

A New Species of *Anthurium* sect. *Andiphillum* (Araceae) from Cultivation

THOMAS B. CROAT AND DONALD R. HODEL

Key Words: *Anthurium*, Araceae, sect. *Andiphillum*, new species, Mexico.

Introduction

The genus *Anthurium* was last revised for Central America nearly 40 years ago (Croat 1983; 1986) and will soon be revised again for *Flora of Mesoamerica* (Croat in prep.). The new revision will contain 370 species of *Anthurium*, up from around 220 species known in 1986. The most recently discovered species has resulted from a fortuitous situation. The junior author had an *Anthurium* growing in his garden near Los Angeles, California and suspected it might be new to science (Figs. 1–2). He sent photos and material of the plant to the senior author who also suspected it was new to science. The senior author investigated the material and keyed it out in both the *Lucid Anthurium Key* (an as yet unpublished, on-line electronic key) and the newly composed key to *Anthurium* for *Flora of Mesoamerica* (Croat in prep.), which confirmed the authors' suspicions.

This new species, though ostensibly of unknown origin, is little known in cultivation, existing only in a few private, exotic plant collections in Southern California. The species regularly sets fruit, a good sign that it is probably not a hybrid. It certainly must have originated from Mexico or possibly Guatemala, the only two countries where the sect. *Andiphillum* occurs (except rarely in Honduras). The more or less D-shaped to U-shaped petioles and the very large fruits (berries) readily distinguish this section (Carlsen and Croat 2019; Croat and Hormell 2017).

Methods

The description is based on fertile material. The novelty of the species was corroborated using the *Lucid Anthurium Key* (Haigh et al. 2007, 2009; Croat 2019), which functions by excluding species selectively based on conservative taxonomic characters. The *Key*, computer-generated and developed by the Royal Botanic Gardens, Kew, and the Missouri Botanical Garden, contains all important taxonomic characters of all known *Anthurium* species (both published and unpublished). It includes a total of 81 features and 224 character states. Keying out a specimen involves choosing a series of conservative characters (usually as many as 10), which leads to a pool of potential species. Introducing an increasingly larger number of character states further whittles down the pool of potential species until only one remains. Confirmation of the



1. *Anthurium roseonervium* Croat & Hodel, habit, cultivated in Lakewood, California. Type plant, *Hodel & Hodel 4004*. Note the reddish pink nerves. © 2020 D. R Hodel.

selection is made through direct comparisons with a pictorial data base, which includes photographs of the type, additional herbarium material, and living plants, as well as keys and descriptions. For more details see Croat (2019). Presently, the *Lucid Anthurium Key* is unpublished because it still contains much unpublished work but it will eventually be placed on-line for public use.

Morphological terminology follows that of Croat and Bunting (1979). Conservation status assessment is based on the IUCN Red Book criteria (IUCN 2020).

***Anthurium roseonervium* Croat & Hodel sp. nov. Figs. 1–18.**

This new species differs from all others in the genus by a combination of characters, including its non-climbing, likely terrestrial or lithophytic habit; short, thick internodes; semi-persistent cataphylls; nearly V-shaped, deeply sulcate petioles with the margins acute and in turned; moderately coriaceous and weakly glaucescent, ovate-sagittate blades with the apex rounded and weakly emarginate and with a short apiculum and a short medial down-turned spine, and deeply lobed at base with a parabolic to weakly hippocrepiform sinus; up to seven pairs of basal veins with two free to the base, a bluntly acute midrib, four to five pairs of primary lateral veins, collective veins arising from the first or second pair of primary lateral



2. *Anthurium roseonervium* Croat & Hodel, habit, cultivated in Lakewood, California. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



3. Holotype of *Anthurium roseonervium* Croat & Hodel, Hodel & Hodel 4004 (MO-6941180). © 2020 T. B. Croat.

veins, all conspicuously rosy pink abaxially; and the green to purple-tinged, spreading spathe and the weakly tapered, weakly stipitate, dark purplish violet spadix. Type: Cultivated. USA. California, Los Angeles County, Lakewood, garden of Marianne A. and Donald R. Hodel, 13 July 2020, *D. R. Hodel 4004* (holotype, MO-6941190; isotypes, K, LAM, MEXU, US). (**Fig. 3**).

