



## *Pothos boyceanus* (Araceae), a new species from the Western Ghats, India

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**ABSTRACT:** *Pothos boyceanus* sp. nov. (Araceae) of the subgenus *Allopothos* (sensu Schott, 1855) has been discovered from the evergreen forests of Valara in Idukki district of Kerala, India. The species has a close affinity with *Pothos crassipedunculatus* Sivadasan, Mohanan & Sathishkumar, but differs in a set of characters including the presence of a ligule, long winged petiole, asymmetric lamina, long single cataphyll, slender peduncle, presence of a stipe, long cylindrical spadix with a lorate spathe equal to the length of spadix and 1–3 seeded ovate berry ripening milky white at base and light violet towards tip.

**KEY WORDS:** *Allopothos*, Araceae, India, Kerala, new species, *Pothos*, *Pothos boyceanus*, Western Ghats.

### INTRODUCTION

The genus *Pothos* L. with about 75 species represents the climbing aroids, mostly distributed in the Madagascar to Indo-Malaysian region, with lesser representation in China (north to Hubei), Western Oceania (east to Vanuatu), and Australia from south to eastern Queensland and eastern New South Wales (Mayo *et al.*, 1997; Hay, 1995; Boyce and Hay, 2001; Li and Boyce, 2010). The genus was originally erected by Linnaeus (1753) and was subsequently refined into its present conceptualization by Schott (1832, 1853, 1855, 1860) who established two subgenera, *Pothos* ('*Eupothos*') and *Allopothos* based on the branching pattern, leaf shape and inflorescence position. Engler (1905) further subdivided Schott's subgenera (calling them sections) into seven series based on inflorescence and flowering shoot characters.

Based on our field studies and a perusal of literature (Hooker, 1894; Karthikeyan *et al.*, 1989; Sivadasan *et al.*, 1989; Pandurangan and Nair, 1994; Sasikala and Reemakumari, 2013), it is stated that there are 11 species and two varieties in the genus *Pothos* in India, of which six species including five endemic are represented in the Western Ghats region (Nayar, 2014); in Kerala, there are five species including four endemics (Nayar *et al.*, 2006; Robi *et al.*, 2008).

During floristic explorations, the authors have observed a species of *Pothos* from the evergreen forests of Valara, in Idukki district, Kerala, India which on detailed taxonomic evaluation has proved distinct and do not match with any of the hitherto described species. It has a close affinity with *Pothos crassipedunculatus* Sivadasan *et al.* but differs with a set of characters including presence of a ligule, long winged petiole, asymmetric lamina, long single cataphyll, slender peduncle, presence of a stipe, long cylindrical spadix with a lorate spathe equal to the length of spadix and ovoid,

1–3 seeded berry ripening milky white at base and light violet towards tip.

The present species belongs to the subgenus *Allopothos* (sensu Schott, 1855) due to the presence of the characteristic terminal inflorescence, stipitate spadix, canaliculate and sheathing petiole with a geniculum at the tip, just below the leaf blade. The closely related species *Pothos crassipedunculatus* is compared with the new species in Table 1. Including the present species, the genus *Pothos* is represented by 12 species and two varieties in India.

A description of the new species is provided along with a photo plate and drawing for easy identification. The voucher specimens including holotype and paratype are deposited in TBGT and the isotype is placed in MH.

