

Originals

Notes on East Himalayan Species of *Impatiens* (1)

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東部ヒマラヤ産ツリフネソウ属新知見 (1)

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Two new species of *Impatiens* are described based on recent collections from eastern Himalaya; *I. mallae* S. Akiyama et al. from east Nepal and *I. griersonii* S. Akiyama et al. from west Bhutan. New localities of *I. sunkoshiensis* S. Akiyama et al. and *I. discolor* DC. are reported. Variation of the shape of lower sepals in *I. scabrida* DC. is discussed.

Akiyama, Ohba and Wakabayashi (1991) published a revisional note of sixteen species of *Impatiens* found in central and east Nepal with two new species. The present note aims to describe two new species of *Impatiens* found in east Nepal and west Bhutan, and report on the extension of distribution range of two species. This also provides some new data of the lower sepal of *Impatiens scabrida* DC. for discussion about the variation. The measurement of flower parts and terminology are those of Akiyama et al. (1991).

1) *Impatiens mallae* S Akiyama, H Ohba et M Suzuki, sp. nov. [Figs. 1 and 2a-g]

Floribus gracilibus roseis, infimis sepalis gracilibus tubularibus inferne verrucosculis, calcaribus

recto vel deorsum leviter curvato congeneribus diversa. A *Impatiens stenantha* Hook.f., *I. drepanophra* Hook.f. et speciebus aggregatis floribus roseis nec luteis, calcaribus rectis vel deorsum curvatis et foliis lineari-ellipticis bene differt.

Typus: E Nepal. Koshi Zone, Sankhuwa Sabha Distr., Khongma (Kauma) – Tashi Gaun (Tashigaon), 2160–3500 m in alt. Suzuki et al. no. 8821106 (TI-holotype; KATH-isotype).

Plants 20–30 cm tall. Leaves alternate, not conspicuously aggregated at apical part of stem, with petioles (almost sessile) 1–2 mm long, lamina linear-elliptic, 5–7 cm long, 0.5–0.8 cm wide, apex round usually with a little point less



Fig. 1. *Impatiens mallae* (Type).

than 1 mm long, base attenuate, margin crenate (with a little point less than 1 mm long at each sinus), glabrous on both surfaces.

Inflorescences racemes, borne from the upper leaves, 1.5–2.5 cm long, with 1–3 flowers.

Peduncles 1.2–1.5 cm long. Pedicels nearly glabrous, ca. 1 cm long, with a bract at base. Bract narrowly ovate or lanceolate, apex slightly awned, ca. 1 mm long.

