

lanceolate to broadly lanceolate, cucullate spathe, and short, scarcely tapered, pale yellow spadix.

Anthurium spathiphyllum can be confused with *A. bradeanum*, which has a similarly clavate spadix, but that species has oblanceolate-elliptic blades less than five times longer than wide (vs. more than five in *A. spathiphyllum*), with (5)10–15 pairs of primary lateral veins that are not deeply impressed, a peduncle which is not prominently winged, a deflexed, ovate spathe about as long as the spadix, and petioles that are commonly quadrangular in cross section.

COSTA RICA. ALAJUELA: 3 mi. N of San Miguel, 380 m, *Croat 35651* (MO, RSA). HEREDIA: 4 mi. N of Vara Blanca, 1,350 m, *Croat 35571* (MO); Finca La Selva, OTS Field Station on Río Puerto Viejo, just E of its junction with Río Sarapiquí, 100 m, *Wilbur & Jacobs 34194* (DUKE), *Folsom 8950* (CAS); Puerto Viejo de Sarapiquí, along El Surá trail, 100–150 m, *Croat 44309* (MO); Puerto Viejo Region, Río Puerto Viejo, *Burger & Mata 4258* (F); Zona Protectora La Selva, 6 km by road from Río Peje crossing, 5 km SSE of Magsasay, 10°21'N, 84°4'W, 340 m, *Schatz & Grayum 644* (DUKE). LIMÓN: Pandora, 100 m, *Ocampo 1987* (MO); Hacienda Tapasco-Hacienda La Suerte, 29 air km W of Tortuguero, 40 m, 10°30'N, 83°47'W, *Davidson & Donahue 8954* (MO); Quebrada Mata de Limón headwaters, Finca Anai, Sixaola, 25–40 m, 9°35'N, 82°39'W, *Grayum 4515* (MO); Río Parismina, W of Dos Bocas, *Lent 2444* (F); Talamanca, Cocles, 150 m, *Ocampo 1906* (MO). PUNTARENAS: Parque Nacional Corcovado, campamento Sirena, *Téllez et al. 4248* (MEXU, MO). SAN JOSÉ: Parque Nacional Braulio Carrillo, Fila Carrillo, 600–700 m, *Chacón 338* (MO); Chasse, Talamanca, 200 m, *Ocampo 1625* (CR); 300 m, *Ocampo 1624* (CR). NICARAGUA. ZELAYA: 0.3–1.9 km N of Limbaika, 8–10 m, 13°29'N, 84°13'W, *Stevens 8255* (MO); Risco de Oro, 40 m, *Pipoly 5021* (MO); Colonia Kururia, 50 m, 14°41'N, 84°4'W, *Pipoly 3968* (MO); 13 km above Kururia, on road to San Jerónimo, 200 m, 14°39'–42'N, 84°4'–11'W, *Pipoly 3743, 3830* (MO); Rosita-Puerto Cabezas, 15.7 km SW of Río Kukulaya, 100 m, 13°58'N, 84°12'W, *Stevens 8504* (MO). PANAMA. BOCAS DEL TORO: Changuinola-Almirante, Milla 7.5, above RR stop, *Croat & Porter 16276* (MO), *Kennedy 1273* (DUKE); 15 km S of Changuinola, 300 m, *Antonio 3150* (MO); Almirante-Changuinola Canal, *Blum 1403* (FSU, SCZ). COCLÉ: at confluence of Río Toabre and Río Coclé del Norte, Boca del Toabre, *Lewis et al. 5569* (MO).

Anthurium spectabile Schott, Oesterr. Bot. Z. 8: 181. 1858. TYPE: Costa Rica. Cartago: Volcán Turrialba, *Wendland 506* (holotype, GOET). Figures 305, 319.

Anthurium longispathum Schott, Prodr. Aroid. 520. 1858. TYPE: Costa Rica. Turrialba, *Oersted s.n.* (lectotype, illustrated by Schott Aroideae 707).

