



Occurrence of *Ariopsis protanthera* N.E. Br. (Araceae) in Darjeeling Hills: A new record for the flora of West Bengal, India

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Abstract

The present communication reports the occurrence of *Ariopsis protanthera* N.E. Br. (Araceae), for the first time from the state of West Bengal, India. The species has been recorded only from Kolbong area [27°07'1.43"N, 88°11'2.48"E; 1100 m] in Darjeeling hills of West Bengal. Detailed description with illustrations have been provided.

Key words: *Ariopsis protanthera*, new record, West Bengal, India

INTRODUCTION

Araceae is large as well as an ancient monocotyledonous plant family remarkable for its morphological diversity. The aroids occupy wide range of ecological habitats starting from sea level to an altitude of around 3000 m and from submerged, emerging or free-floating aquatic condition to epiphytes, climbers and terrestrial plants (Gonçalves *et al.* 2007). Araceae comprises of 114 genera and approximately 3750 species (Christenhusz & Byng 2016). In India, the family is represented by ca. 25 genera and 140 species distributed along western and southern parts (Islam & Rahman 2017).

The genus *Ariopsis* Nimmo, with only three species belongs to tribe Colocasieae of Araceae and is closely related to *Remusatia* Schott and *Stendnera* K. Koch (Cabrera *et al.* 2008). The generic type *Ariopsis peltata* Nimmo, was recorded from the Western Ghats of India (Mayo *et al.* 1997) but the species also occurs in Darjeeling-Sikkim region of eastern Himalaya (Noltie 1994). Recently, Page *et al.* (2020) published one new species, *Ariopsis macrosperma* N.V. Page, Ingallh & Sardesai from the Raigad district of north Western Ghats in India. With this, all the three species of *Ariopsis* (and one variety from Agasthyamalai Biosphere Reserve in Kerala) are now recorded to grow in India.

During the survey of flora of Darjeeling Himalaya, *Ariopsis protanthera* has been collected from Kolbong [27°07'1.43"N and 88°11'2.48"E; 1100 m], which is the first record for the species from Darjeeling Himalaya that lies on the northernmost part of the state of West Bengal, India. A detailed description of the plant with illustrations has been provided below for identification.

DESCRIPTION

Ariopsis protanthera N.E.Br. in Rep. Roy. Bot. Gard. Kew. 51: 1877; Fl. Brit. India 6: 519.1893; Mayo *et al.* Gen. Araceae 275, Pl. 99 & 129B, 1997. [PLATES I & II]

Ariopsis peltata f. *protanthera* (N.E.Br.) Engl. & K. Krause in H.G.A. Engler, Pflanzenr. 4. 23E: 130. 1920.