Non-climbing herb, to 1 m tall and wide (**Figs. 1–2**). **Stem** less than 30 cm long, erect (**Fig. 4**); internodes short, 3–4 cm diam.; **cataphylls** 6–10.5 cm long (**Fig. 5**), coriaceous, medium green, tinged reddish on margins, medially acutely keeled, weathering to sparse fibers with large fragments of yellow-brown epidermis. **Leaves** suberect to spreading; **petioles** 33–54 cm long, 1.6–1.7 cm thick x 11–15 mm wide at base, 1.3–1.4 cm thick and 8–11 mm wide at apex, nearly V-shaped in x-section (**Fig. 6**), deeply and sharply sulcate adaxially (margins curved slightly inward) (**Fig. 7**), bluntly 1-ribbed adaxially, stiff and hard, weakly glossy, pinkish abaxially (**Figs. 8**); **geniculum** 2.5 cm long, paler and yellowish, narrowly V-shaped, paler and yellowish, deeply and narrowly V-sulcate adaxially, subacute abaxially; **blades** 42–61 cm long, 32.8–42 cm wide,



4–5. *Anthurium roseonervium* Croat & Hodel. **4.** Stem, showing short internodes. **5.** Cataphylls. Both from the type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



6. Petiole of *Anthurium roseonervium* Croat & Hodel is V-shaped in x-section. type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



7–8. Petiole of *Anthurium roseonervium* Croat & Hodel. 7. Deeply and sharply sulcate adaxially. 8. Smooth and pinkish abaxially. Both from the type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



9. The blade of *Anthurium roseonervium* Croat & Hodel is ovate-sagittate, dark bluish green, and slight glaucous. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



10–11. *Anthurium roseonervium* Croat & Hodel showing emarginate apex with a minute apiculum. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.

ovate-sagittate (**Fig. 9**), ca. 1.2 times longer than wide, 1.2 times longer than petioles, narrowly rounded and emarginate at apex with a short medial down-turned spine (**Figs. 10–11**), prominently lobed at base, moderately coriaceous, dark bluish green, matte, slightly glaucous adaxially, moderately paler, bluish green, somewhat glaucous abaxially; major veins prominently raised, narrowly rounded on both surfaces, pale green adaxially (midrib weakly tinged reddish toward base), pinkish red abaxially (**Fig. 12**); **anterior lobe** 33.3–34.5 cm long, convex along margins; **posterior lobes** 14–21 cm long, 11.5–16 cm wide, held erect or even



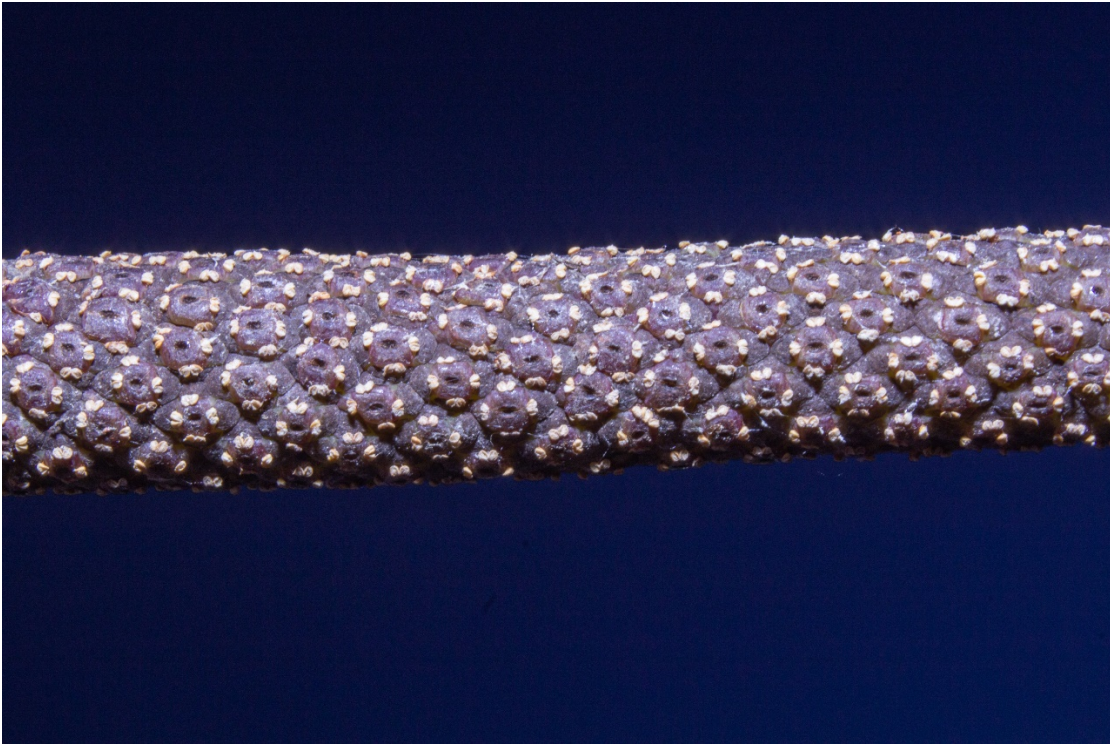
12. *Anthurium roseonervium* Croat & Hodel showing reddish pink nerves on the abaxial leaf blade surface. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



