

80° angle; stipe 2–6 mm long; spadix maroon to orange-brown to brownish purple to brown (B & K yellow 4/5), cylindroid, shortly stipitate, straight or sometimes curved, 2.3–6.3 cm long, 3–5 mm diam.; flowers \pm rhombic, 2–2.4 mm long, 1.5–2 mm wide, the sides straight to smoothly sigmoid on drying; 4–6 flowers visible in principal spiral, 7–9 in alternate spiral; tepals purple-red, papillate, matte; lateral tepals 0.8–1.5 mm wide, the inner margins convex, the outer margins 2-sided; pistils scarcely emergent at anthesis, raised, purple-red to dark purple; stigma slitlike, 0.5–0.6 mm long, forming droplets before stamens emerge; stamens emerging in a regular sequence, held well above tepals, the laterals followed by alternates in rapid succession, the laterals preceding the alternates by 3–4 spirals, arranged in a circle around the pistil; filaments translucent, exerted 0.7–0.8 mm, 0.2 mm wide; anthers orange to pink (B & K red 8/10), 0.2–0.3 mm long, 0.4 mm wide; thecae ovoid, 0.6–0.4 mm wide, slightly divaricate; pollen white. *Infructescence* with spathe persisting; spadix 3.5–10.5 cm long, 1–1.7 cm diam., with the berries scattered throughout; berries orange-red, \pm ellipsoid to ovoid, acute at apex, (dried) 6–7 mm long, 3.2–3.4 mm diam.

A member of series *Multinervia*, *Anthurium carchiense* occurs in Ecuador in the Province of Carchí (hence the name), and in Colombia in Nariño at 1,200–2,600 m in premontane wet, premontane dry, and premontane thorn forest life zones; it presumably occurs also in premontane moist forest as well.

This species is distinguished by its small size, more or less oblong leaf blades which are long-acuminate at the apex, maroon to brownish spadix, flowers with exerted stamens, and red-orange berries.

A species similar in overall appearance, *A. obscurinervium*, differs in having a green spadix and D-shaped petioles, and generally occurs at lower elevations.

COLOMBIA. NARIÑO: Cerro Gualcala, W slopes, vic. of Tuquerres, 2,400–2,600 m, *Lehmann 5331* (F, K); La Planada, 7 km above Chucues on road Tuquerres-Ricaurte, 1,780 m, *Croat 69571* (B, COL, K, M, MO, PSO); near Ricaurte, 1,800 m, *Gentry et al. 59681* (MO). ECUADOR. CARCHÍ: Río San Juan, Chical, 12 km below Maldonado, 1,200 m, 1°4'N, 78°17'W, *Madison et al. 4762* (K, SEL), *4812* (SEL); Chical, 1,200–1,250 m, 0°56'N, 78°11'W, *Thompson & Rawlins 995* (CM); Gualpi Chico area near Awá Ethnic encampment, 1,300 m, 0°58'N, 78°16'W, *Hoover et al. 2752, 3212* (MO); Quebrada Peñas Blancas-Quebrada Quinchul, 0°58'N, 78°12'W, *Thompson & Rawlins 1031* (CM); Maldonado, 1,500–1,900 m, *Madison 3998* (MO, SEL), *4264* (SEL);

Río Chilma, Machinas-Planada de Chilma, 2,350–2,450 m, 0°52'N, 78°3'W, *Stein 2913* (MO); Río Verde, Rafael Quindis mountain finca, 1,890 m, 0°52'N, 78°08'W, *Hoover 1986, 2265* (MO); 1,870–2,400 m, 0°52'N, 78°07'W, *Hoover 2265* (MO).

Anthurium cataniapoense Croat, *Aroideana* 9(1–4): 18–20, 1986. TYPE: Venezuela. Amazonas: Dept. Río Negro, vic. Cerro Neblina base camp, Río Mawarinuma, 140 m, 00°50'N, 66°10'W, *Croat 59319* (holotype, MO 3401082-3; isotypes, AAU, B, CAS, COL, F, INPA, K, M, MY, US, VEN). Figures 82–85.

