

A REVISION OF FORMOSAN *IMPATIENS* (BALSAMINACEAE)⁽¹⁾

TSENG-CHIENG HUANG⁽²⁾

Abstract: Three species of *Impatiens* have been described in this paper and one of them, *I. devollii*, is a new species. This new species is dedicated to one of our senior staff members, Dr. Charles E. DeVol for his past 15 year's contribution to our Botany Department, National Taiwan University at the time of his retirement in the summer of August 1973.

Impatiens Linn. 凤仙花属

Erect, glabrous herbs. Leaves alternate, lanceolate-elliptic or elliptic, apex acuminate, base cuneate-obtuse or attenuate, margins serrate or crenate, glabrous or hairy, petiolate; stipules absent. Flowers zygomorphic, bisexual, terminal or axillary, solitary or raceme, yellow, pale purple, reddish purple or white; sepals 3, 2 lateral ones small, lip saccate, sac with linear straight or recurved spur; petals 3, standard often apiculate, lateral wings often 2-3-lobed; stamens 5, monadelphous; ovary linear, with short style; capsules loculically dehiscent.

About 400 species in the temperate and tropical parts of the world; 3 species in Taiwan.

KEY TO THE SPECIES

- Flowery (3-)6 on racemes; pedicellate bract usually one; spur simple; bristles on the upper side of crenatures; wing-petals bilobed, short lobe wider.....(1) *I. devollii*
- Flowers 1(-2); pedicellate bracts usually two; spur usually biforked; bristles on teeth-apex or emarginate apex; wing-petals bilobed or trilobed, short lobe narrower
 - Leaves glabrous; wing-petals bilobed; staminate column flat inside; anthers obtuse; flowers yellow(2) *I. tayemonii*
 - Leaves hispid; wing-petals trilobed; staminate column prominently thickly ringed inside; anthers caudate; flowers reddish-purple, pale purple or white(3) *I. uniflora*

1. *Impatiens devollii* Huang, sp. nov. 棣慕華鳳仙花

Plate 1

A. *I. tayemonii* Hayata inflorescentia racemosa differ.

Herbae erectae 30-60 cm altae paucе ramosae tereticulae. Folia petiolata petiolis 1-3.5 cm longis laminis ellipticis vel lanceolato-ellipticis 5-14 cm longis 2-5 cm latis apice caudato-acuminatis basi cuneatis marginе crenatis et seta. Racemi terminales vel axillares tri- ad sex-floribus pedunculis 3-8 cm longis, pedicellis 1-5 mm longis, 1- bracteatis, bracteis 4 mm longis. Calyx sepalis 3; lateralia 2 elliptica 5.5 mm longa; labellum saccatum calcari lineari recto vel recurvato 2.2 cm longo. Corolla lutea petalis 3; vexillum obovatum 6.5 mm longum apice obtuseum et apiculatum; alae semi-oblongae 9-17 mm longae bilobatae inaequaliter. Stamina 5, filamentis complanatis inaequalibus 4-5.5 mm longis, antheris circum pistillum cohaerentibus. Ovarium lineare 5 mm longum. Capsula elongata 2-2.5 cm longa. Semina oblonga granulata circ. 3 mm longa.

(1) Supported by a grant "Flora of Taiwan" sponsored by NSC.

(2) 黃增泉 Professor of Botany, NTU.

Erect herbs, 30–60 cm tall, branches few, stems terete. Leaves petiolate, petioles 1–3.5 mm long, blades elliptic or lanceolate-elliptic, 5–14 cm long, 2–5 cm wide, apex caudate-acuminate, base cuneate, margins crenate and with bristles on the upper side of the sinuses of the convex teeth (crenatures). Racemes terminal or axillary, 3–6-flowered, peduncles 3–8 cm long, pedicels 1–5 cm long, 1–bracteate, bracts 4 mm long; calyx of 3 sepals, 2 lateral ones elliptic, 5.5 mm long, lip saccate, sac with a linear undivided straight or recurved spur, 2.2 cm long; corolla yellow, of 3 petals, standard obovate, 6.5 mm long, apex obtuse, apiculate, 2 lateral wings semi-oblong, 9–17 mm long, unequally bilobed; stamens 5, monadelphous, 4–5.5 mm long, anthers apices obtuse, filaments fused at upper part; ovary linear, 5 mm long, with unbranched style. Capsules loculicidally dehiscent, 2–2.5 cm long. Seeds oblong, granulate, about 3 mm long.

Growing under forest shade or edges at altitudes of 2000–2100 m high.

Hsinchu Dist.: Kuanwu, Huang 4143a (holotype, TAI), 4088, 4142, S. Sasaki s. n. July 17, 1932, Y. Simada 2534A.

