Anthurium roquesevillae: A new endemic species from northwestern Pichincha, Metropolitan District of Quito, Ecuador

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ABSTRACT

Anthurium roquesevillae R.Zambrano & Croat (Araceae) is described as new and compared with related species in the genus.

Key words: new species, endemic, *Anthurium*, section *Polyneurium*, Pichincha, Mashpi, Ecuador.

INTRODUCTION

The Province of Pichincha, which includes the Metropolitan District of Quito (DMQ), is recognized as one of the most important and well-documented areas of Ecuador in terms of plant diversity. Since the pioneering work of Luis Sodiro in the late 19th and early 20th centuries, Pichincha has been a focal point for botanical studies, particularly notable for the genus *Anthurium*, of which approximately 120 species have been recorded, 54 of them endemic (Croat, 1999; Croat, 2011; Zambrano & Croat, unpublished data).

Much of the contemporaneous understanding of aroid flora of this area is attributed to researchers such as Carlos Cerón from the QCNE herbarium, who conducted extensive studies and field collections; Grady Webster, who compiled a preliminary checklist of the flora in the Maquipucuna Reserve; and the second author of this article, who, along with Ecuadorian botanists Jaime Jaramillo, Gladys Benavides, and Jimena Rodriguez, has carried out extensive explorations throughout the province, significantly enhancing knowledge of the diversity and distribution of Araceae in the region.

The DMQ, as a central part of Pichincha, plays a critical role in this biodiversity. It is considered one of the most biodiverse territories in the world, with 268,289.08 hectares of vegetation cover that includes key conservation areas (Secretaría de Ambiente, 2023). Among these, the

Mashpi Lodge Reserve, spanning over 2,500 hectares of continuous montane forest, stands out as part of the Tumbes-Chocó-Magdalena biodiversity hotspot. This area is characterized by its remarkable biodiversity and high endemism (Mittermeier et al., 2011). However, urban development, land conversion to pasture, and mining activities pose significant threats, reducing forested areas and compromising this valuable ecological heritage (Zambrano & Croat, 2024).

Recent fieldwork conducted in 2022 by the Jardin Botánico de Quito, in collaboration with the Botanic Gardens Conservation International (BGCI), has further demonstrated the ecological significance of this region. A new and endemic species belonging to the section *Polyneurium* was discovered within the Mashpi Lodge Reserve, underscoring the exceptional and still-underexplored biodiversity of northwestern Pichincha and the DMQ. Despite previous studies, these areas continue to reveal unexpected discoveries, reaffirming their importance as biodiversity epicenters.

Materials and methods

This species has been identified as new using the *Anthurium* Lucid Key which involves comparing a given unknown species with all known published species. This involves the rejection of all species which are negatively correlated after choosing a series of the most conservative characters, then making detailed studies of all possible candidates to be assured that it is not one of those. The tool we are using is a computer-generated key developed by the Royal Botanic Gardens Kew and the Missouri Botanical Garden that contains all important taxonomic characters of all known *Anthurium* species.

Descriptions follow the standard methodology for species of the genus *Anthurium* (Croat and Bunting, 1979). Life zone ecology mentioned is based on the Holdridge life zone maps (Holdridge, 1967). The IUCN status for these species is designated as "Data Deficient" (DD) due to a lack of comprehensive knowledge regarding the species' distribution and the absence of additional documented collections (IUCN, 2023).

NEW SPECIES DESCRIPTION

Anthurium roquesevillae R.Zambrano & Croat **sp. nov.** — Type: ECUADOR. Pichincha: Metropolitan District of Quito, Pacto, Mashpi Lodge Reserve, 00°09'30.7"N 78°52'54.3"W, 879 m, 24 October 2022, *R. Zambrano C., K. Ayala & M. Sulen 72* (holotype, QCA252046).

Diagnosis: The species is a member of *Anthurium* section *Polyneurium* Engl. and is characterized by its epiphytic habit, short internodes, mostly deciduous cataphylls persisting as sparce pale fibers, moderately long, shallowly and broadly sulcate petioles, oblong-narrow-elliptic, brown-drying, gradually acuminate blades, acute at the base and 4–4.5 times longer than wide, 9–11 primary lateral veins per side, collective veins arising near the base, long-pedunculate inflorescence with a spreading, green lanceolate spathe and a very long-stipitate, weakly tapered mostly green spadix and early-emergent red to burgundy berries.

