

# TWO NEW SPECIES OF *IMPATIENS* (BALSAMINACEAE) FROM INDIA

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## ABSTRACT

Two species of *Impatiens* viz., *I. sholayarensis* and *I. violacea* are described from Kerala, India.

KEY WORDS: Balsaminaceae, *Impatiens sholayarensis*, *Impatiens violacea*, Kerala, India

## RESUMEN

Se describen dos especies de *Impatiens* viz., *I. sholayarensis* e *I. violacea* de Kerala, India.

## INTRODUCTION

The genus *Impatiens* L. consists of about 900 species distributed in tropical Africa and South East Asia, with a few representatives in North America, Europe and East Asia (Grey-Wilson 1985). Of these, 200 species were reported from India (Biju 1999) and are mainly distributed in the Eastern Himalayas and the Western Ghats—the megacenter of endemism in India (Nayar 1996). Among these, there are 86 species of *Impatiens* reported so far from the Western Ghats region (Augustine et al. 1999).

During our studies on the epiphytic flora of the Western Ghats, two epiphytic balsams were collected with striking differences. On critical examination they were found to be new to the science and are described and illustrated here.

**1. *Impatiens sholayarensis*** M. Kumar & Sequiera, sp. nov. (**Figs. 1, 2**). TYPE: INDIA. KERALA: Thrissur Dt., Sholayar, alt. 900m, 9 Oct 1998, Sequiera 20620 (HOLOTYPE: KFRI; ISOTYPE: MH).

*Impatiens kulamavuensi* similis caule moniliformi, foliis aggregatis glabris, sepalis lateralibus glabris, sepalis dorsalibus c. 35 mm longa viridi-flava labello coccineo ore unco prominenti, petala dorsali carinata glabra, petalarum lateralium lobulis spinosis, seminibus sacci- et pyriformibus ciliatis differt.

*Epiphytic* on trees, glabrous; stems thick, fleshy up to 4 cm long, green. *Leaves* crowded towards apex of the stem; petioles 2.5–8 cm long, channeled, light greenish, with two prominent stipitate glands near the base of the blade; lamina ovate to elliptic-lanceolate, 2.3–8 × 1.3–3.2 cm, acute at apex, shortly attenuate at the base, membranaceous, glabrous, light green above, silvery white below, margins crenulate, crenules 4–17 mm apart, crenatures short, furnished with short incurved bristles, lateral veins up to 4 pairs, indistinct. *Inflorescence* a