This species is closely related to *I. tayemonii* Hayata but differs from the latter by its racemose inflorescences, simple spur without biforked tip, one pedicellate bract, larger leaves with bristles on the upper side of the sinuses of the convex teeth, larger plant body, longer pedicels, longer peduncles, and larger floral parts.

2. *Impatiens tayemonii* Hayata, Ic. Pl. Formos. 5: 4–5, 1916. 丽雾鳳仙花 **Plate 2**

Erect, glabrous herbs, stems terete, 25–50 cm tall. Leaves alternate, lanceolate-elliptic, 4–10 cm long, 1.3–3 cm wide, apex acuminate, base cuneate-obtuse or attenuate, membranaceous, glabrous, margins crenate, the convex teeth often with truncate or emarginate apex, petioles 0.5–2.5 cm long. Flowers solitary, rarely two, axillary, yellow with pinkish or pale reddish spots inside, peduncles slender, 1.5–4.5 cm long, bibracteate, bracts linear or ovate, 2–4 mm long; 3, 2 lateral ones ovate-rotundate, 6.5–7 mm long, lip with biforked spur, 2.5 cm long; petals 3, standard apex apiculate, 1.1 cm long, central veins ridged like that of camel's back, lateral-wings bilobed, 1.5–2 cm long, short lobe narrower, apex caudate; stamens 4.5 mm long, staminate column flat inside, anther apices; obtuse ovary 4.5 mm long. Capsules 2.2 cm long. Seeds glabrous, 3 mm long.

Growing in the wet shady places in coniferous forest at altitudes of 2000–3000m high.

Taipei Dist.: Karashan, S. Sasaki s. n. Oct. 4, 1940. **Hsinchu Dist.:** Kuanwu, Huang 4143c, 4144A, 4129A, T. Suzuki 20672, S. Sasaki s. n. July 17, 1932; Tapachienshan, T. Ito s. n. June 8, 1915 (Type, photo, TAI). **I-lan Dist.:** Piyanan amb S. Sasaki s. n. July 26, 1922, between Sikikun and Piyanan amb, T. Hosokawa s. n. July 10, 1931, between Ugan and Piyanan amb, S. Suzuki 5027; Nanhuashan, S. Sasaki s. n. Oct. 1928, S. Suzuki s. n. July 20, 1937. **Taitung Dist.:** Yili, Masamune & Mori s. n. July 3, 1938?

3. *Impatiens uniflora* Hayata, Fl. Montana Formosae, 66–67, 1908. 单花鳳仙花 **Plate 3**

Herbs, 8–50 cm tall; stems winged, often flexuous toward upper parts. Leaves petiolate, petioles 0.3–2 cm long, blades ovate, elliptic to lanceolate-elliptic, 1–10 cm long, 1–5 cm wide, hispid, margins serrate. Flowers solitary, rarely two, axillary or terminal, reddish purple, pale purple or white, sometimes dotted with purplish or yellow spots inside of corolla, peduncles 3–5 cm long, pedicels 1–1.5 cm long, bibracteate, bracts ovate, 1–2 mm long; sepals 3, 2 lateral ones ovate, 4 mm long, apex caudate; petals 3, standard apex caudate, 9 mm long, lateral wings 3-lobed, 1.9 cm long, short lobe narrower, apex acute; stamens 5.5 mm long, staminate column prominently thickly ringed inside; anthers apices caudate; ovary 3.5 mm long. Capsules

1.7 cm long. Seeds ellipsoidal, granulate, 2.5 mm long.

Growing on mountain slopes in coniferous forest or in exposed grassland along a truck at altitudes of 1600–3000 m high.