Epiphyte, growing on trees in the understory of the forest; internodes short 0.8–1.5 cm long, 0.9–1.4 cm diam.; cataphylls 5–9 cm long, pale green, deciduous, persisting as sparse fibers in the base; petioles 8.8–12.2 cm long, 3–4 mm diam., shallowly and broadly sulcate; medium

Figure 1: *Anthurium roquesevillae* habit displaying leaves and inflorescences — Photo Karla Ayala

to dark green, weakly glossy, drying brown; geniculum 1.1–1.3 cm long, narrowly and acutely sulcate, drying slightly darker than petiole barely distinguishable. **LEAVES** erect-spreading, arranged in a fan-like pattern (but not distichous); blades oblong narrow-elliptic, 18.6–28.2 cm long, 4.2–7.2 cm wide, 4–4.5 times longer than wide, as long as to 2.3 times longer than petiole, prominently and gradually acuminate at apex with acumen to 0.8–2.1 cm long, attenuate to weakly obtuse at base, subcoriaceous to leathery, dark green and subvelvety to weakly glossy above, pale green and glossy below, densely and concolorously granular above and below, drying brown to yellow-brown above and yellow-brown below, subtly paler; midrib narrowly raised, U-shaped in valleys above, round-raised and paler below, drying concolorous

Figure 2: *Anthurium roquesevillae* abaxial surface of the leaf blade — Photo Karla Ayala

Figure 3: *Anthurium roquesevillae* short internodes with decidures cataphylls — Photo Ricardo Zambrano C.

above, paler below; primary lateral veins 9–11 per side, arising at 30°–40° from midrib and curving toward apex, forming a loop, sunken or weakly quilted-sunken and concolorous above, prominently narrowly raised and concolorous below, drying concolorous and sunken above, slightly paler and raised below; interprimary veins slightly sunken in valley above, barely visible as dark diffuse lines below, drying slightly sunken above and raised below; secondary veins barely visible above, barely visible as dark diffuse lines below, drying slightly sunken above and slightly raised below; tertiary veins not visible above, or below, drying as diffuse sunken lines above and below; fine reticulate veins not visible above, or below, barely visible when dry; collective veins arising near base, prominently sunken above, prominently raised below, to 0.7–0.9 mm from margin, drying sunken above and narrowly raised below; antimarginal vein 3–3.5 mm from margin at the base of the blade, then 1 mm from margin along the rest of the blade length. **INFLORESCENCE** erect; peduncle terete, 26–42 cm long, 2.2–3.5 mm diam., 2.9–3.5 times as longer than petiole, medium green, drying brown; spathe lanceolate, spreading, 3.5–7.2 cm long, 0.9–1.2 cm wide, green and glossy, drying brown; stipe long, terete, 3.3–3.5 cm long, 1.3-2.4 mm diam., medium green, drying brown; spadix cylindric, 3.7–5.9 cm long, 4–5 mm diam., yellow, turning yellow-green to green when mature, semiglossy, drying dark brown; flowers 3 visible per spiral, 1.8–1.9 mm long, 2.8–3 mm wide; lateral tepals 1.4 mm wide, inner margin more or less straight, outer margin 2-sided; stamens minute, drying appressed to the pistil at the level of the tepals, 1 mm long, 1.2 mm wide, pollen not seen; pistils weakly emergent. **INFRUCTESCENCE** 7 cm long, 6.3 mm in diam.,

Figure 4: *Anthurium roquesevillae* immature inflorescence showing a green spathe, long stipe and yellow-green spadix — Photo Karla Ayala

Figure 5: *Anthurium roquesevillae* infructescence with early-emergent burgundy berries — Photo Karla Ayala

Figure 6: *Anthurium roquesevillae* — Type herbarium specimen (Ricardo Zambrano C. 72). It displays one inflorescence and one infructescence along with two leaves: both leaves showing sections of the adaxial surface and the abaxial surface.

