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# *Anthurium sagrilloanum*: A New Species of *Anthurium* (Araceae) from Southeastern Brazil

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**ABSTRACT.** During a floristic survey of Araceae in the Atlantic Forest of Espírito Santo State, southeastern Brazil, we found an intriguing, unknown species of *Anthurium* Schott with cordate leaves. Here, we describe and illustrate the new species, *A. sagrilloanum* Theófilo & T. F. Sagrillo, and also provide comments on its ecology and distribution.

**Key words:** *Anthurium*, Araceae, Atlantic Forest, Brazil, Espírito Santo, section *Urospadix*.

The genus *Anthurium* Schott (Araceae) comprises about 950 species and is restricted to the Neotropics (Boyce & Croat, 2011 onward). It includes terrestrial and epiphytic representatives and can be found in extreme environments, like rocky outcrops and swamps (Coelho et al., 2009). In Brazil, 137 species are recorded, of which about 80% are endemic (Flora do Brasil, 2020 under construction). Most species (93) occur in the Atlantic Forest, especially in the states of Rio de Janeiro, Espírito Santo, São Paulo, and Minas Gerais (BFG, 2018).

The fragmented Atlantic Forest suffers from continued deforestation (Fundação SOS Mata Atlântica & INPE, 2017) and limited resources available for species conservation (e.g., Oliveira et al., 2017). Several recently described species were automatically included in the Red List (e.g., Valadares & Sakuragui, 2014) and are known only from the type localities, which often correspond to tiny fragments (< 1 ha), outside of protected areas.

This scenario is most alarming in Espírito Santo State, a refuge for 12 endemic species, including taxa that occur exclusively outside protected areas (e.g., *Anthurium viridispathum* E. G. Gonçalves, *A. martinellii* Nadruz & Theófilo). Recently, fieldwork in the fragments of Atlantic Forest in this region resulted in a collection of several puzzling rupicolous aroid species. One of those has proven to be a previously undiscovered species of *Anthurium*. Here, we provide a description

and illustrations of morphological diagnostic characters, as well as comments on the ecology and conservation of this new species.

## METHODS

The study included analysis of herbarium materials and holotype images from herbaria including CVRD, MBM, MBML, RB, UB, and VIES. Morphological analysis was performed using a stereoscope. Colors of vegetative and reproductive structures were recorded from observations in the field and are presented according to Coelho et al. (2009). The floral and vegetative character descriptions follow Croat and Bunting (1979), Stearn (1993), and Mantovani et al. (2009).

## TAXONOMIC TREATMENT

***Anthurium sagrilloanum*** Theófilo & T. F. Sagrillo, sp. nov. TYPE: Brazil, Espírito Santo State: Aracruz, Parque Natural Municipal do Aricanga Waldemar Devens, 19°49'09.4"S, 40°19'53.7"W, 443 m, 29 Apr. 2018, T. F. Sagrillo, J. F. Sagrillo & R. T. Valadares 410 (holotype, MBML; isotypes, RB!, VIES!). Figure 1.

**Diagnosis.** *Anthurium sagrilloanum* Theófilo & T. F. Sagrillo differs from *A. xanthophylloides* G. M. Barroso in having a stem up to 1.5 m (vs. 30 cm) long, internodes 1.3–2.4 cm (vs. 0.3–0.5 cm) long, geniculum 0.6–2.5 cm (vs. 3–3.5 cm) long, leaf blade green (vs. gray-green), sinus absent or triangular (vs. parabolic), spathe greenish to brownish (vs. gray-greenish to yellowish), and pistils not emergent.

