm diam. with berries partly emergent; berries 8–10 mm long, 4–5 mm diam., pointed at apex, bright red in apical 1/2–3/5, white below; seeds greenish white, 4–5 mm long, 3 mm wide, 2 mm thick with a short sticky appendage.

Anthurium alluriquinense is endemic to Ecuador (Carchi, Pichincha, El Oro) at 740–1,800 m in *Premontane wet forest*, *Lower montane moist forest*, *Lower montane wet forest* and *Montane wet forest*.

The species has mostly been collected in Pichincha Province especially on the slopes of Volcán Pichincha.

The species is a member of sect. *Polyneurium* characterized by its green-drying, narrowly ovate blades with numerous primary lateral veins but especially for its long-pedunculate inflorescence with the reddish spathe with frequently broadly undulate margins and the bright red spadix with prominently protruding pistils.

Anthurium alluriquinense is closest to *Croat 71584* which represents another undescribed species from Colombia, known from the La Planada Nature Reserve in Nariño Department at 1,800 m elevation. That species differs in having the spadix which are much longer and proportionately more slender, up to 18 times longer than wide (versus 10–16 times longer than wide for *A. alluriquinense*).

The epithet “alluriquinense” refers to the town of Alluriquín where the species was first collected by Mike Madison & Libby Besse in 1975.

Paratypes—COLOMBIA. **Narinó:** Tumaco-Tuquerres road, W of Junin, tropical pluvial forest., 900 m, 25 Nov 1981, *A. Gentry 34963* (MO); La Planada: Tuquerres - Ricaurte, Reserva Natural: La Planada, 7 km above Chucunés, along trail to El Hondón beginning at Quebrada El Tejón., 1°06'N, 77°53'W, 1,800 m, 19 Mar 1990, *Thomas B. Croat 71584* (CHOCO, HUA, MO); Reserva Natural La Planada: 7 km above Chucunés (along road between Tuquerres and Ricaurte) along trail to El Hondón, beginning at Quebrada Tejón and for .5 km beyond., 1°08'N, 77°54'W, 780–800 m, 15 Mar 1990, *Thomas B. Croat 71489* (MO). Ricaurte: Along road between Altaquer and Tumaco, Altaquer, Río Nambí, 6 km W of Altaquer., 1°18'N, 78°04'W, 1,100–1,130 m, 20 Mar 1990, *Thomas B. Croat 71645* (MO); La Planada Reserve, 7 km from Chucunés. Cloud forest., 01°05'N, 78°01'W, 7 Jan 1988, *A. Gentry, Olga de Benavides & P. Keating 60559* (MO). ECUADOR. **Carchi.** El Pailon: El Pailon, ca. 45 km below Maldonado along a foot path to Tobar Donoso, wet

montane forest., 800 m, 29 Nov 1979, *Madison & Besse 7182* (SEL). **El Oro**: 14 km W of Piñas, 740 m, 20 Sep 1979, *Schupp & McDiarmid 26* (SEL). **Pichincha**: Along old road to Quito from Alluriquín via Chiriboga, 2–3 km from main Aloag–Sta Domingo de los Colorados road, 00°18'13"S, 78°54'30"W, 890–1,010 m, 08 Oct 1983, *Croat 56982* (MO); Santo Domingo – Chiriboga, ca. 3 km from bridge over Río Pilatón, 1,000 m, 17 Mar 1985, *Harling & Andersson 23044* (QCA, GB); Km 6 Toachi–Las Pampas, Off main road Santo Domingo–Quito, 1,300 m, 21 May 1983, *Dodson & Gentry 13699* (SEL); 1,200–1,400 m, 20 Apr 1977, *Madison 4087* (QCA, SEL); Quito – Santo Domingo de los Colorados, Old road from Quito to Santo Domingo de los Colorados, 00°20'S, 78°35'W, 1,360 m, 12 May 1989, *J. F. Smith 1904* (MO, QCA, WIS); Along lower part of Quito–Chiriboga–Santo Domingo Rd. where it meets the main Quito–Santo Domingo Hwy, near junction of Río Pilatón and Río Toachi, along trail leading up onto slope NW of bridge, 00°18'30"S, 78°53'00"W, 1,100 m, 23 July 1998, *Croat 82845* (AAU, CAS, GB, K, QAP, S, QCNE, MO, U.S., USM); Along old road from Santo Domingo de los Colorados to Quito via Chiriboga and San Juan, 10.9 km NE of La Unión and Río Pilatón, 00°18'21"S, 78°53'03"W, 1,233 m, 17 Mar 2006, *Croat, C. & S. Davidson 95987* (MO); Along road from Santo Domingo de Los Colorados via Chiriboga and San Juan, 12 km NE of La Unión and Río Pilatón, 00°17'46"S, 078°52'13"W, 1,212 m, 23 Mar 2006, *Croat, C. & S. Davidson 96286* (MO); Along road from La Unión de Toachi to Quito via Chiriboga, 2.2 km up road to Chiriboga from the bridge over Río Toachi, 10.9 km W of Alluriquín 984 m 00°18'57"S, 78°55'29"W, 24 Feb 2005, *Croat 95293* (MO, QCNE) Estación Los Faisanes: Quito – Santo Domingo, ca. 12 km from Río Pilatón, 1,400 m, 18 Mar 1985, *Harling & Andersson 23083* (GB); La Unión de Toachi: 900 m, 26 Feb 1995, *Schwerdtfeger 022608* (MO). Santo Domingo de Los Colorados: Quito – Santo Domingo Rd., Km 92, 1,250 m, 04 July 1979, *M. Fallen 816* (SEL).

Cultivated plants: ECUADOR. **Pichincha**: Alluriquín – Chiriboga 800–1,000 m, *Selby 77- 2095A* (MO); Pinchincha, 950 m, 12 May 1978, *Madison 4266* (SEL); Chiriboga Road near waterfall at 1,800 m, cultivated in Bleiswijk, Holland by Anthurium Selecties, Inc., collected by N. van der Knaap and N. van Rosmalen in 1990, vouchered 4 Sep. 1992, *Croat 74007* (MO).

***Anthurium fosteri* Croat, sp. nov.** Type: ECUADOR. Azuay: Manta Real, Río Patul, S of the La Truncal–Zhud Hwy., along road between Zhucay and Río Patul at the base of the Andes, E of Manta Real, 02°33'S, 78°20'W, 600–1,100 m, 11–12 July 1991, *A. P. Yáñez & R. Foster 227* (holotype, QCNE-58967). Figure 2a.

Internodia ad 7 cm longa, 1 cm diam.; petiolus teres, 20–29 cm longus; lamina anguste ovata-cordata, 18–24 cm longa, 11–13 cm lata; pedunculus 14 cm longus; spatha 10 cm longa, 2.6 cm diam., decurrens ad basim; spadix cylindricus, 7 cm longus, 9 mm diam. in sicco, luteus.

Epiphyte; **internodes** elongated, to 7 cm long, 1 cm diam., drying dark brown and smooth; **cataphylls** drying intact and persistent, 4 cm long; **petioles** terete, 20–29 cm long, drying dark brown, 3 mm diam., sheathed to 4 cm; geniculum 2–3 cm long, not noticeably thickened but slightly darker; **blades** narrowly ovate-cordate, 18–24 cm long, 11–13 cm wide, 1.8–2 times longer than broad, .8–.9 times as long as petiole, drying dark brown and matte above, paler and yellow-brown, weakly glossy below; anterior lobe 15–21.3 cm long, broadly convex along margins; posterior lobe narrowly rounded 5–5.5 cm long, 4.5–5.5 cm wide midway; **sinus** arcuate, 2–3 cm deep; **midrib** drying narrowly raised and more or less concolorous, bluntly acute above, bluntly angular, darker and minutely granular below; **primary lateral veins** 3–4 pairs, arising at 45° angle, scarcely more prominent than the primary lateral veins; minor veins drying wrinkled-undulate; **basal**