Epiphytic; stem 1.5–2.5 cm diam.; roots dense, spreading-ascending, ca. 3–12 cm long, ca. 3–4 mm diam.; cataphylls hook-shaped, to 6 cm long, acute and shortly apiculate at apex, drying dark brown to reddish brown, persisting as linear fibers. *Leaves* erect-spreading; petioles 6–13 cm long, 11–14 mm diam., D-shaped, flattened when young, broadly sulcate and with a prominent medial rib adaxially, 1–3-ribbed or rounded abaxially; geniculum paler and thicker than petiole, 1–1.5 cm long; sheath to 5 cm long; blades subcoriaceous, broadly elliptic-oblancoate, acute to obtuse at apex (the acumen inrolled), narrowly acute to rounded at base, 60–117 cm long, 20–50 cm wide, broadest above the middle, the margins broadly undulate; both surfaces semiglossy, green (B & K yellow-green 6/5); midrib acutely raised, becoming higher than broad toward the apex above, concolorous with the surface, acutely raised and paler than surface below; primary lateral veins 11–16 per side, departing midrib at 40–60° angle, arcuate-ascending to the margin, weakly rounded-raised and concolorous with the surface above, obscurely raised and paler than surface below; tertiary veins flat and darker than surface below; collective vein arising from near the apex or absent, less prominent than primary lateral veins, 5–13 mm from margin. *Inflorescences* pendent; peduncle 32–53 cm long, 3–4 mm diam., (3)5–6(8)× as long as petiole; spathe spreading, subcoriaceous, green, sometimes tinged brownish or purplish adaxially, lanceolate-oblong, 9–26 cm long, 1–2.5 cm wide, acuminate at apex, acute at base; spadix maroon to dark purplish violet (B & K red-purple 2/2.5), sessile, tapered-cylindroid, slightly curved, 11.5–24.5 cm long, 3–5 mm (6.5) diam. at anthesis midway, 3 mm diam. near apex; flowers rhombic, 1.5–2.3 mm long, 1–1.6 mm wide; the sides sigmoid; 8–12 flowers visible in principal spiral, 6–13 in alternate spiral; tepals matte, smooth; lateral tepals 0.5–1 mm wide, the outer margins

2-sided, the inner margins straight to rounded; stigma linear-elliptic, 0.4–0.5 mm long; anthers 0.6–0.8 mm long, 0.6–0.8 mm wide; thecae oblong-obovoid, slightly divaricate. Fruits purple (observed by Anibal Castillo, Puerto Ayacucho).

Anthurium cataniapoense is endemic to the northern Amazon basin in Venezuela, in the basin of the Río Negro and the Río Orinoco in Amazonas and Bolívar at less than 300 m. A specimen from northern Pará in Brazil, in the Tumucumaque Mountains, also appears to belong here. The plants are epiphytic in the understory of mature, well-shaded forest, occurring on white sand soils in a tropical moist forest life zone.

This species is characterized by its broadly oblanceolate-elliptic, short-petiolate leaves which dry greenish brown to brown below and grayish brown to almost black above and have one to three pairs of primary lateral veins arising within the lower 1 cm of the base of the blade. Further characterizing the species is the slender, long-pedunculate, pendent inflorescence and the obtusely D-shaped petioles which are obtusely 1-ribbed adaxially and 1–3-ribbed or rounded abaxially.

This species is closest to *A. loretense* from the western Amazon basin in northeastern Peru, with which it shares similar leaves, hook-shaped cataphylls, and a pendent inflorescence. That species differs, however, in having a much stouter spadix and a longer, stouter peduncle.

An aberrant specimen from Bolívar (*Delascio & López 2812*) is tentatively placed here. It differs in having relatively small leaves (ca. 44 cm × 11–12 cm vs. 60–117 cm × 20–50 cm) and a shorter spadix.

