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A Neglected Taxon of *Arisaema* (*Araceae*) from the Western Ghats, India

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A new subspecies, *Arisaema barnesii* C. E. C. Fisch. subsp. *sheshanagae* Sameer Patil, is described here. It has been unnoticed for a long time. It is characteristically distinct from subsp. *barnesii* in having a greenish-white spathe with a distinct white coloured 5-armed radiating patch on the mouth and silvery trichomes on the leaf. It is distributed along the shola forests of South India and is assessed as "Endangered" due to habitat loss based on IUCN Criteria.

Key words: *Araceae*, *Arisaema barnesii*, India, new subspecies, Sheshanag, Western Ghats.

Arisaema Mart., known as cobra-lily or jack-in-the-pulpit, is widely distributed along tropical, sub-tropical and temperate regions of Asia, North America and northeastern Africa with ca. 200 taxa (Mabberley 2018, Govaerts et al. 2020, POWO 2020). Hooker (1892) reported 38 species of *Arisaema* from British India. Later, Karthikeyan et al. (1989) listed 42 species and 10 varieties from present India. At present in India the genus is represented by 48 species, one subspecies and 12 varieties (Manudev and Nampy 2014) of which the Western Ghats harbors 17 species, one subspecies and two varieties (Nayar et al. 2014).

During an exploration tour conducted in 2016 performing floristic studies of Pushpagiri Wildlife Sanctuary, Karnataka, India, a peculiar *Arisaema* with pale coloured inflorescence and distinct markings on spathe-limb was collected, from the forests of Mandalpatti area inside the sanctuary, which was tentatively identified as *A. barnesii* C. E. C. Fisch. Subsequently in 2017, the same *Arisaema* was recollected from in and around the same locality, prompting to study the specimens critically to confirm its identity. On further examining the protologue of *A. barnesii*, it was revealed that Fischer (1933) had noticed this plant on the basis of Barnes's note that "*What appears to be the same plant was found in a shola near Naduvattam; the spathe of this is green and white instead of purple and white*", the characters of which closely match with the recently collected plant. This note was also referred to by Gusman and Gusman (2006) to suggest colour variation in the spathe of this species. However, I examined herbarium specimens housed in various herbaria in southern India and found that the characteristic variant mentioned by Barnes seems to be fairly constant and well distributed along the Central Western Ghats. Manudev et al. (2019) provided a description of *A. barnesii* exactly representing the type, whereas the figure 4 provided by them includes images of two variants: The panels e, h and i show purplish white spathe with 5–9 longitudinal stripes parallel along spathe tube and tail pointing downwards, and j and l show

Table 1. Characteristics of *Arisaema barnesii* subsp. *sheshanagae* and its distinction from similar taxa.

Characters	*A. barnesii* subsp. *sheshanagae*	*A. barnesii* subsp. *barnesii*	*A. attenuatum*	*A. fischeri*
Leaflets	5, petiolulate, covered with silvery trichomes abaxially	5–7, petiolulate, glabrous	7–9, sessile, glabrous	7–9, petiolulate, sometimes glaucous
Spathe tube	cylindrical	cylindrical, twisted	narrowly funnel shaped, gradually twisted	cylindrical
Spathe throat	galeate-auriculate	straight, not auriculate	straight, not auriculate	narrowly auriculate
Colour pattern in spathe limb	greenish with distinct white coloured 5-armed radiating patch	5–9 longitudinal dark-purple and whitish stripes	greenish-purple, with distinct white coloured radiating patch	greenish, 5–9 longitudinal dark-purple and whitish stripes
Curvature of spathe limb	curved forward, with tail pointing upwards	strongly curved downwards, with tail also pointing downwards	strongly curved downwards, with tail also pointing downwards	strongly curved forward, with tail pointing forward
Spadix appendix	narrowly fusiform widest at middle, inserted at mouth of spathe	narrowly fusiform widest at middle, inserted at mouth of spathe	slender, exerted beyond mouth of spathe	cylindrical, exerted from mouth of spathe with tip bending forward

purplish spadix appendix, which represent typical one; while the panels a, b, d, f and g show a greenish white spathe with distinct white coloured 5-armed radiating patch on mouth and tail pointing upwards, and k shows greenish spadix appendix, which represent another. Thus, I consider the latter with greenish white spathe and spadix to be distinct from the former and formally describe it as a new subspecies, *A. barnesii* subsp. *sheshanagae* Sameer Patil. It is assessed as "Endangered" following the recent IUCN Red List Categories and Criteria.