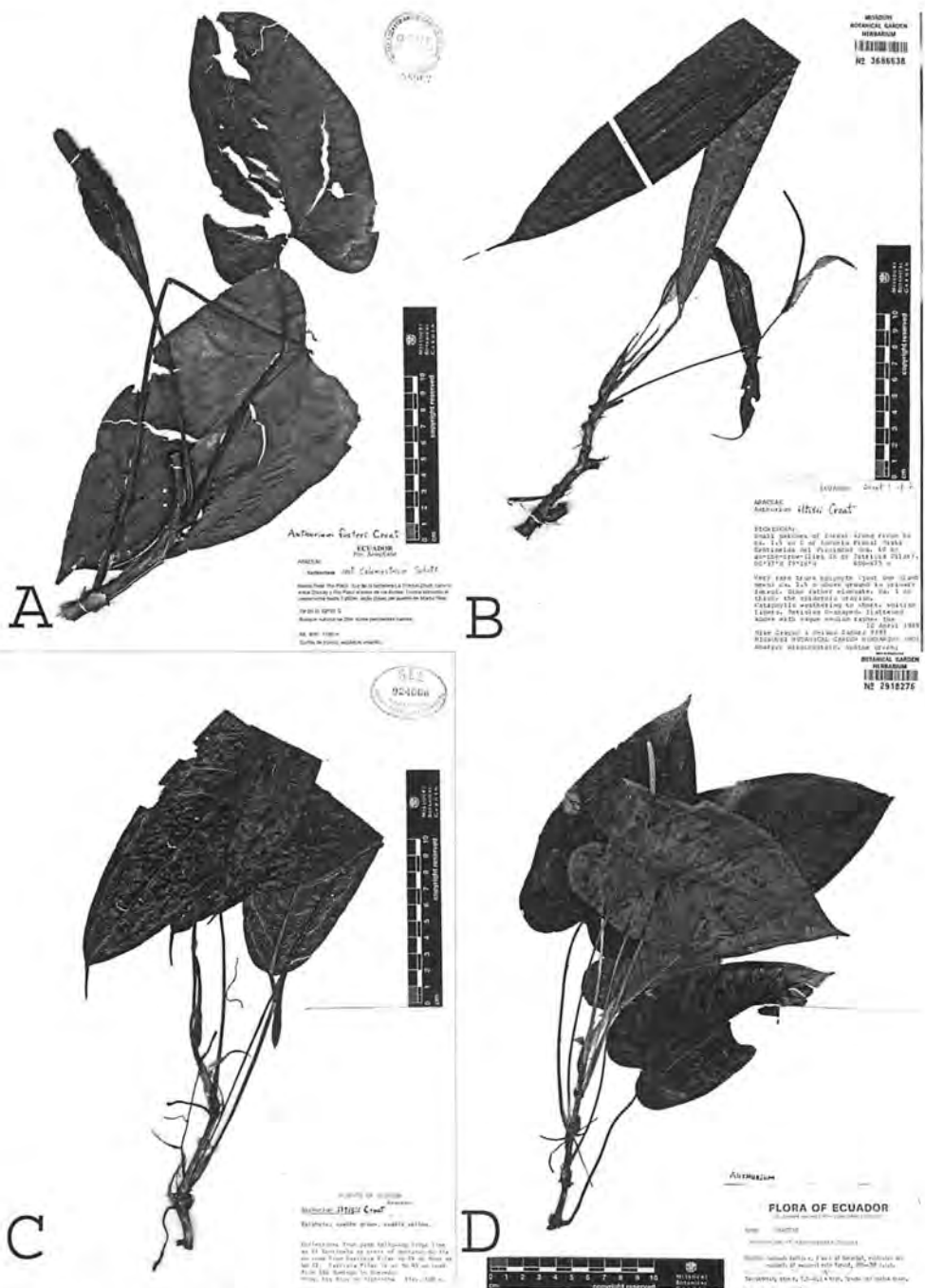


Fig. 2. a. *Anthurium fosteri* Croat. (Yanez & Foster 227). Herbarium holotype specimen. b–c. *Anthurium iltisii* Croat. b. (Grayum 9393). Herbarium isotype specimen. c. (Dodson 7560). Herbarium type specimen. d. *Anthurium lojtmantii* Croat. (Harling 19480). Herbarium holotype specimen.

veins 2–3 pairs, the uppermost forming the collective veins, 1–1.5 cm from margin midway; upper surface drying moderately smooth, with scattered pale-lineations; lower surface drying moderately smooth but minutely granular at higher magnifications. INFLORESCENCE erect; **peduncle** 14 cm long, drying dark brown, finely ridged, 2.5 mm diam.; **spathe** 10 cm long, 2.6 cm diam., extremely decurrent at base with the spadix arising 5 cm above the base, narrowly rounded and short-apiculate at apex; **spadix** cylindrical, 7 cm long, drying to 9 mm diam., protruding 1.5 cm beyond spathe, yellow, drying dark brown; flowers 4-sided, ca. 10 per spiral, 2.3–2.4 mm long, 3.0–3.2 mm wide; lateral tepals 1.4–1.5 mm wide, the outer margins 2-sided, inner margins rounded, turned up against the pistils, drying minutely granular. INFRUCTESCENCE: Berries not known.

Anthurium fosteri is known only from the type locality along the Azuay and Cañar provincial border in southern Ecuador at 600–1,100 m elevation in *Premontane moist forest* and *Lower montane moist forest* life zones.

Anthurium fosteri is a member of sect. *Calomystrium* and is characterized by its long internodes, deciduous cataphylls, narrowly ovate blades with the collective veins arising from the 1st pair of basal veins and the basal veins all free to the base and especially by its conspicuously decurrent spathe and the cylindrical yellow spadix.

The species is named in honor of Robin Foster, famed botanist-ecologist from the Field Museum in Chicago and who, along with A. P. Yáñez, collected the type specimen.

***Anthurium iltisii* Croat, sp. nov.** Type: ECUADOR. Pichincha (now Tsáchala): Montañas de Ila, El Centinela, km 12 along road from Patricia Pilar to 24 de Mayo, along ridge line path leading north from El Centinela, NW of km 45 on Sto. Domingo de los Colorados to Quevedo Road, 00°37'S, 79°18'W, 600 m, 6 Feb. 1979, C. H. Dodson & A. H. Gentry 7560 (holo-

type, MO-2674713; isotypes, QCNE, SEL). Figures 2b, 2c.

Internodia 2–3 cm longa, ca. 5 mm diam.; petiolus 5.5–11 cm longus; lamina oblanceolata vel linearis-oblanceolata vel oblongo-elliptica, 17–39 cm longa, 3–7 cm lata; pedunculus 10.5–16 cm longus; spatha viridis, 3.5–6.5 cm longa, 4–7 mm lata; spadix 4–9.5 cm long, .2–.5 cm diam.; baccae plus minusve rubrae.

Epiphyte; stem moderately elongated; **internodes** 2–3 cm long, ca. 5 mm diam.; **petioles** 5.5–11 cm long, 1–2 mm diam.; **blades** oblanceolate to linear-oblanceolate to oblong-elliptic, 17–39 cm long, 3–7 cm wide, 5.4–8.7 times longer than broad, 3 to 5.5 times longer than the petioles, narrowly long-acuminate at apex, cuneate at base, matte above, glossy below; **primary lateral veins** 10–14 pairs, obscure above, raised and prominent below, **secondary veins** forming conspicuous network below, less obvious above; **collective veins** arising from the base, 1 pair, 4–7 mm from margin. INFLORESCENCE with **peduncle** 10.5–16 cm long, ca. 1 mm diam.; **spathe** green, 3.5–6.5 cm long, 4–7 mm wide; **spadix** 4–9.5 cm long, .2–.5 cm diam., stipitate 3–13 mm, sometimes sessile. INFRUCTESCENCE spreading; **berries** red-violet or reddish maroon, oblongoid, ca. .4–1 cm long, .4 cm wide at base.

Anthurium iltisii is endemic to Ecuador, occurring rather widely on the western slope of the Andes at (250–)400–700 (–1,000) m, in *Tropical moist forest* and *Premontane wet forest* life zones. Most collections have been made from the region of El Centinela NW of Patricia Pilar in Pichincha Province at 600–700 m or in the Alto Tambo region in Esmeraldas but other populations are known from Cotopaxi Province, W of El Corazón along the Río Guapara at 250 m, in the region of the ENDESA Reserve along a tributary of the Río Guayabamba with a disjunct population well to the NW at 500 m elevation and in the Mache-Chindul Ecological Reserve at the Bilsa Biological Station. It is to be expected in some of the intervening areas, especially in Imbabura Province.

Anthurium iltisii, a member of sect. *Xialophyllum*, is similar to *A. lygrum* Croat & Bay found in Colombia but the blades of the former are more shiny, have the collective veins further from the margin and the berries are more pointed apically while in *A. lygrum* the berries are more rounded at the apex and the leaves have shorter, narrower blades.