Rupicolous or terrestrial herb; stem up to 1.5 m, erect to decumbent; internodes 1.3–2.4 cm; prophylls and cataphylls 2.9–10.7 cm, greenish when young, chestnut or brownish to greenish when old, persistent and entire at stem apex, deciduous at stem base. Leaves not pettate; sheath 2.7–6.2 cm, not ligulate; petiole erect, 14.2–81.5 × 0.9–1 cm, greenish, U-shaped, flattened to slightly concave adaxially with acute margins,

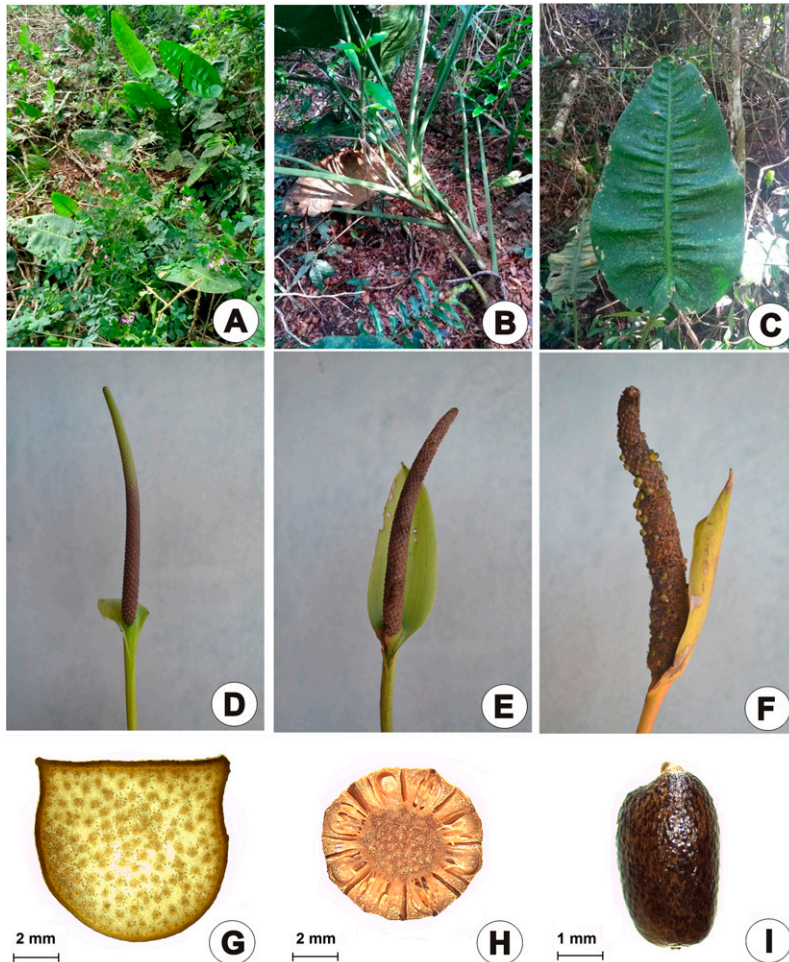


Figure 1. *Anthurium sagrilloanum* Theófilo & T. F. Sagrillo. —A. Habit. —B. Stem. —C. Leaf blade. —D. Inflorescence in female anthesis. —E. Inflorescence in male anthesis. —F. Infruitescence. —G. Petiole in cross section. —H. Inflorescence in cross section. —I. Seed.

rounded abaxially, covered with raphides, without glandular punctations; geniculum 0.6–2.5 cm, clear matte green when fresh, drying blacker than rest of petiole, flattened to slightly concave adaxially, with acute margins, rounded abaxially, without glandular punctations; leaf blade erect, ovate to oblong-ovate, 30–49.8 × 12.5–31.2 cm, coriaceous; apex acute to obtuse or mucronate; base cordate; adaxial surface green, drying medium brown to medium green and densely covered with raphides; abaxial surface light green and matte, drying pale green, without glandular punctations; anterior lobe 30–49.8 cm; posterior lobes 2.1–7.2 cm, imbricate or not, rounded at apex, sinus absent to triangular; midrib greenish and lighter than blade adaxially, flattened at base, rounded and prominent at apex adaxially, rounded and prominent abaxially; basal veins 2 to 4, all free to base; primary lateral veins 14 to 24 on

