

lection is somewhat unusual in having leaf blades with apices cuspidate-acuminate rather than long-acuminate.

This species is characterized by its epiphytic habit, generally oblong-elliptic, coriaceous, greenish-drying blades with numerous primary lateral and interprimary veins, long peduncles (1.2–6× longer than the petioles) and flowers with prominently exerted stamens. However, the best distinguishing character is the nodding inflorescence with the spathe and spadix abruptly bent downward at the base.

Anthurium oxyphyllum bears some resemblance to *A. carchiense* and *A. obscurinervium*, both of which have less coriaceous leaf blades and erect inflorescences.

Sodirol (1902) asserts that the leaf blades are not punctate, but rather "pellucid-punctate under a lens." This agrees with living material, in which the leaf blades cast a semi-"velvety" sheen when held at arm's length. This effect results from modified epidermal cells ("pellucid punctations") which scatter light in different directions. Most of Sodirol's descriptions were based on living material, and this observation was probably made on a living plant.

ECUADOR, CARCHI: Chical, 1,130 m, 0°56'N, 78°14'W, Hoover & Wormley 1402 (MO); Río San Juan, Chical, 12 km below Maldonado, 1,200 m, 1°4'N, 78°17'W, Madison et al. 4507 (K, SEL, F); Peñas Blancas, 20 km below Maldonado, 1,100 m, Madison 6967 (SEL); Gualpi Chico, Forestry Reserve, vic. of encampment at Awá Ethnic, 1,330 m, Hoover et al. 3256 (MO). COTOPAXI: Quevedo-Latacunga, 55.5 km from Quevedo, 23.5 km E of La Maná, 930–950 m, 0°53'S, 79°4'W, Croat 57056 (CM, MO). ESMERALDAS: less than 300 m, Cobb 72 (MO); Ibarra-San Lorenzo, Lita, 550–650 m, Madison et al. 4992 (SEL, K, QCA), 5141, 5199 (SEL), Croat 69736 (cultivated at MO); Lita, 600–650 m, Maas & Cobb 4743 (U, QCA). IMBABURA: vic. Lita, 600 m, Cobb 35 (MO); Río Mira, Ibarra-Lita, 2.5 km E of Lita, 750–775 m, Croat 38977 (M, MO, RSA, SEL).

***Anthurium pachylaminum* Croat, sp. nov.**

TYPE: Peru. San Martín, Moyobamba-Chachapoyas, Km 430–431, E of Naranjos at Río Naranjos, 770 m, 5°21'S, 77°20'W, Croat 58161 (holotype, MO 3148985; isotypes AAU, B, CAS, F, GH, K, M, NY, P, SEL, U, US, USM). Figures 217–220.

Planta epiphytica; petiolus sulcatus, 8–20(32) cm longus; lamina elliptica aut late elliptica vel oblanceolata, 40–112 cm longa, (11)17–43 cm lata, acuminata, basi acutata et interdum decurrenti, in pagina inferiori pustulata vel aliquando glandulosa; nervii primarii laterales 6–9 utroque; pedunculus 36–95 cm longus, 2–9 plo longior quam petiolus; spatha subcoriacea, linearis-lanceolata, 10–23 cm longa, 1–2.5 cm lata; spadix atro-rubens vel atroviolaco-atropurpurea, cylindricus, 11–39

cm longus; cum fructu pendulus; baccae ferentes ad basim.