The species was first collected on 9 April, 1977 by Mike Madison of Selby Gardens and later the same year by Hugh Iltis on 1 July, 1977. The species is named in honor of Dr. Hugh H. Iltis, a retired professor at the University of Wisconsin in Madison and a former student at the Missouri Botanical Garden. Though Iltis was not a student of the Araceae or even a persistent collector in Ecuador, his few collections there were invariably interesting and new and he shared his material generously with the senior author.

Paratypes ECUADOR. **Cotopaxi:** Rio Guapara: \pm 20 km NW El Corazón, 250 m, 19 June 1967, *Sparre 17126* (S); 250 m, 19 June 1967, *Sparre 17094* (S); 250 m, 19 June 1967, *Sparre 17112* (MO, S). **Esmeraldas:** Lita-San Lorenzo: Reserva Mache-Chindul, Cuchilla de Bunca, 00°40'N, 79°45'W, 470 m, 29 Apr 2003, *X. Cornejo, Bonifaz 7751* (GUAY, MO); Quinindé: Bilsa Biological Station. Montañas de Mache, 35 km W of Quinindé, 5 km W of Santa Isabel, upper portion of Dogola Trail, 00°21'N, 79°44'W, 400–600 m, 2 Oct 1994, *M. Bass & N. Pitman 120* (QCNE, MO); Bilsa Biological Reserve, Montañas de Mache, 35 km W of Quinindé, 5 km W of Santa Isabel, southeast ridge trail, 00°21'N, 79°44'W, 400–600 m, 20 Sep 1994, *N. Pitman, C. & B. Adnepos 675* (MO, QCNE); 00°21'N, 79°44'W, 400–600 m, 30 Oct 1994, *Clark & Neill 224* (MO, QCNE); Collected on Ramon Loor's property, 00°21'N, 79°44'W, 500 m, 22 Oct 1996, *Clark 3101* (MO, QCNE); Bilsa Biological Station. Montañas de Mache, 35 km W of Quinindé 5 km W of Santa Isabel along old road to Mono, 00°21'N, 79°44'W, 400–600 m, 07 Oct 1994, *Clark, M. Bass & N. Pitman 155* (MO, QCNE); Carretera Herrera–El Páramo (Sta. Isabel). Estación Biológica Bilsa, 00°21'36"N,

79°42'40"W, 580 m, 18 Feb–5 Mar, *Palacios, Clark & N. Jaramillo 13526* (QCNE, MO); Bilsa Biological Station, Montañas de Mache, 35 km W of Quinindé 5 km W of Santa Isabel, old Mono road, about 2 km Southwest of reserve, 00°21'N, 79°44'W, 400–600 m, 18 Oct 1994, *Clark & B. Adnepos 203* (MO, QCNE); Bilsa Biological Station, Montañas de Mache, 35 km W of Quinindé 5 km W of Santa Isabel, invader trail, 00°21'N, 79°44'W, 400–600 m, 24 Nov 1994, *Clark & S. Mora 339* (MO, QCNE); Sector Cristóbal Colón. Terrenos de la Sra. Emma Revilla, a 10 km de Cristóbal Colón, 00°30'N, 079°10'W, 625 m, 15 Marzo 2004, *H. Vargas, E. Narváez, A. Moreira, J. Celi & L. Lewinsobn 4595* (MO, QCNE). **Los Rios:** Patricia Pilar – 24 de Mayo, on path following ridge line at El Centinela at crest of Montañas de Ila, km 12 on road Patricia Pilar – 24 de Mayo, 00°37'S, 79°18'W, 600 m, 06 Feb 1979, *Dodson 7391* (MO, SEL); km 12 Patricia Pilar, 600 m, *Madison 3815* (MO). Quevedo: Cerro Centinela. Montañas de Ila, 10 km east of Patricia Pilar, 00°37'S, 79°18'W, 500 m, 19 June 1991, *Palacios & E. Freire 7418* (MO, QCNE); 1.5 km N of Escuela Fiscal Mixta Centinelas del Pichincha (ca. 10 km as-the-crow-flies SE of Patricia Pilar), 00°37'S, 79°18'W, 600–675 m, 10 Apr 1989, *Grayum & Zamora 9393* (MO, QCNE); 9 km E of Patricia Pilar (11 km by road), 58 km ENE of Quevedo, on Pan-American Highway to Santo Domingo de los Colorados, 00°36'S, 79°18'W, 300–400 m, 01 July 1977, *Iltis et al. E-82* (MO, WIS); Centinela, along ridge line E of Patricia Pilar, 600 m, 6 April 1980, *Gentry & Bonifaz 28489* (MO); Cerro Centinela, el Mirador. 12 km east de Patricia Pilar y Centro Científico Río Palenque, 00°37'S, 79°18'W, 540 m, 03 June 1990, *Rubio & W.S. Alverson 406* (MO, QCNE); Santo Domingo–Quevedo, 12 km east of Patricia Pilar, El Centinela, 650 m, 15 July 1979, *Fallen & Dodson 856* (MO, SEL); Montañas de Ila: Centinela, Montañas de Ila, 12 km east of Patricia Pilar, 00°34'S, 79°19'W, 550–650 m, 10 July 1979, *Lajmunt & Molau 15840* (AAU); Vicinity of El Centinela, .2 km past Escuela Mixta El Centinela, along trail to left of road, exactly

13 km east of main Santo Domingo—Quevedo Highway in Patricia Pilar, 00°32'S, 79°11'W, 1,000 m, 14 Mar 1992, *Croat 73024* (MO, QCNE). **Pichincha**: ca. 6–8 km N of Alvaro Pérez Intriago, km 113, Quito—La Independencia highway, along tributary of Río Guayllabamba, 00°10'N, 79°03'W, 600 m, 07 Apr 1989, *Grayum, Zamora & Angel Gómez 9345* (MO, QCNE). **Tsáchala**: Río Palenque Science Center, halfway between Quevedo and Santo Domingo de los Colorados, 500–600 m, 5 Feb, *Gentry, Dodson & Duke 24705* (COL, MO).

Anthurium lojtnantii Croat, **sp. nov.**

Type: ECUADOR. Guayas: Hacienda Botija, ca. 8 km E of Naranjal, rastros and remnants of seasonal rain forest, estimated 02°40'S, 79°30'W, 250–350 m, 26 May, 1980, *G. Harling & L. Andersson 19480* (holotype, MO-2918276; isotype, GB). Figure 2d.

Internodia 1–4 cm longa, 3–4 mm diam.; cataphylla 5–6.3 cm longa, decidua; petiolus 10–17 cm longus; lamina ovata-cordata vel anguste ovata-cordata, 12–19 cm longa, 6–9.5 cm lata; pedunculus 9–22 cm longus; spathe viridis, 3–5 cm longa, 4–11 mm lata; spadix viridis, 2.5–5 cm longus, 2–4 mm diam.

Terrestrial, ca. .2–.3 m high; dried stem moderately smooth, semiglossy under magnification; **internodes** 1–4 cm long, 3–4 mm diam., drying smooth, gray-green; **cataphylls** 5–6.3 cm long, pale green, drying thin, promptly deciduous; **petioles** 10–17 cm long, 1–2 mm diam., subterete; **blades ovate-cordate to narrowly ovate-cordate**, moderately to weakly cordate at base, narrowly acuminate at apex, 12–19 cm long, 6–9.5 cm wide, approximately 2 times longer than wide, 1–1.3 times longer than petiole, semiglossy above, paler semiglossy below, drying pale green above, lighter green below; **basal veins** 3(–4) pairs, the 1st pair forming a collective vein .2–.4 cm from margin; **primary lateral veins** 8–12 pairs, arising at 30–38° from **midrib**, raised below, drying paler below; secondary and tertiary veins

obvious. INFLORESCENCE with **peduncles** 9–22 cm long, drying 1–1.5 mm diam., dried color light greenish brown; **spathe** green, narrowly linear-lanceolate, 3–5 cm long, 4–11 mm wide; **spadix** green, 2.5–5 cm long, 2–4 mm diam.; **flowers** 5 visible per spiral, 2.6–3 mm long, 2.3–2.5 mm wide, lateral tepals 1.6–1.8 mm wide, outside margin 2-sided, inside margin broadly rounded, very thin and almost translucent.

Anthurium lojtnantii is endemic to Ecuador known at present only in Manabí, Guayas and Los Rios Provinces and found in the lowhills at the base of the Andes at 220–220 m in *Premontane moist forest* and *Tropical wet forest* at 220 m.

