

Anthurium johnsoniae Croat, sp. nov. TYPE: Originally collected in Colombia, Magdalena: between Santa María and El Campano, vic. of Minca, road above Santa María via Bonda, cultivated by Marilyn and Al Johnson, *Croat 62835* (holotype, MO 3656446).

Planta terrestris; internodiis brevibus, caule 1–3 cm diam.; cataphyllum persistens intactum mox deciduum; petiolus D-formatus vel quadrangularis, complanatus adaxialiter, 2–3 costatus abaxialiter; lamina late oblanceolata, (24)50–70 cm longa, (11)17–30 cm lata; nervis primariis lateralibus 6–16 utroque, sub angulo circa 50°–90°; pedunculus 24 cm longus; spatha lanceolata, viridis, 9.8 cm longa, 1.4 cm lata; spadix longe protractus, purpureus in apice, ochraceus ad basim. Baccae ignotae.

Stem short, ± slender, 15–50 cm long, 1–3 cm diam.; roots moderately numerous, spreading to descending, grayish white to whitish green, glabrous, minutely but conspicuously warty, elongate, weakly tapered, 3–5 mm diam.; cataphylls thinly subcoriaceous, narrowly straight-lanceolate, prominently 1-ribbed throughout, 7–18 cm long, acute to obtuse and with subapical apiculum, pale green (B & K yellow-green 6/5), drying reddish brown (B & K yellow-red 4/7.5), persisting intact, eventually deciduous. *Leaves* erect to spreading; petioles 12–29 cm long, 4–10 mm diam.; D-shaped to quadrangular, flattened to shallowly sulcate adaxially, sometimes with the margins weakly raised, prominently 2–3-ribbed abaxially; geniculum thicker than petiole, becoming fissured transversely with age, 1.3–2 cm long; blades subcoriaceous, broadly oblanceolate, abruptly and shortly acuminate at apex (the acumen apiculate), obtuse to acute to narrowly acute at base, (24)50–70 cm long, (11)17–30 cm wide, broadest above middle, the margins broadly undulate; upper surface weakly glossy, dark to medium green (B & K yellow-green 3/10), lower surface semiglossy to weakly glossy, moderately paler; midrib flat at base, becoming obtusely and narrowly angular toward the apex above, paler than surface, prominently higher than broad with sharp ridge at base, becoming convexly raised and flat toward the apex below; primary lateral veins 6–16 per side, departing midrib at 50–90° angle, straight to weakly arcuate, convexly raised, much paler than surface above, slightly raised below; tertiary veins obscure above and darker than surface below; collective vein arising from below the middle, weakly sunken above, slightly darker than surface below, 3–7 mm from margin. *Inflorescences* with peduncle 24 cm long, 3–5 mm diam., 0.9× as long as petioles, green subterete; spathe reflexed, subcoriaceous, green, lanceolate, 9.8 cm long, 1.4 cm wide, broadest

near the base, acute at apex (the acumen inrolled, 3 mm long), acute and somewhat decurrent at base; spadix maroon in the upper 1/3, brownish yellow-ochre at base (B & K yellow 5/5), long-tapered, sessile to subsessile (stipe to 2 mm long), slightly curved, held at 160° angle from peduncle, (7)16–22 cm long, 5–8 mm diam. near base, 2–3 mm diam. near apex, broadest at the base; flowers rhombic to square, 1.5–2 mm long, 1.2–1.5 mm wide, the sides straight, becoming smoothly sigmoid; 7–8 flowers visible in principal spiral, 10–12 in alternate spiral; tepals densely and minutely papillate; lateral tepals 0.8–1 mm wide, the inner margins broadly rounded, the outer margins 2–3-sided; pistils not seen; stamens barely emerging above level of tepals and persisting, the laterals preceding the alternates by 12–14 spirals, the 3rd stamen preceding the 4th by 7–8 spirals, held in a tight cluster above the pistil; anthers yellow, 0.4–0.5 mm long, 0.5 mm wide, obscuring pistil; thecae oblong-ovoid, slightly divaricate; pollen bright yellow. *Inflorescence* with the spathe persisting; spadix 23 cm long, 2.8 cm diam., bearing berries in the basal portion only; berries orange, broadly ellipsoid, apparently truncate and with radial ridges at apex, 10–12 mm long, 4.8–5 mm diam.; seeds 2 per berry, dark yellowish with numerous pale raphides on the surface, oblong, flattened, 4.7–6 mm long, 2–2.5 mm diam., 1.2–1.7 mm thick.

Anthurium johnsoniae is known only from a live collection made by Marilyn and Al Johnson near Minca in Magdalena Province in Colombia, apparently in a premontane wet forest life zone.

This species is distinguished by its glabrous, minutely warty roots, leaf blades with primary lateral veins spreading at a broad angle and with a collective vein mostly arising from near the base, and by its ellipsoid, orange berries.

Because of the broadly spreading primary lateral veins and basal collective vein origin, *A. johnsoniae* resembles most closely *A. caucavallense*, also from Colombia, which has smooth roots and purple berries.

The species is named in honor of one of the collectors, Marilyn Johnson, of Miami, Florida.

COLOMBIA, MAGDALENA: between Santa Marta and El Campano, vic. of Minca, road above Santa María, via Bonda, originally collected by Marilyn & Al Johnson, *Croat 62835* (B, COL, K, MO, NY, US).

Anthurium knappiae Croat, sp. nov. TYPE: Peru. San Martín: Lumas, on old trail from Yumbatos to San Antonio de Cumbasa, S of Shapajilla, lower slopes of Cerro Isco, 400–500

m, *Knapp et al.* 8544 (holotype, MO 3483655; isotypes, B, US, USM).