BRAZIL. PARÁ: Río Parú de Oeste (Irepecuru), *Sampaio 5158* (RB). VENEZUELA. AMAZONAS: Upper Río Negro, between Sanariapo and San Pedro, *Bunting 4249* (MO, NY); Río Orinoco, *Bunting 4248, 4250* (MO, NY); Dpt. Atures, Puerto Ayacucho Region, road to Gavilan, vic. bridge at Paseo del Diablo, 20 km SE of Puerto Ayacucho, 70–80 m, 5°33'N, 67°27'W, *Miller et al. 1596* (MO, VEN); San Pedro de Cataniapo–El Milagro, Puerto Ayacucho, 90–100 m, 6°25'N, 67°25'W, *Castillo 2229* (MO); Río Cataniapo, Las Pavas, 37 m, 06°25'N, 67°25'W, *Castillo 1650* (MO); 3 km downstream from damsite, 45 km SE of Puerto Ayacucho, 200–300 m, 05°35'N, 67°15'W, *Steyermark et al. 122191* (VEN), *122268* (MO, VEN); Puerto Ayacucho–Sanariapo, 12 km E of highway, less than 100 m, *Croat 55038* (MO); San Fernando de Atabapo (cultivated), *Braun 5* (VEN); Dpt. Río Negro, Cerro Neblina, 140 m, 00°50'N, 66°10'W, *Croat 59319* (AAU, B, CAS, COL, F, INPA, K, M, MO, MY, US, VEN), *Gentry & Stein 46520, 46862* (MO), *Liesner 15660* (MO), *Plowman & Thomas 13672* (MO); SW side of Cerro Neblina, 200 m, 0°49'25"N, 66°9'45"W, *Nee 30826* (MO); Río Baría, 80 m, 1°05'N, 66°25'W, *Davidse & Miller 26842* (VEN); Río Mawarinuma, 0–

2 km N of Cerro Neblina Base Camp, 140 m, 0°50'N, 66°10'W, *Liesner 17384* (VEN); mouth of Cañón Grande—first major fork of Río Mawarinuma, 7 air km ENE of Puerto Chimo, 300 m, 0°50–51'N, 66°2–6'W, *Davidse & Miller 27244* (MO). BOLÍVAR: Río Suapure, Pica Caicara del Orinoco–San Juan de Manapiare, 202 km S of Caicara, 100–200 m, *Delascio & López 2797, 2812* (VEN).

***Anthurium caucavallense* Croat, sp. nov. TYPE:**

Colombia. Valle: between Cartago and San José del Palmar, 10–15 km W of Ansermanuevo, 4°49'N, 76°02'W, 900 m, *Croat 56729* (holotype, MO 3107354; isotypes, CAS, COL, JAUM, K, NY, QCA, US; live at MO). Figures 86, 87, 91, 92.

Planta epiphytica aut terrestris; internodia brevia, 1–4 cm diam.; cataphyllum anguste triangulare, uncatum; petiolus (9)15–34 cm longus, 4–10 cm diam., plus minusve D-formatus, adaxiler complanatus ad leniter sulcatus, margine elevatus, abaxiler triplinervis-quinquenervis; lamina subcoriacea, oblanceolata ad plusminusve ellipticae, (25)50–90 cm longa, (6)10–30 cm lata, nervi primariis lateralis (9)11–20 utroque; nervo collectivo e nervis infernis primariis lateralibus xoriens. Pedunculus 23–53 cm longus, 1–2-plo bis longior quam petiolo; spatha oblonga-lanceolata, (8)10–23 cm longa, (1)1.5–2 cm lata; spadix violaceo-purpureus, vel e violaceo-purpureo viridis, leniter contractus, (3.7)8–21 cm longus, 7–10 mm diam. Baccae violaceo-purpureae.

Epiphytic or terrestrial; stem to 20 cm long, 1–4 cm diam.; roots dense, mostly descending, ascending at uppermost nodes, pale green, densely pubescent when fresh, moderately thick, tapered, to 5 mm diam.; cataphylls coriaceous to subcoriaceous, lanceolate and hook-shaped, 7–10 cm long, acuminate at apex, olive-green turning reddish purple, heavily short lineate throughout, drying brown, persisting as a reticulum of fibers. *Leaves* spreading; petioles (9)15–34 cm long, 4–10 mm diam., erect to spreading, ± D-shaped, flattened to weakly sulcate adaxially, the margins raised, (1)3–5-ribbed abaxially, the surface pale-speckled; geniculum paler than petiole, becoming fissured transversely with age, 1–2.5 cm long; blades subcoriaceous, oblanceolate to ± elliptic, acute to acuminate at apex (the acumen apiculate), narrowly acute to subtruncate at base, (25)50–90 cm long, (6)10–30 cm wide, broadest above the middle, the margins undulate; upper surface glossy to semiglossy, medium green, lower surface semiglossy to matte, sometimes weakly to conspicuously glaucous, paler; midrib flat at base, becoming acutely raised toward the apex above, higher than broad at base below with 1–2 blunt ridges, becoming convexly raised toward the apex; primary lateral veins (9)11–