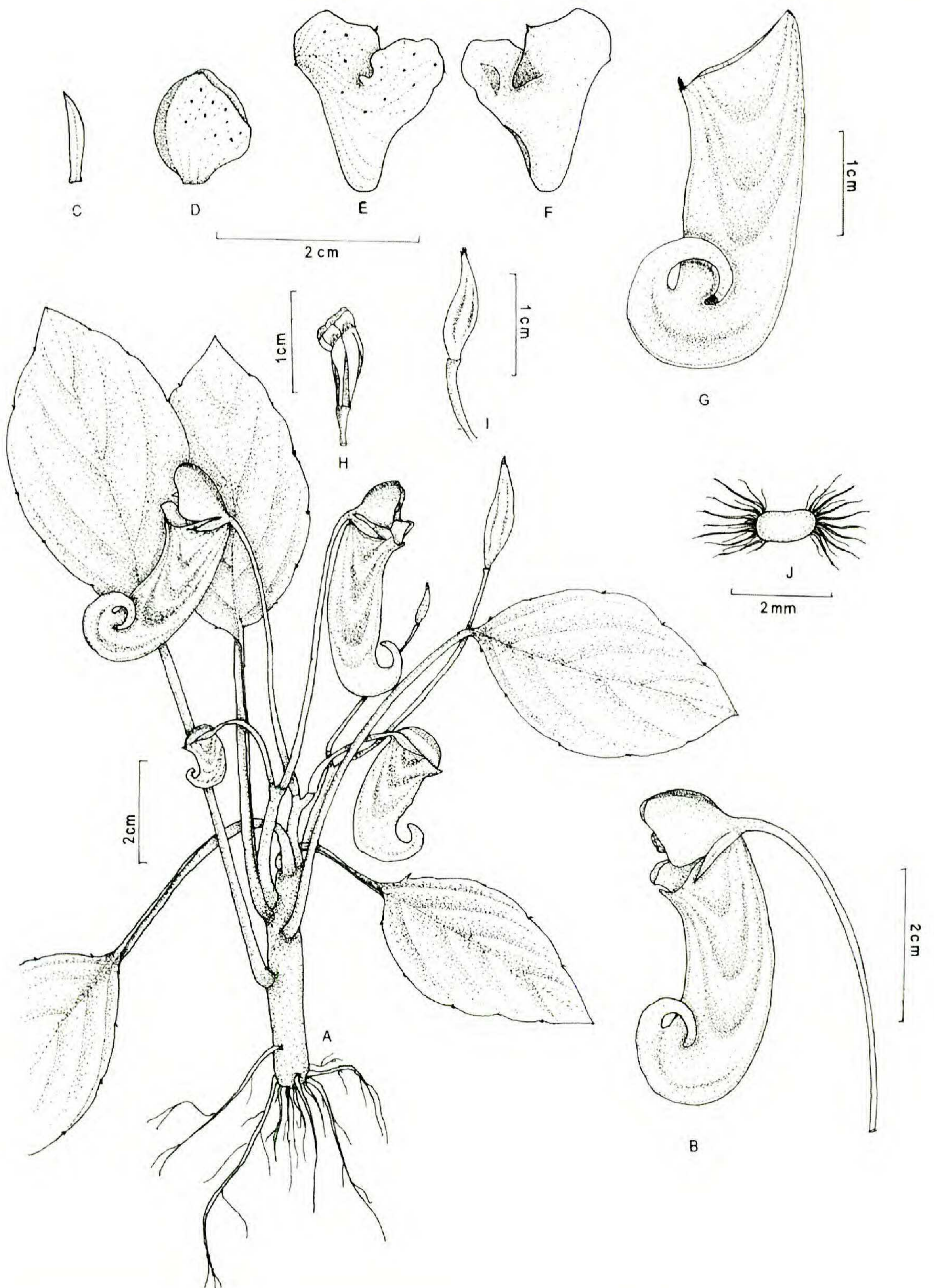


FIG. 1. *Impatiens sholayarensis* M. Kumar & Sequiera. A. Habit. B. Single flower. C. Sepal. D. Dorsal petal. E. Lateral petal (outside view). F. Lateral petal (inside view). G. Lower sepal. H. Pistil. I. Gynoecium. J. Seed.





FIG. 2. *Impatiens sholayarensis* M. Kumar & Sequiera.



FIG. 3. *Impatiens violacea* M. Kumar & Sequiera.



2-flowered raceme, peduncles 1.3–2 cm long, pedicels 2.5–5 cm long, filiform, greenish-white. *Flowers* greenish-yellow with crimson red; *lateral sepals* 0.8–1 × 0.2 cm, linear-ovate, slightly falcate, glabrous on both surfaces; *lower sepal* saccate, compressed, 1–3.5 × 0.5–1.1 cm, glabrous, greenish-yellow with crimson-red, mouth descended, with a prominent hook at the lower side, spur curved, tip obtuse, white; *dorsal petal* erect, 0.6–1.1 × 0.4–0.9 cm, gland dotted, glabrous; *lateral petals* united at the base, 3-lobed, 1.7–1.9 × 1–1.2 cm, upper lobes with a small spine and a pouch. *Androecium* 0.8–1 cm long; stamens 5. *Ovary* elliptic-lanceolate, 1–1.2 × 0.3 cm, slightly falcate, glabrous, stigma straight, toothed. *Capsule* elliptic-lanceolate, up to 1.2 cm long, glabrous. *Seeds* pear shaped, tip ciliate.

This species is allied to *Impatiens kulamavuensis* Pandurangan & V.J. Nair, but differs in having moniliform stem; crowded, glabrous leaves; glabrous lateral sepals; 35 mm long, greenish yellow with crimson red lip with a prominent hook at the mouth; keeled, glabrous dorsal petal; lobules of the lateral petals with a spine & pouch and pear shaped ciliate seeds.

*Distribution.*—*Impatiens sholayarensis* is known only from its type locality.

*Ecology and conservation status.*—*Impatiens sholayarensis* occurs in the evergreen forests at an altitude of 700–800m (type collection has ‘900m’). In the type locality only about 20 populations exist in the wild. Due to its restricted distribution and less number of occurrences this taxon is considered as a critically endangered species. Loss of habitat and destruction of host trees and human interference are the major threats in the area.

*Etymology.*—The species is named after its type locality.

**2. *Impatiens violacea*** M. Kumar & Sequiera, sp. nov. (**Figs. 3, 4**). TYPE: INDIA. KERALA: Idukki Dt., Munnar, Pettimudi, Way to Edamalakudy, alt. 2000m, 25 Aug 1998, *Sequiera* 20731 (HOLOTYPE: KFRI; ISOTYPE: MH).

*Impatiens viridiflora* similis, petiolo violaceo, folii crenaturis, brevibus, floribus violaceis, sepalis lateralibus lineari-lanceolatis glabris, sepalo inferiore violaceo rugoso, apice unco prominenti, petalis dorsalibus viridi-flavis, petalis lateralibus 3-lobatis lobulis lateralibus quibusque sacco minuto, stigmatibus apice obtuso sericeo, seminibus tetragonis laevibus differt.

