

## Three New Species of the Thai *Impatiens* (Balsaminaceae). Part 3

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**Abstract** Three new species of *Impatiens* (Balsaminaceae) from Thailand, *I. tribounii*, *I. phahompokensis*, and *I. phengklaii* are described based on specimens deposited in the herbarium of the Queen Sirikit Botanic Garden, Thailand. *I. tribounii* and *I. phahompokensis*, are characterized by yellow flower and *I. phengklaii* is characterized by orange-red one. *I. tribounii* and *I. phengklaii* are endemic in Kanchanaburi, SW part of Thailand, while *I. phahompokensis* is endemic in Chiang Mai, N part of Thailand.

**Key words:** Thailand, Balsaminaceae, new species, *Impatiens tribounii*, *Impatiens phahompokensis*, *Impatiens phengklaii*.

### Introduction

In 2001 February, we had an opportunity to make cooperative taxonomic study of *Impatiens* concerning to the specimens deposited in the herbarium of the Queen Sirikit Botanic Garden, Chiang Mai, Thailand. In the study, we found some unnamed species of this genus. The present paper aims to describe three of them as a report of a serial study on the taxonomy of *Impatiens* of Thailand to be continued from the previous paper (Shimizu, 2000).

### Results and Discussions

#### 1. *Impatiens tribounii* T. Shimizu et P. Suksathan sp. nov.

Herba annua, caulis ascendans, 30–40 cm altus, superiore viridis. Folia alterna, congesta, lateral nervis prominent, longe petiolata, lamina membranacea, elliptica vel ovata, ad 20 cm longa et 10 cm lata, glandulae 2, basi costa. Flores numericae in racemi longe pedunculatae, alae flavae sed lobis distalis ruber striatae, axillares solitariae vel binae, et pedicelli 1 cm longi, ad basis bracteata, sepala lateralia 2, elliptica. Alae inter se connatae, inter medio basi unicornata, bilobata ad apicem. Ovaria glabra, 4-loculata, vexillum 1.1 cm longa 0.8 cm lata.

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Erect succulent annual herb, young parts puberulent. Leaves light green with greenish-white midribs, spirally arranged, congested on the top of stem; lamina elliptic-ovate up to 20×10 cm, apex acuminate, base cuneate to acute, crenulate to slightly serrate along margin, puberulous on both surfaces, membranaceous, with two glands at the base of midrib on lower surface, glands indistinct when dry; lateral veins up to 12 pairs; petioles up to 14 cm long. Inflorescence a single raceme of 7.5–8.5 cm long, subterminal, 10-many-flowered, pedunculate, puberulent; peduncle ca. 26 cm long. Flowers bright yellow, 1–2 in each bract, pedicelate of ca. 1 cm long, with 1–2 linear bracteoles of 3–4 mm long at the base; bracts lanceolate, 10×2.5 mm, apex long acuminate, margin entire to sharply serrate, with 2 basal glands; lateral sepals 2, pale yellow, asymmetrically ovate, 10×6 mm, apex acuminate, puberulent on outer surface; lower sepals yellow, with numerous reddish-orange spots inside, ca. 1 cm deep, spur yellow, turgid, shortly hooked, ca. 6 mm long; dorsal petal yellow, elliptic-oblong, ca. 1.1 cm long, slightly curved backward, apex emarginated, with a short thorn-like point at

the base of sinus, costa narrowly winged, green, puberulent; lateral united petals connate, lower petals bright yellow, ca. 10×7 mm, fused about half of the length, upper petals yellow, with 5–6 orange-red stripes, 14×5 mm. Ovary glabrous, 4 locules, vexillum 1.1×0.8 cm. Capsules clavate, ca. 1.5 cm long, glabrous (Figs. 4–6). Seeds 2–4, heart-shaped, ca. 4 mm long.

**Type:** Kanchanaburi province, Thong Pha Phum district, base of limestone range near Wat Pu Ye, *P. Suksathan* & *P. Tribouni* 3037, herb grows on shady limestone in mixed bamboo forest, ca. 300 m Alt., Aug. 18, 2001 (Fig. 1), (**holotype:** QBG!).

**Distribution:** Endemic, known only from the type locality, rather rare.

It is one of the members of *Semeiocardium* zolling (=sect.) T. Shimizu, characterized by 4-carpellate ovary, connate wing petals, and the yellow-orange color of flowers. No other Thai species have bright yellow-orange flowers such as this species.