The species is a member of sect. *Xialophyllum* distinguished by its slender, terrestrial habit, elongate internodes, small weakly to moderately cordate, greenish drying blades with usually 3 pairs of basal veins, the first of which forms a collective vein ending at the end of apex; as well as a green spathe and spadix.

Anthurium lojtnantii is a close relative of *A. brachypodum* Sodiro, but occurs at much lower elevations and is isolated in the low mountain range along the Pacific Ocean. The leaf blades are also smaller than those of *A. brachypodum* and the posterior lobes are more broadly rounded.

Anthurium lojtnantii was not reported in the Flora of Río Palenque (Dodson & Gentry, 1978) and was collected there for the first time in 1979 by B. Løjtnant, hence the epithet

Paratypes: ECUADOR. **Guayas**: Teresita, 3 km W of Bucay, estimated 02°12'S, 79°12'W, 270 m, 5–7 July, 1923, *A. Hitchcock 20450* (GH). **Manabí**: Cantón Pedernales, Reserva Ecologica Mache-Chindul, Comunidad Ambacha (via marginal de la costa-Chindul); 00°15'N, 79°48'W, 250 m, 25 Mar 1997, *Clark, R. Dunn, T. Nuñez & C. Robles 4180* (F, MO, QCNE, US); **Los Rios**: Río Palenque Science Center, 0°35'S, 79°22'W, 220 m, *B. Løjtnant & U. Molau 15723* (AAU).

Anthurium pescadilloense Croat, **sp. nov.** Type: ECUADOR. Guayas:

Daule-Peripa Dam, Boca de Pescadillo, Transitional forest between Tropical dry forest and Tropical moist forest, 80 m, 02°45'S, 79°40'W, Aug 29, 1985, *C. Bonifaz 531* (holotype, GUAY-7679). Figure 6a.

Caudex elongata; internodia 5–9 cm longa, ad 8 mm diam. in siccus; petiolus 6.5–8 cm longus; lamina ovata, 20–21 cm longa, 11–12 cm lata; nervis primariis lateralibus 5–7 utroque; spadix cremeus, 5 cm longus and .5 cm diam.

Epiphyte; **stems** elongate, **internodes** 5–9 cm long, drying to 8 mm diam., terete; **cataphylls** persisting relatively tightly appressed along entire stem, drying to fine network of light brownish fibers, 4–5 cm long; **petioles** 6.5–8 cm long, drying to ca. 3 mm diam., 3-ribbed, narrowly sulcate adaxially; **blades** ovate, 20–21 cm long, 11–12 cm wide, approximately 2 times longer than wide, 2.5–3 times longer than petioles, acuminate at apex, rounded at base, drying with the surface wrinkled, medium gray and matte above, medium greenish gray and matte below, minutely and irregularly ridged below with blackened glandular punctuations on both surfaces, these sparse but large and prominent on upper surface and small and dense below, the margin revolute; **midrib** raised, drying somewhat darker than surface and acute above; **primary lateral veins** 5–7; secondary veins almost as prominent as primary veins; **basal veins** 2, free to base; **collective veins** normally arising from the uppermost basal veins, on occasion from the lowest primary lateral veins; INFLORESCENCE **spathe** green; **spadix** cream-colored, slightly tapered, 5 cm long and .5 cm diam., pistils early-emergent; styles broadly elliptical with the stigma deeply sunken, ellipsoid with a pale margin; flowers 6–7 visible per spiral, 2.5–2.6 mm long, 2.4–2.7 mm wide; lateral tepals outer margin 2-sided; stamens scarcely emergent then retracted under tepal; anthers 5 mm long, 6 mm wide, the thecae narrowly ovoid and slightly divaricate.

Anthurium pescadilloense is endemic to western Ecuador in Guayas Province at the

Daule-Peripa Dam in the Boca de Pescadillo, at 80 m elevation in *Tropical very dry forest* life zone (according to the Holdridge lifezone map of Ecuador but Bonifaz reported it to be in *Transitional forest between Tropical dry forest and Tropical moist forest*).

Anthurium pescadilloense is a member of sect. *Tetraspermium* and characterized by persistent cataphylls along entire length of the stem, moderately short, sulcate petioles and especially by its large ovate blades. It is most closely related to *A. obtusum* (Engl.) Grayum but that species has smaller, typically narrowly elliptic blades.

The epithet for *Anthurium pescadilloense* refers to the type specimen that was collected in Pucayacu in the Guayas Province at the Daule-Peripa Dam in the Boca de Pescadillo.

***Anthurium pucayacuense* Croat, sp. nov.** Type: ECUADOR. Cotopaxi: 1 km N of Pucayacu, 14 km N of Río Guasaganda, at Guasaganda, 22 km N of Palmar (village NE of La Mana on Quevedo–Latacunga rd. 13 km NE of La Mana) along river bank at edge of pasture, 00°41'30"S, 79°06'30"W; elev. 670 m.; 00°41'30"S, 79°06'30"W, 11 Oct 1983, *T.B. Croat 57058* (holotype, MO-3141007; isotypes, NY, QCNE, U.S.). Figures 3a–d.

Planta epiphytica; caudex ad 60 cm longa; internodia brevia, 4.5 cm longa; cataphylla 24–27 longa, persistens in fibras; petiolus 72–91 cm longus, sulcatus; lamina subtrilobatus-sagittatus, 44–61.5 cm longus, 33–51 cm latus; pedunculus 51 cm longus; spatha 14 cm longa, 2 cm lata, viride; spadix 17.5 cm longus, palide viride.

Growing on tree roots on steep bank; stems to 60 cm long; internodes short, to 4.5 cm diam.; **cataphylls** 24–27 cm long, soon weathering to reddish brown fibers, these persisting in a mostly parallel net-like reticulum; **petioles** terete, 72–91 cm long, conspicuously, bluntly and narrowly sulcate, drying yellow-brown, weakly glossy; **blades** 44–61.5 cm long, 33–51 cm wide,