13. *Anthurium roseonervium* Croat & Hodel showing reflexed spathe of infructescence. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



14. Spadix of *Anthurium roseonervium* Croat & Hodel showing reflexed spathe at staminate anthesis. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



15. Portion of purplish violet spadix of *Anthurium roseonervium* Croat & Hodel showing flowers at staminate anthesis. Type plant, *Hodel & Hodel 4004*. © 2020 D. R. Hodel.

overlapping in life; **sinus** 10–11 cm deep, 7–12 cm wide; **basal veins** 6(7) pairs, 1st and 2nd pairs free to the base; 3rd pair fused 2.2–2.7 cm; 4th pair fused 2.5–5.5 cm; 5th pair fused 4.5–8 cm; **midrib** bluntly acute below; **primary lateral veins** 4–5 pairs, arising at 40–45° angle; **collective veins** arising from the 1st or 2nd pair of basal veins, 0.7–1.2 cm from margins; **tertiary veins** weakly etched, the surface between some secondary and tertiary veins sometimes prominently puckered; upper surface smooth on magnification; lower surface minutely and densely pale-speckled. **Inflorescences** 55.6–58 cm long; **peduncle** 40–58 cm long; ascending to spreading; **spathe** 7–11 cm long, 2.2–3.1 cm wide (**Figs. 13–14**), narrowly ovate to lanceolate, spreading, subcoriaceous, rounded and apiculate to short-acuminate at apex, matte, medium green heavily tinged dark violet-purple adaxially, medium green and weakly glossy abaxially (the midrib much paler below); **spadix** 17–44 cm long (**Fig. 14**), stipitate 3–6 mm, 1.5 cm diam. at base, 1.3 cm diam. midway, 7 mm diam. at 1 cm from tip, dark purple-violet at anthesis (sometimes appearing almost brown owing to color of stamens); **flowers** 6–7 visible per spiral (**Fig. 15**), 4.6 mm long, 3.3 mm wide; **stamens** held at level of tepals and contiguous forming a cluster to 2 mm diam., the lateral stamens emerging in rapid succession up to 8 spirals before the anterior stamen, anterior and posterior stamens emerging in rapid succession; anthers 1–1.2 mm long, 0.9–1 mm, thecae moderately divaricate; stigma deeply sunken, 0.6 mm diam. **Infructescences** spreading to drooping when heavily laden with fruit (**Figs. 16–17**); pistils early



16–17. Infructescences of *Anthurium roseonervium* Croat & Hodel heavily laden with packed, contiguous fruits. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



18. Fruits of *Anthurium roseonervium* Croat & Hodel heavily laden with packed, contiguous fruits. Note the two large, greenish seeds. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.



19. The densely packed fruits of *Anthurium roseonervium* Croat & Hodel are truncate and narrowly sunken apically. Type plant, *Hodel & Hodel 4004*. © 2020 D. R Hodel.

emergent, rounded, brownish; **fruits** (berries) 1.3–1.5 cm long, 1–1.3 cm diam. (**Fig. 18**), oblong-obovate to obovate, but angled by mutual pressure, truncate at apex, narrowly sunken medially at apex (**Fig. 19**), yellowish, tinged red, soft and juicy when ripe; **seeds** large, 1.3–1.4 cm long, 0.9–1 cm wide, 5–6 mm thick, pale green, semi-glossy (**Fig. 19**).