Flowers 3–3.5 cm deep. Lateral sepals 4 (2

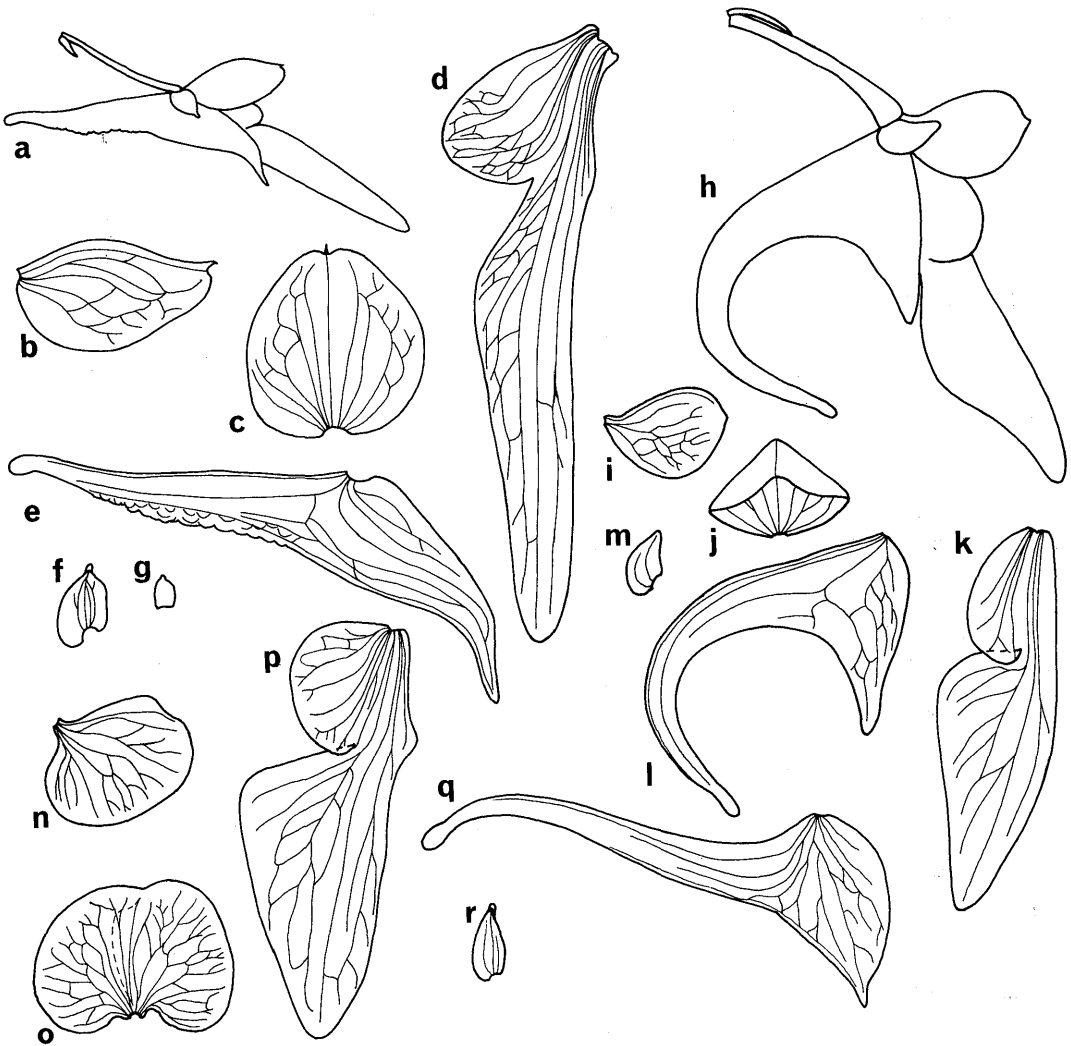


Fig. 2. *Impatiens malleae* (a–g: Suzuki et al. no. 8821106), *I. griersonii* (h–m: Suzuki et al. no. 9121110) and *I. sunkoshiensis* (n–r: Suzuki et al. no. 9121104). a and h: Flower. b, c, i, j, n and o: Dorsal petal. d, k and p: Lateral united petals. e, l and q: Lower sepal. f: Lower lateral sepal. g: Upper lateral sepal. m and r: Lateral sepal. a $\times 1.5$, b–g and n–r $\times 3$, h–m $\times 6$.

pairs); lower pair large, ovate, 2.5–3 mm long, 2–2.5 mm wide; upper pair minute, membranaceous, ca. 1 mm long. Lower sepal pink, 10–12 mm long, 12–15 mm deep (including spur), navicular, tapering into spur, lower side warty. Dorsal petal pink, ca. 8 mm long, ca. 8 mm wide, when flattened, cuculate, without crest-like appendage, apex acute. Lateral united petals pink, 23–28 mm long; upper lobe ovate,

ca. 8 mm long, ca. 5 mm wide; lower lobe 18–20 mm long, ca. 4 mm wide, linear-elliptic. Anthers without appendage.

Other specimens examined. E Nepal. Koshi Zone, Sankhuwa Sabha Distr., Khongma (Kauma) – Tashi Gaun (Tashigaon), 2160–3500 m in alt. Suzuki et al. no. 8850757 (TI); Bhainsi Kharka – Khongma (Kauma), 2540–3500 m in alt. Suzuki et al. no. 8850391 (TI).

Impatiens mallae is well characterized by the pinkish long and narrow flowers and the slender tubular lower sepals with a straight or slightly downturn spur as well as the warty lower surface. This species is somewhat similar to the species of the aggregate comprising *I. stenantha* Hook.f., *I. drepanophora* Hook.f. and others characterizing by the combination of basically yellow flowers, upturned spurs and slender twisted lips. From them *I. mallae* greatly differs by having pinkish flowers, straight or downturn spurs and linear-elliptic leaves.

