Studies of *Impatiens* (Balsaminaceae) of Nepal 2. 
*Impatiens jurpia*, *I. urticifolia*, and Allied Species

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Hooker (1874–75) placed *Impatiens jurpia* in Series Biii *Axilliflorae* based on the following characters: 'Leaves all alternate. Flowers in axillary 2–4-flowered peduncles, not umbelled or racemed.' Within this series he included *I. discolor*, *I. spirifer*, *I. porrecta*, *I. scabrida*, *I. tropaeolifolia*, *I. laevigata*, *I. cathcartii*, *I. serrata*, *I. longipes*, *I. urticifolia*, and *I. cymbifera* together with *I. jurpia*. Later, Hooker (1905) modified the system and recognized assemblages 'I 6, 8, and 9' in Series B for the species of Series Biii *Axilliflorae*. Assemblages 'I 6, 8, and 9' fit the characters of Series Biii *Axilliflorae*, but 'I 6' fits. In 'I 6' Hooker included *I. prainii*, *I. nummularifolia*, *I. scitula*, *I. gamblei*, *I. wallichii*, and *I. hobsonii* of the eastern Himalaya from the Kathmandu Valley to Upper Assam (Mishmi Hills) and the Chumbi Valley together with the several species cited above. Among them, *I. jurpia*, *I. cymbifera*, *I. discolor*, *I. urticifolia*, *I. gamblei*, *I. wallichii*, and *I. hobsonii* of the eastern Himalaya from the Kathmandu Valley to Upper Assam (Mishmi Hills) and the Chumbi Valley together with the several species cited above. Among them, *I. jurpia*, *I. cymbifera*, *I. discolor*, *I. urticifolia*, *I. gamblei*, *I. wallichii*, and *I. hobsonii* of the eastern Himalaya from the Kathmandu Valley to Upper Assam (Mishmi Hills) and the Chumbi Valley together with the several species cited above. Among them, *I. jurpia*, *I. cymbifera*, *I. discolor*, *I. urticifolia*, *I. gamblei*, *I. wallichii*, and *I. hobsonii* are reported to occur in Nepal (Hara, 1979). We treat these 6 species, except *I. cymbifera*, in this paper, because of differences in the inflorescence, as mentioned below.

1) Diversity of inflorescence types and chromosome numbers in the assemblage

As pointed out by Hooker (1905), the inflorescence is diverse in Himalayan *Impatiens*, but Hooker’s descriptions of the inflorescences is ambiguous. We studied the inflorescences to clarify their architecture and, as a result, recognize 9 types, mainly based on differences in the position of the bracts, the length and direction of the peduncles, rachise, and pedicels, and the number of flowers (Akiyama and Ohba, 2000). The species of Hooker’s assemblage ‘I 6’ in Series B in Nepal, except for *I. cymbifera*, have type 2 (a and b) inflorescences, as defined by Akiyama and Ohba (2000). In *Impatiens*, the phylogenetic tree supports the evolutionary trends in inflorescence morphology, as well as the basic chromosome number (Fujihashi et al., 2002).

*Impatiens discolor* was grouped in subclade B3 of clade B by Fujihashi et al. (2002), and *I. urticifolia* and *I. wallichii* in subclade A1 of clade A with species of inflorescence types 1 (a
and b), 3, and 6. For the species of Hooker’s assemblage ‘I § 6’ in Series B in Nepal, except for *I. cymbifera*, with inflorescence type 2, two groups are recognized. One group contains only *I. discolor* with 2n = 20 chromosomes: the other group contains *I. urticifolia* and *I. wallichii* with 2n = 18 chromosomes. *Impatiens cymbifera*, grouped in clade A and located between subclades A1 and A2, has type 1a inflorescence. *Impatiens urticifolia* and *I. wallichii*, both belonging to clade A1, have inflorescence type 2 (a and b). Inflorescence type 1a is easily distinguished from inflorescence type 2. In Nepal there are several species of inflorescence type 1a. We believe that *I. cymbifera* should be treated with other species of inflorescence type 1a in clade A.