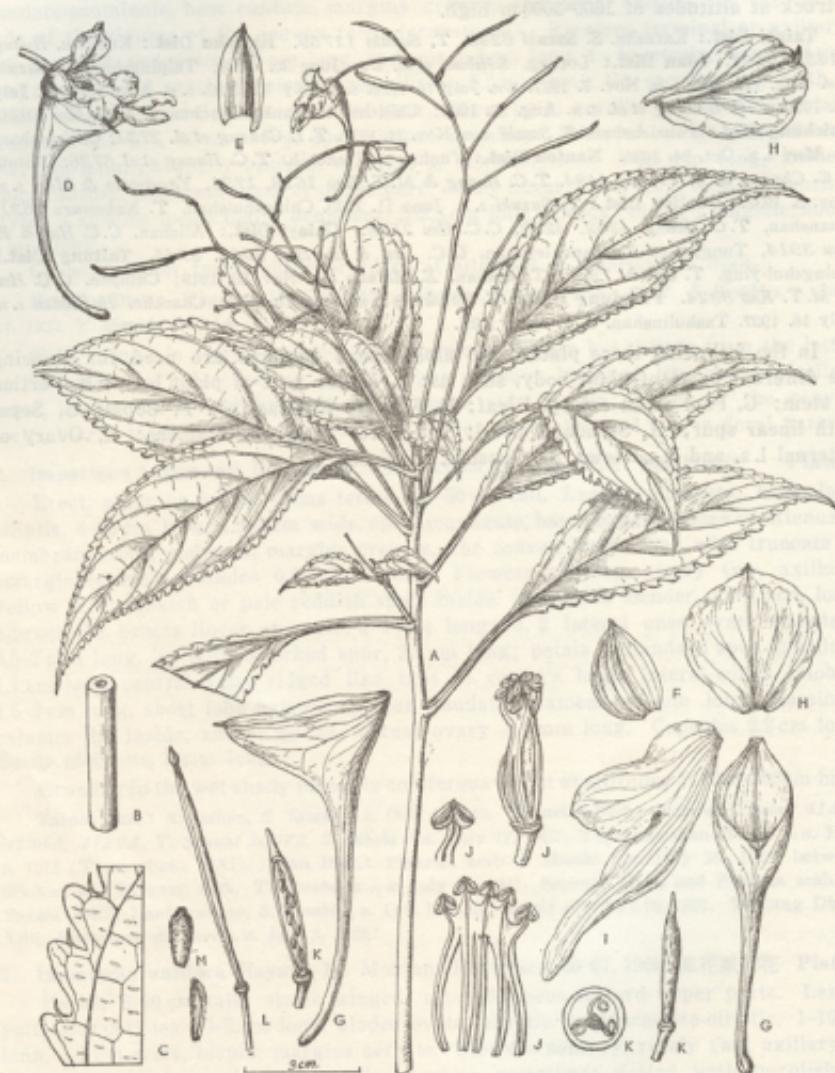
Taipei Dist.: Karashn, S. Suzuki 6248, T. Suzuki 11759. **Hsinchu Dist.:** Kuanwu, Huang 4143D, 4161. **I-lan Dist.:** Lotung, S. Hibino et al. s.n. June 30, 1938; Taipingshan, S. Suzuki s.n. Aug. 14, 1925, s.n. Nov. 7, 1927, s.n. July 16, 1929, s.n. July 17, 1929, s.n. Aug. 13, 1929, July 28, 1929, C.C. Chuang et al. s.n. Aug. 25, 1962; Chiliting to Nanhuashanchuang, C.C. Hsu 5922.

Taichung Dist.: Pahsienshan, S. Sasaki s.n. Nov. 24, 1922. **T.I. Chuang et al. 2731;** Chukaoshan, K. Mori s.n. Oct. 24, 1936. **Nantou Dist.:** Yunhai to Tienchih, T.C. Huang et al. 5726; Chitou, C.C. Chuang & M.T. Kao 4494. **T.C. Huang & M.T. Kao 1618, 1731,** Yamamoto & Mori s.n. Nov. 5, 1932. **Hualien Dist.:** T. Suzuki s.n. June 11, 1933, Chingshuiushan. **T. Nakamura 3621;** Luanshan, T.C. Huang 4202, 4208, C.C. Hsu 3568. **Chiayi Dist.:** Alishan, C.C. Hsu & R. Hsu 3914, Tungpu to Yushanchlenshan, C.C. Hsu & R. Hsu 3944, 3945. **Taitung Dist.:** Chingshui-ying, T. Suzuki 7926; Tawushan, E. Matuda s.n. Nov. 20, 1918; Chihsien, C.C. Hsu & M.T. Kao 3324. **Pingtung Dist.:** T. Hosokawa s.n. Aug. 21, 1932; Chaocho, H. Simizu s.n. July 16, 1937. Tashulinshan, C.F. Hsieh 727.

In the following three plates, the alphabetical symbols are used for showing the different parts of plant body, such as: A, Upper part of plant body; B, Portion of stem; C, Part of an enlarged leaf; D, Flower; E, Bract(s); F, Sepal; G, Sepal with linear spur; H, Standard petal; I, Lateral petal; J, Stamens; K, Ovary of external l.s. and c.s. views; L, Capsule; M, Seeds.



FIGURE 1. *Impatiens quadrangularis* Merr. subsp. *quadrangularis*. A. plant; B. stem; C. enlarged leaf; D. flower; E. bract; F. sepal; G. sepal with spur; H. standard petal; I. lateral petal; J. stamens; K. ovary; L. capsule; M. seeds.

Plate 1. *Impatiens devolii* Huang (Huang 4143a).

NOMENCLATURAL NOTE ON WU PI CHAO OR THE
BLACK-BARKED TEA PLANT



Plate 2. *Impatiens tayemonii* Hayata (T. Hosokawa s. n. July 10, 1931).

and *Prenanthes* may be included in the genus *Impatiens*.

The number of species in the genus *Impatiens* is now 850.

© 1973 Royal Botanic Gardens, Kew, Surrey, England.



Plate 3. *Impatiens uniflora* Hayata (Chuang & Kao 4494).