*Epiphytic* on trees, glabrous, stems thick, 1–1.5 cm in diameter, up to 10 cm high. *Leaves* crowded towards the apex of the stem; petioles up to 3.5 cm long, violet, channeled, with 2 prominent stipitate glands near the base of the blade; lamina lanceolate to ovate-lanceolate, 2–6 × 1.4–4 cm, acute at apex, truncate at base, margins crenulate-serrate, violet, crenules 4–6 mm apart, crenatures short, furnished with short incurved bristles, violet. *Inflorescence* a 1–4 flowered raceme, peduncles 1.5–2 cm long, pedicels 2–4 cm long, violet. *Flowers* violet; *lateral sepals* linear-lanceolate, glabrous, 0.8–1 × 0.2–0.3 cm, slightly keeled on upper side; *lower sepal* saccate, 1.75–2 × 0.6–1.1 cm, violet, glabrous, wrinkled, with a short prominent hook at the mouth; *dorsal petal* erect, 0.6–0.8 × 0.5–0.7 cm, greenish yellow, gland dotted, deeply hooded, hood dark green; *lateral petals* fleshy, 0.8–1 × 0.6–0.8 cm, 3-lobed, gland-dotted, with a small pouch in each



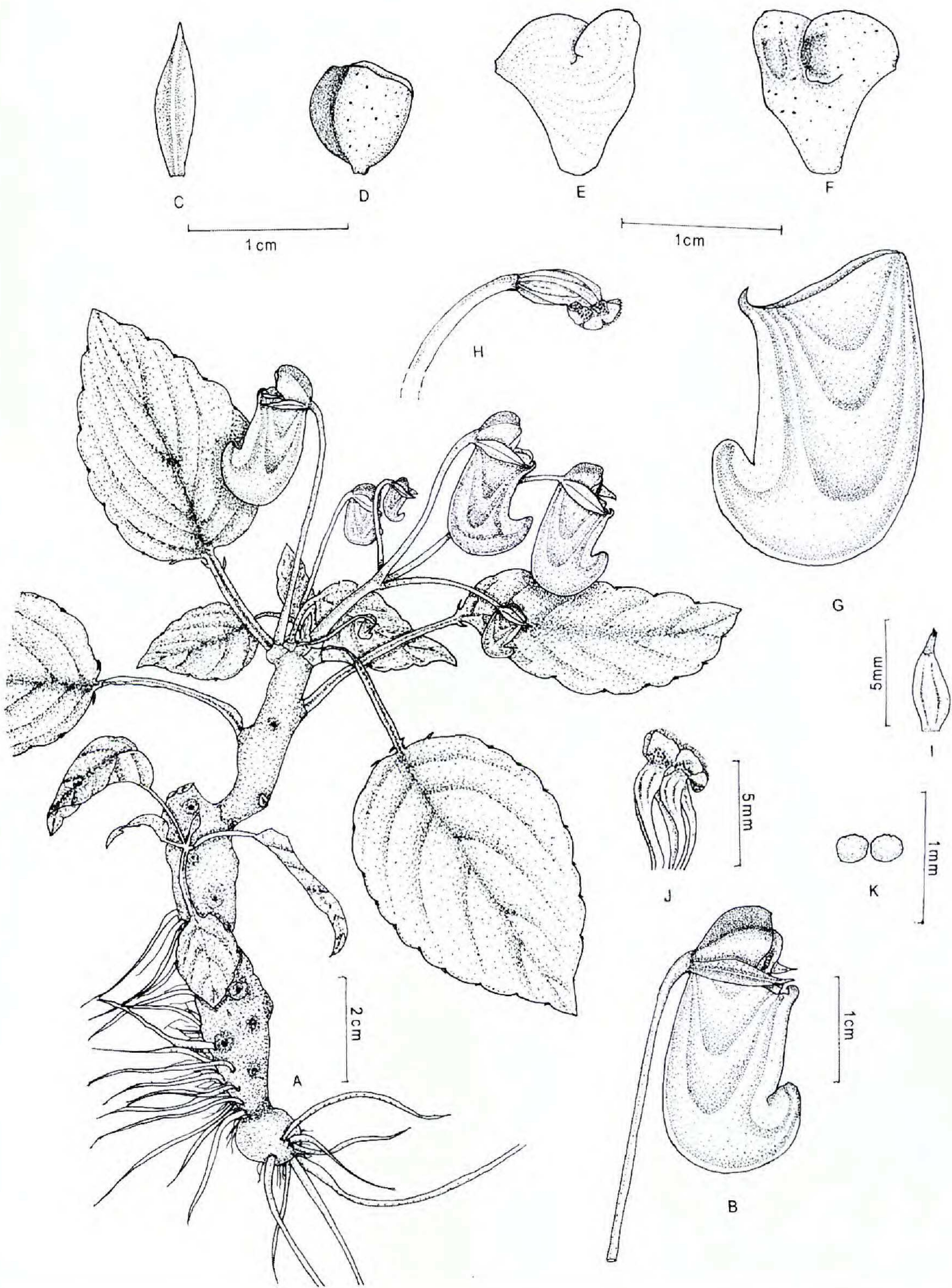


FIG. 4. *Impatiens violacea* M. Kumar & Sequiera. A. Habit. B. Single flower. C. Sepal. D. Dorsal petal. E. Lateral petal (outside). F. Lateral petal (inside). G. Lower sepal. H. Pistil. I. Gynoecium. J. Androecium. K. Seeds.



TABLE 1. Comparison between *Impatiens kulamavuensis* and *Impatiens sholayarensis*.

<b><i>Impatiens kulamavuensis</i></b>	<b><i>Impatiens sholayarensis</i></b>
Stems less than 1 cm	Stems up to 5 cm
Stoloniferous	Stem moniliform
Leaves alternate	Leaves fascicled
Leaves glanduliferous	Leaves glabrous
Lateral sepal hairy out side	Lateral sepal glabrous on both the surfaces
Lower sepal up to 15 mm long	Lower sepal up to 35 mm long
Lower sepal without hook	Lower sepal with a hook at the mouth
Lower sepal greenish-yellow	Lower sepal greenish-yellow with crimson red
Dorsal petal glabrous	Dorsal petal gland dotted
Dorsal petal not keeled	Dorsal petal keeled
Dorsal petals hairy at base	Dorsal petals glabrous
Lobules of the lateral petals without spine and pouch	Lobules of the lateral petals with a spine and pouch
Stigma curved with a silky pubescent apex	Stigma straight with toothed apex
Ovary ellipsoid	Ovary elliptic-lanceolate, slightly falcate
Seeds smooth	Seeds ciliate

TABLE 2. Comparison between *Impatiens violacea* and *Impatiens viridiflora*.

