

## New Species of *Anthurium* (Araceae) from Colombia

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### ABSTRACT

Thirty-five years of collecting in Colombia has turned up many species new to science. The now more well-established of these are described for the first time here. Three species are described as new, *Anthurium anchicayense* Croat, *Anthurium cogolloanum* Croat & M. M. Mora, and *Anthurium salgarensense* Croat.

### KEY WORDS

Colombia, *Anthurium*, new species, *Anthurium anchicayense*, *Anthurium cogolloanum*, *Anthurium salgarensense*.

***Anthurium anchicayense*** Croat, **sp. nov.** TYPE: COLOMBIA. Valle: 20 km W of Borrera Ayerbe, 7 km W of El Salado, off old Cali-Buenaventura road, 28 km W of junction with new Cali-Buenaventura highway, 1,400–1,420 m, 28 Aug. 1976, *Croat 38632* (holotype, MO-2395616; isotypes B, COL, F, JAUM, K, NY, US).

Planta terrestris; internodia 3–14 cm longa, 0.8–1.8 cm diam.; petiolus 16–20 cm longus; lamina elliptica, 26–43.5 cm longa, 12.5–20 cm lata; nervis primariis lateraliibus debilibus; pedunculus 13–36 cm longus; spathe lanceolata, viridis, 6.5–12 cm longa, 6–12 mm lata; spadix 19–25 cm longus, 4–5 mm diam., viridis, sessilis; baccae rubrae, ca. 4 mm longae.

Terrestrial, semi-erect; internodes 3–14 cm long, 0.8–1.8 cm diam., matte, medium green to gray-green, becoming gray-

brown, drying dark brown. LEAVES with **petioles** 16–20 cm long, subterete, bluntly sulcate, weakly swollen at geniculum; **blades** elliptic, 26–43.5 cm long, 12.5–20 cm wide, 2.1–2.2 times longer than wide, 1.9–2.3 times longer than petioles, subcoriaceous, matte to weakly glossy, subvelvety and dark green above, moderately paler and semiglossy below, drying to dark brown above and significantly paler below; midrib convex and more or less concolorous above, narrowly convex and weakly 3-ribbed below; primary lateral veins flat to weakly quilted above, departing midrib at (60–)70–80°, individually scarcely visible above, more conspicuous and round-raised below, collective vein arising from one of the first primary lateral veins, 0.6–1.8 cm from margin. INFLORESCENCE erect; peduncle terete, 13–36 cm long; **spathe** 6.5–12 cm long, 6–12 mm wide, medium green, drying to dark brown, lanceolate, spreading at 90° angle or prominently reflexed; **spadix** 19–25 cm long, slightly tapered, 4–5 mm diam. at base, 3–4 mm near middle, 2–3 mm at apex, nonstipitate, green to yellowish green (turning brown in age), matte; flowers rhombic, 2–4 visible per principal spiral, 2.1–3.8 mm long, 1.3–2.9 mm wide, sides straight, lateral tepal 1.9–2.2 mm long, 0.4–0.8 mm wide; anthers yellow. INFRUCTIONESCENCE with berries red at maturity, blunt at apex, broader than long, ca. 4 mm long; seeds 1 per locule, greenish, ca. 2 mm long, 1.5 mm diam.; mesocarp clear, gelatinous, sweet. Figures 1–4.

*Anthurium anchicayense* is known



Figs. 1–4. 1, 2. *Anthurium anchicayense* (Croat 71665). 1 (top L). Adaxial surface of blade, spathe and spadix at anthesis. 2 (top R). Abaxial surface of blade. 3, 4. *Anthurium anchicayense* (Croat 38632). 3 (bottom L). Habit of flowering plant. 4 (bottom R). Immature infructescence.

only from Colombia on the western slopes of the Cordillera Occidental from (250–)1,100 to 1,450 m in elevation, in Valle and Nariño Departments. It is to be expected in adjacent Ecuador in Carchí. In Nariño it occurs in an area of premontane wet forest. The species occurs in dense understory in full shade near streams. Flowering collections were made in December and in late March.

*Anthurium anchicayense* is characterized by its elongate internodes and the broadly elliptic, dark-brown drying blades with inconspicuous primary lateral veins. This species is apparently related to *A. guayaquilense* differing from the later in being subvelvety rather than semiglossy on the upper blade surface, in having blades elliptic rather than generally oblanceolate and in having veins departing the midrib at usually a 70–80° angle rather than at a 40–50° angle. *Anthurium guayaquilense* occurs also in Valle del Cauca in the same general region but the two species have never been found together and *A. guayaquilense* occurs from sea level to 100 m, whereas *A. anchicayense* occurs from 250 to 1,400 m.

