



Impatiens arunachalensis (Balsaminaceae), a new species from northeastern India

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Abstract

Impatiens arunachalensis, a new species of *Impatiens* is described from the Upper Siang district of Arunachal Pradesh, northeast India. Detailed descriptions, distribution, and discussion of ecology along with colour photographs are provided.

Key words: Arunachal Pradesh, Balsaminaceae, *Impatiens*, India, new species, Siang.

Introduction

Impatiens Linnaeus (1753: 937) (Balsaminaceae) consists of over one thousand recognized species (Mabberley 2008, Bhaskar 2012, Yu 2012) distributed in the tropical and subtropical regions of the Old World as well as in the northern temperate regions (Mabberley 2008). In India, the genus is represented by more than 210 taxa distributed mainly in the eastern Himalayas including northeastern states and the Western Ghats (Hooker 1908, Vivekananthan *et al.* 1997, Bhaskar 2012). During recent years, a few workers have added several new taxa (Gogoi & Borah 2015a,b,c,d,e; Hareesh *et al.* 2016a,b) from north-east India and south India (Hareesh *et al.*, 2015, Prabhukumar *et al.*, 2015a,b, 2016, Chhabra *et al.* 2016). During a recent exploration to the eastern Himalayas, the authors found some peculiar *Impatiens* growing on wet shady areas near Mariyang, Upper Siang district of Arunachal Pradesh, India. After screening of the relevant literature (Hooker 1875, 1904, 1905, 1906, 1910, Vivekananthan *et al.* 1997, Dessai & Janarthanam 2011, Bhaskar 2012, Yu 2012, Hareesh *et al.* 2016 a,b,c) along with herbarium materials, the present collection is found to be close to *I. arguta* J.D. Hooker & Thomson (1860:37). However, it differs significantly from the latter by several characters. Therefore, the population obviously represents an undescribed taxon and is described here as new. A detailed description along with colour photographs are provided for the easy identification of the taxon.

Taxonomy

Impatiens arunachalensis Hareesh, A. Joe, M. Sabu & R. Gogoi **sp. nov.** (Figure 1)

The new species is similar to *I. arguta* but differs in having prominent ovate to ovate-elliptic leaves, pedunculate flowers, broadly orbicular dorsal petals without a horn; a pouch-shaped lower sepal, suddenly constricted straight spur with coiled or annular tip and notched apex, and recurved basal lobes of lateral united petals with reddish-brown blotches.

Type:—INDIA. Arunachal Pradesh: Upper Siang district, Near Sicom Bridge, Siyat, Mariyang circle, on the way to Yingkiong from Pasighat, 11 July 2015, *V.S. Hareesh & A. Joe 143741* (holotype CAL!, isotype, CAL!).

Annual herbs up to 1 m high; stem sub-terete, glabrous; internodes 2–6.5 cm long, pale green or green, glabrous; nodes swollen, green. Lamina 4–10.5 × 2.5–4.5 cm, ovate to ovate-elliptic, acuminate to cordate acuminate at apex, cuneate at base, glabrous, dark green above and pale green beneath; lamina margin minutely serrate or crenate, serration or crenation apiculate; lateral nerves 6–8 in each side, prominent; petiole 1.5–3.5 cm long glabrous, pale green. Inflorescence axillary, pedunculate, 1–3-flowered; peduncle up to 8 mm long, glabrous, green; pedicel up to

