AMORPHOPHALLUS BONACCORDENSIS,
A NEW SPECIES OF ARACEAE FROM INDIA

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SUMMARY

*Amorphophallus bonaccordensis*, a new species belonging to *Amorphophallus* sect. *Rhaphiophallus* of the family Araceae, is described from India. The section is characterized by the presence of a zone of neuter flowers between the pistillate and staminate zones.

INTRODUCTION

A recent plant collection trip to Agasthyamala Hills on the southern end of Western Ghats in Trivandrum District of Kerala State, India, yielded another new species of *Amorphophallus*, belonging to sect. *Rhaphiophallus* (Schott) Engl., and characterized by the presence of a zone of neuter flowers between pistillate and staminate zones.

DESCRIPTION

*A* *bonaccordensis* Sivad. & Mohanan, spec. nov. — Figs. 1, 2

*A hohenackeri* affinis, a qua imprimit differt marginibus basi spathae convolutis, limbo spathae expanso, spathae inter limbum et tubum leviter constricta, appendice spadicis cylindrica, floribus masculinis 2–5-andri insidentibus contextui albo pulvinato. — Typus: Mohanan TBG & RI 8219 (K holo; CAL, M, TBTGT, US iso), India, Kerala State, Trivandrum Dist., Bonaccord on Agathyamala Hill ranges, 700 m, 20-iv-1990.

*Corms* subglobose, 4–8 cm diam., 2.5 cm thick. *Leaf* trichotomously decompound with petiole cylindric, 30–75 cm long, 0.8–1.6 cm diam. at base, slightly tapering to the tip, smooth, green with dark greenish brown mottles, the latter fewer towards the top portion; rachis of the segments 15–20 cm long, 0.6–0.8 cm thick at base, 0.3–0.5 cm thick at tip, shallowly channeled above and with decurrent leaf bases; *leaflets* sessile, ovate to oblong, acuminate at apex, acute at base, base unequal and decurrent on rachis, greenish above, paler below, margin wavy, varying in size from 6–13 cm in length and 3–6.5 cm in width; primary veins 15–20 pairs, closely parallel, united below the margin forming a submarginal collective vein. *Stolons* are produced from the corms of the fertile individuals; stolons cylindric, 4–5 cm long, 0.4–
Fig. 1. *Amorphophallus bonaccordensis* Sivad. & Mohanan. A: Habit, vegetative state; B: a portion of leaflet-margin; C: habit, reproductive state.
Fig. 2. *Amorphallus bonaccordensis* Sivad. & Mohanan. D: Inflorescence; E: pistillate flower; F: pistillate flower, vertical section; G: pistillate flower, cross section; H: staminate portion of spadix, cross section; I: single stamen, view from broad side; J: stamen, vertical section; K: stamen, view from top; L: stamen, cross section. — sa = spadix-appendix; φ = pistillate zone; δ = staminate zone; ω = barren spadix axis; ϕ = zone with neuter flowers.
0.7 cm diam., nodes with thin scale leaves and few root primordia. Inflorescence with peduncle cylindric, smooth, 30–75 cm high, 1–1.6 cm diam. at base, gradually narrowed to the tip; identical with petiole in colour and pattern of mottles; spathe ovate-oblong, 12–22 cm long, differentiated into a basal convolute tube and an upper expanded limb with a shallow constriction in between, tip shortly acuminate, 2.5–3.5 cm diam. at convolute base, 2–3 cm diam. at the constriction, and 3–3.5 cm diam. just above the constriction. Spadix stipitate, 9–18 cm long; stipe to 0.5–1 cm long, 0.5–0.6 cm diam., light greenish; basal portion of 2–3.5 cm of the spadix occupied with pistillate flowers, middle 1–1.5 cm with neuter flowers, upper 3–3.5 cm with staminate flowers, and terminal 4.5–10 cm produced into a sterile cylindric barren appendix; a barren naked zone of 0.2–0.3 cm present between the zones with pistillate and with neuter flowers, respectively. Pistillate flowers subspirally arranged; ovary sessile, subglobose, 0.18–0.2 cm high, 0.2–0.3 cm diam., greenish, 2- or 3-loculed, each locule with one subbasal ovule; unicellular trichomes present on funicle and on placenta around the area of funicular attachment; style very short, cylindric, 0.5–0.8 mm long, 0.8–1 mm diam.; stigma 2- or 3-lobed, covered with short unicellular papillae, cream-coloured, brownish on ageing; neuter flowers in 1–3 rows, creamy white in colour, obovoid, 0.2–0.3 cm diam., few appear to be transitional to the staminate flowers. Staminate flowers closely arranged, each composed of 2–5 stamens borne on a white cushion-like tissue of 0.8–1 mm thickness; each stamen 0.1–0.13 cm high, inconspicuously 2-lobed; thecae dehisce by narrow apical horizontal slits; spadix-appendix cylindric, 4.5–10 cm long, 0.8–1 cm diam., rounded at apex, cream in colour, smooth except rarely at the base where it may bear some very shallow rhomboidally oriented projections; becomes warty on ageing; infructescence not observed.

Etymology – The specific epithet is indicative of the name of the type locality.

Distribution – The species is hitherto known only from the type locality.

INTERRELATIONSHIPS

Other Indian species hitherto known as belonging to Amorphophallus sect. Rhaphiophallus are A. hohenackeri (Schott) Engl. & Gehrm., A. margaritifer (Roxb.) Kunth, A. mysorensis Barnes & Fischer (1939), A. sylvaticus (Roxb.) Kunth, A. smithsonianus Sivad. (Sivadasan, 1989), and A. konkanensis Hett., Yadav & Patil (Hetterscheid et al., 1994).

Engler (1911), in his revision of the genus, had treated A. hohenackeri and A. sylvaticus under two separate sections, viz. sect. Rhaphiophallus and sect. Synantherias, respectively. Amorphophallus margaritifer was treated under the genus Plesmonium Schott. Amorphophallus bonaccordensis closely resembles A. hohenackeri in its general morphological features, but in the latter species the mature spathe is completely open throughout its length without a basal convolute tubular portion; the limb of the spathe is ovate-lanceolate with subacuminate tip; the spadix-appendix tapers to the tip and reaches almost to the top of the spathe. In A. bonaccordensis the spathe is ovate-oblong, with a prominent basal convolute tubular portion separated from the oblong limb by a slight constriction. The spadix-appendix is cylindric with round tip and is
much shorter than the spathe, and never reaches the tip of the spathe. Another most
significant character noted is the nature of the stamens which are found in groups of
2–5, borne on a white cushion-like tissue.

The presence of a barren axis between the pistillate and neuter zones is of much
significance in the presumed evolution of Amorphophallus sect. Rhaphiophallus. In
A. longiconnectivus Bogner & Mayo, a new species from Central India to be pub-
lished shortly (Mayo, pers. comm.) there is a zone of barren axis of the spadix be-
tween the pistillate and staminate zones without any neuter flowers. This condition is
presumed to have evolved by the complete reduction or elimination of neuter flowers
as evidenced by intermediate members as A. bonaccordensis, where both a short bar-
ren axis and few neuter flowers are present.

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