

Infructescence with the spathe persisting; berries lavender with the apical $\frac{1}{4}$ white, obovoid, sharply apiculate at apex, 6–7 mm long, 2.5 mm diam.

Anthurium superbum is known to occur in tropical moist to tropical wet forest life zones, at 180 to 350 m. It comprises two allopatric subspecies, the typical one in Napo, Ecuador, near La Primavera on the Río Napo, and subsp. *brentberlinii* in Amazonas, Peru, in the Río Cenepa area. Both subspecies are characterized by their stiffly erect, dark green leaves with short petioles and bullate, coriaceous blades often tinged red or purple below, and by the short inflorescence with a whitish spadix with many flowers per spiral. Neither subspecies is likely to be confused with any other member of the section.

While subsp. *brentberlinii* is not known in cultivation, subsp. *superbum* has been cultivated for about 10 years in a few botanical gardens and by a few hobbyists. It is a stunning plant and will, hopefully, become more widespread in cultivation in the future.

ECUADOR, NAPO: Río Napo, La Primavera, *Madison 5516* (F, K, MO, QCA, SEL, U, US); Laguna Taracoa, 250 m, *Christenson 1529* (MO), cultivated.

b. *Anthurium superbum* subsp. *brentberlinii* Croat, subsp. nov. TYPE: Peru. Amazonas: Río Cenepa, E of community of Huampami, 300–330 m, *Berlin 644* (holotype, MO 2251387; isotype, NY). Figure 310.

Differt ssp. *typicum* caulibus longioribus, laminas angustioribus, spadice angustiore cum seriebus spiralibus paucioribus florum.

Epiphytic; stem to 16 cm long, 7–14 mm diam.; roots dense, 3–5 cm long, 3–4 mm diam.; cataphylls subcoriaceous, linear-lanceolate, 3–13 cm long, drying reddish brown, persisting semi-intact. *Leaves* erect; petioles 9–17 cm long, 5–10 mm diam., D-shaped, with the medial rib and margins raised adaxially, angular abaxially; geniculum somewhat darker than petiole when dried, 0.5–1 cm long; sheath 2.5–4 cm long; blades coriaceous, oblong-elliptic, acute to obtuse at apex, attenuate to acute at base, 45–70 cm long, 9–17 cm wide, broadest just above the middle; upper surface apparently quilted, lower surface often tinged red or purple; midrib acutely raised above and below; primary lateral veins 4–9 per side, departing midrib at 50–60° angle, very long-arcuate to the margin or slightly arcuate to the collective vein, raised to obscure above, raised below when dried; interpri-

mary veins usually present, less conspicuous than primary lateral veins; tertiary veins weakly raised to obscure above and below when dried; collective vein arising from about the middle of the blade or absent, rarely from near the base, sunken above, raised below when dried, equally as prominent as primary lateral veins, 10–15 mm from margin. *Inflorescences* erect; peduncle 11–29 cm long, 2–5 mm diam., 1–2.6 × as long as petiole, terete; spathe reflexed, subcoriaceous, green, oblong-lanceolate, 4–10 cm long, 1–2 cm wide, broadest near the base, acute at apex, acute at base; spadix white, cylindroid, \pm straight, 5–7 cm long, 4–6 mm diam. midway; flowers \pm rhombic, ca. 0.8 mm in both directions; ca. 12–15 flowers visible in either spiral; tepals densely papillate; stamens held erect above the tepals; filaments exerted 0.2 mm; anthers 0.2 mm in both directions. *Infructescence* spreading-pendent; spathe persisting or absent; spadix 20 cm long, 2 cm diam., with berries scattered throughout; berries purple, tipped white (B & K purple 5/5), obovoid-ellipsoid, obtuse at apex, ca. 7 mm long, ca. 4 mm diam.; pericarp with numerous raphide cells; seeds 1–2 per berry, yellow-brown when dried, oblong, 2 mm long, 1 mm diam.

Anthurium superbum subsp. *brentberlinii* is endemic to northern Peru in Amazonas, where it is known only from the Río Cenepa area at 180 to 350 m in a tropical wet forest life zone.

This subspecies is characterized by its slender, densely rooted stem, short petioles, oblong-elliptic leaf blades with steeply ascending primary lateral veins and often tinged red or purple below, and cylindroid, white spadix with very small flowers.