Impatiens mallae has collected from two localities in the Arun valley area (Suzuki 1988), where it grows along a trail in a damp evergreen broad-leaved forest comprising the species of *Castanopsis*. It seems to be not a particularly curious or showy but a rather common species only escaped from botanical eyes.

We dedicated the epithet in honour of Dr. Samar B. Malla, former director of Department of Forestry and Plant Research, Kathmandu, for his collaboration on the floristic studies in Nepal.

2) *Impatiens griersonii* S Akiyama, H Ohba et M Suzuki, sp. nov. [Fig. 2h–m]

Species ad similes *Impatiens racemosae* DC., sed a qua et lobis distalibus petalorum unitorum lateralium angusti triangularive obovatis nec bilobis et floribus albis statim dignoscenda.

Typus: Bhutan. Thimphu Distr., Barshong – Dodena, 2480–3500 m in alt. Suzuki et al. no. 9121110 (TI).

Plants 30–50 cm tall. Leaves alternate, somewhat aggregated at apical part of stem, with petioles 0.8–1 cm long, lamina lanceolate, ca. 6 cm long, ca. 2.5 cm wide, apex acute, base attenuate, margin crenate, nearly glabrous on both surfaces.

Inflorescences racemes, 3–5 cm long, axillary, with 4–8 flowers. Peduncles 1.5–2 cm long.

Pedicels nearly glabrous, ca. 1 cm long.

Flowers white, 8–10 mm long, 8–12 mm deep. Lateral sepals 2, ca. 1 mm long, ovate. Lower sepal white, navicular, tapering into a curved spur, 4–5 mm long, 10–12 mm deep including spur. Dorsal petal white, 2–3 mm long, 3–4 mm wide, when flattened, cuculate, without a crest-like appendage. Lateral united petals white, 8–9 mm long; upper lobe ovate, ca. 3 mm long, ca. 1.5 mm wide; lower lobe narrowly obovate or triangular-obovate, not bilobulate, ca. 6 mm long, ca. 2.5 mm wide. Anthers without appendage.

Impatiens racemosa and its closely related species, commonly having racemose inflorescences and yellow flowers with boat-shaped lower sepals tapering into a long downturn spur, are distributed in the area involving Nepal, Sikkim, Bhutan, S Tibet, SW China, and specifically and geographically separated from one another by the one or few differences in the size and shape of lateral united petals. *Impatiens griersonii* is similar to the species in this aggregate but fundamentally different with essentially whitish flowers and lateral united petals with a narrowly obovate or triangular-obovate and never bilobed lower lobe.

This species grows along a trail in shady forest, and the habitat is well separated from that of *I. racemosa* restricted in rather sunny place.

We named this species in honour of late Dr. A J C Grierson (1929–1991), Royal Botanic Garden, Edinburgh, for his contribution to Bhutanese flora.

3) *Impatiens sunkoshiensis* S Akiyama, H Ohba et Wakabayashi in Ohba and Malla, *Him. Pl.* 2: 77 (1991). [Fig. 2n–r]

An additional specimen examined. Bhutan. Thimphu Distr., Barshong – Dodena, 2480–3530 m in alt. Suzuki et al. no. 9121104 (TI).

Impatiens sunkoshiensis was described by the specimens from between Sete and Taktor with

elevation of 2550–3200 m, Solukhumbu District, east Nepal and also collected from several places in the same District and Rolwaling Khola, central Nepal.

The species is similar to *I. graciliflora* Hook.f. and *I. radiata* Hook.f., but differs from the former by the short, few-flowered (not radiated) racemes as well as the lower sepals with a conspicuous, straight spur shorter than the length of lower sepal, and from the latter by the large lateral united petals with obtriangular or narrowly obovate to semi-orbicular lower lobe around 6 mm wide and also the racemose inflorescences.

The first and third authors have collected this near Barshong (alt. ca. 3400 m) in Bhutan, where

the species makes small colony along a trail in shady forest.