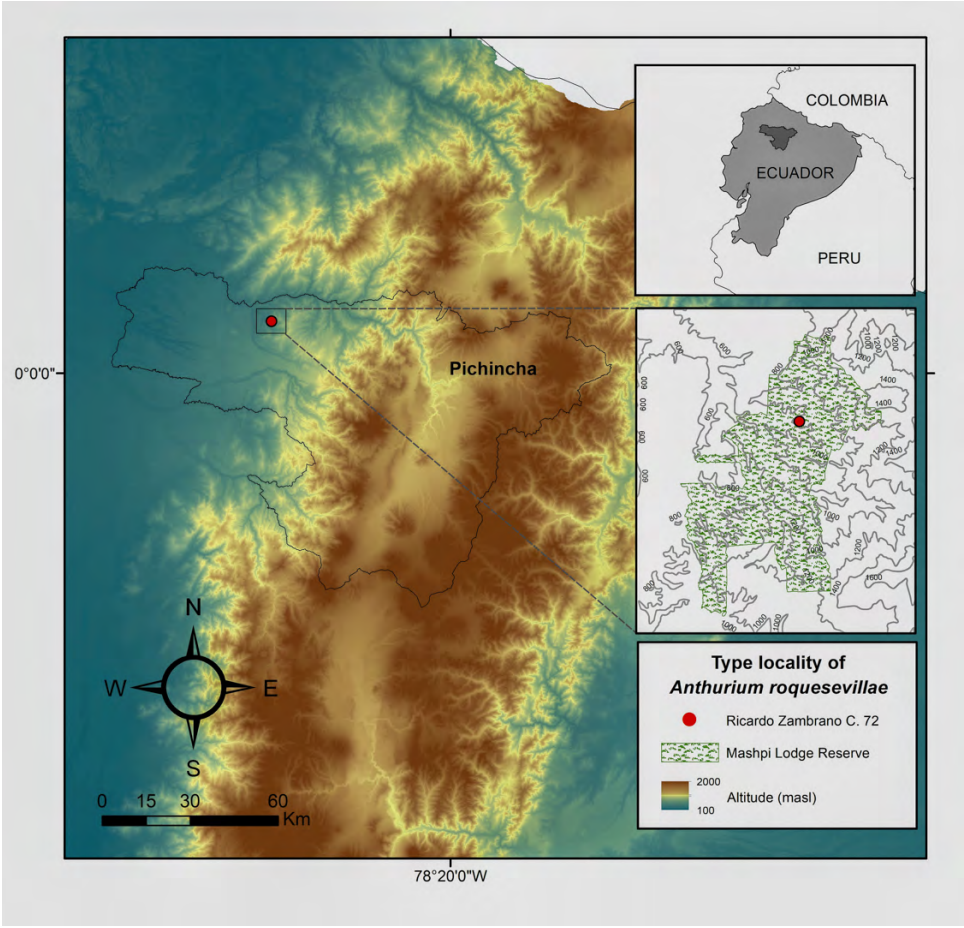

Figure 7: Map showing the known distribution of *Anthurium roquesevillae* within the Mashpi Lodge Reserve, located in Northwestern Pichincha — Map Ricardo Zambrano C. and A. Villarreal.

green, drying brown; berries emergent, obovoid, dark red or burgundy, tinged with greenish hues at the tip; seeds two, discoidal 3.1–3.3 mm in diam.

Distribution — *Anthurium roquesevillae* is endemic to Ecuador and is only known from its type locality in the Mashpi Lodge Reserve at 1,560 m within a *Premontane Rain Forest* life zone.

Etymology — The species is named in honor of Roque Sevilla, a prominent Ecuadorian environmentalist and entrepreneur. As a visionary in conservation, Sevilla spearheaded the creation and protection of Mashpi Lodge Reserve, where this species was discovered. His dedication to sustainability and biodiversity has been instrumental in preserving critical ecosystems in Ecuador. Mashpi Lodge exemplifies Sevilla's commitment to integrating

conservation with sustainable tourism, providing a sanctuary for research and the discovery of new species. Naming this species after him acknowledges his unwavering efforts to protect Ecuador's natural heritage and foster scientific exploration in one of the world's most biodiverse regions.

Comments — The species is a member of section *Polyneurium* differentiated by thin leaf blades with numerous moderately well-spaced primary lateral veins, and short internodes. Perhaps the species is most closely related to *Anthurium lygrum* R.E.Schult. ex Croat & D.C.Bay, which differs by having petioles that are sharply 3-ribbed abaxially and a short-stipitate spadix (2–3 mm stipitate). While many other species were suggested in the *Anthurium* Lucid Key, all differed in having conspicuously different leaf shapes or well-developed posterior lobes.

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