2) Taxonomic status of *Impatiens kathmanduensis* Grey-Wilson

*Impatiens kathmanduensis* (Grey-Wilson, 1989) has inflorescence type 2b, a bucciniform lower sepal (Fig. 1), and a dorsal petal with a crest-like appendage. Grey-Wilson (1989) distinguished *I. kathmanduensis* from *I. jurpia* by the presence of superfluous bracts below the lowest flower of the inflorescence, a short peduncle and a short appendage on the dorsal petal, but he did not directly compare *I. kathmanduensis* with the most closely related species, *I. discolor*, owing to the color difference of their flowers. Grey-Wilson (1989) reported the flowers of *I. jurpia* and its allies to be basically pale yellow or white and those of *I. discolor* basically mauve or purple. In the protologue the flowers of *I. discolor* are described as yellow [flores flavii] (de Candolle, 1824). We also observed the flowers of *I. discolor* in Nepal to be nearly pure white, sometimes shaded pink, and the lower sepal white, pale yellow or pale pink (Akiyama et al., 1991).

*Impatiens discolor* has the lower sepal with abrupt constriction and a conspicuously incurved spur (Akiyama et al., 1991). We observed specimens with the spur intermediate between *I. discolor* (Fig. 2c) and *I. kathmanduensis* (Fig. 2b). *Impatiens discolor* also has superfluous bracts below the lowest flower of the inflorescence, a short peduncle and a short appendage on the dorsal petal. The type specimen of *I. discolor* in G has the apex of the spur of the lower sepal conspicuously incurved (Fig. 3).

We treat *I. kathmanduensis* as conspecific with *I. discolor*. Hooker’s sketch of the flower together with a photocopy of the type of *I. discolor* and the corresponding letters of Hooker and de Candolle are on a herbarium sheet in K. Hooker’s sketch of the lower sepal of the flower (Fig. 4) is most valuable in defining *I. discolor*.

3) Resemblance among the species

*Impatiens jurpia* (Figs. 5, 6) and *I. discolor* (including *I. kathmanduensis*) are similar in having a racemose inflorescence and a crest-like appendage on the dorsal petal, but they are distinguished by the shape of the spur of the lower sepal. *Impatiens jurpia* has a slightly incurved spur (Fig. 2a); the spur of *I. discolor* is conspicuously incurved overall or at the apex (Figs. 2b & c, 4).

Although no molecular or chromosomal evidence is available for *I. gamblei* and *I. hobsonii*, those two species have a similar dorsal petal without a crest-like appendage, as in *I. urticifolia* and *I. wallichii*. Hooker (1905) distinguished these four species by the shape of the lower lobe of the lateral united petals, i.e. dolabriform (I. wallichii and I. hobsonii) or loriform (*I. urticifolia* and *I. gamblei*). *Impatiens hobsonii* (Fig. 7) and *I. gamblei* (Fig. 8) are extremely difficult to distinguish on herbarium specimens, because the shape and size of the lower lobe of the lateral united petals is almost impossible to determine owing to the poor condition of the specimens. Grey-Wilson (1991) treated those two species as synonyms of *I. kingii*, which is in Bhutan and Sikkim. The shape of the lower sepal with spur of *I. hobsonii* (Fig. 9b) is similar to that of *I. gamblei* (Fig. 9d). As pointed out by Hooker (1905), the shape of the lower lobe of the lateral united petals of *I. wallichii* is dolabriform (Fig. 10d) while that of *I. urticifolia* (Akiyama et al., 1991) and *I. gamblei* is loriform (Fig. 10j, q). Although we have no material of *I. hobsonii* to
Fig. 1. Holotype of *Impatiens kathmanduensis* Grey-Wilson (Schilling 1071, K).
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examine the lateral united petals, at present we follow Hooker (1905) and treat *I. hobsonii* and *I. gamblei* as distinct species because of the differences in the shape of the lower lobe of the lateral united petals. To determine the stability and variation in floral features, further specimens of good quality collected at numerous localities are needed.

*Impatiens wallichii* is characterized by the S-shaped spur of the lower sepal and lack of an elongate tip at the oblique mouth (Figs. 9a, 10a–f, 11). *Impatiens urticifolia* is characterized by the lower sepal with an elongate tip at the vertical mouth and a forwardly incurved spur (Figs. 9c, 12).