<b><i>I. violacea</i></b>	<b><i>I. viridiflora</i></b>
Petiole violet	Petiole green
Leaves green with violet tinge, nerves violet	Leaves dark green, nerves green
Crenatures short, violet	Crenatures long, green
Peduncles violet bearing 1–4 flowers	Peduncles green bearing 1–3 flowers
Pedicel violet	Pedicel green
Flowers violet	Flowers green
Sepals large, dark green, linear-lanceolate, not deflexed or reflexed, slightly keeled on upper side.	Sepals large, dark green, linear-oblong, deflexed or reflexed, slightly not keeled.
Lower sepal saccate, wrinkled, violet, spur laterally compressed.	Lower sepal saccate, wrinkled, green, spur laterally compressed.
Dorsal petal 2-lobed, yellow-green	Dorsal, 2-lobed, green
Lateral petals 3-lobed, yellow with small pouch in each lateral lobules	Lateral petals 2-lobed, green without small pouch in each lateral lobules
Capsule elliptic ovate	Capsule ellipsoid



lateral lobules. *Androecium* 0.5–0.6 cm long, stamens 5 in number. *Ovary* elliptic-ovate, glabrous, 0.4–0.5 × 0.15–0.2 cm; *style* short; *stigma* with an obtuse silky pubescent tip. *Capsule* elliptic-ovate, 1–1.1 × 0.3–0.4 mm, glabrous. *Seeds* almost tetragonal, smooth.

This species is similar to *Impatiens viridiflora* Wight in its structure and shape but differs in having violet colored petiole, short crenatures; violet colored flowers, lateral sepals linear lanceolate, glabrous, lower sepal violet colored and wrinkled with a prominent hook at the apex; dorsal petal greenish yellow, lateral petals 3 lobed with small pouch in each lateral lobules; stigma with obtuse silky pubescent tip and tetragonal, smooth seeds.

*Distribution*.—*Impatiens violacea* is known from Pettimudi area of Munnar, Idukki Dt., Kerala, India.

*Ecology and conservation status*.—This species occurs only in the montane shola forests at an altitude of 1800–2200 m. Only 50 individuals exist in the wild habitat. Cultivated in KFRI green house for *in situ* conservation. Due to its restricted distribution and less number of individuals occurring in the wild the species is considered as critically endangered. Human interference and habitat destruction are the major threats for this balsam.

*Etymology*.—The species is named after its violet color of the lateral sepal.

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