

Taxonomic identity of *Typhonium roxburghii* var. *longispathum* (Araceae) and notes on the extended distribution of *T. bulbiferum*

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Abstract: The taxonomic status of *Typhonium roxburghii* Schott var. *longispathum* S.Nirola & A.P.Das, a recently described variety from Darjeeling district in West Bengal is deliberated and synonymised under *T. bulbiferum* Dalzell. A detailed description and a photo plate of *T. bulbiferum* are provided to facilitate identification.

Keywords: Darjeeling, India, *Typhonium*, Western Ghats.

Introduction

Typhonium Schott is the second largest genus in the subfamily Aroideae (Araceae) consisting of about 82 species (POWO, 2022), distributed widely in tropical and subtropical Asia and extends throughout the South Pacific area to Australia (Sriboonma *et al.*, 1994; Nguyen, 2008). For India, Karthikeyan *et al.* (1989) recorded ten species and two varieties while Sasikala *et al.* (2019), in a recent revision of Araceae, reported eight species. Among them, *Typhonium foliolosum* (Schott) Engl. is conspecific to *Sauromatum diversifolium* (Wall. ex Schott) Cusimano & Hett. (Sriboonma *et al.*, 1994; Govaerts & Frodin, 2002; Cusimano *et al.*, 2010). Nirola and Das (2014) described *Typhonium roxburghii* var. *longispathum* S.Nirola & A.P.Das from Darjeeling district in West Bengal, India.

While revising the genus *Typhonium* in India, a collection made by the first author from West Bengal in 2013 was identified as *T. bulbiferum* Dalzell, a little-known species described in 1852 from Concan, India (Dalzell, 1852). The species is unique in having bulbils on its petioles and the base of the leaves. A detailed scrutiny of the protologue of *Typhonium roxburghii* var. *longispathum*, subsequently, has revealed it to be conspecific with *T. bulbiferum*, hence is reduced to the synonymy of the latter here. The present collections thus form an extended distribution of this species in northeastern side of the country.

Taxonomic Treatment

Typhonium bulbiferum Dalzell, Hooker's J. Bot. Kew Gard. Misc. 4: 113. 1852; Schott, Prodr. Syst. Aroid. 106. 1860; Dalzell & A.Gibson, Bombay Fl. 258. 1861; C.H.Drury, Handb. Ind. Fl. 3: 484. 1869; Engl. in A.DC., Monogr. Phan. 2: 611. 1879; Hook. f., Fl. Brit. India 6: 511. 1893; T.Cooke, Fl. Bombay 822. 1908; Woodrow, J. Bombay Nat. Hist. Soc. 13: 428. 1900; Engl., Pflanzenr. (IV. 23 F) 73: 116. 1920; Blatt. & McCann, J. Bombay Nat. Hist. Soc. 35: 22. 1931; Sivad. in Jain & R.R.Rao, Assess. Threat. Pl. India 255. 1983; Ragh. & N.P.Singh, J. Econ. Taxon. Bot. 5: 163. 1984; N.P.Singh & Ragh., J. Econ. Taxon. Bot. 8: 36. 1986; Ahmedul. & M.P.Nayar, Endem. Pl. Indian Region: 208. 1987; Karthik. *et al.*, Fl. Ind. Enum., Monocot. 15. 1989; S.M.Almeida, Fl. Savantwadi 2: 58. 1990;

Kothari & Moorthy, Fl. Raigad 419. 1993; Lakshmin. in B.D.Sharma *et al.*, Fl. Maharashtra 223. 1996; Sasidh. & Sivar., Fl. Pl. Thrissur For. 488. 1996; Punekar *et al.*, Fl. Anshi National Park 523. 2011; Sasikala *et al.*, Fasc. Fl. India 29: 324. 2019. *Lectotype* (designated by Sriboonma *et al.*, 1994): INDIA, Concan, *s.d.*, *Stocks s.n.* (K [K000099876 digital image!]). Residual syntypes: Malabar-Concan, *s.d.*, *Stocks, Law & Co. s.n.* (BM [BM000958529 digital image!]; L [L0537655 digital image!] excluding *Pistia stratiotes* L.; P [P00733233 digital image!]).

Typhonium roxburghii Schott var. *longispathum* S.Nirola & A.P.Das, *Pleione* 8(2): 499. 2014. **syn. nov.** *Type*: INDIA, **West Bengal**, Darjeeling district, below Rongtong, 400 m, 26.04.2010, S. Nirola & A.P. Das 1237A (holo CAL; iso NBU).

