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## Rediscovery of a lost type: solving the mysterious identity of *Amorphophallus longispathaceus* Engl. & Gehrm. (Araceae)

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**Abstract.** The taxonomic identity of the incompletely described *Amorphophallus longispathaceus* Engl. & Gehrm. has been a mystery for almost 109 years. Types were assumed destroyed during WWII, other than a sterile isotype at K, the recent discovery of a fertile isotype at NY, here designated the lectotype, has enabled the identity of this species to be clarified. *Amorphophallus longispathaceus* is conspecific with and takes priority over the more recent *A. dactylifer* Hett.

**Keywords:** Araceae, *Amorphophallus*, typification, Luzon, Mt. Apo, nomenclature.

### INTRODUCTION

There are currently 17 species of *Amorphophallus* recognized for the Philippines (Pelser et al. 2011 onwards). Among these, three species whose holotypes were destroyed during WWII, remain poorly known *viz.*, *Amorphophallus luzoniensis* Merr., *A. merrillii* K.Krause, and *A. longispathaceus* Engl. & Gehrm. *Amorphophallus luzoniensis* was described using a specimen from Abulug river, Cagayan province (Merrill 1915). Duplicates of its destroyed holotype, *Curran 19560*, are still being searched for, and up to this writing, the identity of this species remains uncertain. A similar situation exists for *Amorphophallus merrillii* which was collected from Cavili island, Palawan province (Krause 1912), and its identity is presently being studied by the first author. *Amorphophallus longispathaceus* was described using a specimen from Todaya, Mt. Apo in Mindanao (Engler 1911). The protologue of this species was insufficient for confident identification with any known *Amorphophallus* species in the Philippines. Its holotype (*R.S. Williams 2684* [wrongly quoted by Engler as 2654, the correct number mentioned by Merrill 1923 in: Enum. Philipp. Flow. Plants I: 179]) in PNH was destroyed during WWII. In Hetterscheid et al. (2020) an isotype is mentioned, which is

preserved in K. However, this is just a leaf fragment and proved insufficient for the authors to associate with any of the known or unidentified species in the Philippines. The protologue by Engl. & Gehrm. in Engl., *Araceae-Lasioideae*. *Das Pflanzenr.* IV. 23C, 1911: 91, does not unequivocally identify any Philippine species known to date. Therefore, Hetterscheid et al. 2020 decided to not consider this name in their paper. But fortunately, an isotype of *Amorphophallus longispathaceus* was discovered recently by the first author in NY, solving the mystery behind its almost forgotten name and identity.

We here designate the NY sheet of R.S. Williams 2684 with the inflorescence as the lectotype of the name *A. longispathaceus* following article 9.3 and 9.12 of the Shenzhen Code (Turland et al. 2017). The rediscovered isotype contains a full inflorescence and closely matches the more recent *Amorphophallus dactylifer* Hett. which we now place in the synonymy of the older name. Meanwhile, the second sheet at NY with the same number but with a leaf fragment is not included in the lectotype choice (here designated as paratype) because it is a separate gathering of another plant, since in this species (and most others of the genus) leaf and inflorescence do not appear simultaneously on the same plant. We do acknowledge though that it is indeed an original material, and taxonomically it is quite certain that it is the leaf of the same species. An updated description of *Amorphophallus longispathaceus* is provided using the protologue of *A. dactylifer* (Hetterscheid 1994) including a supplementary description by Magtoto et al. 2013, and observations from live specimens.

#### TAXONOMIC TREATMENT

***Amorphophallus longispathaceus*** Engl. & Gehrm. in Engl. *Araceae-Lasioideae*. *Pflanzenr.* IV. 23C, 1911: 91

Type: Todaya, Mt. Apo, Mindanao, Philippines, 05 April 1905. R.S. Williams 2684 [holotype; PNH (lost); iso, K! (leaf fragment), NY!; lectotype here designated: R.S. Williams 2684, New York Botanical Garden Herbarium sheet NY03774120 (Figures 1 & 2), NY!; paratypes, R.S. Williams 2684, NYBG sheet NY03774118 (Figure 3)].