4) Infrageneric treatment

We concluded that the Nepalese species in this assemblage (i.e. *I. jurpia*, *I. discolor*, *I. urticifolia*, *I. gamblei*, *I. wallichii*, and *I. hobsonii*), except *I. cymbifera*, constitute two natural groups distinguished from sect. *Axilliflorae*, which we name here sect. *Jurpia* (nov.), including *I. jurpia* and *I. discolor*, and sect. *Urticifoliae* (nov.), including *I. urticifolia*, *I. gamblei*, *I. wallichii*, and *I. hobsonii*. As pointed out in the introduction, Hooker’s assemblages ‘I § 6 and 8’ do not fit the characters of Series B III *Axilliflorae*.

[Systematic treatment]


Type: *I. jurpia* Buch. Ham. ex Hook.f. & Thomson


Inflorescences pendulous, racemose, with few to many flowers [Type 2a and 2b (Akiyama and Ohba, 2000)]. Leaves alternate. Flowers yellow or whitish with reddish to yellowish spur; lower sepal bucciniform; dorsal petal with crest-like appendage.

Distr. E Himalaya.

Species: *I. discolor* DC. and *I. jurpia* Buch.-Ham. ex Hook.f. & Thomson (type).

**Key to the species of sect. Jurpia in Nepal**

1a. Spur of lower sepal slightly incurved overall; crest-like appendage of dorsal petal (4–)6–16 mm long......................................................................................................................... 1. *I. jurpia*

1b. Spur of lower sepal conspicuously incurved at apex or overall; crest-like appendage of dorsal petal 3–6 mm long ........................................................................................................................................... 2. *I. discolor*
Fig. 3. Holotype of *Impatiens discolor* DC. (Wallich s.n., G00218031).

Herbs, perennial, erect, more than 30 cm tall, pubescent, glabrescent. Leaves alternate, petiolate; petiole 0.5–4.5 (–5.5) cm long; blade herbaceous, elliptical to elliptic-ovate, 7.5–19.2 cm × 3–6.2 cm, base attenuate, margins shallowly crenate, apex acuminate, both surfaces scabrid on veins or rarely nearly glabrous. Inflorescences racemose, 3.5–10.5 cm long, axillary, not aggregated on apical part of stem, with 2–7 flowers, sometimes with 1–4 bracts below lowest flower. Peduncle 2.5–6.5 cm long, pubescent. Pedicels 10–25 mm long, glabrous, with a bract at base. Flowers yellow, 2.8–3.5 cm long, 3.5–4.6 cm deep. Lateral sepal 2, ovate, ca. 5 mm long. Lower sepal bucciniform, 15–21 mm long, 13–18 mm deep (excluding spur), constricted into spur; spur slightly incurved, 8–15 mm long, apex sometimes slightly swollen and bifid. Dorsal petal ca. 12 mm long, ca. 13 mm wide when flattened, apex slightly retuse, base rounded, slightly cucullate, with crest-like appendage (4–)6–16 mm long. Lateral united petals ca. 27 mm long; upper lobe widely oblong, ca. 18 mm long, ca. 11 mm wide, apex slightly retuse, midvein extending to apex; lower lobe oblique-ovate, ca. 18 mm long, ca. 8 mm wide, apex rounded, midvein extending to inner margin. Anthers with appendage or without(?).


Specimens collected in Darjeeling have a crest-like appendage 10–16 mm long, but in other

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Fig. 4. Hooker’s sketch of the lower sepal of the flower of the type of *Impatiens discolor* DC.
Fig. 5. Lectotype of *Impatiens jurpia* Buch.-Ham. ex Hook.f. (Hamilton, 14 July 1810, in Wallich Herb. no. 4761[A], K-W[K001039839]).
regions it is only 4–9 mm long. Grey-Wilson (1989) distinguished *I. kathmanduensis* from *I. jurpia* by the presence of superfluous bracts below the flowers in the inflorescence, the short peduncle and the short appendage on the dorsal petal, but some specimens of *I. jurpia* also have superfluous bracts below the flowers and a short appendage on the dorsal petal (4–5 mm). He (Grey-Wilson, 1989) also mentioned the slightly bifid apex of the lower sepal in *I. kathmanduensis*, but *I. jurpia* sometimes also has such a lower sepal (Fig. 6e). The shape of the spur of the lower sepal is one of the significant characters to distinguish these two species.