Fig. 1

Cormous herbs, 15–30 cm tall; corms 0.5–1.6 cm across. Leaves triangular hastate, sagittate or cordate, acute at apex, green above, pale green beneath; mid-lobe 5–8 cm long, 3–6 cm wide; lateral lobes 3–5 cm long, 1.5–2 cm wide; petioles slender, 15–25 cm long, greenish to purple usually with dark coloured bulbs distally. Peduncles 2–7 cm long, *c.* 0.5 cm thick, pale white. Spathe slender, hyaline or pale rose; tube 1–2 cm long, *c.* 1 cm wide, oblong with a slight constriction below the limb; limb 7–16 cm long, 2–4 cm wide, linear-lanceolate, acuminate at apex, hyaline or pale rose. Spadix slender, as long as spathe. Pistillate-flowered portion 1.5–3 mm long; pistils obconic, oblong or globose, 0.9–1 mm long, 2–3-seriate, pale white; stigma sessile, papillose, rosy. Neuter-flowered portion 1–2 mm long; neuters acinaciformis, 2.5–5 mm long, curved, uniseriate, yellow. Interstice 0.5–1.5 cm long. Staminate-flowered portion 3–6 mm long, 3–4 mm wide; anthers 0.4–0.5 mm long, obovoid, sessile or sub-sessile, dehiscing by apical pores. Appendix stipitate, equalling the spathe, 7–14 cm long, *c.* 0.5 cm thick below, rounded at base, pale yellow to cream. Fruits not seen.

Flowering & fruiting: Flowering and fruiting from April to August.

Distribution: India, endemic.

Specimens examined: INDIA, **Kerala**, Malappuram district, Karimpuzha-Vanalakshmi, Nilambur, 01.06.1982, Philip Mathew 33250 (CALI); Palghat district, Dhoni hills, 26.06.1978, M. Sivadasan 21438 (CALI); Thrissur district, Elanad, 300 m, 30.04.1988, N. Sasidharan 5079 (KFRI). **Maharashtra**, Mumbra hill, 30.06.1961, R. Rao 32778 (CAL); Pune district, Roha, June 1902, V.R. Damli 539 (BSI); Thane district, Kalyan, 21.07.1905, L.G. Garade *s.n.* (BSI); Mumbra hill, 30.06.1961, R. Rao 32778 (CAL). **Tamil Nadu**, Kanyakumari district, Keeriparai, *c.* 20 km from Nagercoil towards North, Government rubber plantation, 04.06.1990, G.J. Thiyagaraj 116 (MH). **West Bengal**, Jalpaiguri district, Nagrakata, Jiti tea garden, 05.06.2013, K.M. Manudev 05061301 (CALI).

Notes: *Typhonium bulbiferum* was described by Dalzell (1852) from Concan without citing a specimen. Dalzell's specimens were mainly deposited at K, and further material at BM (drawings), CAL, DD, and W (Stafleu & Mennega, 1998). Sriboonma *et al.* (1994) cited "Type: India, Malabar, Concan, *Stocks s.n.* (K holotype, C, L isotypes)". According to Article 9.10 of the Shenzhen Code (Turland *et al.*, 2018), the designation of a specimen as 'holotype' by Sriboonma *et al.* (*l.c.*) can be treated as an error to be corrected, hence forms a valid typification of this name.

Typhonium bulbiferum can be easily distinguished by the presence of bulbils on the petioles and the base of leaves, a character which is not observed in any of the Indian species of *Typhonium*. The species can also be differentiated by its hyaline to pale rose coloured spathe, pale white or cream coloured spadix appendix which is as long as or slightly longer than the spathe limb and acinaciformis, 2.5–5 mm long, incurved, uniseriately arranged, yellowish neuters.

Status of *Typhonium roxburghii* var. *longispathum*

According to Nirola and Das (2014) *Typhonium roxburghii* var. *longispathum* is characterised by the

