



RESEARCH COMMUNICATION

Iphigenia magnifica Ansari & R.S. Rao (Colchicaceae) – A new distributional record to the flora of Eastern Ghats, India

Nagaraju Vallepu¹, Mahendra Nath Mitta^{1*} & W. Arisdason²

¹Department of Botany, Sri Venkateswara University, Tirupati 517 502, Andhra Pradesh, India

²Botanical Survey of India, Southern Regional Centre, TNAU Campus, Lawley Road, Coimbatore 641 003, Tamil Nadu, India

*Email: mitta.mahendranath@gmail.com

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ABSTRACT

Iphigenia magnifica Ansari & R.S. Rao (Liliales: Colchicaceae), an endemic species of Western Ghats is reported in this communication as a new distributional record for Eastern Ghats from Seshachalam hills of Eastern Ghats, Andhra Pradesh. The present communication provides description of this species along with photographs of habitat, live plant and herbarium specimen, comparison with its allied species, ecology and conservation assessment.

Introduction

Colchicaceae (Liliales) (1) are an average-sized family having about 250 species in 19 genera, and widely distributed in Africa, Asia, Australia, Europe and North America (2). Colchicaceae members are characterized by perennial herbs with underground corm or rhizome, erect stem, simple or sometimes branched or reduced to short underground portion, leaves cauline, alternate to subopposite, sessile having sheath or short petiole, flowers sessile to pedicellate, hypogynous, bisexual or unisexual, tepals usually 6, stamens 6, gynoecium tricarpeled sometimes with 2 to 4 carpels and fruits septicidal or loculicidal capsule (3, 4).

Iphigenia Kunth (Colchicaceae) comprising *c.* 12 species, is distributed from tropical and subtropical Old World to northern Australia (2). The genus is represented by six species in India, namely *I. indica* (L.) Kunth, *I. magnifica* Ansari & R.S. Rao, *I. mysorensis* Arekal & S.N. Ramaswamy, *I. pallida* Baker, *I. sahyadrica* Ansari & R.S. Rao and *I. stellata* Blatt., of which except *I. indica* all are endemic to India (5, 6). *Iphigenia* is characterized by having erect grass-like herbs with fibrous roots or underground fleshy corm or rhizome covered with a tunic, leaves sessile, cauline or basal, five to many, alternate, sheathing, slender, lanceolate to linear-conduplicate, flowers solitary, axillary or terminal, drooping, with leaf-like bracts, perianth lobes free, dark brown to pinkish white, spreading or reflexed, stamens 6 with either

hairy or glabrous filaments, anthers with monosulcate pollen grains, stigma unifid to trifid and subglobose capsular fruits.

During the botanical explorations in various parts of Seshachalam hills, a part of Eastern Ghats in Andhra Pradesh few *Iphigenia* individuals were collected, which were growing in sandy gravel mixed soil and near rocky crevices in gentle sloping areas of Tirumala (Japalihanuman tirtham) and Talakona forest patches. Specimens were carefully collected along with tunicate corm and properly processed. After a critical examination of morphological features of collected plant specimens along with scrutiny of pertinent literature and matching with herbarium specimens housed at different herbaria (MH, CAL and herbarium at Sri Venkateswara University, Tirupati) the specimens were identified as *Iphigenia magnifica* Ansari & R.S. Rao, a species considered to be an endemic to the Western Ghats of Goa (7), Karnataka (8, 9) and Maharashtra (10–17).

Hitherto, only two species of *Iphigenia* (*I. indica* and *I. mysorensis*) have been reported from Eastern Ghats (18) and the state of Andhra Pradesh (19). This species with spectacular brownish purple flower is neither reported from Eastern Ghats (18) nor from Andhra Pradesh (19). It is also not included in the recently published book on the flowering plants of Chittoor district (20). Therefore, the present collection of *I. magnifica* from Seshachalam hills, is reported here as a new record to the flora of Eastern Ghats as



Fig. 1. *Iphigenia magnifica* Ansari & R.S. Rao : a. Habit; b. Flower; c. Top-view of flower; d. Plant with matured capsules.