Hooker (1905) reported *I. jurpia* to have muci-cose anthers (i.e. without appendages), but we observed anthers with appendages in the specimens Hara et al. 6300490 (TI) and Kanai et al. 721576 (TI) and in an illustration at Kew.


Herbs perennial, erect, 15–35(–60) cm tall, pubescent, glabrescent. Leaves alternate, petiolate; petiole (3–)5–35 mm long; blade herba-ceous, elliptic to elliptic-ovate, or ovate, 4–12 cm × 2–6.5 cm, base attenuate, margins shallowly crenate, apex acuminate, both surfaces scabrid on veins or nearly glabrous on lower surface. Inflorescences racemose, 1.5–5.8 cm long, axillary, not aggregated on apical part of stem, with (1 or)2–5 flowers, sometimes with 1–4 bracts below the lowest flower. Peduncle 8–12 mm long, glabrous. Pedicels 10–19 mm long, glabrous with a bract at base. Flowers white or pink with reddish veins; 2.3–2.5 cm long, 3–4 cm deep. Lateral sepals 4, inner ones minute; or 2, widely ovate to ovate, 6–12 mm long. Lower sepal bucciniform, 15–20 mm long, 16–25 mm deep (excluding spur), abruptly constricted into spur; spur conspicuously incurved at apex or overall, 10–15 mm long in overall length, apex sometimes slightly swollen and bifid. Dorsal petal cucullate, 13–16 mm long, 14–18 mm wide when flattened, apex rounded, base rounded, with crest-like appendage 3–6 mm. Lateral united petals 28–34 mm long; upper lobe widely oblong, 14–17 mm long, 8–10 mm wide, apex emarginate; lower lobe oblique, narrowly
Fig. 7. *Impatiens hobsonii* Hook.f. (Stainton 828, BM, cited in Hara, 1979).
Fig. 8. Lectotype of *Impatiens gamblei* Hook.f. (Gamble 8423, K000694669).
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oovate to oblanceolate with an appendage at inner basal part, 17–23 mm long, 8–15 mm wide, apex rounded (sometimes slightly emarginate). Anthers with appendage. Fruit clavate ca. 2 cm.


Impatiens L. sect. Urticifoliae S.Akiyama & H.Ohba, sect. nov.

Type: I. irticifolia Wall.


Inflorescences pendulous, racemose, with few to many flowers [Type 2a and 2b (Akiyama & Ohba, 2000)]. Leaves alternate. Flowers yellow or purple; lower sepal bucciniform; dorsal petal without crest-like appendage.

Distr. E Himalaya.

Species: I. gamblei Hook.f., I. hobsonii Hook.f., I. irticifolia Wall. (type), and I. wallichii Hook.f.

Key to the species of sect. Urticifoliae in Nepal

1a. Lower lobe of lateral united petals dolabriform .......................................................... 2
1b. Lower lobe of lateral united petals loriform, tailed ....................................................... 3
2a. Flowers pale yellow with orange spots; spur curved downward usually S-shaped ... 1. I. wallichii
2b. Flowers purple; spur incurved forward, not S-shaped .............................................. 2. I. hobsonii
3a. Flowers yellow with reddish veins; lower sepal with elongate tip at vertical mouth, spur incurved forward ............................................................................................................. 3. I. irticifolia
3b. Flowers purple; lower sepal without elongate tip at oblique mouth, spur curved downward or incurved forward .......................................................... 4. I. gamblei

[Figs. 9a, 10a–f, 11]