Taxonomic treatment

Arisaema barnesii C. E. C. Fisch. subsp. ***sheshanagae*** Sameer Patil, **subsp. nov.**

Type: INDIA. Karnataka, Kodagu district, Pushpagiri WLS, Mandalpatti, 1147 m, 12°33′19.09″N 75°42′11.74″E, 8 April 2017, Sameer Patil 206727 (BSI–holotype; MH–isotype). [Fig. 1]

This subspecies is similar to *Arisaema barnesii* subsp. *barnesii*, *A. attenuatum* E. Barnes & C. E. C. Fisch. and *A. fischeri* Manudev & Nampy.The characters that distinguish the new subspecies from similar taxa are given in Table 1.

Leaf 5-foliolate; leaflets covered with silvery trichomes abaxially. Spathe tube cylindrical, green to pale green with number of white vertical bands; throat margins galeate-auriculate, slightly recurved; limb greenish with a distinct white coloured 5-armed radiating patch on mouth, apex acuminate with a greenish-purple tail recurved upwards terminating with a knob.

Distribution: India. Karnataka: Chikmangalur, Kodagu; Kerala: Kannur, Wayanad; Tamil Nadu: Coimbatore, Nilgiri. Endemic.

Habitat and ecology: Infrequent along the margins of evergreen shola forest and open patches inside forest between 700–1200 above msl. A scattered population of 35 individuals was reported from the type locality. The population included a total of 25 males and 10 females. The size of female plants is larger than the male plants.

Flowers and fruiting: April–August.

Etymology: The new subspecies is named after the Hindu mythological serpent god '*Sheshanaga*', due to the presence of the distinct white coloured 5-armed radiating patch on the mouth of spathe limb resembling the five hoods of Lord *Sheshanaga*.

Specimen examined: **INDIA**. Karnataka: Chikmangalur, Kudremukha, 740 m, 13°03′N 75°01′E, 10