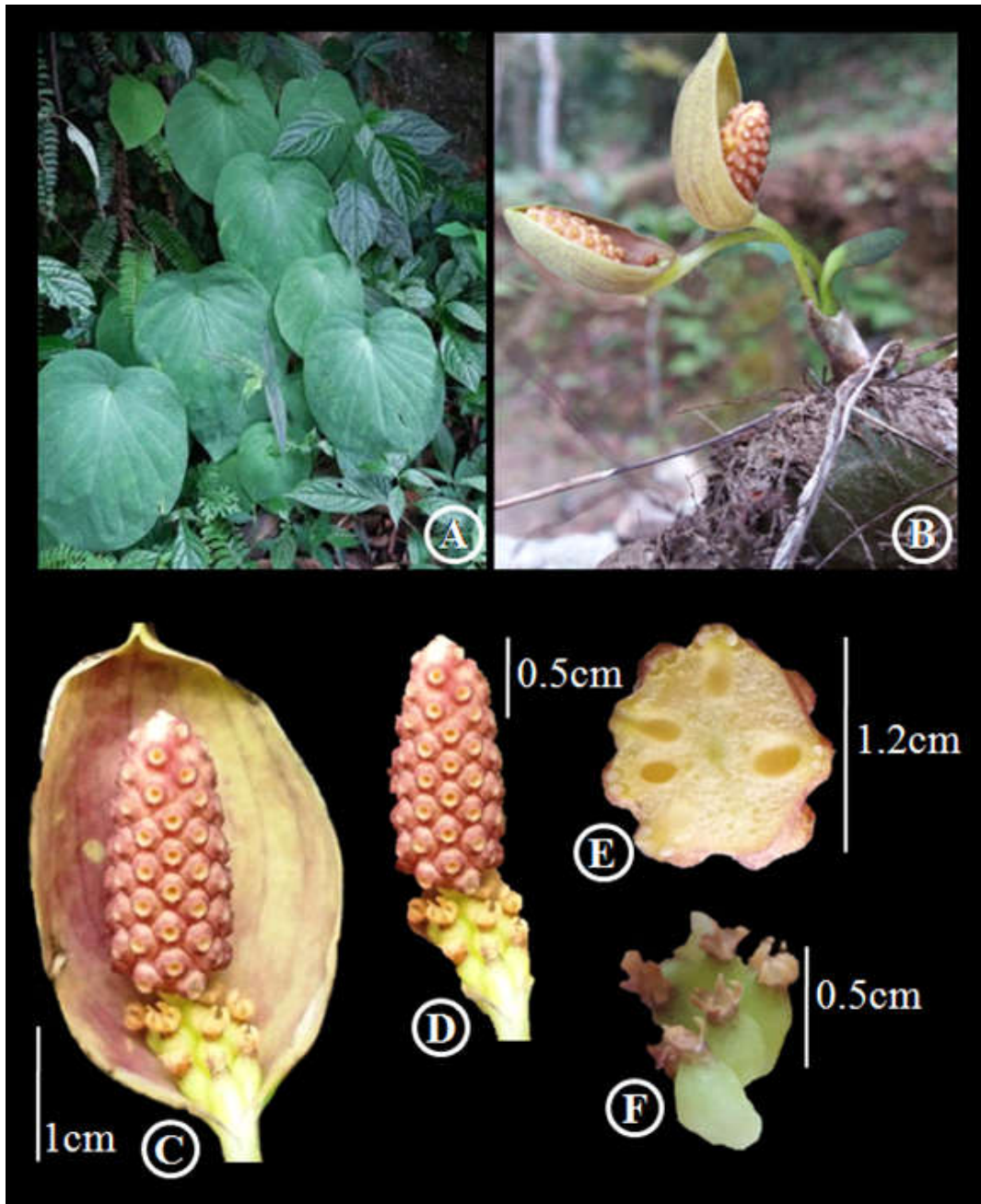


PLATE I. *Ariopsis protanthera*: **A.** Habit in natural habitat; **B.** Entire plant; **C.** Inflorescence; **D.** Spadix; **E.** Section through male portion of spadix; **F.** Female flowers

Small monoecious herb, *Tuber* perennial, globose, white inside and outside, rooted, 2 – 3 cm in diameter. *Leaf* single, surrounded by membranous cataphylls at base; *Petiole* 9 - 35 cm, smooth, thin, green; *Lamina* ovate to oblong-ovate, less deeply peltate, 5 - 25 by 3 - 17 cm, entire, acute, base shallowly cordate, light green, thin and herbaceous, 9 -13-veined from the tip of petiole, veins slightly depressed above, mid-vain prominently major; *Flower* arises before leaves; *Peduncle*