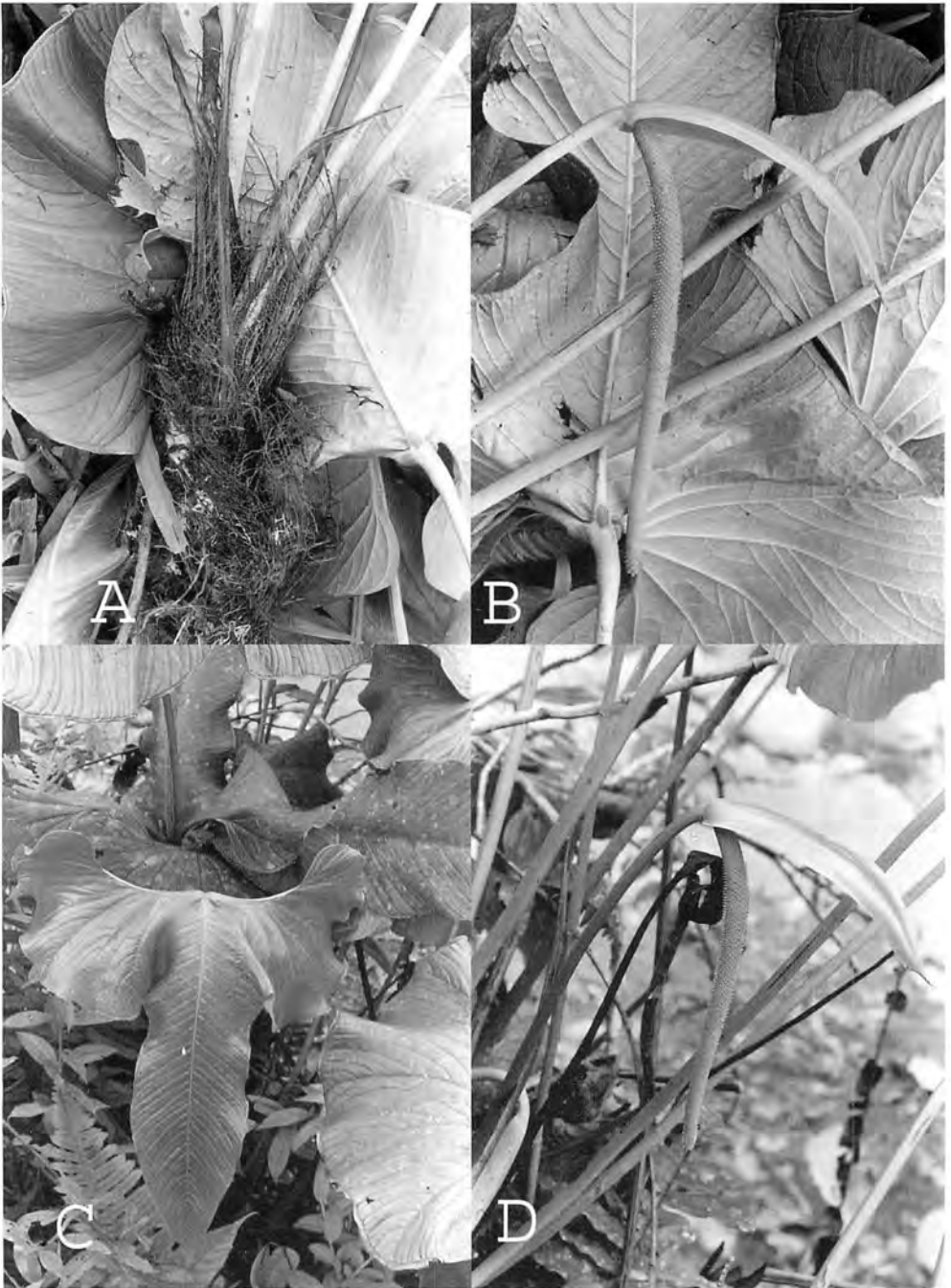


Fig. 3. a-d. *Anthurium pucayacuense* Croat. (Croat 57058). a. Stems showing cataphylls and both surfaces. b. Inflorescences and abaxial leaf surfaces. c. Adaxial leaf surface with inflorescences. d. Inflorescences and petioles.

1.2–1.6 times longer than wide, subtrilobed-sagittate, weakly glossy, medium green and matte above, slightly paler and semiglossy below, drying grayish yellow-brown and matte above, yellow brown and semiglossy below; **anterior lobe** (37–)47–53 cm long, 8–14 cm wide at middle of lobe, broadly confluent onto the posterior lobes, the confluent portion 10.5–12 cm wide; **posterior lobes** 17–26 cm long, subreniform, broadly rounded, directed toward the base and incurled, 10.5–17.5 cm wide; **basal veins** 7–9 pairs, these more or less regularly splayed out along the length of the posterior rib, none of them free to the base. the 4th and higher fused to 4.5 cm, 5th and higher fused to 6.5 cm; the posterior rib broadly curved, naked to 6–9.5 cm from petiole; midrib and basal veins raised and colorous above; **sinus** 8.0–13 cm deep, 8.5–24 cm wide; **midrib** narrowly raised and paler below; primaries and larger secondaries sunken and concolorous above, raised and weakly paler below; **primary lateral veins** (10–)19–21 per side, arising at a steep angle, then spreading at 50–70° angle but often promptly curved upward toward the apex, drying narrowly convex in valleys and concolorous above, narrowly raised and slightly darker on lower surface; interprimary veins usually present between each pair of primary lateral veins; tertiary veins in part prominent below; **collective veins** arising from one of the lowermost basal veins, 4–5 mm from the margins. INFLORESCENCE erect; **peduncle** 51 cm long; **spathe** 14 cm long, 2 cm wide, green, drying dark brown, erect, turned somewhat forward to hood spadix, tinged weakly red on outside; **spadix** 17.5 cm long, drying 5–6 mm diam., pale green drying dark brown; flowers 12–13 visible per spiral, 1.5–1.8 mm long, 1.3–1.4 mm diam. (dried); lateral tepals 1.2–1.3 mm wide, minutely granular outer margin equally or inequilaterally 2-sided, inner margin broadly rounded, matte; stamens white, exerted ca. 2 mm.

Anthurium pucayacuense is endemic to Ecuador, known only from the type locality in Cotopaxi Province in the vicinity of

Pucayacu at 670–900 m in *Premontane wet forest*.

Anthurium pucayacuense is a member of sect. *Belonchium* characterized by its short internodes, persistent cataphyll fibers, terete, bluntly and narrowly sulcate petioles, its subtrilobed-sagittate blades with 7–9 pairs of basal veins regularly splayed out along the length of the posterior rib as well as by its green hooding spathe, green spadix with exerted stamens.

The species is similar to *Anthurium draconopterum* Sodiro in having deeply lobed blades with broadly spreading, more or less reniform lateral lobes but that species differs in having dark violet-purple rather than pale green spadices. *Anthurium draconopterum* also differs in having much more deeply constricted and more broadly spreading lateral lobes.

The species is also similar to undetermined sterile specimens from the southwestern slopes of Volcán Pichincha along the Chiriboga Road 2–3 km NE of La Palma at 930–890 m (Croat 38750 and Croat 56971). These collections differ from *A. pucayacuense* in having the posterior lobes broadly spreading laterally then downward and in having petioles which are sharply V-sulcate rather than bluntly and narrowly sulcate as in *A. pucayacuense*. This may represent a new species but additional studies must be made to collect inflorescences. These collections may represent the same species as Clark 7448 from Imbabura Province in the Cantón Cotacachi in the Parroquia García Moreno, Cordillera de Toisán, Cerro de la Plata in the Bosque Protector Los Cedros at 1,500–2,600 m. That collection has a red spadix so if it is the same species as the material from near La Palma, the red spadix would be another way it differs from *A. pucayacuense*.

The epithet for *Anthurium pucayacuense* refers to the type collection that was collected in Pucayacu in the Cotopaxi Province.

Paratypes: ECUADOR. **Cotopaxi:** vic. Vereda Magdalena, 8 km N of Pucayacu, 21 km N of Río Guasaganda, 29 km N of Palmar (village NE of La Mana on Quevedo–Latacunga Hwy. 13 km NE of La

Mana), 0°41'S, 79°06'W, ca. 900 m, 11 Oct., 1983, *Croat 57087* (MO).

Anthurium samamaense Croat & Conejo, **sp. nov.** Type: ECUADOR. Los Rios: Clementina Farms, Cerro Samama, 5.7 km S and W of main Pueblo-Viejo-Caluma Road, 5.2 km W from bridge over Río Pita, (turnoff is 6.3 km E from Potosí), 371–600 m 01°38'51"S, 79°19'52"W, 14 Aug. 2004, *T.B. Croat & L. Hannon 93327* (holotype, MO-4785757; isotypes, AAU, B, COL, G, GH, GOET, K, M, NY, QCA, RSA, S, SEL, UB, U.S., USM, VEN). Figures 4a–d.

Internodia 1–4 cm longa, 1.5 cm diam.; cataphylla decidua; petiolus teres, (32–)51–58 cm longus; lamina ovata-sagittata, (39–)46.5–55.5 cm longa, (21–)28.6–32.7 cm lata; pedunculus 16.5–19.5 cm longus, pallide viridis; spathe alba, linearis-lanceolata, 11–13 cm longa, 1.1–1.5 cm lata; spadix 11.5–25 cm longus, 6 mm diam., atroviolaceo-purpureus.

Terrestrial or hemiepiphytic; **internodes** 1–4 cm long; 1.5 cm diam. (drying 6–9 mm diam.), dark green, matte, soon grayish; **cataphylls** 12–13.5 cm long, drying reddish brown, deciduous; **petioles** terete, (32–)51–58 cm long, 1.0–1.3 times longer than blade, semiglossy, dark green, drying dark brown and semiglossy, obtusely ribbed; **blades** ovate-sagittate, (39–)46.5–55.5 cm long, (21–)28.6–32.7 cm wide, 1.7–1.8 times longer than broad, abruptly acuminate at apex (acumen 1.5–3 cm long), deeply sagittate-lobed at base, subcoriaceous, semiglossy to glossy, bicolorous, drying dark blackish brown and weakly glossy above, slightly paler, semiglossy and dark yellowish brown below; major veins narrowly rounded and concolorous above, narrowly raised and paler below; **anterior lobe** 28–40.7 long, broadly rounded along margin; **posterior lobes** (11–)14–18 cm long, 7.5–13 cm wide; **basal veins** 5–7 per side, 1st and often 2nd pair free to the base, 4th & higher order veins coalesced to 3.7 cm; posterior rib naked 4–4.7 cm; **sinus** spatulate to nar-

rowly hippocrepiform, 11–14.5 cm deep, 4.0–6.4 cm wide; **midrib** drying darker than surface, narrowly raised and bluntly acute above, bluntly angular below; **primary lateral veins** 3–4 pair, arising at 40–50° angle, drying darker than surface below; minor veins drying minutely wrinkled on both surfaces; **collective veins** arising from the 1st or 2nd pair of basal veins. INFLORESCENCE erect; **peduncle** 16.5–19.5 cm long, pale green, drying dark brown, 3 mm wide; **spathe** whitish, linear-lanceolate, reflexed-spreading, 11–13 cm long, 1.1–1.5 cm wide, abruptly acuminate, drying dark blackish brown; **spadix** 11.5–25 cm long, 6 mm diam., narrowly long-tapered, dark violet-purple, matte; flowers 12–13 visible per spiral, 1.6–1.8 mm long, 1.2–1.3 mm wide on drying; lateral tepals .8–.9 mm wide, minutely papillate and matte, outer margins 2–3-sided, inner margin broadly rounded; stamens held at the level of the tepals, the lateral stamens emerging throughout the full length of the spadix before the alternate pair begins to emerge.