Anthurium roseonervium is a member of sect. *Andiphillum* and likely a native of southern Mexico where nearly all the species of this section occur. We estimate it has been cultivated in California for perhaps 20 to 25 years, but sparingly so, and has been offered for sale only at Rancho Soledad Nursery, Rancho Santa Fe, near San Diego, where the junior author purchased the type plant in 2015.

The history of this plant in cultivation is rather obscure and mired in confusion. It was purportedly introduced to cultivation by the late Loran M. Whitelock, a cycad collector and plant aficionado in Los Angeles, who collected frequently in Mexico, especially in the southern part of the country. We are unable to confirm this account but, if so, he probably distributed seeds and or plants to a few growers and collectors in Southern California, where it was informally referred to as *Anthurium* “Whitelock”; however, the senior author has determined that another plant also referred to under this informal name is actually *A. faustomirandae* Pérez-Farr. & Croat, which is substantially different from our newly named plant. An internet search for “*Anthurium* Whitelock” turned up several blogs and mentions of a plant that depicts *A. roseonervium*; thus, it appears that at least two taxa were referred to under the same informal name.

Nevertheless, additional evidence does support the supposition that Whitelock did collect this plant and it was in southern Mexico where he found it. Indeed, it is quite likely that he collected *A. roseonervium* and *A. faustomirandae* in the same general region. His plant that ultimately was found to be *A. faustomirandae* came from the vicinity of Lago Nezahualcoyati (referred to commonly as Malpaso), which impounds the Río Grijalva near Tecpatán, Mexico in the State of Chiapas (and very near the borders of Veracruz and Oaxaca States and not too distant from the State of Tabasco). The lake itself is at 17°09'33"N, 93°45'58"W at about 178 m elevation, which is a part of Mexico that is not well explored, is rich in endemic species, and, in the words of Whitelock (to the senior author), “was interesting for its aroid flora.” Thus, it seems logical that Whitelock might have found the species there.

Another purported theory of the origin of *Anthurium roseonervium* is that it was collected in Panama, where Whitelock and colleagues had collected, but this seems unlikely because members of sect. *Andiphillum* have rarely been collected south of Guatemala and never south of Honduras.

The conservation status of *Anthurium roseonervium* is difficult to determine because it is known only from cultivation and its status in the wild is unknown; thus, according to IUCN criteria (IUCN 2020), its status should be DD (data deficient).

Anthurium roseonervium is characterized by its non-climbing, likely terrestrial or lithophytic habit; short, thick internodes; semi-persistent cataphylls; nearly V-shaped, deeply sulcate petioles with the margins acute and in turned; moderately coriaceous and weakly glaucescent, ovate-sagittate blades with the apex rounded and weakly emarginate and with a short apiculum, and deeply lobed at base with a parabolic to weakly hippocrepiform sinus; up to seven pairs of basal veins with two free to the base, a bluntly acute midrib, four to five pairs of primary lateral veins, collective veins arising from the first or second pair of primary lateral veins, all conspicuously rosy pink abaxially; and the green to purple-tinged, spreading spathe and the weakly tapered, weakly stipitate, dark purplish violet spadix. All nerves rosy pink on the abaxial leaf blade surface are particularly diagnostic and distinctive although this character might not always be as conspicuous as in the type plant.

In the *Lucid Anthurium Key*, *Anthurium roseonervium* tracks to *A. cordato-triangulum* Matuda, which differs in having much more triangular, gradually acuminate leaf blades; a single pair of free basal veins; broader, nearly arcuate sinus; a broader spathe and more stipitate spadix with scarcely divaricate thecae. It also tracks to two species that share the adaxial rib on the petiole, *A. coicoyanense* Croat & Ávila Blomb, which differs by having a much more triangular blade that is 2.6 times longer than wide and *A. hagsaterianum* Haager, which differs by having a much narrower subcordate blade. In a yet unpublished key to *Anthurium* of Central America (Croat in prep.), the species tracks to *A. titanium*, to which it probably most closely resembles.

