

oblong-ovoid, flattened, 3.2–3.5 mm long, 1.5–1.9 mm diam., 1.1–1.2 mm thick.

*Anthurium bradeanum* ranges from Nicaragua to Panama in tropical wet forest life zones from near sea level to usually 450 m, rarely to 800 m.

This species is distinguished by its long, sharply margined petioles, its more or less elliptic leaf blades, its cucullate, coriaceous, ovate spathe, its deflexed, short, clavate, lemon-yellow to white spadix, and yellow to white fruits.

*Anthurium bradeanum* may be confused with *Anthurium spathiphyllum* where they occur together, such as at the La Selva Biological Station in Costa Rica. Both species have a short clavate spadix, but *A. spathiphyllum* differs in having narrower leaves with 20–30 prominently sunken primary lateral veins (vs. 5–15 scarcely sunken veins in *A. bradeanum*). In addition, *A. spathiphyllum* commonly has three-sided petioles and a lanceolate spathe that is about twice as long as the spadix. In *A. bradeanum*, the spathe is ovate and as long as the spadix.

The species is named in honor of Alexander Curt Brade, who made the first collection of the species in Costa Rica during 1908–1910. The species was not recollected until 1970, when I collected it in Panama at Guásimo in Colón Province.

The species was mistakenly called *A. cuneatisimum* (Engl.) Croat in the revision of *Anthurium* for Central America (Croat, 1983, 1986). That name is now considered synonymous with *A. consobrinum* Schott.

COSTA RICA. ALAJUELA: 15 km WNW of Quesada by air, 1 km W of Jaillos, 150–200 m, 10°23'N, 84°33'W, *Liesner et al.* 15175 (MO); 22 km NE of Quesada by air, 4 km W of Muelle San Carlos, 10°28'N, 84°30'W, *Liesner* 14112 (CR, K, MO); San Carlos, vic. Florencia, 250 m, *Haber et al.* 1854 (MO); between San Miguel and El Pílon, 600 m, 10°43'30"N, 85°00'30"W, *Herrera* 2069 (CR, DUKE, MO); Llanuras de San Carlos, *Brade* 2539 (BR); Cañas–Upala Road, Río Zapote, 3–4 km NNE of Bijagua 400–450 m, *Burger & Baker* 9820 (MO), *Croat* 36275, 36296 (MO); 13.8 km N of Bijagua, 100–150 m, *Croat* 36454 (B, C, DUKE, F, K, M, MBM, MO, P, QCA, S, U, US); NNE of Bijagua, 200 m, *Croat* 36480A (MO); Río Peje; Ciudad Quesada–Florencia, 1 km E of Florencia, 250 m, 10°21'N, 84°28'W, *Hammel et al.* 14032 (MO, US); Monteverde Reserve, Peñas Blancas river valley, 800 m, 10°20'N, 84°40'W, *Haber et al.* 5116 (MO). HEREDIA: Puerto Viejo Region, Río Sucio, 20 m, *Croat* 35751 (CAS, MO); San José–Puerto Viejo, vic. of Chilamante, 11.6 mi. N of Cariblanco, 10°27'N, 84°05'W, 100 m, *Croat* 68361 (MO); Finca La Selva, *Christenson* 1532 (MO). LIMÓN: between Barra del Colorado and ocean beach, 0–2 m, 10°47'N, 83°35'W, *Stevens* 24092 (MO); 3.5 km S of Islas Buena Vista in the Río Colorado, 16 km SW of Barra del Colorado, 10–

120 m, 10°39'N, 83°40'40"W, *Davidse & Herrera* 31243 (K, MO); Cerro Coronel, E of Río Zapote, 10–40 m, 10°40'N, 83°40'W, *Stevens* et al. 24723 (MO); Reserva Biológica Hitoy Cerere, Río Cerere–Quebrada Barrera, SW of Valle La Estrella, 550 m, 9°39'N, 83°02'W, *Grayum et al.* 5810 (MO); 100–250 m, *Gómez et al.* 23663 (CR, MO); Río Colorado, 2 km upstream from downstream branch of Caño Bravo, 5 m, 10°43'N, 83°40'W, *Stevens* 24018 (MO). NICARAGUA. ZELAYA: 1 km N of Barra de Punta Gorda, 10 m, 11°31'N, 83°46'W, *Moreno* 13274 (MO); Río Punta Gorda, Atlanta, landing field, 10 m, 11°34'N, 84°1'W, *Moreno & Sandino* 12768 (MO); Atlanta, SE of “La Richard,” 30 m, 11°32'N, 84°5'W, *Moreno & Sandino* 13117 (MO); Monkey Point, 1.5 km from Caño El Pato, 10 m, 11°35'N, 83°42'W, *Moreno* 12373, 12422 (MO); Caño Monte Cristo, Las Faldas, 40–60 m, 11°36'N, 83°51'W, *Moreno* 14810 (MO); Río Serrano, 1 km of Colonia Serrano, 70–80 m, 11°34'N, 84°21'–22'W, *Sandino* 3446 (MO). PANAMA. COCLÉ: Cerro Moreno, Molejón–Coclecito, 13 km NW of Cascajal, 130–250 m, 8°46'44"N, 80°31'54"W, *Davidse & Hamilton* 23715 (B, K, MO, RSA); El Copé Region, N of El Copé, Limón, *Folsom* 5815 (MO, PMA). COLÓN: Río Miguel, Guásimo, *Croat* 9902 (MO, PMA, SEL).