Planta epiphytica; caulis ignotis; cataphyllum persistens in fibris pallidus; petiolus 34.5–42 cm longus, 6–7 mm diam., sulcatus; lamina late elliptica, 57–61 cm longa, 18–19.5 cm lata, basi attenuata; pedunculus 74–93 cm longus, 4–5 mm diam.; spathe lanceolata, viridis, 10–12 cm longa, 1–1.3 cm lata; spadix cremeus vel viridis, cylindroidius, 6–11 cm longus, ca. 4 mm diam.

Description based on dried material only. Epiphytic on rotten logs; stem unknown; cataphylls ca. 7 cm long, apparently persisting as weathered pale fibers. *Leaves* erect-spreading; petioles 34.5–42 cm long, 6–7 mm diam., sulcate with the margins apparently acute, apparently acutely 1-ribbed abaxially; geniculum ca. 1 cm long; sheath 4.5 cm long; blades subcoriaceous, broadly elliptic, acuminate at apex, long-attenuate at base, 57–61 cm long, 18–19.5 cm wide, broadest at or near the middle, the margins flat, both surfaces yellow to olive-green; midrib convexly raised above, prominently raised and apparently acutely angled toward the base below; primary lateral veins 12–16 per side, departing midrib at 50–80° angle, slightly arcuate to the collective vein, weakly raised above and below; interprimary veins much less to almost as conspicuous as primary lateral veins; reticulate veins weakly raised; collective vein arising from the base, equally as prominent as primary lateral veins, 10–16 mm from margin. *Inflorescences* erect; peduncle 74–93 cm long, 4–5 mm diam., 1.8–2.4× as long as petiole, green, terete; spathe spreading to reflexed, subcoriaceous, green, lanceolate, 10–12 cm long, 1–1.3 cm wide, broadest near the base, inserted at ca. 20° angle on peduncle, acuminate at apex (the acumen with apiculum 4 mm long, inrolled and recurled), prominently decurrent for 2–3 cm at base; spadix “creamy,” probably somewhat greenish (post anthesis), cylindroid, sessile, 6–11 cm long, 4 mm diam.; flowers square, ca. 4 mm in both directions; 5–6 flowers visible in principal spiral, 4–5 in alternate spiral; tepals with conspicuous pale raphide cells; lateral tepals 1–2 mm wide, the inner margins broadly rounded, the outer margins 2-sided; anthers 0.8–1 mm long, 1.4–1.8 mm wide, inclined over the pistil; thecae ovoid, slightly divaricate. *Infructescence* (immature) erect-spreading; spathe persisting, green; spadix 8 cm long, 1 cm diam.; berries green, ellipsoid.

Anthurium knappiae is endemic to Peru, known only from the type locality, at 400 to 500 m, probably in an area of premontane wet forest. The type specimen was collected in the Tarapoto region,

about 20 km north of Tarapoto. It is one of six or more *Pachyneurium* species from this region.

This species is distinguished by its broadly elliptic, long-petiolate leaves which dry green and have the collective vein arising from near the base, and by its long-pedunculate inflorescence with a greenish spadix.

This species is most closely related to *A. oxycarpum*, differing in its petiole being 2–3× longer, its attenuate leaf base (only rarely attenuate for *A. oxycarpum*), its much longer peduncle (74–93 cm long vs. 18–55 cm long for *A. oxycarpum*), and its pale, raphide-cell-covered, nonglaucous tepals (vs. conspicuously glaucous and apparently free of raphide cells in *A. oxycarpum*).

The new species is named in honor of Sandra Knapp, who made the type collection.

PERU. SAN MARTÍN: Cerro Isco, lower slopes, old trail from Yumbatos to San Antonio de Cumbasa, Lumas, S of Shapajilla, 400–500 m, 6°20'S, 76°24'W, *Knapp et al.* 8544 (B, MO, US, USM).

Anthurium krukovii Croat, sp. nov. TYPE: Brazil. Amazonas: Maraa, Rio Japurá, Lago Maraa, vic. of Maraa, 1°51'S, 65°36'W, *Plowman et al.* 12211 (holotype, INPA; isotype, MO 3117449).

Planta terrestris aut epiphytica; internodia brevis, 5–10 mm diam.; cataphyllum lanceolatum, persistens intactum; petiolus 19.5–38 cm longus, 3–7 mm diam., subterete, anguste sulcatus; lamina ovato-elliptica, 26–40 cm longa, 11–18 cm lata; geniculum remotus 4–11 cm; pedunculus 31–57.5 cm longus, 3–4 mm diam.; spathe oblongo-lanceolata, 8 cm longa, 7 mm lata; stipes 1.5–3.5 cm longus; spadix atrorubens ad brunneus, 12–15 cm longus, 4–5 mm diam.; baccae violaceae.

Description based on dried material only. Terrestrial or epiphytic; stem 5–10 mm diam.; roots dense, numerous, spreading, pubescent, relatively short, bluntly pointed, 1–5 mm diam.; cataphylls lanceolate, thin, 4–8 cm long, acute at apex, brown, persisting intact, eventually deciduous. *Leaves* with petioles 19.5–38 cm long, ca. 3–7 mm diam., subterete, narrowly sulcate with rounded margins adaxially, rounded abaxially; geniculum darker than petiole, 0.6–1.5 cm long; blades subcoriaceous, ovate-elliptic, long-acuminate at apex, acute to semi-rounded at base, then narrowing abruptly to the geniculum (making geniculum seem remote from base by 4–11 cm), 26–40 cm long, 11–18 cm wide, broadest below or near the middle, the margins concave toward the base, apparently shallowly undulate; surface semiglossy, green to yellowish green; midrib narrowly convex above, sharply acute below; primary lateral veins 7–10 per side, de-