Epiphytic, sometimes terrestrial; stem to 8 cm long, 1.5–6 cm diam.; roots numerous, dense, spreading, the uppermost ascending, gray when dried, drying short-pubescent, 2–10 cm long, 2–5 mm diam.; cataphylls coriaceous to subcoriaceous, broadly lanceolate, 5–7 cm long, acute at apex, drying reddish brown (B & K yellow-red 04/05), persisting semi-intact at the upper nodes. Leaves erect-spreading; petioles 8–20(32) cm long, ca. 8 mm diam., D- to C-shaped, broadly to narrowly sulcate adaxially, with the margins blunt, rounded abaxially; geniculum 1–2 cm long; sheath to 6 cm long; blades coriaceous, elliptic to broadly elliptic or oblanceolate, acuminate at apex (the acuminate to 2 cm long), occasionally obtuse at base, but mostly acute to decurrent, 40–112 cm long, (11)17–43 cm wide, broadest at or above the middle, the margins flat to broadly undulate; upper surface glossy, dark green, lower surface glossy to matte, paler, often sparsely to moderately pustulate or glandular; both surfaces drying yellowish green; midrib flat at base, becoming convexly raised toward the apex above, obtuse to acute-raised below; primary lateral veins 6–9 per side, departing midrib at 25–50° angle, mostly ascending, ± straight to the margin, sometimes loop-connecting in the uppermost portion of the blade, raised above and below; tertiary veins etched above, weakly raised below; collective vein arising from near the apex or absent, sunken above, raised below. Inflorescences erect; peduncle 36–95 cm long, 3–10 mm diam., 2–9× as long as petiole, olive-green, terete; spathe spreading-reflexed, recurled, subcoriaceous, green heavily tinged with maroon especially on the inner surface, with raphide cells, linear-lanceolate, 10–23 cm long, 1–2.5 cm wide, broadest near the base, acute at apex, decurrent at base; spadix dark red to dark violet-purple (B & K purple 2/7.5), sessile or stipitate to 10 mm, cylindroid to tapered, erect, 11–39 cm long, 6–7 mm diam. near base, 4 mm diam. near apex, broadest at the base or near the middle; flowers rhombic, ca. 2.4 mm long, ca. 1.4 mm wide, the sides straight; 7–9 flowers visible in principal spiral, 8–10 in alternate spiral; tepals matte, papillate; lateral tepals 1–1.4 mm wide, the inner margins ± straight to broadly convex, the outer margins 2–3-sided; pistils not emergent; stigma linear, 0.4–0.6 mm long, appearing granular; stamens emerging in a regular sequence from the base, the laterals preceding the alternates by 28 spirals, the 3rd stamen preceding the 4th by 6 spirals, inclined over and obscuring pistil;

anthers 0.4–0.6 mm long, 0.6–0.8 mm wide; thecae ovoid, slightly divaricate; pollen pale orange. *Infructescence* pendulous; spathe withered or absent; spadix 22–53 cm long, 1.4–1.7 cm diam., mostly bearing berries in the basal portion only; stipe to 10 cm long; immature berries reported as brown.

Anthurium pachylaminum is known from Loreto, San Martín, and Pasco in Peru at (240)320 to 770 m. It may be epiphytic or terrestrial in sandy, inundated soils and on steep slopes in tropical moist and premontane wet forest life zones.

This species is distinguished by its unusually large, coriaceous leaf blades (hence the name), with the tertiary veins etched into the upper surface (when fresh) and the primary lateral veins departing the midrib at an acute angle and running more or less straight to the margin. The leaf blades of *A. pachylaminum* are often pustular or glandular on the lower surface, and the spathe does not wither at anthesis, but often persists and remains in a weathered condition on the fruiting spadix.

Anthurium pachylaminum bears a similarity in leaf shape and inflorescence shape and color to *A. atropurpureum* var. *arenicola*. The latter, however, has mostly eglandular lower leaf surfaces, and the spathe withers at anthesis. It also generally has smaller leaves and shorter peduncles (1–4× as long as petiole) than *A. pachylaminum* (2–9× as long as petiole).