***Anthurium brenesii*** Croat & R. A. Baker, *Brenesia* 16(Suppl. 1): 28. 1979. TYPE: Costa Rica. Alajuela: along Hwy. 15 between Naranjo and Quesada, 3.2 mi. N of Zapote, 1,560 m, *Croat* 46923 (holotype, MO 2682420; isotypes, COL, CR, DUKE, F, GH, K, MEXU, NY, P, PMA, RSA, SEL, U, US, VEN). Figures 65, 67–69.

Epiphytic; stem usually pendent, less than 30 cm long, 1.5–2.5 cm diam.; roots sparse, descending, green to brown, pubescent, thick, elongate, slightly tapered, 5–7 mm diam.; cataphylls moderately coriaceous, weakly ribbed near apex, 10–25 cm long, acuminate at apex, drying light brown, persisting semi-intact, eventually as a reticulum of fibers. *Leaves* spreading to pendent; petioles 11.5–45 cm long, 3–6 mm diam., terete, rounded to obtusely and obscurely sulcate adaxially, the surface pale-speckled; geniculum somewhat thicker than petiole, 1.5 cm long; blades coriaceous, oblong-elliptic to oblong, acuminate at apex (the acumens minutely inrolled), acute to obtuse to narrowly rounded at base, 16–68 cm long, 4.3–10.3 cm wide, broadest at or near the middle, the margins weakly undulate; both surfaces matte to weakly glossy, dark green above, paler below, drying yellowish green; midrib bluntly angular-raised above, pale-spotted in lower half, prominently convexly raised, much paler than surface below; primary lateral veins 13–16 per side, scarcely more conspicuous than interprimary veins, departing midrib at 35–45° angle, broadly arcuate, weakly sunken above, weakly raised and darker than surface be-

low; tertiary veins obscure above and below; collective vein arising from the base, slightly sunken above, raised and darker than surface below, equally as prominent as primary lateral veins, 2–5 mm from margin. *Inflorescences* shorter than leaves; peduncle (10)28–43 cm long, 4–5 mm diam., 2–3/4× as long as petiole, terete; spathe erect and somewhat hooded over the spadix, moderately coriaceous, medium green, sometimes tinged with red or violet-purple, ovate to ovate-elliptic, 5.5–8.5 cm long, 3.5–5.5 cm wide, broadest just above the base or near the middle, inserted at 25–40° angle on peduncle, acute to rounded at apex (the acumen apiculate), cordate and somewhat clasping at base; spadix green to red-brown to red-violet to purple, short-cylindroid, somewhat stubby, 3.2–8 cm long, 6–8 mm diam.; flowers ± square to weakly 4-lobed, 1.7–2.5 mm in both directions, 6–10 flowers visible in either spiral; lateral tepals 0.8–1.2 mm wide, the inner margins straight to broadly convex, the outer margins 2–3-sided; pistils scarcely emergent; stigma oblong, 0.5–0.6 mm long; stamens held just above tepals; filaments short, translucent, soon retracting to hold anthers at level of the tepals; anthers orange, (0.4)0.6 mm long, (0.5)0.8 mm wide; thecae ovoid-ellipsoid, slightly divaricate; pollen orange, faintly spicy-scented. *Infructescence* spreading to pendent; spathe usually dried; spadix to 9 cm long, 2 cm diam.; berries orange (B & K yellow-red 7/5), obovoid, rounded at apex, 9–11 mm long, 5–7.5 mm diam.; pericarp thin, lacking raphide cells; mesocarp juicy, with sparse, thick sclereids; seeds 2 (rarely 1) per berry, light brown, 3–4.5 mm long, 2.2–3 mm diam., 1.8–2.2 mm thick, enveloped by an almost translucent envelope extending to 10 mm long and as wide as seed.