Herbs perennial(?), erect, 26–60 cm tall, almost glabrous. Leaves alternate, petiolate or sessile in upper part of stem; petiole 2–10 mm long; blade herbaceous, widely ovate (to elliptic), 5–10.3 cm × 2.3–5 cm, base cuneate to truncate or rounded, margins crenate with 17–26 notches on one side in larger leaves, apex acuminate, lower surfaces sometimes scabrid on veins. Inflorescences racemose, 2–6 cm long, axillary, not aggregated on apical part of stem, with (1 or)2–4 flowers. Peduncle 2–5 cm long. Pedicels 10–20 mm long, with a bract at base or sometimes on pedicel. Flowers pale yellow with orange spots, 2.5–3.5 cm long, 2.5–3.5 cm deep. Lateral sepals 2, ovate, ca. 5 mm long, with a few glands on margins, apex gland-tipped. Lower sepal bucciniform, 15–20 mm long, 13–15 mm deep (excluding spur), constricted into spur; spur downwardly curved, usually slightly S-shaped, 7–8 mm long. Dorsal petal ca. 12 mm long, ca. 15 mm wide when flattened, base rounded, apex slightly retuse, slightly cucullate, without crest-like appendage. Lateral united petals ca. 3 cm long; upper lobe widely ovate, ca. 14 mm long, ca. 10 mm wide, apex truncate; lower lobe elliptic, ca. 22 mm long, ca. 7 mm wide, apex rounded. Anthers without appendage.

Specimens examined: Nepal. Bhiroukunda, 4100 m (Maire s.n., BM). Kali Gandaki, Larjung, S. of Tukucha, 10000 ft. (Stainton et al. 1951, E). Kali Gandaki, Taglund (S. of Tukucha), 12000 ft. (Stainton et al. 1756, E). Lamjung Himal, 13500 ft. (Stainton et al. 6353, E). Lamjung Himal, Rambrong, 13500 ft. (Stainton et al. 6140, E). Above Lumsum, 10000 ft. (Stainton et al. 4339, E). Bagmati Zone, Rasuwa Distr., A Kharka–Pati Kharka, 28°15′N 85°10′E, 3900 m (Miyamoto, Akiyama et al. 9420163, TI); Chyauche Kharka–Lingju, 28°14′N 85°07′E, 3730 m (Miyamoto, Akiyama et al. 9420240, TI); Pabil Kharka–Kharka (near Seto Kund), 28°15′N 85°07′E, 3550 m (Miyamoto, Akiyama et al. 9420193, TI); Seto Kund–Chyauche Kharka, 28°13′N 85°12′E, 4000 m (Miyamoto, Akiyama et al. 9420232, TI); Sunchet Kharka–Lipchet Kharka, 28°07′N 85°07′E, 3500 m (Miyamoto, Akiyama et al. 9420279, TI).

*Impatiens wallichii* is similar to *I. urticifolia*, but differs in the dolabriform (not loriform tailed) lower lobe of the lateral united petals, slightly S-shaped spur and widely ovate leaves. It grows at high elevations, 3000–4200 m, in Central Nepal. Hooker (1905) cited ‘Central Nepal and Sikkim, alt. 10,000–11,000 ft.’ in the protologue, but we have not seen material from Sikkim.


[Figs. 7, 9b]

Herbs erect, 40–50 cm tall, almost glabrous. Leaves alternate, petiolate or sessile in upper part of stem; petiole 1–2.8 cm long; blade elliptic to lanceolate, 5.8–13 cm × 2.8–4 cm, base attenuate, margins crenate, apex acuminate, lower surface nearly glabrous or with minute hairs on veins. Inflorescences racemose, axillary, with 3–6 flowers. Peduncle 4.5–7 cm long. Pedicels 10–16 mm
long, with a bract at base. Flowers purple, ca. 25 mm long, ca. 25 mm deep. Lower sepal baccate, ca. 20 mm long, ca. 15 mm deep (excluding spur), abruptly constricted into spur; spur forwardly curved, ca. 7 mm long.


We have not seen sufficient material of Impatiens hobsonii to determine the shape of the flower, especially the lateral united petals.