Epiphytic; stem erect; cataphylls coriaceous, 17–51 cm long, lanceolate, obtuse to mucronate at apex, light green, drying light tan (B & K yellow-

red 9/10), persisting with the apex remaining intact. *Leaves* spreading; petioles 14–63 cm long, 7–12 mm diam., quadrangular, flattened to broadly and sharply sulcate adaxially, the margins sharply raised, sharply 2–3-ribbed abaxially; geniculum thicker and paler than petiole, becoming fissured transversely with age, (1.3)2–7 cm long; blades coriaceous, oblong-lanceolate to oblong or oblong-triangular, rounded to obtuse to acuminate at apex, rounded to truncate at base, 37–140(160) cm long, 8–38(45) cm wide, the margins undulate; upper surface matte to semiglossy, medium green, lower surface semiglossy to glossy, paler; midrib obtusely angular at base, becoming narrowly raised toward the apex above, prominently higher than broad at base, becoming prominently convexly raised toward the apex below, paler than surface above and below; primary lateral veins more than 20 per side, departing midrib at 45–75° angle, prominently and narrowly raised above and below; tertiary veins obscure above, raised and darker than surface below; collective vein arising in the lower half of the blade, sunken above, raised below, less prominent than primary lateral veins, 2–3 mm from margin. *Inflorescences* spreading, shorter than leaves; peduncle 13–25 cm long, 0.6–0.7× as long as petiole, terete; spathe usually recurled and twisted, prominently reflexed, subcoriaceous, green or violet-purple, narrowly ovate to oblong-lanceolate, 10.5–32 cm long, 3–7 cm wide, inserted at 45° angle on peduncle, acuminate at apex, rounded to subcordate at base; spadix yellow-green, long-tapered, 16–38 cm long, 9–12 mm diam. near base, 6–7 mm diam. near apex; flowers rhombic to 4-lobed, 2.5–4 mm in both directions, the sides sigmoid; 7–11 flowers visible in principal spiral, ca. 9 in alternate spiral; tepals matte to semiglossy; lateral tepals ca. 2.7 mm wide, the inner margins convex; pistils emergent, green, violet-purple at apex; stigma ellipsoid, ca. 1 mm long, stamens emerging promptly throughout length of spadix in a complete sequence, grouped in a circle around the pistil; anthers 1–1.1 mm long, 1–1.2 mm wide; thecae oblong to narrowly ovoid, slightly divaricate; pollen cream. *Infructescence* with spadix to 50 cm long; berries probably orange at maturity, oblong-linear, acute to blunt at apex, 10–14 mm long, ca. 3.5 mm diam.; seeds 2 per berry, 3.4–3.6 mm long, ca. 1.6 mm diam., with a minute appendage at both ends.

Anthurium spectabile is endemic to Costa Rica, where it occurs at 300 to 1,300 m in premontane wet forest and tropical wet forest life zones.

This species is recognized by its elongate, pen-

dent leaf blades with numerous, prominent primary lateral veins and erect, four-sided petioles. Also distinctive are the short peduncle, large, narrowly ovate, often violet-purple spathe, and yellow spadix.

Anthurium spectabile might be confused with *A. ranchoanum*, which has similar leaves (in dried herbarium material) and a similar inflorescence. *Anthurium ranchoanum*, however, has a subterete petiole and a more or less erect leaf blade in line with the petiole. *Anthurium spectabile* also has an elongate, more or less spreading spathe, while the spathe of *A. ranchoanum* is shorter and usually stiffly erect and hooding the spadix.

Anthurium spectabile is extremely similar to *A. pseudospectabile* from Panama, but the latter has proportionally longer blades with more undulate margins, terete petioles, and occurs in premontane rainforest.

COSTA RICA. ALAJUELA: Cariblanco, *Lent* 3543 (F); NE of Villa Quesada, *Molina et al.* 17287 (F); Naranjo-Aguas Zarcas, Hwy. 15, 8.5 km NE of Villa Quesada, 600 m, *Croat* 46968 (F, K, M, MO, NY, RSA, SEL); Río Sarapiquí at bridge on road to Colonia Virgen del Socorro, 830 m, *Croat* 68303 (MO). HEREDIA: Río Guacimito, Magsasay, 500 m, *Chacón* 167 (MO); Río Peje-Río Sardinálito, Atlantic slope of Volcán Barva, 700–800 m, 10°17.5'N, 84°04.5'W, *Grayum* 6719 (MO). LIMÓN: Turrialba-Limón, 11 mi. S of Siquirres, Hwy. 32, 650 m, *Croat* 43325 (MO); Guápiles, *Smith* 4982 (US); road from Río Frio to Limón, vic. of Río Blanco, W of Guápiles, 360 m, 10°12'N, 83°49'W, *Croat* 68428 (MO); Zona Protectora, Barbilla (SE of Squirres), 600–660 m, 10°0'N, 83°28'W, *Grayum et al.* 7939 (CR, MO). PUNTARENAS: cultivated at Las Cruces Botanical Garden, 1,300 m, *Croat* 44431 (MO). SAN JOSÉ: Carrillo Station, *Gómez et al.* 21188 (MO).