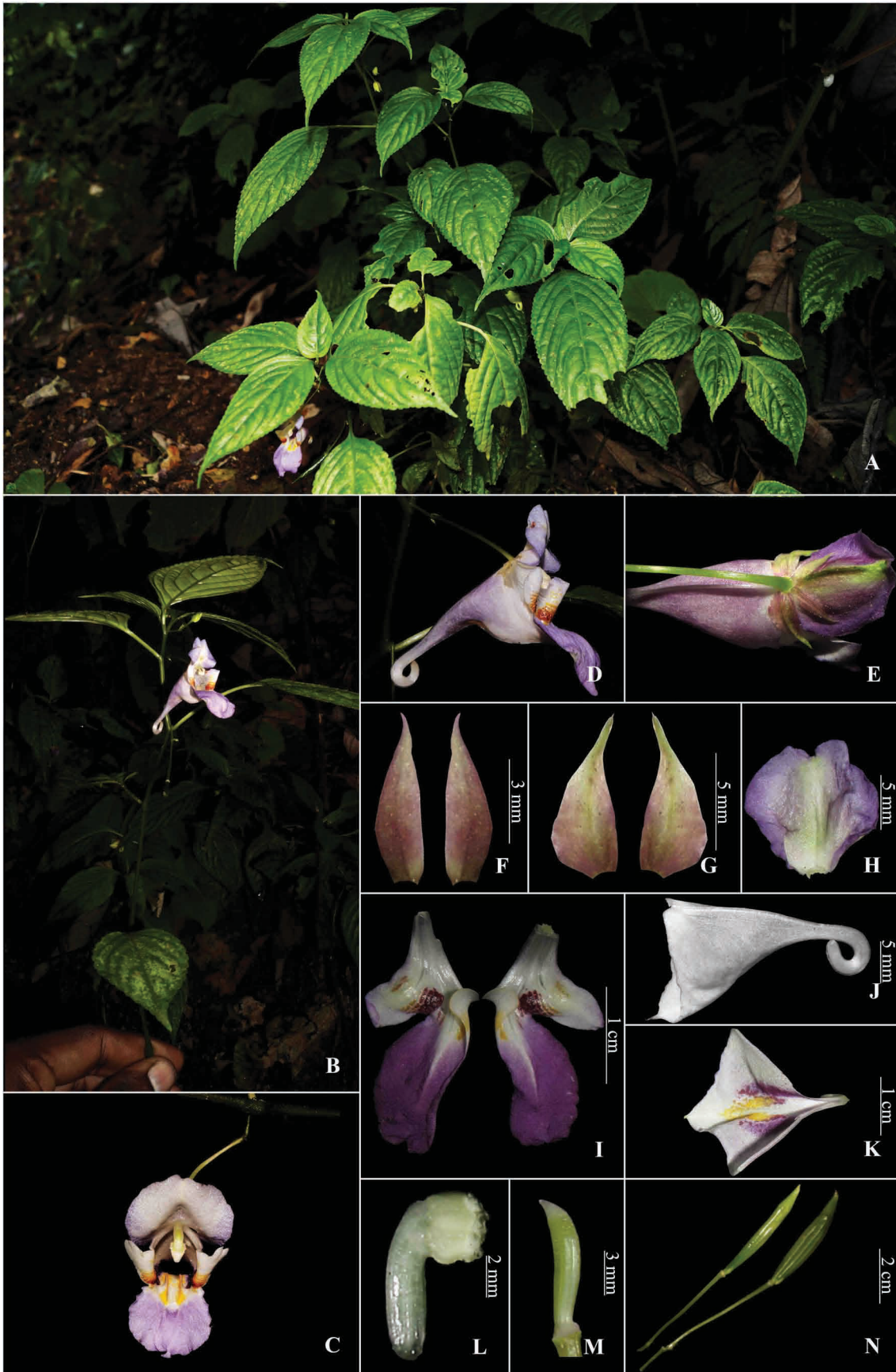


FIGURE 1. *Impatiens arunachalensis* Hareesh *et al.* sp. nov. A. Habit; B. A flowering twig; C–E. Flower (C. Front view, D. Lateral view, E. Top view); F. Inner lateral sepal; G. Outer lateral sepal; H. Dorsal petal; I. Lateral united petals; J. Lateral view of Lower sepals; K. Lower sepal (split opened); L. Stamens encircling the ovary; M. Pistil; N. Capsules. (Photos by V.S. Hareesh)

2 cm long, glabrous, green; bract 2.5–3 mm long, linear, glabrous, green. Flower 3.5–4 × 2.5–3 cm. Lateral sepal 4, outer sepal 2, 8–8.5 × 3.25–3.75 mm, obliquely-ovate, prominently keeled dorsally, apex acuminate, glabrous, pale purple with green keeled portion; inner sepal 2, 6–6.5 × 1.5–2 mm, linear-lanceolate or ovate-lanceolate, acuminate at apex, glabrous, pale purple. Dorsal petal 10–14 × 11–15 mm, broadly orbicular, keeled dorsally, glabrous, purple with greenish keeled portion. Lateral united petals 23–25 × 10–11 mm, 2-lobed; basal lobe 8–9 × 4.5–5 mm, ovate, obtuse to sub-acute at apex, deeply recurved, white to pale purple with reddish-brown blotch; distal lobe 14–16 × 7–8 mm, broadly ovate to dolabriform, deeply notched at apex, white at base and purple towards the apex; dorsal auricle 2.5–3 × 3–3.5 mm, rounded, yellow. Lower sepal 20–22 × 12–14 mm, pouch-shaped with suddenly constricted straight spur, mouth mucronate, glabrous, white to pale purple outer and inner with yellow shade on centre followed by purple shades at both sides. Spur 15–17 mm long, cylindrical, straight with tip coiled or annular; apex notched, glabrous, pale yellow or white. Column 6–8 × ca. 1.5–2 mm, slightly curved; filament 5–6.5 × ca. 1.5 mm, glabrous, white; anther 3–3.5 × ca. 2 mm, glabrous, pale yellow. Pistil 5–7 × ca. 1.5 mm; ovary ellipsoid, pale green. Capsule 2–2.5 × 0.2–0.4 cm long, ellipsoid, glabrous, green; seeds, 2.5–3 × 1.5–2.2 mm, obovate.

Flowering and Fruiting—Flowering starts from mid May and fruiting ends in August.

Etymology—The specific epithet ‘*arunachalensis*’ references the name of the state where this species is found.

Distribution and ecology—*Impatiens arunachalensis* is known only from the East Siang district, near Sicom Bridge, Siyat, Mariyang circle, on the way to Yingkiong from Pasighat. The plant was found growing in the wet shady areas besides the rock in association with *Impatiens arguta*. We observed more than 50 mature individuals in 2015, but in 2016 the number of individuals was reduced to less than 30 because of development activities and natural calamities. The area of occurrence is estimated to be less than 2 km². Based on present knowledge and available data, conservation status is assessed as Critically Endangered (CR).

Additional specimens examined (Paratypes)—INDIA. Arunachal Pradesh: Upper Siang district, Near Sicom Bridge, Siyat, Mariyang circle, on the way to Yingkiong from Pasighat, 21 June 2016, *V.S. Hareesh* CU 149321 (CAL, CALI)

TABLE 1. Diagnostic morphological differences of *Impatiens arunachalensis* sp. nov with *I. arguta*

Characters	<i>I. arunachalensis</i> sp. nov	<i>I. arguta</i>
Flower	Purple with deep pink throat	Purple or pink or purplish-red with yellow throat
Dorsal petal horn	Absent	Present
Basal lobe of lateral united petal	Ovate, recurved backwards	Broadly oblong, straight
Lower sepal	Short bucciniform or pouch-shaped	Bucciniform, elongated
Lower sepal throat	White yellow shade at centre followed by purple shades on both sides	Purple with yellow spot
Spur	Suddenly constricted, straight, tip coiled or annular	Linear, bent at middle or hooked
Spur apex	Notched	Entire

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