## 2. *Impatiens phahompokensis* T. Shimizu et P. Suksathan sp. nov.

Herba 1 m altus. Folia vix congesta supra caules, lamina 4.5–9.0 cm longa 2.1–3.9 cm lata; petiolis 3.8 cm longis sine stipula glande. Flores valde flavi, axillares solitarii vel bini, et pedicelli 1.5–2 cm longi, sepala lateralialia 2, elliptica, petalis superioribus rubro-maculatis.

Procumbent herb, ca. 40 cm high, wholly pubescent. Leaves alternate, somewhat congested towards the upper part of stems; lamina elliptic to ovate 4.5–9.0×2.1–3.9 cm, apex acuminate, base cuneate, crenulate to serrate along margin, sparsely pubescent on both surface, chartaceous, basal glands absent or minute projections; lateral veins up to 14 pairs; petioles up to 3.8 cm long. Flowers yellow with 2 red round patches on upper lateral petals, axillary, solitary without peduncle, or in a pair with peduncle of ca. 2 cm long, pedicels 1.5–2 cm long; lateral sepals 2, yellowish green, suborbicular, ca. 1.4 cm across, apiculate, pubescent on outer surface; lower sepals yellow, saccate, ca. 1 cm deep, inner sur-

face glabrous, with or without pale red reticulate-veins, outer surface pubescent, spur entirely yellow, ca. 3.3 cm long; dorsal petals yellow, ovate-oblong, 1.6×1.4 cm, apex sometimes emarginated, costa broadly winged on the lower half, c 5 mm wide; lateral united petals free, lower petals yellow 12×7 mm, upper petals yellow with one red patch at the middle of the lobe, ca. 13 mm long (Figs. 7–9). Ovary glabrous. Capsule and seed not seen.

**Type:** Chiang Mai province, Mae Aai district, Doi Pha Hom Pok, ca. 1,800 m alt., *P. Suksathan* 1411, herb grows in light shade of marshy steam banks in lower montane forest, Nov. 8, 1998 (**holotype:** QBG!, Fig. 2), (**isotype:** TNS).

**Distribution:** Endemic, known only from the type locality from altitude 1,700–2000 m., locally common.

## 3. *Impatiens phengklaii* T. Shimizu et P. Suksathan sp. nov.

Herba annua ca. 40 cm alta. Folia superiore congesta, lamina oblanceolata vel elliptica, posticus anguste ovata. Folia sub-membranacea, petiolus usque ad 18 cm, lamina usque ad 16.5 cm longa 4–6 cm lata, margine crenata. Flores 2–8 in corymbasa, longe pedunculata, alae atro aurantiaca, axillares solitarii, et pedicelli 2 cm longi, ad basis bracteata, sepala lateralialia 2, ovata.

Erect succulent perennial herb, ca. 40 cm high, wholly glabrous. Leaves spirally arranged, congested on the top of stem; lamina oblanceolate to elliptic rarely ovate, up to 16.5×4–6 cm, apex acuminate, long-cuneate at base, crenulate on margin, with 2 glands at 1–2 cm above the base; lateral veins up to 8 pairs; petioles up to 18 cm long. Inflorescences axillary, corymbose, 2–4(–8)-flowered, pedunculate; peduncles up to 18 cm long. Flowers orange-red, bracteate; bracts elliptic 6–10×3–4 mm, apiculate, pedicels ca. 2 cm long; lateral sepals 2, ovate, 12–14×8–10 mm, apiculate; lower sepals saccate, ca. 2 cm deep, with dark red patch inside, spur short, hooked, turgid, ca. 1 cm long; dorsal petal broadly elliptic 1.8×1 cm; lateral united petals connate, entirely orange, lower petals ca. 12 mm long, upper petals



Fig. 1. Holotype of *Impatiens tribounii*.



Fig. 2. Holotype of *Impatiens phahompokensis*.