The late José Cuatrecasas, who was among the earliest to know the richness of the forests of the Cordillera Occidental in Colombia, first collected the species. It is named after the Río Anchicayá where the species was first collected.

Paratypes—COLOMBIA. Nariño: Municipio Ricaurte: Altaquer-Tumaco, between Altaquer and Junín, 7 km W of Altaquer, Río Nambí, 1°18'N, 78°04'W, 1,100 m, 21 Mar. 1990, *Croat 71665* (GH, MO, QCNE); Municipio Barbacoas, Reserva Natural Río Nambí, margins of Río Nambí, 1°18'N, 78°08'W, 1,325 m, 1 Dec. 1993, *P. Franco et al. 4712* (COL), 7 Dec. 1993, *P. Franco et al. 5007* (COL), 7 Dec. 1993, *P. Franco et al. 5033* (COL); Valle: Río Anchicayá, Monos, 250 m, 5 Oct. 1943, *Cuatrecasas 15256* (F)

*Anthurium cogolloanum* Croat & M. M. Mora, **sp. nov.** TYPE: COLOMBIA. Chocó: Quibdó-Medellín, km 185, 14

km E of Tutunendo, 5°44'N, 76°43'W, 300 m, 22 Apr. 1983, *Croat 56278* (holotype, MO-3109038-40; isotypes B, CAS, COL, K, NY, US, VEN).

Planta terrestris vel hemiepiphytica; internodia brevia, (1)3–6 cm diam.; cataphylla 19–30 cm longa, persistens in fibris; petiolus 75–130 cm longus, quadrangularis-alatis; lamina ovata, sagittata, 72–120 cm longa, 30–70 cm lata; nervis primariis lateralibus 23–28 utroque; pedunculus 40–65 cm longus; spatha lanceolata, alba, 9–15 cm longa, 1.5–2.5 cm lata; spadix (14)25–30 cm longus, purpureoviolaceus vel maroninus, sessilis vel stipitata 3–8 mm; baccae purpureae, albae ad basim.

Terrestrial or hemiepiphytic; stems short, internodes (1)3–6 cm diam.; cataphylls 19–30 cm, drying reddish brown, weathering into fibers, persisting at upper nodes. LEAVES with **petioles** erect-spreading, 75–130 cm long, equal to or up to 1.5 times longer than blade, 10–15 mm diam., square or sometimes D-shaped in cross section, with thin, brittle, spreading wings at corners, medium green and semiglossy; geniculum 2 cm long, square in cross-section with winged margins, undulate; **blades** pendent, ovate, sagittate, narrowly acuminate with acumen slightly down-turned, prominently and deeply lobed at base, 72–120 cm long, 30–70 cm wide, 1.5–3 times longer than broad, broadest at point of petiole attachment, semiglossy and dark green above, weakly glossy to matte and slightly paler below, both surfaces drying brown (B&K: yellow 4/5; RHS #165 A: Beech Brown); anterior lobe 60–90 cm long, 20–35 cm wide, nearly 3 times longer than broad, margins nearly straight, sometimes undulate; posterior lobes 25–30 cm long, 20–35 cm wide, nearly as broad as long, rounded at apex, sinus spathulate to obovate, 15–30 cm deep; midrib slightly raised above, quadrangular to round-raised below with thin, spreading wings at corners towards base, drying with an acute medial rib; basal veins 7–9 pairs, slightly raised in deep valleys above, narrowly acute to knife edged below, ca. the first 5 branching

from posterior rib in 2–3 cm increments, the remainder branching from the same point where naked portion of rib ends, posterior ribs naked for 8–15 cm; primary lateral veins 23–28 per side, weakly raised in deep valleys above, acutely raised below, departing midrib at 55–60° angle, ascending nearly straight to collective veins; collective veins arising from the 4th–6th basal veins, prominently raised below; tertiary veins prominently raised and darker than surface below. INFLORESCENCE with peduncle spreading, 40–65 cm long, ca. 1 cm wide, terete to square in cross-section, sometimes with thin, spreading wings; **spathe** white, lanceolate, 9–15 cm long, 1.5–2.5 cm wide, reflexed, inserted on peduncle at 60° angle, gradually acuminate at apex, the margins meeting acutely at base; **spadix** sessile to stipitate, stipe 3–8 mm, dark violet-purple or maroon, cylindrical, (14)25–30 cm long, 1 cm wide, erect, held at ca. 90° angle to peduncle; flowers rhombic, 12–14 visible in principal spiral, 2 mm long, 1.6 mm wide, the sides straight, lateral tepals 0.6 mm wide, 1.3 mm long, inner margins convex; pistils weakly exserted. INFRUCTESCENCE with purple berries which are white at the base. Figures 5–8