(=) *Amorphophallus dactylifer* Hett. in *Blumea* 39(1/2), 1994: 252, **syn. nov.**

Type: Luzon, San Mariano, Isabela, Sierra Madre Mts., Bo. Disulap, undergrowth in Nabulay Forest, Philippines, 18 May 1961. H.G. Gutierrez PNH 78180 (holotype, L).

#### Description

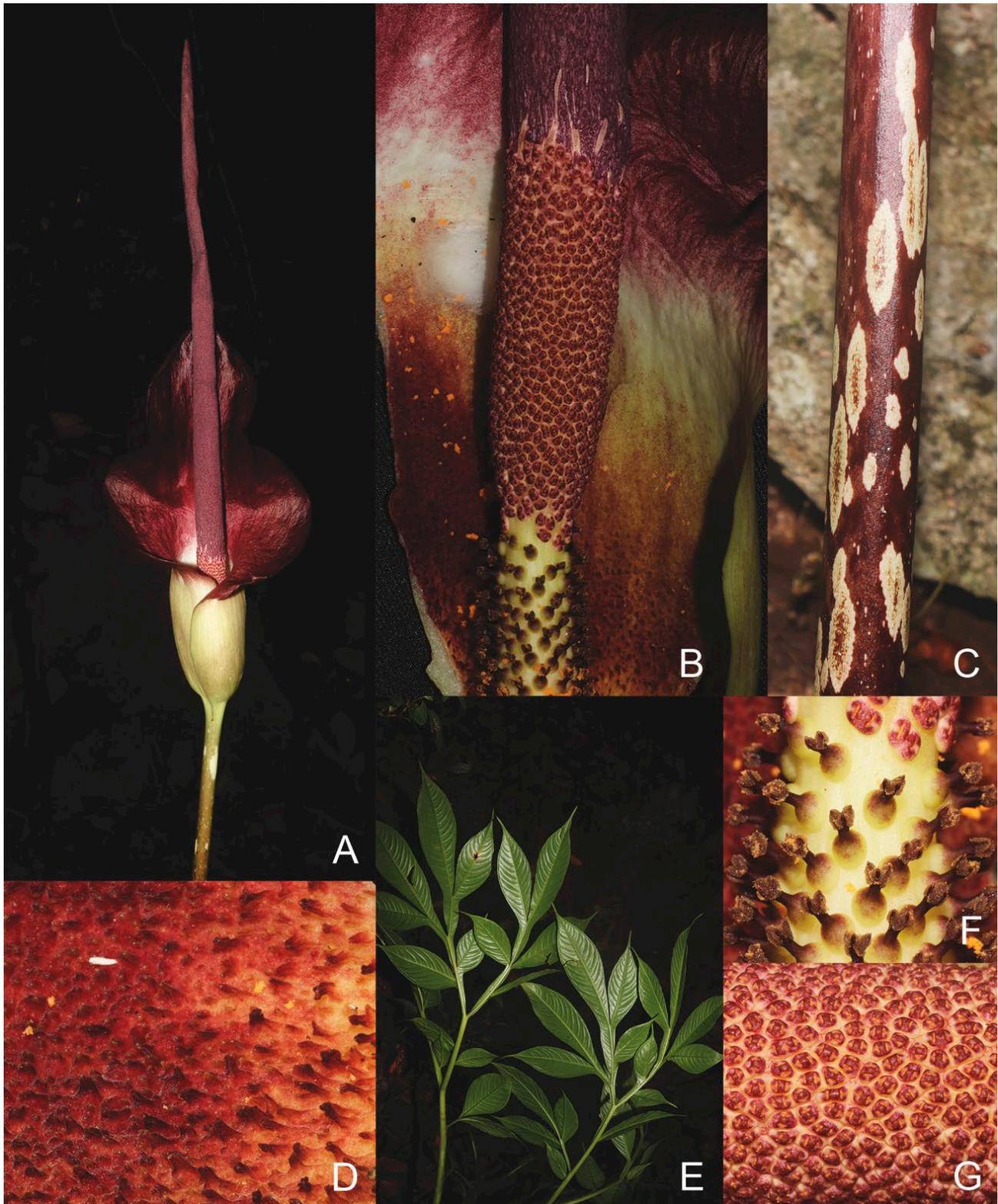
*Tuber* depressed globose, 3–9 cm long × 7–16 cm wide. *Leaf* solitary, lamina diameter ca. 180 cm; *petiole* background color greyish green (light to dark reddish when young), ca. 140 cm long × 2–6 cm wide, smooth; *petiole* markings elongate-elliptic with whitish or green spots, the latter with a whitish margin, those at the base of the petiole strongly raised, crust-like, upper part of petiole with obscure, dark reddish brown, narrowly elliptic to near linear spots; *rachis* winged distally from the basal branching, basal part naked with a few petiolulate leaflets; *leaflets* elliptic or elliptic-lanceolate, 16–18 cm long × 5–6 cm wide, long acuminate (acumen up to 3 cm long). *Inflorescence* solitary, long peduncled; *peduncle* almost the same coloration and marking with petiole, 60–130 cm long × 1–3.5 cm wide; *spathe* campanulate, 30–38 cm long × 12–20 cm wide, elongate triangular, acute, base strongly convolute, limb arching over; outside of spathe brown with white spots, smooth, entire, membranaceous; inside of base dark purple with pale upper part, densely clothed with short and long, simple or branched, fleshy or flaky, purple to reddish or brown finger-like warts, especially near the base of the spadix. *Spadix* sessile, at most twice as long as the spathe, 42–60 cm long × 2–3 cm wide; *female zone* cylindrical, 4–8.5 cm long × 2–4 cm wide, flowers slightly distant; *male zone* elongate obconic or cylindrical, 4.5–6.5 cm long × 1.5–3 cm wide at the top, flowers congested; *appendix* elongate conic, top obtuse, acute or subacute, 31–46 cm long × 2–3 cm wide at the base, gradually tapering to the tip, smooth, dark brownish, red or purple. *Ovaries* subglobose or depressed globose, 2–2.5 mm long × 2–3 mm wide, unilocular; *style* reddish or brown, 2–5 mm long × 0.8–1 mm wide; *stigma* large, brown or dark red, 1–1.5 mm long × ca. 2 mm wide, oval in cross section, shallowly or deeply 2- or 3-lobed, lobes rounded or conic, appearing claw-like, surface with numerous large conic fleshy projections. *Male flowers* consisting of 2–3(–5) stamens; *stamens* reddish, 1–1.5 mm long; *filaments* 0.1–0.5 mm long, connate; *anthers* ca. 1 × 1.5–2.5 mm, truncate, pores apical, elongate. *Pollen* psilate.

