***Sauromatum venosum* (Dryand. ex Aiton) Kunth (Araceae : Areae): an addition to the Flora of Arunachal Pradesh in Eastern Himalaya, India**

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Abstract

Sauromatum venosum (Dryand. ex Aiton) Kunth (Araceae : Areae) is first recorded from Arunachal Pradesh, in Indian Eastern Himalaya. A detailed taxonomic description, drawing and living color photographic illustration, GPS location, are provided along with key to species of *Sauromatum* in Arunachal Pradesh.

Key words: *Sauromatum venosum*, New record, Arunachal Pradesh, Eastern Himalaya

INTRODUCTION

The genus *Sauromatum* (Araceae : Areae) was established by Heinrich Wilhelm Schott in 1832 and *S. pedatum* (Link & Otto) Schott (basionym *Arum pedatum* Link & Otto) and *S. guttatum* (Aiton) Schott (basionym *Arum guttatum* Aiton) were included in it. Genus *Arum* L., *Biarum* Schott and *Typhonium* Schott are placed under Subtribe Euaroideae. Genus *Sauromatum* was separated from *Arum* and *Biarum* by having groups of staminodes below male flowers and from *Typhonium* by connate spathe base, two ovules in ovary, leaf appearing after the inflorescence, leaf pedate and very short peduncle (Hetterscheid & Boyce 2000; Cusimano *et al.* 2010). In a preliminary phylogenetic studies of *Typhonium* and *Sauromatum* species, Hetterscheid and Boyce (2000) merged both genera into *Typhonium*. Latter on, Cusimano *et al.* (2010) retained *Sauromatum* and *Typhonium* as separate genus in accordance with the study of chloroplast DNA sequences. The genus *Sauromatum* consists of 09 species as recorded in www.theplantlist.org. In recent years, Talukdar *et al.* (2014) and Nangkar and Tag (2018) published two new species for the genus but are yet to be included in The Plant List. This genus is distributed in South East Asia from China to Indonesia, Nepal, Bhutan, India, Bangladesh, Myanmar, Thailand, Vietnam and Cambodia. The four species reported in India are *Sauromatum brevipes* (Hook.f.) N.E.Brown, *Sauromatum diversifolium* (Wall. ex Schott) Cusimano & Hett., *Sauromatum meghalayense* D.K.Roy, A.D.Talukdar, B.K.Sinha & M.Dutta Choudhury, *S. venosum* (Dryand. ex Aiton) Kunth (Talukdar *et al.* 2014) and *Sauromatum nangkarensense* A. Nangkar & H. Tag (2018).

During our field exploration from 2014 to 2018 at Anini in Dibang Valley district of Arunachal Pradesh an aroid plant was collected with inflorescence (flowers and fruits) from the moist floor of an evergreen forest near a stream. The morphological characters of the plant including pedatisect, pale green leaves, spathe tube convolute, staminodes clavate, and with persistent spathe-tube revealed that it is a species of the genus *Sauromatum*. The

Figure 1.. *Sauromatum venosum* (Aiton) Kunth. **A.** Flowering plant; **B.** Spadix; **C.** Fruit; **D.** Ovary; **E.** L.s. of ovary; **F.** Staminate; **G.** Synandrium

Figure 2. Voucher specimen, Atek Nangkar 90.

critical analysis of the specimens and literature (Hooker 1893; Hetterscheid & Boyce 2000; Hetterscheid *et al.* 2001; Cusimano *et al.* 2010; Heng & Hetterscheid 2010; Talukdar *et al.* 2014; Nangkar & Tag 2018), the plant was identified as *Sauromatum venosum* (Aiton) Kunth, a hitherto unknown species from Arunachal Pradesh. The Arunachal specimens of this plant are morphologically slightly different from the specimens from other parts of world including Western Ghats in having taller pseudostem, longer pink appendix, stipitate spadix. However, these differences are not counted as of much taxonomic significance. Differences of *Sauromatum venosum* with our previously reported *S. nangkarens* is presented in Table 1.

In this publication, *Sauromatum venosum* is recorded as an addition to the Flora of Arunachal Pradesh. A detailed description and living color photographic illustration has been provided.