### TAXONOMIC TREATMENT

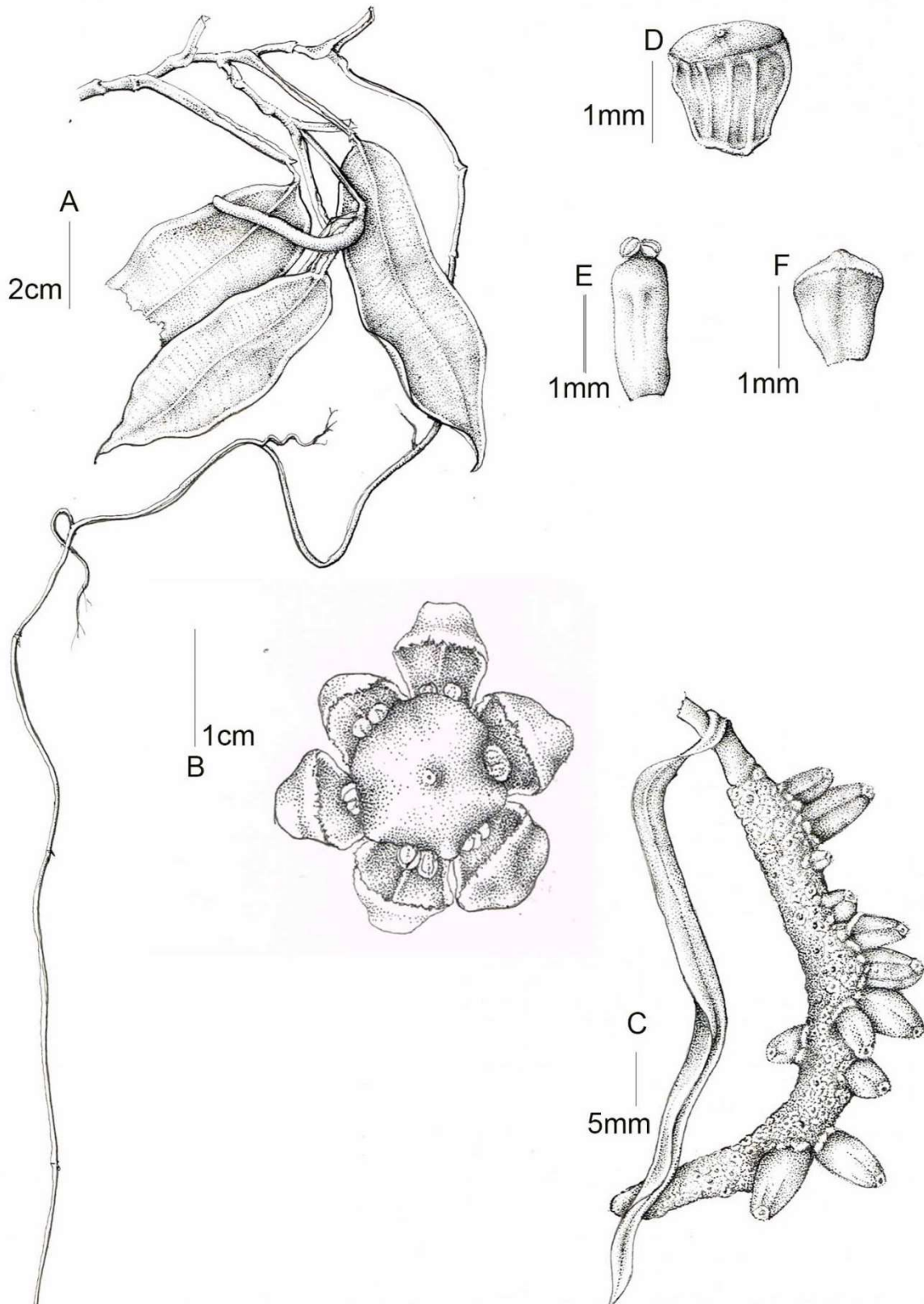
*Pothos boyceanus* G. Rajkumar, Shaju, Nazarudeen & Prakashk., sp. nov.

**Figs. 1 & 2**

This species has a close affinity with *Pothos crassipedunculatus* Sivadasan *et al.*, but differs in a set of characters including the long, sheathing slightly winged petiole with the sheath terminating in a short ligulate portion, asymmetric leaf blade, single long cataphyll subtending inflorescence, slender peduncle, long lorate spathe, long cylindrical spadix with a distinct stipe, and milky white ripe berries with light violet heads (Table 1).

**Type:** INDIA. **Kerala:** Idukki district, Valara, ± 300 m, 13 Feb.2000, G. Rajkumar & T. Shaju, TBGT 38780, (holotype TBGT; isotype MH).

Root climber; stem terete, unarmed, green, glabrous, internodes 2–3 cm long; branchlets tipped with long whip like flagella. Heteroblasty absent, leaves coriaceous, glabrous broadly oblong-elliptic to elliptic lanceolate, 16–30×5–11 cm, tip cuspidately acuminate, base narrowed,



**Fig. 1.** *Pothos boyceana* sp. nov. **A.** Habit, flowering branch with apical flagellum. **B.** Single flower. **C.** Inflorescence showing long spathe. **D.** Pistil. **E.** Stamen. **F.** Tepal. Drawn by Dr. T. Shaju.



**Fig. 2.** *Pothos boyceanus* sp. nov. **A.** Habit. **B.** Growing apex showing long flagellum. **C.** Inflorescence. **D.** Infructescence showing long spathe.



**Table 1.** Comparative morphology of *Pothos boyceanus* sp. nov. versus *P. crassipedunculatus* Sivadasan, Mohanan & Sathishkmar