#### Distribution

Philippines: Luzon, Sierra Madre Mountains, San Mariano, Bo. Disulap, ca. 152 m (Hetterscheid 1994), Municipality of Palanan, Isabela Province (J.M. Agcaoili pers. obs.); Mt. Makiling, Los Banos, Laguna Province; San Narciso, Zambales Province; Visayas, Samar; Mindanao Todaya, Mt. Apo; Mt. Kabatuan, Surigao Province (Hetterscheid 1994).



**Figure 1.** Lectotype of *Amorphophallus longispathaceus* Engl. & Gehrm. (NY03774120). (Image courtesy of the C.V. Starr Virtual Herbarium of the New York Botanical Garden <http://sweetgum.nybg.org/science/vh/>). E-loan No.: 25991.



**Figure 2.** “*Amorphophallus dactylifer* Hett.” i.e. *A. longispathaceus* Engl. & Gehrm. from Palanan, Isabela, Luzon Island, Philippines. A. Inflorescence; B. Details of the male and female zones; C. Peduncle detail; D. Inside detail of the spathe base; E. Leaves; F. Detail of stigmas, styles and ovaries; G. Detail of the stamens. (Photos by J.M. Agcaoli).



**Figure 3.** Paratype of *Amorphophallus longispathaceus* Engl. & Gehrm. (NY03774118). (Image courtesy of the C.V. Starr Virtual Herbarium of the New York Botanical Garden <http://sweetgum.nybg.org/science/vh/>). E-loan No.: 25991.

*Phenology*

Flowering: June–July; Fruiting: late July–August.

*Notes*

The lectotype of *Amorphophallus longispathaceus* is clearly identifiable as *A. dactylifer* with the peduncle much longer than spathe, style longer than 2 mm, spathe almost as broad as long, and the spadix at most twice as long as the spathe.

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