*Anthurium cogolloanum* is endemic to regions of pluvial forest or its transitional life zones at 200–500 m in the Chocó Department of Colombia. It is a member of section *Belonchium* and is characterized by its ovate-cordate leaves which dry brown, and by its petioles which are square in cross-section and have thin wings at the corners that continue undulating across the geniculum and onto the midrib, basal rib, and primary veins of the blade. Two specimens (*Croat 67446* and *Billet S 2638*) obtained from cultivation at the Brussels Botanical Garden in Meise are identified here as *A. cogolloanum*, though these differ from other specimens in having leaves that dry green, blades broadest posterior to petiole attachment (vs. at petiole attachment), petioles shorter relative to blades, primary lateral veins numbering 12–15 (vs. 23–28), and collective veins arising from the 2nd (vs. the 4th–6th) basal

vein. The species is named after Dr. Alvaro Cogollo, Director of the Herbarium Jardín Botánico Joaquín Antonio Uribe in Medellín, who assisted in the collection of the species.

Paratypes—COLOMBIA. Chocó: Bolívar–Quibdó, 71.7 km W of Bolívar, 500 m, 05°40'N, 76°23'W, 16 Dec. 1980, *Croat & Cogollo 52125*, (CM, COL, MA, MEXU, MO, P); near Condoto, between Río Condoto and Río Iró, ca. 100 m, 5°06'N, 70°37'W, 11 Jan. 1956, *Idrobo & Kyburz 1983* (COL); Pueblorrico–Istmina, 15 km W of Santa Cecilia, along Quebrada Antón, 240–350 m, 5°20'30"N, 76°13'45"W, 23 Feb. 1990, *Croat 70931* (AAU, COL, F, GH, M, MO); vic. of airport at Bahía Solano, 100 m, 5°13'30"N, 76°21'30"W, 15 Mar. 1984, *Croat 57472* (JAUM, MO). CULTIVATED PLANTS. Cultivated at Brussels Botanical Garden, 13 Dec. 1990, *Billet S 2638* (BR); 20 Aug. 1987, *Croat 67446* (MO).

*Anthurium salgarensense* Croat, **sp. nov.**

TYPE: COLOMBIA. Antioquia: along road from Bolombolo to Salgar, 1.5 km above the main Medellín–Bolívar highway, on steep road banks, 1,650 m, 05°55'N, 75°55'W, 24 Jan. 1990, *Croat 69878* (holotype, MO-3789034–35; isotypes B, CAS, COL, F, GH, HUA, JAUM, K, NY, PMA, QCNE, UB, US, VEN).

Terrestris; internodia brevia, ad 5 cm diam.; cataphylla 20–22 cm longa, persistens semi-intactum; petiolus teres, 122–151 cm longus; lamina ovata-lata, sagittata, 81–96 cm longa, nervis primaries lateralibus 12–14 utroque; pedunculus 124–153 cm longus; spathe viridis 13–18.5 cm longa, 2.5–7 cm lata; spadix flavo-virescens at 34.7 cm longus, stipitata 5–11 cm longa, 7 mm lata.

Terrestrial on steep rocky banks; internodes short, to ca. 5 cm diam.; cataphyll fibers reddish brown, persisting semi-intact, coarsely fibrous especially at base, 20–22 cm long. LEAVES with **petioles** erect-spreading, terete, 122–151 cm long, 1.51–1.57 times longer than blades, 1.7 cm diam. near base, 1.2–1.3 cm diam. near



Figs. 5–8. 5, 6. *Anthurium cogolloanum* (Folsom 113252A). 5 (top L). Leaf blade of cultivated plant. 6 (top R). Undulate geniculum with winged margins. 7 (bottom L). *Anthurium cogolloanum* (Croat 70931) inflorescence showing erect spadix and reflexed spathe. 8 (bottom R). *Anthurium cogolloanum* (Croat 56278) showing a stem with persistent cataphyll fibers.