Anthurium standleyi Croat & R. A. Baker, *Brenesia* 16(Suppl. 1): 88. 1979. TYPE: Costa Rica. San José: ca. 5 mi. SW of Canaán along gravel road from Rivas, ca. 900 m, *Croat* 43439 (holotype, MO 2582987; isotypes, COL, CR, DUKE, F, K, LE, MEXU, NY, PMA, SEL, US, VEN, W). Figures 306, 307, 320.

Terrestrial; stem to 90 cm long, 2–5 cm diam.; roots descending, greenish to tan, smooth to fuzzy, slightly tapered, 4–12 mm diam.; cataphylls moderately coriaceous, lanceolate, 13.5–30 cm long, obtuse at apex with subapical apiculum, light green, drying tan (B & K red 9/10), persisting semi-intact, eventually as linear fibers. *Leaves* erect to spreading; petioles 43–120 cm long, 7–16 mm diam., stiff, firm, terete to subterete, sometimes weakly flattened adaxially, surface minutely pale-

speckled; geniculum slightly thicker and paler than petiole, 3.5–6.5 cm long; blades subcoriaceous, ovate to ovate-triangular, acuminate at apex (the acumen apiculate, downturned), cordate at base, 29–75 cm long, 19–56 cm wide, broadest at the point of petiole attachment or slightly above it, the margins conspicuously undulate; anterior lobe 23–55 cm long; the posterior lobes 7–21 cm long; sinus spatulate to obovate, often closed with the lobes overlapping, 3.5–12 cm deep, the inner edges turned up; upper surface weakly glossy to semiglossy or matte, dark green, lower surface semiglossy to matte, slightly paler; midrib triangular-raised at base, becoming sharply and narrowly raised toward the apex above, prominently and convexly raised and paler than surface below; basal veins 4–6 pairs, 4–5 coalesced 1–4 cm, two lowermost sunken, others raised above, convexly raised below; posterior rib slightly curved, naked, sharply turned up on the outer margin; primary lateral veins 4–9 per side, departing midrib at 45–80° angle, straight, becoming arcuate-ascending, usually only the uppermost loop-connected, convexly raised above and below, prominently raised below on drying; interprimary veins obscure or occasionally raised in grooves above, raised below; tertiary veins obscure above, slightly darker than surface below; reticulate veins slightly raised on both surfaces on drying; collective vein arising from about the middle of the blade, slightly sunken above, raised and slightly darker than surface below, slightly raised above and below on drying, 4–11 mm from margin. *Inflorescences* erect to spreading, much shorter than leaves; peduncle 29–76 cm long, 4–9 mm diam., 0.3–0.8× as long as petiole, green, terete; spathe erect-spreading to reflexed, subcoriaceous, green to yellow-green (B & K yellow-green 6/7.5), oblong-lanceolate, 10.5–18 cm long, 2–4 cm wide, broadest just above the base, inserted at 60–80° angle on peduncle, narrowly acuminate at apex (the acumen inrolled and hooked), obtuse to rounded at base, the margins meeting at 90–180° angle; stipe 11–70 mm long in front, 6–60 mm long in back; spadix heavily tinged with violet-purple at anthesis, becoming yellowish brown, long-tapered, 10–30 cm long, 7–10 mm diam. near base, 4–6 mm diam. near apex; flowers rhombic to weakly 4-lobed, 3.5–3.6 mm long, 2.9–3.3 mm wide, the sides ± straight to smoothly sigmoid; 5–10 flowers visible in principal spiral, 5–7 in alternate spiral; tepals semiglossy; lateral tepals 1.9–2 mm wide, the inner margins broadly convex; pistils weakly raised, medium green; stigma linear at anthesis, 0.4–0.7 mm long, droplets appearing before stamens emerge; stamens emerging from the base in