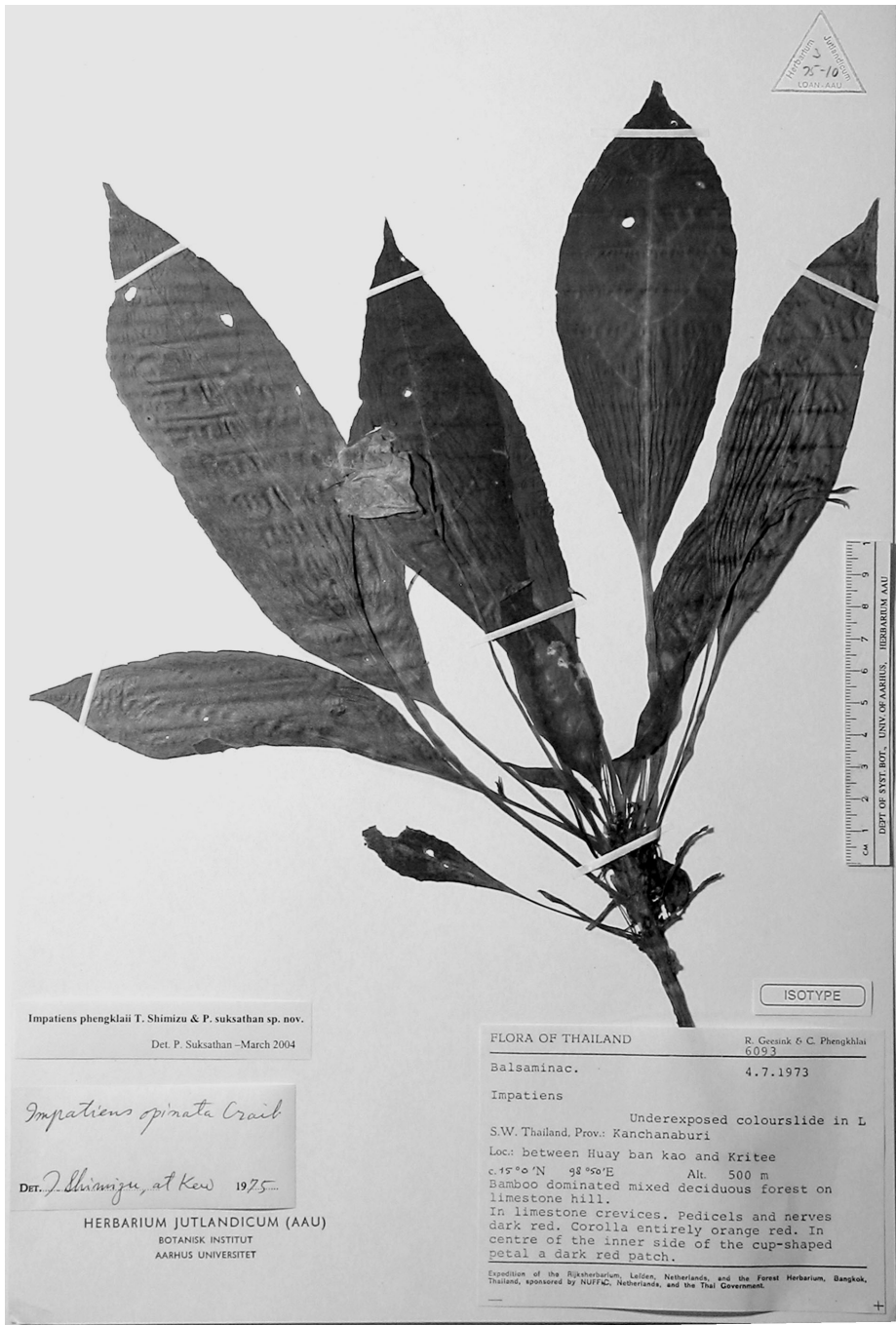
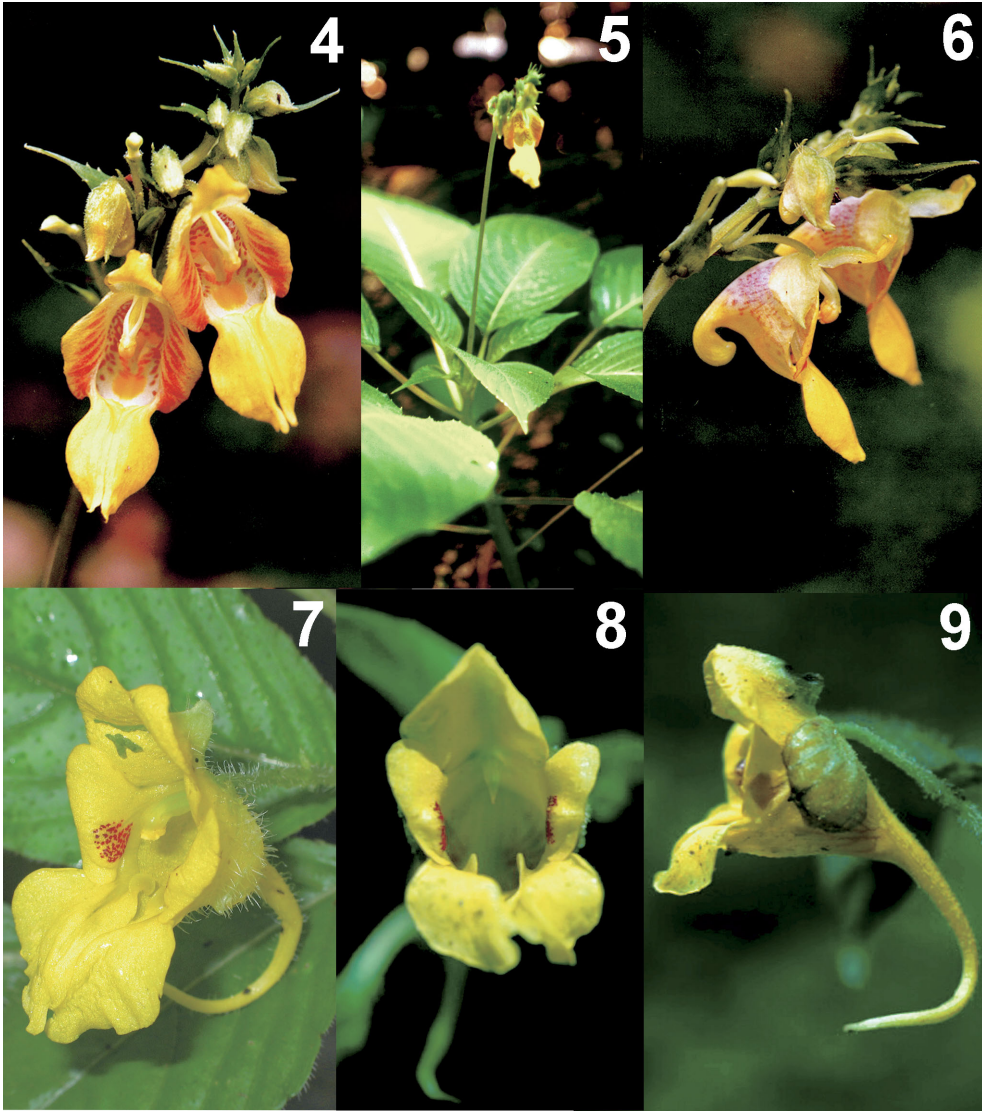