Table 1. Distinguishing morphological characters of *S.nangkarens* and *S. venosum*

Characters	<i>Sauromatum nangkarens</i>	<i>Sauromatum venosum</i>
Leaf blade	Leaflets 5 – 7, broad, 7 – 20 cm long, 3 – 10 cm in diameter	Leaflets 9 – 17, narrow, 7 – 33 cm long, 2 – 8.7 cm diameter
Spathe tube	Convolute, green to purple	Connate, dark purple
Spadix	Sessile	Shortly stipitate
Appendix	Short, white, somewhat cone shaped, 7 cm long	Long, pinkish, 18 – 21 cm long
Staminodes	Pink, two types, curved downward	Yellow, one type, radiate or upward

MATERIALS AND METHODS

The collection, pressing and preparation of herbarium specimens in accordance to standard herbarium technique (Jain & Rao 1977). Description of morphological characters and taxonomic measurement of plant are based on living materials, Photograph with Cannon Power Shot SX500 IS. The voucher specimen will be deposited in ASSAM Herbarium.

PLATE I. *Sauromatum venosum* (Aiton) Kunth: **A.** plant habitat; **B.** Close view of inflorescence; **C.** Old inflorescence; **D.** Male flowers (synandrium); **E.** Female flowers; **F.** Close view of spadix

TAXONOMIC TREATMENT

Sauromatum venosum (Aiton) Kunth, Enum. Pl. 3: 281. 1841. [Figures 1 & 2; PLATE I]
Arum venosum Aiton, Hortus Kew. 3: 315. 1789

Herbs; tuber depressed globose, 2.5–4 cm high and 0.5 cm wide, producing 2–3 offsets annually. Root few, white. **Leaves** solitary, ppedate, pale green. **Cataphylls** 4–5, 3 cataphylls common for both inflorescence and leaf, one separate cataphyll for leaf, mottled with green and purple or purple spots, lanceolate, acute, 5–10 cm long, 2–3.5 cm wide. **Petiole** 28–85 cm high. Mottled, yellowish green, dark green with rounded purplish brown spots; leaflets 9–17, gradually smaller toward distal end of rachis, middle leaflet large, oblong, oblanceolate, 33 x 8.7 cm, 2nd larger leaflets, 30. x 7.7 cm, smallest leaflets 7 x 2 cm, lateral leaflets elliptic, acute to acuminate. **Inflorescence** solitary, appearing before emergence of leaf; **peduncle** greenish white, 2.3–3.2 cm long, may continue elongating during fruit development. **Spathe** tuber, slightly constricted, 10–14 cm long, 5–8 cm wide, dark purple outside without spots, inside rich dark purple at distal end, intermingled with purple and yellow ellipsoid spots; limb spreading, 23 cm long, 6.7 cm wide at expanded parts, acuminate, prominent dark purple spots mixed with light yellow irregular-lanceolate spots. **Spadix** slightly shorter than or equal to spathe; **stipe** 1–1.8 cm long, 2 cm wide. **Female zone** 1.5–2.5 x 1–1.5 cm; central part expanded, drum-shaped, both ends tapering, subcylindric; ovary white, obovoid; **1st sterile zone** 5–7.5 cm long, proximal, 1–1.5 cm long, whitish, sparsely covered with clavate staminodes with groove, 6 cm long, and naked, pale purple-pink; staminodes yellow, clavate, 0.5–1 cm; **male zone** white to yellow, 1.5–2 cm long, 0.5–0.7 cm wide, cylindrical; **stamens** white to yellow, pink at tip; **2nd sterile zone (appendix)** pink, 18–21 cm long, 0.2–0.4 cm wide, glabrous, base expanded near male zone, flat like elephant foot, terete, obtuse, erect. Berries sub-globose, crowded, bright purple, apex truncate.

Flowering & Fruiting: May – August.

Specimen cited: INDIA: Arunachal Pradesh, Dibang Valley district, Anini, 1640 m, Latitude 28° 49' 25.53 N and Longitude 095° 52' 59.33 E, *Atek Nangkar 90 HAU/AN*, dated 31.05.2016 (ASSAM).

Distribution: Tropical Africa to China (Yunnan).

IUCN Conservation status: Least Concern (LC). The species was encountered in one locality at Anini of Dibang Valley district in Arunachal Pradesh. In India plant is reported from Western Ghats. Few plants were collected for *ex-situ* conservation and to examine the inflorescence and the plant is introduced in Botanical garden, Department of Botany, Rajiv Gandhi University but not growing well due to altitudinal and climatic differences.

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