Anthurium superbum subsp. *brentberlinii* differs from the typical subspecies because of its narrower leaf blades, more slender stem, and more slender spadix with fewer flowers per spiral.

The new subspecies is named in honor of Brent Berlin (Department of Anthropology, University of California at Berkeley), who coordinated all known collections of this taxon.

PERU, AMAZONAS: Río Cenepa, Cenepa area, 250 m, *Kayap 1252* (MO); Cenepa–Quebrada Kayamas, 250 m, *Berlin 513* (MO); above Quebrada Shimpunts, 250–350 m, *Berlin 886* (MO); Huampami, 200–400 m, 4°30'S, 78°30'W, *Berlin 644* (MO, NY); *Kayap 2007* (MO), *Kujikat 162* (MO).

Anthurium tarapotense Engl., Pflanzenr. IV. 23B(Heft 21): 74. 1905. TYPE: Peru. San Martín: Tarapoto, *Ule 5p* (holotype, B). Figures 311, 312.

Terrestrial, occasionally epiphytic; stem short, 1.5–4 cm diam.; roots dense, spreading to descending, pale green, velutinous, short, tapered, 2–6 mm diam.; cataphylls lanceolate, subcoriaceous, 5–12 cm long, acuminate at apex, drying dark reddish brown, persisting semi-intact, eventually deciduous. *Leaves* erect to spreading; petioles 7–19 cm long, 3–10 mm diam., erect, sharply D-shaped, broadly convex to 1-ribbed to flattened or somewhat sulcate with the margins sharply raised or sharp but not raised adaxially, rounded to weakly 1-ribbed abaxially; geniculum moderately thicker and paler than petiole, becoming transversely fissured with age, 0.5–3 cm long; sheath 2–5 cm long; blades subcoriaceous to moderately coriaceous, broadly elliptic to broadly oblanceolate to oblanceolate, long-acuminate at apex (the acumen apiculate), long-attenuate to attenuate, rarely acute at base, (15)30–60(90) cm long, 8–27 cm wide, broadest near or above the middle, the margins undulate; upper surface weakly glossy to semiglossy, medium green (B & K green 2/2.5), lower surface semiglossy, conspicuously paler, both drying brown to greenish brown; midrib flat and 1-ribbed at base, becoming acutely angular toward the apex above, higher than broad at base, becoming obtusely angular and then convexly raised at apex below; primary lateral veins 5–10(16) per side, departing midrib at 40–80° angle, straight to less often arcuate to the margin, paler than surface, convexly raised above and below, more so above; tertiary veins obscure above, prominulous and darker than surface below; collective vein arising from about the middle of the blade, near the apex or absent, prominulous on both surfaces, to 12 mm from margin. *Inflorescences* erect to spreading; peduncle 23–50 cm long, 3–4 mm diam., 2–4.6 × as long as petioles, yellowish green tinged with reddish in the lower half or purple, terete; spathe spreading to reflexed, subcoriaceous, concolorous with the petiole, sometimes tinged with purple or purple throughout, ovate-lanceolate to oblong-lanceolate, 4.5–15 cm long, 0.9–1.9 cm wide, inserted at 60° angle on peduncle, acuminate at apex (the acumen inrolled), rounded to obtuse at base; spadix purple to maroon (B & K red-purple 2/10) to yellowish green, sessile or stipitate to 5 mm, cylindroid to slightly tapered, erect to somewhat curved, (3)4–16 cm long, 4–6 mm diam. near base, 3–4 mm diam. near apex; flowers 4-lobed, 1.5–2.5 mm in both directions, the sides straight to jaggedly sigmoid; 4–6 flowers visible in principal spiral, 4–8 in alternate spiral; tepals matte, white-punctulate; lateral tepals 0.8–1.5 mm wide, the inner margins broadly rounded, the outer margins

2–3-sided; pistil weakly raised; stigma slitlike to ellipsoid, 0.4–0.6 mm long; stamens emerging irregularly, the laterals preceding the alternates by up to 16 spirals, the 3rd stamen preceding the 4th by 3–4 spirals, borne at edge of the tepals; anthers pinkish to reddish or orangish, 0.4–0.7 mm long, 0.6–0.8 mm wide; thecae ellipsoid, divaricate; pollen yellow to pale yellow, sometimes fading to white and then turning lavender. *Infructescence* with spathe persisting, peduncle 38–44 cm long; berries deep purple, obovoid; seeds 2 per berry.