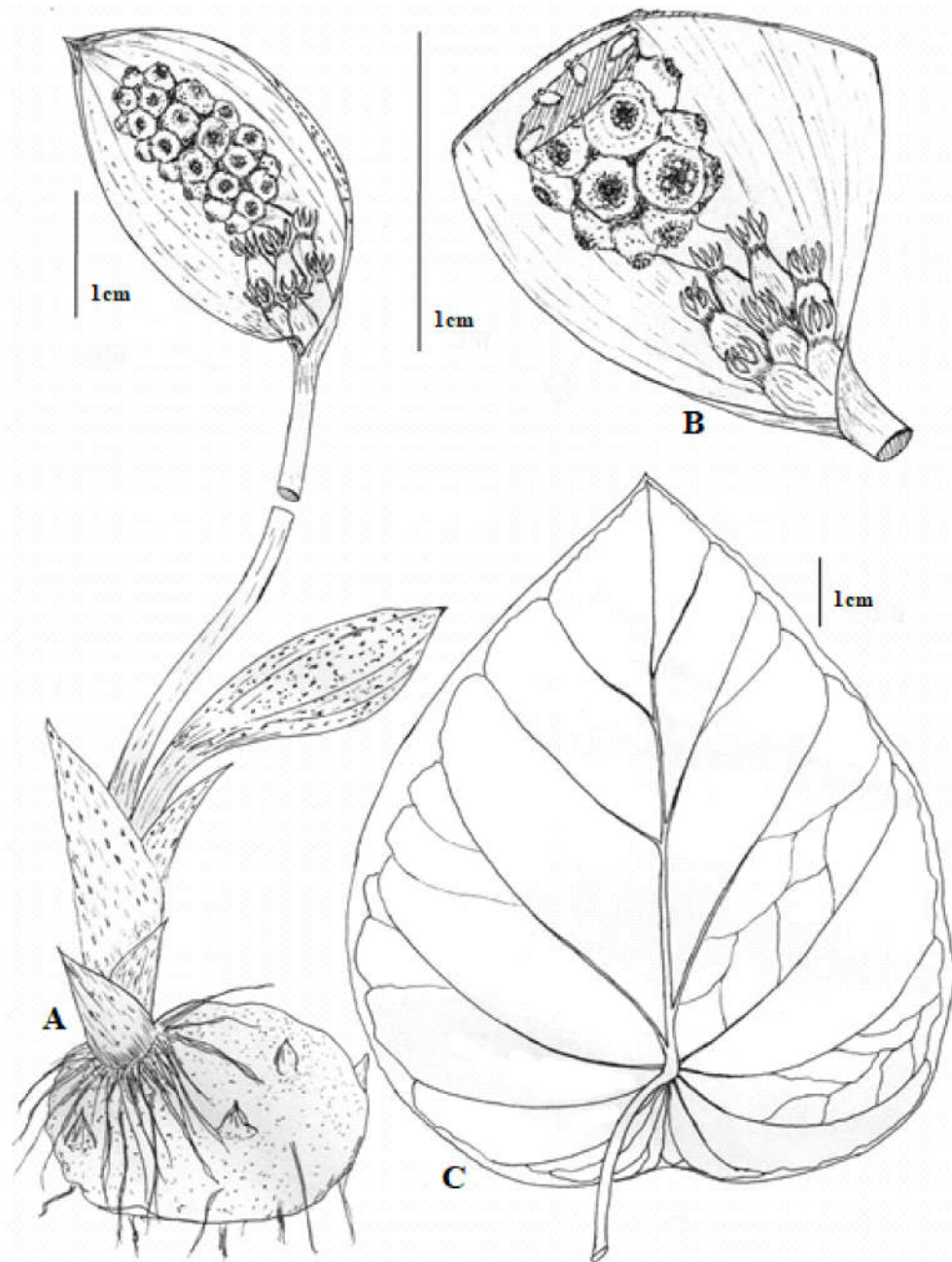


PLATE II. *Ariopsis protanthera*: **A.** whole plant; **B.** Portion of inflorescence showing male and female flowers; **C.** Leaf (*abaxial surface*)

3 - 10 cm, surrounded by membranous cataphylls at base; *Spathe* oblong-elliptic, 1.5 - 3.5 by 1 - 2.8 cm, hooded, open throughout, greenish and purple blotched outside and purplish inside; *Spadix* nearly equalling or shorter than spathe, distinctly constricted and angular between male and female sections; female section basal, 0.25 - 0.5 cm; *female flowers* 5 - 8; *ovaries* ± 0.15 cm in diam.; *stigmas* 6, 0.1 cm long, purple; male section above, 1.0 - 1.2 by ± 0.5 cm, light purple

with many male flowers densely arranged in spiral, curved at maturity, borne sunken inside holes on spadix, mouth shallowly spurred; *anthers* yellow, arranged around the mouth of the hole.

Ariopsis protanthera is closely related with *A. peltata* Nimmo. Both are small monoecious herbs 10 -35 cm tall, with a globose perennial tuber bearing leaves.

Flowering: March – April *Fruiting:* May – August.

Exsiccatae: Kolbong [27°07'1.43"N, 88°11'2.48"E] 1100 m, S. Nirola & A.P. Das 01332, dated: 24.03.2019

Distribution and Ecology: In the Eastern Himalaya, *Ariopsis protanthera* has been recorded to be distributed through the north eastern Assam along northern Myanmar, Thailand, Nepal and northern Bangladesh (Boyce 2009, Govaerts 2020). Earlier published floras for this region (Hara 1966, 1971; Ohashi 1975; Hara *et al.* 1978; Noltie 1994) have not recorded the species from Darjeeling Himalaya. Present study locates the species only from a single site at Kolbong, Darjeeling (1100 m). The species is found growing in shady places on moist rocks on the walls. The other species that remain associated in the habitat include *Selaginella monospora* Spring, *Oplismenus compositus* (L.) P. Beauv. *Strobilanthes divaricata* (Nees) T. Ander., *Athyrium* sp., *Nephrolepis cordifolia* (L.) C. Presl, etc. An artificial dichotomous key is presented below for easy identification of the species.

Key to the species

- 1a. Inflorescence and leaves occur at the same time 2
- 1b. Inflorescence appears before leaf emergence ***A. protanthera***
- 2a. Male flowers embedded on spadix..... ***A. peltata***
- 2b. Male flowers projecting on spadix..... ***A. macrosperma***

Conservation Status

Ariopsis protanthera is distributed in north eastern states of India, Bangladesh, Nepal, Myanmar and Thailand. However, keeping in mind the lack of sufficient data on location co-ordinates and population status of the taxa including the rarity of the species in the present study, the taxa should be assigned to Data Deficient in IUCN category list.

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