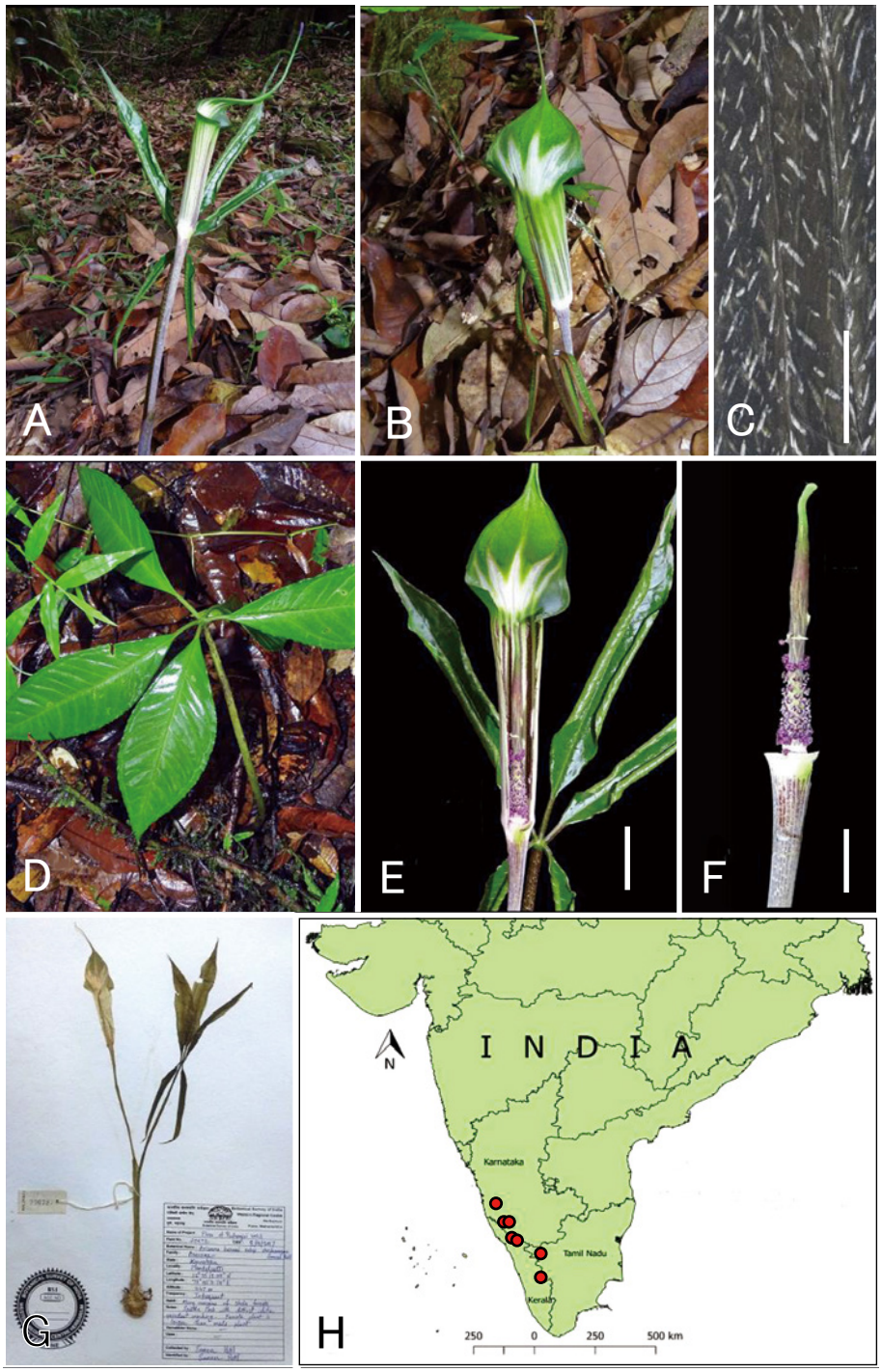

Fig. 1. *Arisaema barnesii* subsp. *sheshanagae.* A. Plant habit. B. Posterior view of spathe with distinct white coloured 5-armed radiating patch on mouth. C. Silvery trichomes on abaxial leaf surface. D. Fully opened leaf. E. Male inflorescence with spathe opened. F. Male inflorescence. G. Holotype (Sameer Patil 206727, BSI). H. Distribution map. All images but D from type material. Scale bars: 1 mm (C) and 2 cm in (E, F).

July 1996, G. S. Goraya, K. Ravi Kumar & P. S. Udayau 09336 (FRLHT), Kodagu, Pushpagiri WLS, Mandalpatti, 1104 m, 12°33′26.25″N 75°33′26.25″E, 12 June 2016, Sameer Patil 205198 (BSI), Kerala: Kannur, Aralam WLS, 3 March 2014, Alfred & Manudev 4388 (CALI), Wayanad, Chandanathode, on the way, near Seminary villa, 625 m, 3 May 1979, V. S. Ramachandran 62222 (CALI), Tamil Nadu: Coimbatore, Ulandy, Topslip, 775 m, 10°25′N 76° 50′E 12 April 1994, V. S. Ramachandran 17417 (FRLHT), Nilgiri, Coonoor, 18 June 1962, S. Jamuna 130 (University of Mysore).

Conservation status: As per the IUCN (2018) and INCN Standards and Petitions Committee (2019) guidelines, the threat perspective of the taxon can be assessed as 'Endangered' [E B1ab (iii) + 2ab (iii); D].

Notes: The proposed new subspecies *Arisaema barnesii* subsp. *sheshanagae* was a neglected taxon from the Western Ghats of Karnataka and Tamil Nadu. For a long time researchers had considered it to be *A. barnesii* even though Barnes had annotated about the variant spotted near Naduvattam, Tamil Nadu.

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S. Patil：**インド・西ガーツ山脈で発見されたテンナンショウ属植物の 1 新亜種（サトイモ科）**

サトイモ科テンナンショウ属の 1 新亜種 *Arisaema barnesii* C. E. C. Fisch. subsp. *sheshanagae* Sameer Patil をインド・カルナタカ州 Kodagu district（西ガーツ山脈）から記載した．本亜種は基本亜種 subsp. *barnesii* から，仏炎苞が緑白色で，その開口部に掌状に 5 裂する白斑があり，葉に銀色の毛があることで区別されるが，これまでに顧みることがなされなかった植物である．本種は南インドの熱帯山地林 shola forest に沿って生え，絶滅危惧植物とみなされる．

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