*Anthurium brenesii* is known from 800 to 1,560 m on the Atlantic slope in the Cordillera Volcánica and the Cordillera Central in the provinces of Alajuela and Guanacaste in a premontane rainforest life zone.

This species is distinguished by its oblong to oblong-elliptic leaf blades with rather obscure primary lateral veins and the collective vein arising from the base, and by its broad spathe, cylindroid spadix, and orange berries.

*Anthurium brenesii* is related to *A. protensum*, with which it shares similar leaf texture and cataphylls and a similar altitudinal range. It differs from that species by its abruptly acuminate leaf blades, its short, broad spathe which is subcordate at the base, and its shorter, broader spadix. It is also similar to *A. prolatum*, but differs in having much shorter, broader leaves and a shorter, stubbier spa-

dix and an erect, more or less ovate spathe. In contrast, *A. prolatum* has a spadix many times longer than broad (more than 50×) and a linear-lanceolate spathe.

COSTA RICA. ALAJUELA: between Naranjo and Quesada, 3.2 mi. N of Zapote on Hwy. 15, *Croat 46923* (COL, CR, DUKE, F, GH, K, MO, NY, P, PMA, RSA, SEL, U, US, VEN); La Palma de San Ramón, *Brenes 5738* (F); Reserva de San Ramón, 800–1,000 m, 10°12'53"N, 84°36'28"W, *Herrera & Mora 180* (CR, MO), *Herrera et al. 411* (B, CR, MO); Cordillera Central, ca. 15 km N of Zarcero, *Williams et al. 29034* (F). GUANACASTE: Santa Elena-Laguna de Arenal, 4 km N of El Dos de Tilarán, 1,000 m, 10°23'N, 84°53'W, *Hammel et al. 15134* (MO), *Haber & Bello 6549* (MO); Parque Nacional Rincón de la Vieja, SE slopes of Volcán Santa María, above Estación Santa María, 900–1,200 m, 10°47'N, 85°18'W, *Davidse et al. 23448* (CR, K, MO); 1,000 m, *Baker R20* (BM); 900–1,000 m, *Herrera 1609* (MO); 1,100–1,300 m, *Herrera 1405* (MO).

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

Ecuador. Guayas: Río Chimbo, 0.9 km E of junction to El Triunfo at edge of General Elizalde (Bucay), 2°12'S, 79°05'W, 510 m, *Croat 61597* (holotype, MO 3422020-24; isotypes, AAU, B, BM, CAS, CM, GH, K, NY, QCA, RSA, SEL, US). Figures 66, 70–72.

Planta epiphytica aut terrestris; internodia brevia, 1.5–4 cm diam.; cataphyllum lanceolatum, persistens semi-intactum; petiolus (5.5)9–14 cm longus, 4–10 mm diam., acute D- aut C-formatum; lamina late oblanceolata-elliptica ad oblanceolata, (38)50–112 cm longa, (10)15–26.5 cm lata; nervis primariis lateralis (13)18–26 utroque. Pedunculus 34–48 cm longus, ca. 4 mm diam.; spatha oblongo-elliptica, 13.5–15 cm longa, 3 cm lata; spadix cylindricus infirme contractus, 8.5–10 cm longus, 6–8 mm diam. prope basim, 4–5 mm diam. prope apicem, atropurpureus. Baccae 4.5–6 mm longae, 3–3.2 mm latae.

Epiphytic or terrestrial; stem to ca. 60 cm long, 1.5–4 cm diam.; roots dense, ascending, pale greenish, conspicuously pubescent, short to moderately elongate, bluntly pointed at apex, 2–5 mm diam.; cataphylls membranous, lanceolate, unribbed, 2.5–12 cm long, acute at apex with a subapical apiculum, green, drying light brown with dense raphides, persisting semi-intact, eventually deciduous. *Leaves* erect to spreading; petioles (5.5)9–14 cm long, 4–10 mm diam., acutely D-shaped to C-shaped, broadly convex adaxially with the margins sharply raised and slightly turned inward, 5–10-ribbed abaxially, the surface somewhat pale-speckled; geniculum slightly thicker and paler than petiole, fissured transversely with age, 1–2 cm long; blades subcoriaceous (very thin on drying), broadly oblanceolate-elliptic to oblanceolate, acute to shortly acuminate at apex (the acu-