Characters	<i>P. boyceanus</i> sp. nov.	<i>P. crassipedunculatus</i>
Ligule	Present	Absent
Petiole	6–9 (17) cm long, slightly winged	1–2 cm long, not winged
Lamina	Asymmetric, oblong elliptic, 16–22 (30)×5–7 (11) cm	Symmetric, oblong lanceolate, 8–20×2–4.5 cm
Cataphyll subtending inflorescence	Single, 8–10 cm long	3–4 together, 0.5–1 cm long
Spadix stipe	0.8–1.5 cm long	Absent
Spadix	Cylindric, 7–8 cm long	Subcylindric, 1–2 cm long
Spathe	Lorate, 7–8 cm long	Ovate, cymbiform, 2–2.5 cm long
Berries	Ovoid oblong, 4–6 angled at tip, base milky white, tip light violet when ripe	Slightly obovoid, inconspicuously 4–6 angled, scarlet red throughout when ripe

acute or obtuse, margin entire, midribs prominent below, channelled above, lateral veins more than 40 pairs, close, irregularly parallel, nearly horizontal, obscure, looping clear; petiole 6–17 cm long, with geniculum (pulvinus) at the tip, deeply canaliculate, slightly winged, wings 5–8(16)×0.4–0.5 cm, extends up to 1 cm below the lamina, narrowed to the semi amplexicaule base and truncate at apex, with longitudinal veins. Cataphyll solitary, linear oblong, 8×0.6 cm. Inflorescence solitary on short lateral shoots; stipe 0.8–1.5 cm long, glabrous, terete, thickened towards tip; spathe green, lorate, linear oblong to linear lanceolate, glabrous, equal to spadix in length, 7–8×0.4–0.5 cm, persistent, reflexed, tip acuminate, base slightly sheathing, margin entire, 4–5 parallel veins on either side of the mid vein. Flowers creamy white, compact; tepals 6; stamens 6, filaments flat, anthers bilobed, extrorse; ovary trilobular, ovules 1–3 in each cell, stigma small, punctate, sessile, 3-lobed. Berry 1–3 seeded, ovate, broad at base, narrow towards tip, ripening milky white with light violet ends.

**Phenology:** Flowering & fruiting occurs during January–March.

**Distribution and habitat:** India, Kerala, sporadic along the foot hills of the southern Western Ghats, near the 4<sup>th</sup> Milestone, Valara, Idukki district; prefers rich damp soil and dappled shade of riparian habitat at an altitude between 300–350 m asl., climbing on trees in tropical evergreen forests, in association with *Poeciloneuron indicum* Bedd., *Antidesma montanum* Blume, *Glycosmis macrocarpa* Wight, *Humboldtia vahliana* Wight, *H. sanjappae* Sasidh. & Sujjanapal, *Polyalthia malabarica* var. *longipedicellata* Alister et al., *Ormosia travancorica* Bedd., *Ixora nigicans* R.Br. ex Wight & Arn., *Myristica malabarica* Lam., *Villebrunea integrifolia* (Gaud.) Miq., *Kunstleria keralensis* Mohanan & Nair, *Smilax zeylanica* L., *Ochlandra travancorica* (Bedd.) Benth. ex Gamble and *Hydnocarpus macrocarpa* (Bedd.) Warb.

**Etymology:** The specific epithet ‘boyceanus’ is given as a mark of respect to Dr. Peter C. Boyce, who has made remarkable contributions on the systematics of Araceae of South East Asia.

**Population structure and conservation status:** The species possess a narrow distribution in its original habitat and exhibits a low population in its type locality. Repeated surveys could locate only less than 100

individuals found growing scattered in a 10 km<sup>2</sup> area qualifying itself to get into the category of Critically Endangered (CR) Category (B1; C2+a (i); D) as per IUCN (2014) and therefore the species warrants urgent conservation measures.

**Notes:** *Pothos boyceanus* belongs to the **subgenus** *Allopothos* with petioles sheathing for much of its length, conspicuously geniculate at the apex and inflorescences mostly arising from below the leaf axils, or terminally on leafy shoots. Again, the species falls under the *Allopothos* **super group** (*sensu* Boyce & Hay, 2001) with their spadix with congested flowers arranged in a dense spiral and *Pothos barberianus* Schott **group** (*sensu* Boyce and Hay, 2001) in which the inflorescence is held beneath the shoot on deflexed peduncles or on long, arching peduncles and most of the species coming under this group is dispersed between the Indian subcontinent and West Malesia. *Pothos atropurpurascens* M. Hotta (Borneo), *P. barberianus* Schott. (Sumatra, Peninsular Malaysia & Borneo), *P. brevivaginatus* Alderw. (Sumatra), *P. englerianus* Alderw. (Indonesia, Sumatra), *P. kingii* Hook.f. (Thailand and Peninsular Malaysia), *P. lancifolius* Hook.f. (Peninsular Malaysia), *P. longivaginatus* Alderw. (Borneo), *P. mirabilis* Merr. (Borneo), *P. philippinensis* Engl. (Philippines), *P. salicifolius* Ridl. ex Burkill & Holttum (Peninsular Malaysia), *P. volans* P.C.Boyce & A.Hay (Sarawak and Brunei Darussalam) and *P. wallichii* Hook.f. (Peninsular Malaysia, Java, Borneo), *Pothos thomsonianus* Schott (India), *P. crassipedunculatus* Sivadasan et al. (India), *P. tirunelveliense* Sasikala & Reemakumari (India) and *P. keralensis* Pandur. & Nair (India) are the species coming in this group.

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