The Bhutan plant exactly agrees with those of Nepal (Fig. 1n–r). The species extends the distribution range to Bhutan interruptedly. So far it has not been found in the east of Arun valley in Nepal nor in Sikkim where it might reasonably be expected to occur.

4) *Impatiens discolor* DC., Prodr. 1: 687 (1824); Akiyama et al. in Him. Pl. 2: 81 (1991).

[Fig. 3a–e]

An additional specimen examined. Bhutan. Thimphu Distr., Dolau Kench – Dodena, 2480–3280 m in alt. Suzuki et al. no. 9121111 (TI).

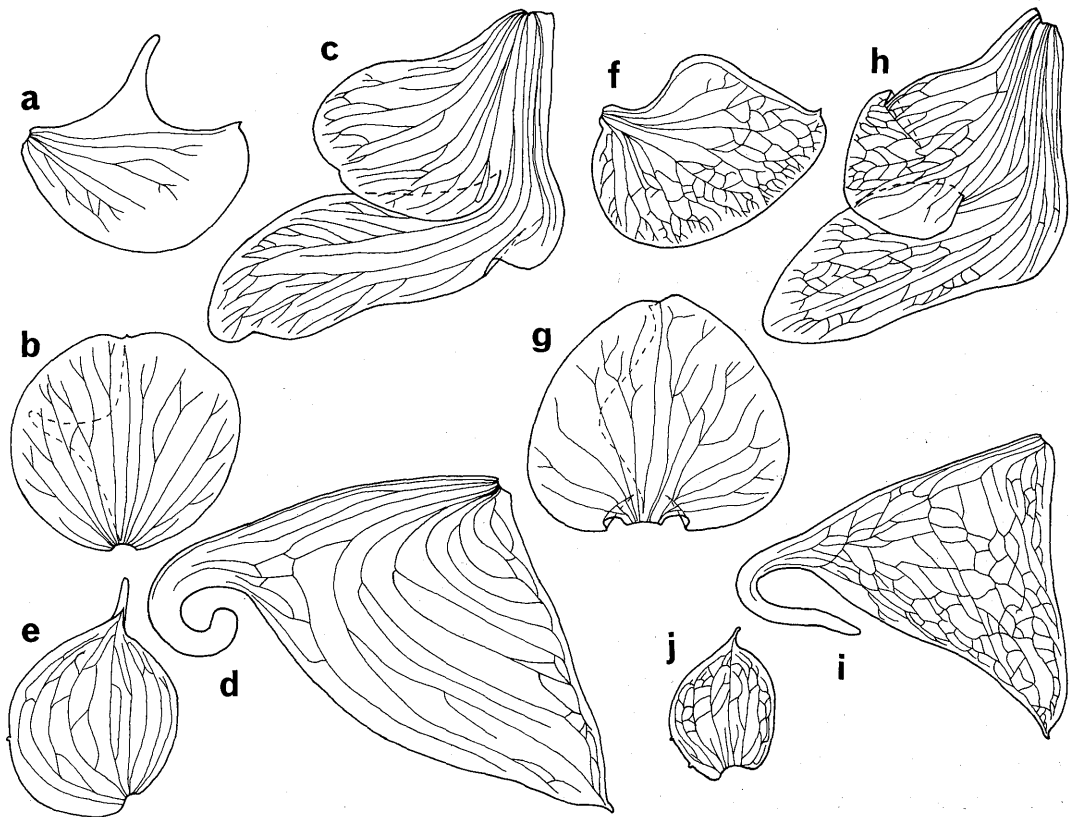


Fig. 3. *Impatiens discolor* (a–e: Suzuki et al. no. 9121111) and *I. scabrada* (f–j: Suzuki et al. no. 9121005). a, b, f and g: Dorsal petal. c and h: Lateral united petals. d and i: Lower sepal. e and j: Lateral sepal. All $\times 2.5$.

