ceding alternates by several spirals, the stamens complete at apex before basal flowers complete, emitting a strong, sweet scent at anthesis; anthers dark violet-purple; exserted on fleshy, pale violet-purple filaments, soon retracting to level of tepals, held in a cluster covering pistils; thecae oblong, slightly divaricate; pollen white or cream turning lavender. INFRUCTESCENCE with spadix to 23 cm long; berries bright red (B & K Red 6/5), narrowly obovoid, acute to mammiliform at apex, ca. 1 cm long, 4–5 mm wide; seeds 2, white, weakly flattened, 2.5–2.7 mm long, 1.7–2 mm wide, 1–1.5 mm thick. Figs. 78 and 82.

The species is found from Costa Rica, Panama, and probably in Colombia in the Department of Chocó, ranging from sea level to 1,560 m and occurring principally in tropical wet forest, but also in premontane wet forest. In Costa Rica the species occurs in San José Province (El General Valley) and Puntarenas Province (Osa Peninsula and the adjacent valley of the Rio Diquis). Although the species is restricted to the Pacific slope in Costa Rica, it is known in Panama only from the Atlantic slope and along the Continental Divide on the Pacific slope.

Anthurium halmoorei is strikingly different from all other species and can easily be distinguished in flower or fruit by its exceptionally long stipe, the dark purplish-violet tepals, and bright red berries. Vegetatively the species can be recognized by the ob lanceolate leaves with black punctations on the lower leaf surface and the conspicuous collective vein, (0.8)1–2.4 cm remote from the margin.

The species was placed by Engler in section Pachyneurium apparently owing to its large ob lanceolate leaves and rosulate habit, but it should be placed instead in section Porphyrochitonium because of its glandular dotted lower surface and lack of involute leaf vernation.

Anthurium halmoorei is perhaps most closely related to A. curvilatinum Croat (ined.), which also has short petioles, smaller but similarly coriaceous blades with a prominent collective vein relatively remote from the margin, and a spadix of precisely the same color, which has a pleasant aroma. The latter differs however in having a spadix that is essentially sessile whereas A. halmoorei has a spadix which has a stipe equalling or often exceeding the length of the spadix.

**Costa Rica. Cartago:** near Selva, Taylor 11463 (NY). **Puntarenas:** Cocovado National Park, Liesner 2849, 2851 (MO); N of Palmar Norte, Croat 35194 (MO); Rincón de Osa, Liesner 1698 (MO); Utley 1190 (DUKE); Santo Domingo, Engler 10094 (BR); Playa Blanca, Valerio 323 (BR); vicinity San Vito de Java, Croat 32903 (MO). **San José:** between San Isidro del General & Dominical, Croat 35340 (MO).

**Anthurium halmoorei** Croat, sp. nov. **Type:** Mexico. Nayarit: along Hwy. 28 between Tepic and Jalcocotán at Km 15.5, elev. ca. 1,000 m, Croat 45337 (MO-2690192-193, holotype; CAS, K, MEXU, MICH, SEL, isotypes; Live at MO).

Planta epiphytica aut rupestris; caudex brevis, crassus, radiicus densis crassissique; petiolus 15–19 cm longus, 12–18 cm latus, lateribus complanatis, adaxile late sulcatus, abaxiale obtuse angulatus aut costatus; famina oblanceolata aut ob lanceoelliptica, subcoriacea, 52–108 cm longa, 15–43 cm lata, marginibus late undulatis, nervis primarios lateraliibus ad marginem liberibus; infl orescentia effusa, folii breviorae; pedunculus 32–38 cm longus; spathe ovata aut ovata-elliptica, viridis, 13–16 cm longa; spadix viridis aut purpurea, 9–21 cm longa; baccae flavivirentes.

Rosulate, epiphyte or on rocks on very steep slopes; stems thick; internodes and leaf scars obscured by root mass; roots dense, descending, ca. 1 cm diam.; cataphylls subcoriaceous, 20–23 cm long, apiculate at apex, drying tan to brown, persisting intact at apex, dilacerating at base. LEAVES erect-spreading; petioles 15–19 cm long, 12–18 mm wide, flattened laterally, broadly sulcate adaxially, obtusely angular or 1-ribbed abaxially; geniculum 1–1.5 cm long; blades ob lanceolate to ob lanceoelliptic, subcoriaceous, short-acuminate at apex, attenuate at base, 52–108 cm long, 15–43 cm wide, broadest at middle or just above, the margins broadly undulate; the upper surface semiglossy, the lower surface matte and much paler; midrib broad and flat at base, convexly raised at middle, narrowed and flat at apex above, acutely raised below, the abaxial rib of the petiole extending onto midrib; primary lateral veins 12–14 per side, departing the midrib at a 40°–55° angle, prominently raised above, raised below; straight then curving toward apex near margin; interprimary veins less conspicuously raised above, visible and flat below; secondary veins prominent below, flat below; collective vein arising from a primary lateral vein near the apex, 6–11 mm from margin, flat above, promi nulous below. INFLORESCENCE spreading, shorter than leaves; peduncle 32–38 cm long, 9–10 mm diam., suberet, obscurely angled, 2–2.5 times longer than petioles; spathe subcoria-
ceous, green (B & K Yellow-green 6/10), sometimes tinged purple, ovate to broadly ovate, 13–16 cm long, 6.2–9.7 cm wide, broadest near base, acuminate at apex, acute at base, the margins undulate, inserted at a 70° angle on peduncle; spadix green, purple, or green heavily tinged purple (B & K Red-purple 2/5), 9–21 cm long, 11–27 mm diam. at base, 5–7 mm diam. at apex; flowers 4-lobed, 2.4–2.8 mm long, 2.7–3.2 mm wide, the sides sigmoid; 8–14 flowers visible in the principal spiral, 12–20 flowers visible in the alternate spiral; tepals matte, weakly punctate, minutely papillate, lateral tepals 1.5–1.8 mm long, the inner margin convex; pistil slightly raised, green tinged with purple in area of stigma; stigma linear, 0.4–0.6 mm long, a minute droplet appearing 4–5 days before first stamens emerge, dry with white exerted papillae when anthers open; stamens emerging ± rapidly from the base exerted on filament ca. 0.3 mm long, 0.8 mm wide, retracting to hold anthers held at edge of pistil, mounded with pollen; anthers orange; thecae ellipsoid, scarcely divaricate; pollen orange (B & K Yellow 7/2.5), drying white. INFRUTESCENCE pendent; spathes usually persisting; berries irregularly obovoid, pale yellow green, broadly rounded to almost flat with a scurfy, brown square around style, 12–15 mm long, 7–9 mm diam.; mesocarp fleshy with numerous raphide cells; seeds 2, pale tan, subglobose, weakly flattened, 5–6.5 mm long, 3.5–4.1 mm wide, ca. 2.5 mm thick, with a sticky appendage at base and apex. Figs. 83 and 87.