Anthurium tarapotense is endemic to Peru, where it is apparently confined to premontane moist forest at (300) 360 to 700 m, in the vicinities of Tocache and Tarapoto in Dept. San Martín.

This species is characterized by its obovate to obovate-oblanceolate blades, which are attenuate in the lower third and merge gradually with the petiole, and by the short, D-shaped petioles, frequently more or less intact cataphylls, and tapered or cylindroid, usually maroon or purple spadix.

Two individual live plants, from near Tabalosos, Peru, collected together sterile and bearing the same collection number (*Croat 58130a* and *58130b*), differ substantially and perhaps represent parts of a mixed collection. One of the two, *58130b*, perhaps deserves subspecific recognition. It shares nearly identical leaves with typical *A. tarapotense* (*58130a* representing the species well), but differs in having cataphylls weathering promptly to fibers and a spadix with pistils protruding above the anthers at anthesis and an ellipsoid, caviform stigma bearing stigmatic papillae well below the upper rim. The anthers, immediately after dehiscence (when they are most prominent), are relatively inconspicuous compared to the pistils. In contrast, the pistils of typical *A. tarapotense* are not at all exerted at anthesis and consist of a narrow slit more or less obscured by the anthers. Also, the spadix of *Croat 58130b* is grayish pink, not maroon or yellowish green as in typical *A. tarapotense*.

Anthurium tarapotense is probably most closely related to *A. llewelynii*, which occurs in the same region, but in more exposed sites in tropical dry forest. Both species share similar long-pedunculate inflorescences with moderately short, bluntly tapered spadices and blades markedly arched along the midrib. *Anthurium llewelynii* differs in having larger, narrowly oblanceolate leaves, which end abruptly at the narrowly rounded base, and a reddish olive-green spadix.

PERU. MARISCAL CÁCERES: Dito. Tocache, Nuevo, Quebrada de Mantención, road to Tocache Progreso, 500–

600 m, *Schunke 13648* (IBE, MO). SAN MARTÍN: hills above Chazute, 200–300 m, 6°34'S, 76°12'W, *Knapp 8349* (MO); Tarapoto, *Ule 5* (B); 360–460 m, *Kennedy 3529* (F); Tarapoto–Yurimaguas, 10.6 km from junction with road to Río Huallaga, 530 m, 06°30'S, 76°21'W, *Croat 58115* (IBE, JBCP, K, MO, NY, USM), *58116* (AAU, MO, P, QCA, SEL, U, UCLA, USM, VDB), *58117* (B, CAS, CM, G, GH, K, LE, M, MO, US, USM, VEN, W, WIS); Río Mayo, Tarapoto–Moyobamba, between Km 562 and 563, 15 km W of Tabalosos, 57 km W of Tarapoto, 600 m, 6°15'S, 76°41'W, *Croat 58130* (CM, IBE, KYO, MO, NY, SEL, USM); Dtto. Tarapoto, Tarapoto–Yurimaguas, near Km 10, 700 m, *Rimachi 5369* (IBE).

Anthurium tenaense Croat, sp. nov. TYPE: Ecuador. Napo: along road between Tena and Puyo, 58.1 km N of Puyo, 600 m, *Croat 49631* (holotype, MO 2738143). Figures 313, 314.

Planta epiphytica; caulis erectus; petiolus 18–19 cm longus, ca. 5–6 mm diam., D-formatus; lamina oblongo-oblancoelata ad oblongo-elliptica, 37–42 cm longa, 9–9.5 cm lata; pedunculus 19.5 cm longus; spathe 8 cm longa, 1 cm lata; spadix (immaturus) 6 cm longus, 3 mm diam.