Fig. 3. *Impatiens phengklaii*.



- Fig. 4. Front view of flowers of *Impatiens tribounii* showing yellow upper petals with 5–6 orange-red stripes (holotype).
- Fig. 5. Whole plant of *Impatiens tribounii* showing radical leaves (holotype).
- Fig. 6. Lateral view of *Impatiens tribounii* showing short spur (holotype).
- Fig. 7. Oblique front view of a flower of *Impatiens phahompokensis* showing red patches on upper lateral petal (holotype).
- Fig. 8. Front view of a flower of *Impatiens phahompokensis* (holotype).
- Fig. 9. Lateral view of a flower of *Impatiens phahompokensis* showing long spur of the lip (holotype).

20×10 mm. Ovary glabrous. Mature capsule and seed not seen.

**Type:** Kanchanaburi province, between Huay Ban Kao and Kritee, R. Geesink & C. Phengkhai 6093. July 4, 1973, 500 m alt., Bamboo dominated mixed deciduous forest in limestone hills (**holotype:** P!, Fig. 3, **isotype:** AAU!)

**Distribution:** Endemic, known only from the type locality.

This species also characterized by flowers with united lateral petals, orange in color and long petioles as well as peduncles up to 18 cm long. It is also grows in limestone area as the most species of *Semeiocardium* do.

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