Anthurium halmoorei is restricted to western Mexico in the states of Nayarit, Jalisco, Colima, and Michoacán in seasonally very dry forests from 450 to 1,450 m elevation. It occurs usually on rocks on very steep slopes in forested areas.

The species is in section Pachyneurium and is characterized by its generally ob lanceolate or ob lanceolate-elliptic blades with usually free-ending primary lateral veins, and by its petiole which is acute abaxially but especially by its ovate to ovate-elliptic spathe, green to purplish spadix and greenish-yellow mature berries.

The species is probably most closely related to A. schlechtendalii ssp. jimenezii, which differs in having the petiole subquadrangular, usually flat abaxially and in having a lanceolate spathe and red berries at maturity. That species occurs only in Guerrero and southern Oaxaca.

MEXICO. JALISCO: vicinity Autlán de Navarro, McVaugh 10224 (MICH); Wilbur 2289 (MICH); between El Tuito & Puerto Vallarta, Delgado 359 (MICH); Hernández 2608 (MEXU); Anderson 6113 (ENCB, MICH); S of San Pedro, Koeppen & Ilits 593 (BH); Talpa de Allende, McVaugh 23408 (MICH). MICHOACÁN: vicinity Aguililla, McVaugh 24741 (MICH); Coalcomán de Matamoros, Rzedowski 16707 (ENCB, MICH). NAYARIT vicinity Jalcoctón, Gentry & Gilly 10734 (MEXU, US); McVaugh 12140 (MICH); Moore & Bunting 8692 (BH); vicinity Jalisco, Norris & Toranto, 12645 (CAS, MO); vicinity Mirador El Aguil, McVaugh 15281 (MICH); NE of Santa María del Oro, Fededma 703 (MICH); Tepic, Bates et al. 1554 (BH); N of Tepic, Dressler 339 (UC); NW of Tepic, Lewis s.n. (MICH); Ferris 6816 (DS); W of Tepic, Dressler 1024 (UC); between Tepic and Jalcoctón, Croat 45337 (CAS, K, MEXU, MICH, MO, SEL).

Anthurium hoffmannii Schott, Oesterr. Bot. Z. 8: 181. 1858. TYPE: Costa Rica. San José: Chica Uruca, Hoffmann 571 (B, destroyed; Photo of Schott Aroid Drawing #662, NYBG Neg. #N.S. 3897).


Epiphyte or terrestrial; stems to 60 cm or longer; internodes 1–2 cm long; leaf scars obscured by cataphylls; roots few, green, 3–8 mm diam.; cataphylls coriaceous, 7–15 cm long, drying reddish brown, persisting intact. LEAVES with petiole erect-spreading, 20–90 cm long, 4–8 mm diam., terete or weakly sulcate; geniculum 2–3.5 cm long; blades ovate, moderately thick, 14–55 cm long, 9–38 cm wide, acuminate at apex, deeply lobed at base; anterior lobes 11–44 cm long, posterior lobes 4–12 cm long; sinus parabolic to spathulate; the upper surface semiglossy, the lower surface glossy; the midrib convexly raised above, acutely raised below; primary lateral veins 4–5 per side, weakly sunken above, raised below; basal veins 4–7 pairs, 3–4 coalesced 1–4 cm (rarely free to base); posterior rib naked, weakly turned upward; collective vein arising from first basal vein, sunken above, acutely raised below, 3–10 mm from margin. INFLORESCENCE erect to slightly arching; peduncle 16–50 cm long, 1–4 mm diam., terete; spathe, pale yellow-green, subcoriaceous, oblong-ovate to lanceolate, 6–13 cm long, 1.7–3 cm wide, inserted at 70° angle on peduncle; spadix staminate 6–10 mm in front, 1–3 mm in back, pale green becoming white or cream colored, 4.5–8.5 cm long, ca. 8 mm diam. at middle, ca. 7 mm diam. at base and apex; flowers 4-lobed, 2.3–2.8 mm long, 2.6–3 mm wide, the sides straight to sigmoid, 5–8 flowers