both sides, obscured to prominent adaxially when fresh, raised below abaxially when fresh, arched, 0.5–2.4 cm from margin, interprimary veins barely distinct from primary lateral veins. Inflorescence with peduncle greenish, erect, terete, 38.5–72.5 × 0.55–0.9 cm, covered with raphides, glandular punctations absent; geniculum absent; peduncle:petiole ratio 0.8–2.7:1; spathe naviculate, oblong or ovate to lanceolate, 5–10.5 × 1–3.9 cm, coriaceous and greenish when fresh, coriaceous and brownish when dry, decurrent at base for 0.5–2.5 cm, rostrate to acuminate at apex, erect in pre-anthesis, reflexed in anthesis, deflexed in fruit, pustules absent, both surfaces densely covered with white speckles, forming a straight to acute angle with peduncle; spadix sessile, tapered, 5.2–15.7 × 0.7–1 cm, gray-greenish in pre-anthesis, purplish in anthesis, pale greenish to brownish in fruit; 4 to 6 flowers visible

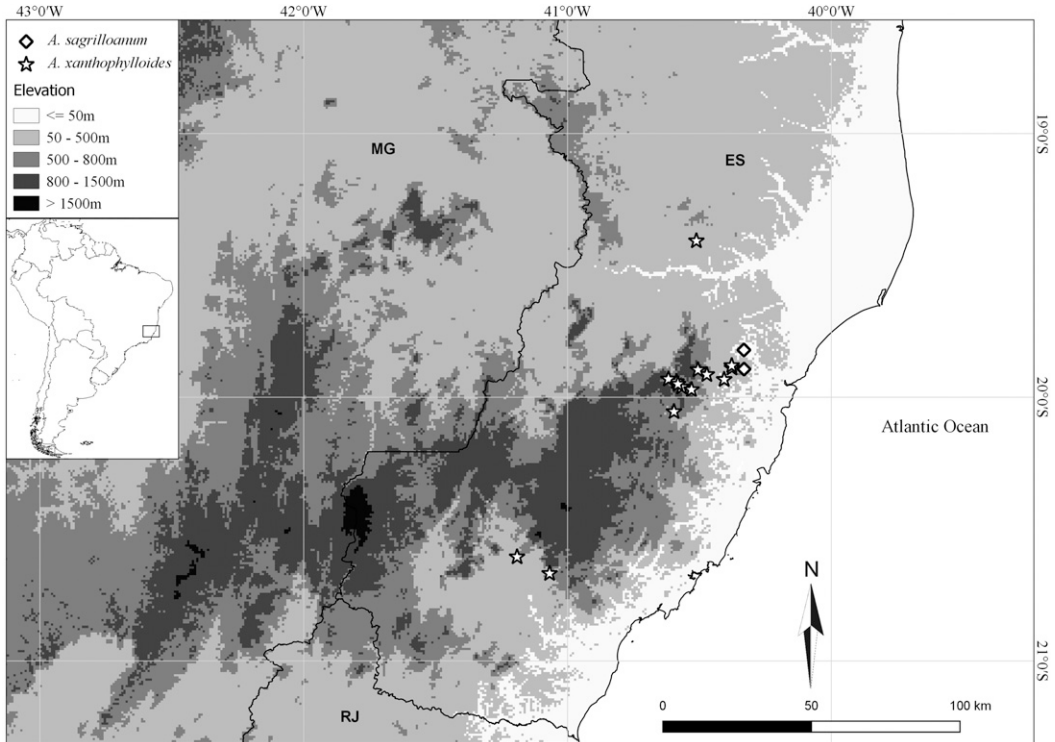


Figure 2. Distribution of *Anthurium sagrilloanum* Theófilo & T. F. Sagrillo and *A. xanthophylloides* G. M. Barroso.