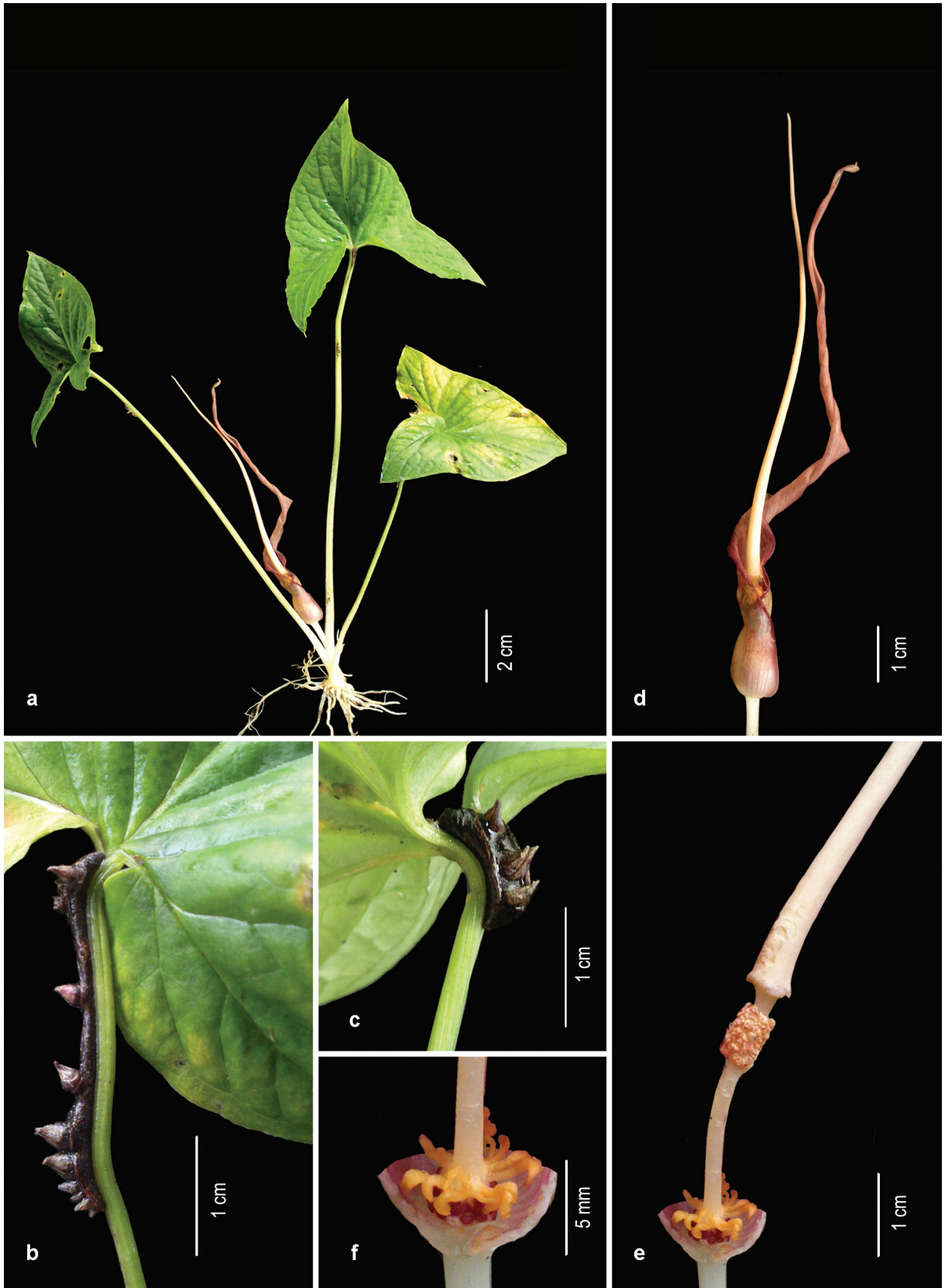


Fig. 1. *Typhonium bulbiferum* Dalzell: **a.** Habit; **b & c.** Bulbils on petioles; **d.** Inflorescence; **e.** Spadix (spathe removed); **f.** Neuters and pistillate flowers (from *K.M. Manudev* 05061301; photos by K.M. Manudev).

presence of elongated, black bulbils formed above $\frac{3}{4}$ of the petioles, linear-lanceolate spathe blade with a long filiform curly apex, a single whorl of downward curved neuters and pale white appendix as long as the spathe. In the protologue of *T. bulberum*, Dalzell (1852) wrote “*Petiolis folio triplo longioribus triatis apice bulbiferis Spadix spathaea equilongus, filiformis, attenuata, pallide flava Genitalia rudimentaria supra ovaria carnosae colorata (flava), uniseriata, acinaciformia, patentia*”. All these diagnostic features are the same for the variety described by Nirola and Das (*l.c.*). A critical examination of the protologue and living material showed that the characters used to characterize var. *longispathum* fall within the range of *T. bulberum*, hence *T. roxburghii* var. *longispathum* is reduced here to a synonym of *T. bulberum*.

Nirola and Das (2014) provided pictures of *T. roxburghii* Schott which appeared to be a misidentification. According to Nicolson and Sivadasan (1981), *T. roxburghii* has an appendix smoothly tapered from a sometimes somewhat swollen base and spreading, strongly decurved neuters. The plant in the pictures (Nirola & Das, 2014: Plate 1 A1–A3) has a stipitate spadix appendix and multiseriately arranged, slightly recurved, yellow and slender neuters which is most probably *T. inopinatum* Prain. However, this identification is uncertain owing to the fact that the presence of globose bulbils at the apex of petioles and on petiolules as indicated by Nirola and Das (*l.c.*) has not yet been confirmed in this species.

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