Epiphytic; stem erect; internodes short, roots numerous, drying whitish; cataphylls unribbed, 6 cm long, drying grayish brown, persisting intact, eventually shredding at base. *Leaves* with petioles (8–9)18–19 cm long, ca. (3–4)5–6 mm diam., ± D-shaped, with obtuse medial rib and with the margins sharply raised adaxially, rounded abaxially; geniculum drying slightly darker and narrower than petiole, (0.4)0.6–0.9 cm long; sheath 2.5–5.5 cm long, free-ending; blades coriaceous, narrowly oblong-elliptic, acute to long attenuate at apex, acute to obtuse (rounded) at base, (23.2)32.5–69 cm long, (5.0–5.6)9–9.5 cm wide, broadest at or above the middle, the margins weakly undulate; both surfaces drying matte, reddish brown, slightly paler below; midrib obtusely angular to broadly convex at base, becoming narrowly acute toward the apex above, more prominently raised below, bluntly acute, becoming narrowly convex toward the apex, darker than surface when dried; primary lateral veins 5–8 per side, departing midrib at 65–90° angle, prominently arcuate to the margin, drying convexly raised and darker than surface above and below; interprimary veins not numerous, less prominent than primary lateral veins; tertiary veins darker than surface when fresh, prominulous; reticulate veins visible on either surface; collective vein arising from near the apex, probably sunken above, raised above and below when dried, 4–10 mm from margin. *Inflorescences* with peduncle (19.5)22.5–60 cm long, (2–3)6–9 mm diam. when dried, ca. (1.5)2.5–3× as long as petiole; spathe

green, subcoriaceous, lanceolate with acumen inrolled, (7.6)9–15 cm long, 1–2.5 cm wide, acute at apex, long attenuate at base; spadix green, cylindric to long-tapered, 6–18 cm long, 3–7 mm diam. near base, 1–2 mm diam. near apex; flowers rhombic to 4-lobed, (1–1.5)1.8–2.3 mm long, (0.8–0.9)1.6–1.8 mm wide, the sides moderately straight to jaggedly to smoothly sigmoid; (6–7)8–17 flowers visible in principal spiral, 5 in alternate spiral; tepals minutely granular-papillate, lateral tepals (0.6)0.8–10 mm wide, ± shield-shaped, the inner margins straight to broadly rounded, the outer margins irregularly (2–3)3–4-sided; exposed portion of the pistil rectangular; stigma slitlike, 0.2–0.4 mm long.

Anthurium tenaense is known from Napo Province, Ecuador, near Tena (hence the name), in a tropical wet forest life zone at 400–600 m.

This species is characterized by its thick, more or less elliptic blades, which dry brown, and by its D-shaped petiole, which is rounded abaxially with a broad, obtuse rib, and with raised margins adaxially.

Anthurium tenaense is not easily confused with any other species, although it bears a resemblance to *A. uleanum*, which has thinner leaves mostly drying dark brown, and to *A. harlingianum*, which has broader leaves, more primary lateral veins (12–23) per side, and a slightly to conspicuously curved, salmon-pink to pale violet spadix.

ECUADOR. NAPO: Tena–Puyo, 58.1 km N of Puyo, 600 m, *Croat 49631* (MO); Tena, Estación Biológica Jatun Sacha, 8 km E of Misahuallí, 1°04'S, 77°36'W, 400 m, *Cerón 6073, 6074* (MO).

Anthurium uleanum Engl., *Pflanzenr.* IV. 23B(Heft 21): 74. 1905.

a. *Anthurium uleanum* var. *uleanum*. TYPE: Brazil. Amazonas: Rio Juruá Mirim ("Miry"), *Ule 5731* (holotype, B; isotypes, G, MG). Figures 315–317.

Anthurium tenuispadix Engl., *Pflanzenr.* IV. 23B(Heft 21): 73. 1905. TYPE: Brazil. Amazonas: Rio Juruá Mirim ("Miry"), *Ule 5597* (holotype, B; isotypes, G, MG).

Anthurium tessmannii K. Krause, *Notizbl. Bot. Gart. Berlin-Dahlem* 9:260. 1925. TYPE: Peru. Loreto: Prov. Requena, Cumaria, Río Ucayali, 225 m, *Tessmann 3351* (holotype, B).

Epiphytic; stem to 15 cm long, ca. 2.5 cm diam.; roots dense, green to whitish, smooth to velutinous, 2–5 mm diam.; cataphylls lanceolate, straight to curved, subcoriaceous, 2–11.5 cm long, acute to acuminate at apex, drying reddish brown (B & K