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

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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 tricarpellary sometimes with 2 to 4 carpels and fruits septicidal or loculicidal capsule (3, 4).

Iphigenia Kunth (Colchicaceae) comprising c. 12 species, is distributed to 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

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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**

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.

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

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<tbody>
<tr>
<td>Habitats</td>
<td>Grasslands and plains</td>
<td>Marshy grasslands with small-sized gravel</td>
<td>Well-drained soil on gentle hillslopes</td>
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<tr>
<td>Plant height</td>
<td>8–15 cm</td>
<td>15–20 cm</td>
<td>15–40 cm</td>
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<tr>
<td>Stems</td>
<td>Not branched</td>
<td>Not branched</td>
<td>Branched</td>
</tr>
<tr>
<td>Leaves</td>
<td>Linear-lanceolate, 15–18 × 0.5–1 cm</td>
<td>Acicular, 10–12 × 0.4–0.8 cm</td>
<td>Linear-lanceolate, 20–25 × 0.5–0.7 cm</td>
</tr>
<tr>
<td>Perianth lobes</td>
<td>Linear, dark brown when young, brown to light green when mature portion</td>
<td>Filiform, dark brown, except light green basal portion</td>
<td>Elliptic-linear, dark brown or brownish purple</td>
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<td>Filaments</td>
<td>c. 4 mm long, hairy</td>
<td>c. 2 mm long, glabrous</td>
<td>3–5 mm long, glabrous</td>
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<tr>
<td>Anthers</td>
<td>Bean-shaped</td>
<td>Inverted heart-shaped</td>
<td>Bean-shaped</td>
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<tr>
<td>Capsules</td>
<td>1–2 × 0.6–0.8 cm</td>
<td>0.8–1 × 0.4–0.8 cm</td>
<td>1–1.2 × 0.9–1.1 cm</td>
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**Fig. 3.** Voucher specimen of *Iphigenia magnifica* housed in the herbarium of Department of Botany at Sri Venkateswara University, Tirupati.
ranges narrow seasonality and highly restricted distribution region as such ecologically sensitive species exhibit areas in Seshachalam hills, where such habitat to conserve and protect the ecologically sensitive hill ranges, the status of this species is provisionally individuals of this species in the entire Eastern Ghats distribution, population size and number of matured AOO: 9.795 km² Conservation Assessment Tool): EOO: 8.240 km² were calculated using GeoCAT (Geospatial Occupancy (AOO) of this species in Seshachalam hills, microhabitats, near rocky patches, is in stable population of this species growing in grassland nearing 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-0521; 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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Additional information

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