PERU. LORETO: Prov. Alto Amazonas, Río Capihuari, 5 km NE of Andoas, near Ecuador border, 240 m, *Gentry & Díaz 28226* (MO, NY); Prov. Maynas, Río Tacshapuraray, *Croat 20389* (F, MO, USM). PASCO: Prov. Oxapampa, Iscozain-Villa America, Palcazú Valley, 300 m, 10°12'S, 75°13'W, *Smith 3855* (MO); Río Iscozain, Cabeza de Mono, 10 km SW of Iscozain, Palcazú Valley, 320 m, 10°20'S, 75°18'W, *Gentry et al. 41949* (MO). SAN MARTÍN: Moyobamba-Chachapoyas, Km 430–431, E of Naranjos at Río Naranjos, 770 m, 5°21'S, 77°20'W, *Croat 58161* (AAU, B, BM, CAS, F, G, GH, K, M, MO, NY, P, QCA, RSA, SEL, U, US, USM); Río Huallaga, Tocache Nuevo-Juanjui, 65.5 km S of Juanjui, 16 km S of Río Pulcacha, 700 m, 7°50'S, 76°40'W, *Croat 58076* (MO); 65.5 km N of Tocache Nuevo, 114.5 km S of Juanjui, 16 km S of Río Pulcacha and village of San Martín, 700 m, 7°50'S, 76°40.5'W, *Croat 58063* (MO); 56 km W of Rioja, 2 km E of Naranjos, 770 m, 5°51'S, 77°40'W, *Knapp et al. 7451* (BM, MO); Prov. Mariscal Cáceres, Dtto. Tocache Nuevo, Fundo de Las Flores, 550–600 m, 8°10'S, 76°33'W, *Croat 50990* (K, MO); Quebrada de Canuto, 500 m, *Schunke 10945* (CM, MO); Quebrada de Ishichimi, Tocache, 400 m, *Schunke 10047* (MO); Río Tocache, Puento Palo Blanco, 10 km W of Tocache Nuevo on rd. to Puerto Pizana, 550–650 m, 8°14'S, 76°36'W, *Plowman et al. 11347* (F); Puento Palo Blanco, 500–550 m, 8°14'S, 76°36'W, *Plowman & Schunke 7432* (F).

Anthurium palenquense Croat, sp. nov. TYPE:

Ecuador. Los Ríos: Río Palenque Science Center, along trails W of laboratory and in vicinity of laboratory clearing, 210–250 m, *Croat 38670* (holotype, MO 2395515; isotypes, AAU, B, K, NY, QCA, PMA, RSA, US). Figures 221, 223, 224.

Planta terrestris; internodia brevia, 1–1.2 cm diam.; petiolus (6)10–30 cm longus, 5–20 mm latus, triangularis; lamina elliptica ad lanceolata ad oblanceolata, basi attenuata; nervis primariis lateralibus (9)14–30 utroque; pedunculus 10–60 cm longus, 2–10 mm latus, quadrangularis vel 2–4-costatus; spatha angusti lanceolata ad oblonga-lanceolata, 3–12 cm longa, 0.5–2.5 cm lata, viridis; stipes liber ad 1–5 mm; spadix contractus, (2)4–12 cm longus, 6–9 mm latus prope basim, 3–4 mm latus prope apicem, flavo-virens; baccae ovoideae, purpureae, 5–11 mm longae, 5–6 mm latae.

Terrestrial; stem green turning brown, calloused, 15–30 cm long, 1–2.5 cm diam.; leaf scars obscured by root mass, 1 cm high, 1–1.5 cm wide; roots numerous, descending, grayish or green, smooth or scurfy, blunt, 1–20 cm long, 2–5 mm diam.; cataphylls membranous to subcoriaceous, lanceolate, 4.5–17 cm long, narrowly acute and apiculate at apex, green tinged reddish at margins, drying pale tan (B & K yellow 5/10), persisting semi-intact or as coarse linear fibers or as bundles of linear fibers, often with the apex remaining intact. *Leaves* erect to spreading; petioles (6)10–30 cm long, 5–20 mm diam., sharply triangular, flattened to broadly convex adaxially, the margins winged, sharply angular abaxially; geniculum scarcely thicker and slightly paler than petiole, the angular ribs often conspicuously and minutely undulate, 1–3 cm long; sheath 1–2 cm long; blades subcoriaceous to coriaceous, elliptic to lanceolate or oblanceolate, long-acuminate at apex (the acuminate flat to slightly inrolled), attenuate with conspicuously concave margins at base, (16)30–64(70) cm long, (7.5)10–23 cm wide, broadest usually near or below the middle, the margins broadly undulate; upper surface matte, velvety, the cells convex, sunken, forming an alveolate pattern when dried, dark green (B & K green 4/2.5), lower surface matte, paler (B & K green 7/2.5); midrib flat to obtusely angular at base, becoming sharply acutely raised toward the apex above, acutely raised (knife-edged), and higher than broad below; primary lateral veins (9)14–30 per side, departing midrib at 40–65(80)° angle, ascending straight to the collective vein, weakly sunken to weakly raised above, darker than surface and weakly raised below; interprimary veins numerous, scarcely sunken, ± parallel to and less conspicuous than primary