per principal spiral, 7 to 10 visible per secondary spiral. Flowers rhombic; tepals greenish in pre-anthesis, purplish in anthesis, brownish post-anthesis, dorsally acute, internally convex; lateral tepals  $1.77\text{--}1.98 \times 1.65\text{--}1.78$  mm; anterior/posterior tepals  $1.7\text{--}1.98 \times 1.14\text{--}1.3$  mm; stamens emerging in a scattered manner, laterals first followed quickly by alternates; filaments flattened, not striated,  $1.99\text{--}2.01 \times 0.35\text{--}0.48$  mm; anthers dorsifixed, extrorse,  $0.55\text{--}0.59 \times 0.62\text{--}0.74$  mm; pistils purplish, oblong, not emergent, mesophyll with raphides; stigma sessile, rounded, unicellular secretory trichomes extending up to stylar canal; ovary bilocular,  $1.85\text{--}2.03 \times 0.64\text{--}0.97$  mm, 1 ovule per locule, with axial placentation; funicle with trichomes. Inflorescence with berries greenish at apex, translucent to whitish at base, oblong to globose,  $0.6\text{--}0.8 \times 0.5\text{--}0.55$  cm; mesocarp mucilaginous with elongate raphides; seeds black-brown marbled, oblong in outline with convex faces,  $0.35\text{--}0.4 \times 0.23\text{--}0.26$  cm, with rough surface.

**Habitat and distribution.** *Anthurium sagrilloanum* was found in inselbergs associated with Atlantic Forest fragments in Espírito Santo State, Brazil, in submontane, dense, ombrophilous forest at 400–450 m (Veloso et al., 1991) (Fig. 2). The species occurs preferentially on shaded rocky outcrops. In field observations, the population size was about 100 individuals, growing scattered or forming small groups.

**Conservation status.** The species is considered as Data Deficient (DD) according to the International Union for Conservation of Nature criteria (IUCN, 2012) until more information becomes available. One of the populations is protected in a conservation unit (Parque Natural Municipal do Aricanga Waldemar Devens) and the other (Picuã) is included within “Serra do Cavallo,” an underexplored region consisting of inselbergs within farms. The Brazilian conservation policy suggests that non-threatened species lacking abundance and distribution data should be categorized as Data Deficient (DD) in order to be prioritized in research and conservation projects (Martinelli & Moraes, 2013).

**Etymology.** The species is named after José Francisco Sagrillo for his enormous contribution to the knowledge of native plants in the Aricanga region.

**Discussion.** *Anthurium sagrilloanum* is very similar to *A. xanthophylloides*, but that species has a stem up to only 30 cm long with internodes 0.3–0.5 cm long, the geniculum 3–3.5 cm long, gray-green leaf blades with a parabolic sinus, a gray-greenish to yellowish spathe, and emergent pistils. Both species occur in rocky outcrops with high declivity, but *A. xanthophylloides* can be found up to 500–800 m, whereas *A. sagrilloanum* occurs at 400–450 m.

Initially, Barroso (1970) placed *Anthurium xanthophylloides* in section *Cardiolonchium* (Schott) Engl. However, Gonçalves and Salviani (2001) argued that this taxon should belong to section *Pachyneurium* (Schott) Engl. because of its involute vernation and robust primary lateral veins. Our interpretation points to a different direction. Like *A. sagrilloanum*, *A. xanthophylloides* has trichomes in the funicle, a character argued by Temponi (2006) to be a possible synapomorphy for species in section *Urospadix* Engl. Temponi also sampled *A. xanthophylloides* in her molecular phylogeny, and the species came out with all other Brazilian anthuriums in section *Urospadix*, not with section *Pachyneurium* species. Another argument that distances both species from section *Pachyneurium* is the presence of brochidodromous venation, versus eucamptodromous in *Pachyneurium*. Thus, we prefer to include *A. sagrilloanum* in section *Urospadix*.

**Paratypes.** BRAZIL. **Espírito Santo:** Aracruz, Picuã, 19°53'38.0"S, 40°19'44.0"W, 410 m, 4 June 2011, C. L. Dalmonech & T. F. Sagrillo 48 (MBML); 16 July 2011, C. L. Dalmonech, A. M. Assis & T. F. Sagrillo 62 (MBML); C. L. Dalmonech, A. M. Assis & T. F. Sagrillo 73 (MBML); C. L. Dalmonech, A. M. Assis & T. F. Sagrillo 84 (MBML); C. L. Dalmonech, A. M. Assis & T. F. Sagrillo 85 (MBML); s.d., T. F. Sagrillo, A. M. Assis & C. L. Dalmonech 01a (MBML).

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