Herbs, erect, 40–80 cm tall, almost glabrous or pubescent. Leaves alternate, petiolate or sessile in upper part of stem; petiole 5–25 mm long; blade elliptic to narrowly elliptic to lanceolate or broadly lanceolate, (5–)7–18 cm × 3–6.5 cm, base long attenuate to attenuate, margins crenate to crenulate, apex acuminate or acute, both surfaces nearly glabrous. Inflorescences racemose, axillary not aggregated on apical part of stem, 5–14 cm long, with 3–6 flowers. Peduncle (2–)5–13 cm long. Pedicels 15–28 mm long, with a bract at base. Bracts narrowly ovate, 3–7 mm long. Flowers yellow with red spots and stripes, 3–4.3(–5) cm long, 2.5–3.5 cm deep. Lateral sepals 4, inner ones 2–3 mm long; or sometimes 2, ovate to widely lanceolate, 5–6 mm long, with...
Fig. 11. Lectotype of *Impatiens wallichii* Hook.f. (Wallich 4767, K-W[K001039857], upper right and left branches). The lower middle branch (K001039856) is *I. discolor* det. J. D. Hooker.
a few glands on margins, apex gland-tipped. Lower sepal bucciniform, 20–26 mm long, 10–13 mm deep (excluding spur), with elongate tip and vertical mouth, constricted into spur, spur forwardly incurved, 13–16 mm long in overall length. Dorsal petal cucullate, 10–12 mm long, 14–16 mm wide when flattened, without crest-like appendage. Lateral united petals 26–40 mm long; upper lobe widely oblong to nearly square, 11–12 mm long, 6–8 mm wide, apex rounded or truncate; lower lobe triangular-ovate to obovate, loriiform tailed, 16–29 mm long, 6–7 mm wide. Anthers without appendage.

Additional specimens examined (addition to Akiyama et al., 1991). Nepal. Arun Valley, Choooyang Khola, W. of Num, 10,500 ft. (Stanton 752, A, E, TI); Kalingchok, Thala–Tale Bisauna, 2050–2750 m (Kanai et al., 10 Sept. 1970, TI). Bajura Distr., Pattegaon–Badigaon, 29°31′E, 2660 m (Suzuki 9715240, T); between Lama Hotel and Ghora Tabela, just southwest of Ghora Tabela, 3048 m (H. Van T. et al. N163, A); Lama Hotel–Shin-
dum, 28°10′N 85°26′E (Noshiro 9154520, TI); Pabil Kharka–a Kharka, 28°15′ 85°07′, 3650 m (Miyamoto, Akiyama et al. 9420196, TI); Chy-
auche Kharka–Lingju, 28°14′ 85°07′, 3730 m (Miyamoto, Akiyama et al. 9420238, TI). Sankhuwa Sabha (Sankhuwasawa) Distr., Bhainsi Kharka–Khongma (Kauma), 27°35′N 87°15′E, 2900 m (Suzuki et al. 8850385, TI); Bhuje, 2700 m (Kanai, Ohba et al. 721075, TI); Gidde–Khokling, 27°25′N 87°28′E (Ohba, Akiyama et al. 9120113, TI); Khokling–Jaljale, 27°27′ 87°27′ (Ohba, Akiyama et al. 9120122, TI); Kongma–Tashi Gaun, 27°40′N 87°10′E, 2150–3510 m (Minaki et al. 9020912, TI); Man-
gal Bare–Gupha Pokhari, 27°15′ 87°30′ (Ohba, Akiyama et al. 9120065). Solukhumbu Distr., Dudh Kund–Thasing Dingma, 27°42′N 86°50′E, 3305 m (Miyamoto et al. 9596491, TI); Junbesi–Kensa, 27°35′N 86°32′E, 3100 m (Miyamoto et al. 9592558, TI); Junbesi–Sete, 27°34′N 86°32′E, 3250 m (Wakabayashi et al. 9715306, TI); Mosom Kharka–Tashing Dingma, 27°40′N 86°49′E, 3270 m (Wakabayashi et al. 9715240, TI); 3430 m (Wakabayashi et al. 9720285, TI).

Bhutan. Nr Sheedrang, S of Sengor, 27°21′ 91°01′, c. 2800 m (Grierson & Long 1933, E).