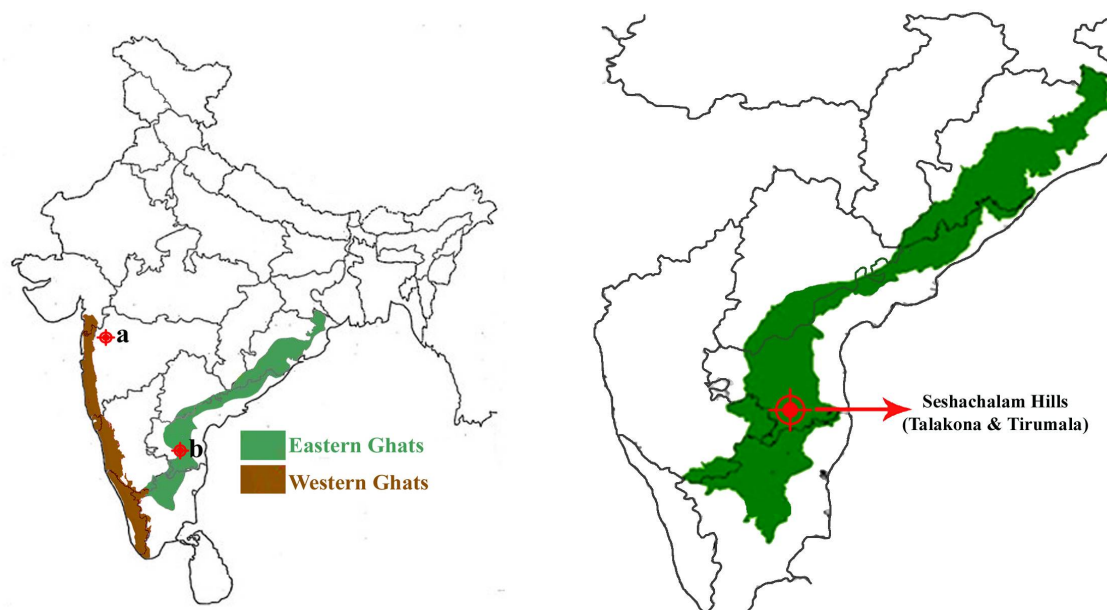


Fig. 2. Type locality of *Iphigenia magnifica* in Maharashtra and the place of present collection of the species from Seshachalam hills (Talakona and Tirumala) in Eastern Ghats of Andhra Pradesh.

well as to the state of Andhra Pradesh with brief description, photographs of live plants (Fig. 1) and a map showing the distribution of *I. magnifica*, both in Western and Eastern Ghats (Fig. 2). A voucher specimen (SVUTY-3521, (Fig. 3) of the present collection is deposited in the herbarium of Department of Botany, Sri Venkateswara University, Tirupati, for future reference. Furthermore, the morphological characters of *Iphigenia magnifica* are

compared with its closely allied species, *I. indica* and *I. mysorensis* (Table 1).

Taxonomic treatment

Iphigenia magnifica Ansari & R.S. Rao, Bull. Bot. Surv. India 20 (1–4): 162, pl. 1. 1979; Lakshmin. in B.D. Sharma *et al.*, Fl. Maharashtra, Monocotyledons: 139. 1996; Lakshmin. & V.P. Prasad in Lakshmin. *et al.*, Fl. Karnataka 3: 317. 2019. Fig. 1.

Table 1. Comparison of morphological characters between *Iphigenia magnifica* and its closely allied species, *I. indica* and *I. mysorensis*.

Characters	<i>I. indica</i> (L.) Kunth	<i>I. mysorensis</i> Arekal & S.N. Ramaswamy	<i>I. magnifica</i> Ansari & R.S. Rao
Habitat	Grasslands and plains	Marshy grasslands with small-sized gravel	Well-drained soil on gentle hillslopes
Plant height	8–15 cm	15–20 cm	15–40 cm
Stem	Not branched	Not branched	Branched
Leaves	Linear-lanceolate, 15–18 × 0.5–1 cm	Acicular, 10–12 × 0.4–0.8 cm	Linear-lanceolate, 20–25 × 0.5–0.7 cm
Perianth lobes	Linear, dark brown when young, brown to light green when mature	Filiform, dark brown, except light green basal portion	Elliptic-linear, dark brown or brownish purple
Filaments	c. 4 mm long, hairy	c. 2 mm long, glabrous	3–5 mm long, glabrous
Anthers	Bean-shaped	Inverted heart-shaped	Bean-shaped
Capsules	1–2 × 0.6–0.8 cm	0.8–1 × 0.4–0.8 cm	1–1.2 × 0.9–1.1 cm