Anthurium samamaense is Endemic to Ecuador, known at present only from the type locality on Cerro Samama in Los Rios Province, at 450–700 m in *Premontane wet forest* life zone

Anthurium samamaense is a member of sect. *Polyneurium* characterized by its epiphytic habit, long-petiolate, ovate-sagittate, blackish-drying blades, the green, narrowly lanceolate green spathe, long-tapered red to dark violet-purple spadix and red berries.

The epithet "*samamaense*." refers to Cerro Samama, the type locality.

Paratypes: ECUADOR. **Bolivar:** Clementina Farms, Cerro Samama, 5.7 km S and W of main Pueblo-Viejo-Caluma Road, 5.2 km W from bridge over Río Pita, (turnoff is 6.3 km E from Potosí), 01°38'51"S, 079°19'52"W, 371–600 m, 14 Aug 2004, *Croat, G. Ferry & C. Davidson 93327* (MO). **Los Rios:** Hacienda Clementina, virgin forest. Samama, 600 m, 24 Mar 1947, *G. Harling 555* (S); Hacienda Clementina, Cerro Samama, trail from Destacamento Pita to La Torre. Primary

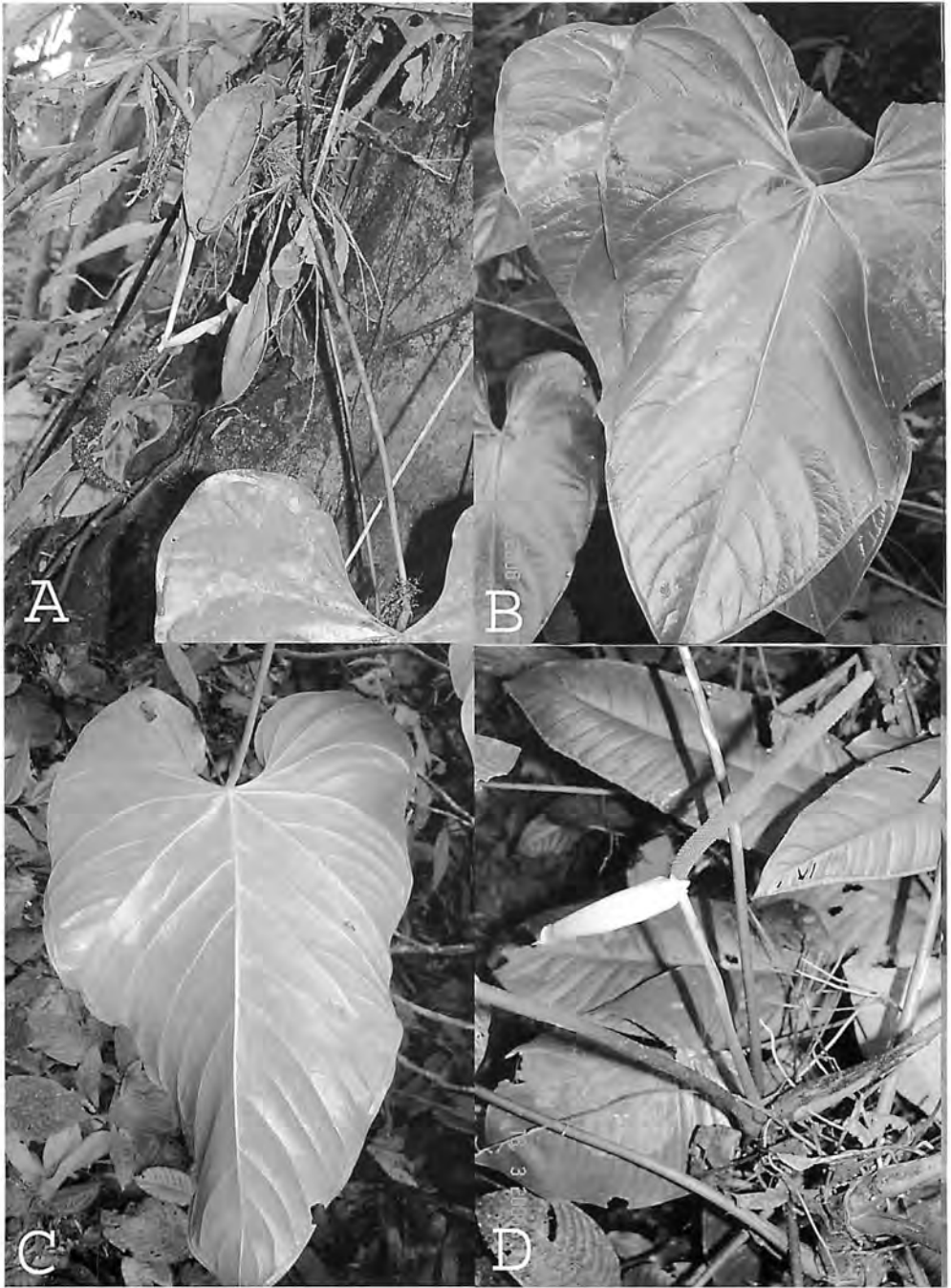


Fig. 4. a-d. *Anthurium samamaense* Croat. (Croat & L. Hannon 93327). a. Habit with inflorescence. b. Leaf abaxial surface. c. Leaf adaxial surface. d. Inflorescence.

forest., 01°38'S, 079°19'W, 600 m, 23 Oct 1995, *J.T. Knudsen, B. Stahl & B. Bro 427* (QCA); Hacienda Clementina, Cerro Samama, La Línea-La Torre, 01°40'S, 79°21'W, 750 m, 04 Oct 2003, *Stahl 6067* (GUAY); Hacienda Clementina, Cerro Samama, Pita-La Torre, 01°40'S, 79°21'W, 03 Oct 2003, *Stahl & Cornejo 6030* (GUAY); Hacienda Clementina, Cerro Samama, trail between Destacamento Pita and Limone, 01°39'S, 079°20'W, 450–550 m, 18 Sep 1999, *C. Gustafsson & C. Bonifaz 447* (GUAY); Hacienda Clementina, Cerro Samama, trail between Destacamento Pita and La Torre, 01°39'S, 79°20'W, 600–700 m, 19 Sep 1999, *C. Gustafsson & C. Bonifaz 466* (GUAY); Cerro Samama, SE of Potosí, SW of Caluma, South of Río Pita, vicinity of village of Pita, between Pita and Escuela 18 de Diciembre, 01°38'44"S, 79°19'58"W, 164–400 m, 18 Mar 2006, *Croat, C. & S. Davidson 96092* (MO); Hacienda Clementina, near Destacamento Pita. Primary forest., 01°39'S, 079°19'W, 400–450 m, 21 June 1995, *J. Knudsen 411* (S); Hacienda Clementina, Cerro Samama, trail between Destacamento Pita and Puerta Negro. Primary forest., 01°39'S, 79°19'W, 400–600 m, 3 June 1995, *J. Knudsen 366* (S); Hacienda Clementina, Cerro Samama. Primary forest., 01°39'S, 79°19'W, 620 m, 9 July 1995, *S. Roponen 101*.

Anthurium sebastianense Croat & C. Cerón, **sp. nov.** Type: ECUADOR. Manabí: San Sebastian, Machalilla National Park, ridgetop moist forest, 1°36'S, 80°42'W, 700–750 m, 21 Jan. 1991, *A. Gentry, R. Foster & C. Josse 72592* (holotype, MO-3878829-30; isotype, QCNE). Figure 6b.

Planta terrestris; internodia 2.5 cm diam.; cataphylla ad 11 cm longa; petiolus 47–49 cm longus; lamina ovata-subcordata, 34.5–40.5 cm long, 24–31 cm lata; pedunculus 34.5 cm longus, 2.5–3.5 mm diam.; spadix 15–18 cm longus, 5–10 mm diam., anguste cylindraceus.