Impatiens discolor is well characterized by the lateral united petals with a dolabriform lower lobe, the cuspidate anthers, saccately bucciniform lower sepals white or pale yellow with deep orangish stripes as well as the helmet-shaped dorsal petals with a conspicuous crest. In east Nepal the authors have seen many times in many places to grow sporadically on shady soil-rich trail-side banks in subalpine *Rhododendron arboreum*-forests.

The first and third authors have found this between Dolau Kench and Dodena in Bhutan, where it grows by a trail in shady forest. The significant floral features exactly agree with those from Nepal and Sikkim. The range of the species extends from west Nepal to Bhutan through central and east Nepal and Sikkim.

5) *Impatiens scabrida* DC., Prodr. 1: 687 (1824); Akiyama et al. in Him. Pl. 2: 83 (1991).

[Fig. 3f–j]

This species often has flowers with asymmetrically arranged lateral united petals when viewed from the front. The lower sepals is bucciniform but the ratio of the length and the depth shows a wide range of variation. In central and east Nepal the depth is usually longer than the length; so that the shape of the lower sepals seems to be rather tubular. However, in this species some flowers have funnel-shaped lower sepals in which the length is longer than the depth, and the shape becomes similar to that of *I. urticifolia* Wall. In *I. scabrida* the latter shape seems to be rare in Nepal as far as observed.

Fig. 4 shows the ratio of the length and the depth of the lower sepals. It suggests that the difference is not fundamental, and continuous through intermediate forms between tubular and funnel-shaped. Both tubular and funnel-shaped lower sepals are found in Nepal and Bhutan, and no geographical tendency in the variation can be found.

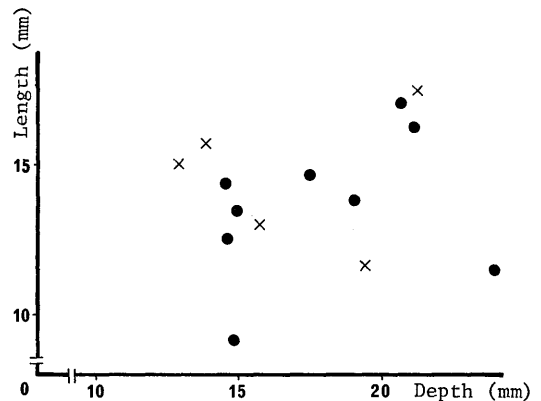


Fig. 4. Variation in size of the lower sepal of *Impatiens scabrida* ●: Nepal. ×: Bhutan.

Impatiens scabrida, even having funnel-shaped lower sepals, is easily distinguished from *I. urticifolia* by the crested dorsal petal and the ovate lower lobe of the lateral united petals with obtuse apex as well as the bract located in the middle portion of the pedicel.

Additional specimens examined and measured (others were cited in Akiyama et al. 1991). C Nepal. Godawari (Godavari), 1500 m in alt. Hara et al. no. 6306731 (TI); Hara et al. no. 69870 (TI); Kanai no. 674472 (TI). Takumsibang, 5500 ft. in alt. Stainton et al. no. 4247 (TI). Dhanche, 1800 m in alt. Shakya & Adhikari no. 611 (TI). Bhutan. Paro Distr., Druk-Gyel Dzong – Gunitshawa, 2440–2700 m in alt. Suzuki et al. no. 9121005 (TI). Rinchu – Mishichen, 1300–1400 m in alt. Hara et al. no. 14050 (TI). Chima Khoti – Phuntsholing, 900–2150 m in alt. Hara et al. no. 131 (TI). Mishichen – Khosa, 1400–1600 m in alt. Hara et al. no. 13534 (TI). Khosa – Tamji, 1800–2200 m in alt. Kanai et al. no. 13203 (TI).

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要 旨

最近の東部ヒマラヤ地域の調査で採集された標本を調べたところ、2新種が見いだされたので *Impatiens mallae*, *I. griersonii* と命名し記載した。

また、*Impatiens. sunkoshiensis* と *I. discolor* はブータンにも産することが判り、従来知られていた分布域が広がった。*Impatiens scabrida* は下萼片（唇弁）の形にかなり幅の広い変異がみられるので、標本にもとづいて計測し、その変異が連続的なものであることを明らかにした。