SRI VENKATESWARA UNIVERSITY DEPARTMENT OF BOTANY KNR HERBARIUM (SVUTY/SBR)			
Field No.	76	Acc. No.	SVUTY-3521
		Date	25.02.2020
Habit	Perennial herb	Locality	Talikota, Andhra Pradesh.
Name of the Plant	<i>Iphigenia magnifica</i> Ansari & R.S. Rao		
Vernacular Name	Unknown		
Family	Cyperaceae		
GPS Coordinates	Latitude	13°48'39.41"N	Altitude
	Longitude	79°12'52.74"E	2588 f
Associated Plants	<i>Cymbopogon</i> sps., <i>Chrysopogon</i> sps., <i>Hyttneria barbacea</i> and <i>Cyperus</i> sps.		
Taxonomic Notes	Perennial tuberous herb, much branched, Stamen filament glabrous		
Ecological Notes	Growing in amidst grasses with gravel and shallow sandy soil at the water bodies. Population is few. Habitat has no threats since present in core zone of Seshachalam B.R.		
Collected by	V. Nagaraju & M. Mahendra Nath		Determined by V. Nagaraju

Fig. 3. Voucher specimen of *Iphigenia magnifica* housed in the herbarium of Department of Botany at Sri Venkateswara University, Tirupati.

Perennial herb, erect, c. 40 cm high; corms subglobose, 1–2 cm across, tunicate, with a delicate short neck covered with tunics. Leaves sessile, basal and cauline, alternate, 4–8, linear-lanceolate, 20–25 × 0.5–0.7 cm, sheathing at base, acute at apex. Racemes

4–6-flowered; pedicels 6–9 cm long, with ridges and grooves, green or yellowish green; bracts linear or linear-lanceolate, 3–5 × 0.1–0.2 cm, leafy. Perianth lobes 6, linear-subulate or linear-elliptic, 1–1.5 × 0.1–0.2 cm, acute at apex, shiny, spreading-incurved

/reflexed, dark brown or brownish purple. Stamens 6, 4–7 mm long; filaments 3–5 mm long, glabrous; anthers oblong or oblong-ovate, 1–2 × c. 1 mm, dark brown. Ovary oblong-obovoid, 2–4 mm long, greenish; stigma trifold. Capsules loculicidal, oblong-obovoid, 1–1.2 × 0.9–1.1 cm, with somewhat rugose surface, green, turning yellowish green to brown when mature, 3-valved, 3-loculed, dried stigmatic lobes persistent until capsule dehisces; seeds many, subglobose, 2–3 mm across, brown.

Phenology

December–February.

Habitat and Ecology

This species found copiously in shaded and open canopy grasslands with gravel, well-drained shallow sandy soil and near water bodies on gentle slopes of rock crevices at Talakona and 'Japalihanuman tirtham' in Tirumala, which are a part of Seshachalam hill ranges in Andhra Pradesh, at elevations ranging from 720 to 910 m. Population is scarce. It is found growing in association with *Cymbopogon* spp., *Chrysopogon* spp., *Byttneria herbacea* Roxb. and *Cyperus* spp.

Distribution

INDIA: Endemic to Western Ghats of Karnataka, Goa and Maharashtra and Eastern Ghats of Andhra Pradesh (reported here).

Specimens examined

INDIA, Andhra Pradesh, Eastern Ghats, Seshachalam hills, 13°48'39.41" N, 79°12'52.74" E, 788 m, Talakona, 05.01.2020, V. Nagaraju & M. Mahendra Nath SVUTY-03521; Japalihanuman tirtham (Tirumala), 13°41'59.98" N, 79°20'22.05" E, 891 m, 04.01.2020, V. Nagaraju & M. Mahendra Nath SVUTY-3829 (Herbarium, Department of Botany, Sri Venkateswara University, Tirupati).

Conservation Assessment

Previous workers (5–7, 21) reported *I. magnifica* as an endemic and vulnerable species confined to the northern Western Ghats. During the explorations in Seshachalam hills it is observed that the sub-population of this species growing in grassland microhabitats, near rocky patches, is in stable condition. The Extent of Occurrence (EOO) and Area of Occupancy (AOO) of this species in Seshachalam hills were calculated using GeoCAT (Geospatial Conservation Assessment Tool): EOO: 8.240 km² and AOO: 9.795 km². However, as a thorough exploration is essential to assess the exact native range of distribution, population size and number of matured individuals of this species in the entire Eastern Ghats hill ranges, the status of this species is provisionally assessed here as Data Deficient following IUCN Categories and Criteria Version 3.1 (22). It is suggested to conserve and protect the ecologically sensitive areas in Seshachalam hills, where such habitat-specific species inhabit. It is also important to conserve this small population of this species in the region as such ecologically sensitive species exhibit narrow seasonality and highly restricted distribution ranges.

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Conflict of interests

Authors do not have any conflict of interests to declare.

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