Terrestrial herb, less than 1 m tall; **internodes** short, 2.5 cm diam., the cut stem yellow; **cataphylls** to 11 cm long,

moderately coriaceous, persisting with bases thin, persisting intact; **petioles** moderately sulcate, 47–49 cm long, .8–1.4 times longer than blades, drying matte, greenish brown, 4 mm diam.; **blades** ovate-subcordate, 34.5–40.5 cm long, 24–31 cm wide, 1.1–1.8 times longer than wide, narrowly rounded at apex, weakly emarginate with a very weak tip, drying gray and matte above, paler and yellowish brown and weakly glossy below; **midrib** narrowly rounded and slightly paler above, drying almost concolorous and finely ribbed, narrowly rounded and paler below, drying finely ridged and slightly paler; basal veins 3–4 pair, the 1st pair free to the base, the 2nd and 3rd pair coalesced 2.5 cm free to the base, the 3rd and 4th coalesced 5.7 cm; the posterior rib broadly curved, the veins bluntly acute; **sinus** arcuate with decurrent petiole; **primary lateral veins** 5–6 pair, arising at 30–35° angle, etched and concolorous above, drying etched and concolorous above, drying acute and irregularly wrinkled and slightly paler below; inner collective vein remote from the margin, up to 7 cm from the margin; the secondary pair collective veins merging with the margin somewhat above the middle; the 3rd pair of collective veins merging with the margin in the lower ¼ of the blade; upper surface minutely and irregularly wrinkled and densely dark-spotted on magnification; lower surface densely glandular-punctate, drying moderately smooth on magnification but densely pitted with minute yellowish brown depressions ca. 1/20th of a mm wide. INFLORESCENCE erect; **peduncle** 34.5 cm long, 2.5–3.5 mm diam.; **spathe** 12.5–13.5 cm long, 1.8–2.4 cm wide, green, tinged with red, narrowly acuminate at apex, acute at base with the margins meeting at ca. 30° angle, then briefly decurrent, drying dark purplish brown, matte; **spadix** greenish brown, 15–18 cm long, 5–10 mm diam., 18–27 times longer than wide, narrowly long-tapered to narrowly cylindroid; flowers 5–6 per spiral, 2.4–2.6 mm long; the lateral tepals 1.8–2.0 mm wide, the outer margins 2-sided, the inner margin broadly rounded; stamens

held at level of tepals and in a tight circle around the pistil, .6 mm long, .8 mm wide; anthers broadly divergent.

Anthurium sebastianense is endemic to Ecuador in the Machalilla National Park in the region of San Sebastian, known only from the type locality in the coastal hills near the Pacific Ocean in Manabí Province at 400–700 m in what is probably *Premontane moist forest*. Although the Holdridge lifezone map of Ecuador (PRONAREG, 1978) maps the locality for the Gentry collection in either *Tropical dry forest* or *Tropical spiny monte* the Cerón collection is found in *Premontane dry forest*. I am assuming that no such species could actually occur in either *Tropical dry forest* or *Tropical spiny monte* but that the species is found in this region in an area of regular afternoon cloud forest, making the growth of aroids possible. Thus it is more likely that the region is effectively *Premontane moist forest* despite the fact that there is no such life zone recognized in this particular region.

The species is a member of section *Digitinervium* and is characterized by its short internodes, more or less intact cataphylls, sulcate petioles, coriaceous ovate-cordate blade with 3–4 collective veins and glandular punctations on the lower surface as well as by the long-pedunculate inflorescence with a slender, narrowly cylindrical to narrowly long-tapered greenish brown spadix.

Anthurium sebastianense is closest to *Anthurium lingua* Sodiro which has narrowly ovate-elliptic blades and a much shorter spadix (10–13 times longer than broad), a broader spathe which is usually cordate at the base. In addition it occurs high in the Andes, most commonly on the eastern slopes mostly at 1,000–2,500 m elevation. Additionally *A. lingua* has the upper surface drying minutely wrinkled and lacks the dense array of tiny circular depressions characteristic of *A. sebastianense*.

It is distinguished from other members of section *Digitinervium* by its blade shape. *Anthurium ovatifolium* has ovate-elliptic blades with more basal veins extending above the middle of the blade and in drying

blackened as well as in having a shorter and broader spadix.

The epithet *Anthurium sebastianense* comes from the type locality in the Machalilla National Park in the region of San Sebastian.

Paratypes: ECUADOR. **Manabí**: trail from San Sebastian to Agua Blanca, transitional forest from cloud forest to tropical dry forest, 01°30'S, 80°34'W, 200–400 m, 20 Sep. 1991, C. Cerón 16620 (MO, QAP).

***Anthurium ventanasense* Croat, sp. nov.** Type: ECUADOR. Los Rios: Between Quevedo and Babahoya, vicinity of Ventanas, 1/4 mi. off main highway across from school, received from Jack Williford, Tampa, Dec 11, 1985, T. B. Croat 61159 (holotype, MO-3313092); isotypes, AAU, B, CAS, COL, F, GB, GH, HUA, INB, K, M, MEXU, NY, PMA, QCNE, RSA, S, SEL, TEX, UB, U.S., USM, UB, VEN, WU). Figures 5a–d.

Internodia brevia, 3.5–5 cm diam.; petiolus 24–42 cm longus; lamina oblanceolata-elliptica vel ovata-elliptica, 27–59 cm longa, 8.5–21.5 cm lata; pedunculus 21–51 cm longus; spatha 9.8–18 cm longa, viride vel purpureo-viride; spadix (9–)28–40.7 cm longus, 7–10 mm diam.; baccae albae.

Epiphyte; roots pale green, descending, smooth; **stem** short; **internodes** short, 3.5–5 cm diam; **cataphylls** 4–7.5 cm long, narrowly short-apiculate at apex, persisting as network of fibers at upper nodes, red-brown with fragments of epidermis, 8–9 cm long; **petioles** 24–42 cm long, broadly and sharply V-sulcate adaxially with a low to prominently raised, bluntly acute medial rib, narrowly rounded to bluntly 1-ribbed to acutely 1-ribbed abaxially, matte, densely and obscurely whitish striate, 18–42 cm long (averaging 22.4 cm), 8–10 mm broad, deeply and sharply sulcate adaxially; **blades** oblanceolate-elliptic to ovate-elliptic, acute to obtuse or subrounded and abruptly short-acuminate at apex (usually with a short apiculum at apex), acute to weakly attenuate at base, paler and yel-

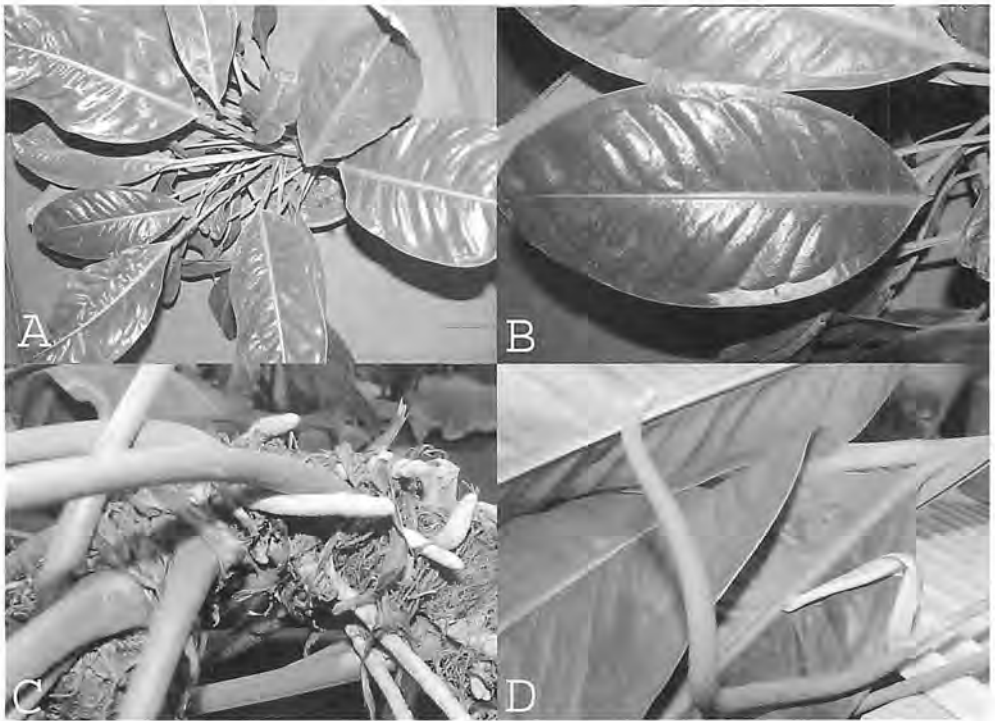


Fig. 5. a–d. *Anthurium ventanasense* Croat. (Croat 61159). a. Potted plant showing habit. b. Leaf blade adaxial surface. c. Stem showing petiole bases and roots. d. Inflorescences with leaves in background.