middle, 0.9–1.1 cm diam. at point of attachment with geniculum, brittle (snapping when being bent sharply), pale green (same color as abaxial side of leaves), smooth; geniculum 2.6–3.5 cm long, wider than petiole, 1.4–1.6 cm diam, same color, shape and texture as petiole; **blades** broadly ovate-sagittate, 81–96 cm long, 30–40 cm diam., 2.4–2.7 times longer than wide, widest about 5–10 cm below petiole attachment, margins undulate, apex acute, convex, subcoriaceous, weekly glossy above, glossier below, dark green above, much paler below; anterior lobe 50–60 cm long, somewhat convex at the margins, posterior lobes imbricate, 32.5–38.5 cm long, 27.5–37.5 cm wide; sinus obovate, 25–35 cm; major veins raised and paler than surface on both sides, greenish-yellow, narrowly rounded above, bluntly acute below, becoming more acute toward margins; basal veins 10–11 pairs, the first free, the remaining to some extent coalesced, the 5th pair coalesced to 10 cm, 6th–10th coalesced to 13 cm, further branched toward margin; posterior ribs 9–13 cm, prominently ascending near margins; midrib convex at base, narrowly midway, acute-rounded at apex above; primary lateral veins 12–14 per side, arising at 45–55° angle from midrib, first 6–7(8–9) free to margin, prominently ascending near margin; secondary veins in part sunken above; tertiary veins prominulous below; collective veins arising from the 6–8th lateral veins, about 1 cm from margin, loop-collecting the primary lateral veins. INFLORESCENCE erect-spreading, about as long as the leaves; peduncle 124–153 cm long; **spathe** spreading-reflexed, green, 13–18.5 cm long, 2.5–7 cm wide near base, gradually tapered to apex, the margins markedly undulate; **spadix** yellow-green (B&K 6/2.5), becoming dark green with paler pistils, finally brown, to 34.7 cm long, 10 mm diam. at base, 7 mm diam. near middle, 5 mm diam. at 1 cm from apex, prominently stipitate, stipe 5–11 cm long; flowers 7–9 per principal spiral, 2.4–2.7 mm long, 2.0–2.2 mm wide; tepal minutely papillate, matte, imbedded with thick subcircular pale inclusions vis-

ible at 10× magnification; lateral tepals 1.3–1.5 mm wide, broadly triangular on outer margin, straight on inner margin; stamens forming a tight circle, nearly all contiguous, anthers 0.4 mm long, 0.6 mm wide; thecae ovoid. Figures 9–12.

*Anthurium salgarensis* is endemic to Colombia, known only from Antioquia Department in Tropical dry forest, Premontane wet forest and Lower montane wet forest at 900–1,800 m in elevation. Like *A. cogolloanum*, it is a member of the section *Belolonchium* but characterized by its thick stem with short internodes, conspicuous reddish brown persistent network of cataphyll fibers, and conspicuous primary lateral veins on both surfaces. It is especially recognizable by its long-tapered yellow-green spadix with a very long stipe and by the broad, spreading-reflexed undulating spathe. The species is named after the type locality near the Colombian town of Salgar.

A specimen similar to *A. salgarensis* (Croat & Cogollo 52066) differs in having the blade very glossy on the upper surface with straight rather than undulate margins, as well as a dark purple-violet spadix. However, it is included under this new species until further collections are made to clarify its identity.

Paratypes—COLOMBIA. Antioquia: Municipio Liborina: Carre, along road to Salgar, 4 km from Bolombolo-Bolívar road, disturbed Tropical dry forest, roadside, 900 m, 05°54'N, 75°55'W, 1 Oct. 1987, *Zarucchi et al.* 6105 (MO); Municipio de Liborina. Carretera Liborina-Sabanalarga, 3 km N of Liborina, 900 m, 06°41'N, 75°49'W, 8 Mar. 1986, *R. Callejas et al.* 2179 (HUA, MO); along road between Bolívar and Quibdó, 21.7 miles west of Bolívar, 06°10'N, 76°14'W, ca. 1,800 m, 16 Dec. 1980, *Croat & Cogollo* 52066 (MO); along road between Apia and Pueblo Rico (NW of Pereira), 16 km NW of Apia, 14 km SE of Pueblo Rico, disturbed virgin forest along road, 05°09'N, 76°10'W, 1,750 m, 21 Feb. 1990, *Croat* 70834 (MO).



Figs. 9–12. *Anthurium salgarensis* (Croat 69878). 9 (top L). Adaxial surface of the leaf. 10 (top R). Abaxial surface of the leaf. 11 (bottom L). Close up of inflorescence showing long stipe. 12 (bottom R). Stem showing persistent network of cataphyll fibers.

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