Impatiens urticifolia is characterized and distin-
guished from the other three species of section Urticifoliae by the lower sepal with elongate tip and vertical mouth and the longer peduncle (to 13 cm).


Herbs, perennial(?), erect, 30–60 cm tall, almost glabrous. Leaves alternate, petiolate or nearly sessile in upper part of stem; petiole 2–25 mm long; blade herbaceous, elliptic, 5–12.5 cm × 2–4 cm, base attenuate, margins cre-
nate with 15–24 notches on one side, apex acu-
minate. Inflorescences racemose, axillary, 2.5–
7.3 cm long, with (1 or)2–4 flowers. Peduncle 2–6.5 cm long. Pedicels 10–20 mm long, with a
Fig. 12. Lectotype of *Impatiens urticifolia* Wall. (Wallich 4768, K-W[K001039858]).
bract at base or sometimes on pedicel. Bract narrowly ovate, 3–5 mm long. Flowers purple, 2.5–3.5 cm long, 3–3.3 cm deep. Lateral sepals 2 or 4, ovate, 3–6 mm long; inner ones sometimes minute. Lower sepal bucciniform, ca. 21 mm long, ca. 16 mm deep (excluding spur), without elongate tip at oblique mouth, abruptly constricted into spur; spur downwardly or forwardly curved, ca. 8 mm long overall. Dorsal petal, ca. 12 mm long, ca 14 mm wide when flattened, apex rounded to slightly retuse, base rounded to truncate, without crest-like appendage. Lateral united petals 30–35 mm long; upper lobe widely oblong, ca. 14 mm long, ca. 7 mm wide, apex rounded, lower lobe triangular-ovate, loriform tailed, 22–27 mm long, 6–7 mm wide, apex acute to rounded. Anthers without appendage.

Specimens examined: Nepal. Tijure Phedi–Tijure, 2800 m (Kanai, Ohba et al. 721126, TI). Koshi Zone, Sanjuwa Sabha Distr., Jaljale Himal, Shuwan Kharka–Topke Gola, 3570–4360 m (Ohba, Akiyama et al. 9120291, TI). Sikkim. Darjeeling, Kalopokri–Sandakphu (Hara s.n. in 16 Sept. 1964, TI); Sandakphu, 3600 m (Kanai, Ohba et al. 723232, TI). Singalila, Mane(y) Bhanjan–Tonglu, 2200–3150 m (Hara et al. 69890, TI); Tonglu, 2800–3100 m (Hara et al. 69891, TI); Tonglu–Kalapokharia, 2800–3100 m (Hara et al. 69892, TI); Sandakphu–Tonglu, 2800–3970 m (Hara et al. 69893, TI).

*Impatiens gamblei* is similar to *I. urticifolia* Wall. but distinguished by the shape of the lower sepal without elongate tip at the oblique mouth. Hooker (1905) distinguished it from *I. urticifolia* by the size of leaves (1–3 inch long, mostly petiolate vs. 3–8 inch long, mostly sessile). From our observations the leaf blade is 5–12.5 cm long, while the leaf blade of *I. urticifolia* is (5–)7–18 cm long, making it impossible to distinguish these two species by leaf length. Grey-Wilson (1991) treated *I. gamblei* as a synonym of *I. kengii* and distinguished it from *I. urticifolia* by the 4 lateral sepals and lateral united petals (32–36 mm long; 37–42 mm long in *I. urticifolia*). But *I. gamblei* sometimes has 4 lateral sepals (the inner ones minute) or 2 lateral sepals and lateral united petals 30–35 mm long. *Impatiens urticifolia* also has 2 or 4 lateral sepals and lateral united petals 26–40 mm long.

*Impatiens gamblei* has a bract at the base of the pedicel, or sometimes on the pedicel. Although the bract is sometimes on the pedicel, the inflorescence is considered to be a raceme, type 2b.

*Impatiens gamblei* was reported from Sikkim and Chumbi, alt. 8000–12000 ft. (Hooker, 1905). We examined the original material from Sikkim (Darjeeling, Sandukpho, 11500 ft., J. S. Gamble 8423, Sept. 1880, K000694669), but have not seen material from Chumbi.

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**References**