Anthurium titanium differs by having merely D-shaped (not V-shaped and deeply sulcate) petioles; much larger, more prominently undulate blades (27–120 cm long by 29–80 cm wide) with an acuminate apex; 7–10 pairs of basal veins; a narrower obovate to hippocrepiform sinus; and an olive-green spadix. Also, none of the species mentioned above has colored veins on the abaxial blade surfaces.

Anthurium roseonervium is a handsome and appealing plant that should be more widely available in the trade. Under 70% shade and regular irrigation in the junior author's garden near Los Angeles, the type plant has compact growth and thick, leathery, stiff, dark bluish green, slightly glaucous leaf blades, which are initially held erect, showing off the conspicuously rosy pink nerves on the abaxially surface to best advantage. These rosy pink nerves are most striking on newly emerged leaves, the color tending to fade slightly as the leaf ages. The type plant has never suffered from lack of water and the thick, slightly glaucous leaf blades suggest it might be tolerant of less water than it has received in the junior author's garden. Considering its likely of southern Mexico origin, this species is amazingly cold hardy, tolerating numerous winter nights

of brief periods of near freezing temperatures and four to five months of cool conditions with no damage, only slowed growth, suggesting a possible montane and/or dry habitat origin. The plant flowers and produces fruits freely, the uncollected fruits dropping to the ground and the seeds frequently germinating beneath the plant.

Acknowledgements

We thank Jesse Villalvazo of Rancho Soledad Nursery and exotic plant collectors Jim Benzie and Walter Frey for providing information about *Anthurium roseonervium* and Michael H. Grayum of the Missouri Botanical Garden for checking the nomenclature.

Literature Cited

- Carlsen, M. and T. B. Croat. 2019. An Analysis of the sectional classification of *Anthurium* (Araceae): comparing Infrageneric groupings and their diagnostic morphology with a molecular phylogeny of the genus. *Ann. Missouri Bot. Gard.* 104: 69–82.
- Croat, T. B. 1983. A revision of the genus *Anthurium* (Araceae) of Mexico and Central America. Part 1: Mexico and Middle America. *Ann. Missouri Bot. Gard.* 70: 211–417.
- Croat, T. B. 1986. A revision of the genus *Anthurium* (Araceae) of Mexico and Central America. Part 2: Panama. *Monogr. Syst. Bot. Missouri Bot. Gard.* 14: 1–204.
- Croat, T. B. 2019. Araceae, a family with great potential. *Ann. Missouri Bot. Gard.* 104: 3–9.
- Croat, T. B. (in prep.). A revision of *Anthurium* for Mexico and Central America (*Flora Mesoamerica*).
- Croat, T.B. and G. S. Bunting. 1979. Standardization of *Anthurium* descriptions. *Aroideana* 2: 15–25.
- Croat, T. B. and R. Hormell. 2017. New Central American species of sect. *Andiphillum* (Araceae) the *Anthurium silvigaudens* Standl. & Steyerl. complex. *Aroideana* 40(1): 117–149.
- Haigh, A., S. J. Mayo, T. B. Croat, and B. R. Clark. 2007. CATE ARACEAE. Ver. 0.7. www.cate-araceae.org.
- Haigh, A., S. J. Mayo, T. B. Croat, L. Reynolds, M. Mora Pinto, P. C. Boyce, L. Lay, J. Bogner, B. Clark, C. Kostelac, and A. Hay. 2009. Interactive web-taxonomy for the *Araceae*. www.cate-araceae.org.
- IUCN 2020. IUCN Red List Categories and Criteria. <https://www.iucnredlist.org/resources/categories-and-criteria> Accessed: 22 July 2020.

Thomas B. Croat is a senior curator at the Missouri Botanical Garden in St. Louis and specializes in the Araceae and is the world authority on *Anthurium*. Thomas.Croat@mobot.org

Donald R. Hodel is the emeritus landscape horticulture advisor for the University of California Cooperative Extension in Los Angeles and specializes in the selection and management of palms and trees. drhodel@ucanr.edu

Text © 2020 by Thomas B. Croat and D. R. Hodel.

Photographs © 2020 by Donald R. Hodel.

Publication Date: 3 August 2020.

PalmArbor: <http://ucanr.edu/sites/HodelPalmsTrees/PalmArbor/>

ISSN 2690-3245

Editor-In-Chief: Donald R. Hodel

Hodel Palms and Trees: <http://ucanr.edu/sites/HodelPalmsTrees/>