lowish green to yellow-brown and weakly glossy below, 27–59 cm long, 8.5–21.5 cm wide, 2.4–4.5 times longer than wide (averaging 41×15 cm), 1.0–2.2 times longer than petiole (averaging 1.53 times) (slightly inequilaterally), dark green (B & K blue-green B & K 2/2.5), moderately bicolorous, moderately coriaceous, semi-glossy to weakly glossy above, dark glandular-punctate and sub-matte to semi-glossy below, drying medium green to gray-green and matte to weakly glossy above; **midrib** flat near base, becoming obtusely raised & densely pale short-lineate above, thicker, convex to acutely raised and concolorous below, drying usually more or less acute, usually darker than surface on both sides, (sides convex, raised and thicker below); **primary lateral veins** 11–15 pairs, moderately obscure, weakly raised but in deep valleys in older, more quilted blades, concolorous and weakly raised below, scarcely more prominent

than interprimary lateral veins, drying weakly raised and concolorous on both surfaces, weakly raised below; **interprimary and tertiary veins** obscure above, weakly raised and concolorous below, almost as prominent as primary lateral veins; **collective veins** as prominent as primary lateral veins, shaped like primary lateral veins, weakly loop-connecting the primary lateral veins, extending (.5)1–1.3 cm from the margins, **basal veins** 2 pair on each side, free to base, the outermost extending to the margin in lower $\frac{1}{4}$ of blade, the inner veins extending to apex, prominently loop-connected to primary lateral veins, .5–1.5 cm from margin. INFLORESCENCE erect-spreading, to 26 cm long, medium green, densely pale short-lineate; **peduncle** 21–51 cm long, 2–6 mm diam., more or less terete, 2-ribbed beneath, green to purplish green, weakly glossy; **spathe** 9.8–18 cm long, 1.2 cm wide, spreading, 1–2.3 cm wide, inserted

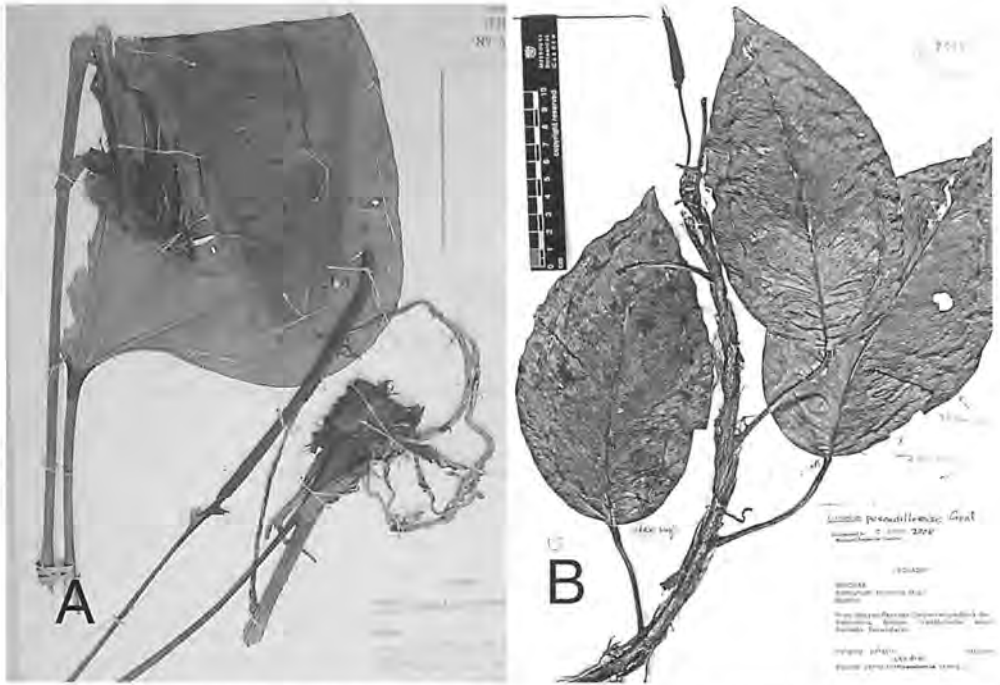


Fig. 6. a. *Anthurium pescadilloense* Croat. (Bonifaz 531) Herbarium type specimen. b. *Anthurium sebastianense* Croat. (C. Cerón 16620). Herbarium specimen.

on peduncle at 45° angle, narrowly long-acuminate at apex (tightly inrolled to 8 mm at apex), clasping, rounded to emarginate at base, greenish purple, sometimes darker purple on veins, matte on inside, weakly glossy outside, strongly directed downward along margins, becoming inrolled along the margins in age; **spadix** (9–)28–40.7 cm long, 7–10 mm diam. at base, 7.5 mm diam. midway, 5 mm diam. 1 cm from tip, narrowly long-tapered, yellowish in lower 2/3, more olive-brown toward apex, becoming heavily tinged purple, becoming dark purple-gray; stigmas purplish; **flowers** 7–9 per spiral, (1.9–)2.2–4.5 mm long, 1.8–3 mm wide, straight along lateral margins, smoothly to jaggedly sigmoid on sides perpendicular to margins; lateral tepals (1.4–)1.8–2.8 mm wide, with outer margin 2–3-sided, (one of the 2 sides broader), inner margin straight to broadly rounded, densely granular on drying; stamens held just above the tepals, .3–.5 mm long, .7–1.1 mm wide, the lateral stamens emerging throughout the length of

the spadix before any anterior stamens emerge, thecae broadly divaricate; pollen white, thecae ovoid, markedly divaricate. **INFRACTESCENCE** with **berries** held above tepals, ovoid to ellipsoid, creamy white except lavender-violet at apex, depressed and whitish around stigma; drying yellow; seeds (1) 2–4, 3.0 mm long, 1.5 mm wide, 1 mm thick, ellipsoidal, flattened on one side, whitish, greenish towards base and apiculate.

Anthurium ventanasense is endemic to Ecuador, known only on the western slopes of the Andes in Los Rios and Guayas Provinces at 80–300 m in *Premontane wet forest* and *Tropical moist forest* life zones. Gentry, Foster and Josse reportedly collected a specimen in Esmeraldas (72902) but this cannot be verified.

It is a member of section *Porphyrochitonium* and is characterized by its short internodes, sharply sulcate petioles which are about as long as the blades, the oblanceolate-elliptic to ovate-elliptic blades with moderately obscure primary lateral

veins, the narrow greenish inflorescence, the green, spreading, tightly inrolled spathe and by the obovoid berries that are white except for a lavender-violet tip.

The species may be confused with another undescribed species from the Pacific coast in the Fila de Bilsa (*Gentry et al.* 72902). It has blades of similar size and shape but that species has 2 prominent basal veins on each side, more prominent primary lateral veins, a flesh-colored spadix and magenta berries.

The species was first collected by Jack Williford on March 21, 1985 and later by Betsy Feuerstein in November of 1991.

A specimen by Madison (5503) was erroneously identified as *Anthurium guayaquilense* in the Flora of Río Palenque (Dodson and Gentry, 1978).

The epithet *Anthurium ventanasense* refers to the type locality where the species was collected.

Paratypes (Cultivated): ECUADOR.

Guayas: Cultivated at Guayaquil Botanical Garden from material from vicinity of Ventanus, 23 Mar 2006, 01°23'S, 79°25'W, ca. 300 m, *Croat, C. & S. Davidson* 96342

(MO); **Los Rios**: Río Palenque Science Center: coll. Dodson, fl. in cult. at SEL (1975-0015-332), Aug 2 1978, *Madison* 5503 (KEW); Ventanas, Collected by Jack Williford, as Cirino 87-018, *Croat* 69675 (MO); **Los Rios**: Between Quevedo and El Corozon, sw of San Carlos, Originally collected by Betsy Feuerstein Nov 1991, vouchered 12 Aug 2002, 01°13'S, 79°18'W, 300 m, Nov 1991, *Croat* 75502 (MO).

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